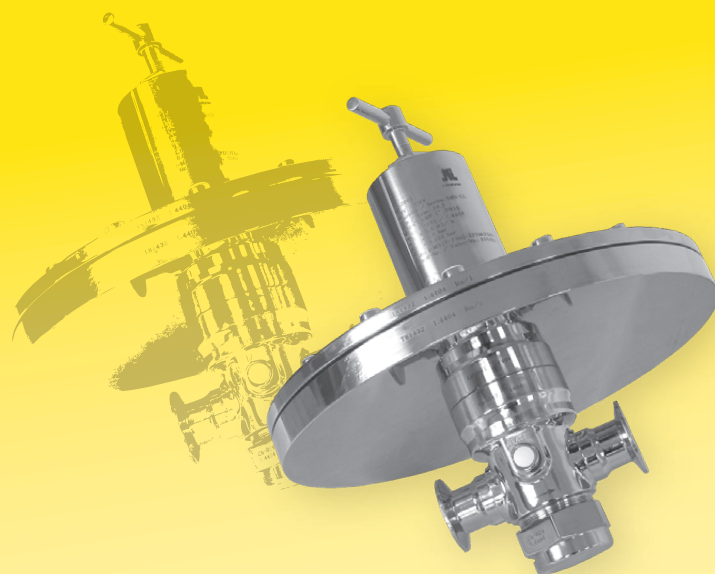
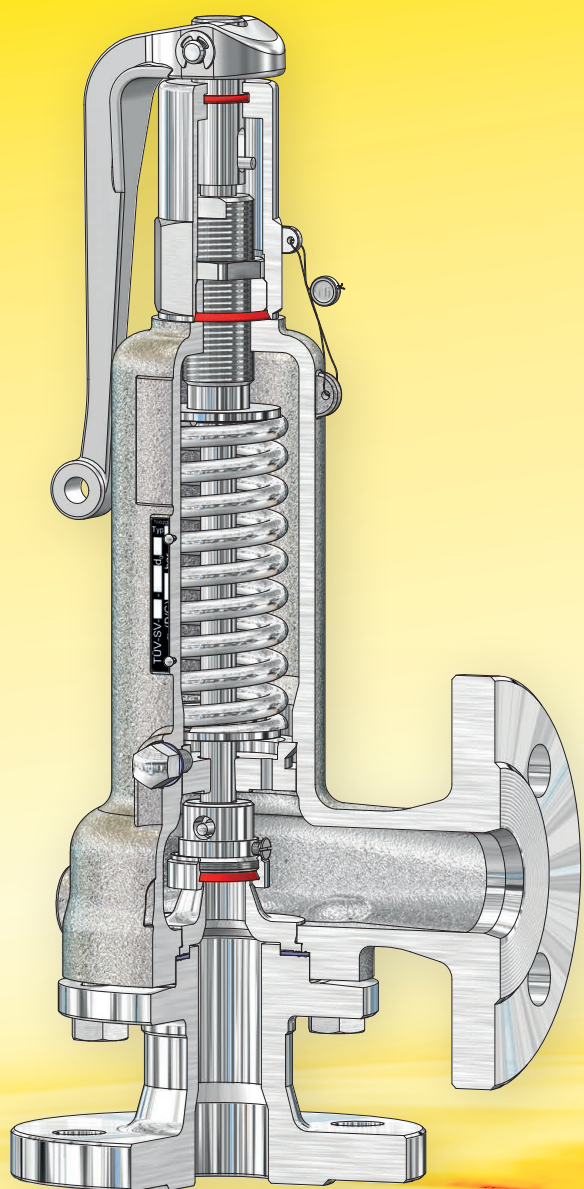


Catalog



Niezkodka

ARMATUREN

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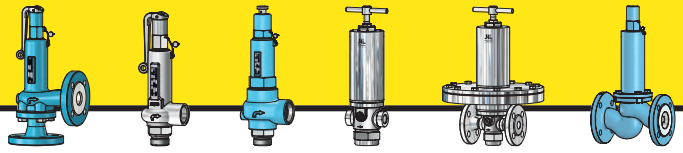
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• Contacts

- Headquarters and missions abroad



Niezgodka GmbH

Bargkoppelweg 73
 DE-22145 Hamburg
 Germany
 Phone: +49 (0) 40 679 469-0
 Fax: +49 (0) 40 679 469-59
 E-Mail: ni@niezgodka.de
 Internet: www.niezgodka.de



Our Company

With specializing in construction and production of valves in stainless steel, the company is successful since 1967. It is always the aim, to guarantee the best quality of the products for our customers by the highest requirements in function and material.

Construction, development and production are based on our internal quality management and on the latest state of the art as well as on the standards prevailing for fittings.

Operational safety, prevention of damages to health and environment as well as process flows without troubles, combined with economic efficiency and profitability are guaranteed by our fittings.

Fields of Application

Fields of application for our fittings are e.g.: petrochemistry, food processing, brewery technique, pharma technique, industrie, container engineering, production of petroleum and natural gas, naval engineering, power station, construction of vehicles and other plant engineering.

Various special constructions and specifications can be considered.

Our Products

Safety- and Relief Valves, right angle

Standard or full-lift-safety valves; event though as overflow-valves or regulating-valves; material stainless steel or brass, with soft-sealing; alternative with or without type-approval and CE-mark.

Open discharge Safety- and Relief Valves

Open discharge Valves with screwed inlet; material stainless steel or brass, with soft-sealing; alternative with or without type-approval and CE-mark.

Safety- and Relief Valves in food- and pharmacy design

Valves in food- and pharmacy design; different aseptic technique connections possible.

Pressure Reducing Valves and Initial Pressure Controller in food- and pharmacy design

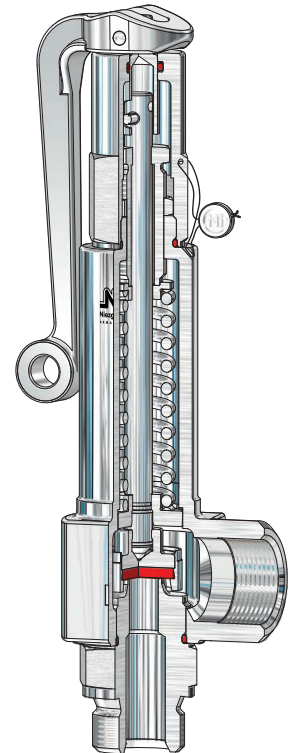
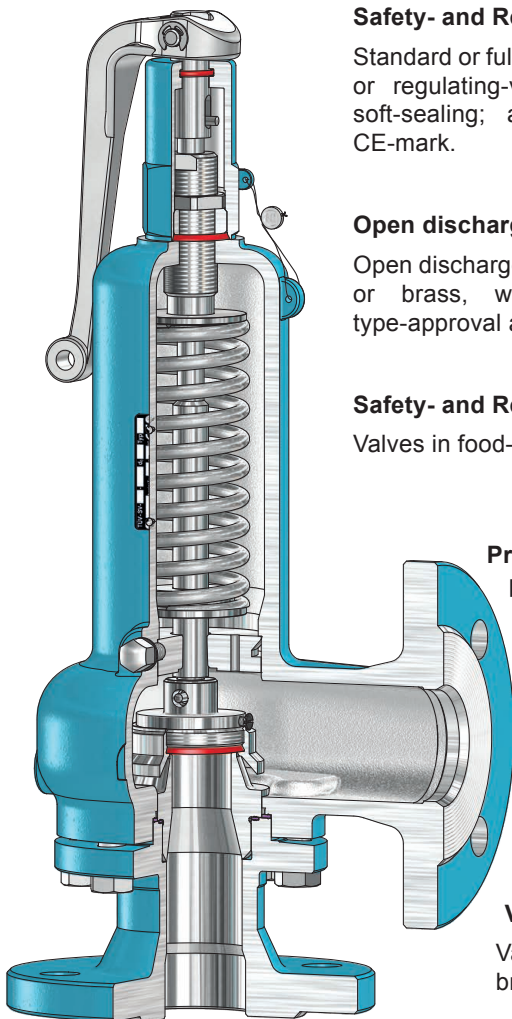
Valves for use in pharmaceutical or food industries; operated by piston or by diaphragm, different connections possible, for example with clamp connection DIN 32676, male union DIN 11851, aseptic connections DIN 11864.

Pressure Reducing Valves and Initial Pressure Controller

Valves; stainless steel; with screwed or flanged ends; operated by piston or diaphragm.

Vacuum Relief Valves / Vacuum- and Pressure Relief Valves

Vacuum- and Pressure Relief Valves; Vacuum Valves; material stainless steel or brass, with soft-sealing; application for gaseous media.





Preface

These corporate principles and the code of conduct are the general and indispensable action principles of Niezgodka GmbH and its representations. Niezgodka GmbH was founded in Hamburg in 1967 and is still family-owned. At the moment, approx. 60 employees are employed. They specialise in the development, production, sale of safety valves, relief valves, pressure reduction valves, upstream pressure controllers, under- and overpressure valves and special fittings at a high level.



Corporate principles

- Niezgodka GmbH considers itself a successful and internationally active service provider that represents high-quality products in the area of steel and stainless steel fittings due to continuous updates of technology standards.
- Continuous further development of technology standards and a continuous dialogue with the relevant classification companies TÜV Nord, Germanischer Lloyd, Lloyds Register, BV, DN, etc. as well as company-internal quality assurance measures warrant our market success.
- The gentle handling of resources in the interest of the environment, society and economy is an integral part of our business process. Wherever we work, we take into consideration the environmental requirements and observe the responsible handling of present resources.
- We maintain an open and cooperative dialogue with our customers and business partners. We are guided by the basic principles of trust, loyalty, transparency, fairness, reliability, consideration and respect. We use all experience and know-how acquired and present in the company in team work and active exchange of information.
- Niezgodka GmbH meets its social responsibility. In all countries, we observe the respective values and standards, human rights, legal and social orders in the sense of a Good Citizen.
- A cooperative management style involves employees in decision-making and makes teamwork the basis for our successful action. The promotion of an awareness of their responsibility among our employees by managers, as well as future-oriented HR planning and regular further and additional trainings secures our competence and quality standards.



Code of Conduct

Preface

Niezkodka GmbH and its representations have always felt bound not only to statutory provisions in all the partner countries, but also to internal provisions and ethical principles, the corporate culture is aligned with the highest standards of statutory provisions, such as the UN Human Rights Charter, the principle convention of the international work organisations and any other international conventions, national and local provisions in which the company is active (Compliance).

Sustainable economic and social success can only be achieved and ensured if rules, standards and values are complied with. We represent an honourable, honest conduct in compliance with the rules in everyday life in society. Suitable measures and their integration into daily business ensure compliance with the rules in our organisation and sharpen the awareness among our employees.

With the Code of Conduct, we give all employees of the company a binding rule that is to be the supporting pillar of our action to help manage the diverse business processes.

General conduct requirements

- Sustainable economic development and social renown are essentially characterised by the action and conduct of every single employee. Every employee of the company identifies with the company and aligns his conduct with the basic principle and the Code of Conduct to warrant the high renown of Niezkodka GmbH.
- All employees respect the internationally recognised human rights and actively work towards compliance with them. We reject any use of forced and mandatory labour. Child labour is forbidden. We observe minimum ages for admission to employment according to the proviso of state obligations. The compensation and benefits that are paid or provided for a regular working week correspond to at least the respective national statutory minimum standards or the minimum standards of the respective national business areas and applicable rates.
- Ethical origin, skin colour, gender, disability, philosophy, religion, nationality, sexual orientation, social origin or political attitudes, where based on democratic principles and tolerance towards others, are not of essence, since we commit to equal opportunities and equal treatment. Each of our employees is obliged to refrain from any kind of discrimination against others.
- The opening of personal and professional perspectives for our employees to promote motivation and employability are at the focus. Nevertheless, we expect that every employee has high demands to himself, his performance and health to further promote the company's renown.
- Supervisors bear responsibility for the company and their employees. They are examples and specifically observe the principles and the Code of Conduct. Regular information and explanation of the relevant obligations and rights warrants conduct in compliance with the rules. The supervisors are responsible for the rules not being violated in their area of obligation if they could have prevented or made this more difficult by appropriate supervision. The supervisors among each other also are obliged to trusting and good cooperation and to regular and comprehensive exchange of information.

Special conduct requirements

1. Avoiding conflicts of interest and corruption

- To avoid conflicts of interest between business work and private interest, the management and supervisors strive to prevent such conflict from even arising among the employees. Every employee is obliged to indicate possible conflicts of interest.
- Every employee is obliged to provide his labour force to the company to the company's good and to perform the tasks assigned to him to the best of his knowledge and skills. Secondary employment that is contrary to this obligation is not permitted, apart from volunteer work.
- In light of an unfalsified competition, we strictly reject any corrupt and company-damaging conduct. No employee must take any material or immaterial benefits from his work (e.g. money, benefits in kind, services. Etc.) This applies independently of whether the granted benefit can influence decisions. It is also forbidden to grant benefits to a business partner involved. Where there are any suspicions or legal doubts about the presence of corruption, employees must collect the management's and supervisor's advice.



2. Handling of business partners and third parties

- The fair and legal handling of business partners and third parties in light of unfalsified competition is one of our action principles. We are committed to the rules and values of competition law. We also pose the same requests to our business partners and third parties.
- We consider our company to be part of social development and carry this claim upwards as well. Therefore, we observe the basic rights of free speech, independence of media, personality rights and the right to information. The employees shall not state any opinions with which they could damage the company's renown and that of its business partners. In case of private opinions, reference to the company and its business partners or third parties should not be possible. We are obliged to tell the truth to all stakeholders.

3. Handling of information

- Compliance with all data privacy specifications as well as the right to informational self-determination is part of the principles according to which we maintain contractual or other relationships with our employees, representations, business partners or third parties. The collection, processing and use of personal data take place only where required and according to the statutory provisions. We comply with any claims under data privacy law at once.
- Every employee is obliged to comply with the data-privacy requirements and to maintain any business secrets and operational secrets the contents of which have been entrusted or otherwise disclosed to him secret. The management and the supervisors are obliged to inform the employees of the respective current data-privacy standards.

4. Work and health protection, sustainability

- The company considers its employees as a warranty for further development of the company targets and positioning on the market. Therefore, safety and health of our employees are warranted. The compliance with work protection and health protection provisions according to the respective national provisions is ensured. The business management and supervisors are obliged to monitor compliance at all times. The employees are also obliged not to engage in any conduct that may endanger them or other employees.
- To meet our social responsibility and our guiding principles, we use our power to continually improve the environmental compatibility of our products and their production. The protection of natural resources in the service of society and the future generations is part of our task. All employees commit to this task.

5. Obligation

- The management ensures compliance with the corporate principles and the Code of Conduct of the different countries and sites according to the proviso of the applicable laws and values. Additionally the management works towards the Code of Conduct being considered by business partners and third parties in their corporate policies.

6. Duration

- The Code of Conduct is valid for an indeterminate period of time.
The management is to adjust it to social, legal and political change and update it.

7. Violations of rules

- Every employee shall comply with the corporate principles, the Code of Conduct and all statutory and ethical principles of the respective country. Conduct not in compliance with the rules shall be subject to appropriate operational and statutory consequences. In doubt, every employee is obliged to ask for advice. The management and supervisors are available as contacts.

We hereby confirm that we represent honourable, honest action in compliance with the rules and commit to the above principles.
All claim groups are informed of our principles and our code of conduct.

V. Niezgodka - Seemann

Hamburg, den 02.03.2014

Verena Niezgodka-Seemann



From the North West:

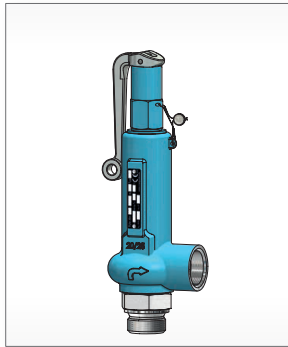
1)	From Heide approx. 90 km on the A 23 motorway towards Hamburg
2)	Change at the AS Hamburg-Eidelstedt junction No. 21 from the A 23 to the A 7 towards Flensburg, Kiel
3)	Proceed on the A 7 approx. 2.5 km and leave at the junction No. 23 AS Schnelsen-Nord
4)	Turn right onto the B 432 (Ring 3) towards Berlin, Lübeck
5)	Proceed on Ring 3 approx. 14 km to the point where you cross the B 434 and turn into <i>Saseler Markt</i>
6)	After approx. 175 m straight ahead to the <i>Berner Weg</i>
7)	After approx. 950 m straight ahead to the <i>Meiendorfer Mühlenweg</i>
8)	After approx. 1.45 km turn right into the <i>Beim Farenland</i> road
9)	After approx. 750 m turn half left into the <i>Karlshöher Weg</i>
10)	After approx. 300 m straight ahead to the <i>Berner Allee</i>
11)	After approx. 200 m straight ahead to the <i>Berner Strasse</i>
12)	After approx. 1.2 km turn left into the <i>Bargkoppelweg</i>
13)	You will have reached your destination after approx. 900 m on the left-hand side (<i>Bargkoppelweg 73, 22145 Hamburg</i>)

From the North:

1)	From Scandinavia / Puttgarden about 132 km on the E 47 / freeway A 1 , passing Lübeck to Hamburg
2)	At the exit No. 29 AS-Stapelfeld leave the freeway, turn right
3)	Drive on the federal road B 435 in direction to HH-Rahlstedt
4)	After approx. 3.5 km turn right in the Street <i>Höltigbaum</i>
5)	After approx. 2.3 km the B 75 and drive in the <i>Berner Straße</i>
6)	After approx. 750 m turn right in the <i>Bargkoppelweg</i>
7)	You will find us on the left hand side after 900 m (<i>Bargkoppelweg 73, 22145 Hamburg</i>)

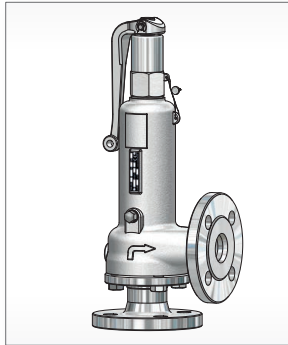
From the South:

1)	From South / Hannover drive on the freeway A 7 in direction to Hamburg to the Horster Dreieck
2)	Turn to the A 1 and drive about 16 km to motorway junction HH-Süd
3)	Stay on the A 1 in direction to Lübeck, after 14 km comes the motorway junction HH-Ost
4)	After 7 km at the exit No. 29 AS-Stapelfeld leave the freeway
5)	Turn left drive on the federal road B 435 in direction to HH-Rahlstedt
6)	After approx. 3.5 km turn right in the Street <i>Höltigbaum</i>
7)	After approx. 2.3 km the B 75 and drive in the <i>Berner Straße</i>
8)	After approx. 750 m turn right in the <i>Bargkoppelweg</i>
9)	You will find us on the left hand side after 900 m (<i>Bargkoppelweg 73, 22145 Hamburg</i>)



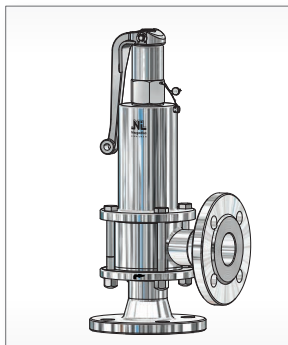
Thread Safety- / Relief-Valves, right angle

Typ	Fluid	Material				Connections size		PNE [bar(g)]	Set pressure		Valvehead
		-.1	-.2	-.3	-.7	G	DN		min [bar(g)]	max	
1	D/G/F	●	●	●		3/8 - 2	10 - 50	500	0,05 / 500	A - H, T	
5	D/G/F		●	●		1/4 - 3/8	8 - 10	200	0,40 / 200	C, D	
10	D/G/F	●	●	●		3/8 - 1 1/4	10 - 32	500	0,05 / 500	A - C, H, T	
14	D/G/F	●	●	●		3/8 - 3/4	10 - 20	500	0,20 / 500	A - C, E - H, T	
18	D/G/F	●	●	●		3/8 - 1 1/4	10 - 32	200	0,05 / 200	A - C, H, T	
19	D/G/F	●	●	●		3/4 - 1 1/2	20 - 40	130	0,05 / 130	A - C, H, T	
21	D/G/F		●			3/4 - 1	20 - 25	1100	80 / 1100	A, C, T	
21	D/G/F		●			3/4 - 1	20 - 25	1000	100 / 1100	A, C, T	
50	D/G/F		●	●		1/4 - 3/8	8 - 10	100	0,50 / 100	C	
140	D/G/F	●	●	●		3/8 - 3/4	10 - 20	500	0,20 / 500	A - C, H, T	



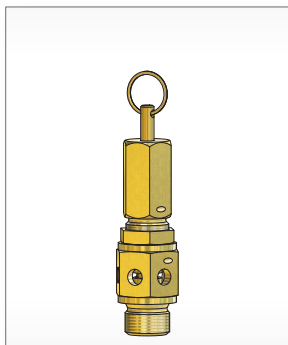
Flange Safety- / Relief-Valves, right angle

Typ	Fluid	Material				Connections size		PNE [bar(g)]	Set pressure		Valvehead
		-.1	-.2	-.3	-.7	G	DN		min [bar(g)]	max	
3	D/G/F	●	●	●		1/2 - 4	15 - 100	16 / 320	0,05 / 300	A - C, F - H, T	
30	D/G/F	●	●	●		1/2 - 4	15 - 100	16 / 63	0,05 / 40	A, C, H, T	
31	D/G/F	●	●	●		1/2 - 3	15 - 80	16 / 63	0,05 / 40	A, C, H, T	
32	D/G/F	●	●	●		1/2 - 2 1/2	15 - 65	16 / 160	0,10 / 250	A, C, H, T	
33	D/G	●	●	●		1/2 - 2	15 - 50	16 / 63	0,15 / 120	A, C, H, T	



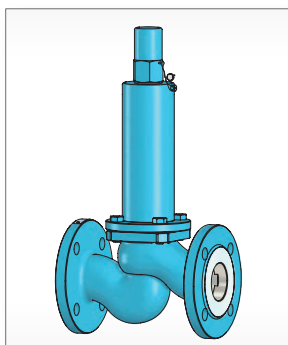
Discharge Safety- / Relief-Valves, Food - pharmacy

Typ	Fluid	Material			Connections size		PNE [bar(g)]	Set pressure		Valvehead
		-.1	-.2	-.3	G	DN		min [bar(g)]	max	
35	D/G/F		●		1/2 - 3	15 - 80	16 / 40	0,10 / 16	A - C, F, H, T	
35	D/G/F		●		1 + 2	25 + 50	16 / 40	0,10 / 16	A - C, H, T	



Open discharge Safety- / Relief Valves, with screwed

Typ	Fluid	Material			Connections size		PNE [bar(g)]	Set pressure		Valvehead
		-.1	-.2	-.3	G	DN		min [bar(g)]	max	
4	D/G/F		●		1/4 - 1/2	8 - 15	120	0,40 / 120	C, D	
6	D/G		●	●	1/2 - 1	15 - 25	16	0,04 / 10	C, E	
11	D/G	●	●		3/8 - 2	10 - 50	100	0,03 / 84	M	
62	F	●	●		1	25	55	0,10 / 55	A, C	
66	D/G/F	●	●		1/4 - 2	8 - 50	40	0,05 / 35	M	
67	D/G		●		1	25	10	0,05 / 3	C, D, E	
69	F/K/S		●	●	1 - 1 1/2	25 - 40	6	0,50 / 5,70	M	
98	D/G		●		1	25	10	-0,05 / 0,65	-	
110	D/G	●	●		3/8 - 2	10 - 50	100	0,03 / 84	M	



Flange Safety- / Flange Relief-Valves, var. constructions

Typ	Fluid	Material			Connections size	PNE [bar(g)]	Set pressure		Valvehead
		-.1	-.2	-.3			DN	min [bar(g)]	
7	D/G	●	●		150 - 350	6 - 16	0,40 / 0,88	A, C	
7	D/G	●	●		50 - 125	6 - 16	0,05 / 3,8	A, C	
12	G	●			100*	16	7,00 / 13,8	-	
13	D/G/F	●	●		15 - 150	16 - 40	0,06 / 30	A, C, F, T	
22	D/G/F		●		variable	1100	80 / 1100	A, C, T	
22	F		●		25	250	250	A, C, T	
24	F		●		15 (oval flange)	1000	35 / 1000	C	

* special flange



Pressure-Reducing-Valve, Industry - design

Typ	Fluid	Material -1 -2 -3	Connections size		Inlet pressure to [bar(g)] P ₁	Reduced pressure		K _{vs} value to [m³/h]
			G	DN		min [bar(g)] P ₂	max [bar(g)] P ₂	
70	D/G/F	●	1/8 - 2 1/2	6 - 65	100	0,25 / 73	28,0	
71	D/G/F	●	1/2 - 4	10 - 100	100	0,20 / 73	53,0	
74	D/G/F	●	1/4 - 2 1/2	8 - 65	25	0,005 / 0,45	28,0	
75	D/G/F	●	1/2 - 4	10 - 100	25	0,005 / 0,45	53,0	
76	D/G/F	●	1/2	15	600	15 / 232	0,63	

Stainless Steel Pressure-Reducing-Valve, Food - pharmacy - design

Typ	Fluid	Material -1 -2 -3	Connections size		Inlet pressure to [bar(g)] P ₁	Reduced pressure		K _{vs} value to [m³/h]
			G	DN		min [bar(g)] P ₂	max [bar(g)] P ₂	
70 SKM	G/F	●	1/8 - 1/4	6 - 8	16	1,00 / 7,0	0,63	
70 SKK	D/G/F	●	1/4 - 1/2	8 - 15	63	0,35 / 17,0	2,20	
70 SKS	D/G/F	●	1/2 - 3	15 - 80	100	0,25 / 73,0	28,50	
70 SKG	D/G/F	●	2 1/2 - 4	65 - 100	40	0,20 / 12,0	53,00	
70 SMK	D/G/F	●	1/4 - 1/2	8 - 15	25	0,005 / 0,45	2,20	
70 SMS	D/G/F	●	1/2 - 3	15 - 80	25	0,005 / 0,40	28,50	
70 SMG	D/G/F	●	2 1/2 - 4	65 - 100	25	0,005 / 0,30	53,00	

Initial-Pressure-Controller, Industry - design

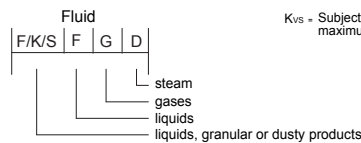
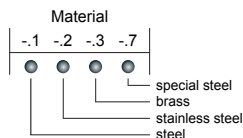
Typ	Fluid	Material -1 -2 -3	Connections size		Inlet pressure P ₁		K _{vs} value to [m³/h]
			G	DN	min [bar(g)]	max [bar(g)]	
80	D/G/F	●	1/4 - 2 1/2	8 - 65	0,25	/ 104,0	28,0
81	D/G/F	●	1/2 - 4	10 - 100	0,20	/ 104,0	53,0
84	D/G/F	●	1/4 - 2 1/2	8 - 65	0,005	/ 0,45	28,0
85	D/G/F	●	1/2 - 4	10 - 100	0,005	/ 0,45	53,0

Stainless Steel Initial-Pressure-Controller, Food - pharmacy - design

Typ	Fluid	Material -1 -2 -3	Connections size		Inlet pressure P ₁		K _{vs} value to [m³/h]
			G	DN	min [bar(g)]	max [bar(g)]	
80 SKK	D/G/F	●	1/4 - 1/2	8 - 15	0,35	/ 104,0	2,2
80 SKS	D/G/F	●	1/2 - 3	15 - 80	0,25	/ 59,0	28,5
80 SKG	D/G/F	●	2 1/2 - 4	65 - 100	0,20	/ 13,2	53,0
80 SMK	D/G/F	●	1/4 - 1/2	8 - 15	0,005	/ 0,45	2,2
80 SMS	D/G/F	●	1/2 - 3	15 - 80	0,005	/ 0,45	28,5
80 SMG	D/G/F	●	2 1/2 - 4	65 - 100	0,005	/ 0,38	53,0

Vacuum Relief Valves / Vacuum- and Pressure Relief Valves

Typ	Fluid	Material -1 -2 -3	Connections size G	Under pressure		Reduced pressure		Valvehead
				min [bar(g)] P _u	max [bar(g)] P _u	min [bar(g)] P _o	max [bar(g)] P _o	
9	D/G	●	1 - 2	-0,03				-
90	D/G	● ●	1/2 - 2	-0,01	/ -0,95	0,05	/ 4,0	-
91	D/G	● ●	1/2 - 2	-0,05	/ -0,95			-



K_{vs} - Subjects K_{vs}-value can be determined with a valve, the maximum possible throughput.

Certificates and approvals

Signs of safety and reliability nationally and internationally



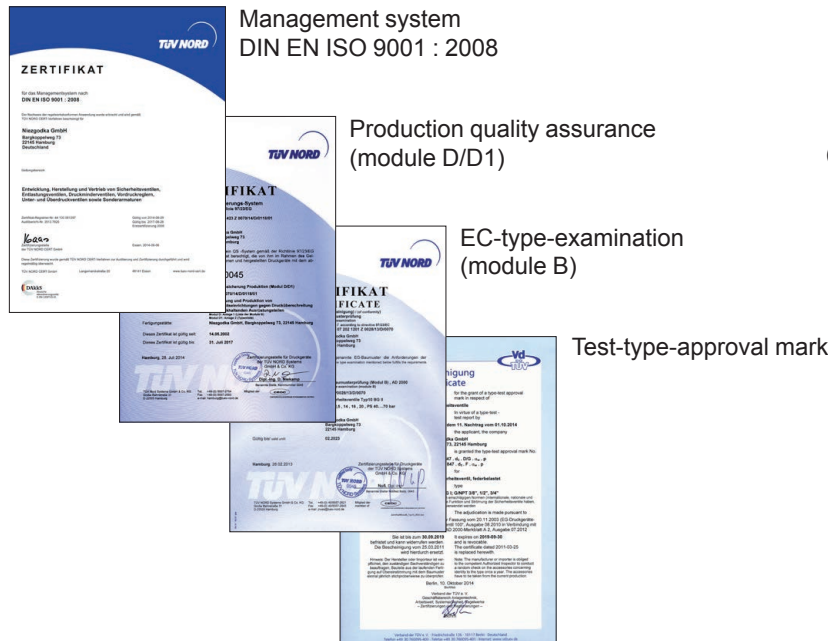
Approvals:

CE-certification according to the European Pressure Equipment Directive PED 2014/68/EU is required for numerous products and delivery areas.

More certificates are statements of individual quality, such as TÜV Nord, Lloyd's Register of Shipping, EAC, RTN.

The DIN EN ISO 9001 : 2008 stands for the in-house quality management - system. The most stringent requirements of national regulations ensure the highest possible safety.

– especially when it comes to reliability in your plant.



EAC-Certificate

RTN
(Russian Federation)



The manufacturer confirms by this declaration that design, manufacturing and inspection of these pressure equipments are in compliance with the directive 2014/68/EU as well as with the national specifications DIN EN ISO 4126-1, DIN EN 12266, DIN EN 12516, AD 2000-leaflet A2 and A4 VdTÜV-leaflet safety valve 100 and were subjected to the following conformity assessment procedure:

We have good contacts with most classification societies, which perform individual approvals in our home.

Classification societies:



American Bureau of Shipping



Lloyd's Register EMEA of Shipping



Registro Italiano Navale



Germanischer Lloyd



Stoomwezen



Det Norske Veritas



Russian Maritime Register of Shipping



China Classification Society

CERTIFICATE

Management system as per
DIN EN ISO 9001 : 2008

In accordance with TÜV NORD CERT procedures, it is hereby certified that

Niezigodka GmbH
Bargkoppelweg 73
22145 Hamburg
Germany

applies a management system in line with the above standard for the following scope

**Processing, production and distribution of safety valves, relief valves,
pressure reducing valves, initial pressure controllers, vacuum and
pressure relief valves as well as valves in special designs**

Certificate Registration No. 44 100 081297
Audit Report No. 3513 7920

Valid from 2014-08-29
Valid until 2017-08-28
Initial certification 2008



Certification Body
at TÜV NORD CERT GmbH

Essen, 2014-08-06

This certification was conducted in accordance with the TÜV NORD CERT auditing and certification procedures and is subject to regular surveillance audits.

TÜV NORD CERT GmbH

Langemarckstraße 20

45141 Essen

www.tuev-nord-cert.com

CERTIFICATE

Quality system
according to directive 97/23/EC

Certificate No.: 07 202 1423 Z 0070/14/D/0118/01

Name and address of bearer: **Niezgodka GmbH**
Bargkoppelweg 73
22145 Hamburg

We hereby certify that the manufacturer has established a quality system for the manufacturing of pressure equipment according to directive 97/23/EC. The manufacturer is entitled to mark the pressure equipment produced within the range of the quality system with the following mark:

CE 0045

Tested according to 97/23/EC: **production quality assurance (module D/D1)**
Test report No.: **1423 P 0070/14/D/0118/01**
Range of products: **Development and production of safety devices for protection against excessive pressure and pressure accessories**
Module D: Enclosure 1 (List of modules B)
Module D1: Enclosure 2 (Typelist)
Place of manufacture: **Niezgodka GmbH, Bargkoppelweg 73, 22145 Hamburg**
This certificate is valid since: **2002-05-14**
This certificate is valid until: **31. July 2017**

Hamburg, 28 July 2014

 **Zertifizierungsstelle für Druckgeräte**
der TÜV NORD Systems
GmbH & Co. KG

Dipl.-Ing. D. Niekamp
Certification Body EC-Reg.No. 0045

CERTIFICATE

TÜV NORD Systems GmbH & Co. KG

certifies that the company

Niezugodka GmbH

**Bargkoppelweg 73
22145 Hamburg**

has been verified and recognized
as welding workshop in the product range of

**safety valves, relief valves, pressure reducing valves,
initial pressure controllers, vacuum and pressure relief valves
as well as valves in special designs**

based on the requirements of the standard

DIN EN ISO 3834-2

Certificate-No.: 07-204-1201 HS 0611/16

The range of validity and details of the inspection can be seen
on the back page and in our

Report No.: 1201Z061116 / SAP No.: 8113371871

The company is using a quality assurance system,
technical equipment, qualified personnel and procedures for joining processes
for manufacturing and testing of welded products.

This certificate is valid until

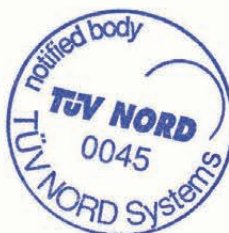
December 2018



Frank August

Certification body
of TÜV NORD Systems GmbH & Co. KG
Accredited Body, Reg. -No. 0045

Hamburg, 04.04.2016



TÜV NORD Systems GmbH & Co. KG • Technikzentrum • Certification Body
Große Bahnstraße 31 • 22525 Hamburg
Telefon (040) 8557-2368 • Fax (040) 8557-2710 • E-mail: technikzentrum@tuev-nord.de

CERTIFICATE

The TÜV NORD Systems GmbH & Co. KG

certifies that the company

Niezugodka GmbH

Bargkoppelweg 73
22145 Hamburg

has been verified and recognized
as manufacturer of

**safety valves, relief valves, pressure reducing valves,
initial pressure controllers, vacuum and pressure relief valves
as well as valves in special designs**

according to the rules of

AD 2000-Merkblatt HP0

Certificate-no.: 07-203-1201-HP-0611/16

The range of validity and details of the inspection can be taken from our

Report-no.: 1201Z061116 / SAP No.: 8113371871

The company has established a product-related quality system
together with personnel and equipment which assures
manufacturing and testing corresponding to the technical rules.

This certificate is valid until

December 2018

Hamburg, 04.04.2016



A handwritten signature in blue ink, appearing to read "Frank August".
Frank August
TÜV NORD Systems GmbH & Co. KG

TÜV NORD Systems GmbH & Co. KG • Technikzentrum
Notified Body for Pressure Equipment (Reg. -No. 0045)
Große Bahnstraße 31 • 22525 Hamburg

Telefon +49 (0)40 8557-0 • Fax +49 (0)40 8557-2710 • E-mail: technikzentrum@tuev-nord.de



ФЕДЕРАЛЬНАЯ СЛУЖБА
ПО ЭКОЛОГИЧЕСКОМУ, ТЕХНОЛОГИЧЕСКОМУ И АТОМНОМУ НАДЗОРУ

РАЗРЕШЕНИЕ

№ РС 00-049166

На применение

Оборудование (техническое устройство, материал):
Предохранительные и регулирующие устройства согласно
перечню в приложении к настоящему разрешению.

Код ОКП (ТН ВЭД): согласно приложению.

Изготовитель (поставщик): Фирма "Niezgodka GmbH" (Германия).

Основание выдачи разрешения: Техническая документация,
заключение экспертизы промышленной безопасности
ООО "ИКЦ "ПРОМТЕХБЕЗОПАСНОСТЬ" № 46-ОТГр/11 от 31.08.2012 г.
(рег. № 14-ТУ-(НХ)1514-2012).

Условия применения:

1. Обеспечение соответствия поставляемого оборудования
требованиям промышленной безопасности Российской Федерации.
2. Применение поставляемого оборудования на опасных
производственных объектах, связанных с обращением
взрывопожароопасных и химически опасных веществ, в соответствии
с условиями, ограничениями и требованиями технической
документации.

Срок действия разрешения до 18.10.2017

Дата выдачи 18.10.2012



Заместитель руководителя
С.Г. Радионова

А В 074631

ПРИЛОЖЕНИЕ

к разрешению № РРС 00-049166 от 18.10.2012
(без разрешения недействительно)

ПЕРЕЧЕНЬ

технических устройств производства фирмы "Niezgodka GmbH" (Германия),
разрешенных к применению на территории Российской Федерации:

№ п/п	Наименование технических устройств	Тип (марка)	Код ОКП (ТН ВЭД)
1.	Предохранительные устройства	1.2, 1.7, 3.1, 3.2, 3.7, 5.2, 6.2, 7.1, 7.2, 10.1, 10.2, 10.7, 11.1, 11.2, 13.1, 13.2, 14.1, 14.2, 14.7, 18.1, 18.2, 18.7, 19.1, 19.2, 19.7, 21.2, 22.2, 24.2, 30.1, 30.2, 30.7, 31.1, 31.2, 31.7, 32.1, 32.2, 32.7, 33.1, 33.2, 33.7, 35.2, 44.2, 66.2, 67.2, 69.2, 98.2, 110.1, 110.2, 140.1, 140.2, 140.7	37 4250 (8481 40 100 0)
		9.2, 90.2, 91.2, 90.3, 91.3, 4.3, 5.3, 6.3, 66.3, 69.3	37 4250 (8481 40 900 0)
2.	Регулирующие устройства	70.2, 71.2, 74.2, 75.2, 76.2, 70 SKM, 70 SKK, 70 SKS, 70 SKG, 70 SMK, 70 SMS	37 4250 (8481 10 190)
		80.2, 81.2, 84.2, 85.2, 80 SKK, 80 SKS, 80 SMK, 80 SMS	37 4250 (8481 80 59)



Заместитель руководителя
С.Г. Радионова

АВ 079042



СЕРТИФИКАТ СООТВЕТСТВИЯ

№ ТС RU C-DE.МЮ62.В.02602

Серия RU № 0277322

ОРГАН ПО СЕРТИФИКАЦИИ продукции Общество с ограниченной ответственностью «ПРОММАШ ТЕСТ».

Место нахождения: 115114, Российская Федерация, город Москва, Дербеневская набережная, дом 11, помещение 60.
 Фактический адрес: 115114, Российская Федерация, город Москва, Дербеневская набережная, дом 11, помещение 60.
 Телефон: +7 (495) 775-48-45, факс: +7 (495) 775-48-45, адрес электронной почты: info@prommashtest.ru. Аттестат аккредитации регистрационный № РОСС RU.0001.11МЮ62 выдан 01.12.2014 года Федеральной службой по аккредитации

ЗАЯВИТЕЛЬ Общество с Ограниченной Ответственностью «ЕвропаКомплектСервис».

Основной государственный регистрационный номер: 1083120001084.
 Место нахождения: 309290, Российская Федерация, Белгородская область, город Шебекино, улица Ржевское шоссе, дом 1
 Фактический адрес: 309290, Российская Федерация, Белгородская область, город Шебекино, улица Ржевское шоссе, дом 1
 Телефон: 74724831458, факс: 74724830424, адрес электронной почты: info@ekoms.ru

ИЗГОТОВИТЕЛЬ Niezgodka GmbH.

Место нахождения: ГЕРМАНИЯ, Bargkoppelweg 71-73,D – 22145 Hamburg
 Фактический адрес: ГЕРМАНИЯ, Bargkoppelweg 71-73,D – 22145 Hamburg

ПРОДУКЦИЯ Арматура промышленная трубопроводная: клапаны предохранительные типы - согласно приложению, бланк № 0236294.

Продукция изготовлена в соответствии с документацией - согласно приложению, бланк № 0236294.

Серийный выпуск

КОД ТН ВЭД ТС 8481 40 100 0, 8481 40 900 9

СООТВЕТСТВУЕТ ТРЕБОВАНИЯМ Технического регламента Таможенного союза ТР ТС 032/2013 "О безопасности оборудования, работающего под избыточным давлением"

СЕРТИФИКАТ ВЫДАН НА ОСНОВАНИИ протоколов испытаний №№ 16026-07-15, 16027-07-15 от 30.07.2015 года. Испытательная лаборатория Общество с ограниченной ответственностью «АкадемСиб», аттестат аккредитации регистрационный № РОСС RU.0001.21AB09 действителен до 01.08.2016 года; фактический адрес: 630024, Российская Федерация, Новосибирская область, город Новосибирск, улица Бетонная, дом 14; акта анализа состояния производства № пм00079АП от 03.03.2015 года органа по сертификации Общества с ограниченной ответственностью «ПРОММАШ ТЕСТ»; документации изготовителя - согласно приложению, бланк № 0236295.

ДОПОЛНИТЕЛЬНАЯ ИНФОРМАЦИЯ Условия и сроки хранения продукции, срок службы (годности) указаны в прилагаемой изготовителем эксплуатационной документации - согласно приложению, бланк № 0236295.

СРОК ДЕЙСТВИЯ С 10.09.2015 ПО 09.09.2020 ВКЛЮЧИТЕЛЬНО



Руководитель (уполномоченное
лицо) органа по сертификации

Эксперт (эксперт-аудитор)
(эксперты (эксперты-аудиторы))

10.09.2015

ПО

09.09.2020

ВКЛЮЧИТЕЛЬНО

(подпись)

(подпись)

А.П. Филатчев

(инициалы, фамилия)

Ю.А. Будников

(инициалы, фамилия)

ПРИЛОЖЕНИЕ

К СЕРТИФИКАТУ СООТВЕТСТВИЯ № ТС RU C-DE.MIO62.B.02602


Серия RU № **0236294**

КОД ТН ВЭД ТС	Наименование, типы, марки, модели однородной продукции, составные изделия или комплекса	Обозначение документации, в соответствии с которой выпускается продукция
8481 40 100 0	Арматура промышленная трубопроводная: клапаны предохранительные типы: 1.1; 1.2; 1.7; 3.1; 3.2; 3.7; 5.2; 6.2; 7.1; 7.2; 10.1; 10.2; 10.6; 10.7; 11.1; 11.2; 13.1; 13.2; 14.1; 14.2; 14.6; 14.7; 18.1; 18.2; 18.6; 18.7; 19.1; 19.2; 19.7; 21.2; 22.2; 24.2; 30.1; 30.2; 30.7; 31.1; 31.2; 31.7; 32.1; 32.2; 32.7; 33.1; 33.2; 33.7; 35.2; 44.2; 50.2; 50.6; 50.7; 66.2; 67.2; 69.2; 98.2; 110.1; 110.2; 140.1; 140.2; 140.6; 140.7	Директива 97/23/ЕС «Оборудование, работающее под давлением»; DIN EN ISO 4126-1: 2013 «Предохранительные устройства для защиты от избыточного давления- Часть 1: Предохранительные клапаны»; DIN EN 12516-1-2005 «Клапаны промышленные. Прочность конструкции кожуха. Часть 1. Табличный метод для стальных кожухов клапанов»; AD-2000-Merkblätter A2 «Технические правила. Устройства безопасности от избыточного давления - предохранительные клапаны» AD-2000-Merkblätter A4 «Технические правила. Корпус арматуры»
8481 40 900 9	9.2; 90.2; 91.2; 90.3; 91.3; 4.3; 5.3; 6.3; 66.3; 69.3	Директива 97/23/ЕС «Оборудование, работающее под давлением»; DIN EN ISO 4126-1: 2013 «Предохранительные устройства для защиты от избыточного давления- Часть 1: Предохранительные клапаны»; DIN EN 12516-1-2005 «Клапаны промышленные. Прочность конструкции кожуха. Часть 1. Табличный метод для стальных кожухов клапанов»; AD-2000-Merkblätter A2 «Технические правила. Устройства безопасности от избыточного давления - предохранительные клапаны» AD-2000-Merkblätter A4 «Технические правила. Корпус арматуры»



Руководитель (уполномоченное лицо) органа по сертификации

Эксперт (эксперт-аудитор)
(эксперты (эксперты-аудиторы))


 (подпись)

 (подпись)

А.П. Филатчев

(инициалы, фамилия)

Ю.А. Будников

(инициалы, фамилия)

ПРИЛОЖЕНИЕ

К СЕРТИФИКАТУ СООТВЕТСТВИЯ № ТС RU C-DE.MIO62.B.02602

Серия RU № **0236295**

Сведения о документах, подтверждающих соответствие продукции требованиям технического регламента Таможенного союза

1. Обоснование безопасности № 493240-1030140-2015 ОБ;
2. Руководство по эксплуатации предохранительных клапанов № Niezgodka -01-2015 РЭ;
3. Паспорта на предохранительные клапаны;
4. Проектная документация № № 010-X-1-006-V-001; 030-X-1-012-V-001;
5. Результаты прочностных расчётов предохранительных клапанов;
6. Технологические процессы по изготовлению предохранительных клапанов;
7. Протоколы испытаний предохранительных клапанов;
8. Сертификаты соответствия в отношении материалов;
9. Документы, подтверждающие квалификацию специалистов и персонала



Руководитель (уполномоченное
лицо) органа по сертификации

Эксперт (эксперт-аудитор)
(эксперты (эксперты-аудиторы))

(Handwritten signature)
(подпись)

(Handwritten signature)
(подпись)

А.П. Филатчев

(инициалы, фамилия)

Ю.А. Будников

(инициалы, фамилия)



ТАМОЖЕННЫЙ СОЮЗ ДЕКЛАРАЦИЯ О СООТВЕТСТВИИ

Заявитель Общество с ограниченной ответственностью «ЕвропаКомплектСервис».

Основной государственный регистрационный номер: 1083120001084.

Место нахождения: 309290, Российская Федерация, Белгородская область, город Шебекино, улица Ржевское шоссе, 1

Фактический адрес: 309290, Российская Федерация, Белгородская область, город Шебекино, улица Ржевское шоссе, 1

Телефон: 74724831458, факс: 74724830424, адрес электронной почты: info@ekoms.ru

в лице Заместителя директора Голомбек Галины Леонидовны

заявляет, что

Арматура промышленная трубопроводная (смотри приложение № 1)

Продукция изготовлена в соответствии с ТР ТС 010/2011 "О безопасности машин и оборудования"

изготовитель Niezgodka GmbH.

Место нахождения: ГЕРМАНИЯ, Bargkoppelweg 71-73,D – 22145 Hamburg

Фактический адрес: ГЕРМАНИЯ, Bargkoppelweg 71-73,D – 22145 Hamburg

код ТН ВЭД ТС 8481 40 100 0, 8481 40 900 9, 8481 10 190 8, 8481 80 599 0

Серийный выпуск

соответствует требованиям

ТР ТС 010/2011 "О безопасности машин и оборудования"

Декларация о соответствии принята на основании

протоколов испытаний №№ 89-08, 90-08, 91-08, 92-08 от 10.08.2015 года. Испытательный центр Общество с ограниченной ответственностью «ПромСертЮг», аттестат аккредитации регистрационный № РОСС RU.04ИАНО.002 действителен до 04.08.2016 года, адрес места нахождения: 344000, город Ростов-на-Дону, улица Береговая, дом 8, офис 204, адрес места осуществления деятельности: 353620, Краснодарский край, Щербиновский район, станица Старощербиновская, улица Красная, 119, литер В; 620102, РОССИЯ, Свердловская область, город Екатеринбург, улица Начдива Васильева, дом 1, здание производственного и бытового корпуса №4; 630008, город Новосибирск, улица Кирова 113; 153024, Ивановская область, город Иваново, улица Калашникова, дом 16

Дополнительная информация

Условия хранения продукции в соответствии с требованиями ГОСТ 15150-69. Срок хранения (службы, годности) указан в прилагаемой к продукции товаросопроводительной документации и/или эксплуатационной документации

Декларация о соответствии действительна с даты регистрации по 12.08.2020 включительно.



Г.Л. Голомбек

Г.Л. Голомбек

(инициалы и фамилия руководителя организации-заявителя или физического лица, зарегистрированного в качестве индивидуального предпринимателя)

Сведения о регистрации декларации о соответствии:

Регистрационный номер декларации о соответствии: ТС № RU Д-DE.АЛ32.В.05782

Дата регистрации декларации о соответствии 13.08.2015

ТАМОЖЕННЫЙ СОЮЗ

ПРИЛОЖЕНИЕ № 1

К ДЕКЛАРАЦИИ О СООТВЕТСТВИИ ТС № RU Д-ДЕ.АЛ32.В.05782

Сведения о продукции, в отношении которой принята декларация о соответствии

Код(ы) ТН ВЭД ТС	Наименование продукции, сведения о продукции, обеспечивающие её идентификацию (тип, марка, модель, артикул и др.)	Обозначение документации, в соответствии с которой выпускается продукция
	Арматура промышленная трубопроводная:	
8481 40 100 0	Клапаны предохранительные: 1.1,1.2, 1.7, 3.1, 3.2, 3.7, 5.2, 6.2, 7.1, 7.2, 10.1, 10.2,10.6, 10.7, 11.1, 11.2, 13.1, 13.2, 14.1, 14.2,14.6, 14.7, 18.1, 18.2,18.6, 18.7, 19.1, 19.2, 19.7, 21.2, 22.2, 24.2, 30.1, 30.2, 30.7, 31.1, 31.2, 31.7, 32.1, 32.2, 32.7, 33.1, 33.2, 33.7, 35.2, 44.2,50.2,50.6,50.7, 66.2, 67.2, 69.2, 98.2, 110.1, 110.2, 140.1, 140.2,140.6, 140.7	
8481 40 900 9	Клапаны предохранительные: 9.2, 90.2, 91.2,90.3 91.3,4.3, 5.3, 6.3, 66.3, 69.3	
8481 10 190 8, 8481 80 599 0	Клапаны регулирующие 70.2, 71.2, 74.2, 75.2, 76.2, 70 SKM, 70 SKK, 70 SKS, 70 SKG, 70 SMK, 70 SMS 80.2, 81.2, 84.2 85.2, 80 SKK, 80 SKS, 80 SMK, 80 SMS	



Г.Л. Голомбек

инициалы и фамилия руководителя организации-заявителя или физического лица, зарегистрированного в качестве индивидуального предпринимателя.



ТАМОЖЕННЫЙ СОЮЗ ДЕКЛАРАЦИЯ О СООТВЕТСТВИИ

Заявитель Общество с ограниченной ответственностью «ЕвропаКомплектСервис».

Основной государственный регистрационный номер: 1083120001084.

Место нахождения: 309290, Российская Федерация, Белгородская область, город Шебекино, улица Ржевское шоссе, 1

Фактический адрес: 309290, Российская Федерация, Белгородская область, город Шебекино, улица Ржевское шоссе, 1

Телефон: 74724831458, факс: 74724830424, адрес электронной почты: info@ekoms.ru

В лице Заместителя директора Голомбек Галины Леонидовны

заявляет, что

Оборудование, работающее под избыточным давлением 1 и 2 категории: арматура промышленная трубопроводная: клапаны регулирующие, типы: 70.2, 71.2, 74.2, 75.2, 76.2, 70 SKM, 70 SKK, 70 SKS, 70 SKG, 70 SMK, 70 SMS, 80.2, 81.2, 84.2 85.2, 80 SKK, 80 SKS, 80 SMK, 80 SMS

Продукция изготовлена в соответствии с ТР ТС 032/2013 «О безопасности оборудования, работающего под избыточным давлением»

изготовитель Niezgodka GmbH.

Место нахождения: ГЕРМАНИЯ, Bargkoppelweg 71-73,D – 22145 Hamburg

Фактический адрес: ГЕРМАНИЯ, Bargkoppelweg 71-73,D – 22145 Hamburg

код ТН ВЭД ТС 8481 10 190 8, 8481 80 599 0

Серийный выпуск

соответствует требованиям

ТР ТС 032/2013 "О безопасности оборудования, работающего под избыточным давлением"

Декларация о соответствии принята на основании

протоколов испытаний №№ 173-08, 174-08 от 11.08.2015. Испытательный центр Общество с ограниченной ответственностью «ПромСертЮг», аттестат аккредитации регистрационный № РОСС RU.04ИАНО.002 действителен до 04.08.2016 года, адрес места нахождения: 344000, город Ростов-на-Дону, улица Береговая, дом 8, офис 204, адрес места осуществления деятельности: 353620, Краснодарский край, Щербиновский район, станица Старощербиновская, улица Красная, 119, литер В; 620102, РОССИЯ, Свердловская область, город Екатеринбург, улица Начдива Васильева, дом 1, здание производственного и бытового корпуса №4; 630008, город Новосибирск, улица Кирова 113; 153024, Ивановская область, город Иваново, улица Калашникова, дом 16. Предоставленная документация (смотри приложение №1)

Дополнительная информация

Условия хранения продукции в соответствии с требованиями ГОСТ 15150-69. Срок хранения (службы, годности) указан в прилагаемой к продукции товаросопроводительной документации и/или эксплуатационной документации

Декларация о соответствии действительна с даты регистрации по 13.08.2020 включительно.



Г.Л. Голомбек

(инициалы и фамилия руководителя организации-заявителя или физического лица, зарегистрированного в качестве индивидуального предпринимателя)

Сведения о регистрации декларации о соответствии:

Регистрационный номер декларации о соответствии: ТС № RU Д-DE.МЮ62.В.02316

Дата регистрации декларации о соответствии 14.08.2015

ТАМОЖЕННЫЙ СОЮЗ
ПРИЛОЖЕНИЕ № 1
К ДЕКЛАРАЦИИ О СООТВЕТСТВИИ № ТС RU Д-ДЕ.МЮ62.В.02316

Сведения о документах, подтверждающих соответствие продукции требованиям технического регламента Таможенного Союза:

1. Обоснование безопасности (493240-1030141-2015 ОБ);
2. Паспорта оборудования (70 SKS(Y 45590) - НИ.010.070.SKS.00.ПС; 74.2 (Y 35456) - НИ.010.074.2.00.ПС; 80.2 (Z 03249) - НИ.010.080.2.00.ПС; 80.2SKS (Y 37978) - НИ.010.080.2.SKS.00.ПС);
3. Руководство по эксплуатации (НИ.010.070/080.00.РЭ);
4. Сборочный чертеж (70 SKS-070-2-1-K038-G012M-G012M-K-001,070-2-3-K084-V050G-V050G-K-001; 74.2-074-2-2-M045-G114M-G114M-K-001; 80.2 - 080-2-2-K064-V025G-V025G-K-001; 80.2SKS - 080-2-3-K064-A212G- A212G -K-001);
5. Расчет на прочность оборудования (STK 1 70SKS – P1354 2 03; STK 1 74.2-P0504 3 02; STK 1 80.2-P 0250 4 01; STK 1 80.2SKS-P 0264 5 01);
6. Протоколы заводских испытаний (70 SKS-б/н (заказ № 3800090595) от 01.02.2012 года; 74.2-б/н (заказ № 787) от 12.09.2011 года; 80.2 - б/н (заказ № 3800090773) от 03.02.2012 года; 80.2 SKS - б/н (заказ № 903) от 06.10.2011 года);
7. Комплект сертификатов на материалы и комплектующие (EXP/181/3 от 26.09.2010 года б/н (заказ № 510318) от 31.07.2008 года; 1827 НА от 26.01.2012 года; 2011004024 от 30.03.2011 года; №: 1828 НА от 27.01.2012 года; CJ-11-0395 от 19.04.2011 года; 1817 НА от 25.01.2012 года; 2011004024 от 24.01.2012 года; 1451 S от 02.11.2011 года; 1201 НА от 26.01.2012 года; б/н (заказ № 8618) от 21.07.2010 года. 1451 НА от 02.11.2011 года; б/н (заказ № 75079) от 19.04.2011 года; 081515 от 17.06.2009 года; б/н (заказ № 2800121797.P00030) от 23.06.2010 года; 090760 от 15.02.2010 года; б/н (заказ № 514200) от 23.11.2010 года; 1326W149900 от 09.11.2010 года; 616 S от 12.09.2011 года; 53315 от 29.09.2010 года; 8.153 от 05.06.2008 года; 633.863 от 13.12.2009 года; 1336 S от 06.10.2011 года; б/н (заказ № 570057) от 05.10.2005 года; 100952 от 09.08.2010 года.



Г.Л. Голомбек

инициалы, фамилия руководителя организации (уполномоченного им лица) или индивидуального предпринимателя

Declaration of Conformity

according to Annex IV of Directive (PED) 2014/68/EU



The Niezgodka GmbH confirms by this declaration that design, manufacturing and inspection of these pressure equipments are in compliance with the directive 2014/68/EU as well as with the national specifications DIN EN ISO 4126-1, DIN EN 12266, DIN EN 12516, AD 2000-leaflet A2 and A4 VdTÜV-leaflet safety valve 100 and were subjected to the following conformity assessment procedure:

Modul B + D - Category IV

acc. to article 4 and annex II
EC-type examination - certificate no.: see table
production quality assurance

Certificate No. 07 202 1423 Z 0070/14/D/0118/01

The monitoring is performed by

TÜV CERT – certificate authority the
TÜV NORD Systems GmbH & Co. KG
Große Bahnstraße 31
DE-22525 Hamburg

Certification Body EC-Reg.No. 0045



Safety Valve Type	Nominal Size Inlet	TÜV-Approval	EC certificate No.
6	DN 15 - DN 25	TÜV-SV 604	07 202 1201 Z 0006/13/D/0070
7	DN 50 - DN 125	TÜV-SV 725	07 202 1201 Z 0028/14/D/0070
10 BG I	DN 10 - DN 20	TÜV-SV 847	07 202 1201 Z 0004/13/D/0070 Rev.1
10 BG II	DN 20 - DN 50	TÜV-SV 878	07-202 1201 Z 0028/13/D/0070
12.1	DN 100	TÜV-SV 657	07-202 1201 Z 0093/14/D/0070 Rev.1
19	DN 20 - DN 50	TÜV-SV 940	07 202 1201 Z 0031/13/D/0070
21, 22	DN 20 - DN 25	TÜV-SV 1036	07 202 1201 Z 0005/13/D/0070
30, 31 BG I	DN 15 - DN 25	TÜV-SV 713	07 202 1201 Z 0115/13/D/0070
30, 31 BG II	DN 25 - DN 40	TÜV-SV 820	07 202 1201 Z 0116/13/D/0070
30, 31 BG III	DN 40 - DN 65	TÜV-SV 896	07 202 1201 Z 0011/14/D/0070 Rev.1
30, 31 BG IV	DN 65 - DN 100	TÜV-SV 902	07 202 1201 Z 0012/14/D/0070 Rev.1
32 BG I - do 8	DN 15	TÜV-SV 906	07 202 1201 Z 0068/14/D/0070
32 BG I - do 12,5	DN 15	TÜV-SV 920	07 202 1201 Z 0049/14/D/0070
32 BG II	DN 20 - DN 25	TÜV-SV 887	07 202 1201 Z 0067/14/D/0070
32 BG III	DN 32 - DN 40	TÜV-SV 900	07 202 1201 Z 0051/14/D/0070
32 BG IV	DN 50 - DN 65	TÜV-SV 901	07 202 1201 Z 0075/14/D/0070
35	DN 25 u. DN 50	TÜV-SV 1045	07 202 1201 Z 0130/13/D/0070
50	DN 8 - DN 10	TÜV-SV 1141	07 202 1201 Z 0121/15/D/0070
62	DN 25 - DN 32	TÜV-SV 984	07 202 1201 Z 0073/13/D/0070
66	DN 8 - DN 50	TÜV-SV 809	07 202 1201 Z 0057/13/D/0070
67	DN 25	TÜV-SV 885	07 202 1201 Z 0074/13/D/0070
69	DN 20 -	TÜV-SV 935	07 202 1201 Z 0099/13/D/0070
98	DN 25 DN 50	TÜV-SV 1066	07 202 1201 Z 0100/13/D/0070
110 BG I	DN 10 - DN 20	TÜV-SV 1050	07 202 1201 Z 0041/13/D/0070 Rev.1
110 BG II	DN 15 - DN 50	TÜV-SV 990	07 202 1201 Z 0040/13/D/0070
140 BG I	DN 10 - DN 20	TÜV-SV 1067	07 202 1201 Z 0056/14/D/0070 Rev.1

V. Niezgodka - Seemann

Hamburg, 01.08.2016

Niezgodka GmbH
Bargkoppelweg 73
DE-22145 Hamburg

Manufacturer

D. Niezgodka

authorized subscriber

Management: Dorrit Niezgodka, Verena Niezgodka-Seemann
Registered at the District Court Hamburg, HRB No. 29139

Niezgodka GmbH

www.niezgodka.de

KON-1
01 / 2017

GB

Declaration of Conformity

according to Annex IV of Directive (PED) 2014/68/EU



1

The signing manufacturer confirms by this declaration that design, manufacturing and inspection of these pressure equipments are in compliance with the directive 2014/68/EU as well as with the national specifications DIN EN 12266, DIN EN 12516, AD 2000-leaflet A4 and were subjected to the following conformity assessment procedure:

Modul D1 - Category II

acc. to article 4 and annex II

production quality assurance

Certificate No. 07 202 1423 Z 0070/14/D/0118/01

The monitoring is performed by

TÜV CERT – certificate authority the
TÜV NORD Systems GmbH & Co. KG
Große Bahnstraße 31
DE-22525 Hamburg

Certification Body EC-Reg.No. 0045

CE 0045



Type	Nominal Size Inlet	Pressure accessory
3	DN 32 - DN 100	Relief-Valve
7	DN 150 - DN 350	Relief-Valve
13	DN 32 - DN 150	Relief-Valve
19	DN 32 - DN 50	Relief-Valve
33	DN 32 - DN 50	Relief-Valve
35	DN 32 - DN 80	Relief-Valve
70	DN 32 - DN 50	Pressure-Reducing-Valve
71	DN 32 - DN 100	Pressure-Reducing-Valve
74, 75	DN 32 - DN 50	Pressure-Reducing-Valve
70 SKS	DN 32 - DN 80	Pressure-Reducing-Valve
70 SKG	DN 65 - DN 125	Pressure-Reducing-Valve
70 SMS	DN 32 - DN 65	Pressure-Reducing-Valve
70 SMG	DN 65 - DN 100	Pressure-Reducing-Valve
77	DN 32 - DN 65	Vaccum-Pressure Control-Valve
78	DN 32 - DN 65	Vaccum-Pressure Control-Valve
80	DN 32 - DN 65	Initial-Pressure-Controller
81	DN 32 - DN 65	Initial-Pressure-Controller
84	DN 32 - DN 65	Initial-Pressure-Controller
85	DN 32 - DN 50	Initial-Pressure-Controller
80 SKS	DN 32 - DN 80	Initial-Pressure-Controller
80 SKG	DN 65 - DN 100	Initial-Pressure-Controller
80 SMS	DN 32 - DN 65	Initial-Pressure-Controller
80 SMG	DN 65 - DN 100	Initial-Pressure-Controller
SE-ÜR-91	DN 40 - DN 65	Overflow-Control-Valve

V. Niezgodka - Seemann
Hamburg, 01.08.2016

Niezgodka GmbH
Bargkoppelweg 73
DE-22145 Hamburg

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Registered at the District Court Hamburg, HRB No. 29139

Declaration of Conformity

according to Annex IV of Directive (PED) 2014/68/EU



The signing manufacturer confirms by this declaration that design, manufacturing and inspection of these pressure equipments are in compliance with the directive 2014/68/EU as well as with the national specifications DIN EN 12266, DIN EN 12516, AD 2000-leaflet A4 match:

- The below pressure equipments are falling under Article 4, Paragraph 3, and it is **not** allowed to provide them with CE-marking.
- To document the conformity with the directive 2014/68/EU directly at the pressure equipment, it will provide with the following sign.



PED: Pressure Equipment Directive

SEP: Sound Engineering Practice

Type	Nominal Size Inlet	Pressure accessory
1	DN 10 - DN 50	Relief-Valve
3	DN 15 - DN 25	Relief-Valve
4	DN 8 - DN 15	Relief-Valve
5	DN 8 - DN 10	Relief-Valve
11	DN 10 - DN 50	Relief-Valve
13	DN 15 - DN 25	Relief-Valve
14	DN 10 - DN 20	Relief-Valve
18	DN 10 - DN 50	Relief-Valve
19	DN 20 - DN 25	Relief-Valve
21, 22	DN 20 - DN 25	Relief-Valve
24	DN 15	Relief-Valve
33	DN 15 - DN 25	Relief-Valve
35	DN 15 - DN 25	Relief-Valve
9	DN 25 - DN 50	Vacuum-Relief-Valve
91	DN 15 - DN 50	Vacuum-Relief-Valve
90	DN 15 - DN 50	Vacuum- and Pressure-Relief-Valve
SE-ÜR-91	DN 15 - DN 25	Overflow-Control-Valve

V. Niezgodka - Seemann

Hamburg, 01.08.2016

Niezgodka GmbH
Bargkoppelweg 73
DE-22145 Hamburg

Manufacturer

D. Niezgodka

authorized subscriber

Management: Dorrit Niezgodka, Verena Niezgodka-Seemann
Registered at the District Court Hamburg, HRB No. 29139

Declaration of Conformity

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PED: Pressure Equipment Directive

SEP: Sound Engineering Practice

Type	Nominal Size Inlet	Pressure accessory
70	DN 6 - DN 25	Pressure-Reducing-Valve
71	DN 10 - DN 25	Pressure-Reducing-Valve
74, 75	DN 15 - DN 25	Pressure-Reducing-Valve
76	DN 8 - DN 15	Pressure-Reducing-Valve
70 SKM	DN 8 -	Pressure-Reducing-Valve
70 SKK	DN 8 - DN 15	Pressure-Reducing-Valve
70 SKS	DN 15 - DN 25	Pressure-Reducing-Valve
70 SMK	DN 8 - DN 15	Pressure-Reducing-Valve
70 SMS	DN 15 - DN 25	Pressure-Reducing-Valve
77	DN 8 - DN 25	Vaccum-Pressure Control-Valve
78	DN 10 - DN 25	Vaccum-Pressure Control-Valve
80	DN 8 - DN 25	Initial-Pressure-Controller
81	DN 10 - DN 25	Initial-Pressure-Controller
84	DN 8 - DN 25	Initial-Pressure-Controller
85	DN 10 - DN 25	Initial-Pressure-Controller
80 SKK	DN 8 - DN 15	Initial-Pressure-Controller
80 SKS	DN 15 - DN 25	Initial-Pressure-Controller
80 SMK	DN 8 - DN 15	Initial-Pressure-Controller
80 SMS	DN 15 - DN 25	Initial-Pressure-Controller

V. Niezgodka - Seemann
Hamburg, 01.08.2016

Niezgodka GmbH
Bargkoppelweg 73
DE-22145 Hamburg

Manufacturer

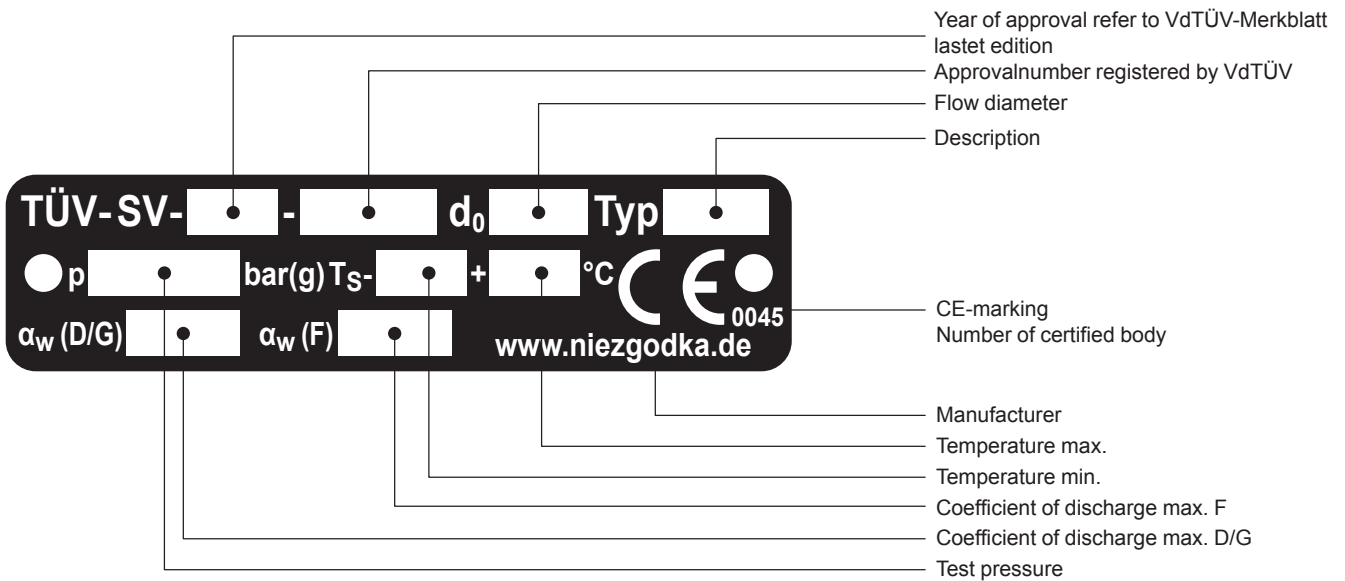
D. Niezgodka
authorized subscriber

Management: Dorrit Niezgodka, Verena Niezgodka-Seemann
Registered at the District Court Hamburg, HRB No. 29139

Type approval mark of safety valves with screwed- and flanged connection

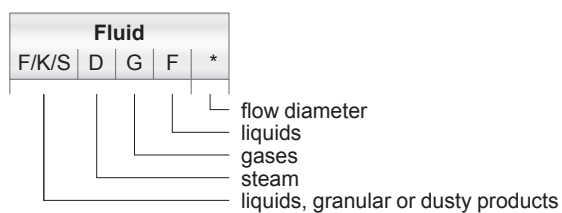


Marking acc. to pressure equipment directive 2014/68/EU



Type	Inlet DN	Approvalnumber registered by VdTÜV	* d ₀ [mm]	Fluid suited for	Coefficient of discharge		Admissible set pressure	
					D/G α _w max.	F α _w	p min. [bar(g)]	p max. [bar(g)]
6	½ - 1	604	13 - 22	D / G	0,70	-	0,04	10
7	50 - 125	725	40 - 110	D / G	0,68	-	0,05	3,8
10	¾ - 1 ¼	847 / 878	6 - 20	D / G / F	0,61	0,30	0,05	500
12	100	657	80	G	0,55	-	7,00	13,8
19	¾ - 1 ½	940	12,5 - 25	D / G / F	0,77	0,56	0,05	130
21 / 22	¾ - 1	1036	6 - 12,5	D / G / F	0,30	0,14	100	1000
30	15 - 100	713 / 820 / 896 / 902	12,5 - 70	D / G / F	0,46	0,41	0,05	40
31	15 - 80	713 / 820 / 896 / 902	12,5 - 60	D / G / F	0,46	0,34	0,05	40
32	15 - 65	906 / 920 / 887 / 900 / 901	8 - 50	D / G / F	0,79	0,51	0,10	220
35	25 - 50	1045	16 - 40	D / G / F	0,48	0,35	0,10	16
50	8 - 10	1041	6	D / G / F	0,52	0,42	0,50	100
62	1 - 1 ½	984	22 - 25	F	-	0,57	0,10	55
66	¼ - 2	809	7 - 35	D / G / F	0,82	0,59	0,05	35
67	1	885	19	D / G	0,31	-	0,05	3
69	1 - 1 ½	935	20 - 30	F / K / S	0,77	-	0,30	5,7
98	1	1066	19	D / G	0,15	-	-0,05	0,34
110	¾ - 2	1050 / 990	8 - 27	D / G	0,50	-	0,03	85
140	¾ - ¾	1067	6 - 12,5	D / G / F	0,60	0,33	0,20	500


specification see type (register 3 - 12)



Headquarters and missions abroad



1

Country	Address	Phone / E-Mail / Website
 Germany	Niezgodka GmbH Bargkoppelweg 73 DE - 22145 Hamburg	 +49 40 679 469-0  ni@niezgodka.de  www.niezgodka.de

Country	Representatives	Phone / E-Mail / Website
 Finland  Estonia  Latvia	OY Konwell AB Ruosilantie 10 FI - 00390 Helsinki	 +358 9 894 6480  konwell@konwell.fi  www.konwell.fi
 United Kingdom  Ireland	Flowstar (U.K) Ltd. Unit 1 / Gillet Street Kingston-upon-Hull GB - HU3 4JA	 +44 1482 210484  sales@flowstar.co.uk  www.flowstar.co.uk
 Indonesia  Malaysia  Singapore		
 Lithuania		
 Norway	Perlwitz Armaturen GmbH Dannenkamp 18 DE - 22869 Schenefeld	 +49 40 853 153-0  info@perlwitz.de  www.perlwitz.de
 Russia  CIS-States	Evropa Komplekt Servis GmbH Belgorod Gebiet Rzhveskoje Chaussee 1 RU - 309290 Schebekino	 +7 4724 831 458  info@ekoms.ru  www.ekoms.ru
 Sweden	Gustaf Fagerberg AB PO-Box 12105 SE - 40241 Göteborg	 +46 31 693 700  gustaf@fagerberg.se  www.fagerberg.se
 Slovakia	Bickel & Wolf Bratislava, s.r.o. Jarošova 1 SK - 83103 Bratislava	 +421 249 204 730-9  office-sk@bickel-wolf.com  www.bickelwolf.sk
 Slovenia	Armstrong - Kobilšek D.O.O. Cankarjeva ulica 21 SI - 1234 Mengeš	 +386 172 300 38  info@armstrong-kobilsek.si  www.armstrong-kobilsek.si
 Czech Republic	Bickel & Wolf s.r.o. Na Okrají 335/42 CZ - 16200 Praha 6	 +420 257 320 278  info@bickelwolf.cz  www.bickelwolf.cz
 Hungary	Füt-Ker Kft. Csorvási út 18 HU - 5900 Orosháza	 +36 68 410 639  info@fut-ker.hu  www.fut-ker.hu



Index

- **Conditions**

- General Terms and Conditions of Sale and Delivery
- General Take-back conditions



1. General

The following terms and conditions are part of any agreement for supply.

Any deviations from these conditions will be effective only if we have granted our prior written consent.

Conflicting or interfering purchase terms and conditions of the Purchaser shall be invalid even if we do not explicitly contradict to the conflicts or interference.

The unconditional acceptance of the goods does not invalidate the exclusive validity of these terms and conditions.

Should any individual provision be void, illegal or unenforceable, the validity of the remaining provisions hereof shall in no way be affected.

2. Quotations / Orders

Our quotations are subject to confirmation regarding price, quantity, delivery deadline and availability for delivery.

Orders as well as verbal agreements shall become binding for us only by our written confirmation.

Catalogue pictures and illustrations in quotations are not binding in as far as a modification of design, measurements and weights is subject to change without notice.

3. Price and Payment

The prices shall be effective ex factory Hamburg, without packaging material, unless agreed on otherwise.

Payments must be made by money transfer. The terms of payments listed in the order acknowledgement or invoice resp. shall be in effect.

In case of delayed payments, we are entitled to charge interest of delay.

4. Delivery Period

The delivery period results from the agreements reached by the parties of the contract.

Meeting the deadline by the supplier requires that all commercial and technical matters have been settled first and the buying customer has met all his obligations. Failing that, the delivery time will be prolonged appropriately.

Meeting the deadline of the delivery period is warranted under the reservation of our being supplied correctly and in time.

Claims cannot be made against us in case we fail to meet a delivery deadline.

5. Passage of Risk

The risks will pass on to the Purchaser at the latest with the dispatch or collection of the goods to be delivered, even a case of partial deliveries.

We will conclude a transportation insurance policy only if the Purchaser has given explicit written order to do so.

Partial deliveries are permissible.

6. Retention of Title to Ownership

The right of ownership in the item supplied will remain with the Supplier pending receipt of all payments resulting from the delivery contract.

The Purchaser assigns already now the claims resulting from this transaction to the Seller if the item supplied is resold prior to our receipt of payment (extended retention of title to ownership).

Behavior contrary to the contract, especially in case of default of payment, entitles us to take back the items supplied, after having sent a reminder, and the Purchaser is obliged to surrender the items.

The assertion of the retention of title to ownership as well as the attachment of the items supplied by us shall not mean the rescission of contract by us.

Filing insolvency application on the part of the Purchaser entitles us to withdraw from the contract and request the immediate return of the items supplied.

7. Warranty

Starting with the date of delivery, the statutory warranty period is applicable for our products.

Wearing parts are excluded from this provision.

The products are subject to a density test as well as a final test after their assembly and pressure adjustment. All tests are performed pursuant to standard by means of air or water resp., on examined and calibrated test stations / test devices.

Test documents of the individual acceptance tests / material tests will be kept in the archives for a minimum period of ten years.

8. Liability

Notices of obvious defects must be given in writing immediately after their detection, at the latest, however, within eight (8) days after receipt of the item supplied.

Other defects subject to liability must be reported immediately after detection in writing.

If we decline to accept a claim for a warranty, the claim made by the Purchaser is regarded as waived unless contradicted within one month in writing.

Accepted defects will be repaired without charge in our Hamburg works or replaced by new items without charge. The parts subject to complaint have to be returned to us without charge.

We will bear the direct costs of repair or of the replacement parts; in case the complaint is justified, we will bear the costs of the replacement part.

Delivery of new goods is effected on principle subject to thorough examination of the defect and its result with reference to the part complained about. The Purchaser has to reimburse the costs of examination if the claim proves to be unjustified.

We are not liable for consequential damage as a result of slight negligence unless a warranted property has not been supplied.

In addition, no warranty is accepted in the following cases: unsuited or improper use, wrong assembly or putting into operation by the Purchaser or a third party, normal wear, incorrect or negligent treatment, improper maintenance or unsuitable operating equipment.

We are not liable for consequences of unprofessional repairs by the Purchaser or a third party. The same applies to modifications of the items supplied without our prior consent.

Assembly instructions are aimed at the know-how of qualified personnel. Only skilled personnel should, consequently, perform the assembly work.

9. Returns

Goods supplied are allowed to be returned only after our prior written consent. Return shipping must be made by prepaid freight.

In case of contract cancellation or returns of the goods for reasons the Purchaser is liable for, the Purchaser will be charged with the necessary costs incurred relating to the return as well as the dismantling performed.

Custom-made items as well as spare parts can, on principle, not be taken back.

10. Statutory Limitation

All claims of the Purchaser, for whatever legal reasons, are limited to 12 months.

11. Documentation

Any documentation included in the supply is not allowed to be altered. Manufacturer marking on products is not allowed to be removed. Further use by a third party is only permitted with our expressed consent.

12. Place of Jurisdiction

Place of performance for delivery and payment and place of jurisdiction for both contract parties is Hamburg.

General Take-back conditions



2

Attention!



Niezkodka GmbH reserves the right to decide on taking back its products on a process-related and situation-dependent basis.

Basically, only such products will be taken back, as remain unused and are not older than two years (date of delivery). The costs of the assembly services rendered as well as expenses incurred in connection with the take-back will be deducted.

Custom-made products will basically, not be taken back.

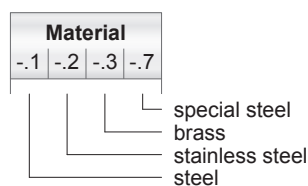
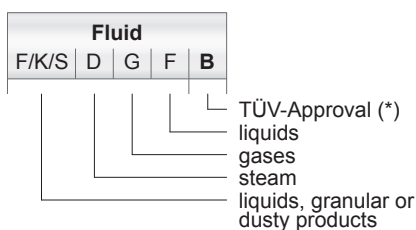
In cases of custom-made products, order cancellations after the start of production shall not be free-of-charge. Production expenses that have already been incurred shall be invoiced on the basis of the status of production.

Spare parts and wearing parts shall be excluded from these conditions and will generally not be taken back irrespective of the condition they are in.



Index

Type	Use	*	Fluid	Material				Inlet G/NPT	PN _E [bar(g)]	Heads
				-1	-2	-3	-7			
1	Relief-(Overflow)-Valve, springloaded for steam, gases and liquids	-	D/G/F	●	●	●		3/8 - 2	500	A - H, T
5	Relief-(Overflow)-Valve, springloaded for steam, gases and liquids	-	D/G/F		●	●		1/4 - 3/8	200	C, D
10	Safety-Valve, springloaded for steam, gases and liquids	B	D/G/F	●	●	●		3/8 - 1 1/4	500	A - C, H, T
14	Relief-(Overflow)-Valve, springloaded for steam, gases and liquids	-	D/G/F	●	●	●		3/8 - 3/4	500	A - C, E-H, T
18	Relief-(Overflow)-Valve, springloaded for steam, gases and liquids	-	D/G/F	●	●	●		3/8 - 1 1/4	200	A - C, H, T
19	Full-Lift-Safety-Valve, springloaded for steam, gases and liquids	B	D/G/F	●	●	●		3/4 - 1 1/2	130	A - C, H, T
21	Relief-Valve, springloaded for steam, gases and liquids	-	D/G/F	●				3/4 - 1	1100	A, C, T
21	Safety-Valve, springloaded for steam, gases and liquids	B	D/G F	●				3/4 - 1	1000	A, C, T
50	Safety-Valve, springloaded for steam, gases and liquids	B	D/G/F	●	●			1/4 - 3/8	100	C
140	Safety-Valve, springloaded for steam, gases and liquids	B	D/G/F	●	●	●		3/8 - 3/4	500	A - C, H, T



Relief-Valve, springloaded

for steam, gases and liquids

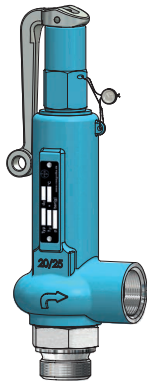
Typ 1

Standard version:

		Temperature ranges	
Material:	Inlet body / Spring bonnet	metal seated	
Typ 1.1:	1.4104 / 0.7043	-10°C to 280°C	
Typ 1.2:	1.4571 / 1.4581	-60°C to 280°C	
Typ 1.7:	1.4571 / 1.4308 <i>only with head C</i>	-200°C to 280°C	
Connections:		soft seated	
Screwed connection: DIN ISO 228 / ASME B1.20.1		see techn. appendix: KWD-1	

Approvals:

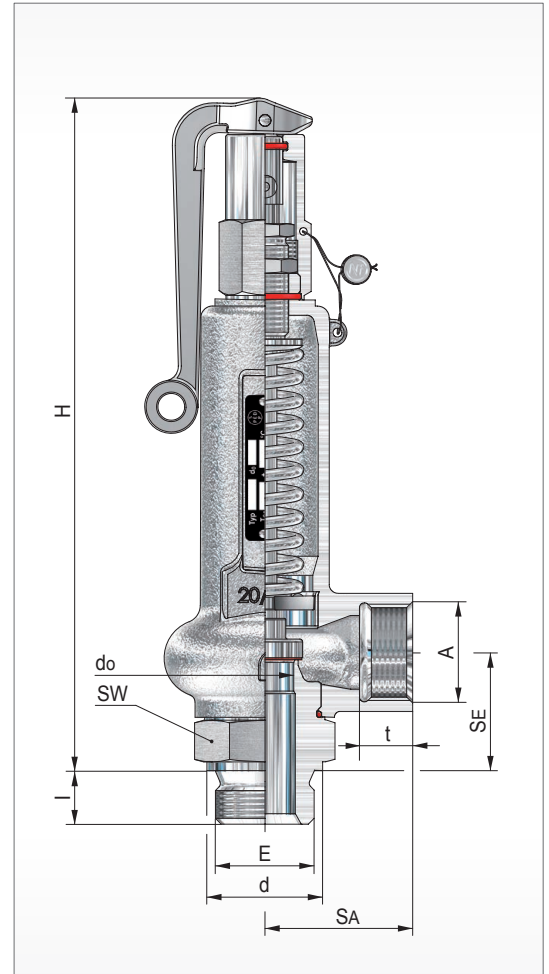
Pressure Equipment Directive: 2014/68/EU
Declaration of Conformity



Size II
head A



Size I
head C



Size	Inlet					Outlet				Dimensions		Height 'H' for head		Coefficient		Set pressure		Weight ~ [kg]
	E	SE	d	l (G)	l (NPT)	A	SA	t (G)	t (NPT)	SW	do	A	C	D/G Qw max.	F Qw	p min. [bar(g)]	p max. [bar(g)]	
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]			[bar(g)]	[bar(g)]	
I	3/8	34	22	12	11	1/2	40	14	14	32	10	200	185	0,08	0,05	0,15	160	1,0
											8 ²⁾			0,08	0,05	0,20	250	
	12,5		0,08	0,05	0,12	155												
	10		0,08	0,05	0,15	160												
	8		0,08	0,05	0,20	200												
	6 ¹⁾		-	-	0,40	500												
	16		0,08	0,05	0,07	70												
	12,5		0,08	0,05	0,12	155												
	10		0,08	0,05	0,15	160												
	8 ²⁾		0,08	0,05	0,20	250												
6 ¹⁾	-	-	0,40	500														
II	1/2	40	26	14	14	1	50	18	17	41	12,5	230	215	0,08	0,05	0,18	190	1,6
											8			0,08	0,05	0,30	500 ²⁾	
	16		0,08	0,05	0,10			130										
	12,5		0,08	0,05	0,18			190										
	8		0,08	0,05	0,30			500 ²⁾										
	10		0,08	0,05	0,10			100										
	16		0,08	0,05	0,10			130										
	12,5		0,08	0,05	0,18			190										
	8		0,08	0,05	0,30			500 ²⁾										
	22		0,08	0,05	0,07			75										
	20		0,08	0,05	0,10			100										
	16		0,08	0,10	0,10			130										
	55		0,08	0,05	0,05			45										
	27		0,08	0,05	0,05			45										
60	0,08	0,05	0,05	45														

other design on request

¹⁾ not in type 1.1 with outlet 3/4

²⁾ type 1.1 to 200 [bar(g)]

Relief-Valve, springloaded

for steam, gases and liquids

Typ 1

Discharge capacities

Water at 68°F [kg/h]

Size	I				II						
Inlet	3/8, 1/2, 3/4	3/8	1/2, 3/4	3/4	1/2, 3/4, 1	1/2, 3/4, 1	3/4, 1, 1 1/4	1, 1 1/4	1 1/4	1 1/2, 2	
d _o [mm]	8	10	12,5	16	8	12,5	16	20	22	27	
Q _w max.	0,05										
P _e [bar(g)]	0,05										
0,1		63	99	161		99	161	204	305	460	
0,4		126	197	323		197	323	409	611	921	
0,5		141	220	361		220	361	457	683	1030	
1,0		200	312	511		312	511	647	966	1450	
1,5		244	382	626		382	626	792	1180	1780	
2		282	441	723		441	723	915	1370	2060	
3		346	540	885		540	885	1120	1670	2520	
4		399	624	1020		624	1020	1290	1930	2910	
6		489	764	1250		764	1250	1580	2370	3560	
8		565	882	1440		882	1440	1830	2730	4120	
10		631	987	1610		987	1610	2040	3050	4600	
15		773	1210	1980		1210	1980	2500	3740	5640	
20		893	1390	2280		1390	2280	2890	4320	6510	
25		998	1560	2550		1560	2550	3230	4830	7280	
30		1090	1710	2800		1710	2800	3540	5290	7970	
35		1180	1840	3020		1840	3020	3830	5720	8610	
40		1260	1970	3230		1970	3230	4090	6110	9210	
45		1340	2090	3430		2090	3430	4340	6480	9770	
50	904	1410	2200	3610	904	2200	3610	4570	6830		
60	990	1550	2420		990	2420	3960	5010	7490		
70	1070	1670	2610		1070	2610	4280	5410			
80	1140	1780	2790		1140	2790	4570				
90	1210	1890	2960		1210	2960	4850				
100	1280	2000	3120		1280	3120					
110	1340	2090	3270		1340	3270					
120	1400	2190			1400	3420					
130	1460	2280			1460	3560					
140	1510	2360			1510	3690					
150	1560	2440			1560	3820					
160	1610				1610	3950					
170	1660				1660	4070					
180	1710				1710						
190	1760				1760						
200	1810				1810						
220	1890				1890						
240	1980				1980						
260	2060				2060						
280					2140						
300					2210						
320					2280						
340					2360						
350					2390						

Relief-Valve, springloaded

for steam, gases and liquids

Typ 1

Discharge capacities

Saturated steam [kg/h]

Size	I				II					
Inlet	3/8, 1/2, 3/4	3/8	1/2, 3/4	3/4	1/2, 3/4, 1	1/2, 3/4, 1	3/4, 1, 1 1/4	1, 1 1/4	1 1/4	1 1/2, 2
d _o [mm]	8	10	12,5	16	8	12,5	16	20	22	27
Q _{sw} max.	0,08									
P _e [bar(g)]										
0,4		3,3	5,2	8,4		5,2	8,3	10,2	16,0	24,1
0,6		4,1	6,6	10,6		6,5	10,4	12,7	20,1	30,3
0,8		4,9	7,7	12,5		7,7	12,3	14,9	23,7	35,7
1,0		5,6	8,9	14,4		8,8	14,1	17,1	27,3	41,1
2		9,4	14,5	24,1		14,4	23,7	29,3	45,6	68,7
3		13,3	20,7	34,0		20,7	34,0	43,0	64,3	96,8
4		16,5	25,7	42,2		25,7	42,2	53,4	79,8	120
5		19,7	30,7	50,3		30,7	50,3	63,7	95,2	143
6		22,8	35,7	58,5		35,7	58,5	74,0	110	166
7		26,0	40,6	66,6		40,6	66,6	84,3	126	189
8		29,2	45,6	74,7		45,6	74,7	94,5	141	212
9		32,3	50,5	82,7		50,5	82,7	105	156	235
10		35,4	55,4	90,8		55,4	90,8	115	171	258
15		51,1	79,9	131		79,9	131	166	247	373
20		66,8	104	171		104	171	216	323	487
25		82,5	129	211		129	211	267	399	601
30		98,2	153	251		153	251	318	475	716
35		114	178	292		178	292	369	551	831
40		130	203	332		203	332	420	628	946
45		146	228	373		228	373	472	705	1060
50	103	162	253	414	103	253	414	524	783	
60	124	194	303		124	303	497	630	940	
70	147	229	358		147	358	587	743		
80	167	261	408		167	408	668			
90	189	295	462		189	462	756			
100	212	331	517		212	517				
110	235	367	573		235	573				
120	259	404			259	632				
130	284	443			284	693				
140	309	484			309	756				
150	337	527			337	824				
160	367				367	896				
170	399				399	974				
180	434				434					
190	472				472					
200	517				517					

on request

Relief-Valve, springloaded

for steam, gases and liquids

Typ 1

Discharge capacities

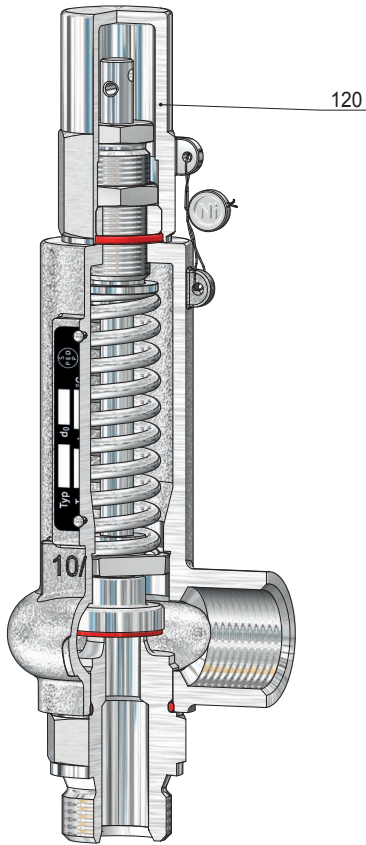
Air at 32°F [m_n^3/h]

Size	I				II					
Inlet	3/8, 1/2, 3/4	3/8	1/2, 3/4	3/4	1/2, 3/4, 1	1/2, 3/4, 1	3/4, 1, 1 1/4	1, 1 1/4	1 1/4	1 1/2, 2
d _o [mm]	8	10	12,5	16	8	12,5	16	20	22	27
Q _w max.	0,08									
P _e [bar(g)]										
0,05								4,0	6,1	9,2
0,1		1,8	2,9	4,6		2,9	4,6	5,8	8,8	13,3
0,4		4,0	6,3	10,2		6,3	10,1	12,3	19,4	29,2
0,5		4,6	7,3	11,7		7,2	11,6	14,1	22,2	33,4
1,0		7,1	11,2	18,3		11,1	17,9	21,7	34,6	52,1
1,5		9,6	14,9	24,6		14,8	24,1	29,4	46,5	70,0
2		12,1	18,6	31,0		18,5	30,4	37,6	58,5	88,2
3		17,2	26,9	44,0		26,9	44,0	55,7	83,2	125
4		21,5	33,6	55,0		33,6	55,0	69,6	104	156
6		30,1	47,0	77,0		47,0	77,0	97,4	145	219
8		38,7	60,4	99,0		60,4	99,0	125	187	282
10		47,3	73,9	121		73,9	121	153	229	344
15		68,8	107	176		107	176	223	333	502
20		90,4	141	231		141	231	293	437	659
25		112	175	287		175	287	363	542	817
30		134	209	342		209	342	433	647	975
35		155	243	398		243	398	503	752	1130
40		177	277	453		277	453	574	857	1290
45		199	311	509		311	509	644	963	1450
50	141	221	345	565	141	345	565	715	1070	
60	169	264	413		169	413	676	856	1280	
70	197	308	481		197	481	788	997		
80	225	351	549		225	549	899			
90	252	395	617		252	617	1010			
100	280	438	684		280	684				
110	308	481	752		308	752				
120	335	524			335	819				
130	362	566			362	885				
140	390	609			390	951				
150	416	651			416	1020				
160	443				443	1080				
170	470				470	1140				
180	496				496					
190	522				522					
200	547				547					
220	598				598					
240	648				648					
260					696					
280					743					
300					790					
320					835					
340					879					
350					901					

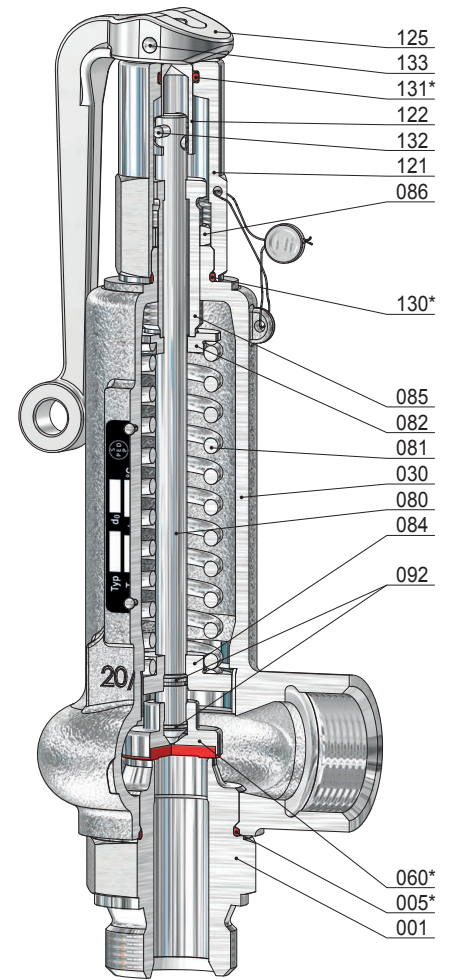
Relief-Valve, springloaded

for steam, gases and liquids

Typ 1



Size I
head C



Size II
head A

Item	Piece	Description	Item	Piece	Description
001	1	inlet body	120	1	cap
005 *	1	o-ring	121	1	lifting cap
030	1	spring bonnet	122	1	coupling
060 *	1	disc, complete	125	1	lifting button
560	1	disc	130 *	1	o-ring
062	1	soft sealing	131 *	1	o-ring
080	1	spindle	132	1	groove pin
081	1	spring	133	1	groove pin
082	1	springplate, upper			
084	1	springplate, lower			
085	1	adjusting screw			
086	1	lock nut			
092	2	lock ring			

* expendable parts

Relief-Valve, springloaded

for steam, gases and liquids

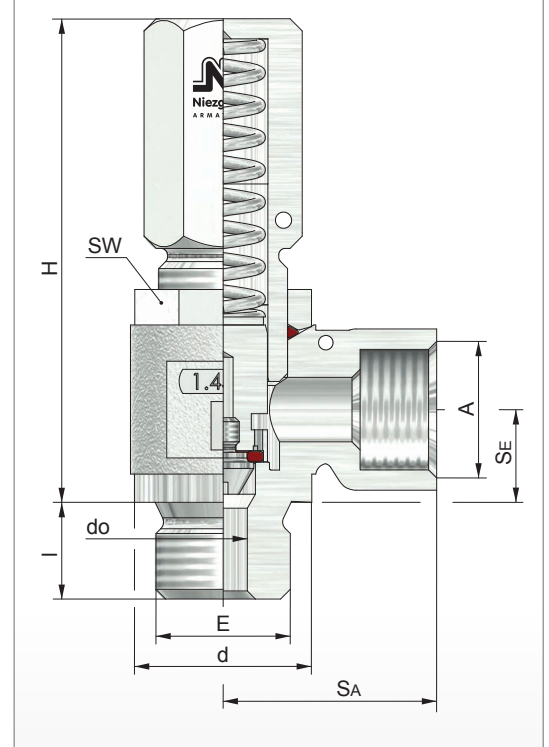
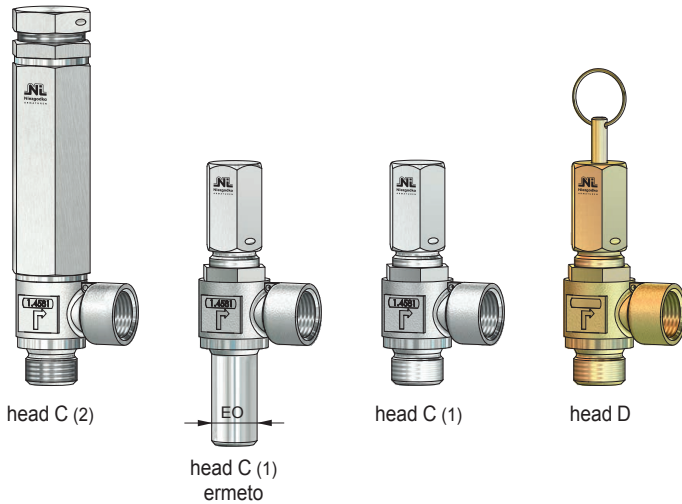
Typ 5

Standard version:

Material:	Inlet body	Spring bonnet	Temperature ranges
			soft seated
Typ 5.2:	1.4581	/ 1.4571	-40°C to 130°C
Typ 5.3:	2.0401	/ 2.0401	-10°C to 130°C
Connections:	only elastomers		
Screwed connection: DIN ISO 228 / ASME B1.20.1 / Ermeto		see techn. appendix: KWD-1	

Approvals:

Pressure Equipment Directive: 2014/68/EU
Declaration of Conformity



Type	Inlet						Outlet			Dimensions			Height 'H' for head			Set pressure		Weight ~ [kg]		
	E	SE	d	l (G)	l (NPT)	EO Ø	A	SA	t (G)	SW	do	seat Ø	C (1)	C (2)	D	p min.	p max.			
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[bar(g)]	[bar(g)]			
5.2	1/4	11,5	18	12	17	3/8	26	9,5		22	6	6	55	72		65	120	0,15		
	3/8		22	12	17															
	EO		22	26	26														12	
	1/4		18	12	17															
	3/8		22	12	17															
	EO		22	26	26														12	
	1/4		18	12	17															
	3/8		22	12	17															
5.3	1/4	11,5	18	12	17	3/8	26	9,5		22	6	8	55	72		65	120	0,15		
	3/8		22	12	17															
			6	55															65	120

other design on request

Relief-Valve, springloaded

for steam, gases and liquids

Typ 5

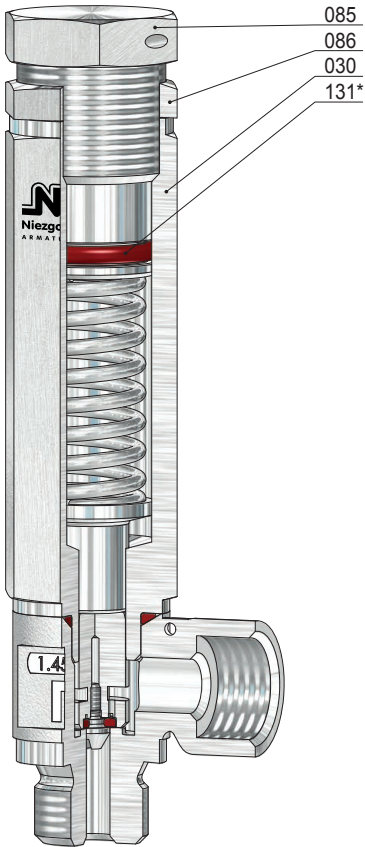
Discharge capacities

Size	6			
do [mm]	6			
Fluid	Water 20°C [kg/h]	Steam [kg/h]	Air 0°C [m ³ /h]	Carbondioxide 0°C [m ³ /h]
pe [bar(g)]				
0,4	9,1	0,21	0,26	0,21
0,5	10,1	0,24	0,29	0,23
0,6	11,1	0,26	0,32	0,26
0,8	12,8	0,30	0,38	0,30
1,0	14,4	0,34	0,43	0,35
1,5	17,6	0,45	0,58	0,46
2,0	20,3	0,57	0,73	0,58
2,5	22,7	0,70	0,90	0,72
3,0	24,9	0,84	1,08	0,87
3,5	26,9	0,94	1,22	0,98
4,0	28,7	1,04	1,35	1,09
4,5	30,5	1,14	1,49	1,20
5,0	32,1	1,24	1,62	1,31
6,0	35,2		1,89	1,53
7,0	38,0		2,16	1,76
8,0	40,7		2,44	1,98
9,0	43,1		2,71	2,21
10,0	45,5		2,98	2,44
15,0	55,7		4,34	3,62
20,0	64,3		5,70	4,87
25,0	71,9		7,06	
30,0	78,7		8,42	
35,0	85,1		9,79	
40,0	90,9		11,1	
45,0	96,4		12,5	
50,0	101		13,9	
60,0	111		16,6	
70,0	120		19,4	
80,0	128		22,1	
90,0	136		24,9	
100,0	144		27,6	
110,0	151		30,3	
120,0	157		33,0	
130,0	164		35,7	
140,0	170		38,3	
150,0	176		41,0	
160,0	182		43,6	
170,0	187		46,2	
180,0	193		48,8	
190,0	198		51,4	
200,0	203		53,9	

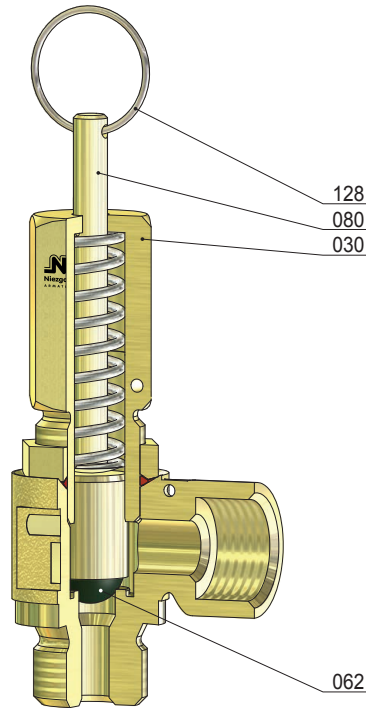
Relief-Valve, springloaded

for steam, gases and liquids

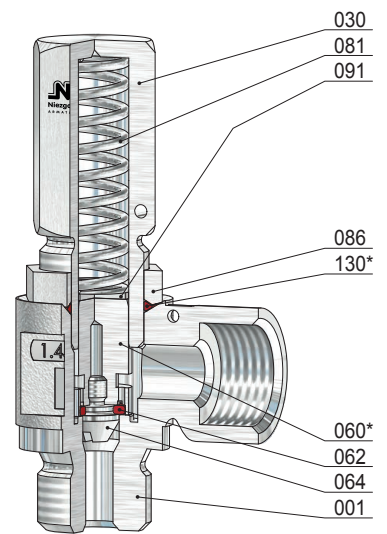
Typ 5



head C
only type 5.2
> 120 [bar(g)]



head D
disc with ball



head C
disc with o-ring

Item	Piece	Description	Item	Piece	Description
001	1	inlet body	128	1	lifting ring
030	1	spring bonnet	130 *	1	o-ring
060 *	1	disc, complete	131 *	1	o-ring
062	1	soft sealing (o-ring) / (ball)			
064	1	disc screw			
080	1	spindle			
081	1	spring			
085	1	adjusting screw			
086	1	lock nut			
091	1	pressure piece			

* expendable parts

Safety-Valve, springloaded

for steam, gases and liquids

Typ 10

Standard version:

			Temperature ranges
Material:	Inlet body	/ Spring bonnet	metal seated
Typ 10.1:	1.4104	/ 0.7043	-10°C to 280°C
Typ 10.2:	1.4571	/ 1.4581	-60°C to 280°C
Typ 10.7:	1.4571	/ 1.4308 <i>only with head C</i>	-200°C to 280°C
Connections:			soft seated
Screwed connection: DIN ISO 228 / ASME B1.20.1			see techn. appendix: KWD-1

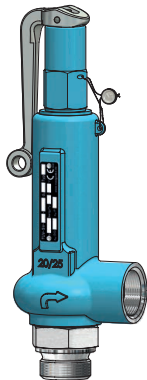
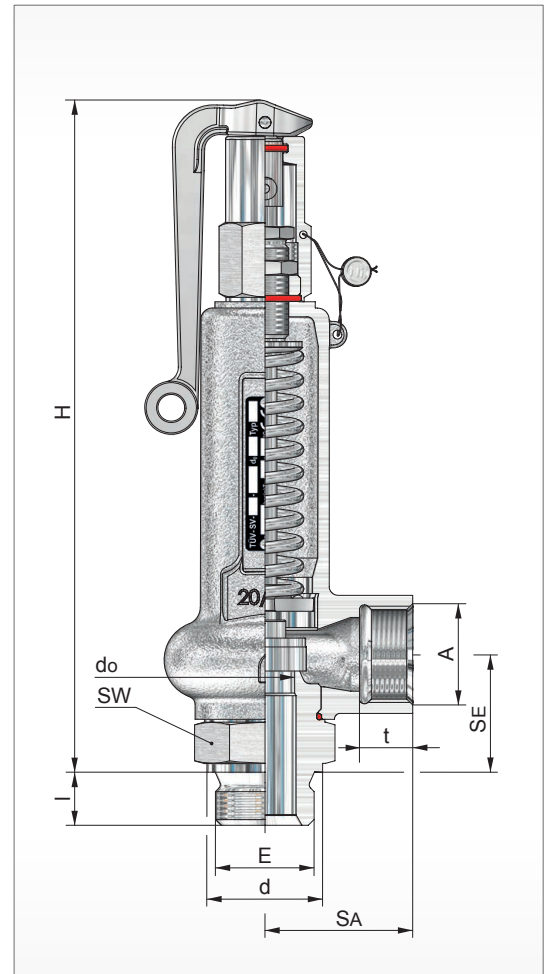
Approvals:

Pressure Equipment Directive: 2014/68/EU
Declaration of Conformity

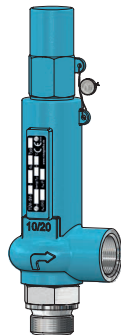


TÜV - Approval:

VdTÜV-leaflet AD 2000-leaflet A 2 TÜV • SV • XX-847 / 878 • do • D/G/F • α_w • p



Size II
head A



Size I
head C

Size	Inlet					Outlet				Dimensions		Height 'H' for head		Coefficient		Set pressure		Weight							
	E	SE	d	l (G)	l (NPT)	A	SA	t (G)	t (NPT)	SW	do	A	C	D/G	F	p min.	p max.								
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	α _w max.	α _w	[bar(g)]	[bar(g)]	~ [kg]						
I	3/8	34	22	12	11	1/2	40	14	14	32	10	200	185	200	0,38	0,30	0,10	140	1,0						
																				8 ²⁾	0,42	0,30	3,00	250	
																				12,5	0,27	0,20	0,10	70	
																				10	0,38	0,30	0,10	140	
																				8 ²⁾	0,42	0,30	3,00	250	
																				6 ¹⁾	0,61	-	120	500	
	1/2	40	26	14	14	3/4	40	17	15	32	16	200	185	200	0,13	0,11	0,05	40	1,0						
																				12,5	0,27	0,20	0,10	70	
																				10	0,38	0,30	0,10	140	
																				8 ²⁾	0,42	0,30	3,00	250	
																				6 ¹⁾	0,61	-	120	500	
																				12,5	0,37	0,29	0,10	70	
II	3/4	40	32	16	14	1	50	18	17	41	230	215	215	230	0,29	0,23	0,10	32	1,6						
																				12,5	0,29	0,23	0,10	32	
																				20	0,37	0,29	0,10	70	
																				16	0,11	0,08	0,10	20	
																				12,5	0,29	0,23	0,10	32	
																				20	0,37	0,29	0,10	70	
	1 1/4	40	49	20	18	1	50	18	17	50	16	230	215	215	230	0,11	0,08	0,10	20	1,8					
																					16	0,29	0,23	0,10	32

other design on request

¹⁾ not in type 10.1

²⁾ type 10.1 to 200 bar(g)

Safety-Valve, springloaded

for steam, gases and liquids

Typ 10

Discharge capacities

Water at 68°F [kg/h]

Size	I					II		
	8	10	12,5	12,5 o-ring-disc	16	12,5	16	20
Coefficient of discharge	α_w	α_w	α_w	α_w	α_w	α_w	α_w	α_w
	0,30	0,30	0,19	0,19	0,11	0,29	0,23	0,08
Pe [bar(g)]								
0,05					435,7			
0,1		536,0	558,3	558,3	503,0	809,5	1051,9	571,7
0,2		656,4	683,8	683,8	616,1	991,5	1288,3	700,2
0,3		758,0	789,5	789,5	711,4	1144,8	1487,6	808,5
0,4		847,4	882,7	882,7	795,4	1280,0	1663,2	903,9
0,5		928,3	967,0	967,0	871,3	1402,1	1822,0	990,2
1,0		1256,9	1309,3	1309,3	1079,8	1898,5	2466,9	1340,7
1,5		1539,4	1603,6	1603,6	1445,0	2325,2	3021,4	1642,0
2,0		1777,6	1851,6	1851,6	1668,5	2684,9	3488,8	1896,1
2,5		1987,4	2070,2	2070,2	1865,5	3001,8	3900,6	2119,8
3,0		2177,1	2267,8	2267,8	2043,5	3288,3	4272,9	2322,2
3,5		2351,5	2449,5	2449,5	2207,3	3551,7	4615,2	2508,2
4,0		2513,9	2618,6	2618,6	2359,7	3797,0	4933,9	2681,5
4,5		2666,4	2777,4	2777,4	2502,8	4027,3	5233,2	2844,1
5		2810,6	2927,7	2927,7	2638,2	4245,1	5516,2	2998,0
6		3078,8	3207,1	3207,1	2890,0	4650,3	6042,7	3284,1
7		3325,5	3464,1	3464,1	3121,5	5022,9	6526,9	3547,2
8		3555,5	3703,3	3703,3	3337,1	5369,7	6977,5	3792,1
9		3770,8	3927,9	3927,9	3539,5	5695,5	7400,8	4022,2
10		3974,8	4140,4	4140,4	3730,9	6003,5	7801,1	4239,7
12		4354,1	4535,6	4535,6	4087,1	6576,6	8545,7	4644,4
14		4703,0	4899,0	4899,0	4414,5	7103,5	9230,4	5016,5
15		4868,0	5070,9	5070,9	4569,5	7352,8	9554,4	5192,6
16		5027,7	5237,2	5237,2	4719,3	7593,9	9867,7	5362,9
18		5332,7	5554,9	5554,9	5005,6	8054,6	10446,3	5688,2
20	3597,5	5621,2	5855,4	5855,4	5276,4	8490,3	11032,5	5995,9
25	4022,2	6284,7	6546,5	6546,5	5899,2	9492,4	12334,5	
30	4406,1	6884,5	7171,3	7171,3	6462,2	10398,5	13512,0	
35	4759,1	7436,1	7745,9	7745,9	6980,0	11231,6	14595,0	
40	5087,7	7949,5	8280,8	8280,8	7461,9	12007,1		
45	5396,3	8431,7	8783,1	8783,1		12735,4		
50	5688,2	8887,8	9258,2	9258,2		13424,3		
60	6231,1	9736,1	10141,8	10141,8		14705,6		
70	6730,4	10516,2	10954,4			15883,9		
80	7195,1	11242,3						
90	7631,5	11924,3						
100	8044,4	12569,3						
110	8437,0	13182,8						
120	8812,1	13769,0						
130	9172,0	14331,2						
140	9518,2	14872,2						
150	9852,3							
175	10641,7							
200	11376,4							
250	12719,0							
300								
350								
400								
450								
500								

Discharge capacities

Saturated steam [kg/h]

Size	I					II		
	8	10	12,5	12,5 o-ring-disc	16	12,5	16	20
do [mm]								
Coefficient of discharge	0,42	0,38	0,27	0,24	0,13	0,37	0,29	0,11
pe [bar(g)]								
0,05					8,9			
0,1		11,8	12,2	12,2	11,0	17,7	23,1	12,5
0,2		14,0	14,7	14,3	13,1	21,8	28,0	15,8
0,3		15,7	16,6	16,2	14,7	25,3	32,4	18,3
0,4		17,3	18,3	17,9	15,9	27,8	35,3	20,5
0,5		18,7	19,8	19,2	16,9	30,2	38,1	22,3
1,0		32,7	36,5	33,6	29,7	52,4	66,8	40,4
1,5		38,8	41,8	39,4	34,1	60,0	76,8	45,8
2,0		50,9	55,1	50,9	44,5	78,0	100,0	59,7
2,5		60,1	65,8	59,6	52,5	91,8	117,9	69,9
3,0		68,5	76,0	67,6	60,0	104,2	133,8	79,3
3,5		77,2	85,7		67,6	117,4	150,8	89,4
4,0		85,5	94,9		74,9	130,0	167,0	99,0
4,5		94,2	104,5		82,5	143,3	184,0	109,0
5		102,3	113,6		89,6	155,6	199,9	118,5
6		119,0	132,1		104,2	181,0	232,4	137,7
7		135,8	150,8		118,9	206,6	265,3	157,2
8		152,5	169,4		133,6	232,1	298,0	176,6
9		169,2	187,8		148,2	257,4	330,6	195,9
10		186,0	206,5		162,9	282,9	363,3	215,3
12		219,3	243,5		192,1	333,7	428,5	254,0
14		252,5	280,3		221,1	384,1	493,3	292,4
15		269,0	298,6		235,5	409,2	525,5	311,4
16		285,5	316,9		250,0	434,3	557,7	330,5
18		318,2	353,3		278,7	484,1	621,7	368,5
20	248,5	351,2	389,9		307,6	534,4	686,2	406,7
25	307,4	434,6	482,5		380,6	661,2	849,1	
30	366,2	517,7	574,7		453,4	787,6	1011,3	
35	425,0	600,8	667,0		526,1	914,0	1174,0	
40	483,6	683,7	759,0		598,8	1040,1		
45	542,7	767,2	851,8			1167,2		
50	602,1	851,2	945,0			1295,0		
60	722,2	1020,9	1133,4			1553,2		
70	843,3	1192,2	1323,5			1813,8		
80	967,8	1368,1						
90	1095,7	1549,0						
100	1224,5	1731,0						
110	1354,3	1914,6						
120	1485,8	2100,4						
130	1618,9	2288,7						
140	1753,8	2479,3						
150	1896,5							
175								
200								
250								
300								
350								
400								
450								
500								

Safety-Valve, springloaded

for steam, gases and liquids

Typ 10

Discharge capacities

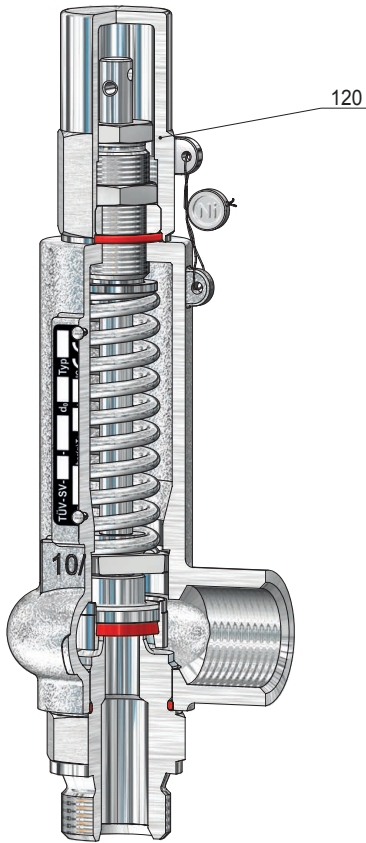
Air at 32°F [m³/h]

Size	I					II			
	6	8	10	12,5	12,5 o-ring-disc	16	12,5	16	20
Coefficient of discharge	Q _w max. 0,61	Q _w max. 0,42	Q _w max. 0,38	Q _w max. 0,27	Q _w max. 0,24	Q _w max. 0,13	Q _w max. 0,37	Q _w max. 0,29	Q _w max. 0,11
P _e [bar(g)]									
0,05						11,0			
0,1			14,8	15,4	15,4	13,9	22,4	29,1	15,8
0,2			18,4	19,3	18,8	17,3	28,6	36,9	20,7
0,3			21,5	22,8	22,2	20,1	34,6	44,4	25,0
0,4			24,5	26,0	25,4	22,6	39,5	50,0	29,1
0,5			27,4	29,0	28,2	24,8	44,3	55,9	32,7
1,0			39,6	44,2	40,6	35,9	63,4	80,7	48,8
1,5			52,7	56,8	53,4	46,3	81,5	104,3	62,1
2,0			64,5	69,8	64,5	56,3	98,9	126,8	75,7
2,5			76,1	83,4	75,5	66,5	116,4	149,5	88,6
3,0			87,7	97,4	86,6	76,8	133,5	171,4	101,6
3,5			98,9	109,8	97,6	86,6	150,5	193,3	114,6
4,0			110,1	122,3	108,7	96,5	167,6	215,2	127,5
4,5			121,4	134,7	119,8	106,3	184,6	237,1	140,5
5			132,6	147,2	130,8	116,1	201,7	259,0	153,5
6			155,0	172,1	153,0	135,8	235,8	302,8	179,5
7			177,5	197,0	175,1	155,4	270,0	346,7	205,5
8			199,9	222,0	197,3	175,1	304,2	390,6	231,5
9			222,4	246,9	219,5	194,8	338,4	434,5	257,5
10			244,9	271,9	241,7	214,5	372,6	478,5	283,6
12			289,9	321,9	286,1	253,9	441,1	566,5	335,7
14			335,0	372,0	330,6	293,4	509,7	654,6	388,0
15			357,6	397,0	352,9	313,2	544,0	698,6	414,0
16			380,2	422,1	375,2	333,0	578,4	742,8	440,2
18			425,4	472,3	419,8	372,6	647,2	831,1	492,6
20		333,0	470,7	522,6	464,5	412,2	716,1	919,6	545,0
25		413,2	584,2	648,5	576,5	511,6	888,7	1141,2	
30		493,7	698,0	774,9	688,8	611,3	1061,9	1363,6	
35		574,5	812,2	901,7	801,5	711,3	1235,7	1587,0	
40		655,6	926,8	1028,9	914,6	811,7	1410,0		
45		736,9	1041,8	1156,6	1028,1		1584,9		
50		818,5	1157,1	1284,6	1141,9		1760,4		
60		982,6	1389,0	1542,1	1370,8		2113,3		
70		1147,7	1622,5	1801,3			2468,5		
80		1314,0	1857,6						
90		1481,5	2094,4						
100		1650,1	2332,8						
110		1820,0	2572,9						
120	1626,6	1991,0	2814,7						
130	1767,3	2163,3	3058,2						
140	1909,1	2336,8	3303,6						
150	2051,9	2511,6							
175	2413,6	2954,4							
200	2782,2	3405,5							
250	3541,2	4053,0							
300	4331,6								
350	5156,2								
400	6018,6								
450	6922,6								
500	7872,8								

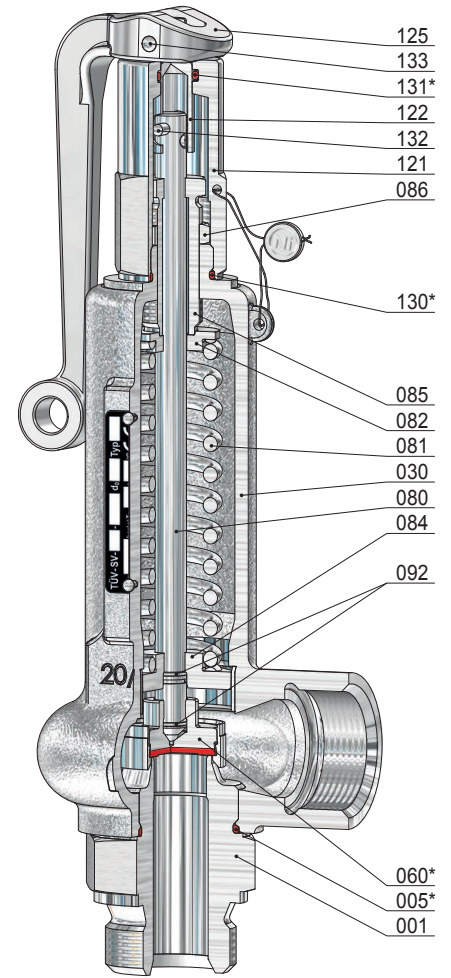
Safety-Valve, springloaded

for steam, gases and liquids

Typ 10



Size I
head C



Size II
head A

Item	Piece	Description	Item	Piece	Description
001	1	inlet body	120	1	cap
005 *	1	o-ring	121	1	lifting cap
030	1	spring bonnet	122	1	coupling
060 *	1	disc, complete	125	1	lifting button
560	1	disc	130 *	1	o-ring
062	1	soft sealing	131 *	1	o-ring
063	1	disc ring	132	1	groove pin
080	1	spindle	133	1	groove pin
081	1	spring			
082	1	springplate, upper			
084	1	springplate, lower			
085	1	adjusting screw			
086	1	lock nut			
092	2	lock ring			

* expendable parts

Relief-Valve, springloaded

for steam, gases and liquids

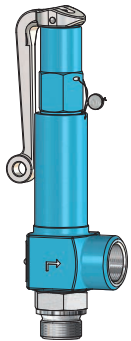
Typ 14

Standard version:

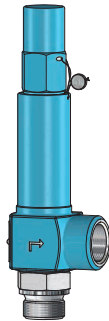
Material:	Inlet body	Spring bonnet	metal seated	Temperature ranges
Typ 14.1:	1.4104	/ 1.4104		-10°C to 280°C
Typ 14.2:	1.4404	/ 1.4404		-200°C to 280°C
Typ 14.7:	1.4571	/ 1.4571		-200°C to 280°C
Connections:				soft seated
Screwed connection: DIN ISO 228 / ASME B1.20.1				see techn. appendix: KWD-1

Approvals:

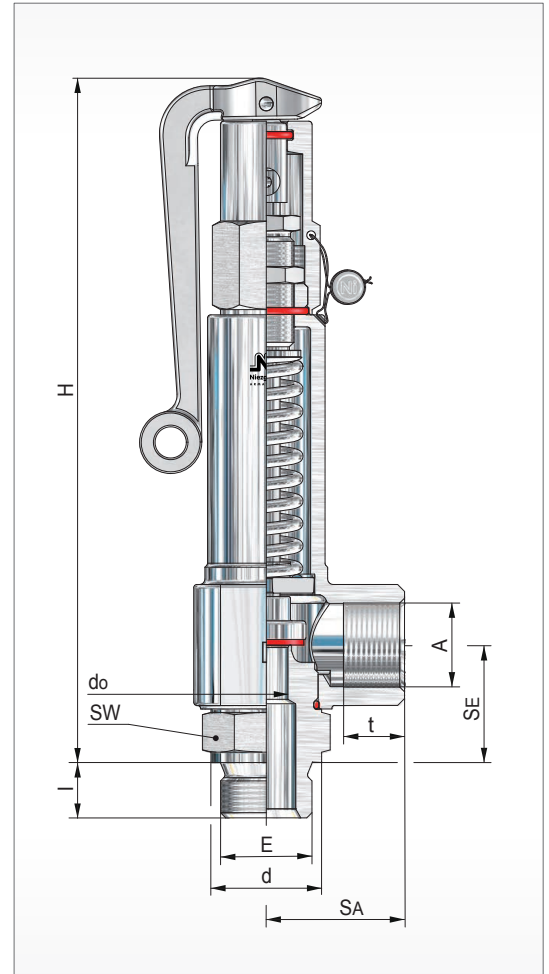
Pressure Equipment Directive: 2014/68/EU
Declaration of Conformity



Size I
head A



Size I
head C



Size	Inlet					Outlet				Dimensions		Height 'H' for head			Coefficient		Set pressure		Weight ~ [kg]
	E	SE	d	l (G)	l (NPT)	A	SA	t (G)	t (NPT)	SW	do	A	C	D/G Q _w max.	F Q _w	p min. [bar(g)]	p max. [bar(g)]		
I	3/8	34	22	12	11	1/2	35	15	14	32	10	200	185	0,08	0,05	0,2	200	1,0	
														0,08	0,05	6,0	300		
														0,08	0,05	0,2	100		
														0,08	0,05	0,2	200		
														0,08	0,05	6,0	300		
														0,08	0,05	0,2	200		
	1/2	34	26	14	14	3/4	40	17	15	32	10	200	185	0,08	0,05	0,2	200		
														0,08	0,05	6,0	300		
														0,08	-	50,0	500		
														0,08	0,05	0,2	100		
														0,08	0,05	0,2	200		
														0,08	0,05	6,0	300		
3/4	34	32	16	14	1/2	35	15	14	32	10	200	185	0,08	0,05	0,2	200			
													0,08	0,05	6,0	300			
													0,08	0,05	0,2	200			
													0,08	0,05	6,0	300			
													0,08	0,05	0,2	200			
													0,08	0,05	50,0	500			

other design on request

¹⁾ type 14.1 to 300 bar(g)

Relief-Valve, springloaded

for steam, gases and liquids

Typ 14

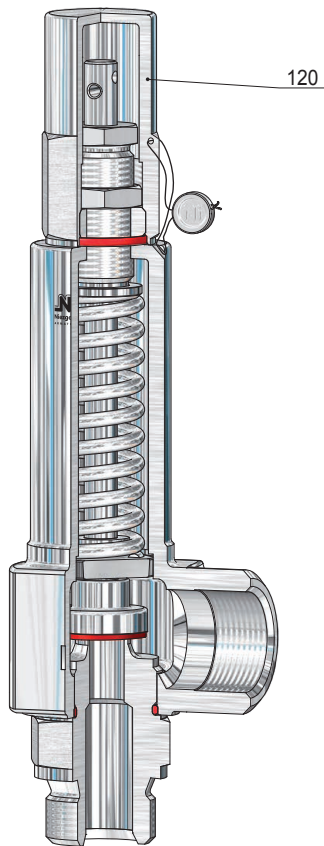
Discharge capacities

Size	I										
do [mm]	6		8			10			12,5		
Fluid	Steam [kg/h]	Air 0°C [m ³ /h]	Water 20°C [kg/h]	Steam [kg/h]	Air 0°C [m ³ /h]	Water 20°C [kg/h]	Steam [kg/h]	Air 0°C [m ³ /h]	Water 20°C [kg/h]	Steam [kg/h]	Air 0°C [m ³ /h]
Coefficient of discharge	Q _w max. 0,08		Q _w 0,05	Q _w max. 0,08		Q _w 0,05	Q _w max. 0,08		Q _w 0,05	Q _w max. 0,08	
P _e [bar(g)]											
0,2						109,4	2,7	3,5	170,9	3,9	5,1
0,3						126,3	3,0	4,2	197,4	4,4	6,1
0,4						141,2	3,4	4,8	220,7	4,9	7,0
0,5						154,7	3,7	5,4	241,7	5,4	7,9
1,0						209,5	6,5	7,9	327,3	9,5	11,5
1,5						256,6	7,6	10,3	400,9	11,5	15,6
2,0						296,3	10,0	12,7	462,9	15,9	20,2
2,5						331,2	12,4	15,7	517,5	19,4	24,5
3,0						362,8	14,4	18,5	566,9	22,5	28,9
3,5						391,9	16,3	20,8	612,4	25,4	32,5
4,0						419,0	18,0	23,2	654,7	28,1	36,2
4,5						444,4	19,8	25,6	694,4	31,0	39,9
5						468,4	21,5	27,9	731,9	33,7	43,6
6			328,4	16,0	20,9	513,1	25,0	32,6	801,8	39,1	51,0
7			354,7	18,3	23,9	554,3	28,6	37,4	866,0	44,7	58,4
8			379,2	20,6	26,9	592,5	32,1	42,1	925,8	50,2	65,8
9			402,2	22,8	30,0	628,5	35,6	46,8	982,0	55,7	73,2
10			424,0	25,1	33,0	662,5	39,2	51,6	1035,1	61,2	80,6
12			464,4	29,6	39,1	725,7	46,2	61,0	1133,9	72,2	95,4
14			501,7	34,0	45,1	783,8	53,2	70,5	1224,7	83,1	110,2
15			519,3	36,2	48,2	811,3	56,6	75,3	1267,7	88,5	117,6
16			536,3	38,5	51,2	838,0	60,1	80,0	1309,3	93,9	125,1
18			568,8	42,9	57,3	888,8	67,0	89,6	1388,7	104,7	139,9
20			599,6	47,3	63,4	936,9	73,9	99,1	1463,8	115,5	154,8
25			670,4	58,6	78,7	1047,4	91,5	123,0	1636,6	143,0	192,2
30			734,3	69,8	94,0	1147,4	109,0	146,9	1792,8	170,3	229,6
35			793,2	80,9	109,4	1239,4	126,5	171,0	1936,5	197,6	267,2
40			847,9	92,1	124,9	1324,9	143,9	195,1	2070,2	224,9	304,9
45			899,4	103,4	140,4	1405,3	161,5	219,3	2195,8	252,4	342,7
50	64,5	87,7	948,0	114,7	155,9	1481,3	179,2	243,6	2314,5	280,0	380,6
60	77,4	105,3	1038,5	137,6	187,2	1622,7	214,9	292,4	2535,5	335,8	456,9
70	90,4	123,0	1121,7	160,6	218,6	1752,7	251,0	341,6	2738,6	392,2	533,7
80	103,7	140,8	1199,2	184,3	250,3	1873,7	288,0	391,1	2927,7	450,0	611,1
90	117,4	158,7	1271,9	208,7	282,2	1987,4	326,1	440,9	3105,3	509,5	688,9
100	131,2	176,8	1340,7	233,2	314,3	2094,9	364,4	491,1	3273,3	569,4	767,4
110	145,1	195,0	1406,2	258,0	346,7	2197,1	403,1	541,7			
120	159,2	213,3	1468,7	283,0	379,2	2294,8	442,2	592,6			
130	173,5	231,8	1528,7	308,4	412,1	2388,5	481,8	643,8			
140	187,9	250,4	1586,4	334,1	445,1	2478,7	522,0	695,5			
150	203,2	269,1	1642,0	361,2	478,4	2565,7	564,4	747,5			
175	244,8	316,5	1773,6	435,2	562,7	2771,3	680,0	879,3			
200	290,7	364,9	1896,1	516,7	648,7	2962,6	807,4	1013,6			
250		464,4	2119,9		825,6						
300		568,1	2322,2		1009,9						
350		676,2									
400		789,3									
450		907,9									
500		1032,5									

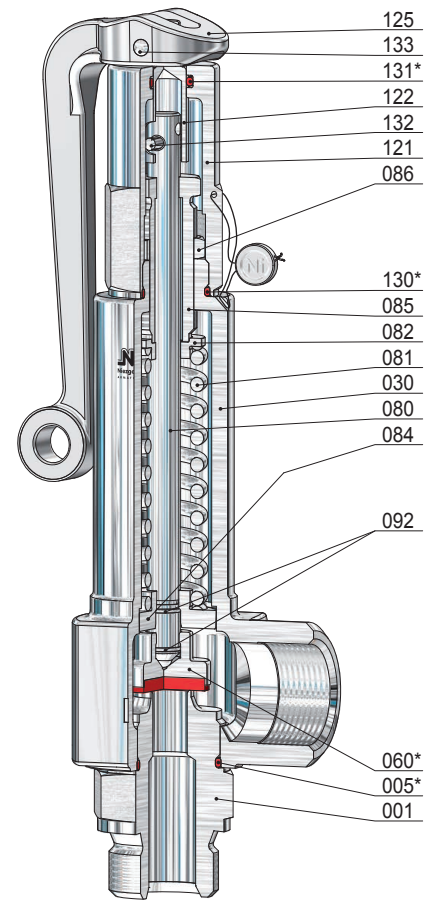
Relief-Valve, springloaded

for steam, gases and liquids

Typ 14



Size I
head C



Size I
head A

Item	Piece	Description	Item	Piece	Description
001	1	inlet body	120	1	cap
005 *	1	o-ring	121	1	lifting cap
030	1	spring bonnet	122	1	coupling
060 *	1	disc, complete	125	1	lifting button
560	1	disc	130 *	1	o-ring
062	1	soft sealing	131 *	1	o-ring
080	1	spindle	132	1	groove pin
081	1	spring	133	1	groove pin
082	1	springplate, upper			
084	1	springplate, lower			
085	1	adjusting screw			
086	1	lock nut			
092	2	lock ring			

* expendable parts

Relief-Valve, springloaded

for steam, gases and liquids

Typ 18

Standard version:

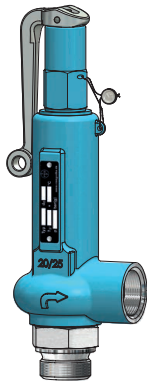
Temperature ranges

Material:	Inlet body	/ Spring bonnet	metal seated
Typ 18.1:	1.4104	/ 0.7043	-10°C to 280°C
Typ 18.2:	1.4571	/ 1.4581	-60°C to 280°C
Typ 18.7:	1.4571	/ 1.4308 <i>only with head C</i>	-200°C to 280°C

Connections: soft seated
Screwed connection: DIN ISO 228 / ASME B1.20.1 see techn. appendix: KWD-1

Approvals:

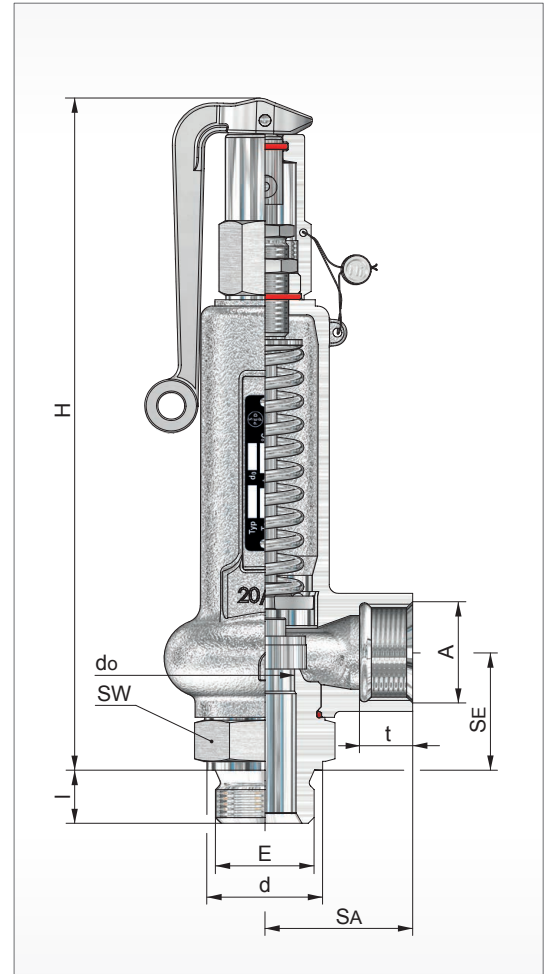
Pressure Equipment Directive: 2014/68/EU
Declaration of Conformity



Size II
head A



Size I
head C



Size	Inlet					Outlet				Dimensions		Height 'H' for head		Coefficient		Set pressure		Weight ~ [kg]
	E	SE	d	l (G)	l (NPT)	A	SA	t (G)	t (NPT)	SW	do	A	C	D/G Qw max.	F Qw	p min. [bar(g)]	p max. [bar(g)]	
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]			[bar(g)]	[bar(g)]	
I	3/8	34	22	12	11	1/2 3/4	40	14	14	32	10	200	185	0,38	0,30	0,1	140	1,0
														0,46	0,32	3,0	250	
			0,30	0,21	0,1			70										
			0,38	0,30	0,1			140										
	1/2	34	26	14	14	1/2 3/4	40	17	15	32	8	200	185	0,46	0,32	3,0	200	
														0,14	-	0,05	40	
			0,30	0,21	0,1			70										
			0,38	0,30	0,1			140										
3/4	34	32	16	14	1/2 3/4	40	14	14	32	12,5	200	185	0,38	0,30	0,1	140		
													0,46	0,32	3,0	250		
		0,30	0,21	0,1			70											
		0,38	0,30	0,1			140											
II	1/2	40	26	14	14	1	50	18	17	41	16	230	215	0,41	0,32	0,1	70	1,6
														0,32	0,25	0,1	32	
			0,41	0,32	0,1			70										
			0,12	0,09	0,1			20										
	3/4	40	32	16	14	1	50	18	17	41	12,5	230	215	0,32	0,25	0,1	32	
														0,41	0,32	0,1	70	
			0,41	0,32	0,1			70										
			0,12	0,09	0,1			20										
1	40	39	18	18	1	50	18	17	41	20	230	215	215	0,32	0,25	0,1	32	1,8
														0,41	0,32	0,1	70	
		0,12	0,09	0,1			20											
		0,32	0,25	0,1			32											
1 1/4	40	49	20	18	1	50	18	17	50	16	230	215	215	0,32	0,25	0,1	32	
														0,41	0,32	0,1	70	
		0,12	0,09	0,1			20											
		0,32	0,25	0,1			32											

other design on request

²⁾ type 18.1 to 200 [bar(g)]

Relief-Valve, springloaded

for steam, gases and liquids

Typ 18

Discharge capacities

Size	I										
do [mm]	8			10			12,5			16	
Fluid	Water 20°C [kg/h]	Steam [kg/h]	Air 0°C [m ³ /h]	Water 20°C [kg/h]	Steam [kg/h]	Air 0°C [m ³ /h]	Water 20°C [kg/h]	Steam [kg/h]	Air 0°C [m ³ /h]	Steam [kg/h]	Air 0°C [m ³ /h]
Coefficient of discharge	Q _w 0,32	Q _w max. 0,46		Q _w 0,30	Q _w max. 0,38		Q _w 0,21	Q _w max. 0,30		Q _w max. 0,14	
Pe [bar(g)]											
0,05										10	12
0,1				530	12	14	583	13	17	11	14
0,2				650	14	19	715	15	21	13	18
0,4				839	18	25	923	21	29	18	24
0,5				920	19	29	1011	22	33	19	26
1,0				1244	34	41	1368	40	48	32	39
1,5				1525	40	53	1675	47	64	37	51
2				1760	52	66	1935	63	79	49	62
3				2155	69	89	2369	84	107	66	85
4				2489	87	111	2737	105	134	82	107
6				3048	121	157	3352	145	189	114	150
8				3520	155	202	3870	186	244	147	193
10				3935	188	249	4326	228	299	179	237
15				4819	273	362	5299	329	437	260	344
20	3958	274	366	5565	356	477	6119	429	575	339	453
25	4424	338	454	6222	440	592	6841	531	714	419	563
30	4847	403	543	6816	525	707	7494	633	853	498	672
35	5235	468	633	7362	608	823	8100	734	992	579	782
40	5597	532	722	7871	693	939	8654	835	1132	659	893
45	5936	597	811	8348	778	1056	9178	937	1273		
50	6257	662	901	8799	862	1173	9675	1040	1414		
60	6854	794	1081	9639	1034	1407	10599	1246	1696		
70	7403	927	1263	10412	1208	1643	11448	1456	1981		
80	7915	1065	1445	11130	1386	1882					
90	8395	1206	1630	11805	1570	2122					
100	8848	1348	1815	12443	1753	2364					
110	9281	1489	2002	13052	1939	2607					
120	9693	1635	2190	13631	2129	2852					
130	10089	1781	2379	14188	2319	3099					
140	10470	1929	2571	14724	2512	3347					
150	10837	2087	2761								
175	11706		3249								
200	12514		3747								
250	13567		4440								

Relief-Valve, springloaded

for steam, gases and liquids

Typ 18

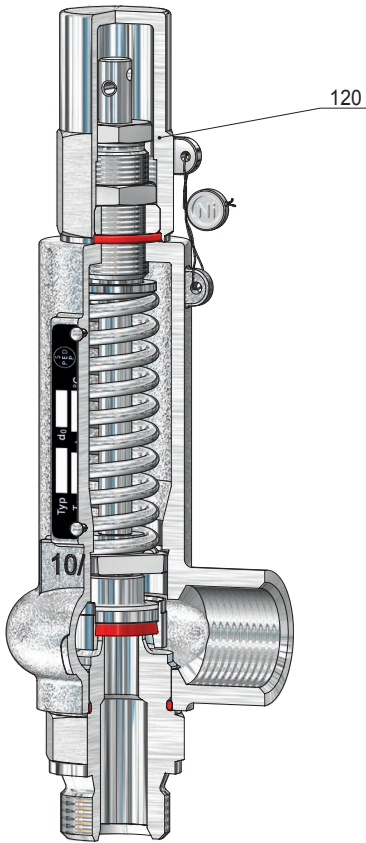
Discharge capacities

Size	II								
do [mm]	12,5			16			20		
Fluid	Water 20°C [kg/h]	Steam [kg/h]	Air 0°C [m ³ /h]	Water 20°C [kg/h]	Steam [kg/h]	Air 0°C [m ³ /h]	Water 20°C [kg/h]	Steam [kg/h]	Air 0°C [m ³ /h]
Coefficient of discharge	Q _w 0,32	Q _w max. 0,41		Q _w 0,25	Q _w max. 0,32		Q _w 0,09	Q _w max. 0,12	
Pe [bar(g)]									
0,1	891	20	24	1157	25	32	629	14	18
0,2	1091	24	32	1417	31	41	770	17	22
0,4	1408	31	44	1829	40	55	994	21	30
0,5	1542	33	48	2004	42	62	1089	23	33
1,0	2089	58	70	2714	74	89	1475	43	53
1,5	2558	66	90	3323	85	116	1806	50	68
2	2954	86	109	3838	110	140	2086	65	83
3	3618	114	147	4700	147	188	2554	87	112
4	4177	143	185	5427	184	237	2950	109	141
6	5115	199	260	6647	255	333	3612	152	198
8	5907	255	334	7676	328	430	4171	195	255
10	6604	311	410	8581	399	527	4664	237	312
15	8088	450	606	10509	579	769	5712	343	455
20	9339	587	788	12136	755	1012	6596	448	600
25	10441	727	978	13568	934	1255			
30	11439	867	1168	14863	1112	1500			
35	12355	1005	1360	16055	1291	1746			
40	13208	1144	1551						
45	14009	1284	1744						
50	14766	1425	1936						
60	16177	1708	2324						
70	17472	1995	2716						

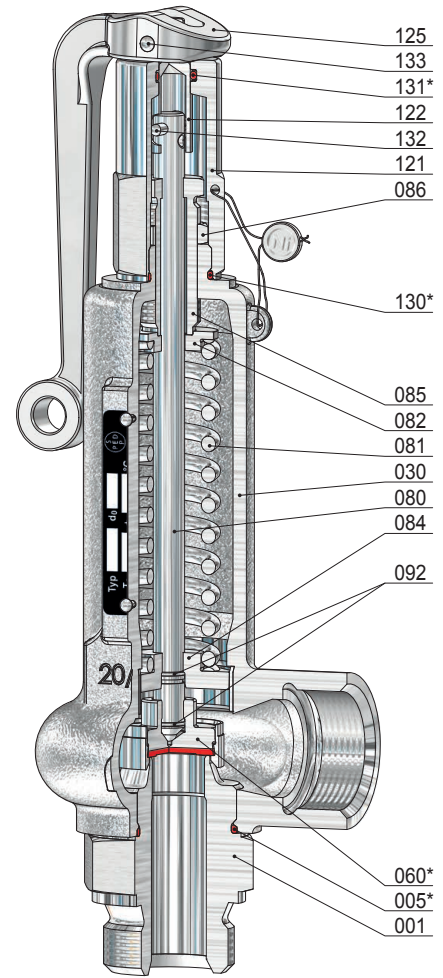
Relief-Valve, springloaded

for steam, gases and liquids

Typ 18



Size I
head C



Size II
head A

Item	Piece	Description	Item	Piece	Description
001	1	inlet body	120	1	cap
005 *	1	o-ring	121	1	lifting cap
030	1	spring bonnet	122	1	coupling
060 *	1	disc, complete	125	1	lifting button
560	1	disc	130 *	1	o-ring
062	1	soft sealing	131 *	1	o-ring
063	1	disc ring	132	1	groove pin
080	1	spindle	133	1	groove pin
081	1	spring			
082	1	springplate, upper			
084	1	springplate, lower			
085	1	adjusting screw			
086	1	lock nut			
092	2	lock ring			

* expendable parts

Full-Lift-Safety-Valve, springloaded

for steam, gases and liquids

Typ 19

Standard version:

Material:	Inlet body	/ Outlet body	Temperature ranges
Typ 19.1:	1.4104	/ 0.7043	-10°C to 280°C
Typ 19.2:	1.4571	/ 1.4581	-60°C to 280°C
Typ 19.7:	1.4571	/ 1.4308 <i>only with head C</i>	-200°C to 280°C

Connections:	soft seated
Screwed connection: DIN ISO 228 / ASME B1.20.1	see techn. appendix: KWD-1

Approvals:

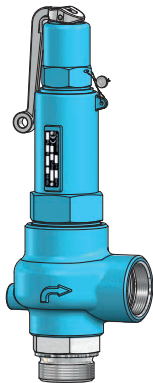
Pressure Equipment Directive: 2014/68/EU
Declaration of Conformity



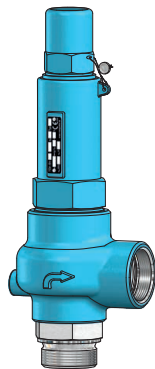
TÜV - Approval:

VdTÜV-leaflet AD 2000-leaflet A 2

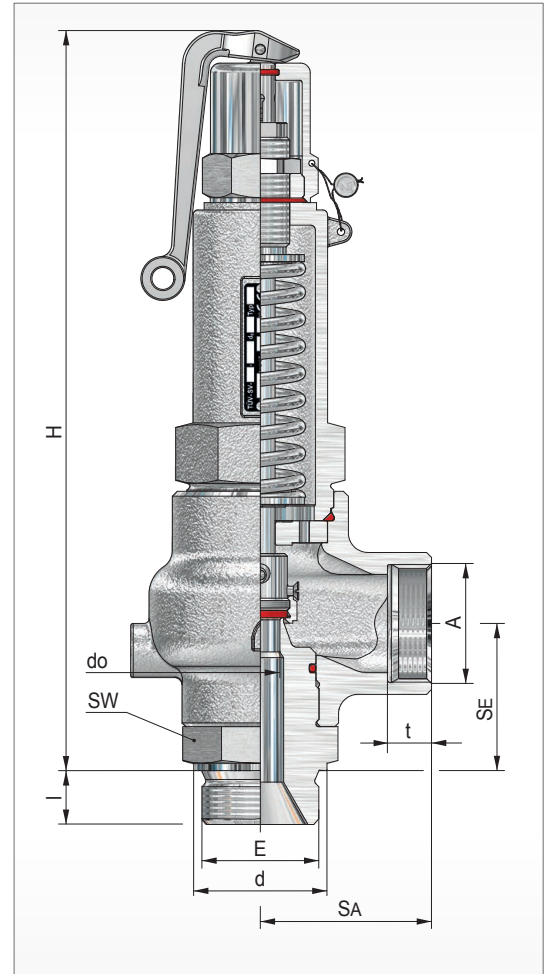
TÜV • SV • XX-940 • do • D/G/F • α_w • p



Size II
head A



Size II
head C



Size	Inlet					Outlet				Dimensions		Height 'H' for head			Coefficient		Set pressure		Weight ~ [kg]
	E	SE	d	l(G)	l(NPT)	A	SA	t(G)	t(NPT)	SW	do	A	C	D/G α _w max.	F α _w	p min. [bar(g)]	p max. [bar(g)]		
II	¾	60	32	16	14	1 ½	70	18	18	50	12,5	305	290	0,77	-	7	130	3,6	
														0,77	0,56	20	130		
														0,60	0,45	0,10	70		
			12,5	0,77	-									7	130				
			12,5	0,77	0,56									20	130				
			16	0,60	0,45									0,10	70				
	1	60	39	18	18	1 ½	70	18	18	50	12,5	305	290	0,77	0,56	20	130	3,6	
														0,60	0,45	0,10	70		
														16	0,60	0,45	0,10		70
			20	0,58	0,45									0,10	40				
			16	0,60	0,45									0,10	70				
			20	0,58	0,45									0,10	40				
1 ¼	60	49	20	18	1 ½	70	18	18	50	20	305	290	0,58	0,45	0,10	40	3,6		
													25	0,52	0,37	0,05		30	
1 ½	60	55	22	19	1 ½	70	18	18	50	25	305	290	0,52	0,37	0,05	30	4,2		

other design on request

Full-Lift-Safety-Valve, springloaded

for steam, gases and liquids

Typ 19

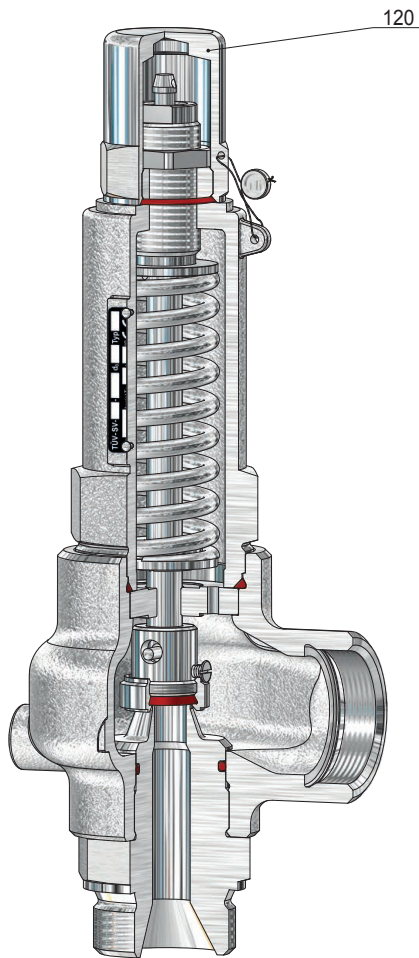
Discharge capacities

Size	II											
do [mm]	12,5			16			20			25		
Fluid	Water 20°C [kg/h]	Steam [kg/h]	Air 0°C [m ³ /h]	Water 20°C [kg/h]	Steam [kg/h]	Air 0°C [m ³ /h]	Water 20°C [kg/h]	Steam [kg/h]	Air 0°C [m ³ /h]	Water 20°C [kg/h]	Steam [kg/h]	Air 0°C [m ³ /h]
Coefficient of discharge	α _w 0,56	α _w max. 0,77		α _w 0,45	α _w max. 0,60		α _w 0,45	α _w max. 0,58		α _w 0,37	α _w max. 0,52	
p _e [bar(g)]												
0,05												
0,1				2058,1	45,1	56,9	3215,7	70,5	88,9	3577,8	80,4	99,0
0,2				2520,6	53,4	70,2	3938,5	83,8	110,1	4131,3	91,1	114,8
0,3				2910,6	59,7	81,7	4547,7	95,7	130,9	5059,8	113,7	149,5
0,4				3254,1	64,8	92,0	5084,5	103,0	146,2	5842,6	130,9	179,0
0,5				3564,7	69,1	101,5	5569,8	113,8	167,0	6532,2	144,7	205,2
1,0				4826,6	129,2	156,3	7541,6	199,7	241,4	9688,8	277,0	334,9
1,5				5911,4	153,2	207,9	9236,5	233,4	316,9	11866,4	321,4	436,3
2,0				6825,9	203,2	257,5	10665,4	309,3	392,0	13702,1	432,5	548,0
2,5				7631,5	242,0	306,8	11924,3	367,4	465,6	15319,4	513,9	651,4
3,0				8359,9	276,8	354,6	13062,4	418,0	535,6	16781,6	585,6	750,3
3,5				9029,8	312,1	399,9	14109,0	471,3	604,0	18126,2	660,3	846,1
4,0				9653,2	345,5	445,2	15083,2	521,9	672,4	19377,7	731,1	942,0
4,5				10238,8	380,6	490,5	15998,1	574,9	740,9	20553,1	805,3	1037,8
5				10792,6	413,5	535,8	16863,5	624,6	809,3	21664,9	875,0	1133,8
6				11822,7	480,8	626,5	18473,0	726,3	946,3	23732,7	1017,4	1325,7
7		429,9	561,8	12770,0	548,9	717,3	19953,2	829,0	1083,4	25634,3	1161,4	1517,7
8		483,0	633,0	13651,7	616,6	808,1	21330,8	931,3	1220,6	27404,2	1304,6	1709,9
9		535,7	704,2	14479,8	683,9	899,0	22624,7	1033,0	1357,8	29066,5	1447,1	1902,2
10		588,8	775,4	15263,1	751,7	989,9	23848,6	1135,3	1495,2	30638,8	1590,4	2094,6
15		851,7	1130,0	18693,3	1087,3	1445,5	29208,4	1642,3	2183,3	37524,7	2300,7	3058,5
20	16395,1	1112,0	1490,3	21585,3	1419,7	1902,6	33727,0	2144,3	2873,7	43329,8	3003,9	4025,7
25	18330,2	1376,0	1849,5	24133,1	1756,8	2361,2	37707,9	2653,4	3566,4	48444,2	3717,1	4996,0
30	20079,8	1639,0	2209,9	26436,4	2092,4	2821,3	41306,9	3160,4	4261,4	53068,0	4427,3	5969,6
35	21688,6	1902,0	2571,5	28554,6	2428,3	3283,0	44616,6	3667,7	4958,6			
40	23186,1	2164,6	2934,3	30526,2	2763,5	3746,2	47697,2	4174,0	5658,3			
45	24592,6	2429,1	3298,3	32377,9	3101,1	4210,9						
50	25922,9	2694,9	3663,6	34129,3	3440,6	4677,2						
60	28397,1	3232,4	4397,9	37386,8	4126,7	5614,6						
70	30672,3	3774,6	5137,1	40382,3	4818,9	6558,4						
80	32790,1	4331,6	5881,5									
90	34779,2	4904,3	6631,0									
100	36660,5	5480,7	7385,9									
110	38449,8	6061,7	8146,0									
120	40159,5	6650,2	8911,6									
130	41799,4	7246,1	9682,7									

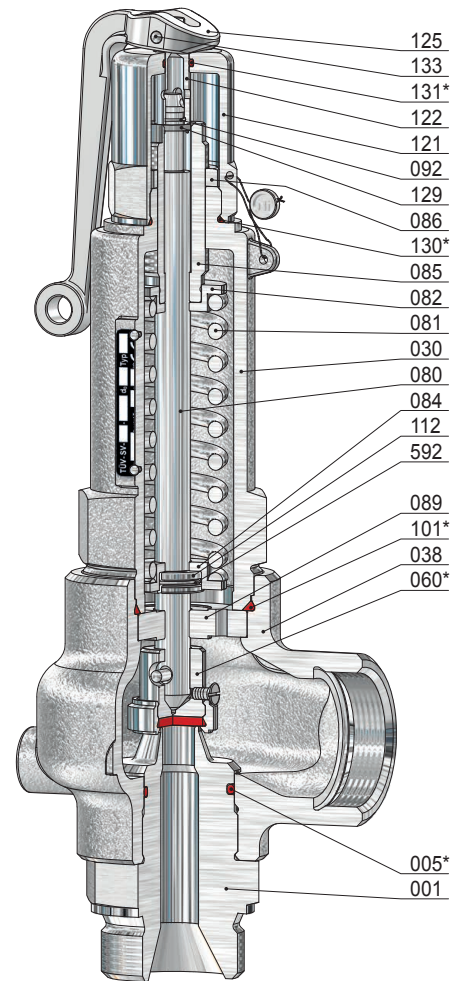
Full-Lift-Safety-Valve, springloaded

for steam, gases and liquids

Typ 19



Size II
head C



Size II
head A

Item	Piece	Description	Item	Piece	Description
001	1	inlet body	086	1	lock nut
005 *	1	o-ring	089	1	guide plate
030	1	spring bonnet	092	1	lock ring
038	1	outlet body	101 *	1	o-ring
060 *	1	disc, complete	112	1	splitted ring
560	1	disc	120	1	cap
062	1	soft sealing	121	1	lifting cap
063	1	disc ring	122	1	coupling
067	1	security screw	125	1	lifting button
107	1	spring pin	129	1	pressure plate
080	1	spindle	130 *	1	o-ring
081	1	spring	131 *	1	o-ring
082	1	springplate, upper	133	1	groove pin
084	1	springplate, lower	592	1	lock ring
085	1	adjusting screw			

* expendable parts

Relief-Valve, springloaded

for steam, gases and liquids

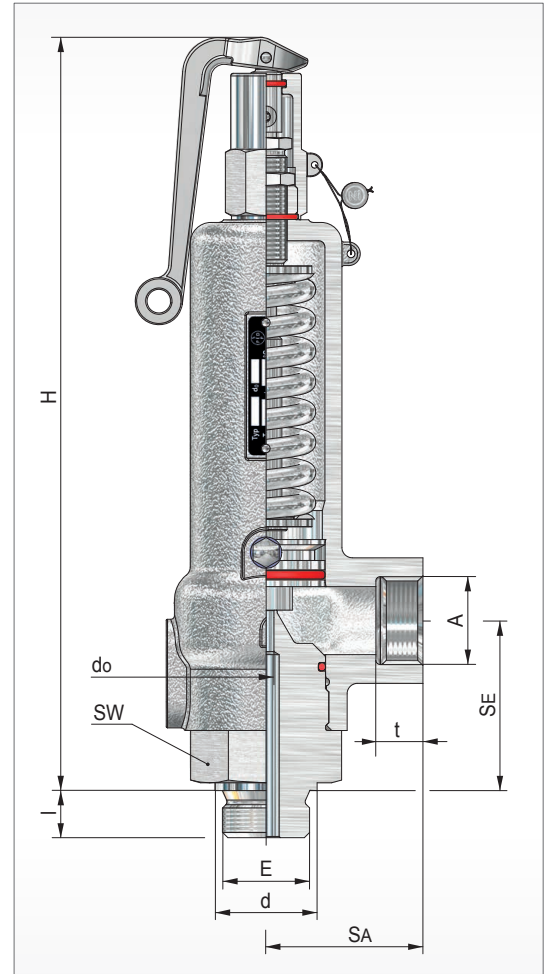
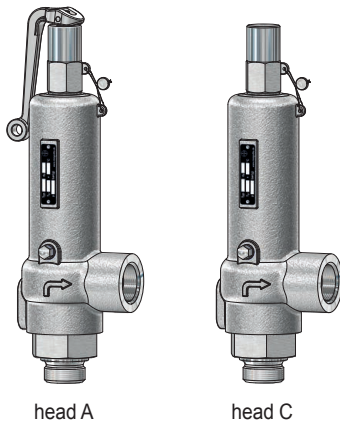
Typ 21

Standard version:

		Temperature ranges	
Material:	Inlet body / Spring bonnet	metal seated	
Typ 21.2:	1.4571 / 1.4581	-60°C to 280°C	
Connections:		soft seated	
Screwed connection: DIN ISO 228 / ASME B1.20.1		see techn. appendix: KWD-1	

Approvals:

Pressure Equipment Directive: 2014/68/EU
Declaration of Conformity



Size	Inlet					Outlet				Dimensions		Height 'H' for head		Coefficient		Set pressure		Weight	
	E	SE	d	l (G)	l (NPT)	A	SA	t (G)	t (NPT)	SW	do	A	C	D/G	F	p min.	p max.		
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	αw max.	αw	[bar(g)]	[bar(g)]	~ [kg]	
3/4	65	32	16	14	1	60	18	19	50	8	290	275		0,08	0,05	100	600	4,2	
														0,08	0,05	100	1100		
														0,08	0,05	80	250		
														0,08	0,05	100	600		
1		39	18	18						12,5									
										8									

other design on request

Relief-Valve, springloaded

for steam, gases and liquids

Typ 21

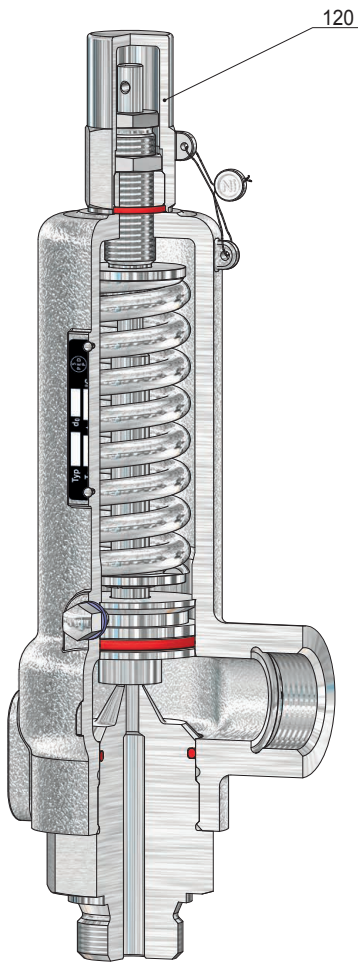
Discharge capacities

Size									
do [mm]	6			8			12,5		
Fluid	Water 20°C [kg/h]	Steam [kg/h]	Air 0°C [m ³ /h]	Water 20°C [kg/h]	Steam [kg/h]	Air 0°C [m ³ /h]	Water 20°C [kg/h]	Steam [kg/h]	Air 0°C [m ³ /h]
Coefficient of discharge	Q _w 0,05	Q _w max. 0,08		Q _w 0,05	Q _w max. 0,08		Q _w 0,05	Q _w max. 0,08	
p _e [bar(g)]									
100	754	131	176				3273	569	767
120	826	159	213				3585	690	925
140	896	187	250				3873	815	1086
160	954	219	288				4156	952	1250
180	1011	253	326				4341	1100	1415
200	1066	290	365				4629	1261	1583
230	1143		424				4964		1840
260	1216		484	2161		862			
290	1284		547	2283		972			
320	1349		610	2398		1085			
360	1431		698	2543		1241			
400	1508		789	2681		1403			
440	1582		883	2812		1571			
480	1652		982	2937		1745			
520	1719		1084	3057		1927			
560	1784		1191	3172		2117			
600	1847		1302	3284		2316			
650	1922		1450						
700	1995		1607						
750	2065		1775						
800	2133		1956						
850	2198		2152						
900	2262		2366						
950	2324		2601						
1000	2384		2862						
1100	2501		3486						

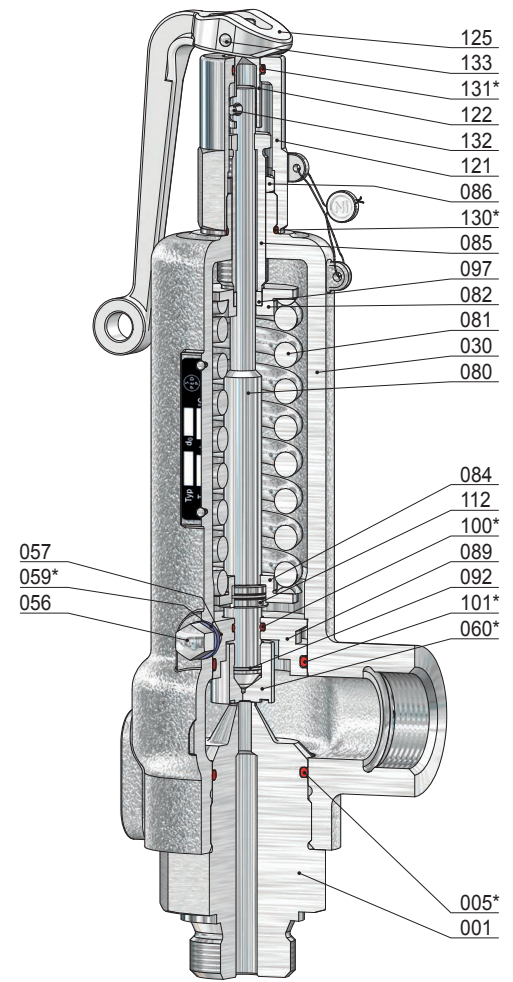
Relief-Valve, springloaded

for steam, gases and liquids

Typ 21



head C



head A

Item	Piece	Description	Item	Piece	Description
001	1	inlet body	092	1	lock ring
005 *	1	o-ring	097	1	glide ring
030	1	spring bonnet	100 *	1	o-ring
056	2	lock nut	101 *	1	o-ring
057	2	screwed pin	112	1	split ring
059 *	2	o-ring	120	1	cap
060 *	1	disc, complete	121	1	lifting cap
560	1	disc	122	1	coupling
062	1	soft sealing	125	1	lifting lever
080	1	spindle	130 *	1	o-ring
081	1	spring	131 *	1	o-ring
082	1	springplate, upper	132	1	groove pin
084	1	springplate, lower	133	1	groove pin
085	1	adjusting screw			
086	1	lock nut			
089	1	guide plate			

* expendable parts

Safety-Valve, springloaded

for steam, gases and liquids

Typ 21

Standard version:

Material		Inlet body / Spring bonnet		Temperature ranges
Typ 21.2:	1.4571	/	1.4581	metal seated -60°C to 280°C
Connections:				soft seated
Screwed connection: DIN ISO 228 / ASME B1.20.1				see techn. appendix: KWD-1

Approvals:

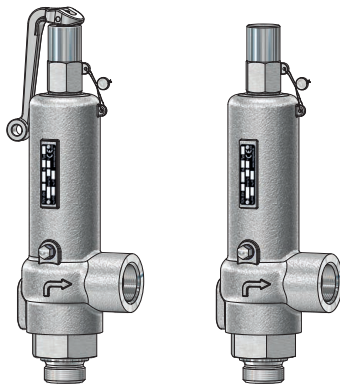
Pressure Equipment Directive: 2014/68/EU
Declaration of Conformity



TÜV - Approval:

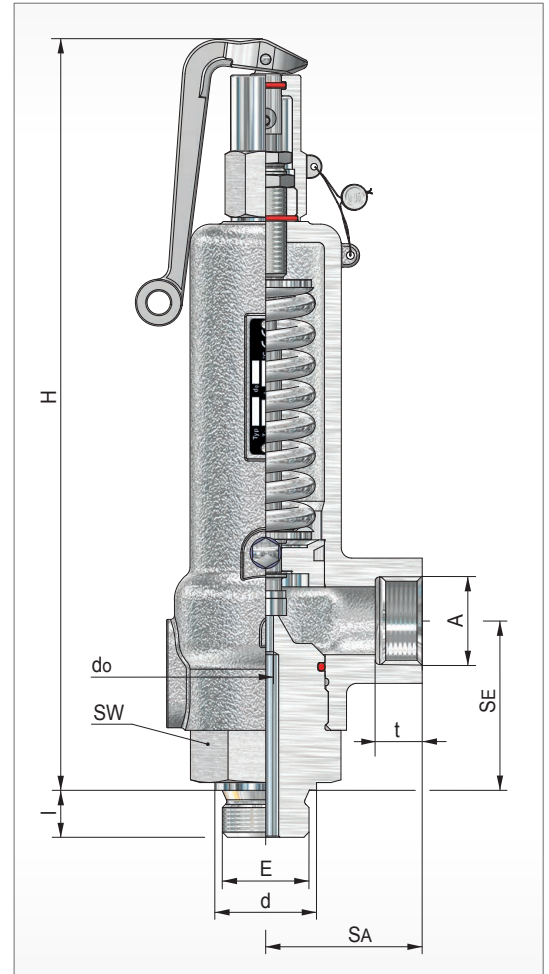
VdTÜV-leaflet AD 2000-leaflet A 2

TÜV • SV • XX-1036 • do • D/G oder F • α_w • p



head A

head C



Size	Inlet					Outlet				Dimensions		Height 'H' for head		Coefficient		Set pressure		Weight
	E	SE	d	l (G)	l (NPT)	A	SA	t (G)	t (NPT)	SW	do	A	C	D/G	F	p min.	p max.	
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	α _w max.	α _w	[bar(g)]	[bar(g)]	~ [kg]
1			39	18	18						12,5				0,14	250	250	4,2
3/4	65		32	16	14	1	60	18	19	50	6	290	275	0,30		100	1000	
1			39	18	18													

other design on request

Safety-Valve, springloaded

for steam, gases and liquids

Typ 21

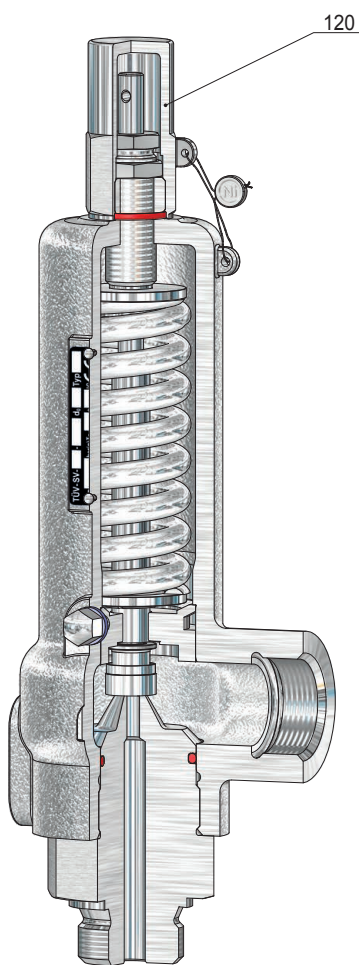
Discharge capacities

Size	6		12,5
do [mm]	6		12,5
Fluid	Steam [kg/h]	Air 0°C [m ³ /h]	Water 20°C [kg/h]
Coefficient of discharge	Q _w max. 0,30		Q _w 0,14
p _e [bar(g)]			
100	492,0	663,0	
110	544,1	731,0	
120	597,0	800,0	
130	650,5	869,2	
140	704,6	938,9	
150	762,0	1009,1	
175	918,0	1187,0	
200	1089,9	1368,3	
225		1553,1	
250		1741,6	14491,0
275		1933,9	
300		2130,3	
325		2330,9	
350		2535,9	
375		2745,5	
400		2960,0	
425		3179,6	
450		3404,6	
475		3635,2	
500		3871,9	
525		4114,8	
550		4364,4	
575		4621,2	
600		4885,4	
625		5157,6	
650		5438,4	
675		5728,2	
700		6027,7	
725		6337,7	
750		6658,7	
775		6991,8	
800		7337,9	
825		7697,9	
850		8073,1	
875		8464,9	
900		8874,7	
925		9304,3	
950		9755,6	
975		10230,8	
1000		10732,7	

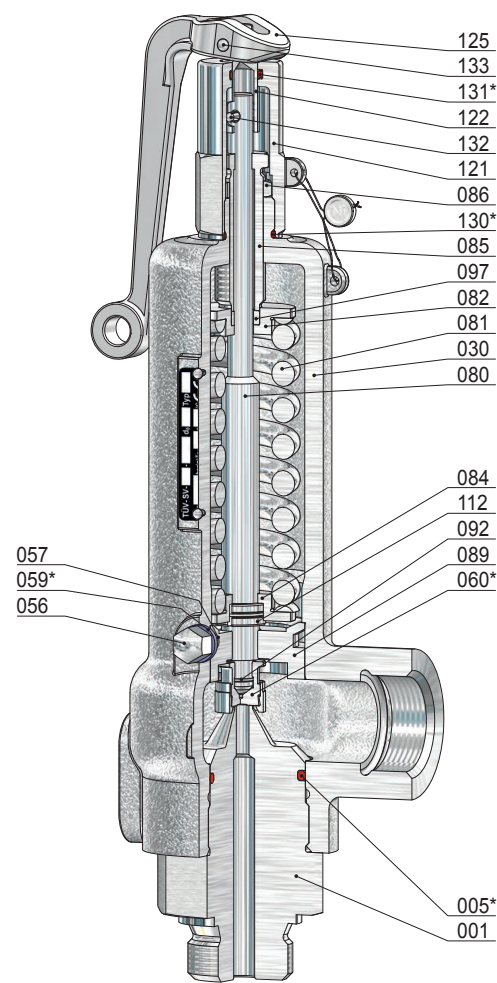
Safety-Valve, springloaded

for steam, gases and liquids

Typ 21



head C



head A

Item	Piece	Description	Item	Piece	Description
001	1	inlet body	086	1	lock nut
005 *	1	o-ring	089	1	guide plate
030	1	spring bonnet	092	1	lock ring
056	2	lock nut	097	1	glide ring
057	2	screwed pin	112	1	split ring
059 *	2	o-ring	120	1	cap
060 *	1	disc, complete	121	1	lifting cap
560	1	disc	122	1	coupling
062	1	soft sealing	125	1	lifting lever
063	1	disc ring	130 *	1	o-ring
080	1	spindle	131 *	1	o-ring
081	1	spring	132	1	groove pin
082	1	springplate, upper	133	1	groove pin
084	1	springplate, lower			
085	1	adjusting screw			

* expendable parts

Safety-Valve, springloaded

for steam, gases and liquids

Typ 50

Standard version:

Material	Inlet body	/ outlet body	Temperature ranges
Typ 50.2:	1.4404	/ 1.4404	-200°C to 280°C
Typ 50.7:	1.4571	/ 1.4571	-200°C to 280°C

Connections:	only Thermoplasts
Screwed connection: DIN ISO 228 / ASME B1.20.1 / Ermeto	see techn. appendix: KWD-1

Approvals:

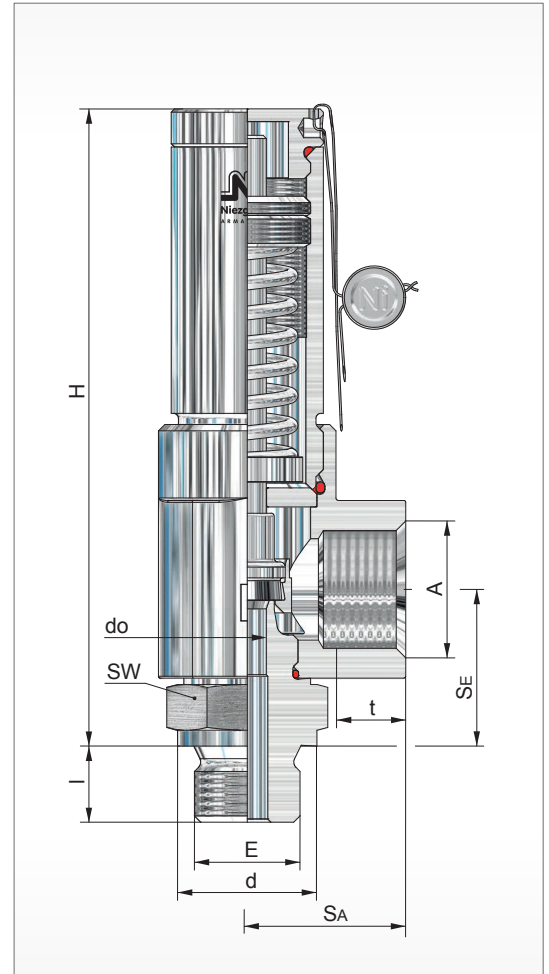
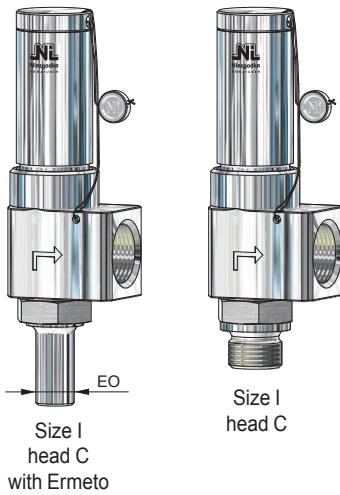
Pressure Equipment Directive: 2014/68/EU
Declaration of Conformity



TÜV - Approval:

VdTÜV-leaflet AD 2000-leaflet A 2

TÜV • SV • XX-1141 • do • D/G/F • α_w • p



Size	Inlet						Outlet				Dimensions		Height 'H' for head C	Coefficient		Set pressure		Weight
	E	SE	d	l (G)	l (NPT)	EO Ø	A	SA	t (G)	t (NPT)	SW	do		D/G	F	p min.	p max.	
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	α _w max.	α _w	[bar(g)]	[bar(g)]	~ [kg]
I	¼	25	18	12	17	-	¾	25	10	10	28	6	100	0,49		0,5	100	0,36
						1,0								100				
	¾		22	12	17	-	½							0,52		0,5	100	
																1,0	100	
EO			18	25	-	12												

other design on request

Safety-Valve, springloaded

for steam, gases and liquids

Typ 50

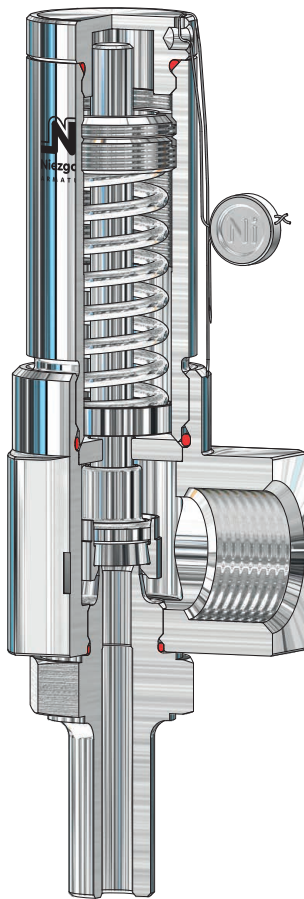
Discharge capacities

Size	G ¾			G ½		
do [mm]	6			6		
Fluid	Water 20°C [kg/h]	Steam [kg/h]	Air 0°C [m³/h]	Water 20°C [kg/h]	Steam [kg/h]	Air 0°C [m³/h]
Coefficient of discharge	Qw 0,40	Qw max. 0,49		Qw 0,42	Qw max. 0,52	
pe [bar(g)]						
0,5		8,2	12,1		8,7	12,7
1,0	603	15,4	18,7	633	16,1	19,5
1,5	739	18,1	24,6	776	18,9	25,6
2,0	853	23,9	30,3	896	24,9	31,5
2,5	954	28,0	35,5	1001	29,5	37,3
3,0	1045	31,8	40,7	1097	33,7	43,2
3,5	1129	35,8	45,9	1185	38,0	48,7
4,0	1207	39,7	51,1	1267	42,1	54,2
4,5	1280	43,7	56,3	1344	46,3	59,8
5	1349	47,4	61,5	1417	50,4	65,3
6	1478	55,2	71,9	1552	58,6	76,3
7	1596	63,0	82,4	1676	66,9	87,4
8	1706	70,8	92,8	1792	75,1	98,5
9	1810	78,5	103,2	1900	83,3	109,5
10	1908	86,3	113,7	2003	91,6	120,6
12	2090	101,8	134,6	2194	108,0	142,8
14	2257	117,2	155,5	2370	124,4	165,0
15	2337	124,8	166,0	2454	132,5	176,1
16	2413	132,5	176,5	2534	140,6	187,3
18	2560	147,7	197,5	2688	156,7	209,5
20	2698	163,0	218,5	2833	173,0	231,9
25	3017	201,7	271,1	3167	214,1	287,7
30	3305	240,3	324,0	3470	255,0	343,9
35	3569	278,8	377,0	3748	296,0	400,1
40	3816	317,4	430,2	4007	336,8	456,6
45	4047	356,1	483,6	4250	377,9	513,2
50	4266	395,1	537,1	4479	419,3	570,0
60	4673	473,9	644,8	4907	502,9	684,3
70	5048	553,4	753,2	5300	587,3	799,3
80	5396	635,1	862,3	5666	674,0	915,1
90	5724	719,0	972,2	6010	763,0	1031,0
100	6033	803,5	1082,0	6335	852,7	1149,0

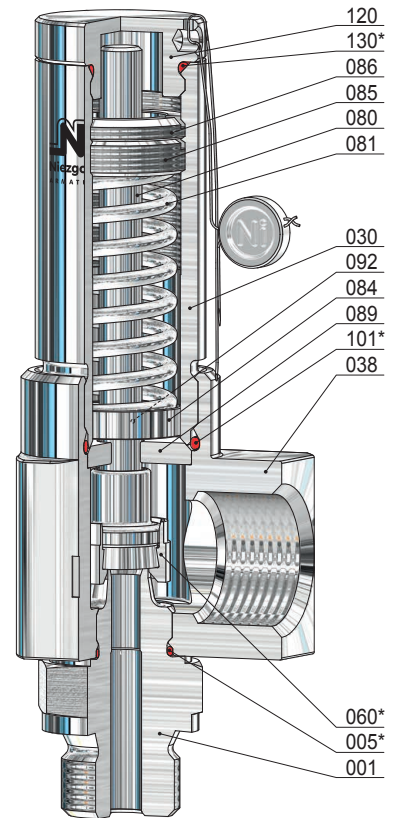
Safety-Valve, springloaded

for steam, gases and liquids

Typ 50



Size I
head C
with Ermeto



Size I
head C

Item	Piece	Description	Item	Piece	Description
001	1	inlet body	086	1	lock nut
005 *	1	o-ring	089	1	guide plate
030	1	spring bonnet	092	1	lock ring
038	1	outlet body	101 *	1	o-ring
060 *	1	disc, complete	120	1	cap
560	1	disc	130 *	1	o-ring
062	1	soft sealing			
063	1	disc ring			
080	1	spindle			
081	1	spring			
084	1	springplate, lower			
085	1	adjusting screw			

* expendable parts

Safety-Valve, springloaded

for steam, gases and liquids

Typ 140

Standard version:

Material:	Inlet body	/ Spring bonnet	metal seated	Temperature ranges
Type 140.1:	1.4104	/ 1.4104	-10°C to 280°C	
Type 140.2:	1.4404	/ 1.4404	-200°C to 280°C	
Type 140.7:	1.4571	/ 1.4571	-200°C to 280°C	
Connections:	soft seated			
Screwed connection: DIN ISO 228 / ASME B1.20.1			see techn. appendix: KWD-1	

Approvals:

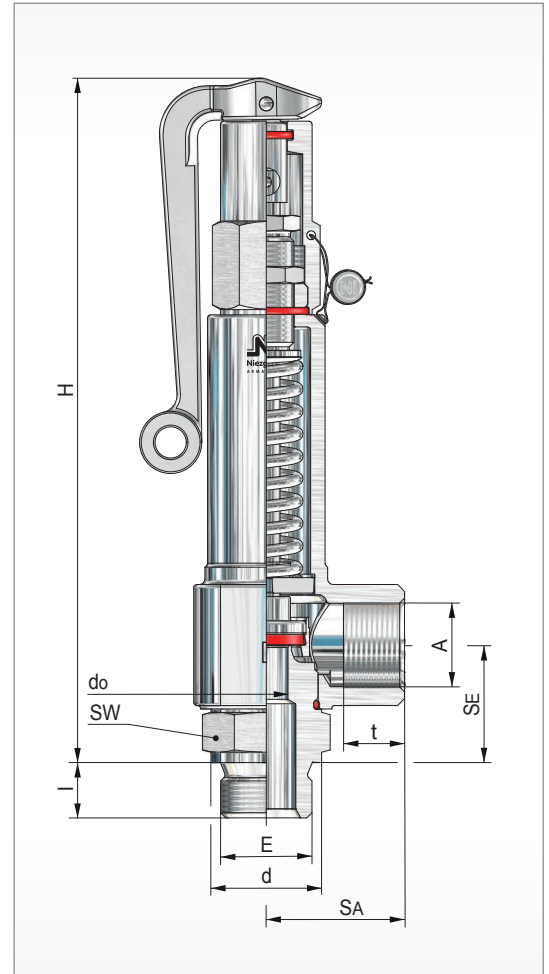
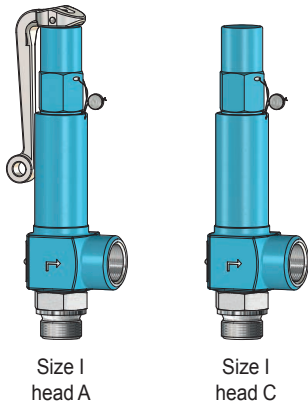
Pressure Equipment Directive: 2014/68/EU
Declaration of Conformity



TÜV - Approval:

VdTÜV-leaflet AD 2000-leaflet A 2

TÜV • SV • XX-1067 • do • D/G/F • α_w • p



Size	Inlet					Outlet				Dimensions		Height 'H' for head			Coefficient		Set pressure		Weight ~ [kg]
	E	SE	d	l (G)	l (NPT)	A	SA	t (G)	t (NPT)	SW	do	A	C	D/G α _w max.	F α _w	p min. [bar(g)]	p max. [bar(g)]		
I	3/8	34	22	12	11	1/2	35	15	14	32	10	200	185	0,31	0,24	0,2	200	1,0	
														0,44	0,33	6,0	300		
														0,26	0,19	0,2	100		
														0,31	0,24	0,2	200		
														0,44	0,33	6,0	300		
														0,31	0,24	0,2	200		
	0,60	-	50,0	500															
	0,26	0,19	0,2	100															
	0,31	0,24	0,2	200															
	0,44	0,33	6,0	300															
	0,31	0,24	0,2	200															
	0,60	-	50,0	500															

other design on request

¹⁾ type 140.1 to 300 bar(g)

Safety-Valve, springloaded

for steam, gases and liquids

Typ 140

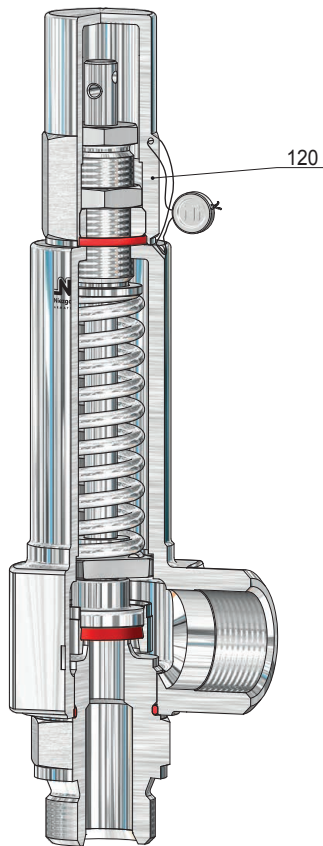
Discharge capacities

Size	I										
do [mm]	6		8			10			12,5		
Fluid	Air 0°C [m ³ /h]	Water 20°C [kg/h]	Steam [kg/h]	Air 0°C [m ³ /h]	Water 20°C [kg/h]	Steam [kg/h]	Air 0°C [m ³ /h]	Water 20°C [kg/h]	Steam [kg/h]	Air 0°C [m ³ /h]	
Coefficient of discharge	Q _w max. 0,60	Q _w 0,33	Q _w max. 0,44		Q _w 0,24	Q _w max. 0,31		Q _w 0,19	Q _w max. 0,26		
P _e [bar(g)]											
0,2					525,1	11,0	14,5	649,6	13,6	17,9	
0,3					606,4	12,7	17,3	750,1	15,8	21,7	
0,4					677,9	14,2	20,1	838,6	17,9	25,4	
0,5					742,6	15,3	22,5	918,6	19,3	28,3	
1,0					1005,5	27,1	32,8	1243,8	35,1	42,4	
1,5					1231,5	31,8	43,2	1523,4	41,0	55,7	
2,0					1422,1	41,8	53,0	1759,1	54,5	69,0	
2,5					1589,9	49,1	62,2	1966,7	64,3	81,5	
3,0					1741,7	55,9	71,6	2154,4	73,2	93,8	
3,5					1881,2	63,0	80,7	2327,0	82,5	105,8	
4,0					2011,1	69,7	89,9	2487,7	91,4	117,7	
4,5					2133,1	76,8	99,0	2638,6	100,7	129,7	
5					2248,5	83,5	108,1	2781,3	109,4	141,7	
6		2167,5	88,2	114,9	2463,1	97,1	126,5	3046,8	127,2	165,7	
7		2341,2	100,6	131,5	2660,4	110,8	144,8	3290,9	145,2	189,7	
8		2502,8	113,0	148,2	2844,1	124,4	163,1	3518,1	163,1	213,7	
9		2654,6	125,4	164,8	3016,6	138,0	181,4	3731,5	180,9	237,8	
10		2798,2	137,8	181,5	3179,8	151,7	199,8	3933,4	198,8	261,8	
12		3065,3	162,5	214,9	3483,3	178,9	236,5	4308,8	234,5	310,0	
14		3310,9	187,1	248,3	3762,4	206,0	273,3	4654,0	269,9	358,2	
15		3427,1	199,3	265,0	3594,5	219,4	291,7	4817,4	287,6	382,3	
16		3539,5	211,5	281,8	4022,2	232,9	310,2	4975,3	305,2	406,5	
18		3754,2	235,8	315,3	4266,2	259,6	347,1	5277,2	340,2	454,8	
20		3957,3	260,3	348,8	4496,9	286,5	384,0	5562,6	375,5	503,2	
25		4424,4	322,1	432,9	5027,7	354,6	476,5	6219,2	464,6	624,5	
30		4846,7	383,6	517,2	5507,6	422,3	569,4	6812,8	553,4	746,2	
35		5235,0	445,2	601,9	5948,9	490,1	662,6	7358,6	642,3	868,3	
40		5596,5	506,6	686,8	6359,6	557,7	756,1	7866,7	730,9	990,8	
45		5935,9	568,5	772,0	6745,4	625,9	849,9	8343,9	820,2	1113,7	
50	657,7	6257,0	630,8	857,5	7110,3	694,4	944,0	8795,3	910,0	1237,1	
60	789,6	6854,2	756,6	1029,4	7788,9	832,9	1133,2	9634,7	1091,5	1485,0	
70	922,3	7403,4	883,5	1202,4	8413,0	972,6	1323,6	10406,7	1274,5	1734,6	
80	1055,9	7914,6	1013,8	1376,6	8993,9	1116,1	1515,4	11125,2	1462,6	1986,0	
90	1190,5	8394,7	1147,9	1552,0	9539,4	1263,7	1708,6	11800,1	1656,0	2239,1	
100	1326,0	8848,8	1282,8	1728,7	10055,4	1412,2	1903,1	12438,4	1850,6	2493,9	
110	1462,5	9280,7	1418,8	1906,6	10546,2	1561,9	2098,9				
120	1599,9	9693,4	1556,5	2085,8	11015,2	1713,5	2296,2				
130	1738,4	10089,2	1696,0	2266,3	11465,0	1867,1	2494,9				
140	1877,8	10470,0	1837,3	2448,1	11897,8	2022,6	2695,0				
150	2018,3	10837,5	1986,8	2631,2	12315,4	2187,2	2896,6				
175	2374,0	11705,8	2393,7	3095,1	13302,1	2635,1	3407,2				
200	2736,6	12514,1	2841,9	3567,7	14220,5	3128,5	3927,5				
250	3483,2	13991,2		4541,0							
300	4260,6	15326,6		5554,5							
350	5071,7										
400	5919,9										
450	6809,1										
500	7743,7										

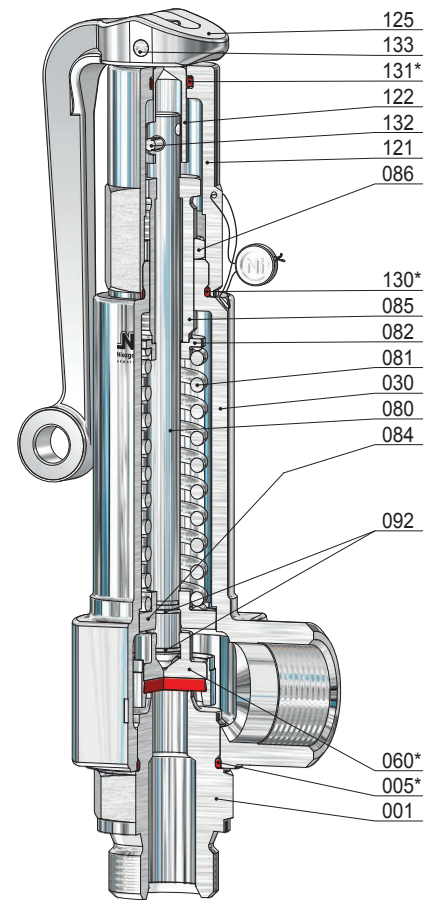
Safety-Valve, springloaded

for steam, gases and liquids

Typ 140



Size I
head C



Size I
head A

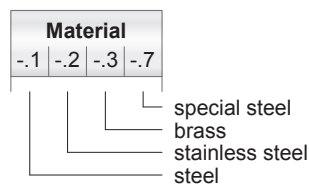
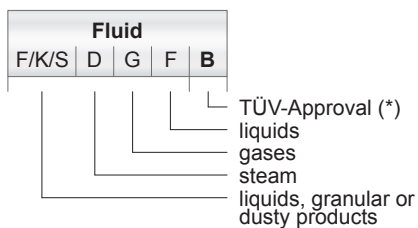
Item	Piece	Description	Item	Piece	Description
001	1	inlet body	120	1	cap
005 *	1	o-ring	121	1	lifting cap
030	1	spring bonnet	122	1	coupling
060 *	1	disc, complete	125	1	lifting button
560	1	disc	130 *	1	o-ring
062	1	soft sealing	131 *	1	o-ring
063	1	disc ring	132	1	groove pin
080	1	spindle	133	1	groove pin
081	1	spring			
082	1	springplate, upper			
084	1	springplate, lower			
085	1	adjusting screw			
086	1	lock nut			
092	2	lock ring			

* expendable parts



Index

Type	Use	*	Fluid	Material				DN	PN _E [bar(g)]	Heads
				-1	-2	-3	-7			
3	Relief-(Overflow)-Valve, springloaded for steam, gases and liquids	-	D/G/F	●	●	●		15 - 100	16 - 320	A - C, F - H, T
30	Safety-Valve, springloaded for steam, gases and liquids	B	D/G/F	●	●	●		15 - 100	16 - 63	A, C, H, T
31	Safety-Valve, springloaded in closed completion	B	D/G/F	●	●	●		15 - 80	16 - 63	A, C, H, T
32	Full-Lift-Safety-Valve, springloaded for steam, gases and liquids	B	D/G/F	●	●	●		15 - 65	16 - 160	A, C, H, T
33	Relief-Valve, springloaded for steam and gases	-	D/G	●	●	●		15 - 50	16 - 63	A, C, H, T



Relief-Valve, springloaded

for steam, gases and liquids

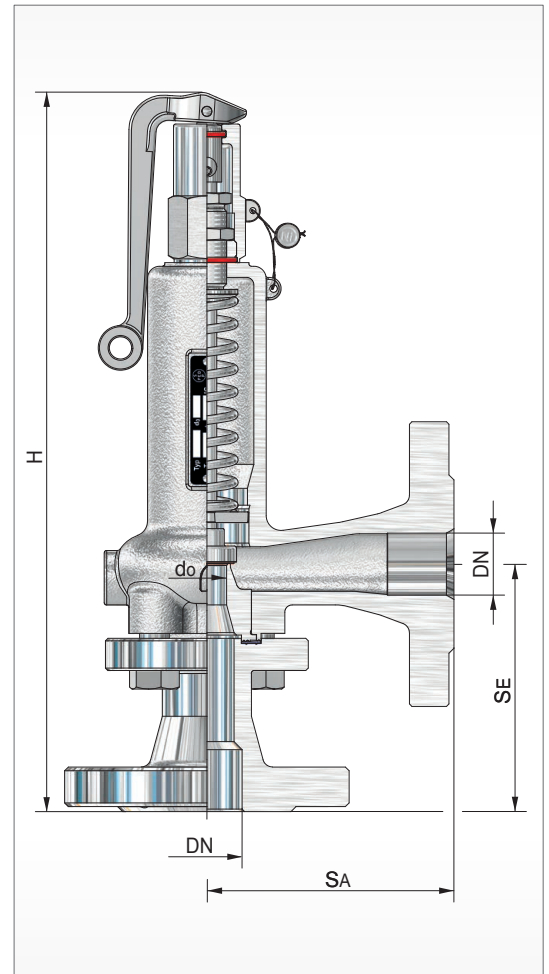
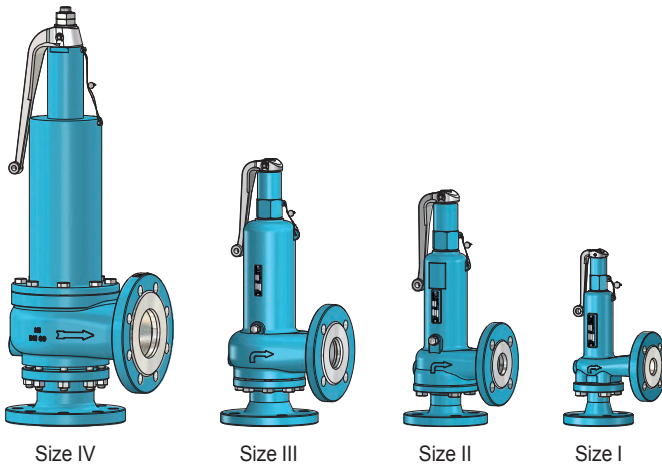
Typ 3

Standard version:

Material:	Inlet body	/ Spring bonnet, outlet body	Temperature ranges metal seated
Typ 3.1: BG I	1.0460	/ 0.7043	-10°C to 280°C
BG II - IV	1.0619	/ 1.0619	-10°C to 280°C
Typ 3.2: BG I	1.4571	/ 1.4581	-60°C to 280°C
BG II - IV	1.4571, 1.4581	/ 1.4581	-60°C to 280°C
Typ 3.7: BG I - IV	1.4571	/ 1.4308	-200°C to 280°C
Connections:			soft seated
Flange connections: DIN EN / ASME B16.5			see techn. appendix: KWD-1

Approvals:

Pressure Equipment Directive: 2014/68/EU
Declaration of Conformity



Size	Inlet					Outlet				Height 'H' for head			Set pressure		Weight ~ [kg]
	DN	NPS	PN / Class	do [mm]	SE [mm]	DN	NPS	PN / Class	SA [mm]	A [mm]	C [mm]	p min. [bar(g)]	p max. [bar(g)]		
I	15	1/2	16-320	8, 12,5, 16, 18	90	15	1/2	16-40 150-300	90	282	268	0,20	300	4,3	
	20	3/4	150-2500		95	20	3/4		95	287		0,20	125	4,5	
	25	1			100	25	1		100	292		0,10	40	4,6	
II	32	1 1/4	16-160	16, 20, 25 20, 25, 32	105	32	1 1/4	16-40 150-300	105	395	375	0,10	90	9,6	
	40	1 1/2	150-1500		115	40	1 1/2		115	405			385	75	10,0
III	50	2	16-160	25, 32, 40 32, 40, 50	125	50	2	16-40 150-300	125	450	430	0,10	100	15,0	
	65	2 1/2	150-1500		145	65	2 1/2		145	470		450	0,05	40	19,3
IV	80	3	16-160	32, 40, 50, 58 50, 60, 70	155	80	3	16-40 150	155	700	620	0,05	25	36,8	
	100	4	150-1500		175	100	4		175	730				650	40,5

other design on request

Relief-Valve, springloaded

for steam, gases and liquids

Typ 3

Discharge capacities

Water at 68°F [10³ kg/h]

Size	I					II					
	15/20	15/25	25	25	25	32	32	32	40	40	40
DN Inlet	12,5	8	12,5	16	18	16	20	25	20	25	32
d _o [mm]	12,5	8	12,5	16	18	16	20	25	20	25	32
α _{W max.}	0,16	0,07	0,16	0,15	0,10	0,19	0,16	0,14	0,15	0,15	0,12
Pe [bar(g)]											
0,1	0,3			0,5	0,4		0,8	1,1		1,2	1,5
0,2	0,4			0,7	0,6		1,1	1,5		1,7	2,2
0,3	0,5			0,8	0,7		1,4	1,9		2,0	2,7
0,4	0,6			1,0	0,8		1,6	2,2		2,4	3,1
0,5	0,7			1,1	0,9		1,8	2,5		2,6	3,5
1,0	1,0			1,5	1,3		2,5	3,5		3,7	4,9
1,5	1,2			1,9	1,6		3,1	4,3		4,6	6,0
2,0	1,4			2,2	1,8		3,6	4,9		5,3	6,9
2,5	1,6			2,4	2,0		4,0	5,5		5,9	7,7
3,0	1,7			2,6	2,2		4,4	6,0		6,5	8,5
3,5	1,9			2,9	2,4		4,8	6,5		7,0	9,2
4,0	2,0			3,1	2,6		5,1	7,0		7,5	9,8
4,5	2,1			3,2	2,7		5,4	7,4		7,9	10,5
5	2,2			3,4	2,9		5,7	7,8		8,4	11,0
6	2,4			3,7	3,2		6,2	8,5		9,2	12,0
7	2,6			4,0	3,4		6,7			9,9	
8	2,8			4,3	3,6		7,2			10,5	
9	3,0			4,6	3,9		7,7			11,0	
10	3,1			4,8	4,1		8,1			12,0	
12	3,4			5,3	4,5		8,8			13,0	
14	3,7			5,7	4,8		9,5			14,0	
16	4,0			6,1	5,2		10,0			15,0	
18	4,2			6,5	5,5		10,5			16,0	
20	4,4			6,8	5,8		11,5			17,0	
25	5,0			7,7			13,0			19,0	
30	5,5			8,4			14,0			20,5	
35	5,9			9,7			15,0			22,0	
40	6,3						16,0			24,0	
45	6,7										
50	7,0	1,26	7,0			13,5			18,0		
60		1,38	7,7			15,0			20,0		
70		1,50	8,3			16,0			21,5		
80		1,60	8,9			17,5			23,0		
90		1,70	9,5			18,5			24,0		
100		1,79	10,0			19,5			25,5		
110		1,87	10,5								
120		1,96	11,0								
130		2,04									
140		2,12									
150		2,19									
160		2,26									
170		2,33									
180		2,40									
190		2,46									
200		2,53									
210		2,59									
220		2,65									
230		2,71									
240		2,77									
250		2,83									

Relief-Valve, springloaded

for steam, gases and liquids

Typ 3

Discharge capacities

Water at 68°F [10³ kg/h]

Size	III						IV						
DN Inlet	50	50	50	65	65	65	80	80	80	80	100	100	100
d _o [mm]	25	32	40	32	40	50	32	40	50	58	50	60	70
Q _{W max.}	0,15	0,13	0,11	0,13	0,11	0,10	0,22	0,16	0,16	0,13	0,18	0,16	0,14
P _e [bar(g)]													
0,1		1,7											
0,2		2,4	3,1		3,1	4,4		4,6	7,1	7,8	8,0	10,0	12,0
0,3		2,9	3,8		3,8	5,5		5,6	8,7	9,6	9,8	12,5	15,0
0,4		3,3	4,4		4,4	6,3		6,5	10,0	11,0	11,0	14,5	17,0
0,5		3,7	5,0		5,0	7,0		7,2	11,0	12,3	12,5	16,0	19,5
1,0		5,3	7,0		7,0	10,0		10,0	16,0	17,4	18,0	23,0	27,5
1,5		6,5	8,6		8,6	12,0		12,5	19,5	21,4	22,0	28,0	33,5
2,0		7,5	9,9		9,9	14,0		14,5	22,5	24,7	25,5	32,5	38,5
2,5		8,4	11,0		11,0	16,0		16,0	25,0	27,6	28,5	36,5	43,5
3,0		9,2	12,0		12,0	17,5		17,5	27,5	30,2	31,0	40,0	47,5
3,5		9,9	13,0		13,0	18,5		19,0	30,0	32,7	33,5	43,0	51,0
4,0		10,5	14,0		14,0	20,0		20,5	32,0	34,9	36,0	46,0	55,0
4,5		11,5	15,0		15,0	21,0		21,5	34,0	37,0	38,0	49,0	58,0
5		12,0	15,5		15,5	22,5		23,0	35,5	39,0	40,0	51,5	61,0
6		13,0	17,0		17,0	24,5		25,0	39,0	42,8	44,0	56,0	67,0
7		14,0			18,5			27,0	42,0		47,5	61,0	
8		15,0			20,0			29,0	45,0		51,0	65,0	
9		16,0			21,0			30,5	48,0		54,0	69,0	
10		17,0			22,0			32,0	50,5		57,0	72,5	
12		18,5			24,5			35,5	55,0		62,0	79,5	
14		20,0			26,5			38,0	60,0		67,0	86,0	
16		21,5			28,0			41,0	64,0		72,0	92,0	
18		22,5			30,0			43,5	68,0		76,0	97,5	
20		24,0			31,5			45,5	71,5		80,5	103,0	
25		26,5			35,0			51,0	80,0		90,0	115,0	
30		29,0			38,5			56,0			98,5		
35		31,5			41,5			60,5			106,0		
40		33,5			44,5			64,5			113,0		
45													
50	26,5			37,5			63,5						
60	29,0			41,0			70,0						
70	31,0			44,5			75,0						
80	33,5			47,5									
90	35,5			50,5									
100	37,5			53,0									
110													
120													
130													
140													
150													
160													
170													
180													
190													
200													
210													
220													
230													
240													
250													

Relief-Valve, springloaded

for steam, gases and liquids

Typ 3

Discharge capacities

Saturated steam [kg/h] / t/h

Size	I					II					
	15/20	15/20	25	25	25	32	32	32	40	40	40
DN Inlet	12,5	8	12,5	16	18	16	20	25	20	25	32
d _o [mm]	12,5	8	12,5	16	18	16	20	25	20	25	32
α _{W max.}	0,23	0,10	0,23	0,19	0,14	0,27	0,23	0,19	0,23	0,20	0,17
Pe [bar(g)]											
0,4	16			23	20		41	54		58	77
0,5	18			26	23		46	61		65	87
0,6	20			29	25		51	67		71	96
0,7	22			31	27		56	72		77	104
0,8	23			33	30		60	78		83	112
0,9	25			35	32		65	83		88	120
1,0	27			38	34		69	89		94	128
1,5	36			49	45		91	116		123	169
2,0	44			60	55		113	144		152	210
2,5	52			71	66		134	171		180	250
3,0	60			81	75		153	197		207	289
3,5	67			90	84		171	221		232	324
4,0	74			100	93		189	245		257	359
4,5	81			110	102		208	268		282	393
5	88			119	111		226	292		307	428
6	102			139	129		263	339		357	497
7	117			158	147		299			406	
8	131			177	165		335			456	
9	145			196	183		371			505	
10	159			215	201		408			554	
12	187			254	237		480			652	
14	215			292	272		552			750	
16	244			330	308		624			848	
18	272			368	343		696			956	
20	300			406	379		768			1040	
25	370			501			948			1290	
30	441			597			1130			1530	
35	512			693			1310			1780	
40	583			789			1490			2030	
45	655										
50	727	129	727			1400			1860		
60		155	873			1680			2230		
70		183	1030			1980			2640		
80		209	1170			2250			3000		
90		236	1330			2550			3400		
100		264	1480			2860			3800		
110		293	1650								
120		323	1820								
130		354									
140		387									
150		422									
160		459									
170		499									
180		542									
190		590									
200		647									
210		718									
220		925									
230											
240											
250											

on request

Relief-Valve, springloaded

for steam, gases and liquids

Typ 3

Discharge capacities

Saturated steam [kg/h] / t/h

Size	III						IV						
DN Inlet	50	50	50	65	65	65	80	80	80	80	100	100	100
d _o [mm]	25	32	40	32	40	50	32	40	50	58	50	60	70
Q _W max.	0,21	0,18	0,15	0,18	0,16	0,14	0,30	0,22	0,22	0,18	0,25	0,22	0,19
P _e [bar(g)]	kg/h						t/h						
0,4		83	110		112	158		0,16	0,25	0,27	0,28	0,36	0,43
0,5		93	124		126	178		0,18	0,28	0,31	0,32	0,40	0,48
0,6		103	136		139	196		0,19	0,30	0,34	0,35	0,44	0,52
0,7		111	148		151	213		0,21	0,33	0,36	0,38	0,47	0,57
0,8		120	159		162	229		0,23	0,35	0,39	0,41	0,51	0,61
0,9		128	170		174	245		0,24	0,38	0,42	0,44	0,54	0,65
1,0		136	181		186	262		0,26	0,40	0,45	0,47	0,58	0,69
1,5		179	238		247	346		0,34	0,53	0,59	0,62	0,76	0,91
2,0		223	295		308	429		0,42	0,66	0,73	0,77	0,95	1,10
2,5		265	349		368	508		0,50	0,79	0,87	0,91	1,10	1,30
3,0		306	398		425	581		0,58	0,91	1,00	1,00	1,30	1,50
3,5		343	446		476	651		0,65	1,00	1,10	1,10	1,50	1,70
4,0		380	494		527	721		0,72	1,10	1,20	1,30	1,60	1,90
4,5		416	542		578	791		0,79	1,20	1,40	1,40	1,80	2,10
5		453	590		629	861		0,86	1,30	1,50	1,50	1,90	2,30
6		526	685		731	999		1,00	1,60	1,70	1,80	2,20	2,60
7		599			832			1,10	1,80		2,00	2,60	
8		672			933			1,30	2,00		2,30	2,90	
9		744			1030			1,40	2,20		2,50	3,20	
10		817			1130			1,50	2,40		2,80	3,50	
12		962			1330			1,80	2,90		3,20	4,10	
14		1100			1530			2,10	3,30		3,70	4,70	
16		1250			1740			2,40	3,70		4,20	5,40	
18		1390			1930			2,60	4,10		4,70	6,00	
20		1540			2140			2,90	4,60		5,20	6,60	
25		1900			2640			6,60	5,70		6,40	8,10	
30		2260			3140			4,30			7,70		
35		2620			3640			5,00			8,90		
40		2990			4150			5,70			10,00		
45													
50	2650			3730			6210						
60	3190			4480			7460						
70	3760			5280			8800						
80	4280			6010									
90	4850			6810									
100	5430			7620									
110													
120													
130													
140													
150													
160													
170													
180													
190													
200													
210													
220													
230													
240													
250													

on request

Relief-Valve, springloaded

for steam, gases and liquids

Typ 3

Discharge capacities

Air at 32°F [m_n^3/h]

Size	I					II					
	15/20	15/20	25	25	25	32	32	32	40	40	40
DN Inlet	8	12,5	12,5	16	18	16	20	25	20	25	32
d _o [mm]	8	12,5	12,5	16	18	16	20	25	20	25	32
α _{W max.}	0,10	0,23	0,23	0,19	0,14	0,27	0,23	0,19	0,23	0,20	0,17
Pe [bar(g)]											
0,1		9		14	12		23	31		33	44
0,2		13		20	17		33	45		48	64
0,3		16		24	21		42	56		60	80
0,4		19		28	25		50	66		70	94
0,5		22		32	28		57	75		79	107
1,0		34		48	43		87	112		119	162
1,5		45		62	57		117	148		156	215
2,0		57		77	71		146	184		195	269
2,5		67		91	85		173	221		232	323
3,0		77		104	97		198	255		269	374
3,5		87		117	109		222	287		302	421
4,0		96		130	122		247	319		336	467
4,5		106		144	134		272	351		369	514
5		116		157	146		296	383		403	561
6		135		183	170		346	446		470	654
7		154		209	195		395			537	
8		174		235	219		445			604	
9		193		261	243		494			671	
10		212		287	268		544			739	
12		251		340	317		643			873	
14		290		392	366		742			1010	
16		328		445	415		841			1140	
18		367		497	464		940			1280	
20		406		550	513		1040			1410	
25		503		681			1290			1750	
30		601		813			1540			2090	
35		698		945			1790			2430	
40		796		1080			2040			2770	
45		894									
50	176	991	991			1910			2540		
60	211		1190			2280			3040		
70	246		1380			2660			3540		
80	281		1580			3030			4040		
90	316		1770			3410			4540		
100	350		1970			3780			5040		
110	385		2160								
120	419		2350								
130	453										
140	487										
150	521										
160	554										
170	587										
180	620										
190	652										
200	684										
210	716										
220	748										
230	779										
240	810										
250	840										

Relief-Valve, springloaded

for steam, gases and liquids

Typ 3

Discharge capacities

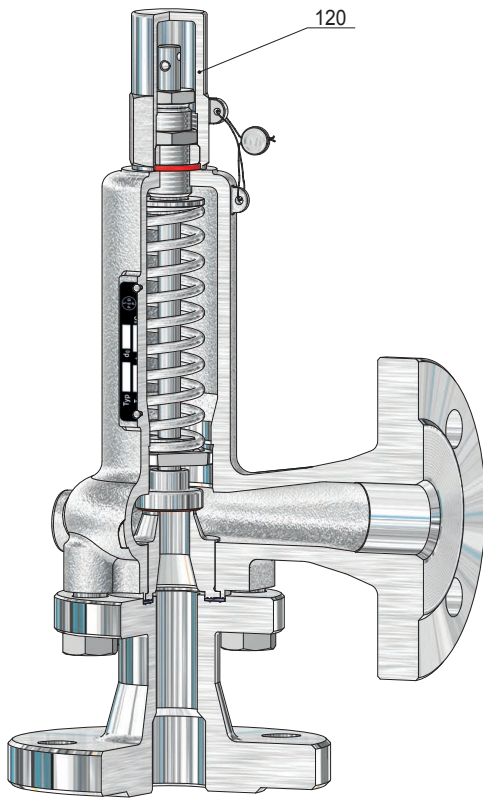
Air at 32°F [m_n^3/h]

Size	III						IV						
DN Inlet	50	50	50	65	65	65	80	80	80	80	100	100	100
d _o [mm]	25	32	40	32	40	50	32	40	50	58	50	60	70
Q _{W max.}	0,21	0,18	0,15	0,18	0,16	0,14	0,30	0,22	0,22	0,18	0,25	0,22	0,19
P _e [bar(g)]													
0,1		48											
0,2		69	91		92	130		132	206	226	235	296	354
0,3		86	114		115	163		164	256	282	294	369	440
0,4		101	134		135	192		192	300	331	346	432	517
0,5		114	152		154	218		218	340	376	395	490	586
1,0		173	230		236	332		327	512	569	601	737	881
1,5		229	304		315	441		433	676	752	798	974	1160
2,0		286	378		395	550		542	846	940	992	1220	1450
2,5		342	450		475	656		650	1010	1120	1170	1460	1730
3,0		396	516		550	752		757	1180	1300	1340	1700	2000
3,5		445	580		619	846		851	1330	1460	1510	1910	2250
4,0		495	644		687	940		945	1480	1620	1680	2130	2500
4,5		544	709		756	1030		1040	1620	1790	1840	2340	2750
5		594	773		825	1130		1130	1770	1950	2010	2550	3000
6		693	902		962	1310		1320	2070	2270	2350	2980	3500
7		792			1100			1510	2360		2680	3400	
8		891			1240			1700	2660		3020	3830	
9		990			1370			1890	2950		3360	4250	
10		1090			1510			2080	3250		3690	4680	
12		1290			1790			2460	3850		4370	5530	
14		1480			2060			2840	4430		5040	6390	
16		1680			2340			3220	5030		5710	7240	
18		1880			2620			3600	5620		6390	8100	
20		2080			2890			3980	6220		7060	8950	
25		2580			3580			4930	7700		8750	11100	
30		3080			4280			5880			10400		
35		3580			4970			6840			12100		
40		4080			5670			7790			13800		
45													
50	3620			5080			8470						
60	4330			6090			10100						
70	5050			7090			10800						
80	5760			8090									
90	6470			9090									
100	7180			10100									
110													
120													
130													
140													
150													
160													
170													
180													
190													
200													
210													
220													
230													
240													
250													

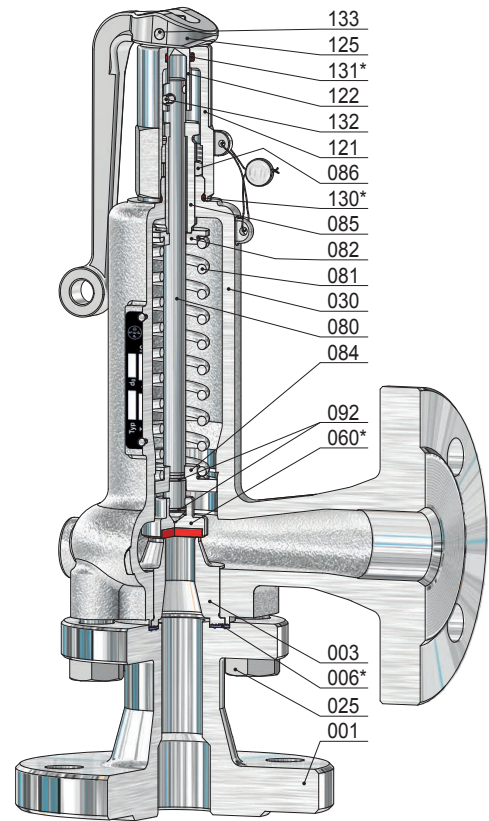
Relief-Valve, springloaded

for steam, gases and liquids

Typ 3



Size I
head C



Size I
head A

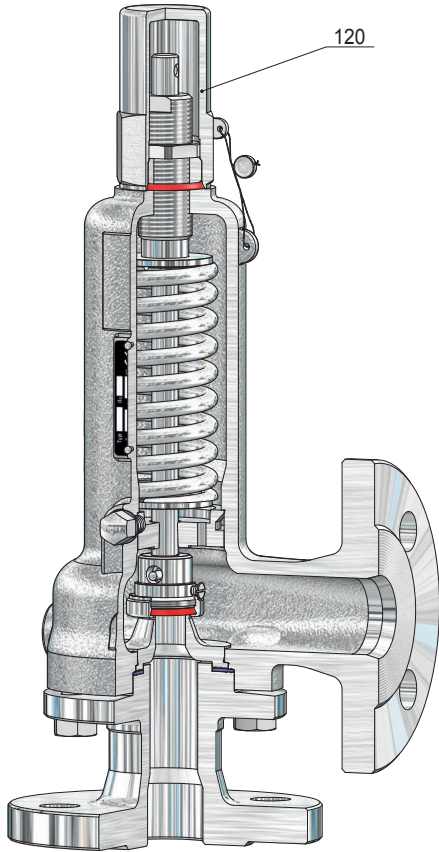
Item	Piece	Description	Item	Piece	Description
001	1	inlet body	086	1	lock nut
003	1	seat	092	2	lock ring
006 *	1	packing ring	120	1	cap
025	4	screw	121	1	lifting cap
030	1	spring bonnet	122	1	coupling
060 *	1	disc, complete	125	1	lifting button
560	1	disc	130 *	1	o-ring
062	1	soft sealing	131 *	1	o-ring
080	1	spindle	132	1	groove pin
081	1	spring	133	1	groove pin
082	1	springplate, upper			
084	1	springplate, lower			
085	1	adjusting screw			

* expendable parts

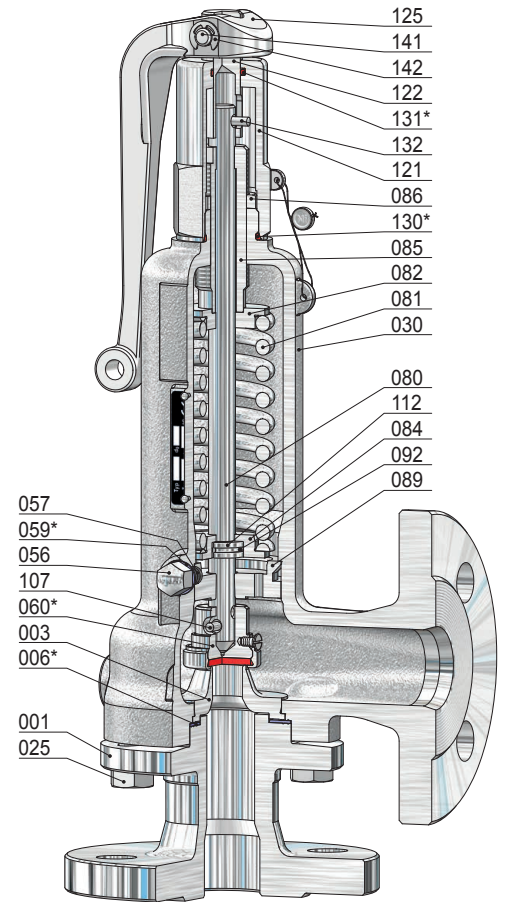
Relief-Valve, springloaded

for steam, gases and liquids

Typ 3



Size II
head C



Size II
head A

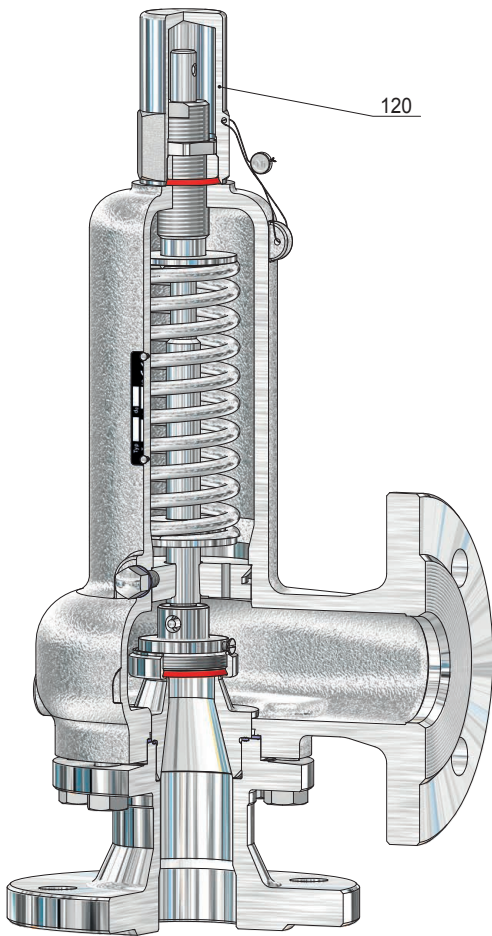
Item	Piece	Description	Item	Piece	Description
001	1	inlet body	085	1	adjusting screw
003	1	seat	086	1	lock nut
006 *	1	packing ring	089	1	guide plate
025	4	screw	092	1	lock ring
030	1	spring bonnet	107	1	spring pin
056	2	lock nut	112	1	split ring
057	2	screwed pin	120	1	cap
059 *	2	packing ring	121	1	lifting cap
060 *	1	disc, complete	122	1	coupling
560	1	disc	125	1	lifting button
062	1	soft sealing	130 *	1	o-ring
063	1	disc ring	131 *	1	o-ring
067	1	security screw	132	1	groove pin
080	1	spindle	141	1	bolt
081	1	spring	142	2	stop washer
082	1	springplate, upper			
084	1	springplate, lower			

* expendable parts

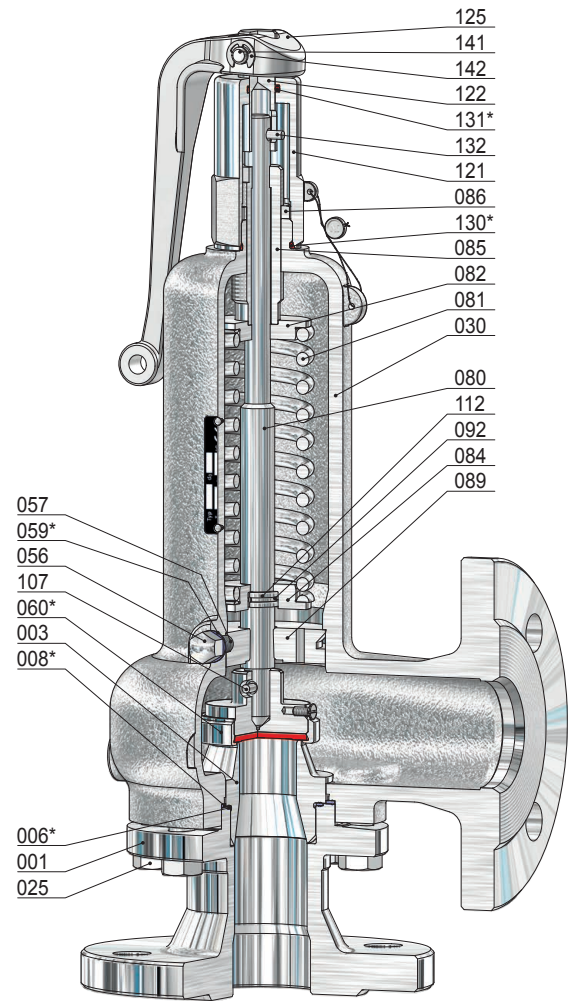
Relief-Valve, springloaded

for steam, gases and liquids

Typ 3



Size III
head C



Size III
head A

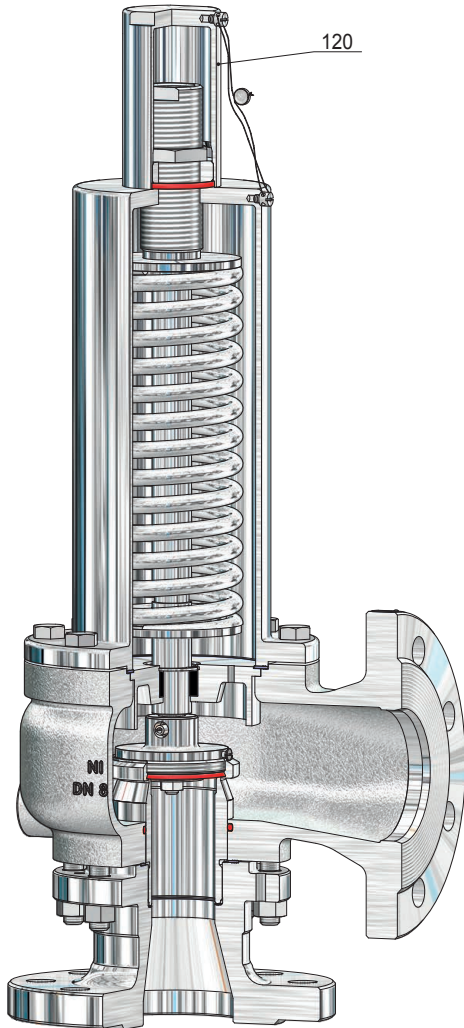
Item	Piece	Description	Item	Piece	Description
001	1	inlet body	084	1	springplate, lower
003	1	seat	085	1	adjusting screw
006 *	1	packing ring	086	1	lock nut
008 *	1	packing ring	089	1	guide plate
025	8	screw	092	1	lock ring
030	1	spring bonnet	107	1	spring pin
056	2	lock nut	112	1	split ring
057	2	screwed pin	120	1	cap
059 *	2	packing ring	121	1	lifting cap
060 *	1	disc, complete	122	1	coupling
060	1	disc	125	1	lifting button
062	1	soft sealing	130 *	1	o-ring
063	1	disc ring	131 *	1	o-ring
067	1	security screw	132	1	groove pin
080	1	spindle	141	1	bolt
081	1	spring	142	2	stop washer
082	1	springplate, upper			

* expendable parts

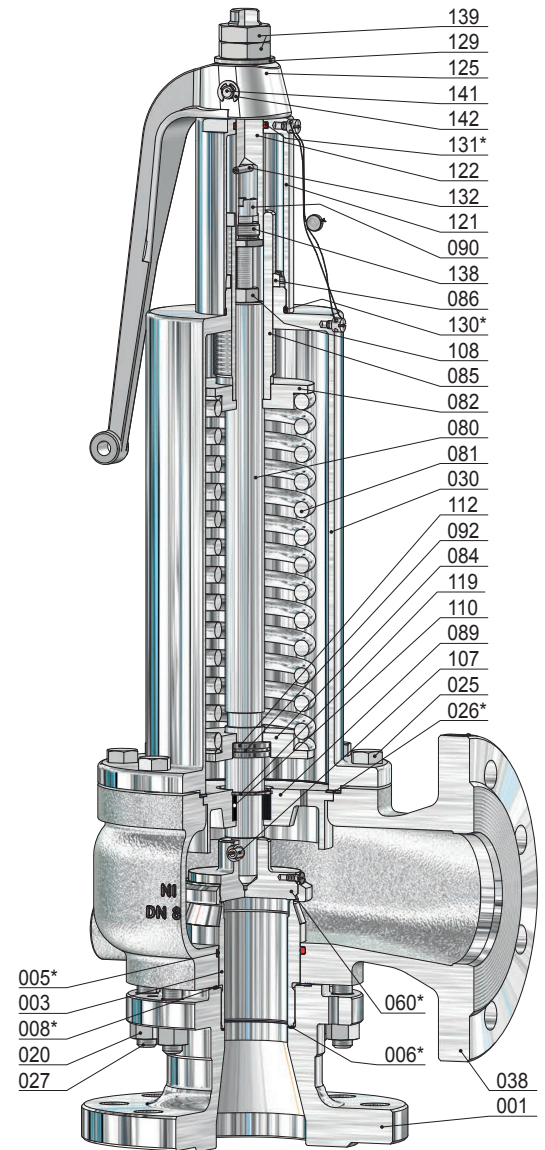
Relief-Valve, springloaded

for steam, gases and liquids

Typ 3



Size IV
head C



Size IV
head A

Item	Piece	Description	Item	Piece	Description	Item	Piece	Description
001	1	inlet body	073	1	o-ring	121	1	lifting cap
003	1	seat	074	1	disc plate	122	1	coupling
005 *	1	o-ring	080	1	spindle	125	1	lifting button
006 *	1	packing ring	081	1	spring	129	1	pressure plate
008 *	1	packing ring	082	1	springplate, upper	130 *	1	o-ring
020	8	nut	084	1	springplate, lower	131 *	1	o-ring
025	8	screw	085	1	adjusting screw	132	1	groove pin
026 *	1	packing ring	086	1	lock nut	138	1	screw
027	8	stud bolt	089	1	guide plate	139	2	nut
030	1	spring bonnet	090	1	screw	141	1	bolt
038	1	outlet body	092	1	lock ring	142	2	stop washer
060 *	1	disc, complete	107	1	spring pin			
560	1	disc	108	1	nut			
062	1	soft sealing	110	1	bush			
063	1	disc ring	112	1	split ring			
065	1	disc bolt	119	1	locking ring			
067	1	security screw	120	1	cap			

* expendable parts

Safety-Valve, springloaded

for steam, gases and liquids

Typ 30

Standard version:

Material:	Inlet body	/ Spring bonnet, outlet body	Temperature ranges metal seated
Typ 30.1:	BG I	1.0460 / 0.7043	-10°C to 280°C
	BG II - IV	1.0619 / 1.0619	-10°C to 280°C
Typ 30.2:	BG I	1.4571 / 1.4581	-60°C to 280°C
	BG II - IV	1.4571, 1.4581 / 1.4581	-60°C to 280°C
Typ 30.7:	BG I - IV	1.4571 / 1.4308	-200°C to 280°C

Connections: soft seated
Flange connections: DIN EN / ASME B16.5 see techn. appendix: KWD-1

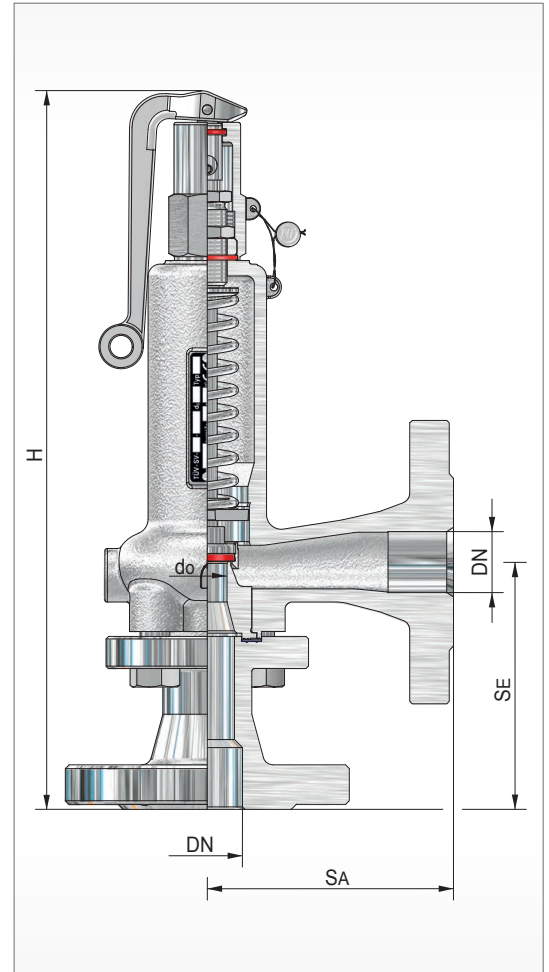
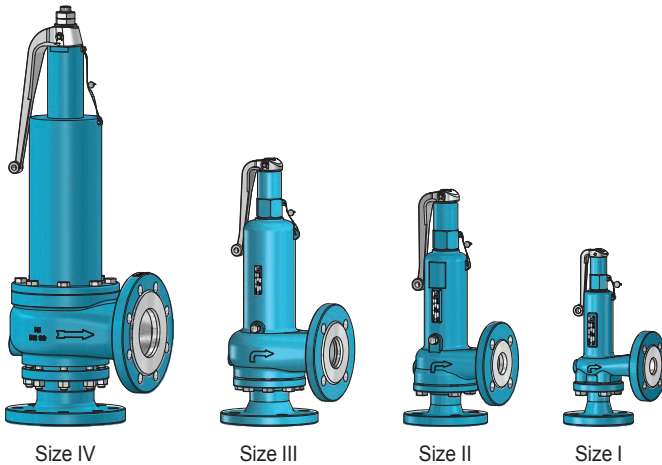
Approvals:

Pressure Equipment Directive: 2014/68/EU
Declaration of Conformity



TÜV - Approval:

VdTÜV-leaflet AD 2000-leaflet A2 TÜV • SV • XX-713 / 820 / 896 / 902 • do • D/G/F • α_w • p



Size	Inlet				Outlet				Height 'H' for head			Coefficient		Set pressure		Weight ~ [kg]	
	DN	NPS	PN / Class	do [mm]	SE [mm]	DN	NPS	PN / Class	SA [mm]	A [mm]	C [mm]	D/G α _w max.	F α _w	p min. [bar(g)]	p max. [bar(g)]		
I	15	1/2	16-63 150-600	12,5	90	15	1/2	16-40 150-300	90	282	268	0,45	0,32	0,20	40	4,3	
	20	3/4		12,5	95	20	3/4		95	287		273	0,45		0,32	40	4,5
	25	1		16	100	25	1		100	292		278	0,38		0,29	40	5,2
II	32	1 1/4	16-63 150-600	20	105	32	1 1/4	16-40 150-300	105	395	375	0,43	0,34	0,10	40	10,0	
				25	115	40	1 1/2					385	0,31		0,24	8	10,2
				25	115	40	1 1/2					385	0,41		0,32	40	10,7
III	50	2	16-63 150-600	32	125	50	2	16-40 150-300	125	450	430	0,39	0,28	0,05	40	17,0	
				40	145	65	2 1/2					450	0,31		0,23	36	15,5
				40	145	65	2 1/2					450	0,31		0,23	36	20,3
IV	80	3	16-63 150-600	50	155	80	3	16-40 150	155	700	620	0,46	0,33	0,08	25	38,0	
				58	175	100	4					650	0,41		0,29	6	38,2
				60	175	100	4					650	0,44		0,30	0,05	18
	100	4	150-600	70								0,40	0,28	6	40,5		
				70									0,41	0,28	6	40,5	

other design on request

Safety-Valve, springloaded

for steam, gases and liquids

Typ 30

Discharge capacities

Water at 68°F [10³ kg/h]

Size	I			II				III				IV				
DN Inlet	15/20	25	25	32	32	40	40	50	50	65	65	80	80	100	100	100
d _o [mm]	12,5	16	18	20	25	25	32	32	40	40	50	50	58	60	70	70
Q _{W max.}	0,32	0,29	0,22	0,34	0,24	0,32	0,23	0,28	0,23	0,23	0,21	0,33	0,29	0,30	0,28	0,41
pe [bar(g)]																
0,05			1,1					4,4	5,7	5,7	8,1	12,8	15,1	16,7	21,2	31,1
0,1	0,9	1,3	1,3	2,4	2,7	3,6	4,2	5,1	6,6	6,6	9,4	14,7	17,4	19,3	24,5	35,6
0,2	1,1	1,6	1,6	3,0	3,3	4,4	5,2	6,3	8,1	8,1	11,5	18,1	21,3	23,6	30,0	44,0
0,3	1,3	1,9	1,8	3,4	3,8	5,1	6,0	7,2	9,3	9,3	13,3	20,8	24,6	27,3	34,7	50,8
0,4	1,4	2,1	2,0	3,9	4,3	5,7	6,7	8,1	10,4	10,4	14,8	23,3	27,6	30,5	38,8	56,7
0,5	1,5	2,3	2,2	4,2	4,7	6,2	7,3	8,9	11,4	11,4	16,2	25,5	30,2	33,4	42,5	62,2
1,0	2,1	3,1	3,0	5,7	6,3	8,4	9,9	12,0	15,4	15,4	22,0	34,6	40,9	45,2	57,5	84,2
1,5	2,6	3,8	3,7	7,0	7,7	10,3	12,1	14,7	18,9	18,9	26,9	42,3	50,1	55,4	70,4	103,1
2,0	3,0	4,4	4,2	8,1	8,9	11,9	14,0	17,0	21,8	21,8	31,1	48,9	57,8	64,0	81,3	119,0
2,5	3,3	4,9	4,7	9,0	10,0	13,3	15,6	19,0	24,4	24,4	34,8	54,7	64,6	71,5	90,9	133,1
3,0	3,6	5,4	5,2	9,9	10,9	14,5	17,1	20,8	26,7	26,7	38,1	59,9	70,8	78,4	99,6	145,8
3,5	3,9	5,8	5,6	10,7	11,8	15,7	18,5	22,5	28,8	28,8	41,2	64,7	76,5	84,7	107,5	157,5
4,0	4,2	6,2	6,0	11,4	12,6	16,8	19,8	24,0	30,8	30,8	44,0	69,1	81,7	90,5	115,0	168,3
4,5	4,4	6,6	6,3	12,1	13,4	17,8	21,0	25,5	32,7	32,7	46,7	73,3	86,7	96,0	121,9	178,6
5	4,7	7,0	6,7	12,8	14,1	18,8	22,1	26,9	34,5	34,5	49,2	77,3	91,4	101,2	128,5	188,2
6	5,1	7,6	7,3	14,0	15,4	20,6	24,2	29,4	37,8	37,8	53,9	84,7	100,1	110,8	140,8	206,2
7	5,5	8,2	7,9	15,1		22,2		31,8	40,8	40,8	58,2	91,5		119,7		
8	5,9	8,8	8,4	16,1		23,8		34,0	43,6	43,6	62,2	97,8		128,0		
9	6,3	9,3	9,0	17,1		25,2		36,0	46,3	46,3	66,0	103,7		135,7		
10	6,6	9,8	9,4	18,0		26,6		38,0	48,8	48,8	69,6	109,3		143,1		
12	7,3	10,8	10,3	19,8		29,1		41,6	53,4	53,4	76,3	119,7		156,7		
14	7,8	11,6	11,2	21,4		31,4		44,9	57,7	57,7	82,4	129,3		169,3		
16	8,4	12,4	11,9	22,8		33,6		48,1	61,7	61,7	88,4	138,3		181,0		
18	8,9	13,2	12,7	24,2		35,6		51,0	65,5	65,4		146,6		192,0		
20	9,4	13,9	13,4	25,5		37,6		53,7	69,1	69,0		154,6				
25	10,5	15,6		28,6		42,0		60,1	77,2	77,1		172,8				
30	11,5	17,0		31,3		46,0		65,8	84,6	84,4						
35	12,4	18,4		33,8		49,7		71,1	91,4	91,2						
40	13,2	19,7		36,1		53,1		76,0								

Safety-Valve, springloaded

for steam, gases and liquids

Typ 30

Discharge capacities

Saturated steam [kg/h]

Size	I			II				III				IV			
DN inlet	15/20	25	25	32	32	40	40	50	50	65	65	80	80	100	100
d _o [mm]	12,5	16	18	20	25	25	32	32	40	40	50	50	58	60	70
α _W max.	0,45	0,38	0,28	0,43	0,31	0,41	0,29	0,39	0,31	0,31	0,28	0,46	0,41	0,44	0,40
De [bar(g)]															
0,05			25					100	128	128	182	287	339	375	477
0,1	20	29	28	53	59	78	92	116	146	146	208	331	394	436	553
0,2	25	36	34	64	72	94	110	140	178	178	254	401	478	531	669
0,3	30	42	39	73	81	106	126	160	203	203	289	459	546	617	770
0,4	33	46	43	80	88	117	138	177	224	224	317	508	603	686	854
0,5	37	51	47	86	95	127	148	191	241	241	343	550	653	741	929
1,0	64	88	81	150	167	219	256	341	423	423	603	986	1176	1350	1663
1,5	74	102	95	174	194	256	298	406	500	500	708	1176	1409	1617	1990
2,0	95	132	123	229	254	340	395	539	669	669	943	1553	1858	2139	2639
2,5	112	155	144	271	305	402	468	635	788	788	1112	1827	2192	2517	3114
3,0	127	175	164	310	349	462	535	720	894	894	1261	2072	2485	2854	3532
3,5	143	198	184	349	394	521	603	811	1008	1008	1422	2336	2802	3218	3982
4,0	158	219	204	387	436	576	668	898	1116	1116	1575	2587	3103	3563	4409
4,5	174	241	225	426	480	635	736	990	1229	1229	1735	2850	3418	3925	4857
5	189	262	244	463	522	690	799	1075	1335	1335	1885	3096	3713	4265	5277
6	220	305	284	538	607	802	930	1250	1553	1553	2191	3600	4318	4959	6136
7	251	348	324	615		916		1427	1772	1772	2501	4110		5660	
8	282	391	364	690		1029		1603	1991	1991	2810	4616		6358	
9	313	433	404	766		1141		1778	2208	2208	3117	5120		7053	
10	344	476	444	841		1254		1954	2427	2427	3426	5628		7752	
12	406	562	524	993		1479		2305	2863	2863	4040	6638		9143	
14	467	646	603	1143		1703		2654	3296	3296	4652	7641		10525	
16	528	731	682	1292		1925		3000	3726	3726	5258	8639		11899	
18	589	815	760	1440		2146		3344	4153	4154		9630		13265	
20	650	899	839	1590		2369		3691	4585	4585		10629			
25	804	1113		1964		2931		4568	5673	5673		13153			
30	958	1325		2343		3491		5440	6757	6757					
35	1112	1538		2714		4051		6314	7841	7841					
40	1265	1750		3095		4610		7185							

Safety-Valve, springloaded

for steam, gases and liquids

Typ 30

Discharge capacities

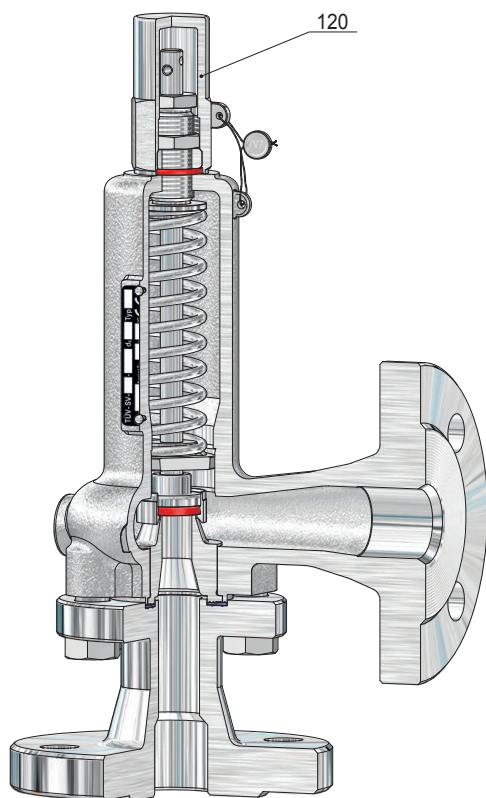
Air at 32°F and 1013 mbar [m^3/h]

Size	I			II				III				IV			
DN Inlet	15/20	25	25	32	32	40	40	50	50	65	65	80	80	100	100
d _o [mm]	12,5	16	18	20	25	25	32	32	40	40	50	50	58	60	70
α _W max.	0,45	0,38	0,28	0,43	0,31	0,41	0,29	0,39	0,31	0,31	0,28	0,46	0,41	0,44	0,40
P _e [bar(g)]															
0,05			31					123	158	158	225	353	418	463	588
0,1	25	37	35	67	74	99	116	146	184	184	262	417	497	549	697
0,2	33	47	45	84	94	124	145	184	234	234	334	527	628	698	880
0,3	41	57	53	100	111	146	172	219	277	277	395	628	746	844	1053
0,4	47	65	61	113	126	167	195	252	318	318	450	720	855	973	1211
0,5	54	75	68	127	140	186	218	281	354	354	504	808	959	1087	1364
1,0	77	106	98	181	201	265	309	412	512	512	729	1193	1426	1632	2010
1,5	100	138	128	237	263	347	404	552	679	679	962	1596	1912	2195	2702
2,0	121	167	156	290	322	430	500	683	847	847	1195	1969	2354	2711	3345
2,5	142	196	183	344	386	510	594	804	999	999	1410	2316	2778	3190	3947
3,0	162	225	209	397	447	592	686	922	1145	1145	1616	2655	3184	3657	4525
3,5	183	253	236	448	504	667	773	1040	1291	1291	1822	2994	3591	4124	5103
4,0	204	282	263	499	562	743	861	1158	1438	1438	2029	3333	3998	4591	5681
4,5	225	311	290	549	619	818	948	1275	1584	1584	2235	3672	4404	5058	6259
5	245	339	317	600	676	894	1036	1393	1730	1730	2442	4012	4811	5526	6837
6	287	397	370	702	790	1045	1211	1629	2023	2023	2855	4691	5626	6461	7995
7	328	454	424	803		1197		1865	2316	2316	3269	5370		7397	
8	370	512	477	905		1348		2101	2609	2610	3682	6050		8334	
9	412	569	531	1007		1500		2337	2902	2903	4097	6731		9271	
10	453	627	585	1109		1651		2574	3196	3197	4511	7412		10209	
12	537	742	692	1312		1955		3047	3784	3785	5341	8775		12086	
14	620	858	800	1517		2259		3521	4373	4373	6171	10139		13966	
16	704	973	908	1721		2564		3996	4962	4963	7003	11506		15848	
18	787	1089	1016	1926		2869		4471	5552	5553		12875		17733	
20	871	1205	1124	2131		3174		4947	6144	6144		14245			
25	1081	1495		2644		3939		6139	7625	7625		17678			
30	1292	1795		3159		4707		7335	9110	9111					
35	1503	2079		3676		5477		8536	10601	10601					
40	1715	2373		4195		6250		9740							

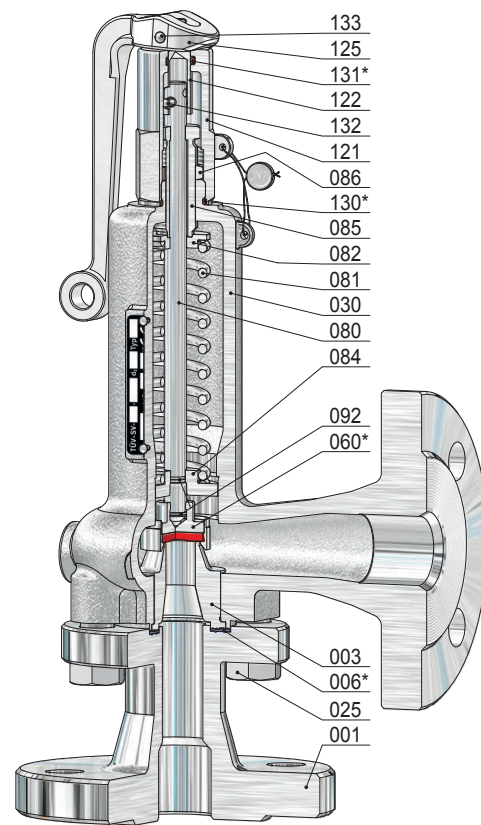
Safety-Valve, springloaded

for steam, gases and liquids

Typ 30



Size I
head C



Size I
head A

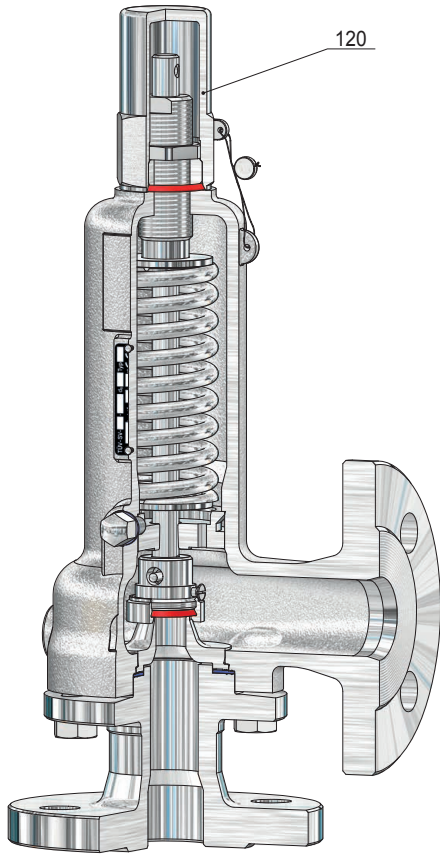
Item	Piece	Description	Item	Piece	Description
001	1	inlet body	086	1	lock nut
003	1	seat	092	2	lock ring
006 *	1	packing ring	120	1	cap
025	4	screw	121	1	lifting cap
030	1	spring bonnet	122	1	coupling
060 *	1	disc, complete	125	1	lifting button
560	1	disc	130 *	1	o-ring
062	1	soft sealing	131 *	1	o-ring
063	1	disc ring	132	1	groove pin
080	1	spindle	133	1	groove pin
081	1	spring			
082	1	springplate, upper			
084	1	springplate, lower			
085	1	adjusting screw			

* expendable parts

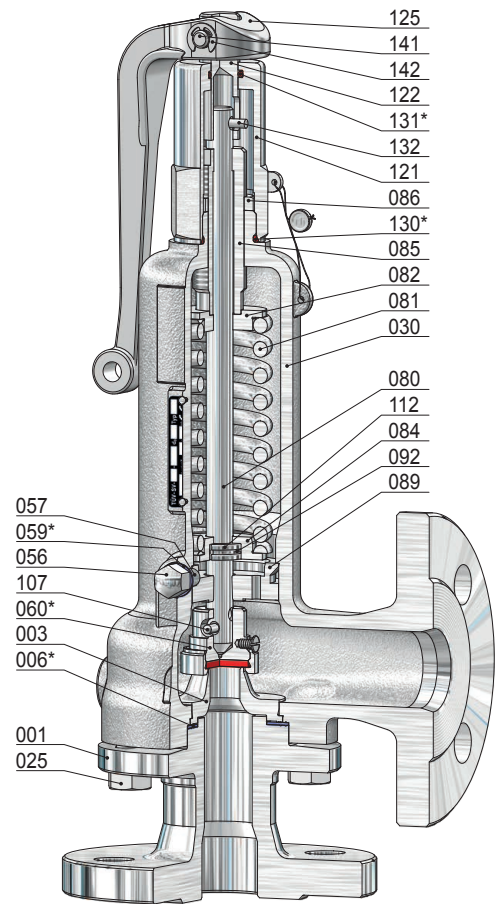
Safety-Valve, springloaded

for steam, gases and liquids

Typ 30



Size II
head C



Size II
head A

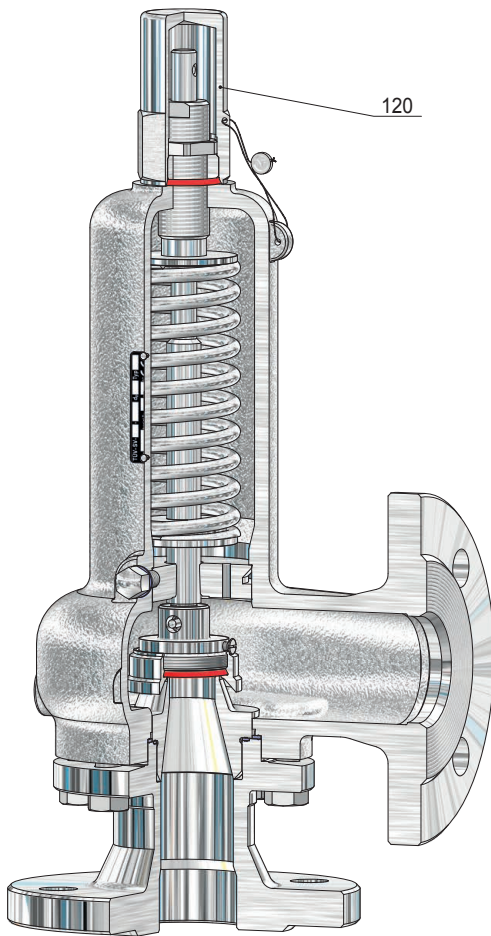
Item	Piece	Description	Item	Piece	Description
001	1	inlet body	085	1	adjusting screw
003	1	seat	086	1	lock nut
006 *	1	packing ring	089	1	guide plate
025	4	screw	092	1	lock ring
030	1	spring bonnet	107	1	spring pin
056	2	lock nut	112	1	split ring
057	2	screwed pin	120	1	cap
059 *	2	packing ring	121	1	lifting cap
060 *	1	disc, complete	122	1	coupling
062	1	disc	125	1	lifting button
063	1	soft sealing	130 *	1	o-ring
067	1	disc ring	131 *	1	o-ring
067	1	security screw	132	1	groove pin
080	1	spindle	141	1	bolt
081	1	spring	142	2	stop washer
082	1	springplate, upper			
084	1	springplate, lower			

* expendable parts

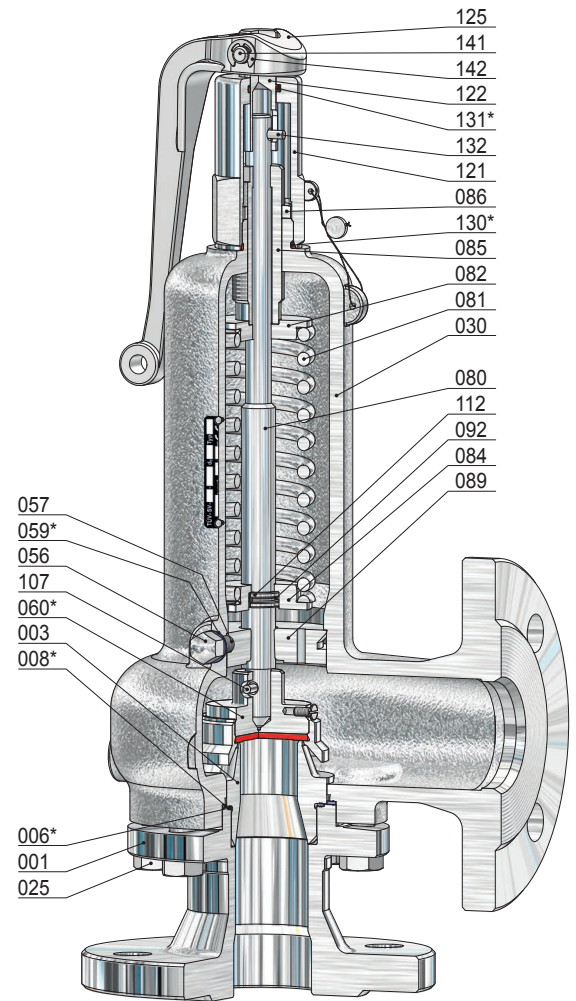
Safety-Valve, springloaded

for steam, gases and liquids

Typ 30



Size III
head C



Size III
head A

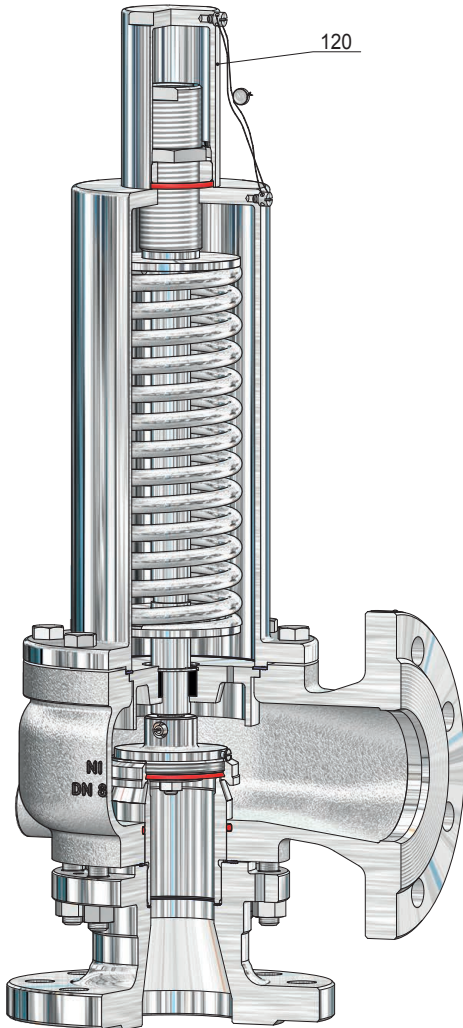
Item	Piece	Description	Item	Piece	Description
001	1	inlet body	084	1	springplate, lower
003	1	seat	085	1	adjusting screw
006 *	1	packing ring	086	1	lock nut
008 *	1	packing ring	089	1	guide plate
025	8	screw	092	1	lock ring
030	1	spring bonnet	107	1	spring pin
056	2	lock nut	112	1	split ring
057	2	screwed pin	120	1	cap
059 *	2	packing ring	121	1	lifting cap
060 *	1	disc, complete	122	1	coupling
560	1	disc	125	1	lifting button
062	1	soft sealing	130 *	1	o-ring
063	1	disc ring	131 *	1	o-ring
067	1	security screw	132	1	groove pin
080	1	spindle	141	1	bolt
081	1	spring	142	2	stop washer
082	1	springplate, upper			

* expendable parts

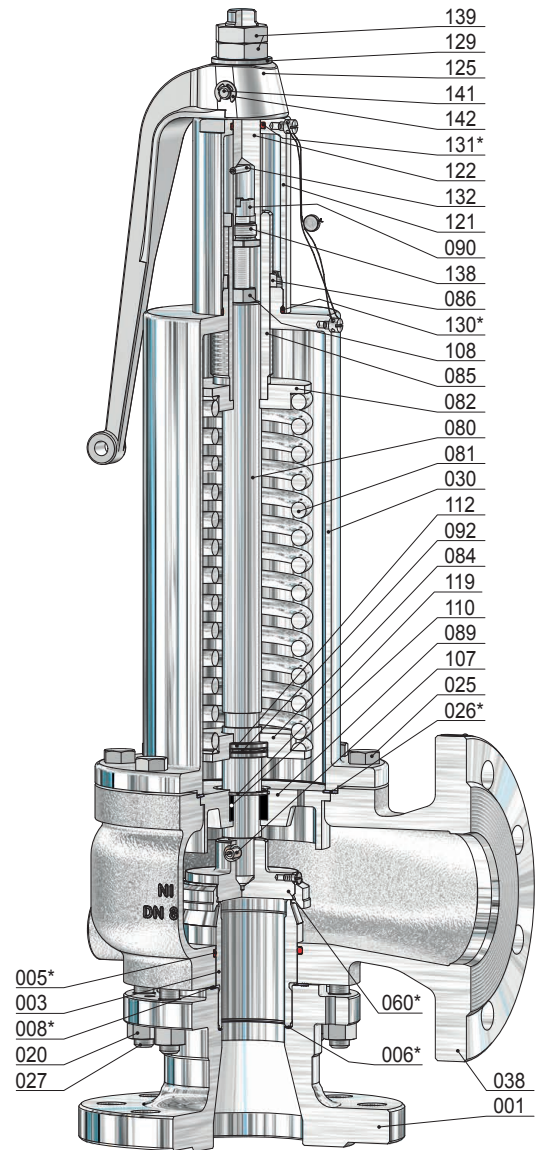
Safety-Valve, springloaded

for steam, gases and liquids

Typ 30



Size IV
head C



Size IV
head A

Item	Piece	Description	Item	Piece	Description	Item	Piece	Description
001	1	inlet body	073	1	o-ring	121	1	lifting cap
003	1	seat	074	1	disc plate	122	1	coupling
005 *	1	o-ring	080	1	spindle	125	1	lifting button
006 *	1	packing ring	081	1	spring	129	1	pressure plate
008 *	1	packing ring	082	1	springplate, upper	130 *	1	o-ring
020	8	nut	084	1	springplate, lower	131 *	1	o-ring
025	8	screw	085	1	adjusting screw	132	1	groove pin
026 *	1	packing ring	086	1	lock nut	138	1	screw
027	8	stud bolt	089	1	guide plate	139	2	nut
030	1	spring bonnet	090	1	screw	141	1	bolt
038	1	outlet body	092	1	lock ring	142	2	stop washer
060 *	1	disc, complete	107	1	spring pin			
560	1	disc	108	1	nut			
062	1	soft sealing	110	1	bush			
063	1	disc ring	112	1	split ring			
065	1	disc bolt	119	1	locking ring			
067	1	security screw	120	1	cap			

* expendable parts

Safety-Valve, springloaded

for steam, gases and liquids

Typ 31

Standard version:

Material:	Inlet body	/ Spring bonnet, outlet body	Temperature ranges metal seated
Typ 31.1:	BG I	1.0460 / 0.7043	-10°C to 280°C
	BG II - IV	1.0619 / 1.0619	-10°C to 280°C
Typ 31.2:	BG I	1.4571 / 1.4581	-60°C to 280°C
	BG II - IV	1.4571, 1.4581 / 1.4581	-60°C to 280°C
Typ 31.7:	BG I - IV	1.4571 / 1.4308	-200°C to 280°C

Connections: soft seated
Flange connections: DIN EN / ASME B16.5 see techn. appendix: KWD-1

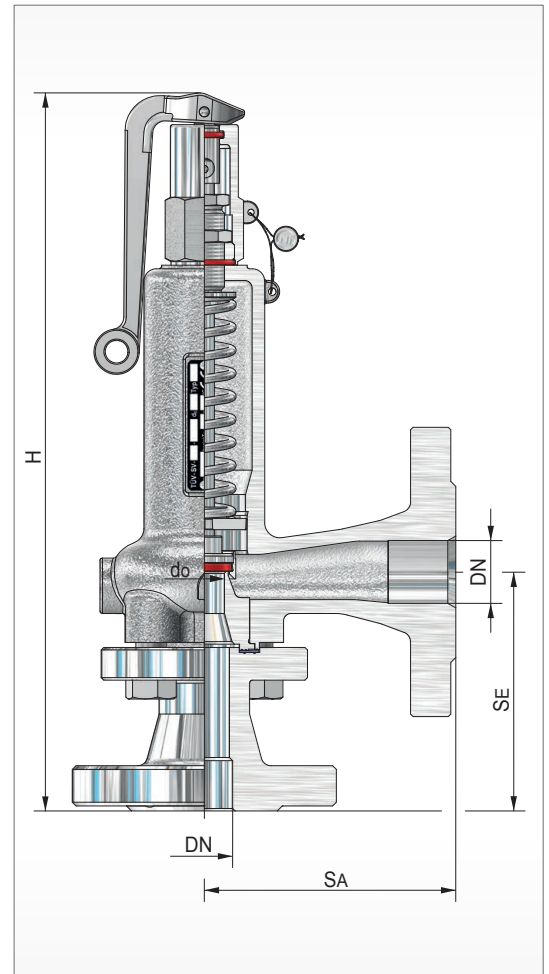
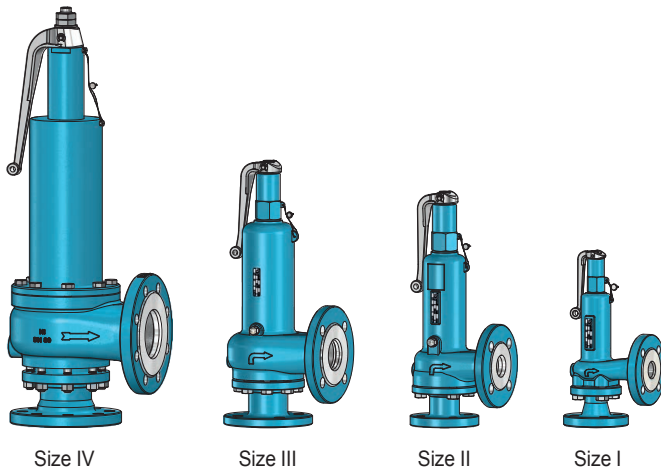
Approvals:

Pressure Equipment Directive: 2014/68/EU
Declaration of Conformity



TÜV - Approval:

VdTÜV-leaflet AD 2000-leaflet A2 TÜV • SV • XX-713 / 820 / 896 / 902 • do • D/G/F • α_w • p



Size	Inlet					Outlet				Height 'H' for head		Coefficient		Set pressure		Weight ~ [kg]
	DN	NPS	PN / Class	do [mm]	SE [mm]	DN	NPS	PN / Class	SA [mm]	A [mm]	C [mm]	D/G α _w max.	F α _w	p min. [bar(g)]	p max. [bar(g)]	
I	15	½	16-63	12,5	90	20	¾	16-40	95	282	268	0,45	0,32	0,20	40	4,3
	20	¾	150-600	16 18	95	25	1	150-300	100	287	273	0,38 0,28	0,29 0,22	0,15 0,10	40 20	4,5 4,6
II	25	1	16-63	20	105	32	1 ¼	16-40	105	395	375	0,43	0,34	0,10	40	10,2
	32	1 ¼	150-600	25	115	40	1 ½	150-300	115	405	385	0,41	0,32			
III	40	1 ½	16-63	32	125	50	2	16-40	125	450	430	0,39	0,28	0,05	40	15,0
	50	2	150-600	40	145	65	2 ½	150-300	145	470	450	0,31	0,23			
IV	65	2 ½	16-63	50	155	80	3	16-40	155	700	620	0,46	0,33	0,05	25	36,0
	80	3	150-600	60	175	100	4	150	175	730	650	0,44	0,30			

other design on request

Safety-Valve, springloaded

for steam, gases and liquids

Typ 31

Discharge capacities

Water at 68°F [10³ kg/h]

Size	I			II		III		IV	
DN _{inlet}	15	20	20	25	32	40	50	65	80
d _o [mm]	12,5	16	18	20	25	32	40	50	60
α _W max.	0,32	0,29	0,22	0,34	0,32	0,28	0,23	0,33	0,30
P _e [bar(g)]									
0,05			1,1			4,4	5,7	12,8	16,7
0,1	0,9	1,3	1,3	2,4	3,6	5,1	6,6	14,7	19,3
0,2	1,1	1,6	1,6	3,0	4,4	6,3	8,1	18,1	23,6
0,3	1,3	1,9	1,8	3,4	5,1	7,2	9,3	20,8	27,3
0,4	1,4	2,1	2,0	3,9	5,7	8,1	10,4	23,3	30,5
0,5	1,5	2,3	2,2	4,2	6,2	8,9	11,4	25,5	33,4
1,0	2,1	3,1	3,0	5,7	8,4	12,0	15,4	34,6	45,2
1,5	2,6	3,8	3,7	7,0	10,3	14,7	18,9	42,3	55,4
2,0	3,0	4,4	4,2	8,1	11,9	17,0	21,8	48,9	64,0
2,5	3,3	4,9	4,7	9,0	13,3	19,0	24,4	54,7	71,5
3,0	3,6	5,4	5,2	9,9	14,5	20,8	26,7	59,9	78,4
3,5	3,9	5,8	5,6	10,7	15,7	22,5	28,8	64,7	84,7
4,0	4,2	6,2	6,0	11,4	16,8	24,0	30,8	69,1	90,5
4,5	4,4	6,6	6,3	12,1	17,8	25,5	32,7	73,3	96,0
5	4,7	7,0	6,7	12,8	18,8	26,9	34,5	77,3	101,2
6	5,1	7,6	7,3	14,0	20,6	29,4	37,8	84,7	110,8
7	5,5	8,2	7,9	15,1	22,2	31,8	40,8	91,5	119,7
8	5,9	8,8	8,4	16,1	23,8	34,0	43,6	97,8	128,0
9	6,3	9,3	9,0	17,1	25,2	36,0	46,3	103,7	135,7
10	6,6	9,8	9,4	18,0	26,6	38,0	48,8	109,3	143,1
12	7,3	10,8	10,3	19,8	29,1	41,6	53,4	119,7	156,7
14	7,8	11,6	11,2	21,4	31,4	44,9	57,7	129,3	169,3
16	8,4	12,4	11,9	22,8	33,6	48,1	61,7	138,3	181,0
18	8,9	13,2	12,7	24,2	35,6	51,0	65,4	146,6	192,0
20	9,4	13,9	13,4	25,5	37,6	53,7	69,0	154,6	
25	10,5	15,6		28,6	42,0	60,1	77,1	172,8	
30	11,5	17,0		31,3	46,0	65,8	84,4		
35	12,4	18,4		33,8	49,7	71,1	91,2		
40	13,2	19,7		36,1	53,1	76,0			

Safety-Valve, springloaded

for steam, gases and liquids

Typ 31

Discharge capacities

Saturated steam [kg/h]

Size	I			II		III		IV	
DN Inlet	15	20	20	25	32	40	50	65	80
d _o [mm]	12,5	16	18	20	25	32	40	50	60
q _W max.	0,45	0,38	0,28	0,43	0,41	0,39	0,31	0,46	0,44
p _e [bar(g)]									
0,05			25			100	128	287	375
0,1	20	29	28	53	78	116	146	331	436
0,2	25	36	34	64	94	140	178	401	531
0,3	30	42	39	73	106	160	203	459	617
0,4	33	46	43	80	117	177	224	508	686
0,5	37	51	47	86	127	191	241	550	741
1,0	64	88	81	150	219	341	423	986	1350
1,5	74	102	95	174	256	406	500	1176	1617
2,0	95	132	123	229	340	539	669	1553	2139
2,5	112	155	144	271	402	635	788	1827	2517
3,0	127	175	164	310	462	720	894	2072	2854
3,5	143	198	184	349	521	811	1008	2336	3218
4,0	158	219	204	387	576	898	1116	2587	3563
4,5	174	241	225	426	635	990	1229	2850	3925
5	189	262	244	463	690	1075	1335	3096	4265
6	220	305	284	538	802	1250	1553	3600	4959
7	251	348	324	615	916	1427	1772	4110	5660
8	282	391	364	690	1029	1603	1991	4616	6358
9	313	433	404	766	1141	1778	2208	5120	7053
10	344	476	444	841	1254	1954	2427	5628	7752
12	406	562	524	993	1479	2305	2863	6638	9143
14	467	646	603	1143	1703	2654	3296	7641	10525
16	528	731	682	1292	1925	3000	3726	8639	11899
18	589	815	760	1440	2146	3344	4154	9630	13265
20	650	899	839	1590	2369	3691	4585	10629	
25	804	1113		1964	2931	4568	5673	13153	
30	958	1325		2343	3491	5440	6757		
35	1112	1538		2714	4051	6314	7841		
40	1265	1750		3095	4610	7185			

Safety-Valve, springloaded

for steam, gases and liquids

Typ 31

Discharge capacities

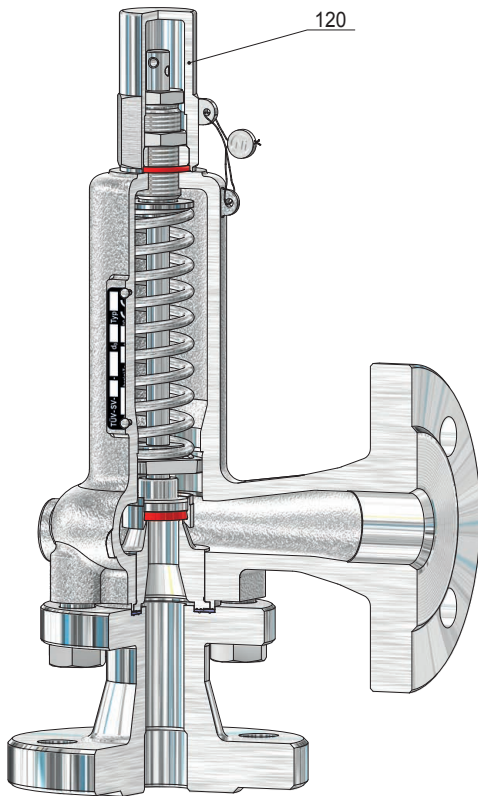
Air at 32°F and 1013 mbar [m_n^3/h]

Size	I			II		III		IV	
DN _{inlet}	15	20	20	25	32	40	50	65	80
d _o [mm]	12,5	16	18	20	25	32	40	50	60
α_W max.	0,45	0,38	0,28	0,43	0,41	0,39	0,31	0,46	0,44
p _e [bar(g)]									
0,05			31			123	158	353	463
0,1	25	37	35	67	99	146	184	417	549
0,2	33	47	45	84	124	184	234	527	698
0,3	41	57	53	100	146	219	277	628	844
0,4	47	65	61	113	167	252	318	720	973
0,5	54	75	68	127	186	281	354	808	1087
1,0	77	106	98	181	265	412	512	1193	1632
1,5	100	138	128	237	347	552	679	1596	2195
2,0	121	167	156	290	430	683	847	1969	2711
2,5	142	196	183	344	510	804	999	2316	3190
3,0	162	225	209	397	592	922	1145	2655	3657
3,5	183	253	236	448	667	1040	1291	2994	4124
4,0	204	282	263	499	743	1158	1438	3333	4591
4,5	225	311	290	549	818	1275	1584	3672	5058
5	245	339	317	600	894	1393	1730	4012	5526
6	287	397	370	702	1045	1629	2023	4691	6461
7	328	454	424	803	1197	1865	2316	5370	7397
8	370	512	477	905	1348	2101	2610	6050	8334
9	412	569	531	1007	1500	2337	2903	6731	9271
10	453	627	585	1109	1651	2574	3197	7412	10209
12	537	742	692	1312	1955	3047	3785	8775	12086
14	620	858	800	1517	2259	3521	4373	10139	13966
16	704	973	908	1721	2564	3996	4963	11506	15848
18	787	1089	1016	1926	2869	4471	5553	12875	17733
20	871	1205	1124	2131	3174	4947	6144	14245	
25	1081	1495		2644	3939	6139	7625	17678	
30	1292	1795		3159	4707	7335	9111		
35	1503	2079		3676	5477	8536	10601		
40	1715	2373		4195	6250	9740			

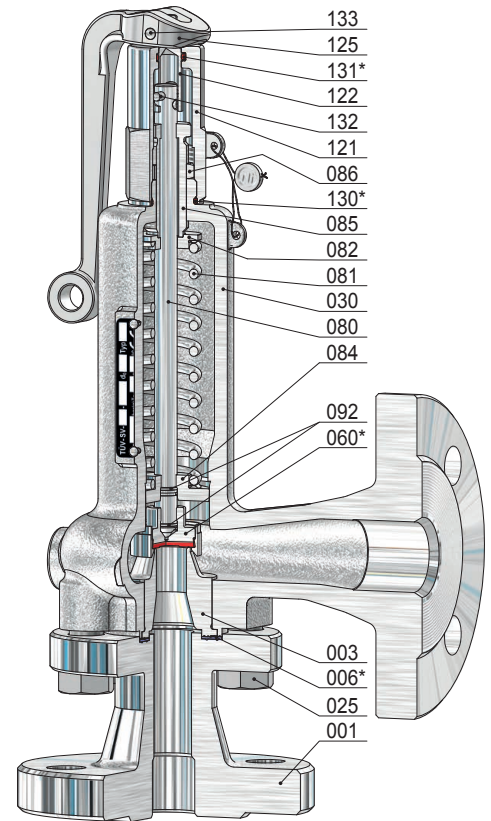
Safety-Valve, springloaded

for steam, gases and liquids

Typ 31



Size I
head C



Size I
head A

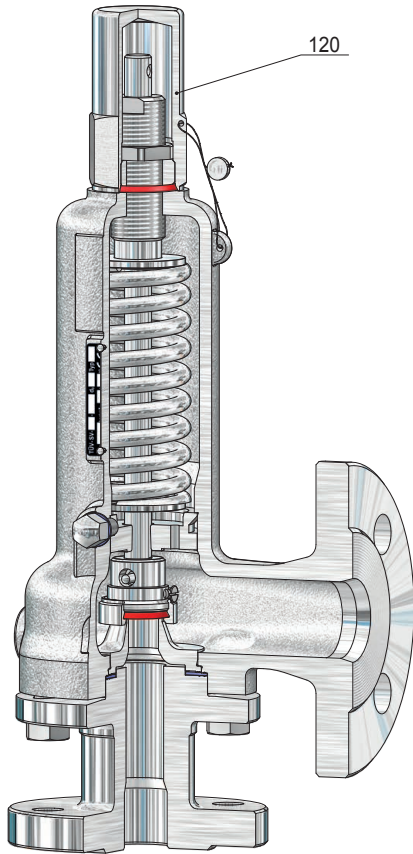
Item	Piece	Description	Item	Piece	Description
001	1	inlet body	086	1	lock nut
003	1	seat	092	2	lock ring
006 *	1	packing ring	120	1	cap
025	4	screw	121	1	lifting cap
030	1	spring bonnet	122	1	coupling
060 *	1	disc, complete	125	1	lifting button
560	1	disc	130 *	1	o-ring
062	1	soft sealing	131 *	1	o-ring
063	1	disc ring	132	1	groove pin
080	1	spindle	133	1	groove pin
081	1	spring			
082	1	springplate, upper			
084	1	springplate, lower			
085	1	adjusting screw			

* expendable parts

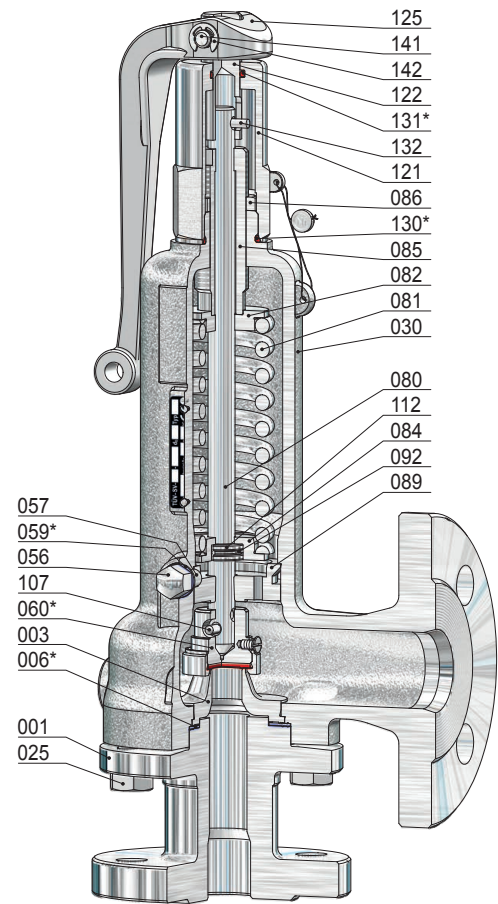
Safety-Valve, springloaded

for steam, gases and liquids

Typ 31



Size II
head C



Size II
head A

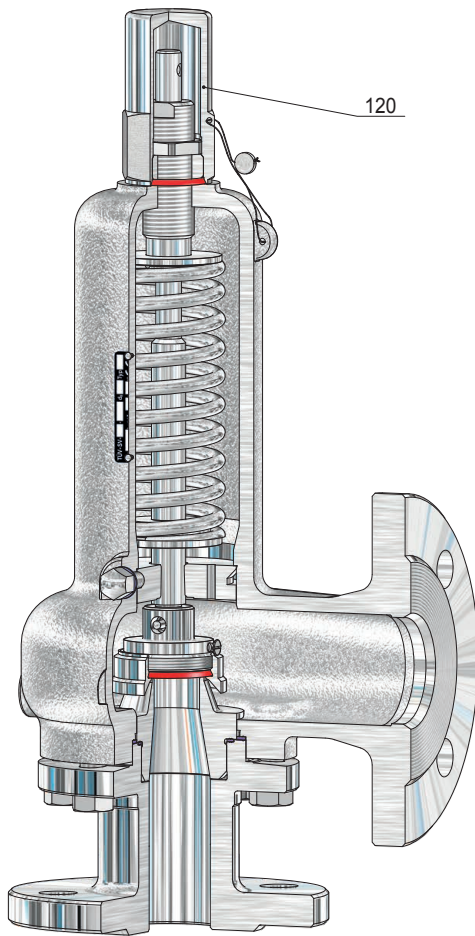
Item	Piece	Description	Item	Piece	Description
001	1	inlet body	085	1	adjusting screw
003	1	seat	086	1	lock nut
006 *	1	packing ring	089	1	guide plate
025	4	screw	092	1	lock ring
030	1	spring bonnet	107	1	spring pin
056	2	lock nut	112	1	split ring
057	2	screwed pin	120	1	cap
059 *	2	packing ring	121	1	lifting cap
060 *	1	disc, complete	122	1	coupling
560	1	disc	125	1	lifting button
062	1	soft sealing	130 *	1	o-ring
063	1	disc ring	131 *	1	o-ring
067	1	security screw	132	1	groove pin
080	1	spindle	141	1	bolt
081	1	spring	142	2	stop washer
082	1	springplate, upper			
084	1	springplate, lower			

* expendable parts

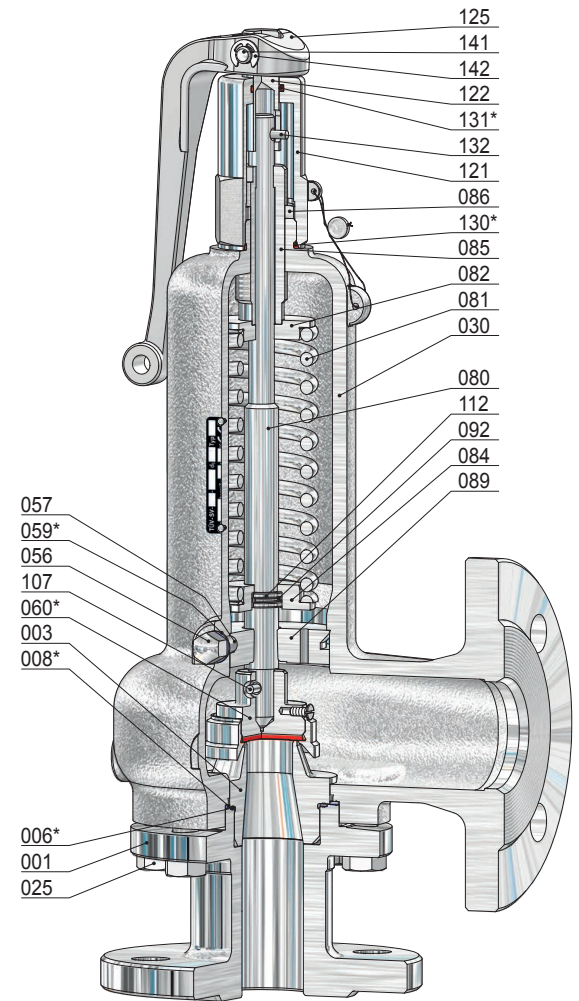
Safety-Valve, springloaded

for steam, gases and liquids

Typ 31



Size III
head C



Size III
head A

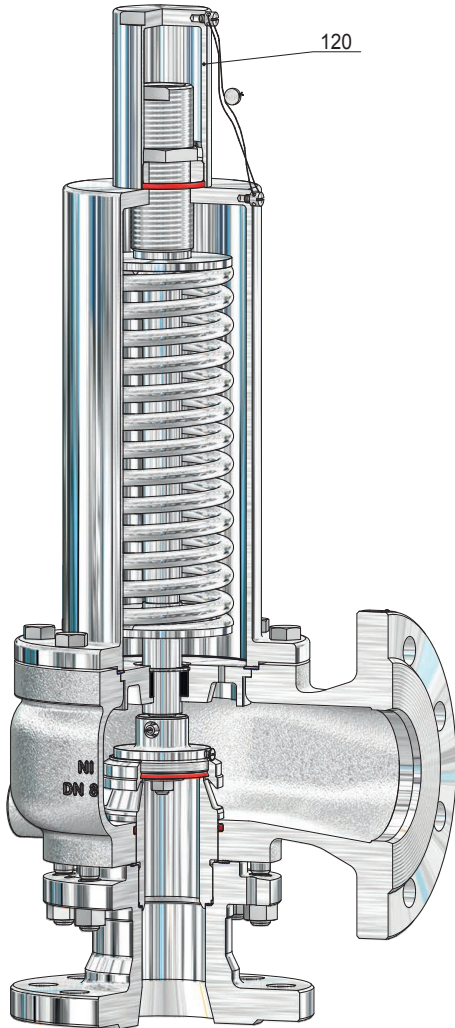
Item	Piece	Description	Item	Piece	Description
001	1	inlet body	084	1	springplate, lower
003	1	seat	085	1	adjusting screw
006 *	1	packing ring	086	1	lock nut
008 *	1	packing ring	089	1	guide plate
025	8	screw	092	1	lock ring
030	1	spring bonnet	107	1	spring pin
056	2	lock nut	112	1	split ring
057	2	screwed pin	120	1	cap
059 *	2	packing ring	121	1	lifting cap
060 *	1	disc, complete	122	1	coupling
062	1	disc	125	1	lifting button
063	1	soft sealing	130 *	1	o-ring
067	1	disc ring	131 *	1	o-ring
067	1	security screw	132	1	groove pin
080	1	spindle	141	1	bolt
081	1	spring	142	2	stop washer
082	1	springplate, upper			

* expendable parts

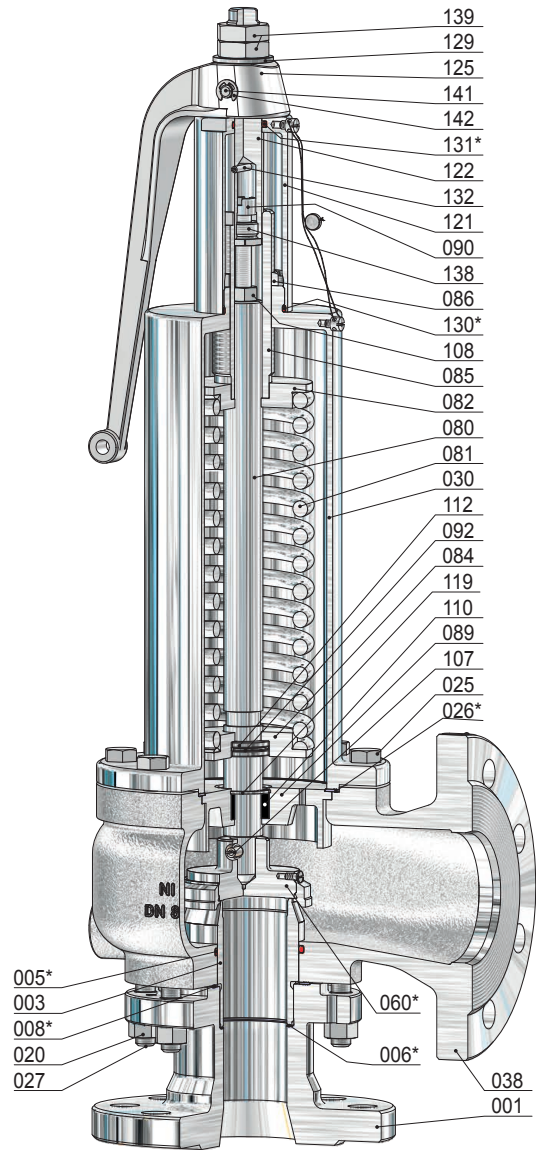
Safety-Valve, springloaded

for steam, gases and liquids

Typ 31



Size IV
head C



Size IV
head A

Item	Piece	Description	Item	Piece	Description	Item	Piece	Description
001	1	inlet body	073	1	o-ring	121	1	lifting cap
003	1	seat	074	1	disc plate	122	1	coupling
005 *	1	o-ring	080	1	spindle	125	1	lifting button
006 *	1	packing ring	081	1	spring	129	1	pressure plate
008 *	1	packing ring	082	1	springplate, upper	130 *	1	o-ring
020	8	nut	084	1	springplate, lower	131 *	1	o-ring
025	8	screw	085	1	adjusting screw	132	1	groove pin
026 *	1	packing ring	086	1	lock nut	138	1	screw
027	8	stud bolt	089	1	guide plate	139	2	nut
030	1	spring bonnet	090	1	screw	141	1	bolt
038	1	outlet body	092	1	lock ring	142	2	stop washer
060 *	1	disc, complete	107	1	spring pin			
560	1	disc	108	1	nut			
062	1	soft sealing	110	1	bush			
063	1	disc ring	112	1	split ring			
065	1	disc bolt	119	1	locking ring			
067	1	security screw	120	1	cap			

* expendable parts

Full-Lift-Safety-Valve, springloaded

for steam, gases and liquids

Typ 32

Standard version:

Material:	Inlet body	/ Spring bonnet, outlet body	Temperature ranges metal seated
Typ 32.1:	BG I 1.0460	/ 0.7043	-10°C to 280°C
	BG II - IV 1.0460	/ 1.0619	-10°C to 280°C
Typ 32.2:	BG I - IV 1.4571	/ 1.4581	-60°C to 280°C
Typ 32.7:	BG I - IV 1.4571	/ 1.4308	-200°C to 280°C
Connections:			soft seated
Flange connections: DIN EN / ASME B16.5			see techn. appendix: KWD-1

Approvals:

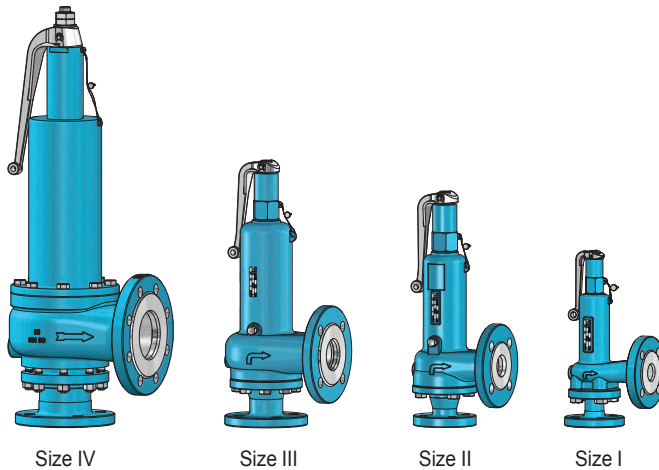
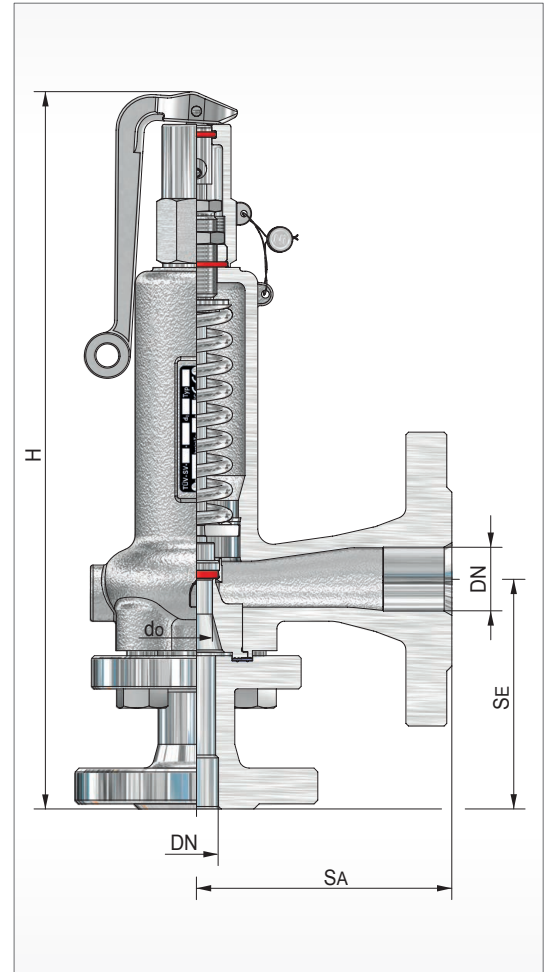
Pressure Equipment Directive: 2014/68/EU
Declaration of Conformity



TÜV - Approval:

VdTÜV-leaflet
AD 2000-leaflet A 2

TÜV • SV • XX-887 / 900 / 901 / 906 / 920 • do • D/G/F • α_w • p



Size	Inlet					Outlet				Height 'H' for head			Coefficient		Set pressure		Weight ~ [kg]
	DN	NPS	PN / Class	do [mm]	SE [mm]	DN	NPS	PN / Class	SA [mm]	A [mm]	C [mm]	D/G α _w max.	F α _w	p min. [bar(g)]	p max. [bar(g)]		
I	15	1/2	63-160	8	115	25	1	16-40	100	307	293	0,79		6	250	4,6	
			250	12,5	90			282		268	0,59	0,41	0,2	40	4,6		
II	20	3/4	16-63	16	105	32	1 1/4	16-40	105	395	375	0,68	0,47	0,1	40	10,2	
	25	1	150-600	20	115	40	1 1/2	150-300	115	405	385	0,54	0,44				11,2
III	32	1 1/4	16-63	25	125	50	2	16-40	125	450	430	0,68	0,50	0,1	40	16,0	
	40	1 1/2	150-600	32	145	65	2 1/2	150-300	145	470	450	0,55	0,39				25
IV	50	2	16-63	40	155	80	3	16-40	155	700	620	0,61	0,42	0,1	25	33,0	
	65	2 1/2	150-600	50	175	100	4	150	175	730	650	0,62	0,44				16

other design on request

Full-Lift-Safety-Valve, springloaded

for steam, gases and liquids

Typ 32

Discharge capacities

Water at 68°F [kg/h]

Size	I	II		III		IV	
DN Inlet	15	20	25	32	40	50	65
d _o [mm]	12,5	16	20	25	32	40	50
Q _W max.	0,41	0,47	0,44	0,50	0,39	0,42	0,44
P _e [bar(g)]							
0,05							
0,1	1144,5	2149,5	3144,3	5582,9	7134,1	12005,4	19651,8
0,2	1401,7	2632,6	3850,9	6837,6	8738,1	14703,6	24068,4
0,3	1618,6	3039,9	4446,7	7895,4	10089,0	16978,2	27791,8
0,4	1809,6	3398,7	4971,5	8827,3	11280,9	18982,3	31072,2
0,5	1982,3	3723,1	5446,1	9669,8	12357,6	20794,0	34037,8
1,0	2622,4	4925,2	7204,5	12792,0	16732,2	27507,9	45027,8
1,5	3211,7	6032,1	8823,6	15666,9	20492,7	33690,2	55147,6
2,0	3708,6	6965,3	10188,6	18090,6	23663,0	38902,1	63679,0
2,5	4146,3	7787,5	11391,2	20225,9	26456,0	43493,8	71195,2
3,0	4542,1	8530,7	12478,5	22156,4	28981,1	47645,1	77990,5
3,5	4906,0	9214,3	13478,3	23931,6	31303,1	51462,6	84239,3
4,0	5244,7	9850,5	14408,9	25584,0	33464,5	55015,8	90055,6
4,5	5562,9	10448,0	15283,0	27135,9	35494,4	58353,1	95518,4
5	5863,8	11013,1	16109,6	28603,8	37414,4	61509,5	100685,3
6	6423,4	12064,3	17647,2	31333,9	40985,4	67380,3	110295,2
7	6938,1	13030,9	10961,2	33844,4	44269,4	72779,1	119132,4
8	7417,2	13930,6	20377,3	36181,2	47325,9	77804,1	127357,9
9	7867,1	14775,7	21613,4	38376,0	50196,7	82523,7	135083,5
10	8292,6	15574,9	22782,5	40451,8	52912,0	86987,6	142390,5
12	9084,1	17061,5	24957,0	44312,8	57962,2	95290,2	155981,0
14	9812,0	18428,5	26956,6	47863,3	62606,3	102925,2	168478,7
16	10489,4	19700,9	28817,8	51168,0	66929,0	110031,6	180111,3
18	11125,7	20896,0	30565,9	54271,8	40988,9	116706,2	
20	11727,5	22026,3	32219,3	57207,5	74828,9	123019,1	
25	13111,8	24626,1	36022,3	63960,0	83661,2	137539,5	
30	14363,3	26976,6	39460,4	70064,6			
35	15514,1	29138,0	42622,1	75678,5			
40	16585,3	31149,9	45565,0	80903,7			

Full-Lift-Safety-Valve, springloaded

for steam, gases and liquids

Typ 32

Discharge capacities

Saturated steam [kg/h]

Size	I		II		III		IV	
DN Inlet	15	15	20	25	32	40	50	65
do [mm]	8	12,5	16	20	25	32	40	50
Q _W max.	0,79	0,59	0,68	0,54	0,68	0,55	0,61	0,62
p _e [bar(g)]								
0,05								
0,1		25,1	47,1	58,0	122,4	144,4	263,2	430,8
0,2		30,1	56,3	69,6	146,0	173,6	318,9	515,4
0,3		34,1	64,9	81,1	164,8	197,3	365,0	583,0
0,4		37,4	71,1	92,6	180,4	220,3	405,1	639,8
0,5		40,4	78,0	98,8	193,9	241,2	441,2	689,4
1,0		73,6	141,9	177,4	352,2	454,1	798,1	1270,2
1,5		87,3	166,9	206,9	426,8	540,3	960,2	1526,1
2,0		117,1	222,1	273,4	550,4	713,4	1240,9	1971,7
2,5		139,2	263,5	325,7	652,9	849,4	1474,7	2342,7
3,0		160,3	302,8	375,7	739,1	979,5	1697,4	2695,7
3,5		180,6	340,9	423,0	832,4	1103,0	1911,5	3035,7
4,0		199,7	377,1	467,9	920,7	1220,1	2114,3	3357,7
4,5		219,8	415,1	515,0	1013,4	1342,9	2327,2	3695,9
5		238,7	450,7	559,2	1100,3	1458,1	2526,8	4012,8
6		277,2	523,5	649,5	1278,0	1693,6	2935,0	4661,1
7		316,2	597,1	740,9	1457,7	1931,7	3347,6	5316,4
8		355,0	670,3	831,7	1636,5	2168,6	3758,1	5968,3
9	215,8	393,5	743,1	922,1	1814,3	2404,2	4166,4	6616,8
10	237,1	432,4	816,4	1013,0	1993,2	2641,4	4577,4	7269,5
12	279,5	509,6	962,4	1194,1	2349,5	3113,5	5395,6	8568,8
14	321,6	586,4	1107,4	1374,1	2703,6	3582,7	6208,7	9860,1
16	363,5	662,8	1251,5	1552,9	3055,4	4049,0	7016,7	11143,4
18	405,1	738,6	1394,8	1730,6	3405,2	4512,4	7819,8	
20	447,0	815,1	1539,1	1909,7	3757,5	4979,4	8629,0	
25	552,9	1008,1	1903,7	2362,1	4647,7	6159,1	10673,4	
30	658,4	1200,4	2266,8	2812,7	5534,2			
35	763,9	1392,9	2630,2	3263,6	6421,3			
40	869,2	1584,9	2992,8	3713,5	7306,6			
45	975,3							
50	1082,0							
60	1297,6							
70	1515,1							
80	1738,5							
90	1968,2							
100	2199,5							
110	2432,5							
120	2668,6							
130	2907,7							
140	3149,8							
150	3406,1							
175	4103,4							
200	4871,7							

Full-Lift-Safety-Valve, springloaded

for steam, gases and liquids

Typ 32

Discharge capacities

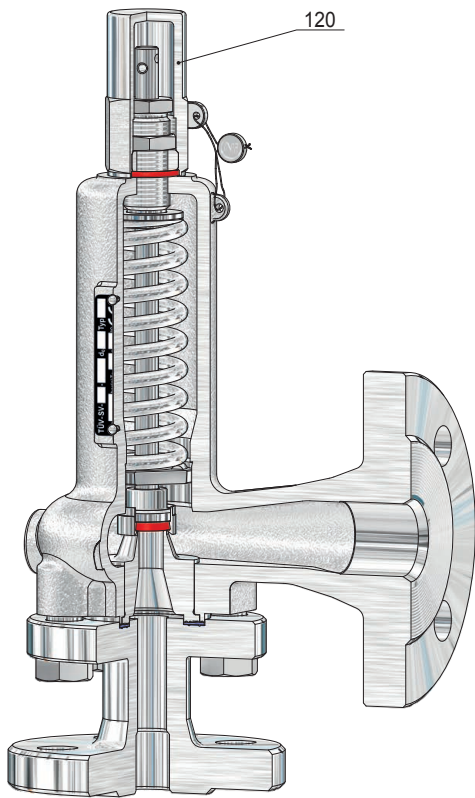
Air at 32°F and 1013 mbar [m_n^3/h]

Size	I		II		III		IV	
DN Inlet	15	15	20	25	32	40	50	65
d _o [mm]	8	12,5	16	20	25	32	40	50
Q _W max.	0,79	0,59	0,68	0,54	0,68	0,55	0,61	0,62
p _e [bar(g)]								
0,05								
0,1		31,6	59,4	73,1	154,3	182,0	331,7	543,0
0,2		39,5	74,0	91,6	192,1	228,3	419,3	677,8
0,3		46,6	88,8	110,9	225,3	269,8	499,2	797,3
0,4		53,1	100,9	131,3	255,9	312,5	574,8	907,8
0,5		59,3	114,5	145,1	284,7	354,1	647,8	1012,2
1,0		87,9	169,5	211,9	420,7	542,4	953,4	1517,3
1,5		116,8	223,3	276,9	571,1	723,1	1284,9	2042,2
2,0		148,4	281,4	346,5	697,5	904,0	1572,4	2498,5
2,5		176,4	333,9	412,7	827,4	1076,6	1869,0	2969,0
3,0		205,4	387,9	481,3	947,0	1254,9	2174,7	3453,7
3,5		231,4	436,9	542,1	1066,6	1413,4	2449,4	3889,9
4,0		257,3	485,9	602,9	1186,2	1571,9	2724,1	4326,2
4,5		283,3	534,9	663,7	1305,9	1730,5	2998,9	4762,6
5		309,2	583,9	724,5	1425,6	1889,1	3273,8	5199,2
6		361,2	682,0	846,3	1665,1	2206,5	3823,8	6072,7
7		413,2	780,2	968,1	1904,8	2524,1	4374,2	6946,8
8		465,2	878,4	1090,0	2144,6	2841,9	4925,0	7821,4
9	283,7	517,2	976,7	1211,9	2384,5	3159,9	5476,0	8696,6
10	312,2	569,3	1075,1	1333,9	2624,7	3478,1	6027,5	9572,3
12	369,4	673,6	1272,0	1578,2	3105,3	4115,1	7131,3	11325,3
14	426,7	778,0	1469,1	1822,9	3586,6	4752,9	8236,6	13080,6
16	484,0	882,5	1666,5	2067,8	4068,5	5391,5	9343,2	14838,1
18	541,4	987,2	1864,1	2313,0	4551,0	6030,9	10451,2	
20	598,9	1092,0	2062,0	2558,5	5034,1	6671,1	11560,6	
25	742,9	1354,5	2557,8	3173,7	6244,5	8275,1	14340,3	
30	887,3	1617,9	3055,1	3790,8	7458,7			
35	1032,2	1882,1	3554,0	4409,9	8676,8			
40	1177,6	2147,2	4054,6	5030,9	9898,8			
45	1323,5							
50	1469,8							
60	1763,8							
70	2059,7							
80	2357,6							
90	2657,5							
100	2959,4							
110	3263,3							
120	3569,2							
130	3877,3							
140	4187,5							
150	4499,8							
175	5290,4							
200	6095,2							

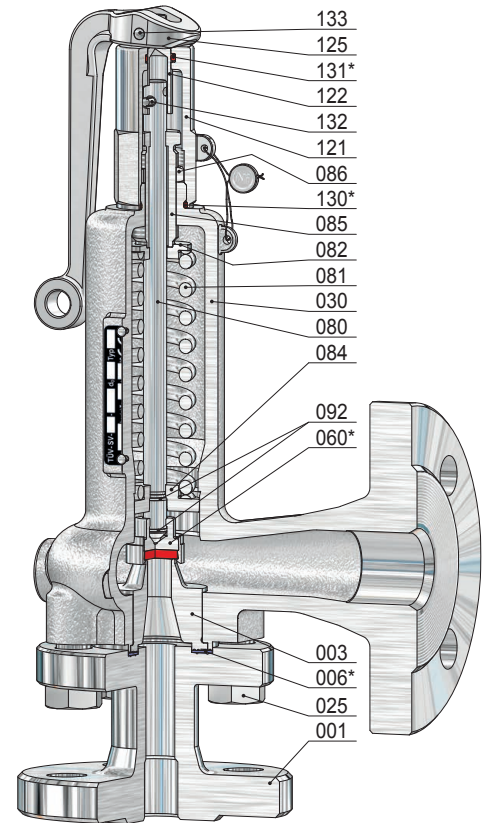
Full-Lift-Safety-Valve, springloaded

for steam, gases and liquids

Typ 32



Size I
head C



Size I
head A

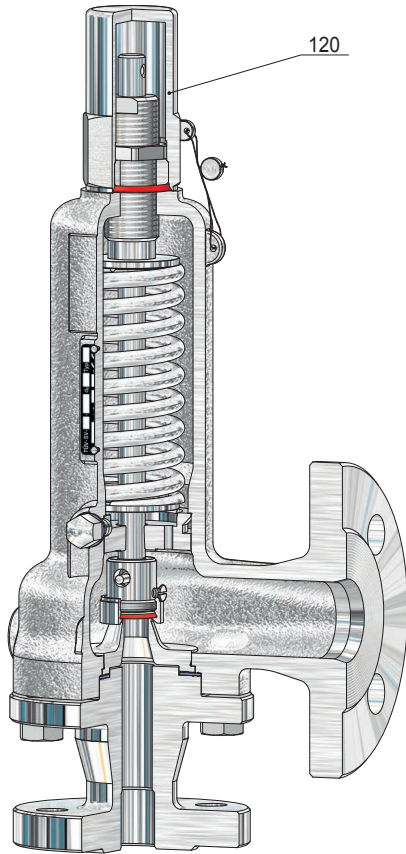
Item	Piece	Description	Item	Piece	Description
001	1	inlet body	086	1	lock nut
003	1	seat	092	2	lock ring
006 *	1	packing ring	120	1	cap
025	4	screw	121	1	lifting cap
030	1	spring bonnet	122	1	coupling
060 *	1	disc, complete	125	1	lifting button
560	1	disc	130 *	1	o-ring
062	1	soft sealing	131 *	1	o-ring
063	1	disc ring	132	1	groove pin
080	1	spindle	133	1	groove pin
081	1	spring			
082	1	springplate, upper			
084	1	springplate, lower			
085	1	adjusting screw			

* expendable parts

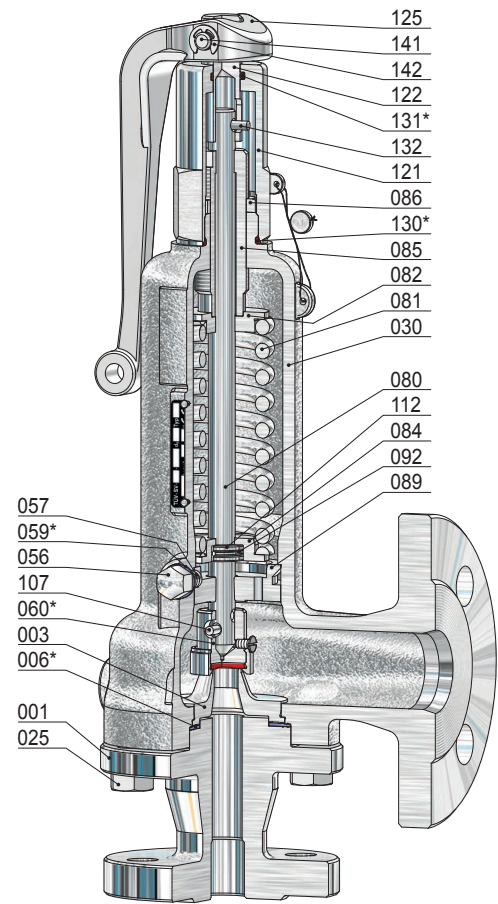
Full-Lift-Safety-Valve, springloaded

for steam, gases and liquids

Typ 32



Size II
head C



Size II
head A

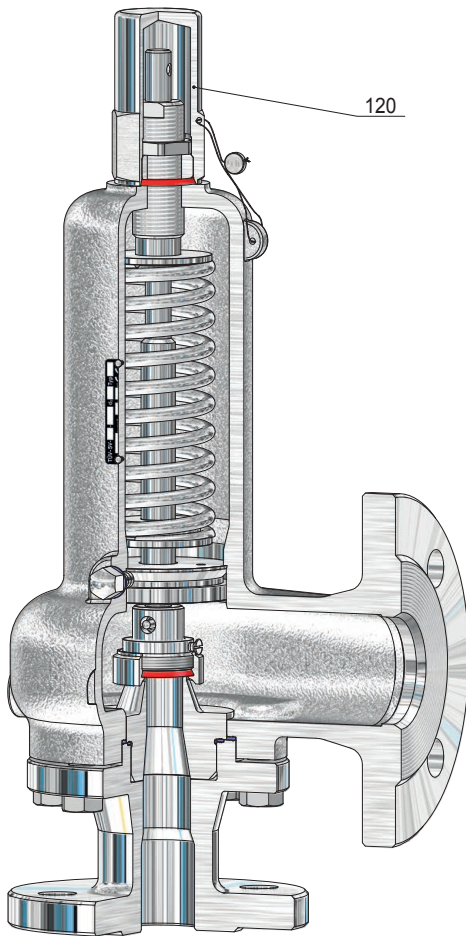
Item	Piece	Description	Item	Piece	Description
001	1	inlet body	085	1	adjusting screw
003	1	seat	086	1	lock nut
006 *	1	packing ring	089	1	guide plate
025	4	screw	092	1	lock ring
030	1	spring bonnet	107	1	spring pin
056	2	lock nut	112	1	split ring
057	2	screwed pin	120	1	cap
059 *	2	packing ring	121	1	lifting cap
060 *	1	disc, complete	122	1	coupling
062	1	disc	125	1	lifting button
063	1	soft sealing	130 *	1	o-ring
067	1	disc ring	131 *	1	o-ring
080	1	security screw	132	1	groove pin
081	1	spindle	141	1	bolt
082	1	spring	142	2	stop washer
084	1	springplate, upper			
		springplate, lower			

* expendable parts

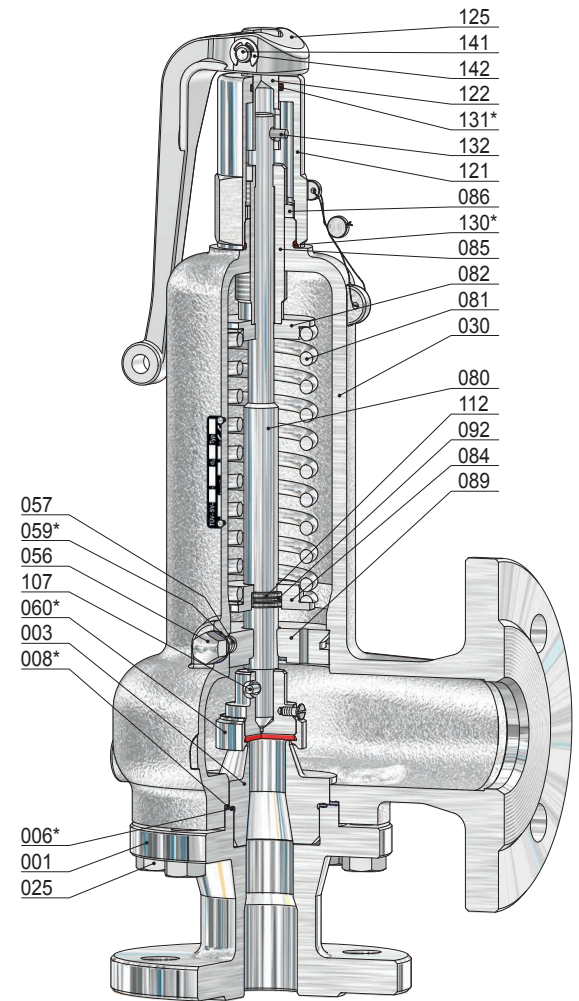
Full-Lift-Safety-Valve, springloaded

for steam, gases and liquids

Typ 32



Size III
head C



Size III
head A

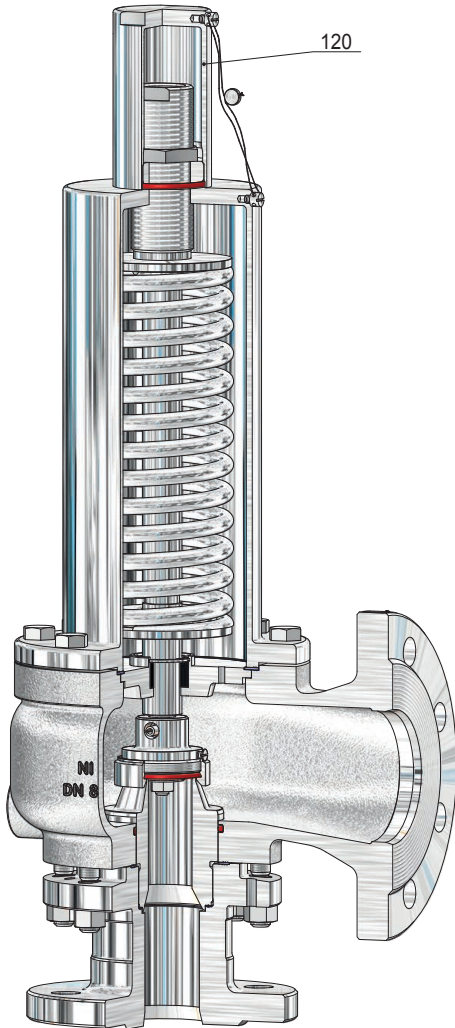
Item	Piece	Description	Item	Piece	Description
001	1	inlet body	084	1	springplate, lower
003	1	seat	085	1	adjusting screw
006 *	1	packing ring	086	1	lock nut
008 *	1	packing ring	089	1	guide plate
025	8	screw	092	1	lock ring
030	1	spring bonnet	107	1	spring pin
056	2	lock nut	112	1	split ring
057	2	screwed pin	120	1	cap
059 *	2	packing ring	121	1	lifting cap
060 *	1	disc, complete	122	1	coupling
062	1	disc	125	1	lifting button
063	1	soft sealing	130 *	1	o-ring
067	1	disc ring	131 *	1	o-ring
080	1	security screw	132	1	groove pin
081	1	spindle	141	1	bolt
082	1	spring	142	2	stop washer
082	1	springplate, upper			

* expendable parts

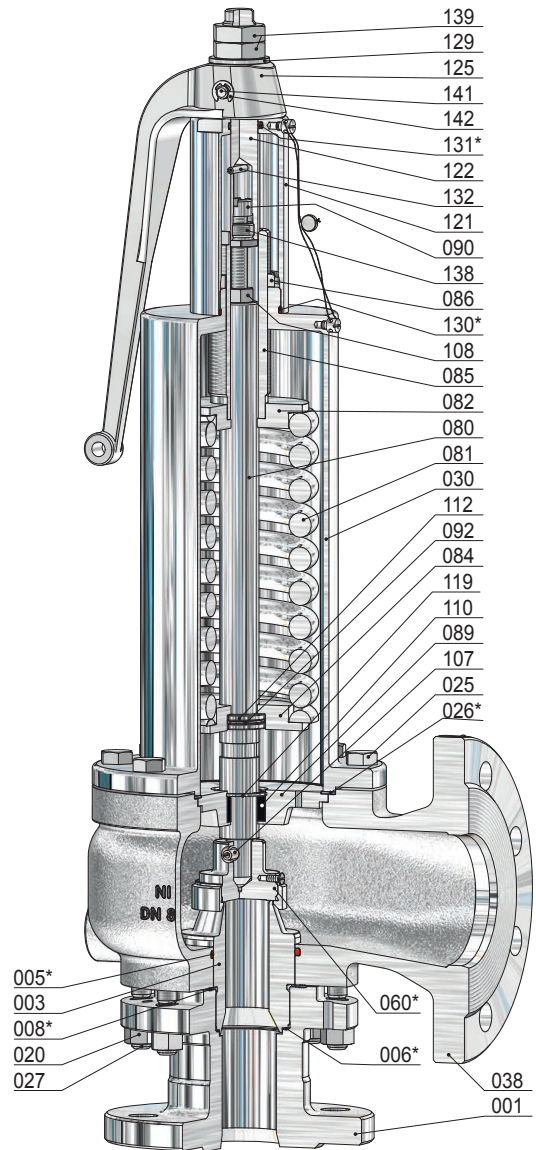
Full-Lift-Safety-Valve, springloaded

for steam, gases and liquids

Typ 32



Size IV
head C



Size IV
head A

Item	Piece	Description	Item	Piece	Description	Item	Piece	Description
001	1	inlet body	073	1	o-ring	121	1	lifting cap
003	1	seat	074	1	disc plate	122	1	coupling
005 *	1	o-ring	080	1	spindle	125	1	lifting button
006 *	1	packing ring	081	1	spring	129	1	pressure plate
008 *	1	packing ring	082	1	springplate, upper	130 *	1	o-ring
020	8	nut	084	1	springplate, lower	131 *	1	o-ring
025	8	screw	085	1	adjusting screw	132	1	groove pin
026 *	1	packing ring	086	1	lock nut	138	1	screw
027	8	stud bolt	089	1	guide plate	139	2	nut
030	1	spring bonnet	090	1	screw	141	1	bolt
038	1	outlet body	092	1	lock ring	142	2	stop washer
060 *	1	disc, complete	107	1	spring pin			
560	1	disc	108	1	nut			
062	1	soft sealing	110	1	bush			
063	1	disc ring	112	1	split ring			
065	1	disc bolt	119	1	locking ring			
067	1	security screw	120	1	cap			

* expendable parts

Relief-Valve, springloaded

for steam and gases

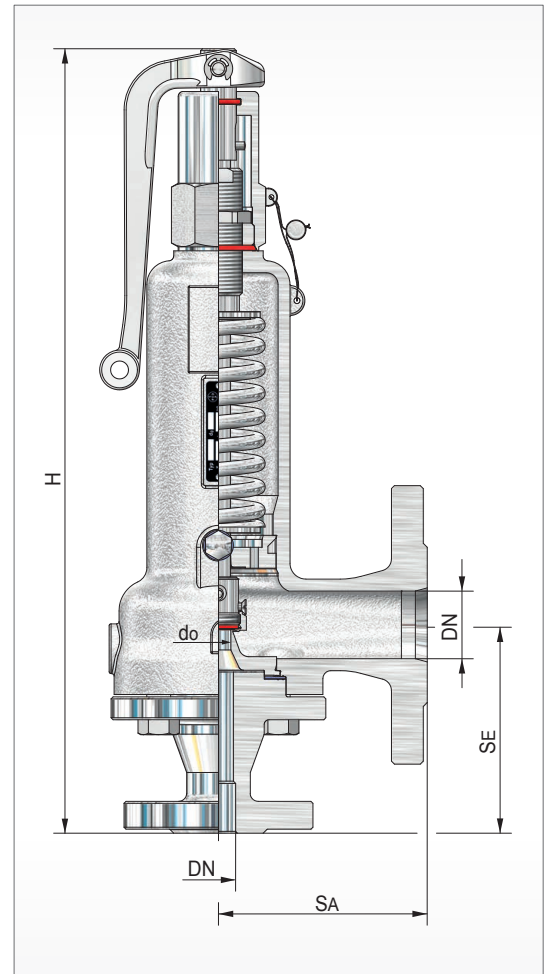
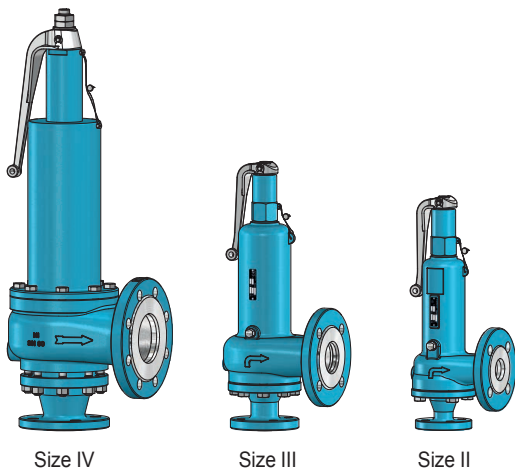
Typ 33

Standard version:

Material:	Inlet body	/	Spring bonnet, outlet body	Temperature ranges metal seated
Typ 33.1:	BG II-IV	1.0460	/ 1.0619	-10°C to 280°C
Typ 33.2:	BG II-IV	1.4571, 1.4581	/ 1.4581	-60°C to 280°C
Typ 33.7:	BG II-IV	1.4571	/ 1.4308	-200°C to 280°C
Connections:				soft seated
Flange connections: DIN EN / ASME B16.5				see techn. appendix: KWD-1

Approvals:

Pressure Equipment Directive: 2014/68/EU
Declaration of Conformity



Size	Inlet					Outlet				Height 'H' for head		Coefficient		Set pressure		Weight ~ [kg]
	DN	NPS	PN / Class	do [mm]	SE [mm]	DN	NPS	PN / Class	SA [mm]	A [mm]	C [mm]	D/G αw max.	F αw	p min. [bar(g)]	p max. [bar(g)]	
II	15	1/2	16-63	12,5	105	32	1 1/4	16-40	105	395	375	0,83		4,00	120	9,6
	20	3/4	150-600	16 20	115	40	1 1/2	150-300	115	405	385	0,71 0,80		0,30 0,30	40 40	10,0 10,0
III	25	1	16-63	20	125	50	2	16-40	125	450	430	0,46		0,50	40	15,0
	32	1 1/4	150-600	25	145	65	2 1/2	150-300	145	470	450	0,86		0,15		19,3
IV	40	1 1/2	16-63	32	155	80	3	16-40	155	700	620	0,54		0,50	16	36,8
	50	2	150-600	40	175	100	4	150	175	730	650	0,56		0,30	15	40,5

other design on request

Relief-Valve, springloaded

for steam and gases

Typ 33

Discharge capacities

Saturated steam [kg/h]

Size	II			III		IV	
DN Inlet	15	20	20	25	32	40	50
do [mm]	12,5	16	20	20	25	32	40
Q _W max.	0,83	0,71	0,80	0,46	0,66	0,54	0,56
p _e [bar(g)]							
0,1							
0,2					123		
0,3		66	132		149		332
0,4		72	144		163		375
0,5		79	156	87	180	247	413
1,0		146	277	157	330	459	778
1,5		174	323	184	407	548	907
2,0		236	428	244	542	736	1194
2,5		285	508	292	645	878	1424
3,0		327	576	331	743	996	1614
3,5		369	650	374	838	1123	1820
4,0	291	409	720	414	928	1244	2015
4,5	321	450	793	456	1022	1370	2220
5	349	489	861	495	1110	1489	2412
6	406	569	1001	576	1291	1731	2805
7	463	650	1143	657	1474	1976	3202
8	520	729	1285	738	1656	2219	3596
9	547	809	1425	819	1837	2462	3989
10	634	889	1566	900	2018	2706	4385
12	748	1049	1847	1062	2381	3191	5171
14	862	1208	2126	1223	2741	3674	5953
16	974	1365	2404	1382	3099	4154	6731
18	1086	1522	2680	1541	3454		
20	1199	1680	2958	1700	3813		
25	1483	2074	3660	2104	4718		
30	1767	2476	4359	2506	5619		
35	2050	2873	5059	2909	6521		
40	2333	3270	5757	3310	7421		
50	2905						
60	3484						
70	4069						
80	4669						
90	5286						
100	5907						
110	6534						
120	7168						

Relief-Valve, springloaded

for steam and gases

Typ 33

Discharge capacities

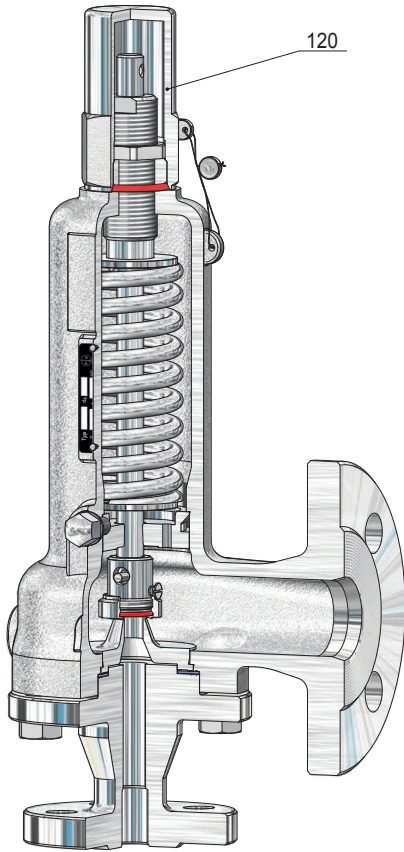
Air at 32°F [m^3/h]

Size	II			III		IV	
DN Inlet	15	20	20	25	32	40	50
d _o [mm]	12,5	16	20	20	25	32	40
α _W max.	0,83	0,71	0,80	0,46	0,66	0,54	0,56
p _e [bar(g)]							
0,1							
0,2					162		
0,3		90	180		203		455
0,4		102	204		232		531
0,5		116	229	128	264	363	607
1,0		176	334	190	402	555	940
1,5		237	439	250	552	744	1231
2,0		299	543	309	688	933	1513
2,5		361	644	370	818	1113	1804
3,0		419	739	425	952	1276	2068
3,5		473	833	479	1074	1440	2333
4,0	375	526	927	533	1195	1602	2597
4,5	414	580	1022	588	1317	1766	2861
5	452	634	1116	642	1439	1929	3126
6	529	741	1305	750	1682	2255	3655
7	605	849	1494	859	1926	2582	4184
8	682	956	1683	968	2170	2909	4714
9	759	1064	1873	1077	2414	3236	5244
10	835	1171	2062	1186	2658	3564	5775
12	989	1387	2442	1404	3147	4219	6836
14	1143	1602	2821	1622	3637	4875	7900
16	1297	1818	3202	1841	4127	5532	8965
18	1452	2035	3582	2060	4618		
20	1606	2251	3964	2279	5109		
25	1993	2794	4919	2828	6341		
30	2382	3338	5878	3380	7577		
35	2772	3884	6840	3933	8816		
40	3163	4433	7804	4488	10060		
50	3949						
60	4740						
70	5537						
80	6340						
90	7148						
100	7961						
110	8781						
120	9606						

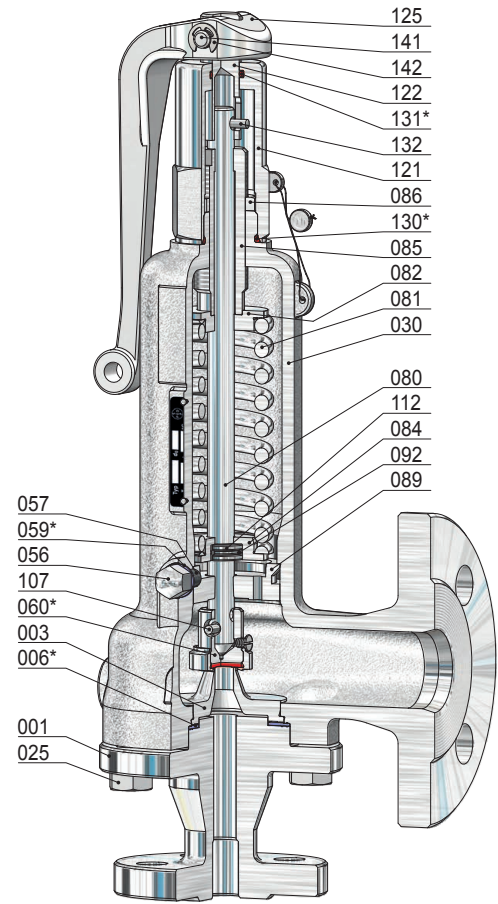
Relief-Valve, springloaded

for steam and gases

Typ 33



Size II
head C



Size II
head A

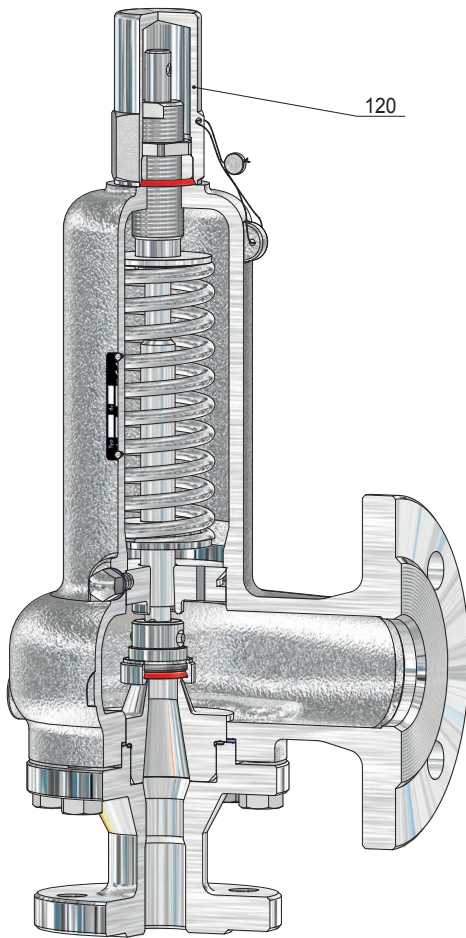
Item	Piece	Description	Item	Piece	Description
001	1	inlet body	085	1	adjusting screw
003	1	seat	086	1	lock nut
006 *	1	packing ring	089	1	guide plate
025	4	screw	092	1	lock ring
030	1	spring bonnet	107	1	spring pin
056	2	lock nut	112	1	split ring
057	2	screwed pin	120	1	cap
059 *	2	packing ring	121	1	lifting cap
060 *	1	disc, complete	122	1	coupling
560	1	disc	125	1	lifting button
062	1	soft sealing	130 *	1	o-ring
063	1	disc ring	131 *	1	o-ring
067	1	security screw	132	1	groove pin
080	1	spindle	141	1	bolt
081	1	spring	142	2	stop washer
082	1	springplate, upper			
084	1	springplate, lower			

* expendable parts

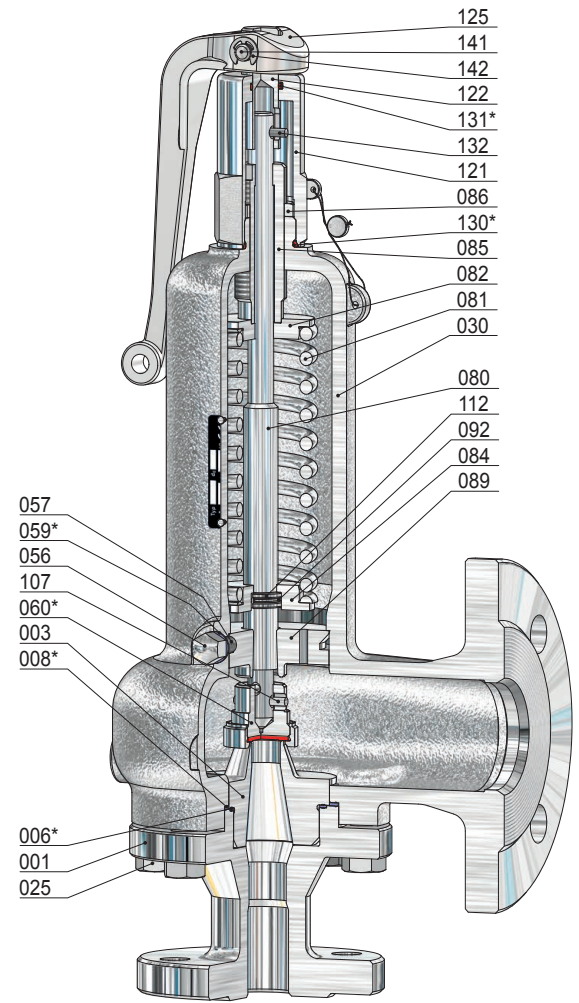
Relief-Valve, springloaded

for steam and gases

Typ 33



Size III
head C



Size III
head A

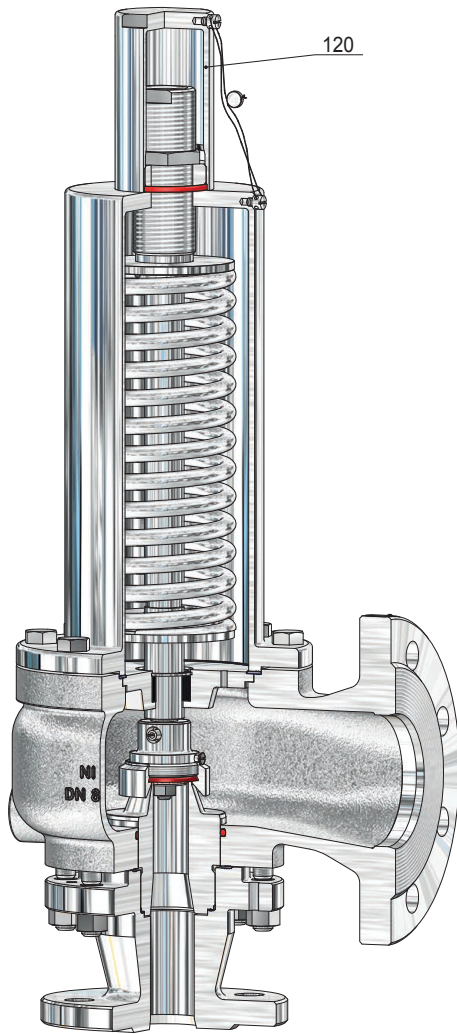
Item	Piece	Description	Item	Piece	Description
001	1	inlet body	084	1	springplate, lower
003	1	seat	085	1	adjusting screw
006 *	1	packing ring	086	1	lock nut
008 *	1	packing ring	089	1	guide plate
025	8	screw	092	1	lock ring
030	1	spring bonnet	107	1	spring pin
056	2	lock nut	112	1	split ring
057	2	screwed pin	120	1	cap
059 *	2	packing ring	121	1	lifting cap
060 *	1	disc, complete	122	1	coupling
560	1	disc	125	1	lifting button
062	1	soft sealing	130 *	1	o-ring
063	1	disc ring	131 *	1	o-ring
067	1	security screw	132	1	groove pin
080	1	spindle	141	1	bolt
081	1	spring	142	2	stop washer
082	1	springplate, upper			

* expendable parts

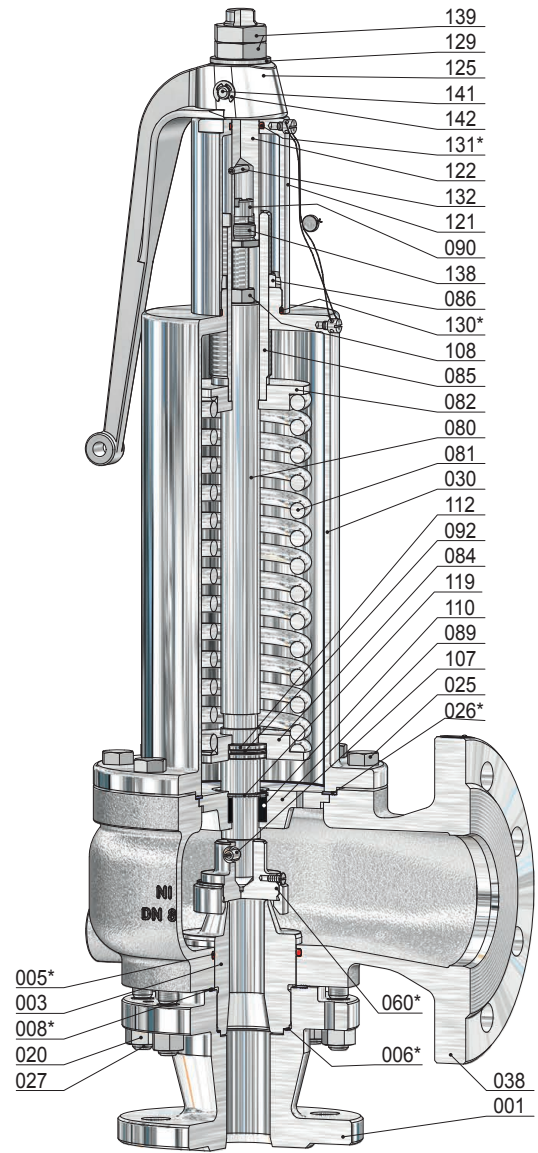
Relief-Valve, springloaded

for steam and gases

Typ 33



Size IV
head C



Size IV
head A

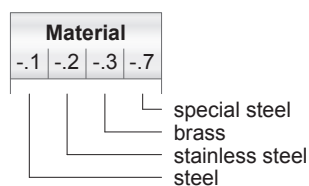
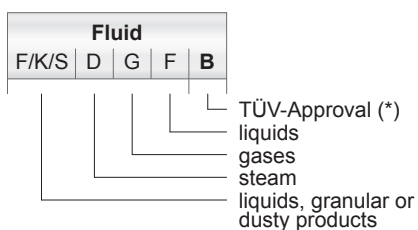
Item	Piece	Description	Item	Piece	Description	Item	Piece	Description
001	1	inlet body	073	1	o-ring	121	1	lifting cap
003	1	seat	074	1	disc plate	122	1	coupling
005 *	1	o-ring	080	1	spindle	125	1	lifting button
006 *	1	packing ring	081	1	spring	129	1	pressure plate
008 *	1	packing ring	082	1	springplate, upper	130 *	1	o-ring
020	8	nut	084	1	springplate, lower	131 *	1	o-ring
025	8	screw	085	1	adjusting screw	132	1	groove pin
026 *	1	packing ring	086	1	lock nut	138	1	screw
027	8	stud bolt	089	1	guide plate	139	2	nut
030	1	spring bonnet	090	1	screw	141	1	bolt
038	1	outlet body	092	1	lock ring	142	2	stop washer
060 *	1	disc, complete	107	1	spring pin			
560	1	disc	108	1	nut			
062	1	soft sealing	110	1	bush			
063	1	disc ring	112	1	split ring			
065	1	disc bolt	119	1	locking ring			
067	1	security screw	120	1	cap			

* expendable parts



Index

Type	Use	*	Fluid	Material				DN	PN _E [bar(g)]	Heads
				-1	-2	-3	-7			
35	Relief-Valve, springloaded for steam, gases and liquids	-	D/G/F	●				15 - 80	16 - 40	A - C, F, H, T
35	Safety-Valve, springloaded for steam, gases and liquids	B	D/G/F	●				25 + 50	16 - 40	A - C, H, T



Relief-Valve, springloaded

for steam, gases and liquids

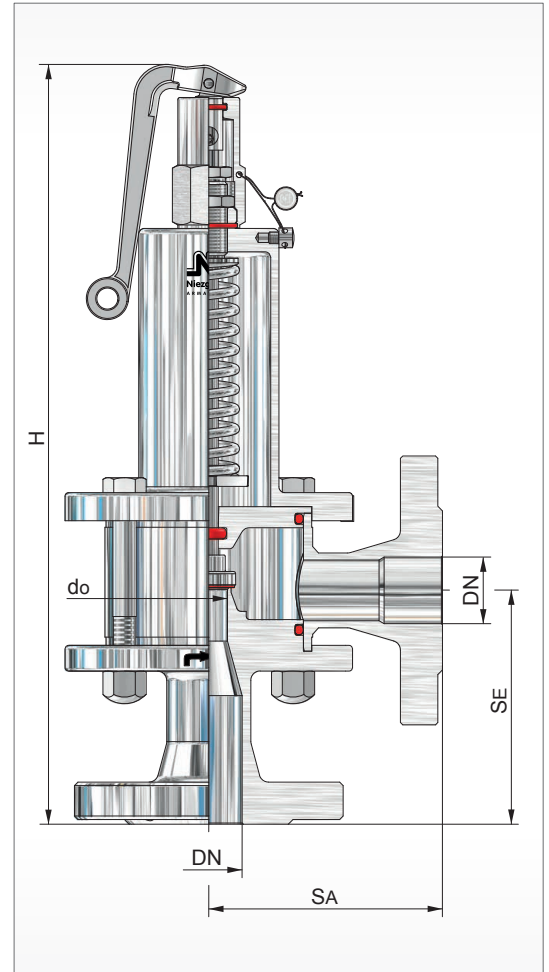
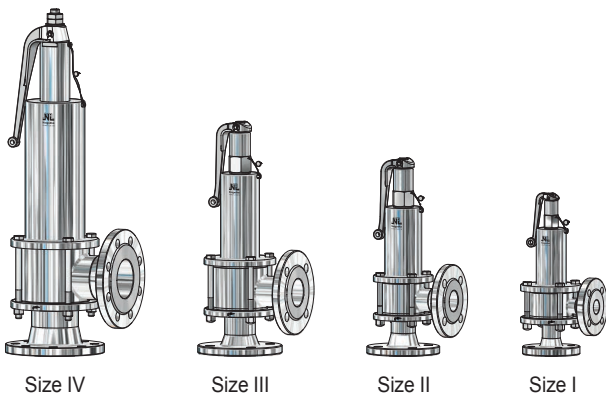
Typ 35

Standard version:

Material:		Inlet body / Outlet body		Temperature ranges
Typ 35.2:		1.4571 / 1.4571		metal seated -50°C to 200°C
Connections:		soft seated		
Flange connections: DIN EN / ASME B16.5		see techn. appendix: KWD-1		

Approvals:

Pressure Equipment Directive: 2014/68/EU
Declaration of Conformity



Size	Inlet					Outlet				Height 'H' for head			Set pressure		Weight ~ [kg]
	DN	NPS	PN / Class	do [mm]	SE [mm]	DN	NPS	PN / Class	SA [mm]	A [mm]	C [mm]	p min. [bar(g)]	p max. [bar(g)]		
I	15	1/2	16-40	12,5	90	15	1/2	16-40	90	320	305	0,1	16	6,6	
	20	3/4	150-300	12,5	95	20	3/4	150-300	95	325	310				6,9
	25	1		16,0	100	25	1		100	330	315				
II	32	1 1/4	16-40	20	105	32	1 1/4	16-40	105	405	385	0,4	16	9,8	
	40	1 1/2	150-300	25	115	40	1 1/2	150-300	115	415	395				0,2
III	50	2	16-40	32	125	50	2	16-40	125	465	445	0,12	16	13,5	
	65	2 1/2	150-300	40	145	65	2 1/2	150-300	145	485	465				0,15
IV	80	3	16-40 150-300	50	155	80	3	16-40 150-300	155	700	620	0,2	16	28,3	

other design on request

Relief-Valve, springloaded

for steam, gases and liquids

Typ 35

Discharge capacities

Water at 68°F [10³ kg/h]

Size	I	II	III	IV			
DN Inlet	25	32	40	50	65	80	
d _o [mm]	16	20	25	32	40	50	
Q _W max.	0,10	0,10	0,10	0,10	0,10	0,10	
p _e [bar(g)]							
0,1							
0,2			1110	1830	2860	4460	
0,3			1370	2240	3500	5470	
0,4	647	1010	1580	2590	4040	6310	
0,5	723	1130	1760	2890	4520	7060	
1,0	1020	1600	2490	4090	6390	9980	
1,5	1250	1950	3060	5010	7830	12200	
2,0	1440	2260	3530	5780	9040	14100	
2,5	1610	2520	3950	6470	10100	15800	
3,0	1770	2770	4320	7080	11100	17300	
3,5	1910	2990	4670	7650	11900	18700	
4,0	2040	3190	4990	8180	12800	20000	
4,5	2170	3390	5290	8680	13500	21200	
5	2280	3570	5580	9140	14300	22300	
6	2500	3910	6110	10000	15600	24400	
7	2700	4230	6600	10800	16900	26400	
8	2890	4520	7060	11500	18100	28200	
9	3070	4790	7490	12300	19200	29900	
10	3230	5050	7890	12900	20200	31600	
12	3540	5530	8650	14100	22100	34600	
14	3820	5980	9340	15300	23900	37300	
16	4090	6390	9980	16300	25500	39900	

Relief-Valve, springloaded

for steam, gases and liquids

Typ 35

Discharge capacities

Saturated steam [kg/h]

Size	I	II	III	IV		
DN Inlet	25	32	40	50	65	80
d _o [mm]	16	20	25	32	40	50
α _W max.	0,15	0,15	0,15	0,15	0,15	0,15
De [bar(g)]						
0,4	17,7	27,6	43,2	70,7	110,0	173,0
0,5	19,9	31,0	48,5	79,5	124,0	194,0
0,6	21,8	34,1	53,3	87,4	136,0	213,0
0,7	23,7	37,0	57,8	94,8	148,0	231,0
0,8	25,4	39,7	62,1	102,0	159,0	248,0
0,9	27,2	42,5	66,4	109,0	170,0	266,0
1,0	29,0	45,3	70,8	116,0	181,0	283,0
1,5	38,1	59,5	93,0	152,0	238,0	372,0
2,0	47,1	73,7	115,0	188,0	295,0	460,0
2,5	55,8	87,2	136,0	223,0	349,0	545,0
3,0	63,8	99,6	156,0	255,0	398,0	623,0
3,5	71,5	111,0	174,0	286,0	446,0	698,0
4,0	79,1	123,0	193,0	316,0	494,0	773,0
4,5	86,7	135,0	212,0	347,0	542,0	847,0
5,0	94,4	147,0	230,0	378,0	590,0	922,0
6,0	109,0	171,0	268,0	439,0	685,0	1070,0
7,0	125,0	195,0	305,0	499,0	780,0	1220,0
8,0	140,0	219,0	342,0	560,0	875,0	1370,0
9,0	155,0	242,0	379,0	620,0	969,0	1510,0
10,0	170,0	266,0	415,0	681,0	1060,0	1660,0
12,0	200,0	313,0	489,0	801,0	1250,0	1950,0
14,0	230,0	360,0	562,0	922,0	1440,0	2250,0
16,0	230,0	470,0	636,0	1040,0	1630,0	2540,0

Relief-Valve, springloaded

for steam, gases and liquids

Typ 35

Discharge capacities

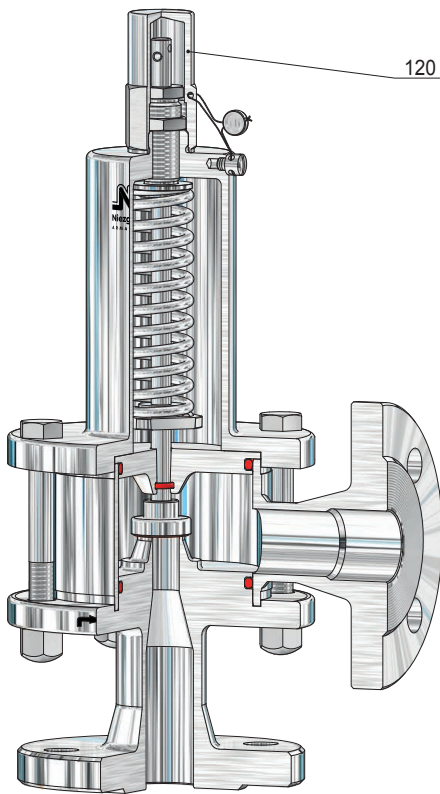
Air at 32°F [m³_n/h]

Size	I	II	III	IV			
DN Inlet	25	32	40	50	65	80	
do [mm]	16	20	25	32	40	50	
Q _W max.	0,15	0,15	0,15	0,15	0,15	0,15	
p _e [bar(g)]							
0,1							
0,2			35,6	58,4	91,3	142,0	
0,3			44,5	72,9	114,0	178,0	
0,4	21,4	33,4	52,3	85,7	134,0	209,0	
0,5	24,3	38,0	59,4	97,3	152,0	237,0	
1,0	36,8	57,4	89,8	147,0	230,0	359,0	
1,5	48,6	75,9	118,0	194,0	304,0	475,0	
2,0	60,5	94,5	148,0	242,0	378,0	591,0	
2,5	71,9	112,0	176,0	288,0	450,0	703,0	
3,0	82,5	129,0	201,0	330,0	516,0	806,0	
3,5	92,8	145,0	226,0	371,0	580,0	907,0	
4,0	103,0	161,0	252,0	412,0	644,0	1010,0	
4,5	113,0	177,0	277,0	454,0	709,0	1110,0	
5	124,0	193,0	302,0	495,0	773,0	1210,0	
6	144,0	225,0	352,0	577,0	902,0	1410,0	
7	165,0	258,0	403,0	660,0	1030,0	1610,0	
8	185,0	290,0	453,0	742,0	1160,0	1810,0	
9	206,0	322,0	503,0	825,0	1290,0	2010,0	
10	227,0	354,0	554,0	908,0	1420,0	2210,0	
12	268,0	419,0	655,0	1070,0	1670,0	2620,0	
14	309,0	484,0	756,0	1240,0	1930,0	3020,0	
16	351,0	548,0	857,0	1400,0	2190,0	3430,0	

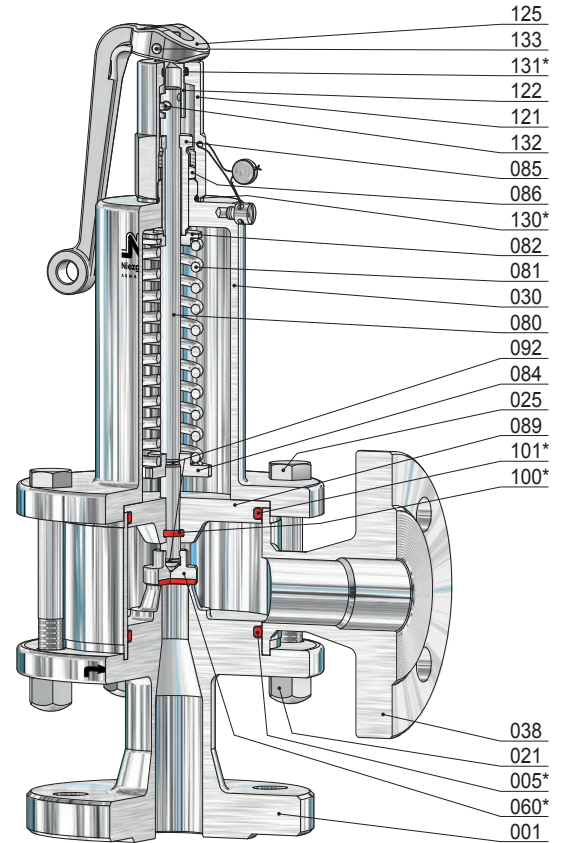
Relief-Valve, springloaded

for steam, gases and liquids

Typ 35



Size I
head C



Size I
head A

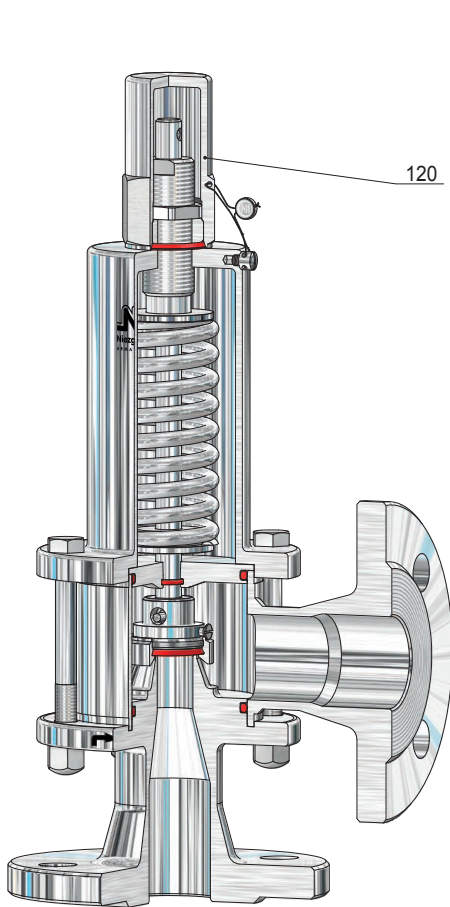
Item	Piece	Description	Item	Piece	Description
001	1	inlet body	089	1	guide plate
005 *	1	o-ring	092	2	lock ring
021	4	cap nut	100 *	1	o-ring
025	4	screw	101 *	1	o-ring
030	1	spring bonnet	120	1	cap
038	1	outlet body	121	1	lifting cap
060 *	1	disc, complete	122	1	coupling
560	1	disc	125	1	lifting button
062	1	soft sealing	130 *	1	o-ring
080	1	spindle	131 *	1	o-ring
081	1	spring	132	1	groove pin
082	1	springplate, upper	133	1	groove pin
084	1	springplate, lower			
085	1	adjusting screw			
086	1	lock nut			

* expendable parts

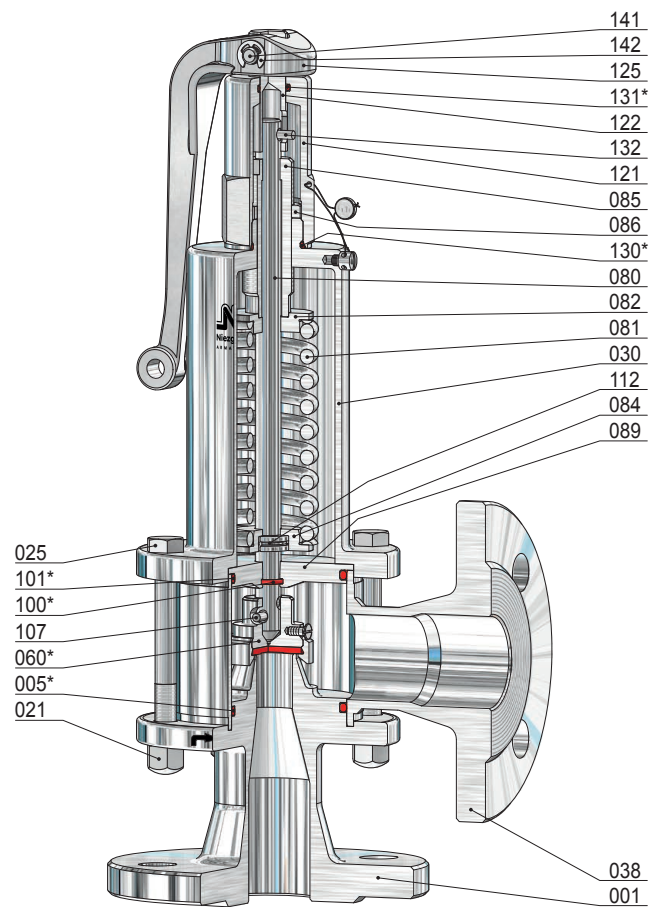
Relief-Valve, springloaded

for steam, gases and liquids

Typ 35



BG II
Kopf C



BG II
Kopf A

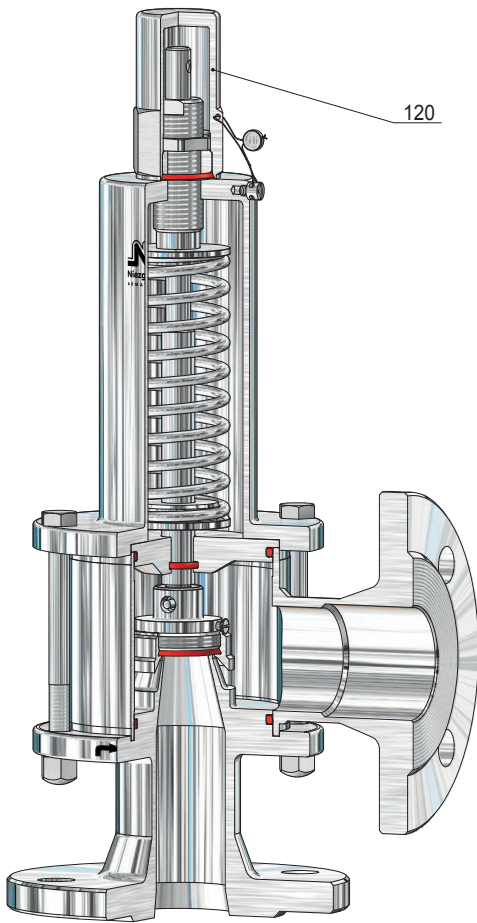
Pos.	Stück	Bezeichnung	Pos.	Stück	Bezeichnung
001	1	Eintrittskörper	086	1	Gegenmutter
005 *	1	O-Ring	089	1	Führungsteller
021	4	Hutmutter	100 *	1	O-Ring
025	4	Schraube	101 *	1	O-Ring
030	1	Federhaube	107	1	Spannhülse
038	1	Ausblasegehäuse	112	1	geteilter Ring
060 *	1	Kegel komplett	120	1	Kappe
560	1	Kegel	121	1	Lüftekappe
062	1	Kegeldichtung	122	1	Kupplung
063	1	Kegelring	125	1	Lüftehebel
067	1	Sicherungsschraube	130 *	1	O-Ring
080	1	Spindel	131 *	1	O-Ring
081	1	Feder	132	1	Kerbstift
082	1	Federteller, oben	141	1	Bolzen
084	1	Federteller, unten	142	2	Sicherungsscheibe
085	1	Druckschraube			

* Verschleißteile

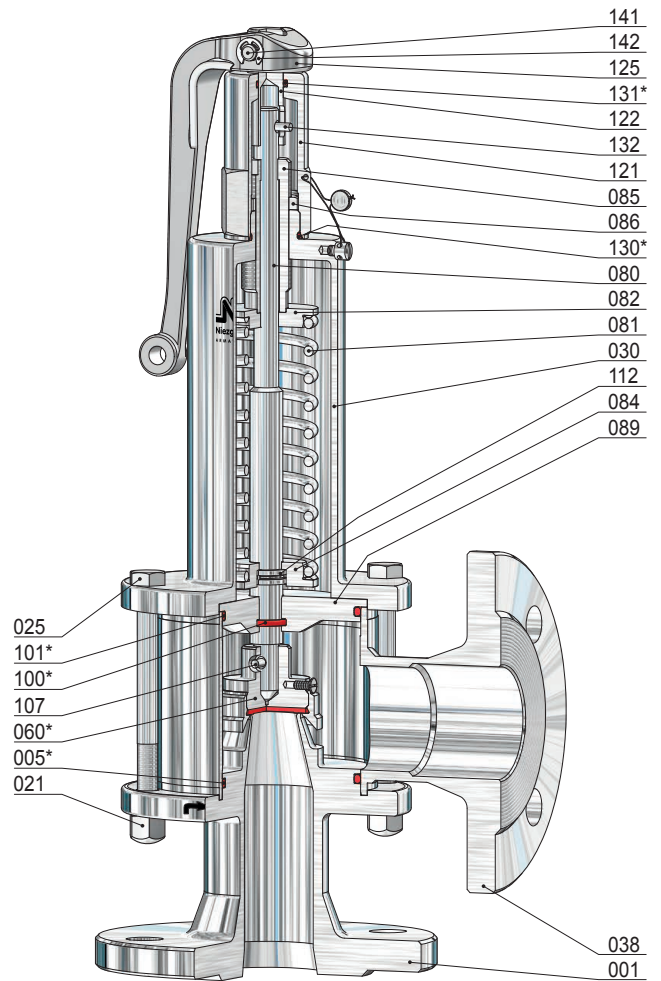
Relief-Valve, springloaded

for steam, gases and liquids

Typ 35



BG III
Kopf C



BG III
Kopf A

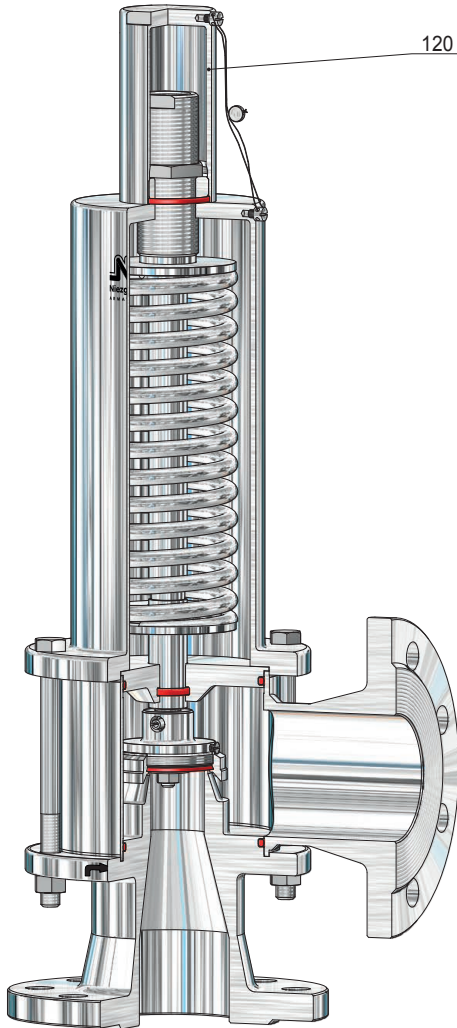
Pos.	Stück	Bezeichnung	Pos.	Stück	Bezeichnung
001	1	Eintrittskörper	086	1	Gegenmutter
005 *	1	O-Ring	089	1	Führungsteller
021	4	Hutmutter	100 *	1	O-Ring
025	4	Schraube	101 *	1	O-Ring
030	1	Federhaube	107	1	Spannhülse
038	1	Ausblasegehäuse	112	1	geteilter Ring
060 *	1	Kegel komplett	120	1	Kappe
560	1	Kegel	121	1	Lüftekappe
062	1	Kegeldichtung	122	1	Kupplung
063	1	Kegelring	125	1	Lüftehebel
067	1	Sicherungsschraube	130 *	1	O-Ring
080	1	Spindel	131 *	1	O-Ring
081	1	Feder	132	1	Kerbstift
082	1	Federteller, oben	141	1	Bolzen
084	1	Federteller, unten	142	2	Sicherungsscheibe
085	1	Druckschraube			

* Verschleißteile

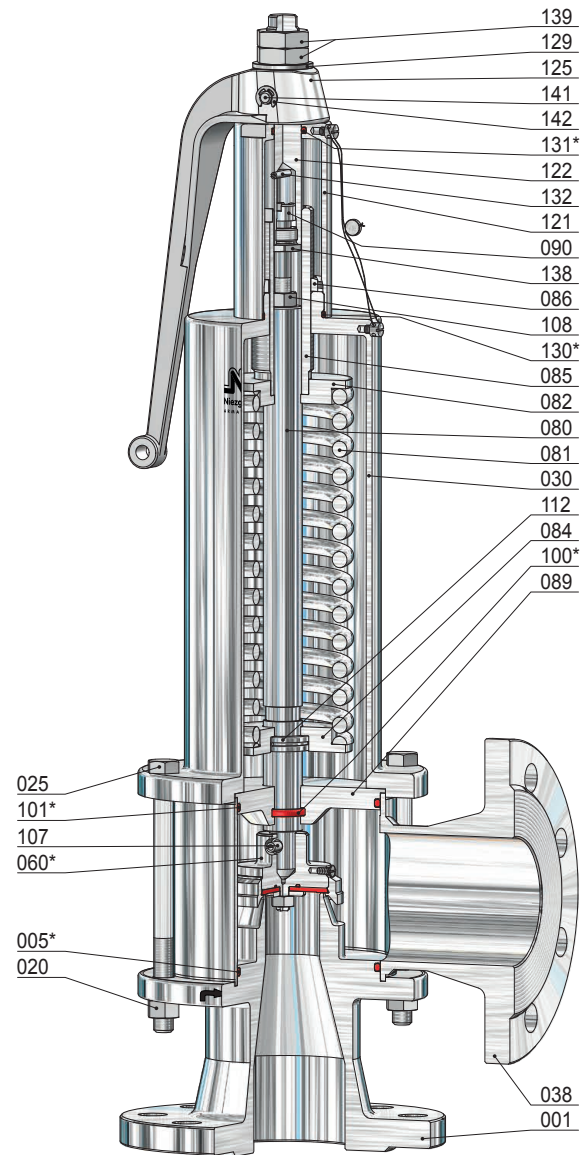
Relief-Valve, springloaded

for steam, gases and liquids

Typ 35



BG IV
Kopf C



BG IV
Kopf A

Pos.	Stück	Bezeichnung	Pos.	Stück	Bezeichnung	Pos.	Stück	Bezeichnung
001	1	Eintrittskörper	080	1	Spindel	121	1	Lüftekappe
005 *	1	O-Ring	081	1	Feder	122	1	Kupplung
020	4	Mutter	082	1	Federteller, oben	125	1	Lüftehebel
025	4	Schraube	084	1	Federteller, unten	129	1	Druckscheibe
030	1	Federhaube	085	1	Druckschraube	130 *	1	O-Ring
038	1	Ausblasegehäuse	086	1	Gegenmutter	131 *	1	O-Ring
060 *	1	Kegel komplett	089	1	Führungsteller	132	1	Kerbstift
560	1	Kegel	090	1	Schraube	138	1	Schraube
062	1	Kegeldichtung	100 *	1	O-Ring	139	2	Mutter
063	1	Kegeling	101 *	1	O-Ring	141	1	Bolzen
065	1	Sicherungsmutter	107	1	Spannhülse	142	2	Sicherungsscheibe
067	1	Sicherungsschraube	108	1	Mutter			
073	1	O-Ring	112	1	geteilter Ring			
074	1	Kegelplatte	120	1	Kappe			

* Verschleißteile

Safety-Valve, springloaded

for steam, gases and liquids

Typ 35

Standard version:

		Temperature ranges	
Material:	Inlet body / Outlet body	metal seated	
Typ 35.2:	1.4571 / 1.4571	-50°C to 200°C	
Connections:		soft seated	
Aseptic flange e.g. DIN 11864-2	F (...)	see techn. appendix: KWD-1	
Flange e.g. DIN 2633 (PN16)	F		
Male union e.g. DIN 11851	GA, GA (...)		
Clamp liner e.g. DIN 32676	CL, CL (...)		

Approvals:

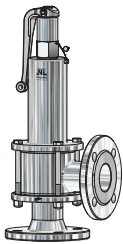
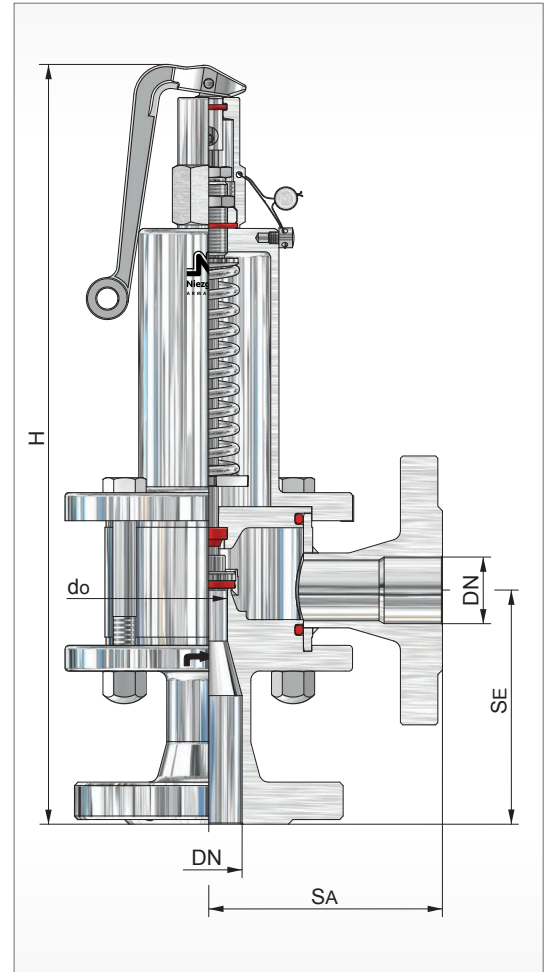
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TÜV - Approval

VdTÜV-leaflet, AD 2000-leaflet A 2

TÜV • SV • XX-1045 • do • D/G/F • αw • p



Size III



Size I

Size	Inlet					Outlet				Height 'H' for head		Set pressure		Weight ~ [kg]
	DN	NPS	PN / Class	do [mm]	SE [mm]	DN	NPS	PN / Class	SA [mm]	A [mm]	C [mm]	p min. [bar(g)]	p max. [bar(g)]	
I	25	1	16-40 150-300	16	100	25	1	16-40 150-300	100	see page (A 35-S)		0,10	16	7,1
III	50	2	16-40 150-300	32 40	125	50	2	16-40 150-300	125			0,12	16	0,15

other design on request

Safety-Valve, springloaded

for steam, gases and liquids

Typ 35

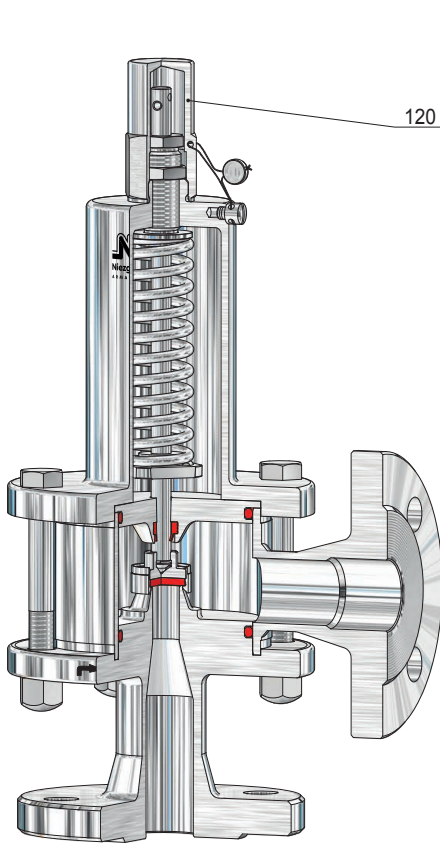
Discharge capacities

Size	I			III					
DN Inlet	25			50			50		
do [mm]	16			32			40		
Fluid	Water 20°C [kg/h]	Steam [kg/h]	Air 0°C [m ³ /h]	Water 20°C [kg/h]	Steam [kg/h]	Air 0°C [m ³ /h]	Water 20°C [kg/h]	Steam [kg/h]	Air 0°C [m ³ /h]
Q _w max.	0,35	0,46		0,31	0,48		0,23	0,33	
P _e [bar(g)]									
0,1	1600,7	35,1	44,2	5671,1	124,3	156,7	7350,4	157,4	202,7
0,2	1960,5	42,2	55,5	6945,7	150,1	197,4	8052,0	172,3	226,5
0,3	2263,8	48,0	65,7	8020,2	171,3	234,3	9297,6	194,7	266,2
0,4	2531,0	53,7	76,1	8966,9	189,6	269,0	10395,0	217,8	309,0
0,5	2772,5	58,8	86,4	9822,7	211,8	311,0	11387,2	239,0	350,9
1,0	3754,0	102,9	124,4	13300,0	406,9	491,9	15418,3	433,8	524,5
1,5	4597,7	119,6	162,3	16289,1	483,6	656,5	18883,5	520,6	706,7
2,0	5309,0	159,8	202,5	18809,0	646,0	818,6	21804,8	694,6	880,3
2,5	5935,6	187,1	237,2	21029,1	764,7	969,2	24378,5	826,3	1047,2
3,0	6502,2	212,2	271,9	23036,3	885,6	1134,7	26705,4	951,4	1218,9
3,5	7023,2	239,2	306,6	24882,0	998,6	1279,6	28845,1	1072,7	1374,2
4,0	7508,1	264,9	341,3	26600,0	1105,6	1424,6	30836,7	1187,7	1530,3
4,5	7963,5	291,8	376,1	28213,6	1218,0	1569,6	32707,3	1308,4	1686,1
5,0	8394,3	317,0	410,8	29739,7	1323,3	1714,6	34476,5	1421,5	1841,9
6,0	9195,5	368,7	480,3	32578,2	1538,7	2004,9	37767,1	1652,9	2153,7
7,0	9932,2	420,8	549,9	35188,5	1756,4	2295,3	40793,1	1886,8	2465,7
8,0	10618,0	472,7	619,6	37618,1	1973,0	2585,9	43609,7	2119,5	2777,9
9,0	11262,1	524,3	689,2	39900,0	2188,5	2876,8	46255,0	2350,9	3090,3
10,0	11871,3	576,3	758,9	42058,3	2405,3	3167,8	48757,1	2583,9	3402,9
12,0	13004,3	679,7	898,5	46072,5	2837,0	3750,3	53410,7	3047,6	4028,7
14,0	14046,3	782,5	1038,3	49764,0	3266,0	4333,7	57690,2	3508,4	4655,3
15,0	14539,3	833,6	1108,2	51510,0	3479,5	4625,6	59715,0	3737,7	4967,0
16,0	15016,1	884,6	1178,2	53200,0	3692,4	4917,8			

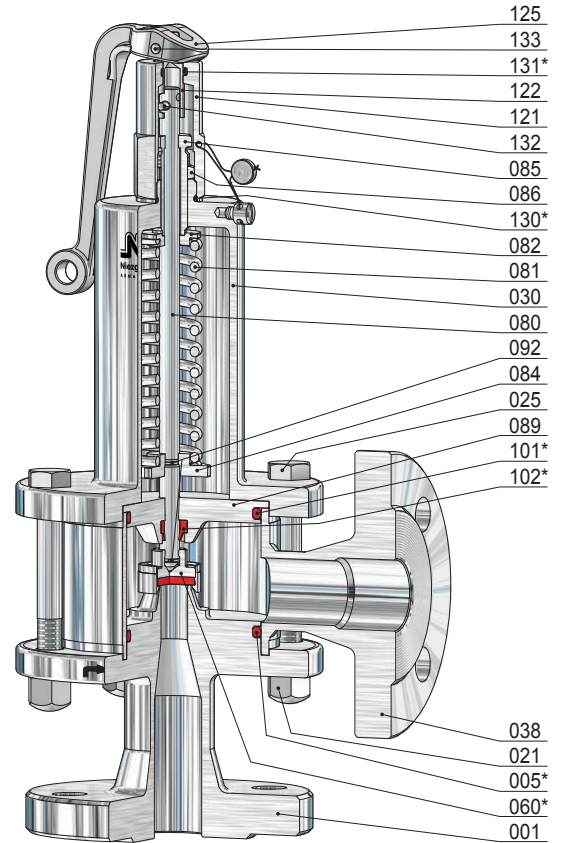
Safety-Valve, springloaded

for steam, gases and liquids

Typ 35



Size I
head C



Size I
head A

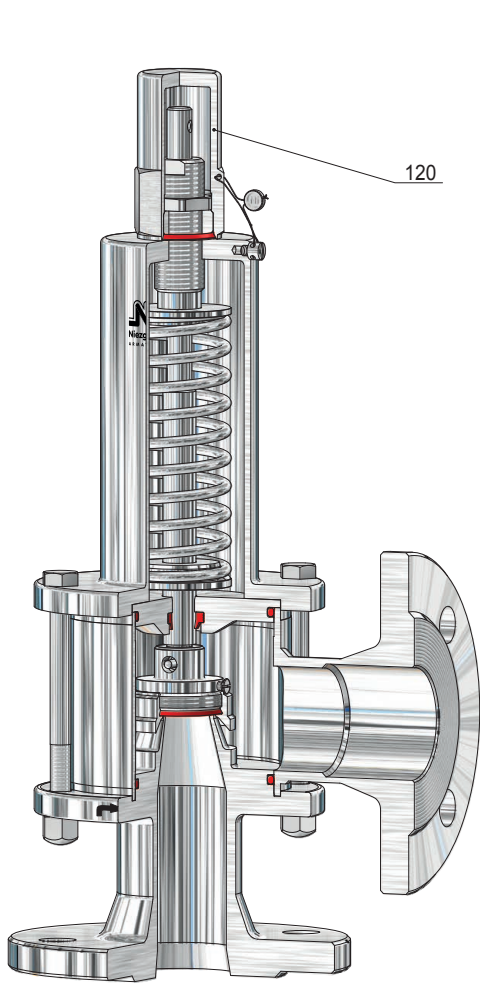
Item	Piece	Description	Item	Piece	Description
001	1	inlet body	086	1	lock nut
005 *	1	o-ring	089	1	guide plate
021	4	cap nut	092	2	lock ring
025	4	screw	101 *	1	o-ring
030	1	spring bonnet	102 *	1	wiper
038	1	outlet body	120	1	cap
060 *	1	disc, complete	121	1	lifting cap
560	1	disc	122	1	coupling
062	1	soft sealing	125	1	lifting button
063	1	disc ring	130 *	1	o-ring
080	1	spindle	131 *	1	o-ring
081	1	spring	132	1	groove pin
082	1	springplate, upper	133	1	groove pin
084	1	springplate, lower			
085	1	adjusting screw			

* expendable parts

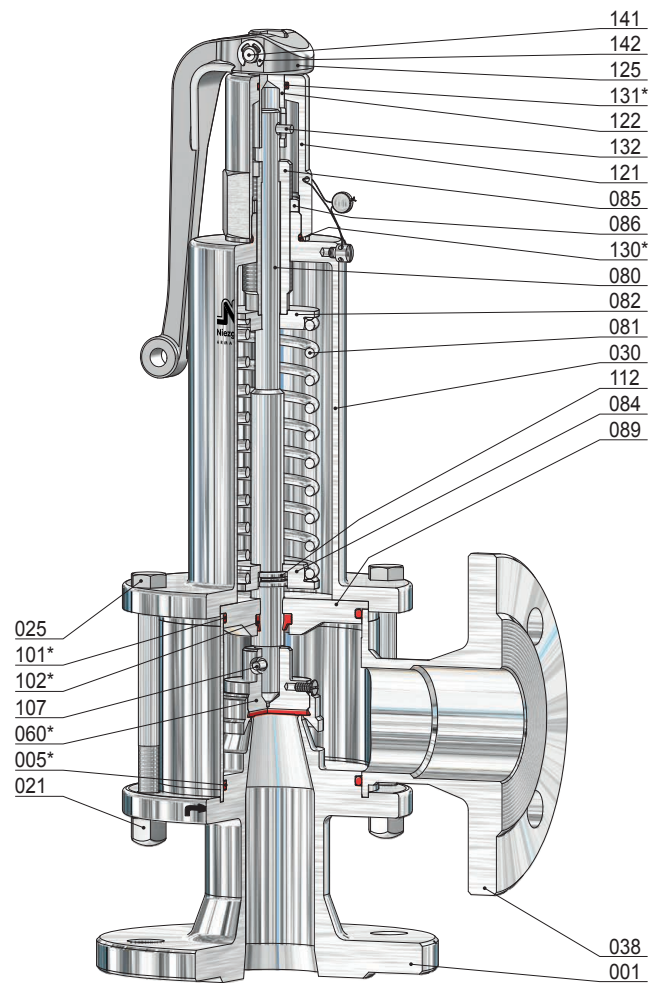
Safety-Valve, springloaded

for steam, gases and liquids

Typ 35



Size III
head C



Size III
head A

Item	Piece	Description	Item	Piece	Description
001	1	inlet body	086	1	lock nut
005 *	1	o-ring	089	1	guide plate
021	4	cap nut	101 *	1	o-ring
025	4	screw	102 *	1	wiper
030	1	spring bonnet	107	1	spring pin
038	1	outlet body	112	1	split ring
060 *	1	disc, complete	120	1	cap
560	1	disc	121	1	lifting cap
062	1	soft sealing	122	1	coupling
063	1	disc ring	125	1	lifting button
067	1	security screw	130 *	1	o-ring
080	1	spindle	131 *	1	o-ring
081	1	spring	132	1	groove pin
082	1	springplate, upper	141	1	bolt
084	1	springplate, lower	142	2	stop washer
085	1	adjusting screw			

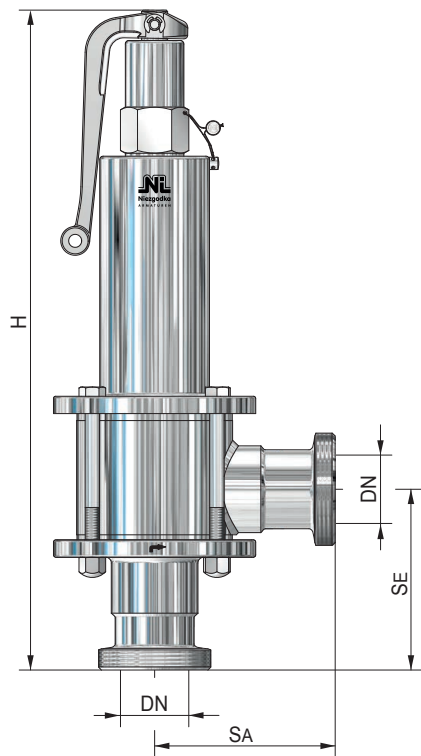
* expendable parts

Safety-Valve, springloaded

for steam, gases and liquids

Typ 35

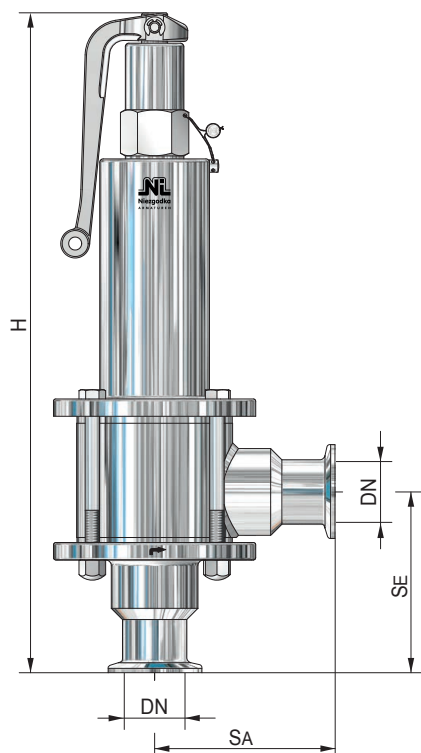
Connections



GA / GA (AS)

Male union
e.g. DIN 11851 / 11864-1

Size	Inlet / Outlet		Dimensions				Weight ~ [kg]
	DN	Screwed DIN 405	Height 'H'		SE	SA	
			Lifting lever [mm]	Cap [mm]			
I	25	Rd 52x1/6"	330	315	100	100	5,1
III	50	Rd 78x1/6"	465	445	125	125	9,6



CL / CL (AS)

Clamp liner
e.g. DIN 32676 / 11864-3

Size	Inlet / Outlet		Dimensions				Weight ~ [kg]
	DN	NPS	Height 'H'		SE	SA	
			Lifting lever [mm]	Cap [mm]			
I	25	1	330	315	100	100	4,9
III	50	2	465	445	125	125	8,7

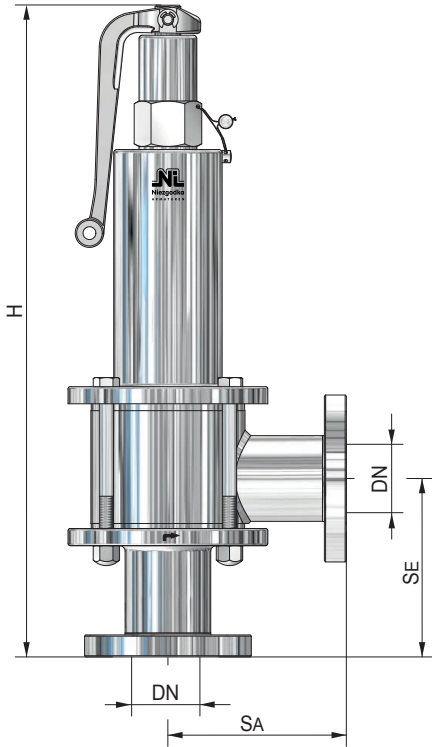
other connections on request

Safety-Valve, springloaded

for steam, gases and liquids

Typ 35

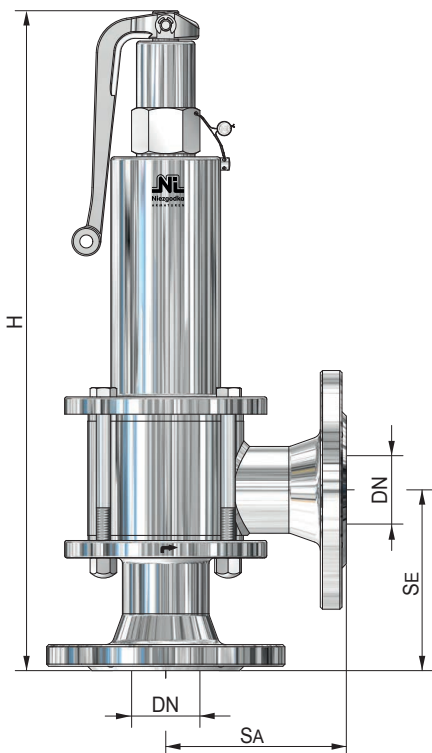
Connections



F (...)

Flange (preferably flat and collar flanges collar flange)
e.g. DIN 11864-2 (AS), APV (APV), Varivent (VV)

Size	Inlet / Outlet		Dimensions				Weight
			Height 'H'				
	DN	NPS	Lifting lever [mm]	Cap [mm]	SE [mm]	SA [mm]	~ [kg]
I	25	1	330	315	100	100	6,7
III	50	2	465	445	125	125	11,5



F

Flange
e.g. DIN 2633 (PN 16) / ASME B 16.5 Class 150

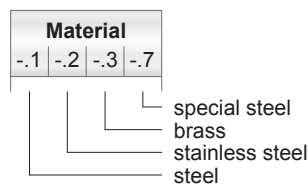
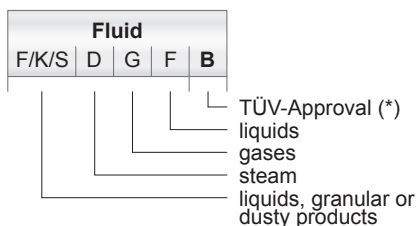
Size	Inlet / Outlet		Dimensions				Weight
			Height 'H'				
	DN	NPS	Lifting lever [mm]	Cap [mm]	SE [mm]	SA [mm]	~ [kg]
I	25	1	330	315	100	100	7,1
III	50	2	465	445	125	125	13,5

other connections on request



Index

Type	Use	*	Fluid	Material				Inlet G/NPT	PN _E [bar(g)]	Heads
				-1	-2	-3	-7			
4	Relief-Valve, springloaded for non-toxic steam, gases and liquids	-	D/G/F		●			1/4 - 1/2	120	C, D
6	Safety-Valve, springloaded for non-toxic steam and gases	B	D/G		● ●			1/2 - 1	16	C, E
11	Relief-Valve, springloaded for non-toxic steam and gases	-	D/G	● ●				3/8 - 2	100	M
62	Safety-Valve, springloaded for non-toxic liquids	B	F	● ●				1	55	A, C
66	Safety-Valve, springloaded for non-toxic steam, gases and liquids	B	D/G/F		● ●			1/2 - 2	40	M
67	Safety-Valve, springloaded for non-toxic steam and gases, for mobile tanks	B	D/G		●			1	10	C, D, E
69	Safety-Valve, springloaded for container with liquid, granular or dusty goods	B	F/K/S		● ●			1 - 1 1/2	6	M
98	Safety-Valve, with underpressure function for non-toxic steam and gases	B	D/G		●			1	10	-
110	Safety-Valve, springloaded for non-toxic steam and gases	B	D/G	● ●				3/8 - 2	100	M



Relief-Valve, springloaded

for non-toxic steam, gases and liquids

Typ 4

Standard version:

Operating temperature

Material: Inlet body / Spring bonnet

Typ 4.3: 2.0401 / 2.0401 -10°C to 130°C

Connections: only Elastomeres
Screwed connection: DIN ISO 228 see techn. appendix: KWD-1

Approvals:

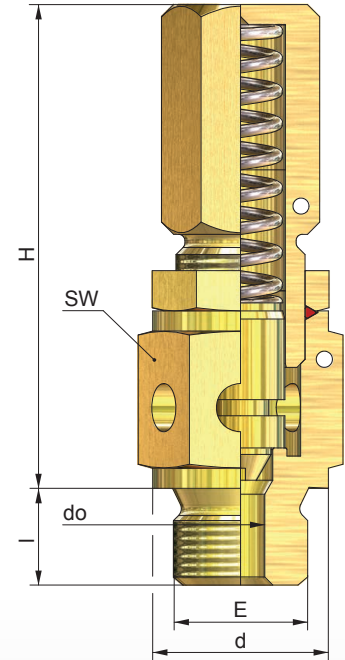
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head D



head C



Size	Inlet			Outlet A	Dimensions			Height 'H' for head		Coefficient		Set pressure		Weight ~ [kg]
	E	d	l (G)		SW	do	SeatØ	C	D	D/G αw max.	F αw	p min. [bar(g)]	p max. [bar(g)]	
		[mm]	[mm]		[mm]	[mm]	[mm]	[mm]	[mm]					
1/4	18	12		free	22	6	8	64	72			0,4	65	0,12
						8	8					0,4	65	
3/8	22	12		free	22	6	6	64	72			65,0	120	0,14
						8	8					0,4	65	
1/2	24	14		free	24	6	6	64	72			65,0	120	0,16
						8	8					0,4	65	

other design on request

Relief-Valve, springloaded

for non-toxic steam, gases and liquids

Typ 4

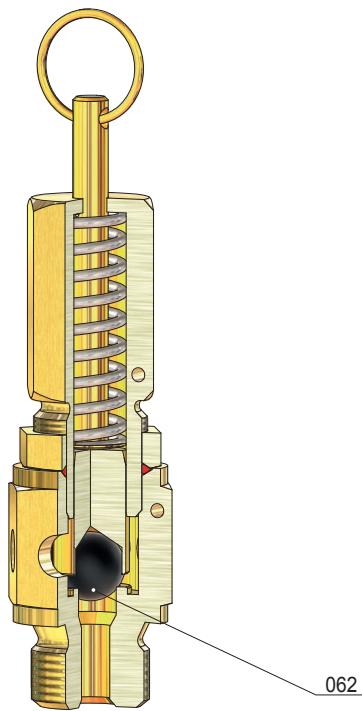
Discharge capacities

Inlet		
do [mm]	6 / 8	
Fluid	Air 0°C [m ³ /h]	Carbondioxide 0°C [m ³ /h]
pe [bar(g)]		
0,4	0,26	0,21
0,5	0,29	0,23
0,6	0,32	0,26
0,7	0,35	0,28
0,8	0,38	0,30
0,9	0,41	0,32
1,0	0,43	0,35
3,0	1,08	0,87
5,0	1,62	1,31
7,0	2,16	1,76
10,0	2,98	2,44
20,0	5,70	4,87
30,0	8,42	
40,0	11,10	
60,0	16,60	
70,0	19,40	
80,0	22,10	
90,0	24,90	
100,0	27,60	
110,0	30,30	
120,0	33,00	

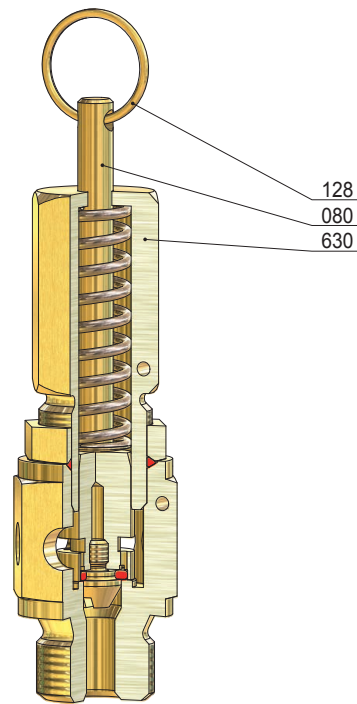
Relief-Valve, springloaded

for non-toxic steam, gases and liquids

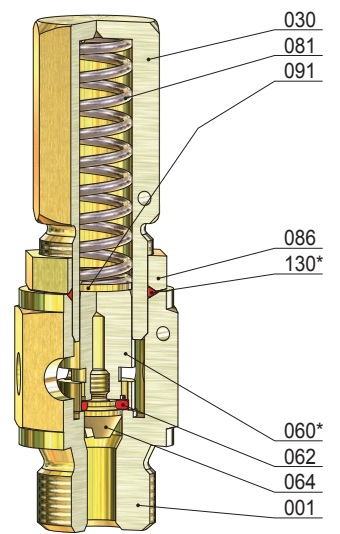
Typ 4



head D
disc with ball



head D
disc with o-ring



head C
disc with o-ring

Item	Piece	Description	Item	Piece	Description
001	1	inlet body	128	1	lifting ring
030	1	spring bonnet	630	1	spring bonnet
060 *	1	disc, complete			
062	1	soft sealing (o-ring) / (ball)			
064	1	disc screw			
080	1	spindle			
081	1	spring			
086	1	lock nut			
091	1	pressure piece			

* expendable parts

Safety-Valve, springloaded

for non-toxic steam and gases

Typ 6

Standard version:

Operating temperature

Material:	Inlet body	/ Bonnet pipe	
Typ 6.2:	1.4571	/ 1.4301	-60°C to 130°C
Typ 6.3:	2.0401	/ 2.0401	-10°C to 130°C

Connections: soft seated
Screwed connection: DIN ISO 228 see techn. appendix: KWD-1

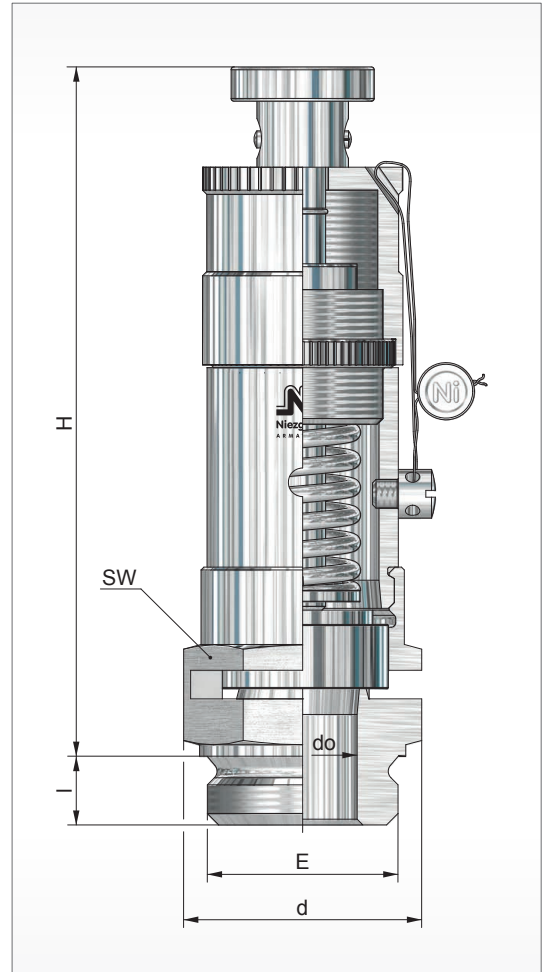
Approvals:

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VdTÜV-leaflet, AD 2000-leaflet A 2

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G 1
head E



G 1
head C

Size	Inlet			Outlet A	Dimensions			Height 'H' for head			Coefficient		Set pressure		Weight ~ [kg]
	E	d	l (G)		SW	do	Seat Ø	C	E	D/G	p min.	p max.			
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]			α _w max.	[bar(g)]	[bar(g)]	
	1/2	26	12	free	36	13	20	103	121			0,70	0,05	10	0,40
	3/4	32				19	20					0,40	0,05	6	0,50
	1	36				22	22					0,30	0,04	10	0,50

other design on request

Safety-Valve, springloaded

for non-toxic steam and gases

Typ 6

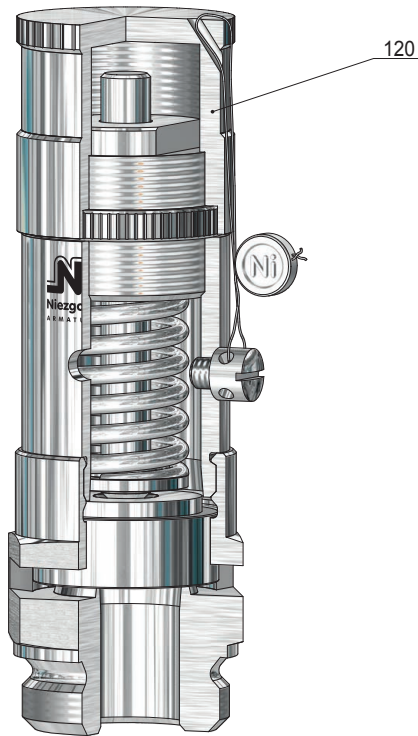
Discharge capacities

Inlet	½	¾	1	½	¾	1	½	¾	1
do [mm]	13	19	22	13	19	22	13	19	22
Fluid	Air 0°C [m ³ /h]			Carbondioxide 0°C [m ³ /h]			Nitrogen 0°C [m ³ /h]		
Coefficient of discharge	Qw max. 0,70	Qw max. 0,40	Qw max. 0,30	Qw max. 0,70	Qw max. 0,40	Qw max. 0,30	Qw max. 0,70	Qw max. 0,40	Qw max. 0,30
pe [bar(g)]									
0,05	38,4	40,2	35,2	31,2	32,7	28,6	39,1	40,9	35,9
0,1	45,1	49,9	43,0	36,5	40,6	34,8	45,8	50,8	43,7
0,2	57,0	65,3	55,4	46,0	52,8	44,8	58,0	66,5	56,4
0,3	68,0	77,6	70,5	54,8	62,6	56,8	69,2	78,9	71,7
0,4	77,0	89,3	82,3	61,9	71,7	66,1	78,2	90,8	83,7
0,5	85,5	100,5	89,8	68,5	80,5	72,0	86,9	102,1	91,3
1,0	122,3	146,9	136,8	97,2	116,9	108,8	124,4	149,0	138,9
1,5	158,9	190,3	186,2	126,3	151,2	148,1	162,1	193,5	189,4
2,0	197,6	235,9	233,0	157,0	187,9	185,1	200,8	240,2	236,2
2,5	234,8	283,5	282,7	187,4	226,4	225,5	239,1	287,8	287,0
3,0	273,1	333,4	335,2	218,3	266,7	268,6	277,4	338,8	340,6
3,5	308,0	375,9	378,0	246,6	301,6	302,6	312,3	382,4	384,5
4,0	342,9	418,5	420,8	275,0	335,4	337,7	348,3	425,0	427,3
4,5	377,8	461,1	463,7	304,2	371,3	372,9	384,3	468,7	471,3
5,0	412,7	503,7	506,5	332,5	406,2	408,0	419,2	512,4	514,1
6,0	482,5	589,0	592,3	389,3	476,2	478,4	490,1	597,7	601,0
7,0	552,4		678,1	448,0		549,9	561,1		689,0
8,0	622,4		763,9	506,0		621,3	632,2		775,9
9,0	692,4		849,8			694,0			862,9
10,0	762,4		935,8			766,7			950,0

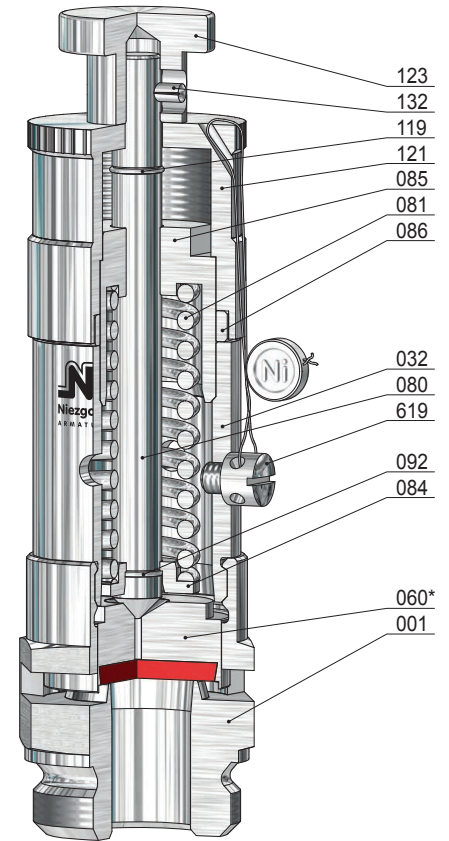
Safety-Valve, springloaded

for non-toxic steam and gases

Typ 6



G 1
head C



G 1
head E, liftable

Item	Piece	Description	Item	Piece	Description
001	1	inlet body	121	1	lifting cap
032	1	bonnet pipe	123	1	lifting button
060 *	1	disc, complete	132	1	groove pin
062	1	soft sealing	619	1	lead seal
080	1	spindle			
081	1	spring			
084	1	springplate, lower			
085	1	adjusting screw			
086	1	lock nut			
092	1	lock ring			
119	1	locking ring			
120	1	cap			

* expendable parts

Relief-Valve, springloaded

for non-toxic steam and gases

Typ 11

Standard version:

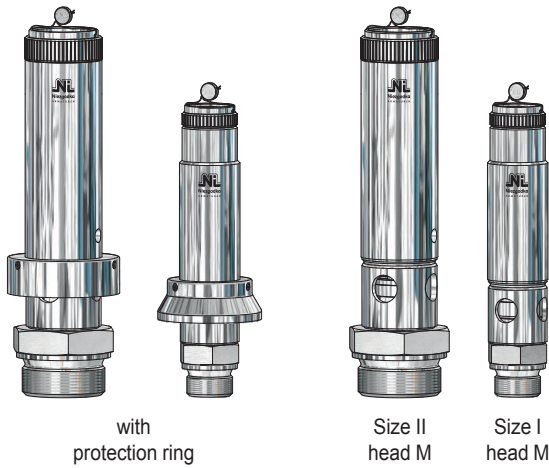
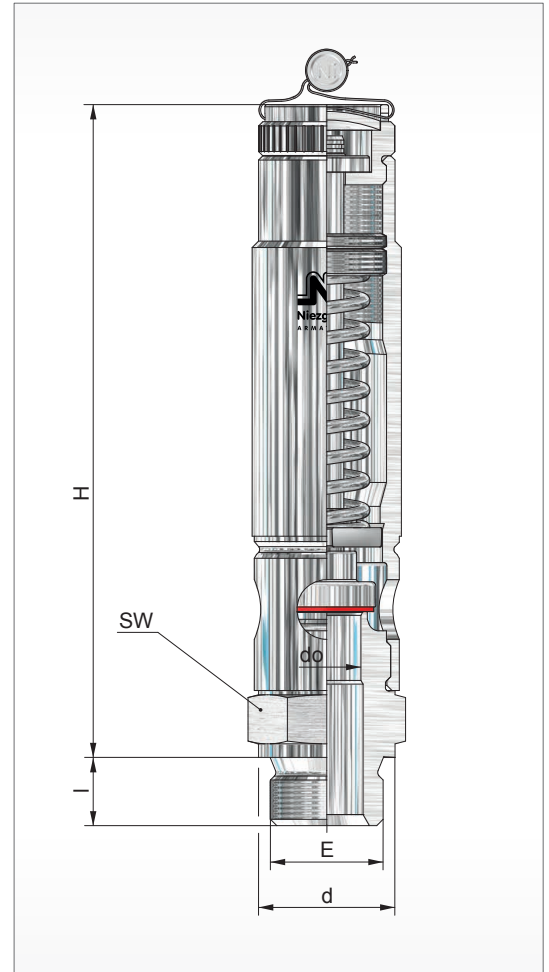
Material: Inlet body / Bonnet pipe metal seated
Typ 11.1: 1.4104 / 2.0401 -10°C to 130°C
Typ 11.2: 1.4571 / 1.4301 -60°C to 130°C

Temperature ranges

Connections: soft seated
 Screwed connection: DIN ISO 228 / ASME B1.20.1 see techn. appendix: KWD-1

Approvals:

Pressure Equipment Directive: 2014/68/EU
 Declaration of Conformity



Size	Inlet				Outlet A	Dimensions			Height 'H' for head			Set pressure		Weight ~ [kg]
	E	d	I (G)	I (NPT)		SW	do	M	p min.	p max.				
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[bar(g)]	[bar(g)]				
I	3/8	22	12	11	free	32	10	153				0,1	52	0,5
							8					15,0	84	
							12,5					0,1	45	
	1/2	26	14	14			10					0,1	52	
							8					15,0	84	
							16					0,05	31	
	3/4	32	16	14			12,5					0,1	45	
							10					0,1	52	
							8					15,0	84	
II	1/2	26	14	14	free	41	12,5	190				0,09	67	0,8
							16					0,06	60	
							12,5					0,09	67	
	3/4	32	16	14			16					0,06	60	
							12,5					0,09	67	
							27					0,09	67	
	1	39	18	18			22					0,03	30	
							16					0,04	50	
							27					0,06	60	
	1 1/4	49	20	18			22					0,03	30	
							16					0,04	50	
							27					0,06	60	
1 1/2	55	22	19	22	0,03	30								
				27	0,04	50								
				27	0,03	30								
2	60	24	20	27	0,04	50								
				27	0,03	30								

other design on request

Relief-Valve, springloaded

for non-toxic steam and gases

Typ 11

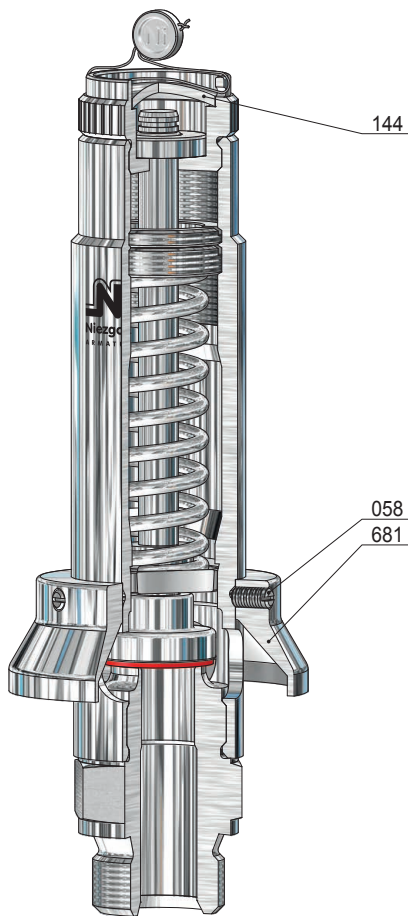
Discharge capacities

Size	I				II			
do [mm]	8	10	12,5	16	12,5	16	22	27
Fluid	Air 0°C [m ³ /h]				Air 0°C [m ³ /h]			
Coefficient of discharge	Q _w max. 0,033	Q _w max. 0,033	Q _w max. 0,022	Q _w max. 0,035	Q _w max. 0,08	Q _w max. 0,08	Q _w max. 0,08	Q _w max. 0,08
Pe [bar(g)]								
0,05				3,0				18,7
0,1		0,8	1,0	3,5	5,0	8,2	15,5	23,4
0,2		1,2	1,3	4,4	6,4	10,5	19,8	29,9
0,3		1,5	1,6	5,2	7,6	12,4	23,5	35,4
0,4		1,9	1,9	5,8	8,8	14,3	27,1	40,6
0,5		2,1	2,2	6,5	9,8	16,0	30,2	45,5
1,0		2,9	3,2	9,6	13,8	22,6	42,7	64,3
1,5		3,6	4,2	12,2	17,6	28,8	54,5	82,1
2,0		4,5	5,4	15,0	21,4	35,0	66,2	99,6
2,5		5,6	6,6	17,8	25,1	41,2	77,9	117,3
3,0		7,6	7,9	20,7	28,9	47,3	89,4	134,6
3,5		8,6	9,0	23,3	32,5	53,3	100,8	151,8
4,0		9,6	10,0	26,0	36,2	59,4	112,2	169,0
4,5		10,5	11,0	28,6	39,9	65,4	123,7	183,2
5,0		11,5	12,0	32,3	43,6	71,4	135,1	203,5
6,0		13,5	14,0	36,6	51,0	83,5	157,9	237,9
7,0		15,4	16,1	41,8	58,4	95,6	180,8	272,4
8,0		17,4	18,1	47,1	65,8	107,8	203,7	306,8
9,0		19,3	20,1	52,4	73,2	119,9	226,6	341,3
10,0		21,3	22,2	57,8	80,6	132,0	249,5	375,9
12,0		25,2	26,2	68,4	95,4	156,3	295,4	445,0
14,0		29,1	30,3	79,0	110,2	180,6	341,4	514,2
15,0	19,9	31,1	32,4	84,3	117,6	192,7	364,4	548,8
16,0	21,1	33,0	34,4	89,7	125,1	204,9	387,4	583,5
18,0	23,6	36,9	38,5	100,3	139,9	229,3	433,5	652,9
20,0	26,2	40,9	42,6	111,0	154,8	253,7	479,6	722,4
25,0	32,5	50,7	52,8	137,7	192,2	314,8	595,2	896,5
30,0	38,8	60,6	63,1	164,6	229,6	376,2	711,2	1071,2
35,0	45,1	70,5	73,5		267,2	437,7	827,6	
40,0	51,5	80,5	83,8		304,9	499,5	944,3	
45,0	57,9	90,5	94,2		342,7	561,5	1061,5	
50,0	64,3	100,5			380,6	623,6	1179,0	
60,0	77,2				456,9	748,6		
70,0	90,2							
80,0	103,3							

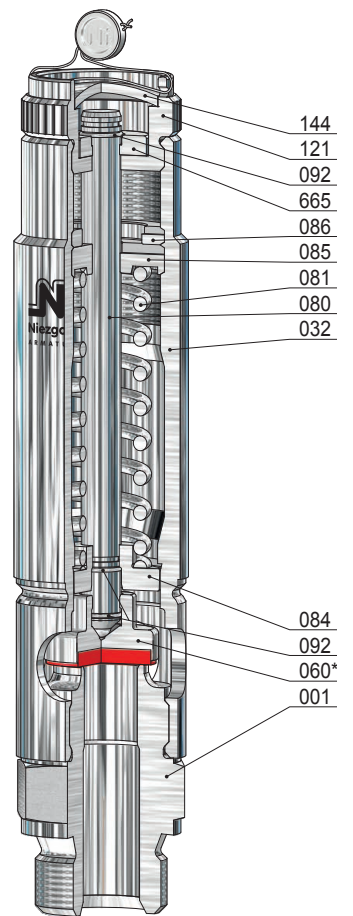
Relief-Valve, springloaded

for non-toxic steam and gases

Typ 11



with protection ring
recommend at each do
for $p > 30$ [bar(g)]



Size I
head M, liftable

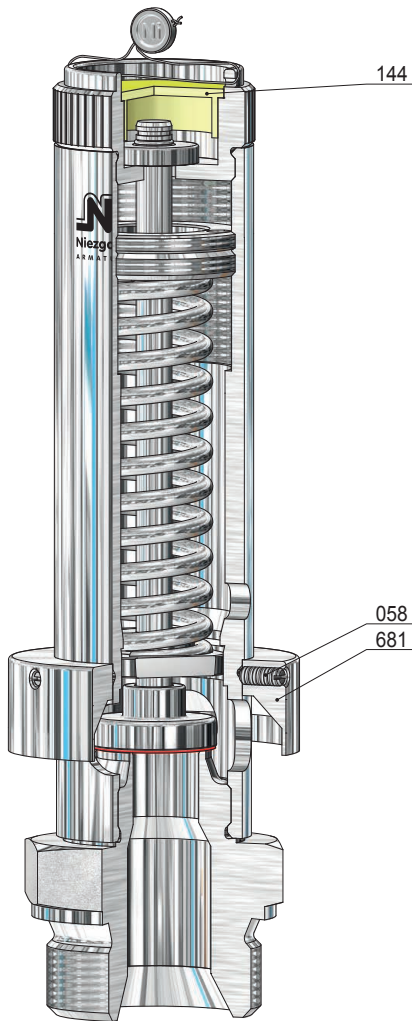
Item	Piece	Description	Item	Piece	Description
001	1	inlet body	121	1	lifting cap
032	1	bonnet pipe	144	1	lock washer
058	3	screwed pin	665	1	washer
060 *	1	disc, complete	681	1	protection ring
560	1	disc			
062	1	soft sealing			
080	1	spindle			
081	1	spring			
084	1	springplate, lower			
085	1	adjusting screw			
086	1	lock nut			
092	3	lock ring			

* expendable parts

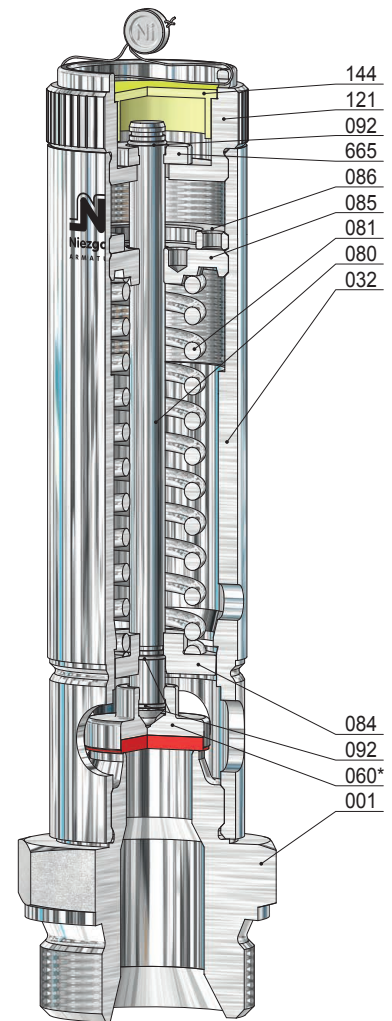
Relief-Valve, springloaded

for non-toxic steam and gases

Typ 11



with protection ring
 recommend at each
 do 12,5; 16: for / p > 30 [bar(g)]
 do 22: for / p > 10 [bar(g)]
 do 27: for / p > 8 [bar(g)]



Size II
 head M, liftable

Item	Piece	Description	Item	Piece	Description
001	1	inlet body	121	1	lifting cap
032	1	bonnet pipe	144	1	lock washer
058	3	screwed pin	665	1	washer
060 *	1	disc, complete	681	1	protection ring
560	1	disc			
062	1	soft sealing			
080	1	spindle			
081	1	spring			
084	1	springplate, lower			
085	1	adjusting screw			
086	1	lock nut			
092	3	lock ring			

* expendable parts

Safety-Valve, springloaded

for non-toxic liquids

Typ 62

Standard version:

	Inlet body / Spring bonnet		Temperature ranges
Material:			metal seated
Typ 62.1:	1.4104	/ 0.7043 <i>nickel-plated</i>	-10°C to 280°C
Typ 62.2:	1.4571	/ 1.4581	-60°C to 280°C
Connections:			soft seated
Screwed connection: DIN ISO 228 / ASME B1.20.1			see techn. appendix: KWD-1

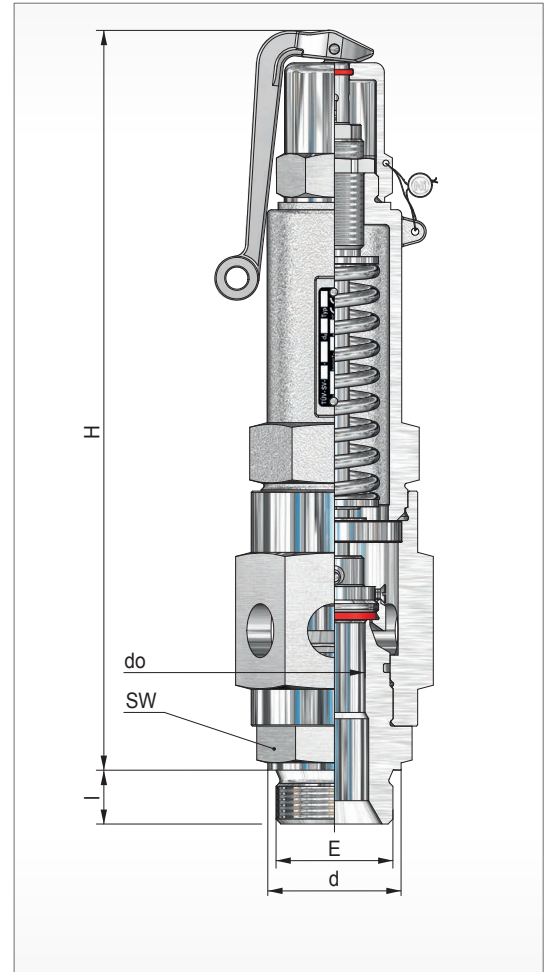
Approvals:

Pressure Equipment Directive: 2014/68/EU
Declaration of Conformity



TÜV - Approval:
VdTÜV-leaflet AD 2000-leaflet A 2

TÜV • SV • XX-984 • do • F • α_w • p



head A



head C

Size	Inlet				Outlet A	Dimensions		Height 'H' for head		Coefficient F α _w	Set pressure		Weight ~ [kg]
	E	d	I (G)	I (NPT)		SW	do	A	C		p min.	p max.	
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]		[bar(g)]	[bar(g)]	
1	39	18	18	18	free	50	22 / 25	305	290	0,57	0,1	55	4,0

other design on request

Safety-Valve, springloaded

for non-toxic liquids

Typ 62

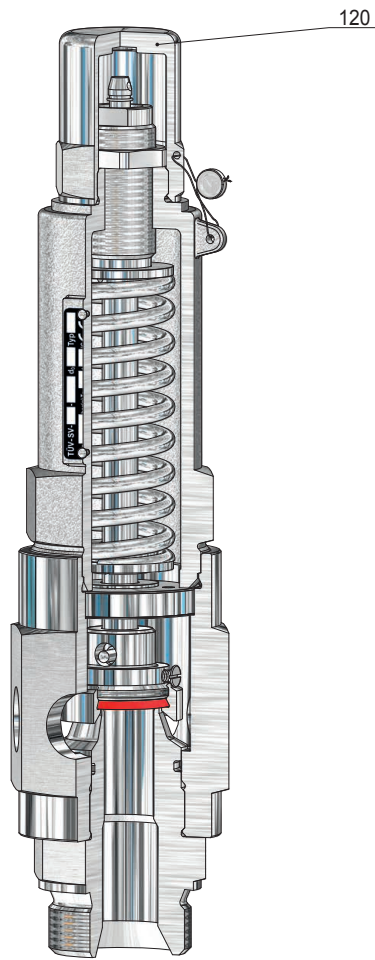
Discharge capacities

Size		
do [mm]	22	25
Fluid	Water 20°C [10 ³ kg/h]	Water 20°C [10 ³ kg/h]
Coefficient of discharge	C_w 0,57	C_w 0,44
p_e [bar(g)]		
0,1	4,9	4,9
0,2	6,0	6,0
0,3	6,9	6,9
0,4	7,7	7,7
0,5	8,5	8,5
1,0	11,5	11,5
1,5	14,1	14,1
2,0	16,3	16,3
2,5	18,2	18,2
3,0	20,0	20,0
3,5	21,6	21,5
4,0	23,1	23,0
4,5	24,5	24,4
5,0	25,8	25,7
6,0	28,3	28,2
7,0	30,5	30,4
8,0	32,6	32,5
9,0	34,6	34,5
10,0	36,5	36,4
15,0	44,7	44,6
20,0	51,6	51,5
25,0	57,6	57,6
30,0	63,3	63,1
35,0	68,3	68,1
40,0	73,1	72,8
45,0	77,5	77,3
50,0	81,7	81,4
55,0	85,7	85,4

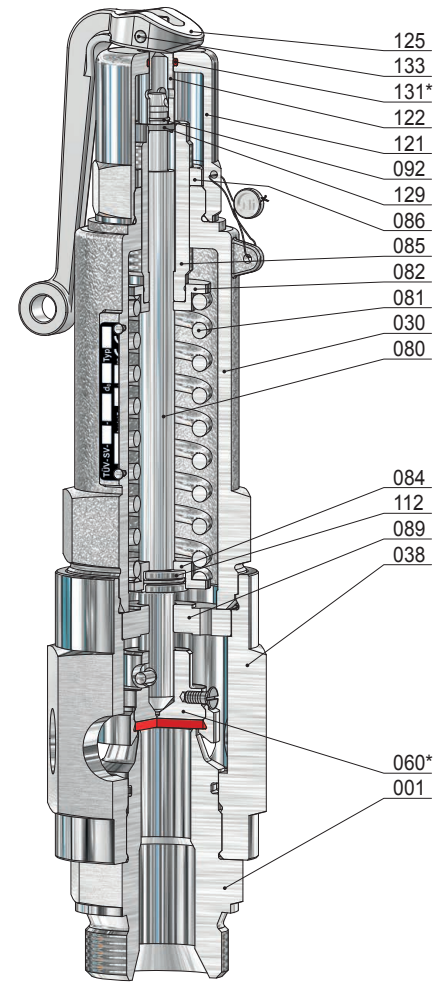
Safety-Valve, springloaded

for non-toxic liquids

Typ 62



head C



head A

Item	Piece	Description	Item	Piece	Description
001	1	inlet body	085	1	adjusting screw
030	1	spring bonnet (nickel-plated)	086	1	lock nut
038	1	outlet body (nickel-plated)	089	1	guide plate
060 *	1	disc, complete	092	1	lock ring
560	1	disc	112	1	splitted ring
062	1	soft sealing	120	1	cap (nickel-plated)
063	1	disc ring	121	1	lifting cap (nickel-plated)
067	1	security screw	122	1	coupling
107	1	spring pin	125	1	lifting button
080	1	spindle	129	1	pressure plate
081	1	spring	131 *	1	o-ring
082	1	springplate, upper	133	1	groove pin
084	1	springplate, lower			

* expendable parts

Safety-Valve, springloaded

for non-toxic steam, gases and liquids

Typ 66

Standard version:

Operating temperature

Material: Inlet body / Bonnet pipe
Typ 66.2: 1.4571 / 1.4301 -60°C to 130°C
Typ 66.3: 2.0401 / 2.0401 -10°C to 130°C

Connections: soft seated
 Screwed connection: DIN ISO 228 see techn. appendix: KWD-1

Approvals:

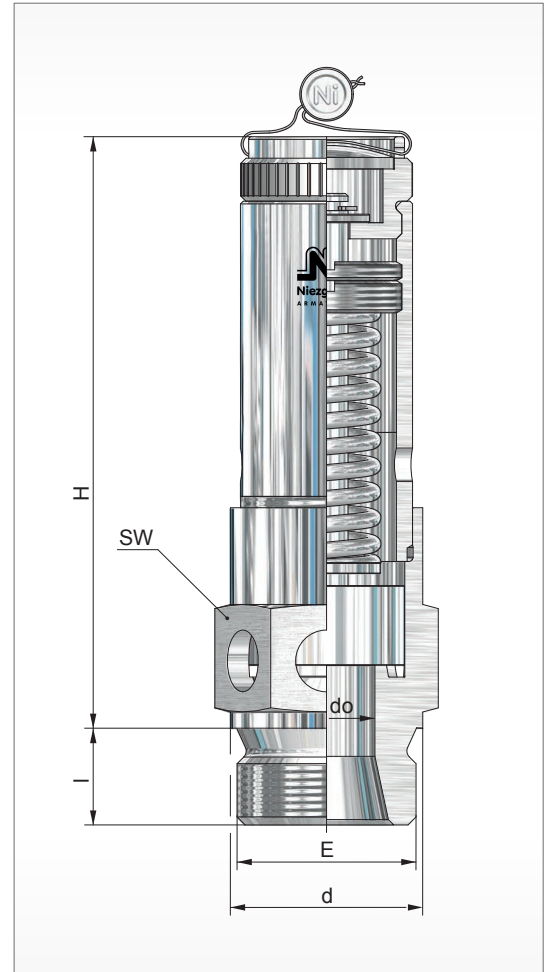
Pressure Equipment Directive: 2014/68/EU
 Declaration of Conformity



TÜV - Approval:

VdTÜV-leaflet, AD 2000-leaflet A 2

TÜV • SV • XX-809 • do • D/G/F • αw • p



G 2
head M



G 1
head M



G 1/2
head M

Size	Inlet			Outlet A	Dimensions			Height 'H' for head			Set pressure				Weight ~ [kg]
	E	d	l (G)		SW	do	Seat Ø	M			D/G p min.	p max.	p min.	F p max.	
		[mm]	[mm]		[mm]	[mm]	[mm]	[mm]				[bar(g)]	[bar(g)]	[bar(g)]	[bar(g)]
	1/4	18	12	free	22	7	10	75			0,10	35			0,12
	3/8	22	12		22	10		75			0,20	35	0,45	15	0,12
	1/2	26	14		27	12,5		90			0,10	35	0,10	25	0,21
	3/4	32	16		32	15		105			0,15	20	0,15	20	0,38
	1	36	18		36	18		115			0,10	15	0,10	25	0,50
	1 1/4	49	20		50	23		170			0,10	10			1,80
	1 1/2	55	22		60	30		180			0,10	10			2,30
	2	68	24		70	35		195			0,05	0,30			2,60
	2	68	24		70	35		230			0,31	10			2,90

other design on request

Safety-Valve, springloaded

for non-toxic steam, gases and liquids

Typ 66

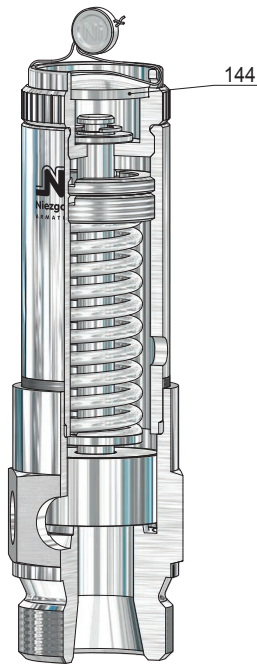
Discharge capacities

Size													
do [mm]	7 / 10	10		12,5			15		18		23	30	35
Fluid	Air 0°C [m ³ /h]	Water 20°C [kg/h]	Air 0°C [m ³ /h]	Water 20°C [kg/h]	Air 0°C [m ³ /h]	Water 20°C [kg/h]	Air 0°C [m ³ /h]	Water 20°C [kg/h]	Air 0°C [m ³ /h]	Water 20°C [kg/h]	Air 0°C [m ³ /h]	Air 0°C [m ³ /h]	Air 0°C [m ³ /h]
Coefficient of discharge	Q _w max. 0,82	Q _w max. 0,53	Q _w max. 0,72	Q _w max. 0,47	Q _w max. 0,64	Q _w max. 0,59	Q _w max. 0,78	Q _w max. 0,51	Q _w max. 0,71	Q _w max. 0,82	Q _w max. 0,79	Q _w max. 0,67	Q _w max.
pe [bar(g)]													
0,05							32,9				78,5	129	152
0,1	11,3	669	18,5	927	25,8	1670	47,3	2950	81,5	113	186	218	
0,3	20,4	1160	34,4	1600	47,8	2900	86,8	4170	130	211	345	400	
0,5	27,2	1500	46,8	2070	65,0	3750	117	5110	166	286	468	540	
1,0	40,6	2120	71,8	2930	99,5	5300	177	6920	238	437	714	818	
1,5	52,7	2590	94,0	3590	130	6490	229	8470	309	569	931	1070	
2,0	64,4	2990	115	4150	159	7500	280	9790	389	693	1130	1310	
2,5	75,6	3350	135	4640	188	8380	330	10940	456	816	1340	1540	
3,0	86,4	3660	155	5080	215	9180	377	11990	531	932	1530	1760	
4,0	108	4230	193	5870	268	10600	471	13840	666	1160	1910	2200	
5,0	129	4730	232	6560	322	11800	565	15480	802	1400	2290	2640	
6,0	151	5180	271	7180	376	13000	660	16950	938	1630	2670	3080	
8,0	194	5990	348	8300	483	15000	848	19580	1210	2100	3440	3970	
10,0	237	6690	425	9270	591	16700	1040	21890	1482	2560	4200	4850	
12,0	281	7330	503	10100	699	18300	1220	23980	1755				
14,0	324	7920	580	11000	806	19800	1410	25900	2028				
15,0	346	8200	619	11300	860	20500	1510	26810	2164				
16,0	367		658	11700	914	21200	1600	27690					
18,0	411		736	12400	1020	22500	1790	29370					
20,0	454		814	13100	1130	23700	1980	30960					
25,0	563		1010	14600	1400			34615					
30,0	672		1200		1670								
35,0	781		1400		1940								

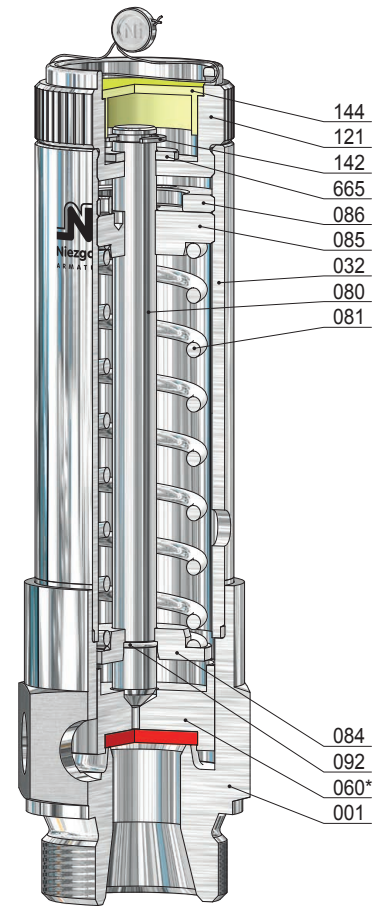
Safety-Valve, springloaded

for non-toxic steam, gases and liquids

Typ 66



G 1
head M, liftable



G 2
head M, liftable

Item	Piece	Description	Item	Piece	Description
001	1	inlet body	142	1	stop washer
032	1	bonnet pipe	144	1	lock washer
060 *	1	disc, complete	665	1	washer
560	1	disc			
062	1	soft sealing			
080	1	spindle			
081	1	spring			
084	1	springplate, lower			
085	1	adjusting screw			
086	1	lock nut			
092	1	lock ring			
121	1	lifting cap			

* expendable parts

Safety-Valve, springloaded

for non-toxic steam and gases

Typ 67

Standard version:

Operating temperature

Material: Inlet body
Typ 67.2: 1.4404

-60°C to 150°C

Connections:
 Screwed connection: DIN ISO 228

soft seated
 see techn. appendix: KWD-1

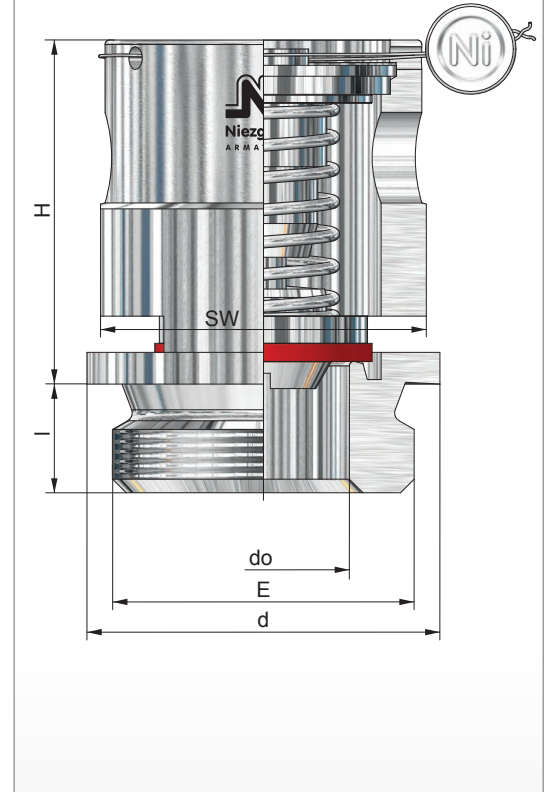
Approvals:

Pressure Equipment Directive: 2014/68/EU
 Declaration of Conformity



TÜV - Approval:
 VdTÜV-leaflet AD 2000-leaflet A 2

TÜV • SV • XX-885 • do • D/G • α_w • p



head E
G1 - male



head D
G1 - male



head C
G1 - male



head C
G1 - female

Size	Inlet				Outlet A	Dimensions			Height 'H' for head			Coefficient		Set pressure		Weight ~ [kg]
	E	d	l (G)	l (Muffe)		SW	do		C	D	E	D/G	α _w max.	p min. [bar(g)]	p max. [bar(g)]	
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]		[mm]	[mm]	[mm]						
1	39	12	12	free	36	19		38	46	54	0,31		0,05	3,0	0,25	

other design on request

Safety-Valve, springloaded

for non-toxic steam and gases

Typ 67

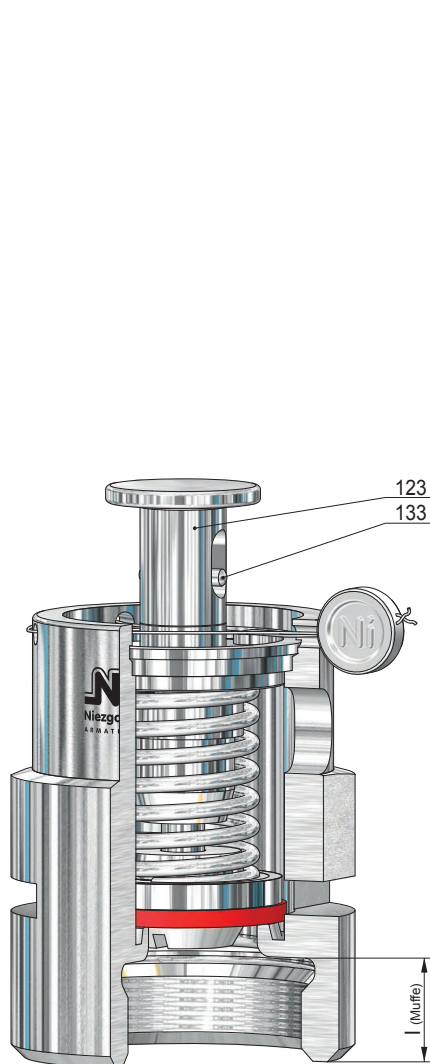
Discharge capacities

Size			
do [mm]	19		
Fluid	Air 0°C [m ³ /h]	Carbondioxide 0°C [m ³ /h]	Nitrogen 0°C [m ³ /h]
pe [bar(g)]			
0,05	35,5	28,5	36,2
0,1	42,8	34,5	43,5
0,2	53,3	42,5	54,2
0,3	62,5	49,8	63,7
0,4	71,1	56,5	73,4
0,5	79,2	62,7	80,5
1,0	112	88,5	114
1,5	150	118	152
2,0	183	145	186
2,5	222	176	225
3,0	258	205	263

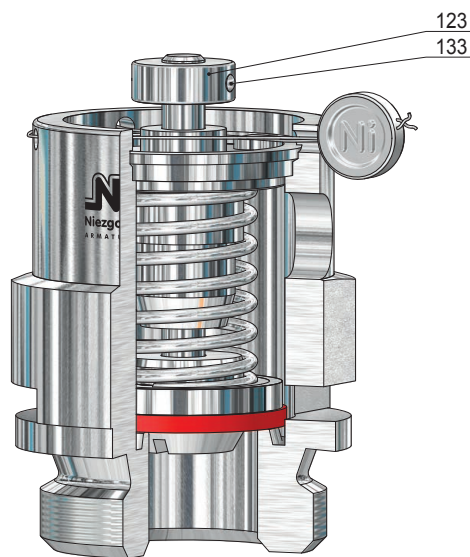
Safety-Valve, springloaded

for non-toxic steam and gases

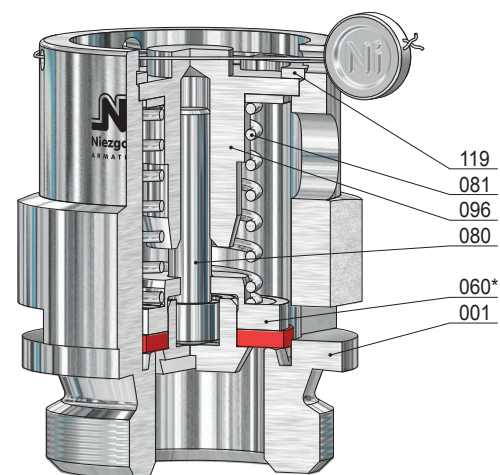
Typ 67



G1 - female
head E, liftable



G1 - male
head D, liftable



G1 - male
head C

Item	Piece	Description	Item	Piece	Description
001	1	inlet body			
060 *	1	disc, complete			
062	1	soft sealing			
064	1	disc screw			
080	1	spindle			
081	1	spring			
096	1	spring guide			
119	1	locking ring			
123	1	lifting button			
133	1	groove pin			

* expendable parts

Safety-Valve, springloaded

for container with liquid, granular or dusty goods

Typ 69

Standard version:

Operating temperature

Material: Inlet body / Bonnet pipe
Typ 69.2: 1.4301 / 1.4301 -60°C to 130°C
Typ 69.3: 2.0401 / 2.0401 -10°C to 130°C

Connections: soft seated
 Screwed connection: DIN ISO 228 see techn. appendix: KWD-1

Approvals:

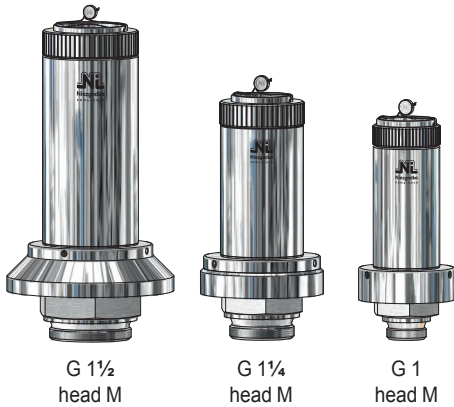
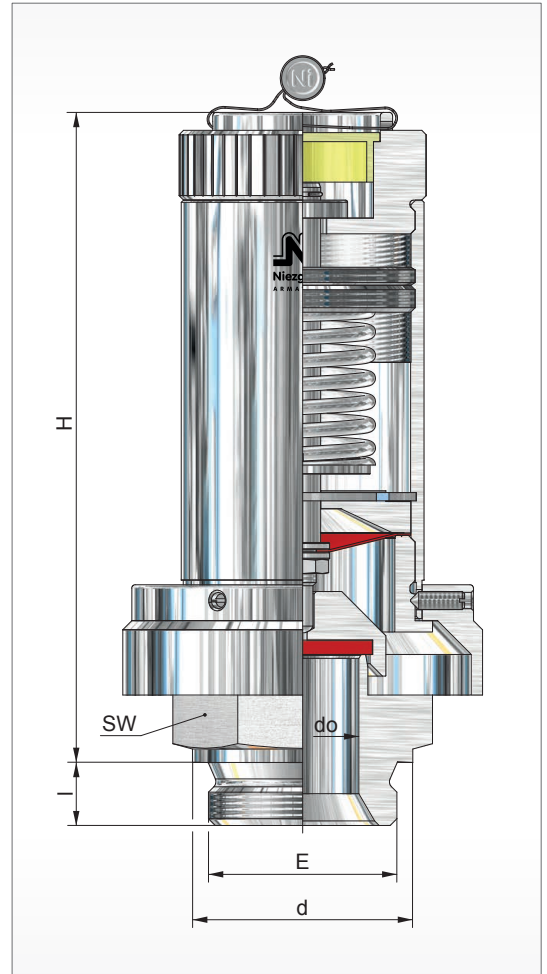
Pressure Equipment Directive: 2014/68/EU
 Declaration of Conformity



TÜV - Approval:

VdTÜV-leaflet AD 2000-leaflet A 2

TÜV • SV • XX-935 • do • F/K/S • aw • p



Size	Inlet			Outlet A	Dimensions			Height 'H' for head			Coefficient		Set pressure		Weight ~ [kg]
	E	d	l (G)		SW	do	Seat Ø	M	D	p min.	p max.				
		[mm]	[mm]		[mm]	[mm]	[mm]	[mm]			α _w max.	[bar(g)]	[bar(g)]		
1	39	12	14	free	41	20	20	129			0,77	0,5	5,7	1,0	
1 ¼ *	49				50	25	25	141			0,64	0,5	4,0	1,6	
1 ½ *	55				60	30	30	184			0,72	0,5	3,0	2,6	

other design on request

*) not in type 69.3

Safety-Valve, springloaded

for container with liquid, granular or dusty goods

Typ 69

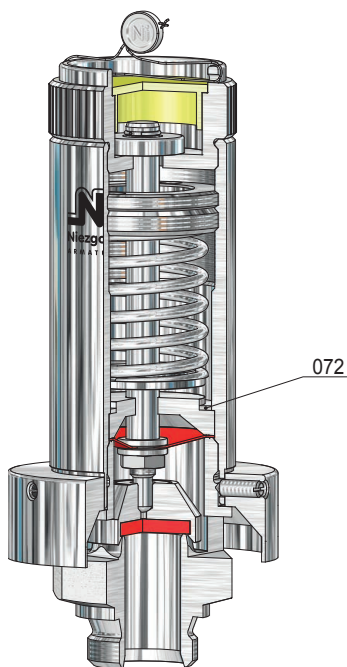
Discharge capacities

Inlet		1	1¼	1½	2		1	1¼	1½	2
do [mm]		20	25	30	35		20	25	30	35
Fluid		Air 0°C [m ³ /h]					Nitrogen 0°C [m ³ /h]			
Coefficient of discharge		Qw max. 0,77	Qw max. 0,64	Qw max. 0,72	Qw max. 0,76		Qw max. 0,77	Qw max. 0,64	Qw max. 0,72	Qw max. 0,76
pe [bar(g)]										
0,2					369					375
0,3					458					466
0,4					530					539
0,5		202	237	380	609		206	241	386	620
1,0		312	396	590	927		317	402	601	943
1,5		410	525	808	1239		417	535	821	1260
2,0		516	666	1083	1558		524	677	1102	1585
2,5		612	793	1287	1850		623	806	1310	1882
3,0		711	923	1496	2144		723	938	1531	2186
3,5		802	1041				815	1057		
4,0		983	1159				908	1181		
4,5		984					999			
5,0		1074					1094			
5,7		1201					1222			

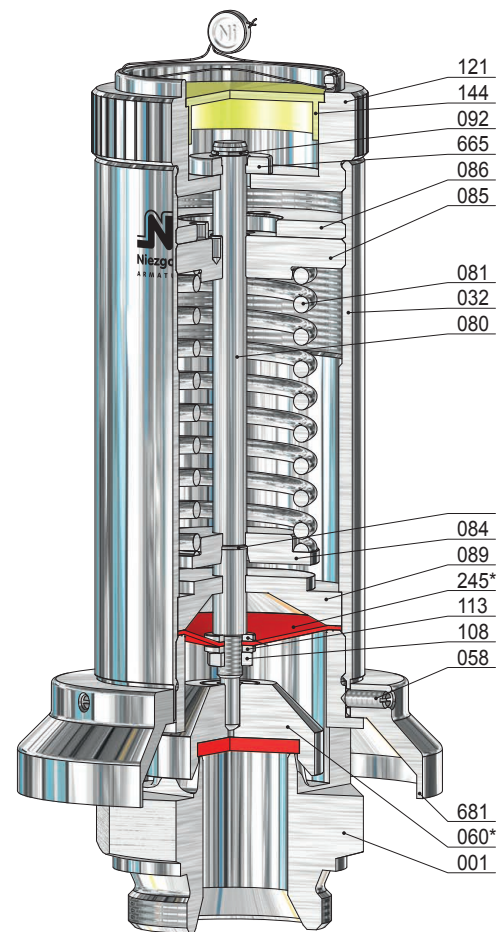
Safety-Valve, springloaded

for container with liquid, granular or dusty goods

Typ 69



G 1
head M, liftable



G 1 1/2
head M, liftable

Item	Piece	Description	Item	Piece	Description
001	1	inlet body	108	1	nut
032	1	bonnet pipe	113	2	washer
060 *	1	disc, complete	121	1	lifting cap
062	1	soft sealing	144	1	lock washer
072	1	locking ring	245 *	1	diaphragm
080	1	spindle	665	1	washer
081	1	spring	681	1	protection ring
084	1	springplate, lower			
085	1	adjusting screw			
086	1	lock nut			
089	1	guideplate			
092	2	lock ring			

* expendable parts

Safety-Valve, with underpressure function

for non-toxic steam and gases

Typ 98

Standard version:

Temperature ranges

Material: Inlet body

Typ 98.2: 1.4404

-10°C to 150°C

Connections:

Screwed connection: DIN ISO 228

soft seated

see techn. appendix: KWD-1

Approvals:

Pressure Equipment Directive: 2014/68/EU

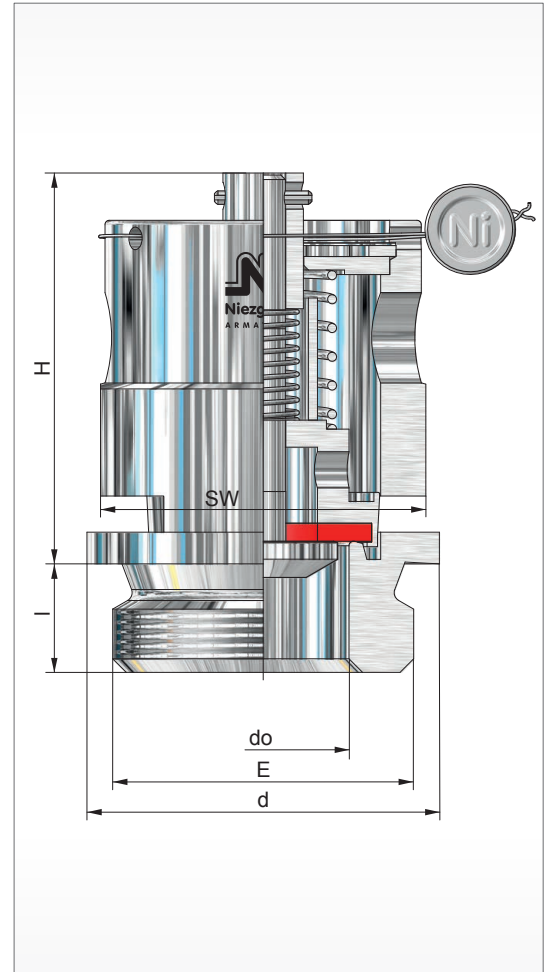
Declaration of Conformity



TÜV - Approval:

VdTÜV-leaflet AD 2000-leaflet A 2

TÜV • SV • XX-1066 • do • D/G • αw • p



G1 - male



G1 - female

Size	Inlet				Outlet A	Dimensions			Height 'H'		Coefficient D/G αw max.	Set pressure		Weight ~ [kg]
	E	d	I (G)	I (Muffe)		SW	do		H	p _{under pressure}		p _{overpressure}		
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]		[mm]		[bar(g)]	[bar(g)]			
1	39	12	12	free	36	19		45	0,14	-0,03	0,25	0,25		
									0,15	-0,05	0,34			
									0,15		0,65			

other design on request

Safety-Valve, with underpressure function

for non-toxic steam and gases

Typ 98

Discharge capacities

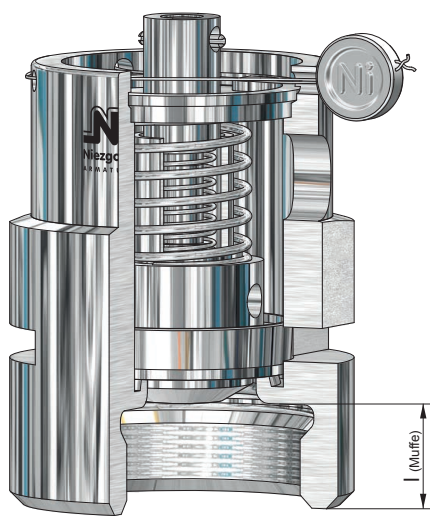
Overpressure function			
do [mm]	19		
Fluid	Air 0°C [m ³ /h]	Carbondioxide 0°C [m ³ /h]	Nitrogen 0°C [m ³ /h]
pe [bar(g)]			
0,25	30,6	24,5	31,2
0,34	37,7	30,2	38,4
0,65	49,0	38,7	49,9

Underpressure function			
do [mm]	6		
Fluid	Air 0°C [m ³ /h]	Carbondioxide 0°C [m ³ /h]	Nitrogen 0°C [m ³ /h]
pe [bar(g)]			
-0,05	1,00	0,80	1,02
-0,03	0,80	0,64	0,82

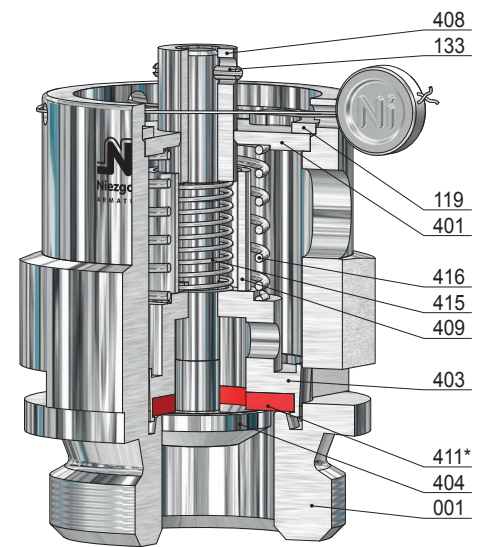
Safety-Valve, with underpressure function

for non-toxic steam and gases

Typ 98



G1 - female



G1 - male

Item	Piece	Description	Item	Piece	Description
001	1	inlet body	415	1	underpressure spring
119	1	locking ring	416	1	overpressure spring
133	1	groove pin			
401	1	plate			
403	1	overpressure disc			
404	1	underpressure disc			
408	1	bush			
409	1	lift stopper			
411 *	1	soft sealing			

* expendable parts

Safety-Valve, springloaded

for non-toxic steam and gases

Typ 110

Standard version:

Material: Inlet body / Bonnet pipe metal seated
Typ 110.1: 1.4104 / 2.0401 -10°C to 130°C
Typ 110.2: 1.4571 / 1.4301 -60°C to 130°C

Temperature ranges

Connections: soft seated
 Screwed connection: DIN ISO 228 / ASME B1.20.1 see techn. appendix: KWD-1

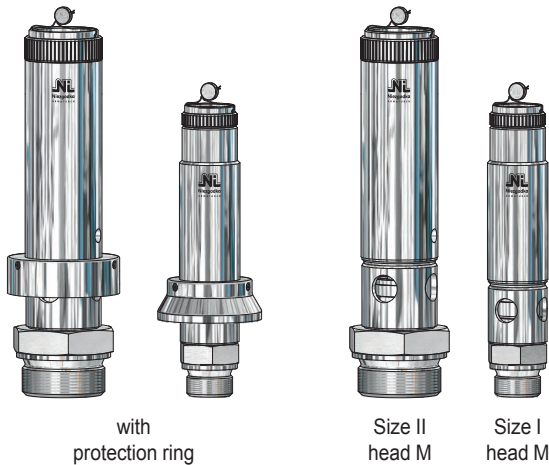
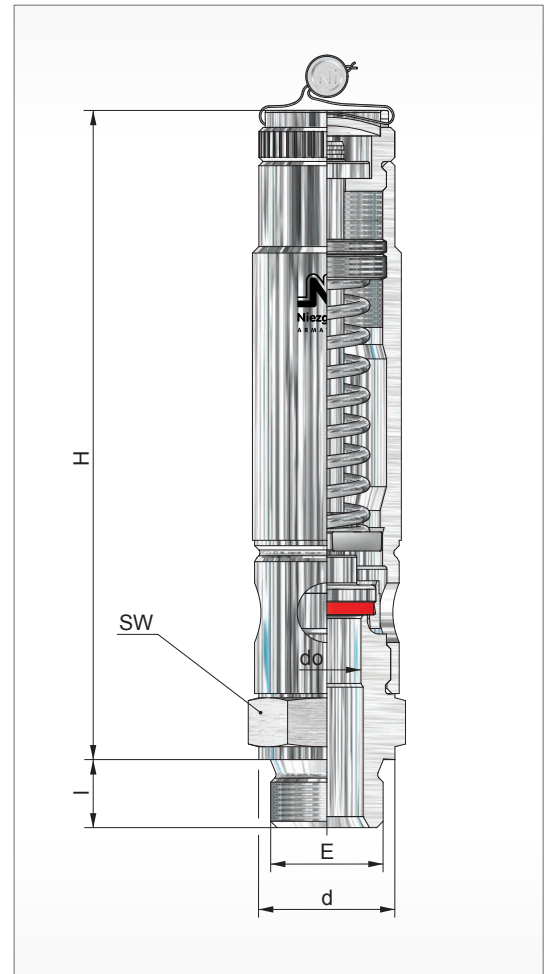
Approvals:

Pressure Equipment Directive: 2014/68/EU
 Declaration of Conformity



TÜV - Approval:

VdTÜV-leaflet, AD 2000-leaflet A 2 TÜV • SV • XX-990 / 1050 • do • D/G • α_w • p



Size	Inlet				Outlet A	Dimensions		Height 'H' for head		Coefficient D/G α _w max.	Set pressure		Weight ~ [kg]		
	E	d	I (G)	I (NPT)		SW	do	M			p min.	p max.			
		[mm]	[mm]	[mm]		[mm]	[mm]	[mm]			[bar(g)]	[bar(g)]			
I	3/8	22	12	11	free	32	10	153			0,29	0,1	52	0,5	
							8				0,46	15,0	84		
							12,5				0,12	0,1	45		
	1/2	26	14	14			10				0,29	0,1	52		
							8				0,46	15,0	84		
							16				0,13	0,05	31		
	3/4	32	16	14			12,5				0,12	0,1	45		
							10				0,29	0,1	52		
							8				0,46	15,0	84		
II	1/2	26	14	14	free	41	12,5	190			0,50	0,09	67	0,8	
							16				0,38	0,06	60		
	3/4	32	16	14			12,5				0,50	0,09	67		
							16				0,38	0,06	60		
	1	39	18	18			12,5				0,50	0,09	67		
							27				0,20	0,03	25		
	1 1/4	49	20	18			50				22	0,22	0,04		35
											16	0,38	0,06		60
	1 1/2	55	22	19			55				27	0,20	0,03		25
											22	0,16	0,04		35
	2	60	24	20			60				27	0,20	0,03		25

other design on request

Safety-Valve, springloaded

for non-toxic steam and gases

Typ 110

Discharge capacities

Size	I				II					
do [mm]	8	10	12,5	16	12,5	16	22 ¹⁾	22 ²⁾	27 ¹⁾	27 ²⁾
Fluid	Air 0°C [m ³ /h]				Air 0°C [m ³ /h]					
Coefficient of discharge	Qw max. 0,46	Qw max. 0,29	Qw max. 0,12	Qw max. 0,13	Qw max. 0,50	Qw max. 0,38	Qw max. 0,22	Qw max. 0,16	Qw max. 0,20	Qw max. 0,15
Pe [bar(g)]										
0,05				12,1		29,6	27,0		40,6	
0,1		11,4	6,9	14,3	27,0	34,8	31,9		48,1	
0,2		14,3	9,0	17,7	33,4	43,2	41,1		61,8	
0,3		17,0	10,6	20,8	40,1	50,6	49,9		75,1	
0,4		19,3	12,1	23,3	45,9	57,8	57,4		86,5	
0,5		21,5	13,4	25,9	51,4	64,8	64,4		97,0	
1,0		30,7	19,4	36,2	77,7	98,4	96,0		144,6	
1,5		40,2	25,6	46,7	102,4	127,7	127,8		192,5	
2,0		49,3	31,4	56,8	128,9	160,7	159,9		240,9	
2,5		58,2	37,5	66,8	157,3	192,3	191,0		287,6	
3,0		67,0	43,3	76,8	180,4	224,6	223,5		336,9	
3,5		75,5	48,8	86,6	203,4	253,3	252,0		379,6	
4,0		84,1	54,3	96,5	226,4	282,0	280,6		422,6	
4,5		92,6	59,9	106,3	249,5	310,7	309,1		465,6	
5,0		101,2	65,4	116,1	272,5	339,4	337,7		508,6	
6,0		118,3	76,5	135,8	318,7	396,8	394,8		594,7	
7,0		135,4	87,6	155,4	364,8	454,3	452,0		680,9	
8,0		152,6	98,7	175,1	411,0	511,8	509,3		767,1	767,1
9,0		169,7	109,7	194,8	457,3	569,4	556,6		853,3	853,3
10,0		186,9	120,8	214,5	503,5	627,0	623,9	686,2	939,7	939,7
12,0		221,3	143,1	253,9	596,1	742,3	738,6	812,5	1112,5	812,1
14,0		255,7	165,3	293,4	688,8	857,7	853,5	938,8	1285,5	938,4
15,0	277,0	272,9	176,5	313,2	735,2	915,5	911,0	1002,0	1372,1	1001,6
16,0	294,6	290,2	187,6	333,0	781,7	973,3	968,5	1065,4	1458,8	1064,9
18,0	329,6	324,7	209,9	372,6	874,6	1089,1	1083,7	1192,1	1632,3	1191,6
20,0	364,7	359,2	232,3	412,2	967,7	1205,0	1199,0	1318,9	1806,0	1318,4
25,0	452,6	445,8	288,2	511,6	1201,0	1495,4	1488,0	1551,7	2241,3	1636,1
30,0	540,8	532,7	344,4	611,3	1435,0	1786,8	1778,0	1333,5		
35,0	629,2	619,8	400,8		1669,8	2079,2	2069,0	1551,7		
40,0	718,0	707,3	457,3		1905,4	2372,6				
45,0	807,1	795,0	514,0		2141,8	2666,9				
50,0	896,5	883,1			2379,0	2962,3				
60,0	1076,1				2855,7	3555,9				
70,0	1257,0									
80,0	1439,2									

Other values are valid with and without protection ring.

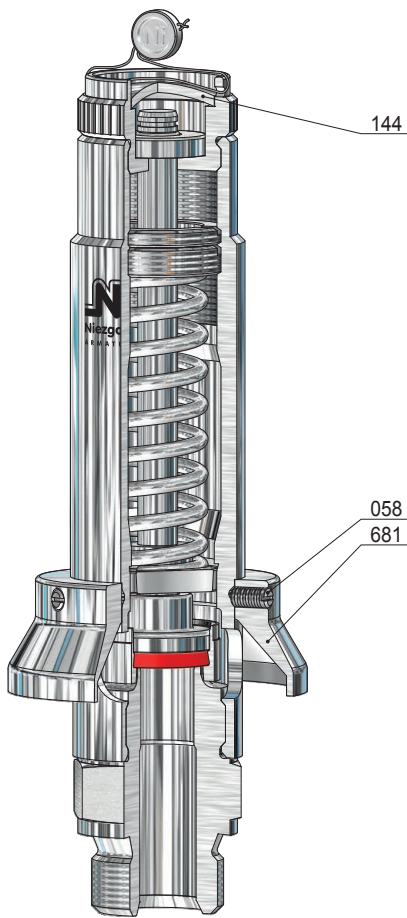
1) without protection ring

2) with protection ring

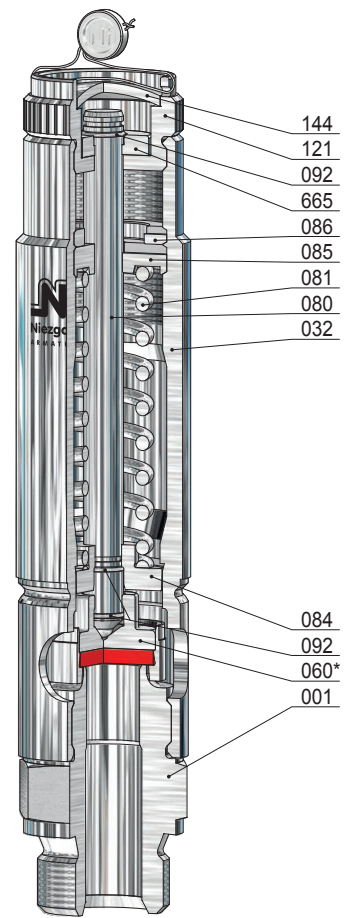
Safety-Valve, springloaded

for non-toxic steam and gases

Typ 110



with protection ring
recommend at each do
for $p > 30$ [bar(g)]



Size I
head M, liftable

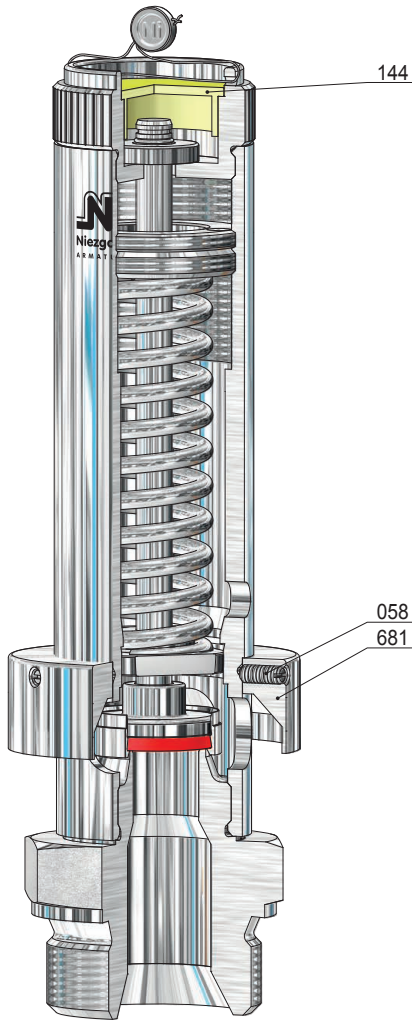
Item	Piece	Description	Item	Piece	Description
001	1	inlet body	121	1	lifting cap
032	1	bonnet pipe	144	1	lock washer
058	3	screwed pin	665	1	washer
060 *	1	disc, complete	681	1	protection ring
560	1	disc			
062	1	soft sealing			
063	1	disc ring			
080	1	spindle			
081	1	spring			
084	1	springplate, lower			
085	1	adjusting screw			
086	1	lock nut			
092	3	lock ring			

* expendable parts

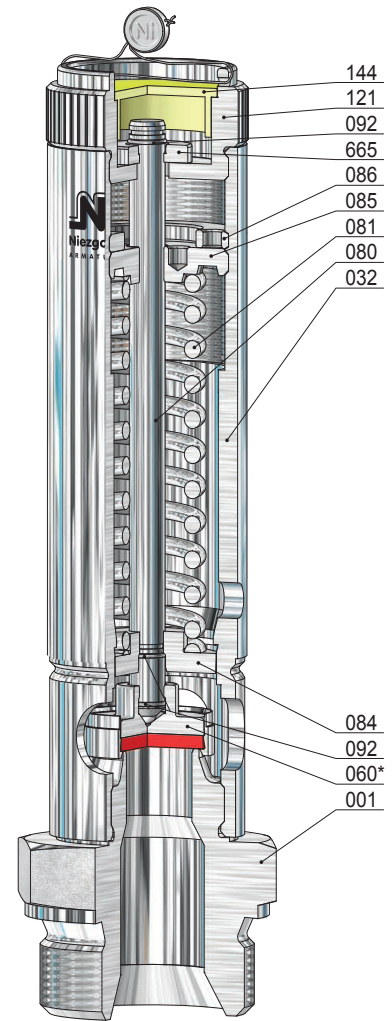
Safety-Valve, springloaded

for non-toxic steam and gases

Typ 110



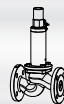
with protection ring
 recommend at each
 do 12,5; 16: for / p > 30 [bar(g)]
 do 22: for / p > 10 [bar(g)]
 do 27: for / p > 8 [bar(g)]



Size II
 head M, liftable

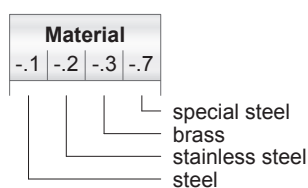
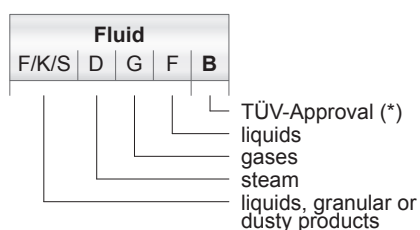
Item	Piece	Description	Item	Piece	Description
001	1	inlet body	121	1	lifting cap
032	1	bonnet pipe	144	1	lock washer
058	3	screwed pin	665	1	washer
060 *	1	disc, complete	681	1	protection ring
560	1	disc			
062	1	soft sealing			
063	1	disc ring			
080	1	spindle			
081	1	spring			
084	1	springplate, lower			
085	1	adjusting screw			
086	1	lock nut			
092	3	lock ring			

* expendable parts



Index

Type	Use	*	Fluid	Material				DN	PN _E [bar(g)]	Heads
				-1	-2	-3	-7			
7	Relief-Valve, springloaded for non-toxic steam and gases	-	D/G	●	●			150 - 350	6 - 16	A, C
7	Safety-Valve, springloaded for non-toxic steam and gases	B	D/G	●	●			50 - 125	6 - 16	A, C
12	Safety-Valve, springloaded for pressure vessels at gases	B	G	●				100	16	-
13	Relief-Valve, springloaded for steam, gases and liquids	-	D/G/F	●	●			15 - 150	16 - 40	A, C, F, T
22	Relief-Valve, springloaded for steam, gases and liquids	-	D/G/F	●				25	- 1100	A, C, T
22	Safety-Valve, springloaded for liquids	B	F	●				25	- 250	A, C, T
24	Relief-Valve, springloaded for liquids	-	F	●				15	- 1000	C



Relief-Valve, springloaded

for non-toxic steam and gases

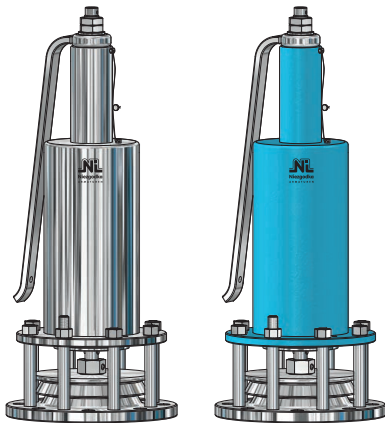
Typ 7

Standard version:

			Temperature ranges
Material:	Inlet body	/ Spring bonnet	metal seated
Typ 7.1:	1.4541	/ 1.0254	-10°C to 130°C
Typ 7.2:	1.4541	/ 1.4301	-60°C to 130°C
Connections:			soft seated
Flange connections: DIN EN / ASME B16.5			see techn. appendix: KWD-1

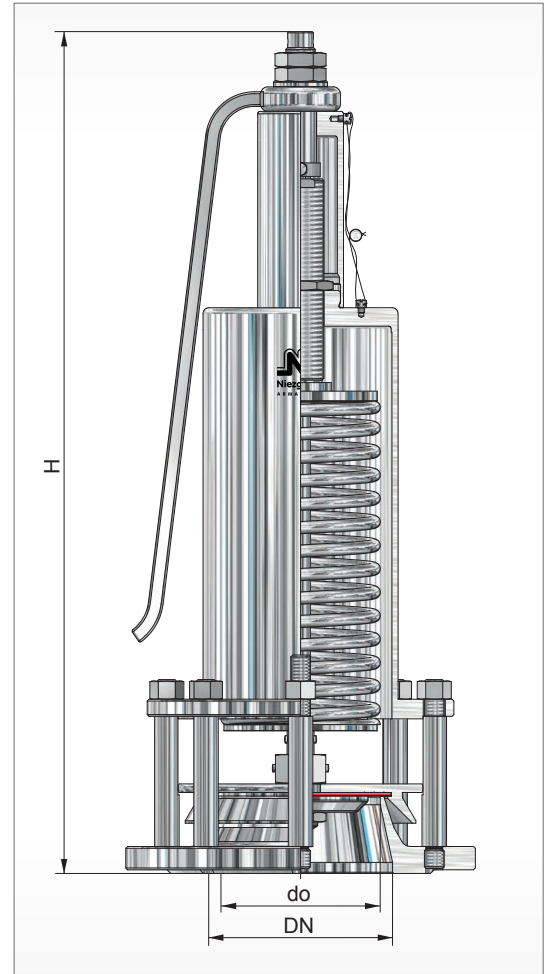
Approvals:

Pressure Equipment Directive: 2014/68/EU
Declaration of Conformity



Type 7.2
head A

Type 7.1
head A



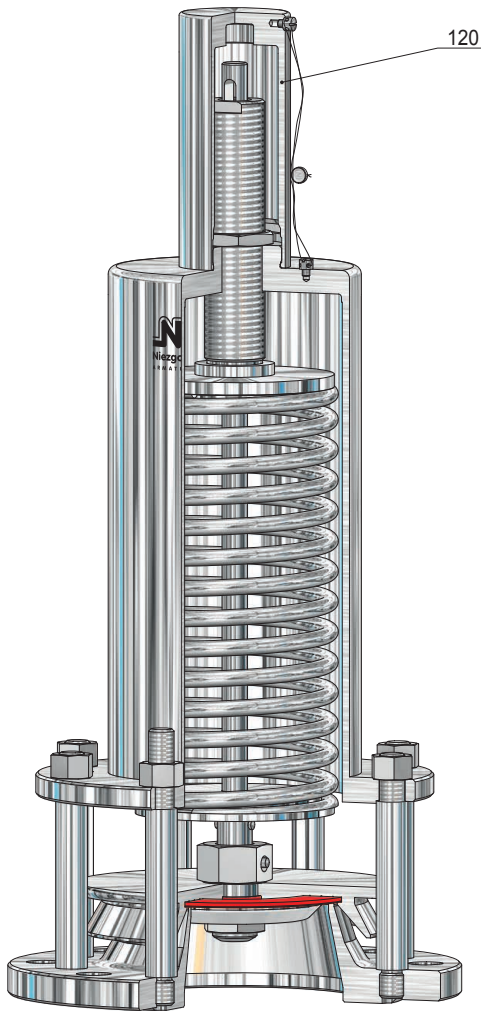
Size	Inlet		Outlet	Height 'H' for head		Set pressure		Weight		
	DN	NPS		PN / Class	do	A	C		p min.	p max.
			[bar(g)]	[mm]	[mm]	[mm]	[bar(g)]	[bar(g)]	~ [kg]	
	150		6 - 16	130	free	830	810	0,40	0,60	36,0
	200			175		865	845	0,45	0,55	52,0
	250			220		900	880	0,45	0,55	75,0
	300		6 - 10	270		980	960	0,45	0,55	118,0
	350			320		990	970	0,43	0,88	175,0

other design on request

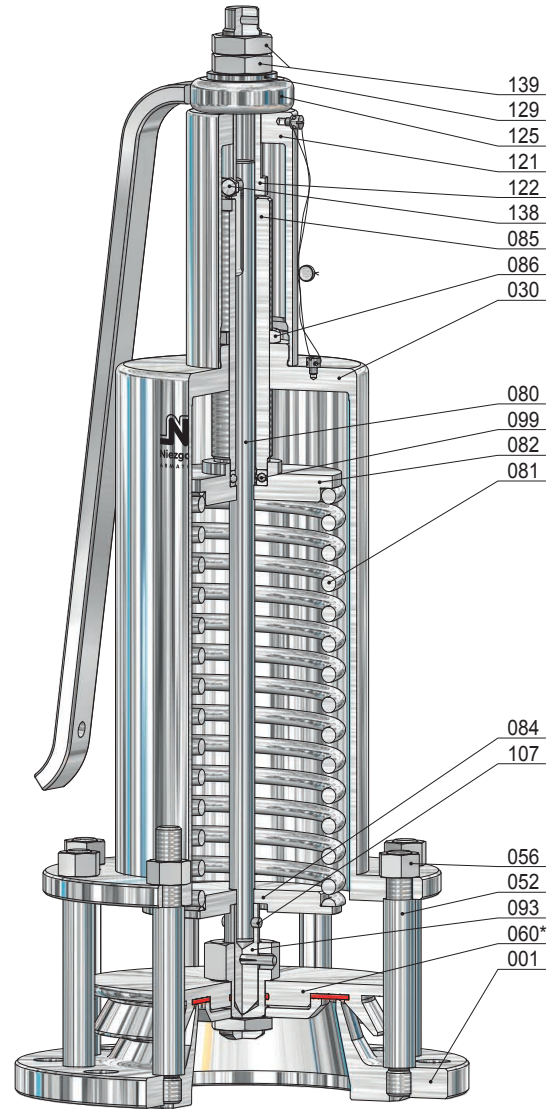
Relief-Valve, springloaded

for non-toxic steam and gases

Typ 7



head C



head A

Item	Piece	Description	Item	Piece	Description
001	1	inlet body	085	1	adjusting screw
030	1	spring bonnet	086	1	lock nut
052	8	column <i>(variable)</i>	093	1	joining piece
056	8	nut <i>(variable)</i>	099	1	antifriction bearing
060 *	1	disc, complete	107	1	spring pin
560	1	disc	120	1	cap
061	1	pressure piece	121	1	lifting cap
062	1	soft sealing	122	1	coupling
067	1	security screw	125	1	lifting button
068	1	disc guidance	129	1	pressure plate
071	1	o-ring	138	1	screw
075	1	nut	139	2	nut
080	1	spindle			
081	1	spring			
082	1	springplate, upper			
084	1	springplate, lower			

* expendable parts

Safety-Valve, springloaded

for non-toxic steam and gases

Typ 7

Standard version:

			Temperature ranges
Material:	Inlet body	/ Spring bonnet	metal seated
Typ 7.1:	1.4541	/ 1.0254	-10°C to 130°C
Typ 7.2:	1.4541	/ 1.4301	-60°C to 130°C
Connections:			soft seated
Flange connections: DIN EN / ASME B16.5			see techn. appendix: KWD-1

Approvals:

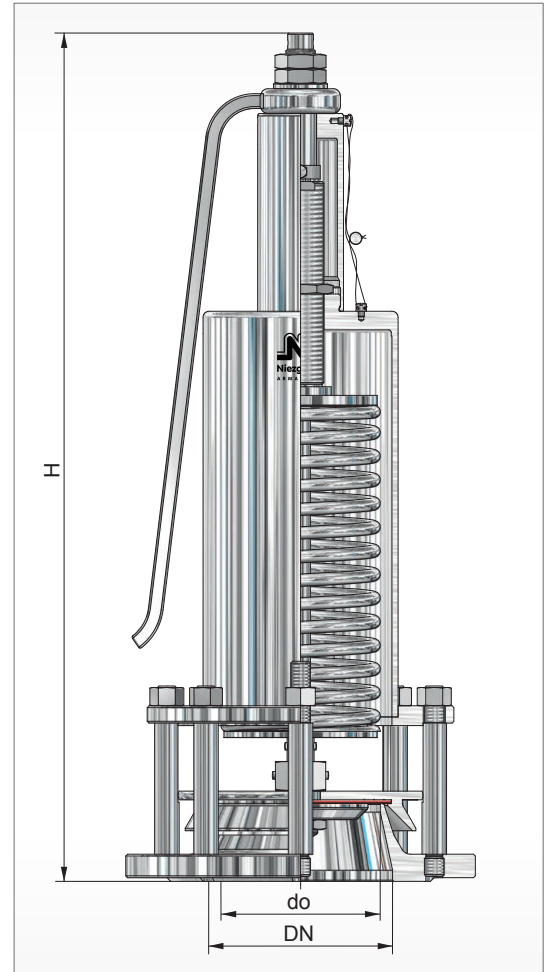
Pressure Equipment Directive: 2014/68/EU
Declaration of Conformity



TÜV - Approval:

VdTÜV-leaflet, AD 2000-leaflet A 2

TÜV • SV • XX-725 • do • D/G • α_w • p



Type 7.2 DN 125
head A



Type 7.1 DN 50
head C

Size	Inlet		Outlet	Height 'H' for head		Coefficient		Set pressure		Weight	
	DN	NPS		PN / Class	do	A	C	D/G	p min.		p max.
			[bar(g)]	[mm]	[mm]	[mm]	α _w max.	[bar(g)]	[bar(g)]	~ [kg]	
	50		6 - 16	40	free	405	395	0,63	0,10	3,8	8,3
	65			50		405	395	0,64	0,10	3,0	9,6
	80			70		470	460	0,59	0,05	1,2	12,5
	100			90		480	470	0,63	0,05	1,0	15,5
	125			110		680	640	0,68	0,05	1,4	33,0

other design on request

Safety-Valve, springloaded

for non-toxic steam and gases

Typ 7

Discharge capacities

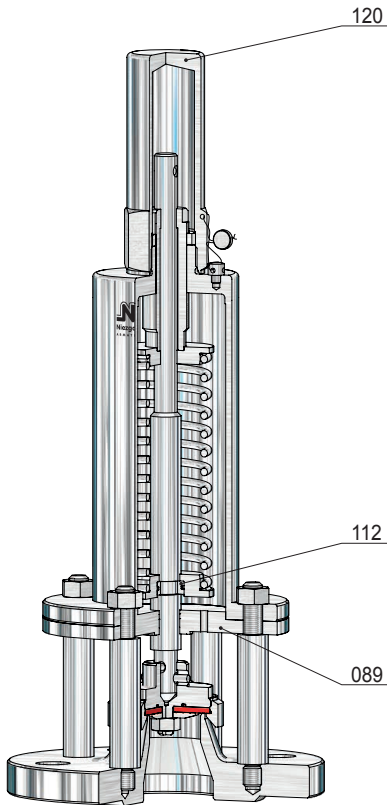
Air at 32°F and 1013 mbar [m_n^3/h]

Size					
DN Inlet	50	65	80	100	125
d _o [mm]	40	50	70	90	110
Q _{W max.}	0,63	0,64	0,59	0,63	0,68
p _e [bar(g)]					
0,05			521	941	1610
0,10	241	376	744	1390	2290
0,20	358	554	1080	2090	3290
0,30	457	702	1370	2640	4100
0,40	547	836	1650	3090	4810
0,50	631	961	1930	3460	5470
0,60	710	1080	2210	3800	6080
0,70	785	1190	2480	4130	6670
0,80	856	1300	2730	4510	7240
0,90	924	1400	2960	4970	7790
1,00	989	1500	3170	5590	8340
1,50	1300	2010			
2,00	1600	2510			
2,50	1860	3000			
3,00	2130	3490			

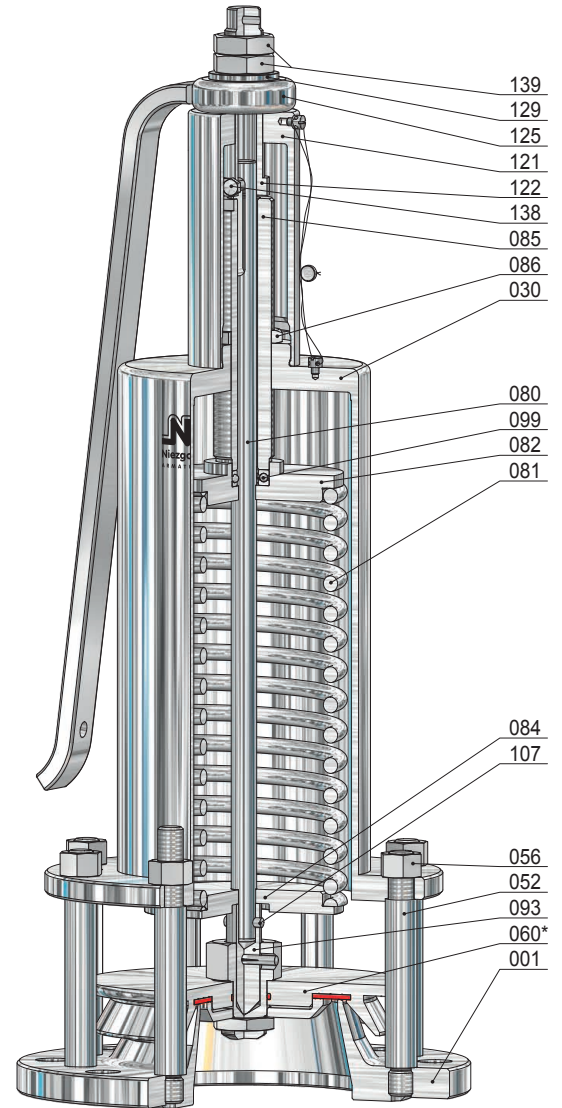
Safety-Valve, springloaded

for non-toxic steam and gases

Typ 7



DN 50
head C



DN 125
head A

Item	Piece	Description	Item	Piece	Description
001	1	inlet body	082	1	springplate, upper
030	1	spring bonnet	084	1	springplate, lower
052	8	column <i>(variable)</i>	085	1	adjusting screw
056	8	nut <i>(variable)</i>	086	1	lock nut
060 *	1	disc, complete	089	1	guide plate
560	1	disc	093	1	joining piece
061	1	pressure piece	099	1	antifriction bearing
062	1	soft sealing	107	1	spring pin
063	1	disc ring	112	1	split ring
065	1	disc bolt	120	1	cap
067	1	security screw / groove pin	121	1	lifting cap
068	1	disc guidance	122	1	coupling
071	1	o-ring	125	1	lifting button
072	1	locking ring	129	1	pressure plate
074	1	disc plate	138	1	screw
075	1	nut	139	2	nut
080	1	spindle			
081	1	spring			

* expendable parts

Safety-Valve, springloaded

for pressure vessels at gases

Typ 12

Standard version:

Temperature ranges

Material: Inlet body
Typ 12.1: 1.4301

-20°C to 150°C

Connections:
 Special flange

soft seated
 FPM at PTFE sheathed

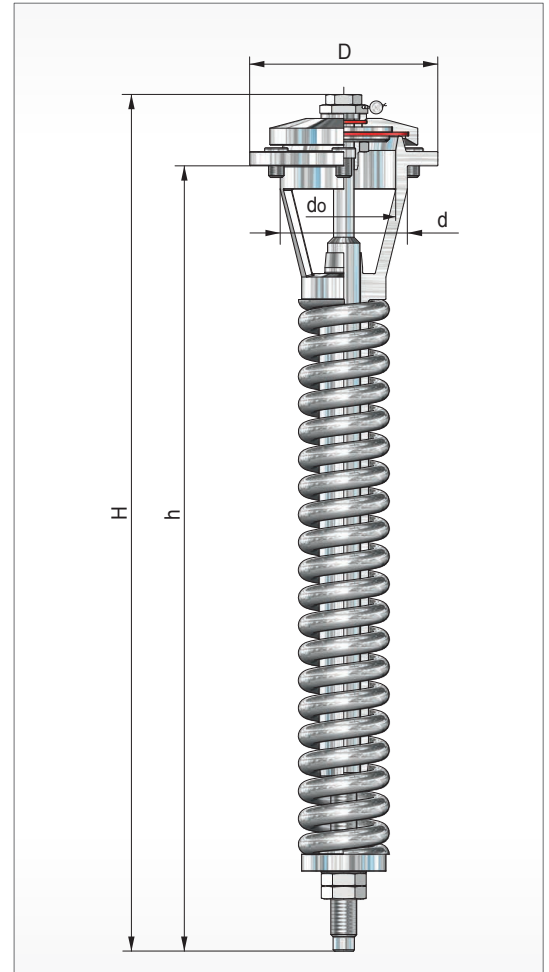
Approvals:

Pressure Equipment Directive: 2014/68/EU
 Declaration of Conformity



TÜV - Approval:
 VdTÜV-leaflet, AD 2000-leaflet A 2

TÜV • SV • XX-657 • do • G • aw • p



Type 12
 (cover not
 scope of supply)

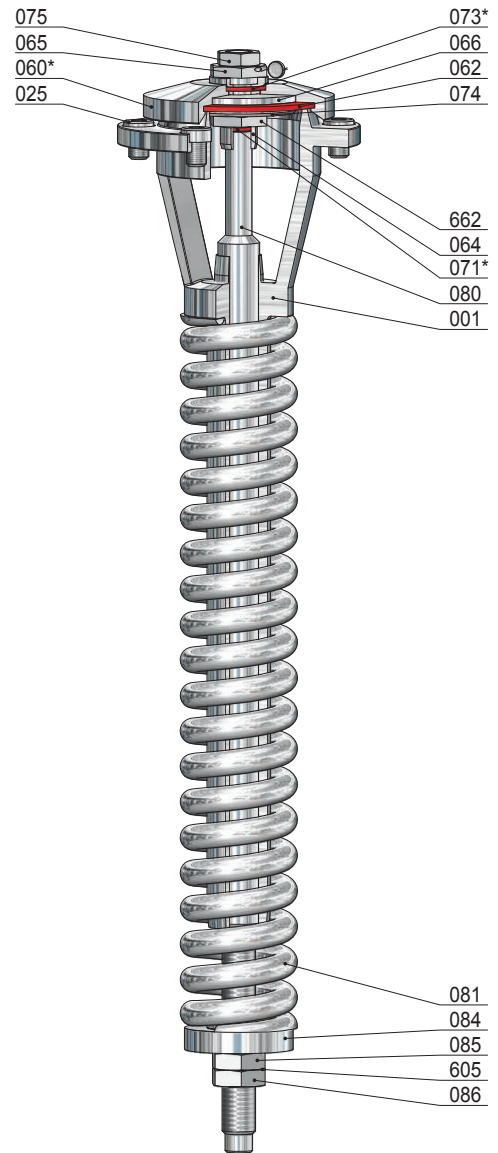
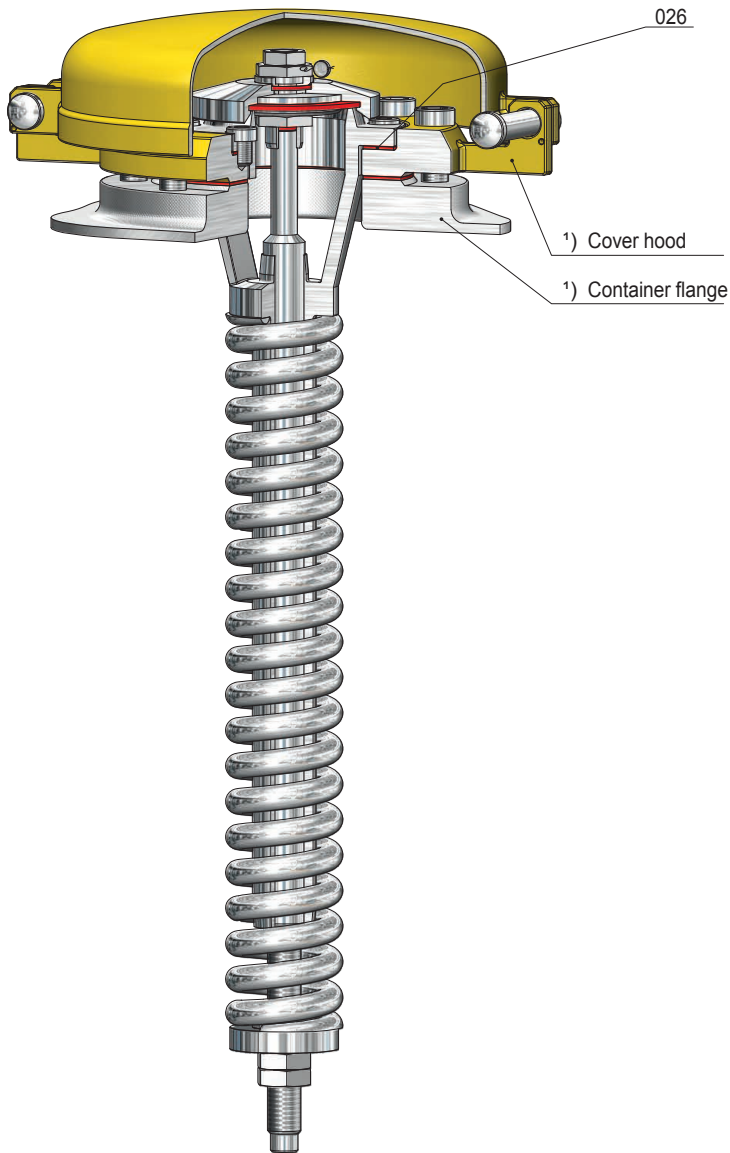
Size	Inlet				Outlet			Dimensions		Height		Coefficient		Set pressure		Weight ~ [kg]
	DN	PN	D [mm]	d [mm]				do [mm]	H [mm]	h [mm]	G	Qw max.	p min. [bar(g)]	p max. [bar(g)]		
	100	16	145	100	free			80	610	540	0,55		7,0	7,5	8,5	
													13,3	13,8		

other design on request

Safety-Valve, springloaded

for pressure vessels at gases

Typ 12



Item	Piece	Description	Item	Piece	Description
001	1	inlet body	080	1	spindle
025	6	screw	081	1	spring
026	1	packing ring	084	1	springplate, lower
060 *	1	disc, complete	085	1	adjusting screw
560	1	disc	086	1	lock nut
062	1	soft sealing	605	1	locking plate
064	1	disc screw			
065	1	disc bolt			
066	1	disc plate			
071 *	1	o-ring			
073 *	1	o-ring			
074	1	disc plate			
075	1	nut			
662	1	nut			

1) not included

* expendable parts

Relief-Valve, springloaded

for steam, gases and liquids

Typ 13

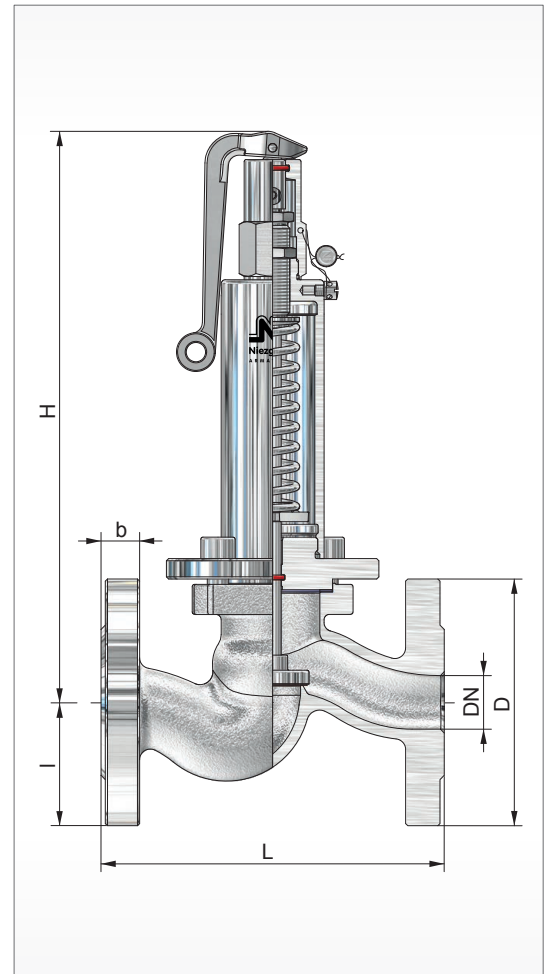
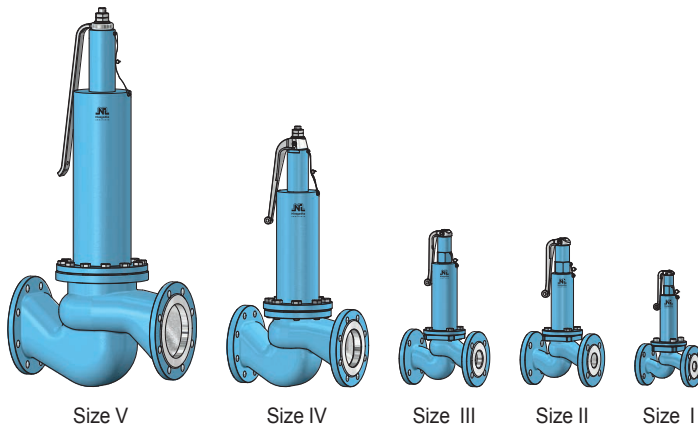
Standard version:

Operating temperature

Material:	Through valve / Spring bonnet	
Typ 13.1:	0.7043, 1.0619 / 1.0254	-10°C to 280°C
Typ 13.2:	1.4408 / 1.4301	-60°C to 280°C
Connections:		soft seated
Flange connections: DIN EN / ASME B16.5		see techn. appendix: KWD-1

Approvals:

Pressure Equipment Directive: 2014/68/EU
Declaration of Conformity



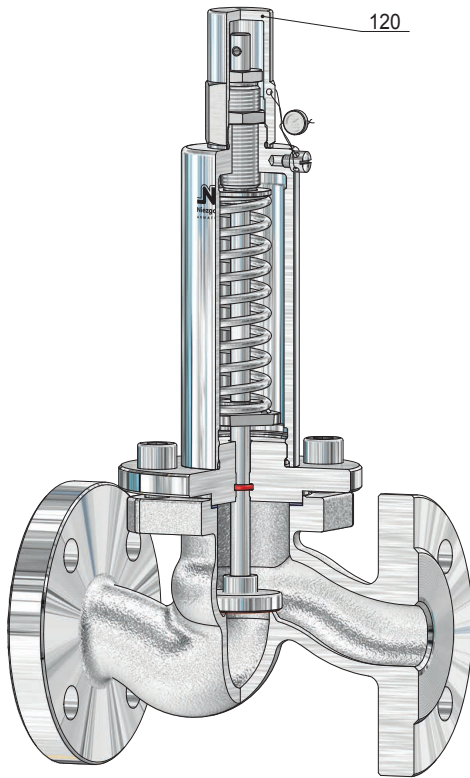
Size	Inlet									Outlet			Height 'H' for head			Set pressure		Weight ~ [kg]
	DN	NPS	PN / Class	do	D	PN16	b	PN40	L	h	DN	NPS	PN / Class	A	C	p min.	p max.	
	[mm]			[mm]	[mm]	[mm]	[mm]	[mm]	[mm]				[mm]	[mm]	[bar(g)]	[bar(g)]		
I	15	1/2	16 - 40 150-300	20	95	14	16	130	47,5	15	1/2	16 - 40 150-300	250	235	0,15	25,0	4,0	
	20	3/4		20	105	16	18	150	52,5	20	3/4		260	245	0,15	25,0	4,0	
	25	1		25	115	16	18	160	57,5	25	1		285	270	0,25	30,0	5,5	
II	32	1 1/4		32	140	16	18	180	70,0	32	1 1/4		360	340	0,10	25,0	9,8	
	40	1 1/2		40	150	16	18	200	75,0	40	1 1/2		365	345	0,10	20,0	10,3	
III	50	2		50	165	18	20	230	82,5	50	2		370	350	0,06	18,0	13,2	
	65	2 1/2		65	185	18	22	290	92,5	65	2 1/2		380	360	0,06	14,0	17,5	
IV	80	3		80	200	20	24	310	100,0	80	3		620	540	0,10	10,0	32,3	
	100	4		100	220/235	20	24	350	110,0	100	4		630	550	1,80	8,0	42,7	
V	125	5		125	250/270	22	26	400	125,0	125	5		645	585	0,10	6,0	67,0	
	150	6		150	285/300	22	28	480	142,5	150	6		935	815	0,10	6,0	107,0	

other design on request

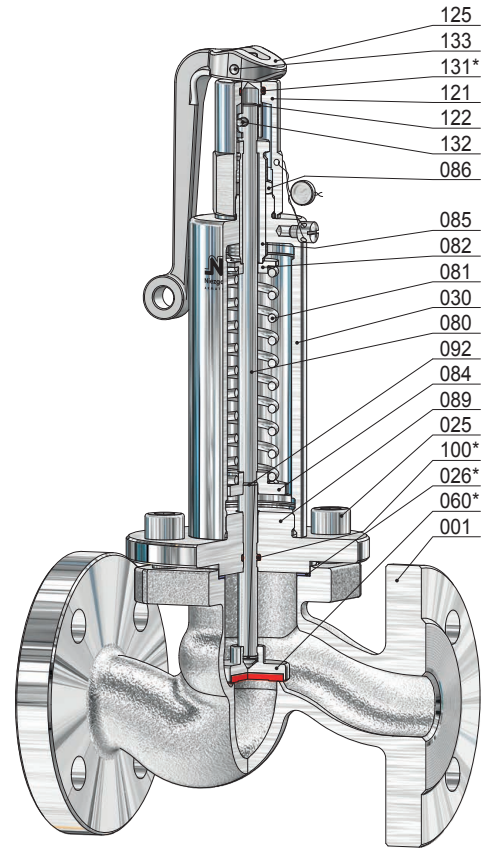
Relief-Valve, springloaded

for steam, gases and liquids

Typ 13



Size I
head C



Size I
head A

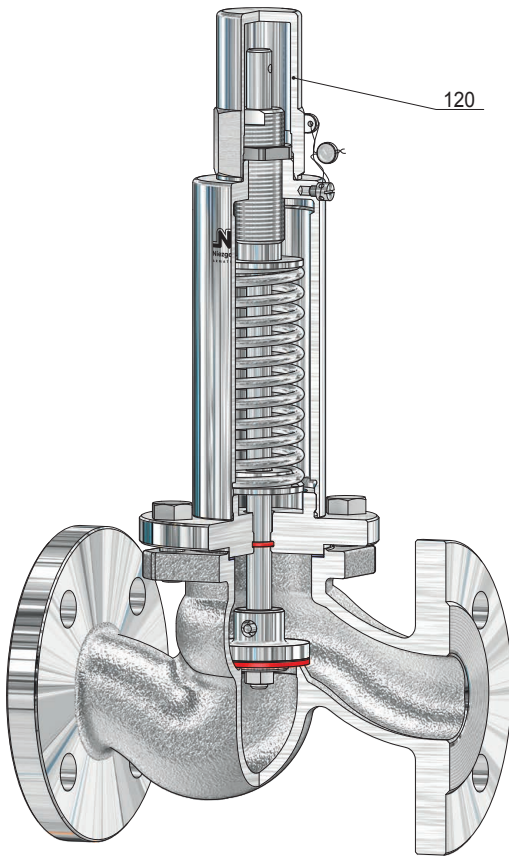
Item	Piece	Description	Item	Piece	Description
001	1	through valve	100 *	1	o-ring
025	4	screw	120	1	cap
026 *	1	packing ring	121	1	lifting cap
030	1	spring bonnet	122	1	coupling
060 *	1	disc, complete	125	1	lifting button
560	1	disc	131 *	1	o-ring
062	1	soft sealing	132	1	groove pin
080	1	spindle	133	1	groove pin
081	1	spring			
082	1	springplate, upper			
084	1	springplate, lower			
085	1	adjusting screw			
086	1	lock nut			
089	1	guide plate			
092	2	lock ring			

* expendable parts

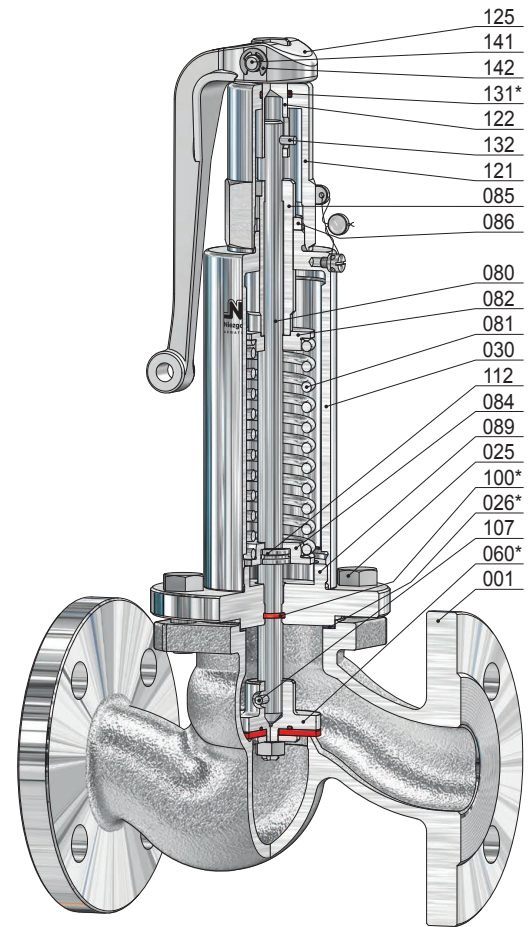
Relief-Valve, springloaded

for steam, gases and liquids

Typ 13



Size II
head C



Size II
head A

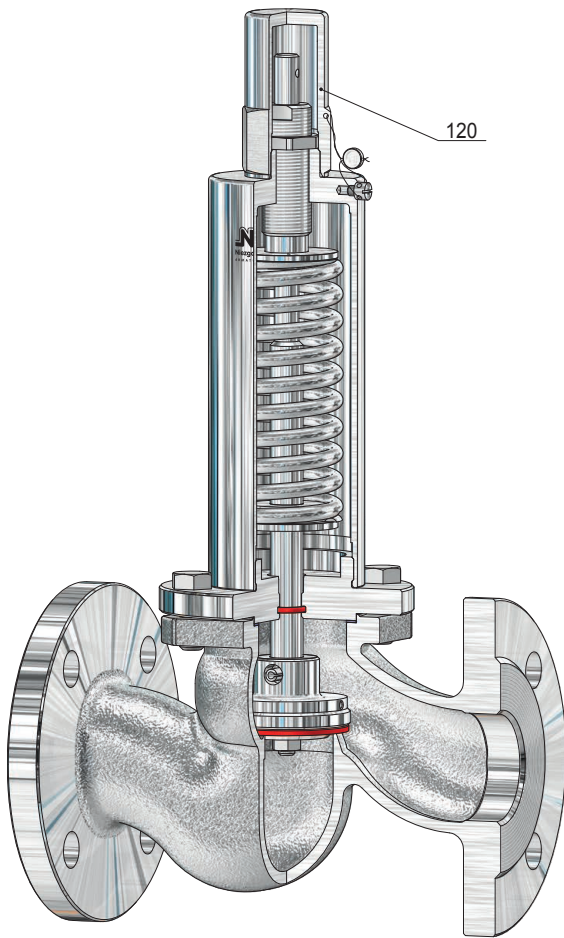
Item	Piece	Description	Item	Piece	Description
001	1	through valve	086	1	lock nut
025	4	screw	089	1	guide plate
026 *	1	packing ring	100 *	1	o-ring
030	1	spring bonnet	107	1	spring pin
060 *	1	disc, complete	112	1	split ring
560	1	disc	120	1	cap
062	1	soft sealing	121	1	lifting cap
065	1	disc bolt	122	1	coupling
071	1	o-ring	125	1	lifting button
072	1	locking ring	131 *	1	o-ring
080	1	spindle	132	1	groove pin
081	1	spring	141	1	bolt
082	1	springplate, upper	142	2	stop washer
084	1	springplate, lower			
085	1	adjusting screw			

* expendable parts

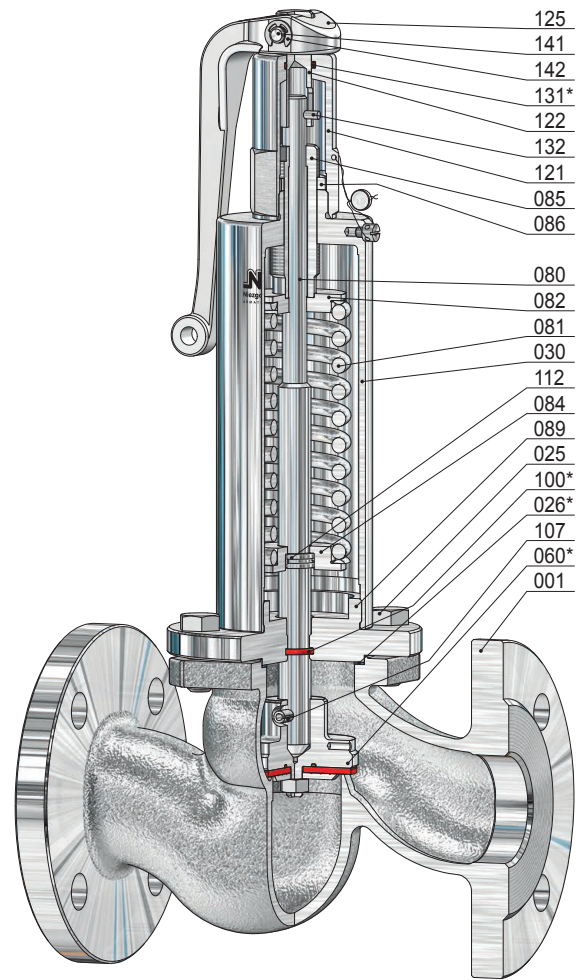
Relief-Valve, springloaded

for steam, gases and liquids

Typ 13



Size III
head C



Size III
head A

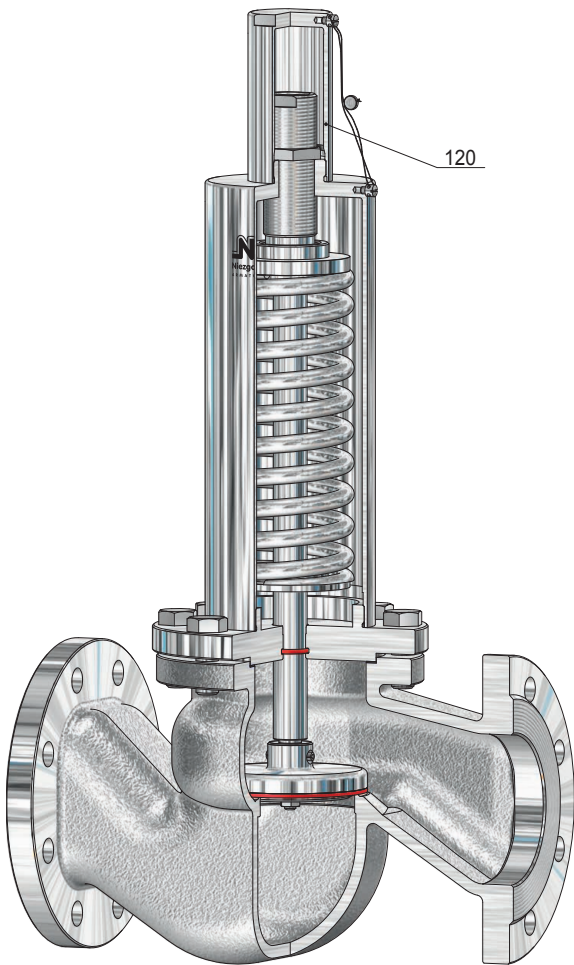
Item	Piece	Description	Item	Piece	Description
001	1	through valve	086	1	lock nut
025	4	screw	089	1	guide plate
026 *	1	packing ring	100 *	1	o-ring
030	1	spring bonnet	107	1	spring pin
060 *	1	disc, complete	112	1	split ring
560	1	disc	120	1	cap
062	1	soft sealing	121	1	lifting cap
065	1	disc bolt	122	1	coupling
071	1	o-ring	125	1	lifting button
072	1	locking ring	131 *	1	o-ring
080	1	spindle	132	1	groove pin
081	1	spring	141	1	bolt
082	1	springplate, upper	142	2	stop washer
084	1	springplate, lower			
085	1	adjusting screw			

* expendable parts

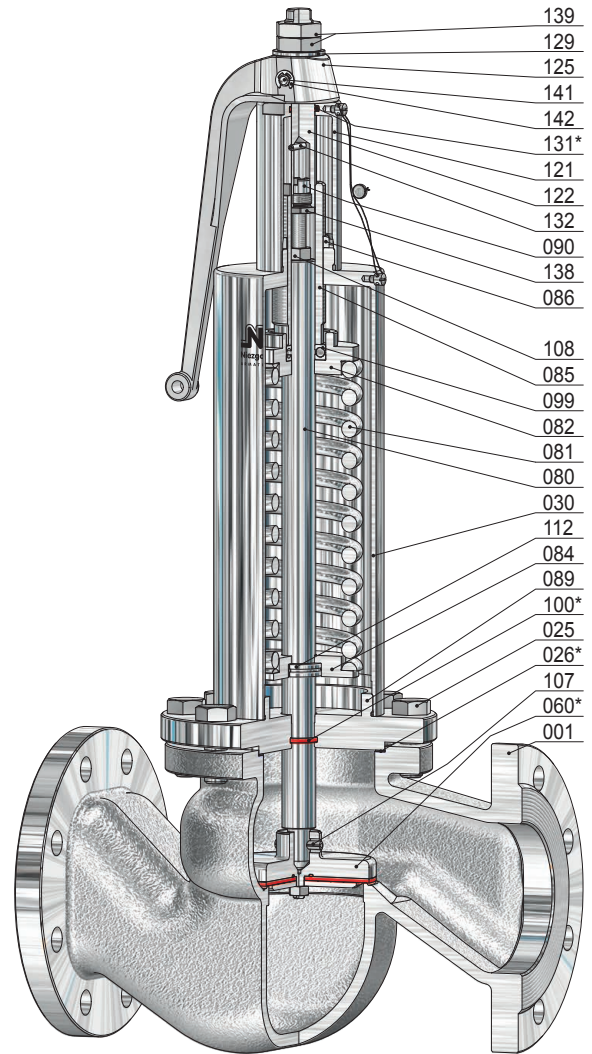
Relief-Valve, springloaded

for steam, gases and liquids

Typ 13



Size IV
head C



Size IV
head A

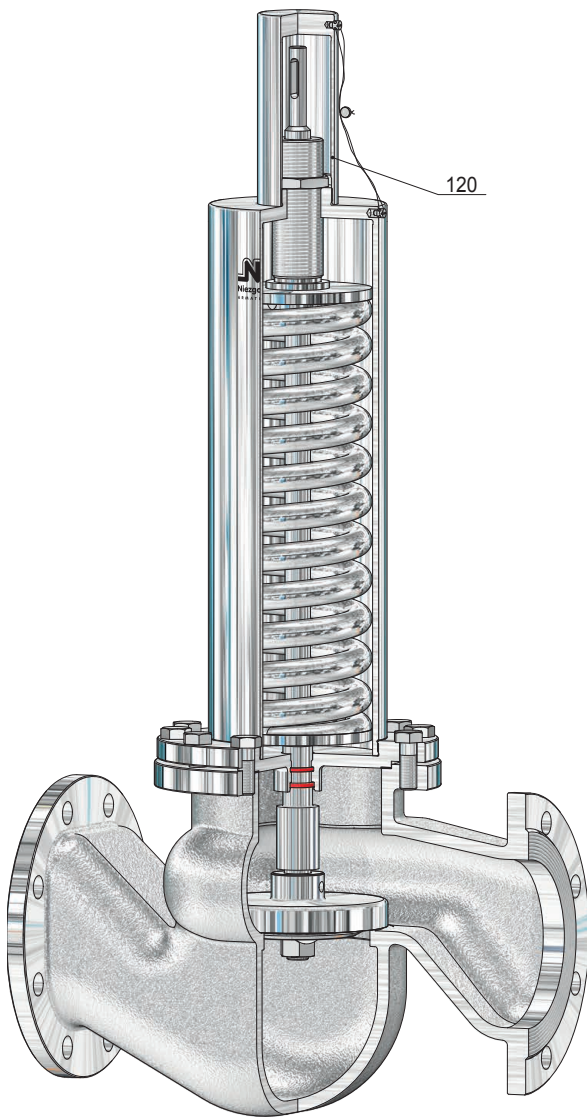
Item	Piece	Description	Item	Piece	Description
001	1	through valve	100 *	1	o-ring
025	8	screw	107	1	spring pin
026 *	1	packing ring	108	1	nut
030	1	spring bonnet	112	1	split ring
060 *	1	disc, complete	120	1	cap
560	1	disc	121	1	lifting cap
062	1	soft sealing	122	1	coupling
065	1	disc bolt	125	1	lifting button
071	1	o-ring	129	1	pressure ring
072	1	locking ring	131 *	1	o-ring
080	1	spindle	132	1	groove pin
081	1	spring	138	1	screw
082	1	springplate, upper	139	2	nut
084	1	springplate, lower	141	1	bolt
085	1	adjusting screw	142	2	stop washer
086	1	lock nut			
089	1	guide plate			
090	1	screw			
099	1	antifriction bearing			

* expendable parts

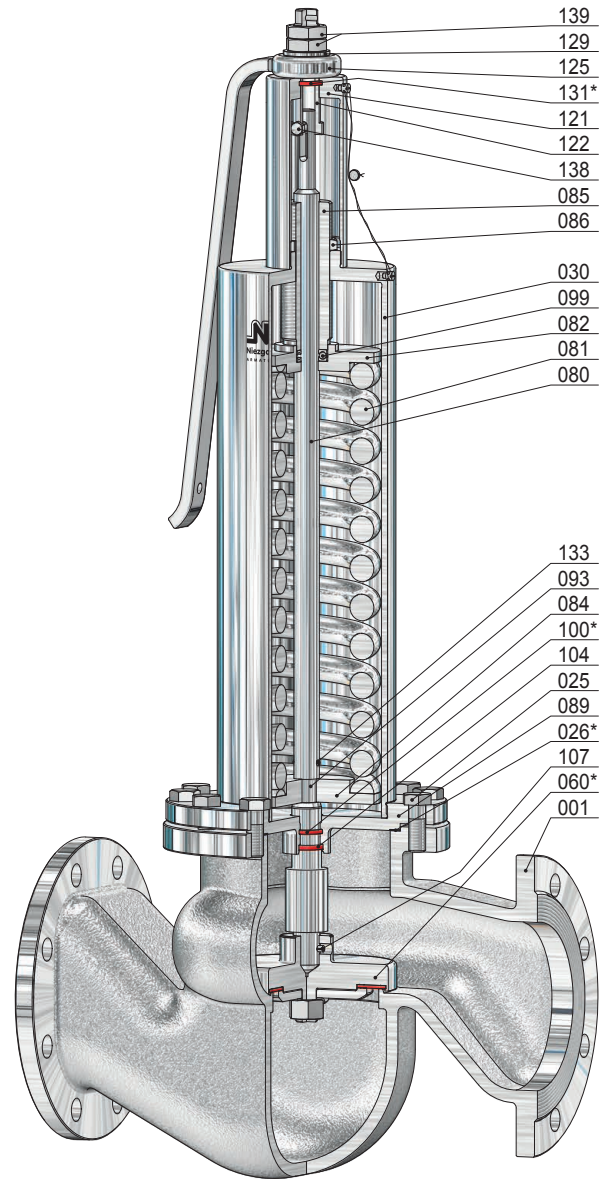
Relief-Valve, springloaded

for steam, gases and liquids

Typ 13



Size V
head C



Size V
head A

Item	Piece	Description	Item	Piece	Description
001	1	through valve	093	1	joining piece
025	12	screw	099	1	antifriction bearing
026 *	1	packing ring	100 *	1	o-ring
030	1	spring bonnet	104	1	turcon ring
060 *	1	disc, complete	107	1	spring pin
560	1	disc	120	1	cap
062	1	soft sealing	121	1	lifting cap
065	1	disc bolt	122	1	coupling
072	1	locking ring	125	1	lifting button
605	1	locking plate	129	1	pressure ring
080	1	spindle	131 *	1	o-ring
081	1	spring	133	1	groove pin
082	1	springplate, upper	138	1	screw
084	1	springplate, lower	139	2	nut
085	1	adjusting screw			
086	1	lock nut			
089	1	guide plate			

* expendable parts

Relief-Valve, springloaded

for steam, gases and liquids

Typ 22

Standard version:

Material: Inlet body / Spring bonnet metal seated
Typ 22.2: 1.4571 / 1.4581 -60°C to 280°C

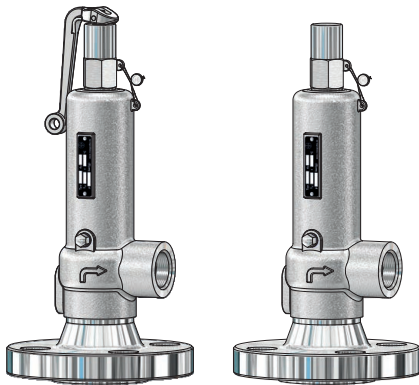
Temperature ranges

Connections:

Flange connections: DIN EN / ASME B16.5

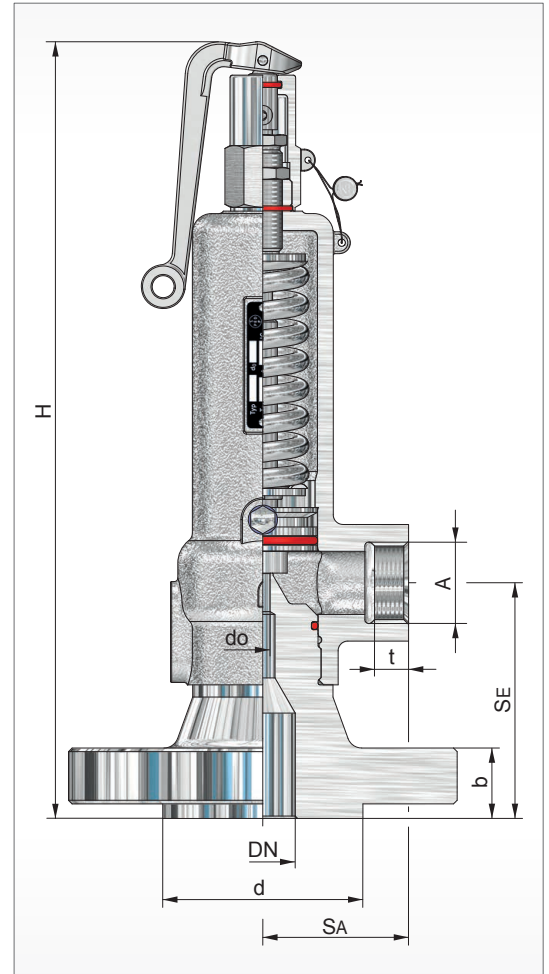
Approvals:

Pressure Equipment Directive: 2014/68/EU
 Declaration of Conformity



Size II head A

Size II head C



Size	Inlet					Outlet				Dimensions		Height 'H' for head		Coefficient		Set pressure		Weight	
	DN	NPS	b [mm]	d [mm]	SE [mm]	A	SA [mm]	t (G) [mm]	t (NPT) [mm]	SW [mm]	do [mm]	A [mm]	C [mm]	D/G	F	p min. [bar(g)]	p max. [bar(g)]		
			[mm]											αw max.	αw				
II	flangedimension are variable					1	60	18	19		12,5	327	314				80	250	8,9
											8						100	600	8,8
											6						100	1100	8,8

other design on request

Relief-Valve, springloaded

for steam, gases and liquids

Typ 22

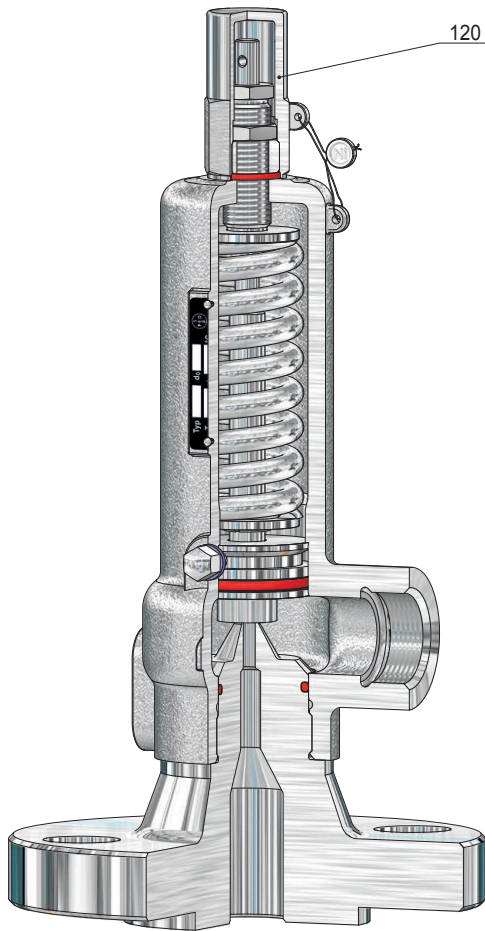
Discharge capacities

Size									
do [mm]	6			8			12,5		
Fluid	Water 20°C [kg/h]	Steam [kg/h]	Air 0°C [m ³ /h]	Water 20°C [kg/h]	Steam [kg/h]	Air 0°C [m ³ /h]	Water 20°C [kg/h]	Steam [kg/h]	Air 0°C [m ³ /h]
Pe [bar(g)]									
100	1400	240	280	2500	440	500	6200	1000	1200
120	1600	300	330	2800	540	600	6800	1300	1400
140	1700	360	390	3000	650	700	7400	1600	1700
160	1800	430	440	3200	770	800	7900	1900	1900
180	1900	510	500	3400	910	890	8300	2200	2200
200	2000	610	560	3600	1100	990	8800	2600	2400
230	2200		640	3900		1100	9400		2800
260	2300		720	4100		1300			
290	2400		810	4300		1400			
320	2500		890	4500		1600			
360	2700		1000	4800		1800			
400	2900		1100	5100		2000			
440	3000		1200	5300		2200			
480	3100		1300	5600		2400			
520	3300		1400	5800		2600			
560	3400		1500	6000		2800			
600	3500		1700	6200		3000			
650	3600		1800						
700	3800		1900						
750	3900		2100						
800	4000		2200						
850	4200		2300						
900	4300		2500						
950	4400		2600						
1000	4500		2800						
1050	4600		2900						
1100	4700		3000						

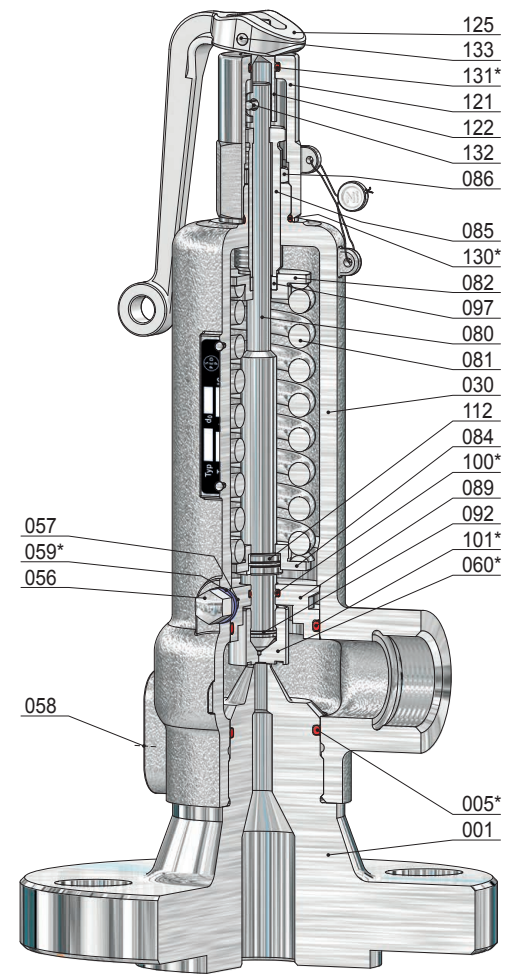
Relief-Valve, springloaded

for steam, gases and liquids

Typ 22



Size II
head C



Size II
head A

Item	Piece	Description	Item	Piece	Description
001	1	inlet body	097	1	glide ring
005 *	1	o-ring	100 *	1	o-ring
030	1	spring bonnet	101 *	1	o-ring
056	2	lock nut	112	1	split ring
057	2	screwed pin	120	1	cap
058	1	screwed pin	121	1	lifting cap
059 *	2	packing ring	122	1	coupling
060 *	1	disc, complete (Stellited)	125	1	lifting button
080	1	spindle	130 *	1	o-ring
081	1	spring	131 *	1	o-ring
082	1	springplate, upper	132	1	groove pin
084	1	springplate, lower	133	1	groove pin
085	1	adjusting screw			
086	1	lock nut			
089	1	guide plate			
092	1	lock ring			

* expendable parts

Safety-Valve, springloaded

for liquids

Typ 22

Standard version:

Material: Inlet body / Spring bonnet metal seated
Typ 22.2: 1.4571 / 1.4581 -60°C to 280°C

Temperature ranges

Connections:

Flange connections: DIN EN / ASME B16.5

Approvals:

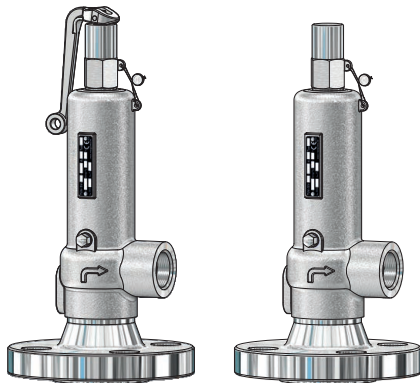
Pressure Equipment Directive: 2014/68/EU
 Declaration of Conformity



TÜV - Approval:

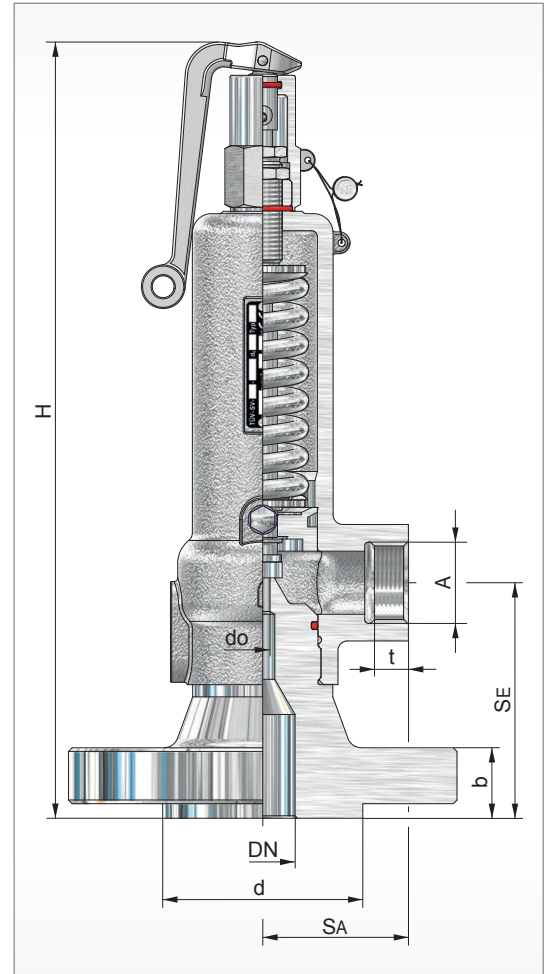
VdTÜV-leaflet, AD 2000-leaflet A 2

TÜV • SV • XX-1036 • do • F • aw • p



Size II
head A

Size II
head C



Size	Inlet					Outlet				Dimensions		Height 'H' for head		Coefficient		Set pressure		Weight ~ [kg]
	DN	NPS	b [mm]	d [mm]	SE [mm]	A	SA [mm]	t (G) [mm]	t (NPT) [mm]	SW [mm]	do [mm]	A [mm]	C [mm]	D/G αw max.	F αw	p min. [bar(g)]	p max. [bar(g)]	
II	25		-	-	115	1	60	18	19		12,5	327	314	-	0,14	250	250	8,8

other design on request

Safety-Valve, springloaded

for liquids

Typ 22

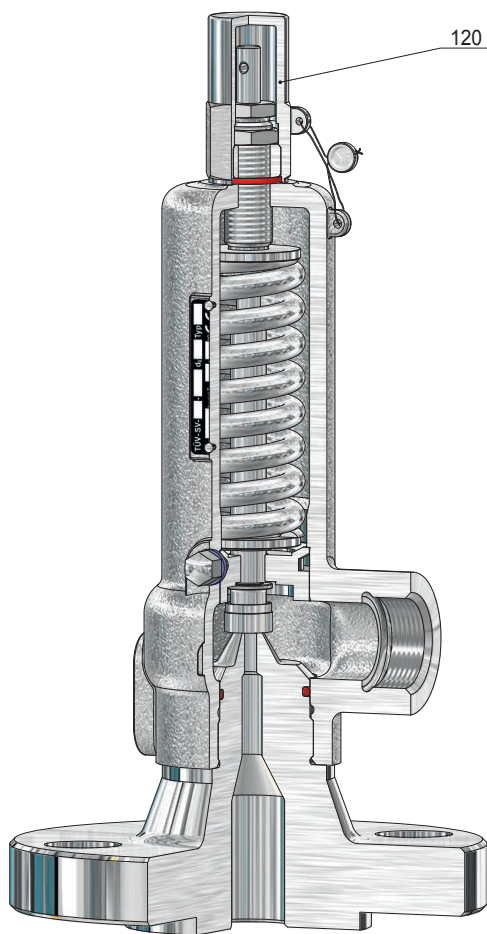
Discharge capacities

Size			
do [mm]	12,5		
Fluid		Water 20°C [kg/h]	
Coefficient of discharge		Q _w max. 0,14	
p _e [bar(g)]			
250		14490	

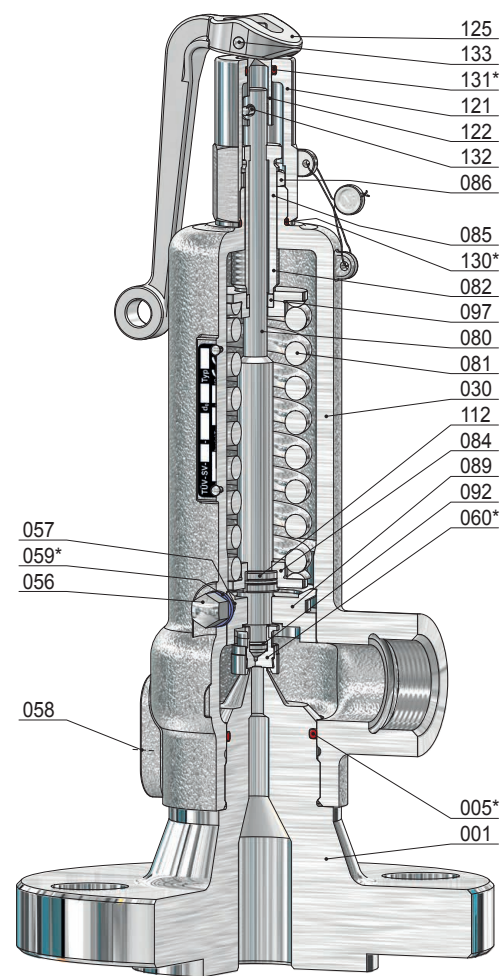
Safety-Valve, springloaded

for liquids

Typ 22



Size II
head C



Size II
head A

Item	Piece	Description	Item	Piece	Description
001	1	inlet body	086	1	lock nut
005 *	1	o-ring	089	1	guide plate
030	1	spring bonnet	092	1	lock ring
056	2	lock nut	097	1	glide ring
057	2	screwed pin	112	1	split ring
058	1	screwed pin	120	1	cap
059 *	2	packing ring	121	1	lifting cap
060 *	1	disc, complete (Stellited)	122	1	coupling
063	1	disc	125	1	lifting button
063	1	disc ring	130 *	1	o-ring
080	1	spindle	131 *	1	o-ring
081	1	spring	132	1	groove pin
082	1	springplate, upper	133	1	groove pin
084	1	springplate, lower			
085	1	adjusting screw			

* expendable parts

Relief-Valve, springloaded

for liquids

Typ 24

Standard version:

Temperature ranges

Material: Inlet body / Spring bonnet
Typ 24.2: 1.4308, 1.4571 / 1.4581

metal seated
 0°C to 100°C

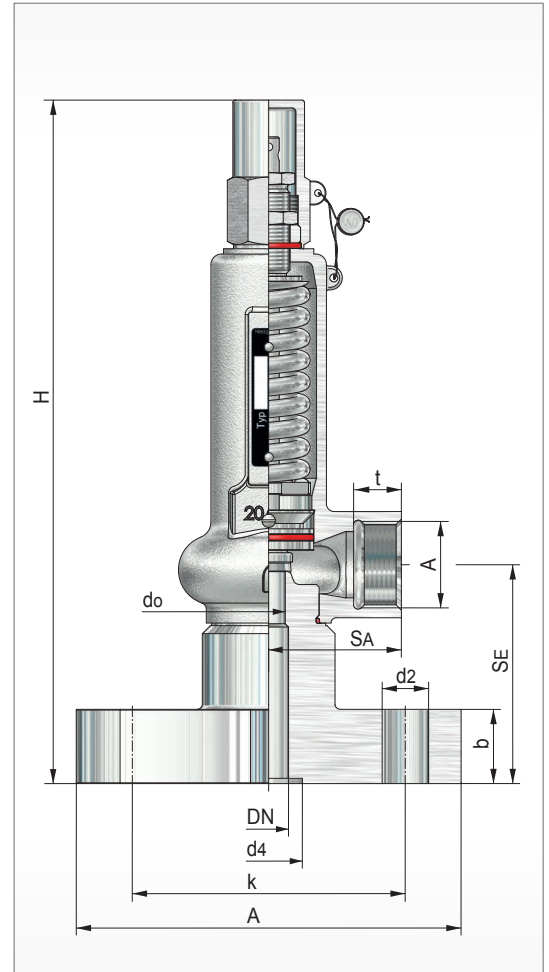
Connections:
 Oval flange

Approvals:

Pressure Equipment Directive: 2014/68/EU
 Declaration of Conformity



Size II
 head A



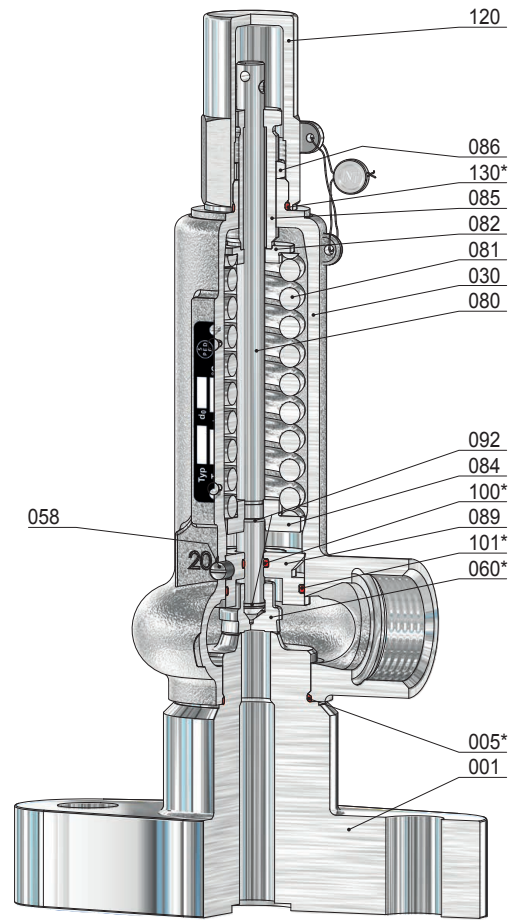
Size	Inlet							Outlet				Dimensions	Height 'H' for head		Set pressure		Weight
	DN	SE	d2	d4	b	A	k	A	SA	t (G)	t (NPT)		do	C	p min.	p max.	
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]		[mm]	[mm]	[mm]	[mm]	[mm]	[bar(g)]	[bar(g)]		
II	15	82,5	17,5	25,4	28	145	103	1	50	18	17	6	258	280	1000	3,6	
												8		260	680		
												10		160	410		
												12,5		70	240		
												16		35	115		

other design on request

Relief-Valve, springloaded

for liquids

Typ 24



Size II
head C

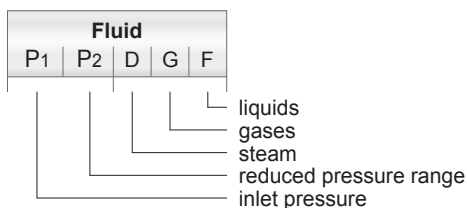
Item	Piece	Description	Item	Piece	Description
001	1	inlet body	084	1	springplate, lower
005 *	1	o-ring	085	1	adjusting screw
030	1	spring bonnet	086	1	lock nut
058	2	screwed pin	089	1	guide plate
060 *	1	disc, complete	092	2	lock ring
060	1	disc	100 *	1	o-ring
062	1	soft sealing	101 *	1	o-ring
063	1	disc ring	120	1	cap
080	1	spindle	130 *	1	o-ring
081	1	spring			
082	1	springplate, upper			

* expendable parts



Index

Type	Use	Fluid	Material	Inlet DN [mm]	P1 max. [bar(g)]	P2 min. [bar(g)] max.
70	Pressure Reducing Valve, springloaded, piston-controlled, for steam, gases and liquids	D/G/F	stainless steel	6 - 65 1/8 - 2 1/2	100	0,25 / 73,00
71	Pressure Reducing Valve, springloaded, piston-controlled, for steam, gases and liquids	D/G/F	stainless steel	10 - 100 1/2 - 4	100	0,20 / 73,00
74	Pressure Reducing Valve, springloaded, diaphragm-controlled, for steam, gases and liquids	D/G/F	stainless steel	8 - 65 1/4 - 2 1/2	25	0,005 / 0,45
75	Pressure Reducing Valve, springloaded, diaphragm-controlled, for steam, gases and liquids	D/G/F	stainless steel	10 - 100 1/2 - 4	25	0,005 / 0,45
76	Pressure Reducing Valve, springloaded, piston-controlled, for steam, gases and liquids	D/G/F	stainless steel	15 1/2	600	15 / 232



Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 70

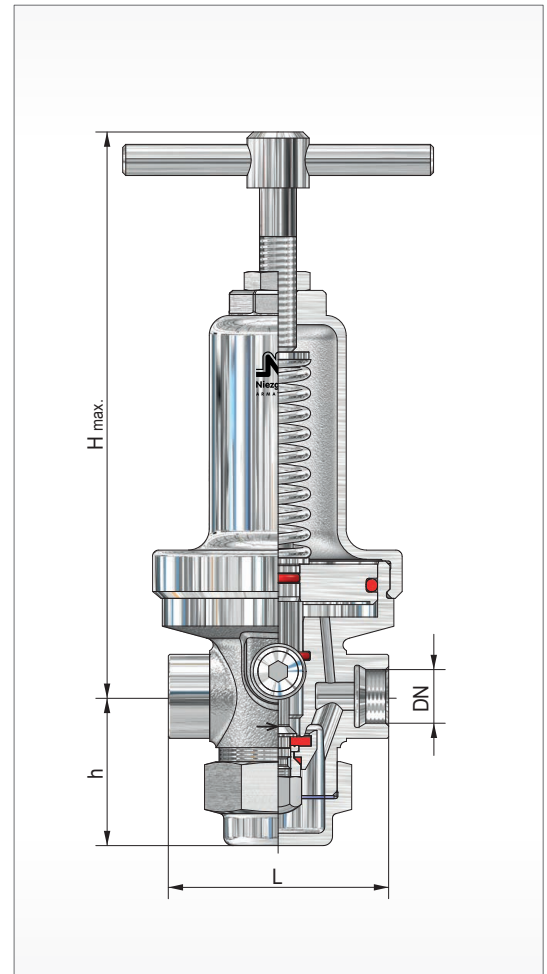
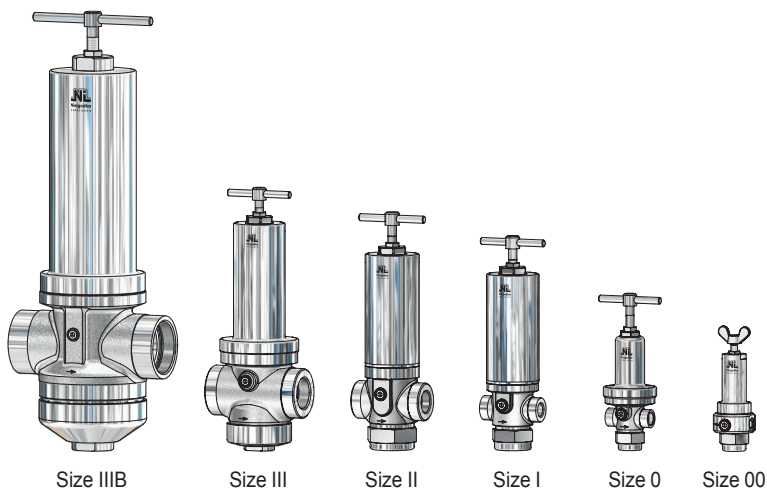
Standard version:

Material: Valve-body / media contact surfaces
Typ 70.2: BG 00 1.4571 / 1.4571
 BG 0 - II 1.4301, 1.4571 / 1.4571
 BG III - IIIB 1.4571 / 1.4571

Connections: Screwed connection: DIN ISO 228 / ASME B1.20.1
Sealings: FPM, EPDM
 PTFE, EPDM (steam up to 150°C)
 PTFE, AF100, EPDM (steam up to 200°C)

Approvals:

Pressure Equipment Directive: 2014/68/EU
 Declaration of Conformity



Size	Inlet			Outlet			Dimensions				Kvs value [m³/h]	
	DN	G, NPT	Inlet pressure range P1 [bar(g)] max.	DN	G, NPT	Reduced pressure range P2 min. [bar(g)] max.	Height 'H' max.					
							Toggle spindle [mm]	Cap [mm]	L [mm]		h [mm]	
00 ¹⁾	6	1/8	16	6	1/8	1,00 / 7,00	160	-	58		36	0,63
	8	1/4		8	1/4							
0	8	1/4	63	8	1/4	0,35 / 17,00	205	180	70		48	1,2
	10	3/8		10	3/8							2,0
	15	1/2		15	1/2							2,2
I	15	1/2	100	15	1/2	0,35 / 73,00	275	255	90		58	3,0
	20	3/4		20	3/4							3,2
	25*	1*		25*	1*							3,5
II	25	1	63	25	1	0,25 / 23,00	305	265	105		68	6,3
	32	1 1/4		32	1 1/4							6,5
	40*	1 1/2*		40*	1 1/2*							6,7
III	40	1 1/2	63	40	1 1/2	0,25 / 17,00	325	305	145		85	12,5
	50	2		50	2							13,0
	65*	2 1/2*		65*	2 1/2*							13,5
IIIB	50	2	40	50	2	0,25 / 12,00	545	495	220		145	27,5
	65	2 1/2		65	2 1/2							28,0

other design on request

* special size

1) not for water steam applicable

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 70

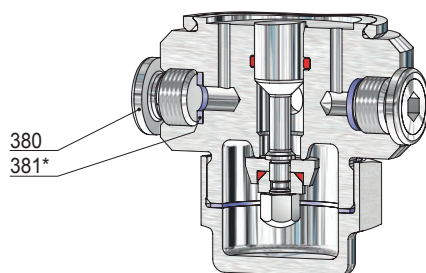
Spring ranges for reduced pressure P2

Piston plate [mm]	Ø 119	Ø 99	Ø 84	Ø 64	Ø 48	Ø 38	Ø 27
Size	Spring no.	[bar(g)]					
00	635					1,00 - 2,00	
	637					2,10 - 3,00	
	640					3,10 - 4,00	
	641					4,10 - 5,00	
	643					5,10 - 6,00	
	645					6,10 - 7,00	
0	98			0,35 - 0,50			
	99			0,60 - 0,80			
	100			0,90 - 1,20			
	101			1,30 - 1,80	2,40 - 3,00	4,10 - 5,00	6,60 - 10,00
	102			1,90 - 2,30	3,10 - 4,00	5,10 - 6,50	10,10 - 12,00
	103						12,10 - 17,00
I	303			0,35 - 0,69			
	304			0,70 - 1,20			
	305			1,30 - 2,00			
	306			2,10 - 3,00	4,60 - 5,00	8,10 - 8,50	12,10 - 17,00
	307			3,10 - 4,50	5,10 - 8,00	8,60 - 12,00	17,10 - 25,00
	308						25,10 - 30,00
	309						30,10 - 38,00
	310						38,10 - 53,00
311						53,10 - 73,00	
II	303			0,25 - 0,35			
	304			0,36 - 0,65			
	305			0,66 - 1,00			
	306			1,10 - 1,50	2,10 - 2,80	4,10 - 5,00	7,10 - 8,00
	307			1,60 - 2,00	2,90 - 4,00	5,10 - 7,00	8,10 - 11,00
	308						11,10 - 14,00
	309						14,10 - 17,00
310						17,10 - 23,00	
III	323		0,25 - 0,35				
	324		0,36 - 0,60				
	325		0,61 - 1,00	1,10 - 1,40			
	326			1,50 - 2,00	2,60 - 3,50	4,10 - 6,50	
	327			2,10 - 2,50	3,60 - 4,00	6,60 - 7,50	
	328					7,60 - 8,50	
	329					8,60 - 12,00	
	330					12,10 - 17,00	
IIIB	353	0,25 - 0,45					
	354	0,46 - 0,75					
	355	0,76 - 1,00					
	356	1,10 - 1,60	1,70 - 2,40				
	357		2,50 - 4,00	4,10 - 5,50			
	358			5,60 - 7,50			
	359			7,60 - 9,00			
	360			9,10 - 12,00			

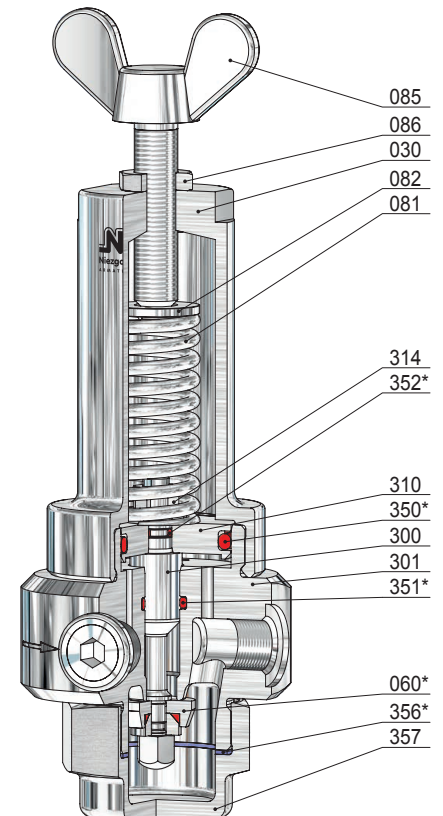
Pressure-Reducing-Valve, springloaded

for gases and liquids

Typ 70



Manometer connection G $\frac{1}{4}$



Size 00

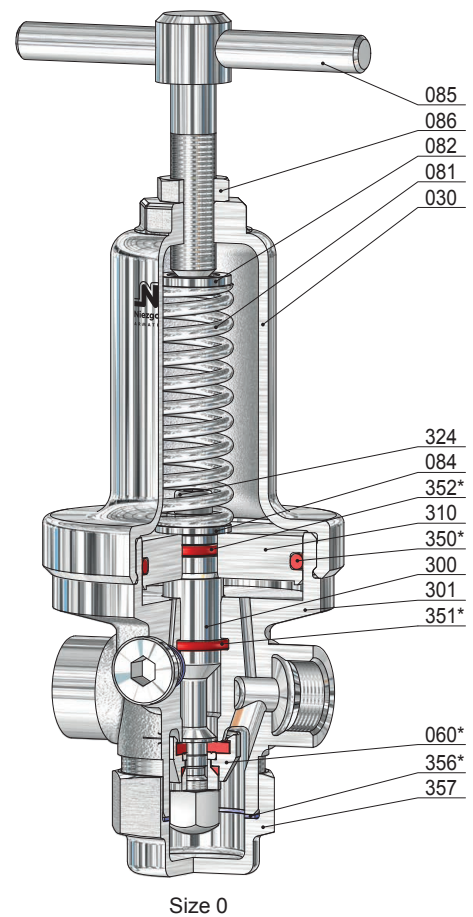
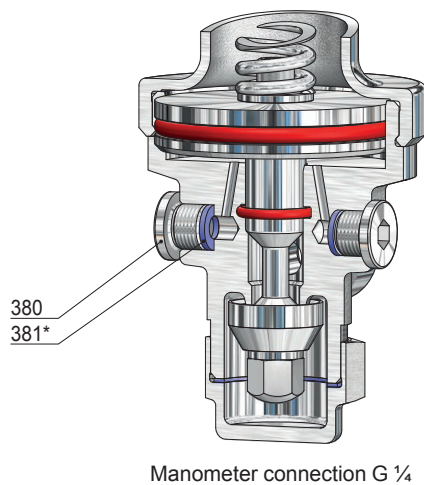
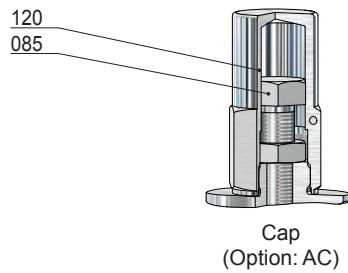
Item	Piece	Description	Item	Piece	Description
301	1	valve body	350 *	1	o-ring
030	1	spring bonnet	351 *	1	o-ring
060 *	1	disc, complete	352 *	1	o-ring
560	1	disc	356 *	1	sealing ring
061	1	pressure piece	357	1	bottom plug
065	1	disc bolt	380	2	screw plug
071	1	o-ring	381 *	2	sealing ring
081	1	spring			
082	1	springplate, upper			
085	1	adjusting screw			
086	1	lock nut			
300	1	piston			
310	1	piston plate			
314	1	lock nut			

* expendable parts

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 70



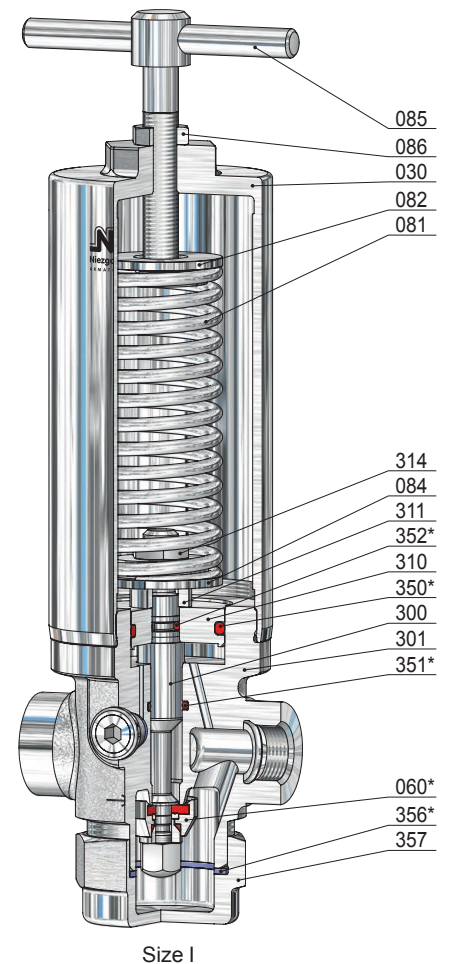
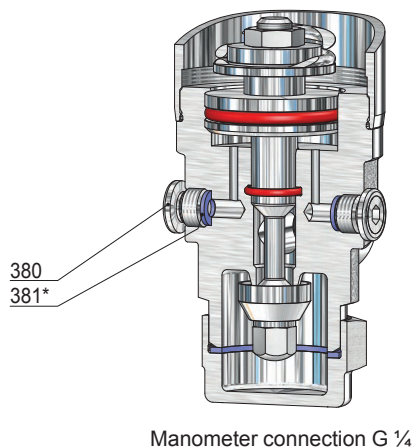
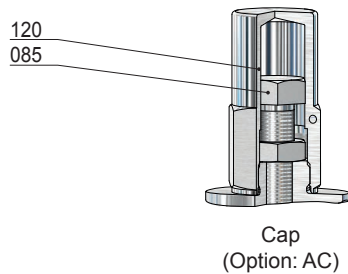
Item	Piece	Description	Item	Piece	Description
301	1	valve body	086	1	lock nut
030	1	spring bonnet	120	1	cap
060 *	1	disc, complete	300	1	piston
560	1	disc	310	1	piston plate
061	1	pressure piece	324	1	screw
062	1	soft sealing	350 *	1	o-ring
065	1	disc bolt	351 *	1	o-ring
071	1	o-ring	352 *	1	o-ring
072	1	locking ring	356 *	1	sealing ring
073	1	o-ring <i>(only for thermoplastics soft sealing)</i>	357	1	bottom plug
081	1	spring	380	2	screw plug
082	1	springplate, upper	381 *	2	sealing ring
084	1	springplate, lower			
085	1	adjusting screw			

* expendable parts

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 70



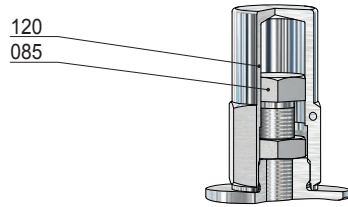
Item	Piece	Description	Item	Piece	Description
301	1	valve body	086	1	lock nut
030	1	spring bonnet	120	1	cap
060 *	1	disc, complete	300	1	piston
560	1	disc	310	1	piston plate
061	1	pressure piece	311	1	distance bush
062	1	soft sealing	314	1	lock nut
065	1	disc bolt	350 *	1	o-ring
071	1	o-ring	351 *	1	o-ring
072	1	locking ring	352 *	1	o-ring
073	1	o-ring (only for thermoplastics soft sealing)	356 *	1	sealing ring
081	1	spring	357	1	bottom plug
082	1	springplate, upper	380	2	screw plug
084	1	springplate, lower	381 *	2	sealing ring
085	1	adjusting screw			

* expendable parts

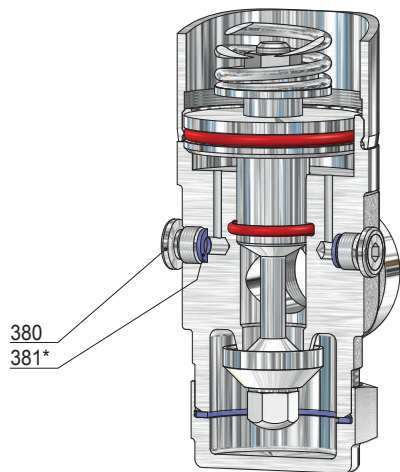
Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

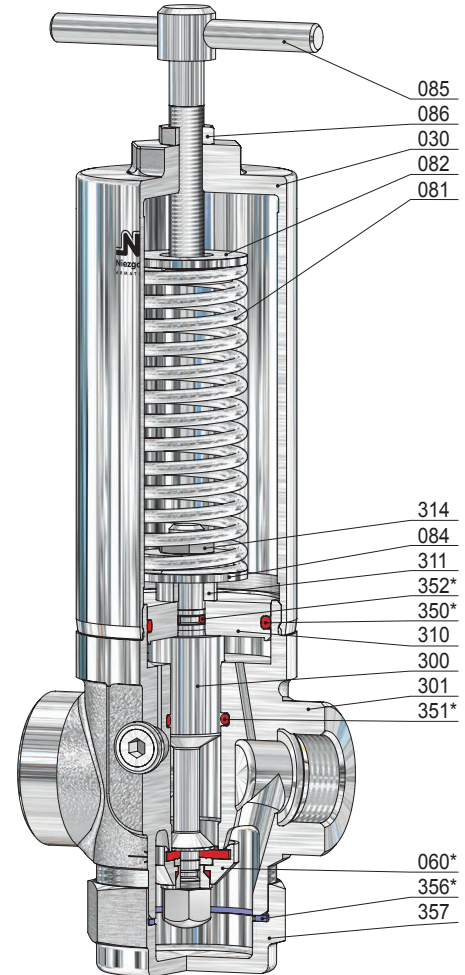
Typ 70



Cap
(Option: AC)



Manometer connection G ¼



Size II

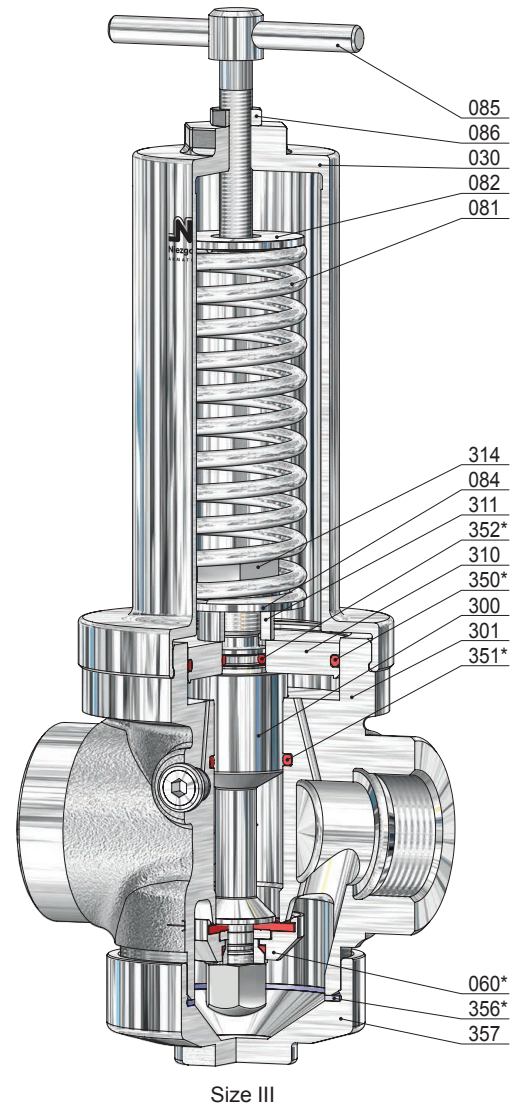
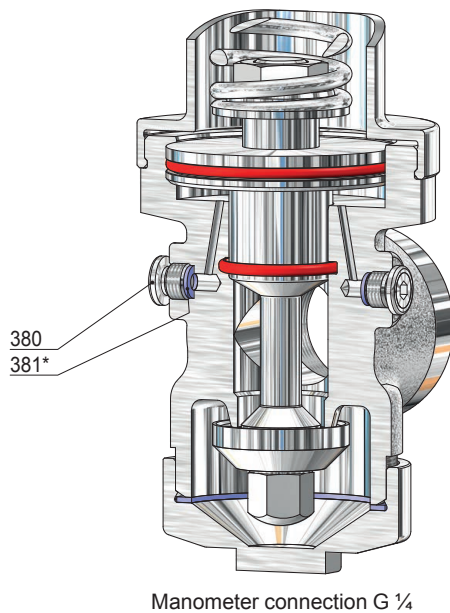
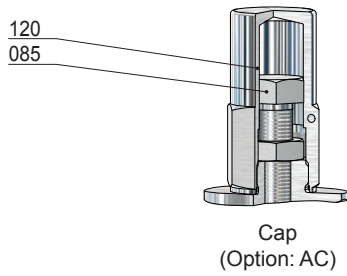
Item	Piece	Description	Item	Piece	Description
301	1	valve body	086	1	lock nut
030	1	spring bonnet	120	1	cap
060 *	1	disc, complete	300	1	piston
560	1	disc	310	1	piston plate
061	1	pressure piece	311	1	distance bush
062	1	soft sealing	314	1	lock nut
065	1	disc bolt	350 *	1	o-ring
071	1	o-ring	351 *	1	o-ring
072	1	locking ring	352 *	1	o-ring
073	1	o-ring <i>(only for thermoplastics soft sealing)</i>	356 *	1	sealing ring
081	1	spring	357	1	bottom plug
082	1	springplate, upper	380	2	screw plug
084	1	springplate, lower	381 *	2	sealing ring
085	1	adjusting screw			

* expendable parts

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 70



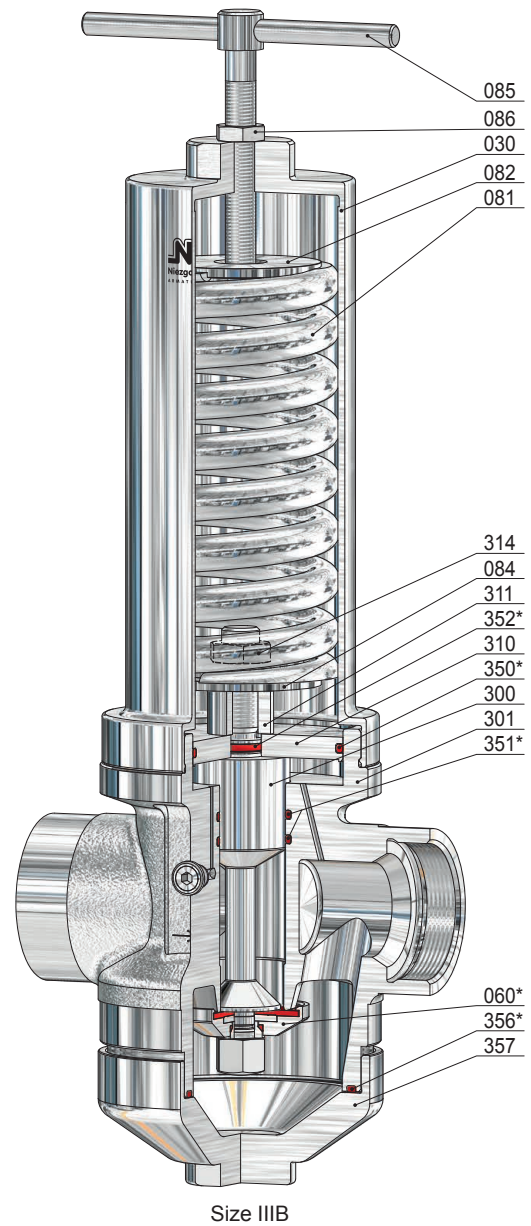
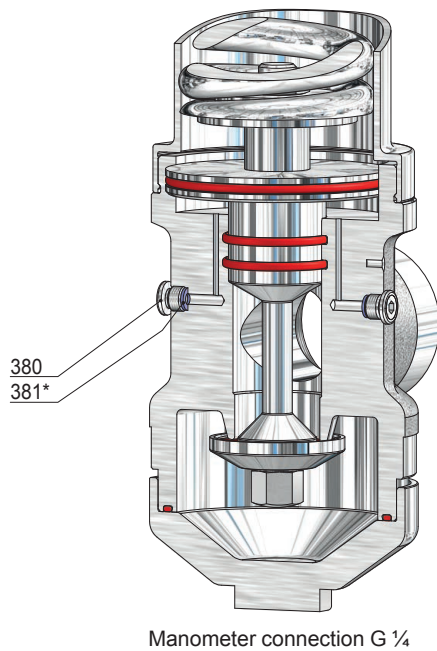
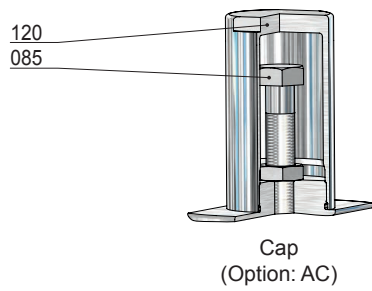
Item	Piece	Description	Item	Piece	Description
301	1	valve body	086	1	lock nut
030	1	spring bonnet	120	1	cap
060 *	1	disc, complete	300	1	piston
560	1	disc	310	1	piston plate
061	1	pressure piece	311	1	distance bush
062	1	soft sealing	314	1	lock nut
065	1	disc bolt	350 *	1	o-ring
071	1	o-ring	351 *	1	o-ring
072	1	locking ring	352 *	1	o-ring
073	1	o-ring (only for thermoplastics soft sealing)	356 *	1	sealing ring
081	1	spring	357	1	bottom plug
082	1	springplate, upper	380	2	screw plug
084	1	springplate, lower	381 *	2	sealing ring
085	1	adjusting screw			

* expendable parts

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 70



Item	Piece	Description	Item	Piece	Description
301	1	valve body	086	1	lock nut
030	1	spring bonnet	120	1	cap
060 *	1	disc, complete	300	1	piston
560	1	disc	310	1	piston plate
061	1	pressure piece	311	1	distance bush
062	1	soft sealing	314	1	lock nut
065	1	disc bolt	350 *	1	o-ring
071	1	o-ring	351 *	2	o-ring
072	1	locking ring	352 *	1	o-ring
073	1	o-ring (only for thermoplastics soft sealing)	356 *	1	sealing ring
081	1	spring	357	1	bottom plug
082	1	springplate, upper	380	2	screw plug
084	1	springplate, lower	381 *	2	sealing ring
085	1	adjusting screw			

* expendable parts

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 71

Standard version:

Material: Valve-body / media contact surfaces

Typ 71.2: BG 0 - II 1.4301, 1.4571 / 1.4571
 BG III - IV 1.4571 / 1.4571

Connections:

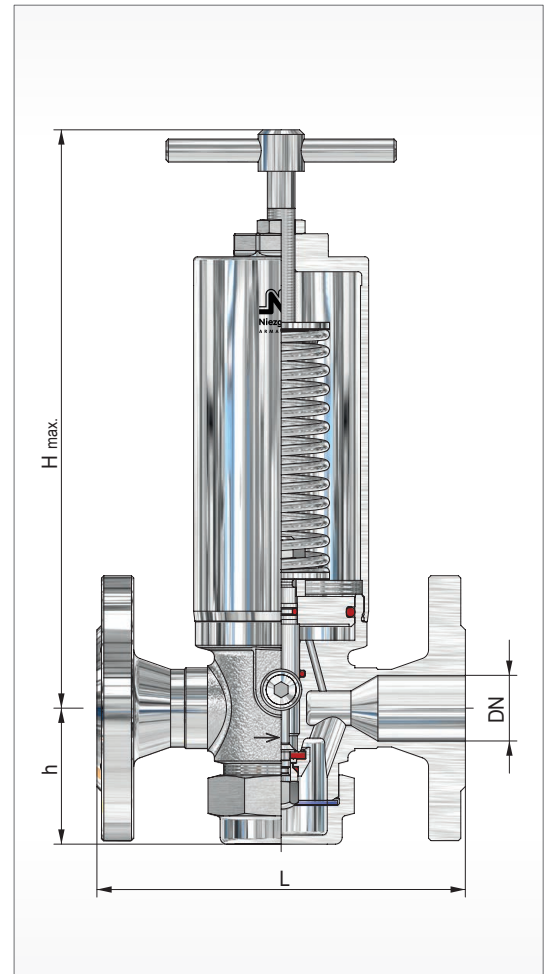
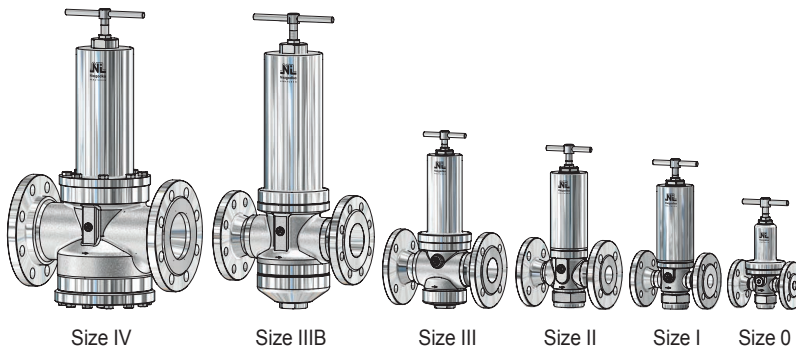
Flange connections: DIN EN / ASME B16.5

Sealings:

FPM, EPDM
 PTFE, EPDM (steam up to 150°C)
 PTFE, AF100, EPDM (steam up to 200°C)

Approvals:

Pressure Equipment Directive: 2014/68/EU
 Declaration of Conformity



Size	Inlet			Outlet			Dimensions				Kvs value [m³/h]	
	DN	NPS	Inlet pressure range P1 [bar(g)] max.	DN	NPS	Reduced pressure range P2 min. [bar(g)] max.	Height 'H' max.					
							Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]		
0	10	-	63	10	-	0,35 / 17,00	205	180	130	48	2,0	
	15	1/2		15	1/2							2,2
I	15	1/2	63	15	1/2	0,35 / 73,00	275	255	130	58	3,0	
	20	3/4		20	3/4							3,2
	25*	1*		25*	1*							3,5
II	25	1	63	25	1	0,25 / 23,00	305	265	160	68	6,3	
	32	1 1/4		32	1 1/4							6,5
	40*	1 1/2*		40*	1 1/2*							6,7
III	40	1 1/2	40	40	1 1/2	0,25 / 17,00	325	305	200	85	12,5	
	50	2		50	2							13,0
	65*	2 1/2*		65*	2 1/2*							13,5
IIIB	50	2	40	50	2	0,25 / 12,00	545	495	300	145	27,5	
	65	2 1/2		65	2 1/2							28,0
	80	3		80	3							28,5
IV	65	2 1/2	40	65	2 1/2	0,20 / 12,00	550	505	290	157	48,0	
	80	3		80	3							50,0
	100	4		100	4							53,0

other design on request

* special size

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 71

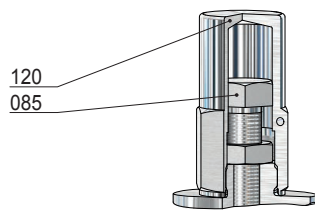
Spring ranges for reduced pressure P2

Piston plate [mm]	Ø 139	Ø 119	Ø 99	Ø 84	Ø 64	Ø 48	Ø 38	Ø 27
Size	Spring no.	[bar(g)]						
0	98				0,35 - 0,50			
	99				0,60 - 0,80			
	100				0,90 - 1,20			
	101				1,30 - 1,80	2,40 - 3,00	4,10 - 5,00	6,60 - 10,00
	102				1,90 - 2,30	3,10 - 4,00	5,10 - 6,50	10,10 - 12,00
	103							12,10 - 17,00
I	303				0,35 - 0,69			
	304				0,70 - 1,20			
	305				1,30 - 2,00			
	306				2,10 - 3,00	4,60 - 5,00	8,10 - 8,50	12,10 - 17,00
	307				3,10 - 4,50	5,10 - 8,00	8,60 - 12,00	17,10 - 25,00
	308							25,10 - 30,00
	309							30,10 - 38,00
	310							38,10 - 53,00
	311							53,10 - 73,00
	II	303			0,25 - 0,35			
304				0,36 - 0,65				
305				0,66 - 1,00				
306				1,10 - 1,50	2,10 - 2,80	4,10 - 5,00	7,10 - 8,00	
307				1,60 - 2,00	2,90 - 4,00	5,10 - 7,00	8,10 - 11,00	
308							11,10 - 14,00	
309							14,10 - 17,00	
310						17,10 - 23,00		
III	323		0,25 - 0,35					
	324		0,36 - 0,60					
	325		0,61 - 1,00	1,10 - 1,40				
	326			1,50 - 2,00	2,60 - 3,50	4,10 - 6,50		
	327			2,10 - 2,50	3,60 - 4,00	6,60 - 7,50		
	328					7,60 - 8,50		
	329					8,60 - 12,00		
	330					12,10 - 17,00		
IIIB	353	0,25 - 0,45						
	354	0,46 - 0,75						
	355	0,76 - 1,00						
	356	1,10 - 1,60	1,70 - 2,40					
	357		2,50 - 4,00	4,10 - 5,50				
	358			5,60 - 7,50				
	359			7,60 - 9,00				
360			9,10 - 12,00					
IV	353	0,20 - 0,34						
	354	0,35 - 0,55						
	355	0,56 - 0,80						
	356	0,90 - 1,20	2,10 - 2,40					
	357	1,30 - 2,00	2,50 - 4,00	4,10 - 5,50				
	358			5,60 - 7,50				
	359			7,60 - 9,00				
360			9,10 - 12,00					

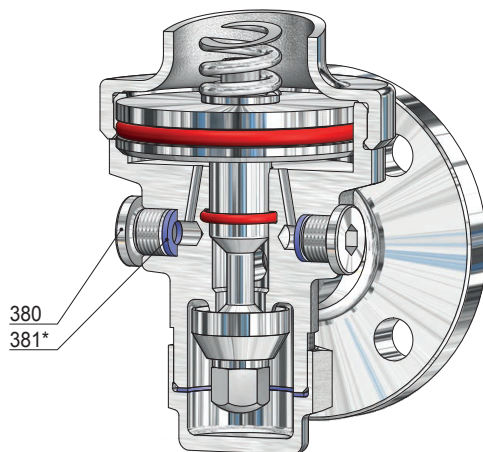
Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

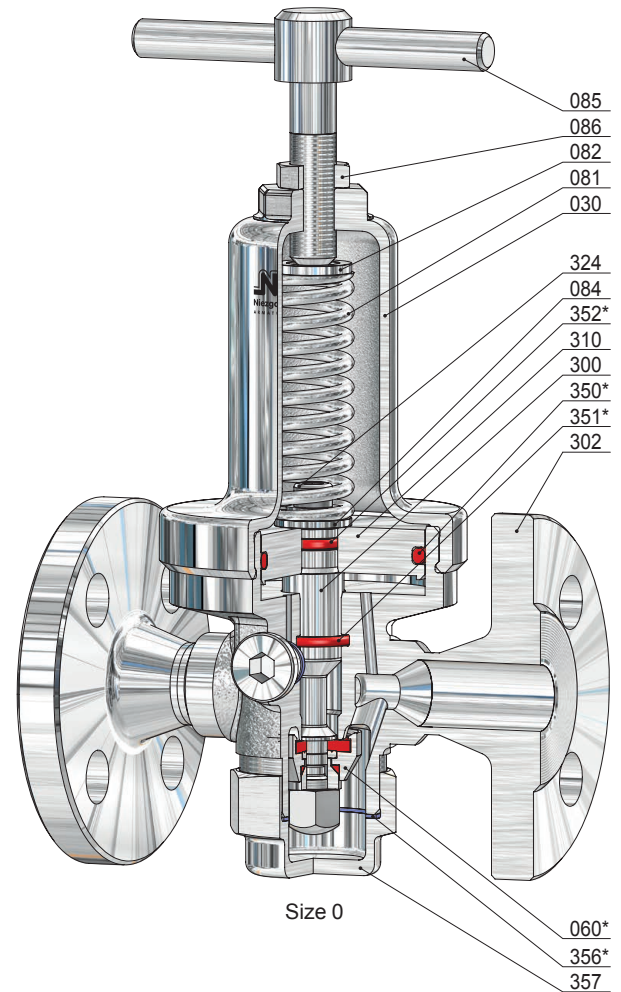
Typ 71



Cap
(Option: AC)



Manometer connection G 1/4



Size 0

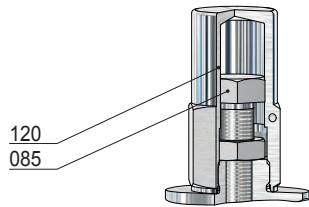
Item	Piece	Description	Item	Piece	Description
302	1	valve body	086	1	lock nut
030	1	spring bonnet	120	1	cap
060 *	1	disc, complete	300	1	piston
560	1	disc	310	1	piston plate
061	1	pressure piece	324	1	screw
062	1	soft sealing	350 *	1	o-ring
065	1	disc bolt	351 *	1	o-ring
071	1	o-ring	352 *	1	o-ring
072	1	locking ring	356 *	1	sealing ring
073	1	o-ring <i>(only for thermoplastics soft sealing)</i>	357	1	bottom plug
081	1	spring	380	2	screw plug
082	1	springplate, upper	381 *	2	sealing ring
084	1	springplate, lower			
085	1	adjusting screw			

* expendable parts

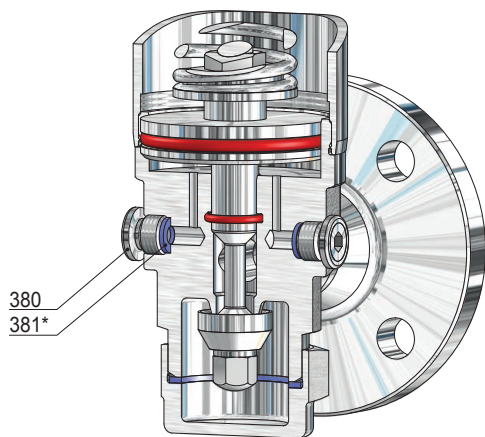
Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

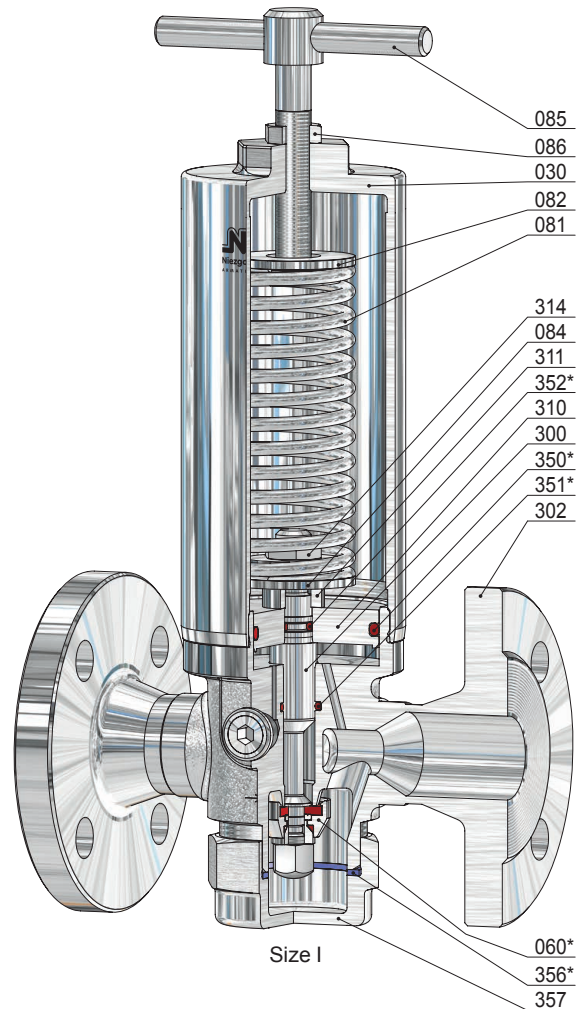
Typ 71



Cap
(Option: AC)



Manometer connection G ¼



Size I

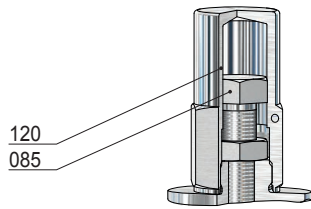
Item	Piece	Description	Item	Piece	Description
302	1	valve body	086	1	lock nut
030	1	spring bonnet	120	1	cap
060 *	1	disc, complete	300	1	piston
560	1	disc	310	1	piston plate
061	1	pressure piece	311	1	distance bush
062	1	soft sealing	314	1	lock nut
065	1	disc bolt	350 *	1	o-ring
071	1	o-ring	351 *	1	o-ring
072	1	locking ring	352 *	1	o-ring
073	1	o-ring <i>(only for thermoplastics soft sealing)</i>	356 *	1	sealing ring
081	1	spring	357	1	bottom plug
082	1	springplate, upper	380	2	screw plug
084	1	springplate, lower	381 *	2	sealing ring
085	1	adjusting screw			

* expendable parts

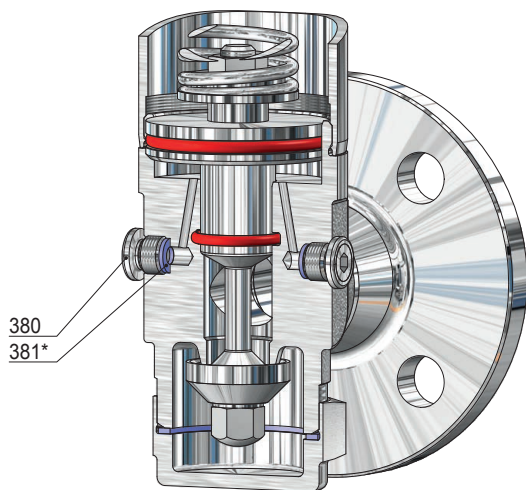
Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

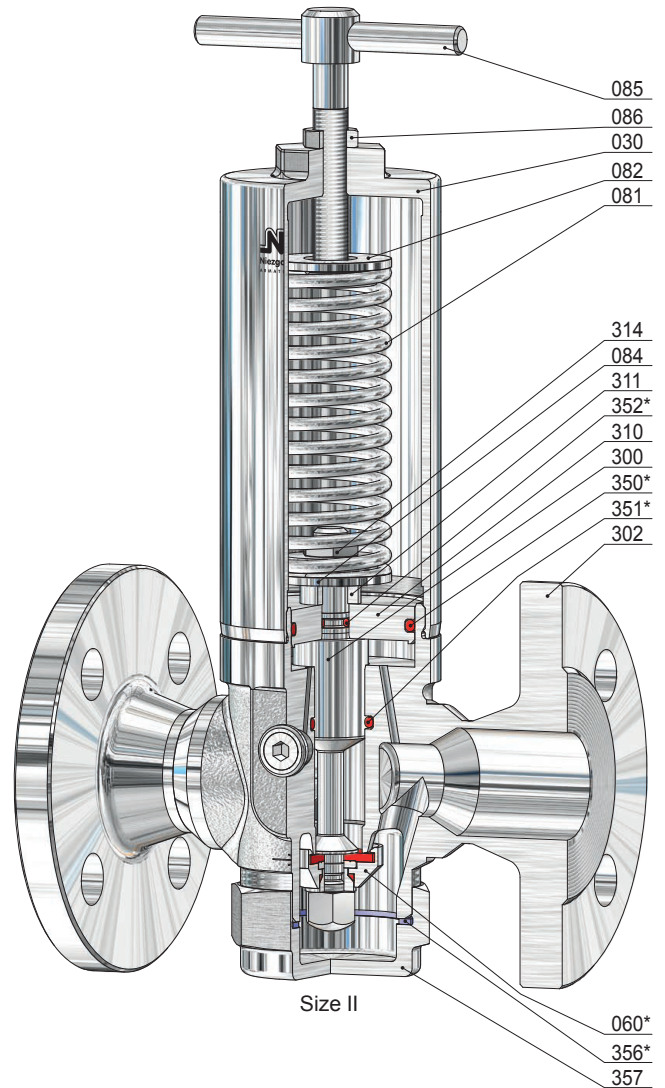
Typ 71



Cap
(Option: AC)



Manometer connection G 1/4



Size II

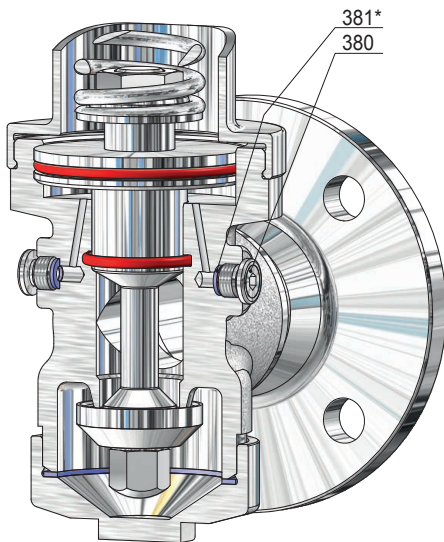
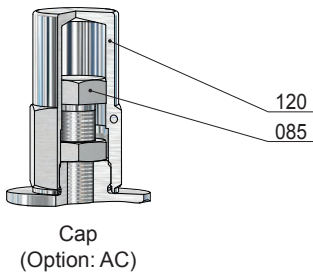
Item	Piece	Description	Item	Piece	Description
302	1	valve body	086	1	lock nut
030	1	spring bonnet	120	1	cap
060 *	1	disc, complete	300	1	piston
560	1	disc	310	1	piston plate
061	1	pressure piece	311	1	distance bush
062	1	soft sealing	314	1	lock nut
065	1	disc bolt	350 *	1	o-ring
071	1	o-ring	351 *	1	o-ring
072	1	locking ring	352 *	1	o-ring
073	1	o-ring <i>(only for thermoplastics soft sealing)</i>	356 *	1	sealing ring
081	1	spring	357	1	bottom plug
082	1	springplate, upper	380	2	screw plug
084	1	springplate, lower	381 *	2	sealing ring
085	1	adjusting screw			

* expendable parts

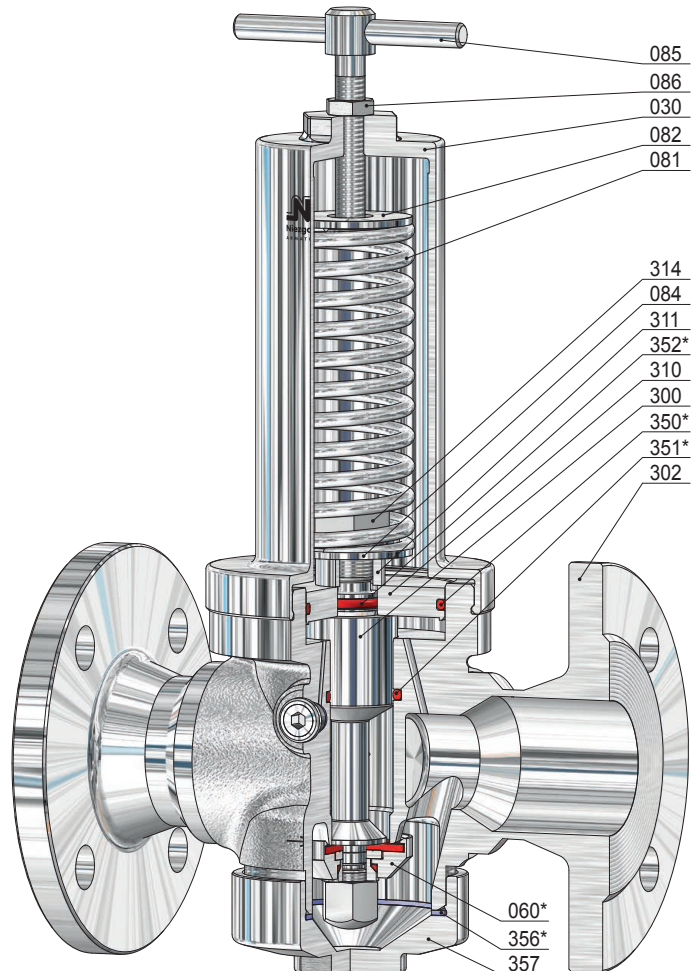
Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 71



Manometer connection G 1/4



Size III

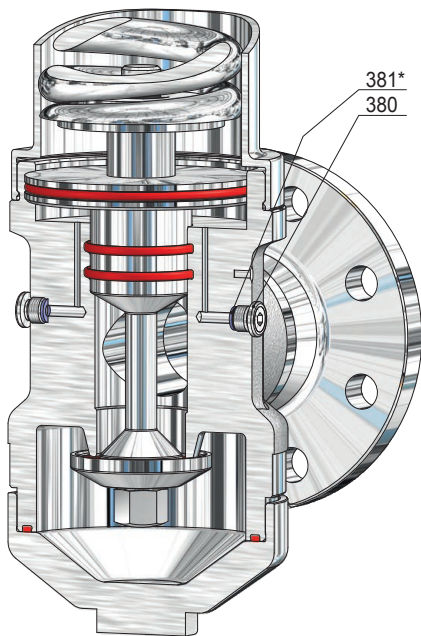
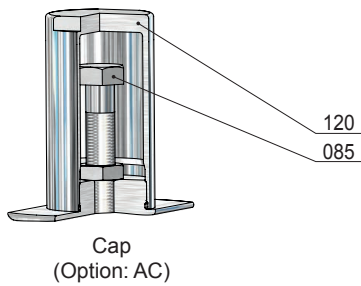
Item	Piece	Description	Item	Piece	Description
302	1	valve body	086	1	lock nut
030	1	spring bonnet	120	1	cap
060 *	1	disc, complete	300	1	piston
560	1	disc	310	1	piston plate
061	1	pressure piece	311	1	distance bush
062	1	soft sealing	314	1	lock nut
065	1	disc bolt	350 *	1	o-ring
071	1	o-ring	351 *	1	o-ring
072	1	locking ring	352 *	1	o-ring
073	1	o-ring <i>(only for thermoplastics soft sealing)</i>	356 *	1	sealing ring
081	1	spring	357	1	bottom plug
082	1	springplate, upper	380	2	screw plug
084	1	springplate, lower	381 *	2	sealing ring
085	1	adjusting screw			

* expendable parts

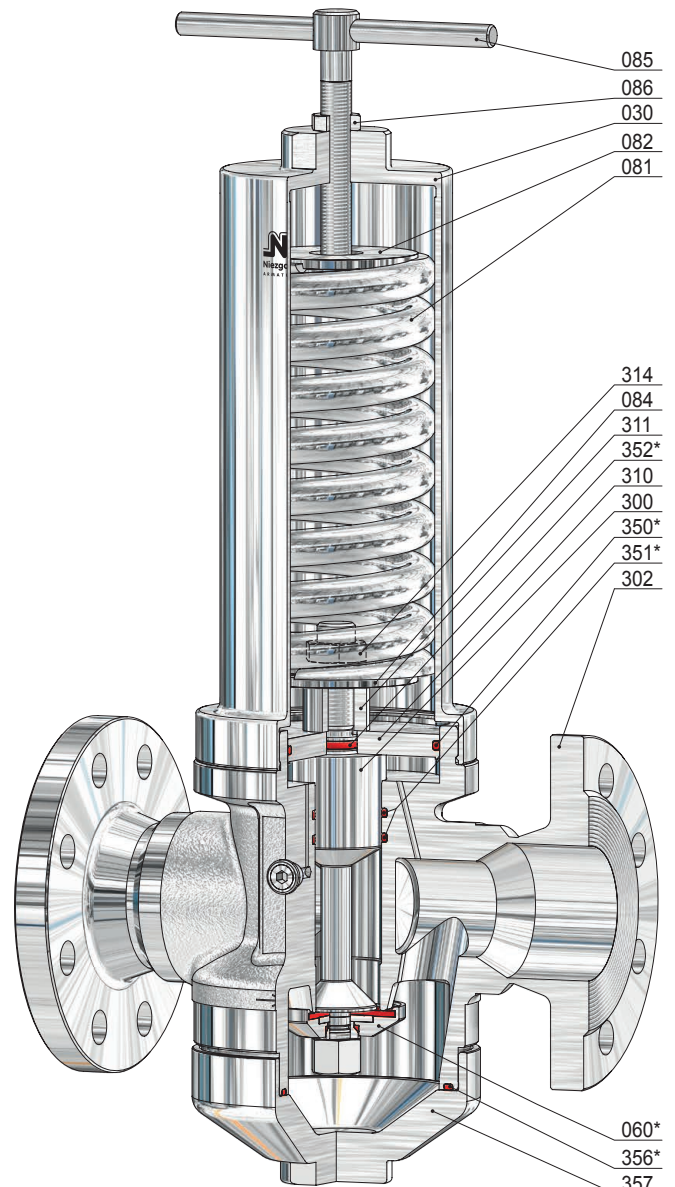
Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 71



Manometer connection G ¼



Size III B

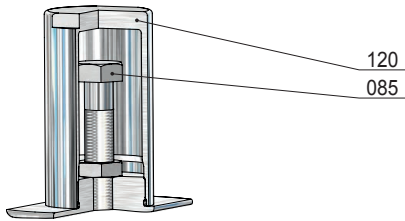
Item	Piece	Description	Item	Piece	Description
302	1	valve body	086	1	lock nut
030	1	spring bonnet	120	1	cap
060 *	1	disc, complete	300	1	piston
560	1	disc	310	1	piston plate
061	1	pressure piece	311	1	distance bush
062	1	soft sealing	314	1	lock nut
065	1	disc bolt	350 *	1	o-ring
071	1	o-ring	351 *	2	o-ring
072	1	locking ring	352 *	1	o-ring
073	1	o-ring <i>(only for thermoplastics soft sealing)</i>	356 *	1	sealing ring
081	1	spring	357	1	bottom plug
082	1	springplate, upper	380	2	screw plug
084	1	springplate, lower	381 *	2	sealing ring
085	1	adjusting screw			

* expendable parts

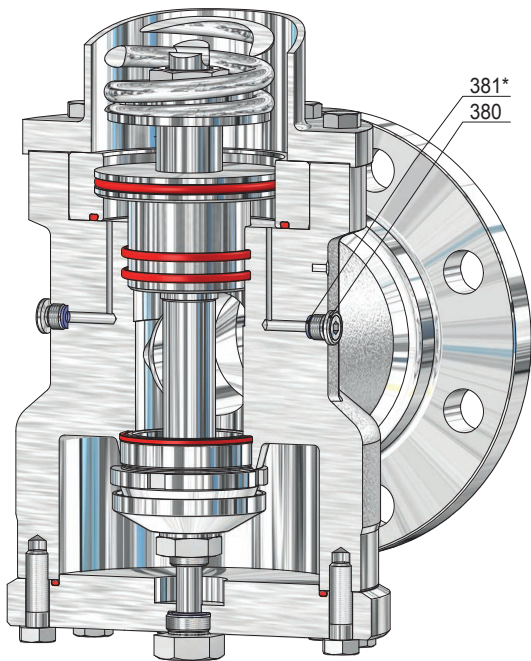
Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

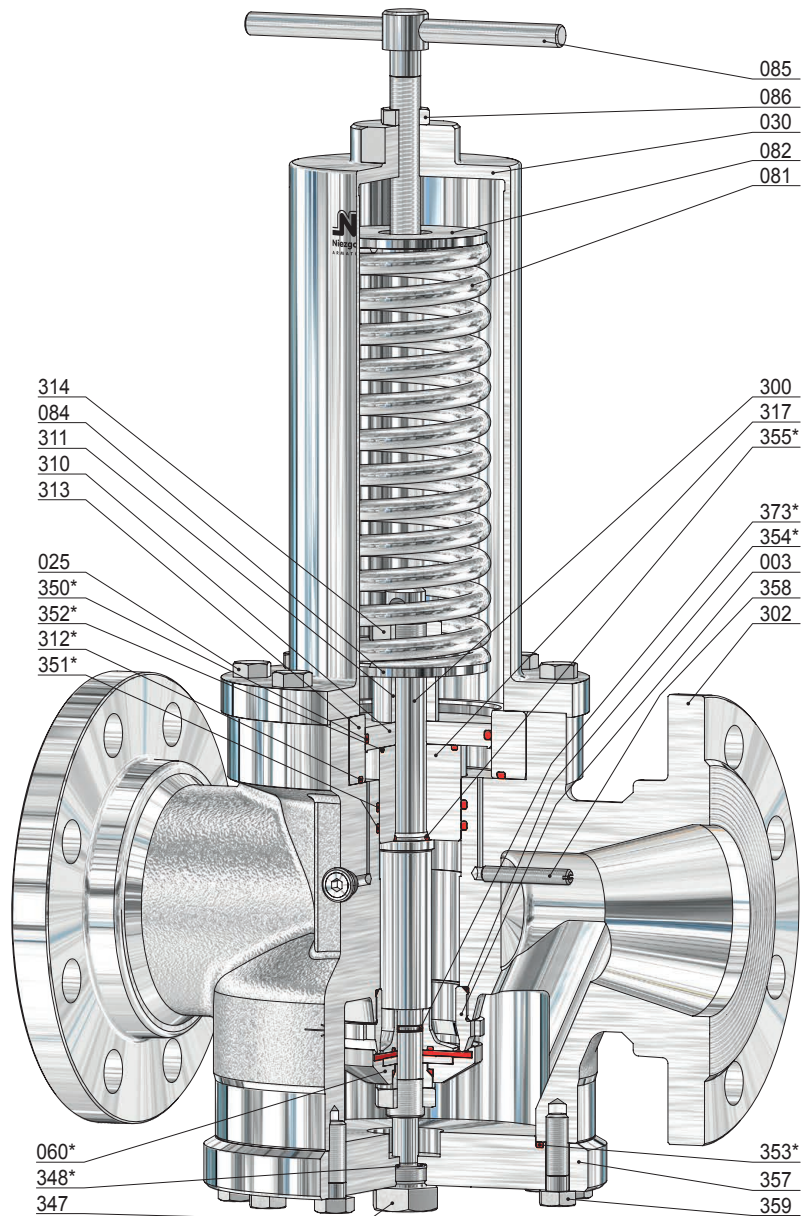
Typ 71



Cap
(Option: AC)



Manometer connection G ¼



Size IV

Item	Piece	Description	Item	Piece	Description	Item	Piece	Description
302	1	valve body	082	1	springplate, upper	350 *	1	o-ring
003	1	seat	084	1	springplate, lower	351 *	2	o-ring
025	8	screw	085	1	adjusting screw	352 *	1	o-ring
030	1	spring bonnet	086	1	lock nut	353 *	1	o-ring
060 *	1	disc, complete	120	1	cap	354 *	1	o-ring
560	1	disc	300	1	piston	355 *	1	o-ring
061	1	pressure piece	310	1	piston plate	357	1	bottom plug
062	1	soft sealing	311	1	distance bush	358	1	suction tube
065	1	disc bolt	312 *	1	o-ring	359	12	screw
071	1	o-ring	313	1	piston plate ring	373 *	1	o-ring
072	1	locking ring	314	2	lock nut	380	2	screw plug
073	1	o-ring	317	1	piston guide	381 *	2	sealing ring
074	1	disc plate	347	1	screw			
081	1	spring	348 *	1	o-ring			

* expendable parts

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 74

Standard version:

Material: Valve-body / media contact surfaces

Typ 74.2: BG 0 - II 1.4301, 1.4571 / 1.4571

BG III - IIIB 1.4571 / 1.4571

Connections:

Screwed connection: DIN ISO 228 / ASME B1.20.1

Sealings:

FPM, EPDM

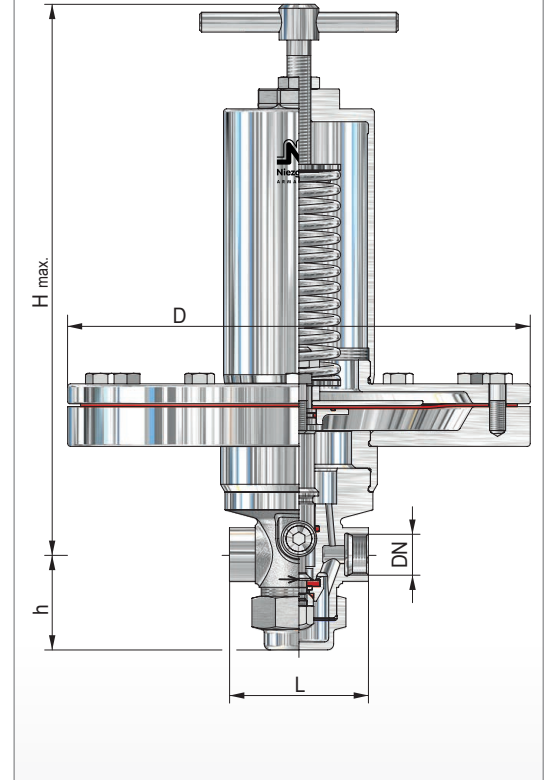
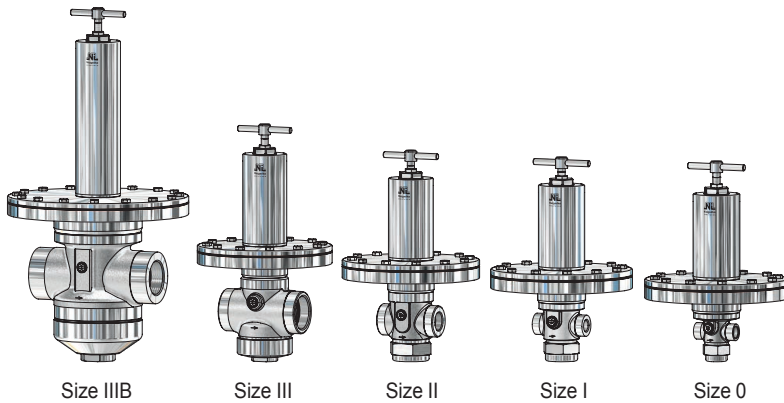
PTFE, EPDM (steam up to 150°C)

PTFE, AF100, EPDM (steam up to 200°C)

Approvals:

Pressure Equipment Directive: 2014/68/EU

Declaration of Conformity



Size	Inlet			Outlet			Dimensions				Kvs value [m³/h]				
	DN	G, NPT	Inlet pressure range P1 [bar(g)] max.	DN	G, NPT	Reduced pressure range P2 min. [bar(g)] max.	Height 'H' max.		Diaphragm Ø = D						
							Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]		Design			
0	8	1/4	25	8	1/4	0,005 / 0,45	320	285	70	48	405	310	235	190	1,2
	10	3/8		2,0											
	15	1/2		2,2											
I	15	1/2	16	15	1/2	0,005 / 0,40	310	290	90	58	405	310	235	190	3,0
	20	3/4		3,2											
	25*	1*		3,5											
II	25	1	16	25	1	0,005 / 0,40	320	305	105	68	405	310	235	190	6,3
	32	1 1/4		6,5											
	40*	1 1/2*		6,7											
III	40	1 1/2	16	40	1 1/2	0,005 / 0,40	350	335	145	85	405	310	235	190	12,5
	50	2		13,0											
	65*	2 1/2*		13,5											
IIIB	50	2	16	50	2	0,005 / 0,30	535	465	220	145	405	310	235	190	27,5
	65	2 1/2		28,0											

other design on request

* special size

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 74

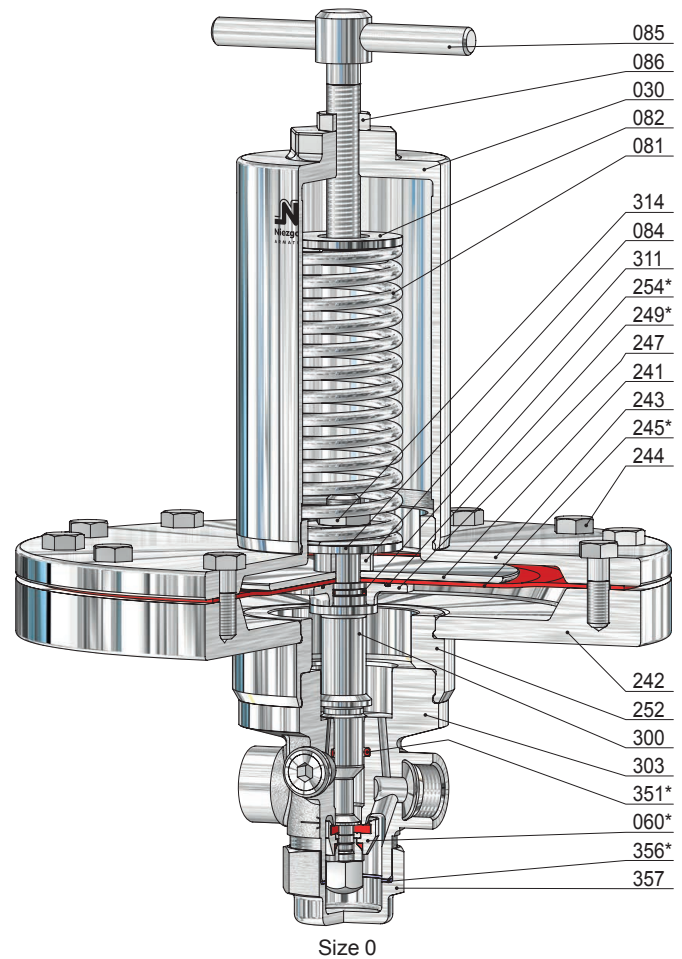
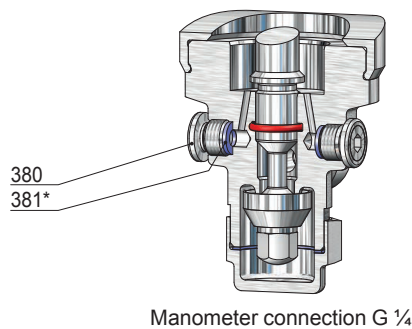
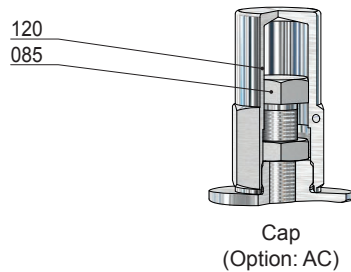
Spring ranges for reduced pressure P₂

Diaphragm [mm]		Ø 405	Ø 310	Ø 235	Ø 190
Size	Spring no.	[bar(g)]			
0	301	0,005 - 0,008			
	302	0,009 - 0,015	0,026 - 0,030	0,051 - 0,070	0,11 - 0,15
	303	0,016 - 0,025	0,031 - 0,050	0,071 - 0,100	0,16 - 0,25
	304				0,26 - 0,45
I	301	0,005 - 0,008			
	302	0,009 - 0,015	0,026 - 0,030	0,051 - 0,070	0,11 - 0,14
	303	0,016 - 0,025	0,031 - 0,050	0,071 - 0,100	0,15 - 0,25
	304				0,26 - 0,40
II	301	0,005 - 0,008			
	302	0,009 - 0,014	0,026 - 0,030	0,051 - 0,065	0,11 - 0,14
	303	0,015 - 0,025	0,031 - 0,050	0,066 - 0,100	0,15 - 0,20
	304				0,21 - 0,40
III	301	0,005 - 0,007			
	302	0,008 - 0,010	0,026 - 0,028	0,051 - 0,060	0,11 - 0,13
	303	0,011 - 0,020	0,029 - 0,045	0,061 - 0,100	0,14 - 0,20
	304	0,021 - 0,025	0,046 - 0,050		0,21 - 0,40
IIIB	2 x 301	0,005 - 0,008			
	2 x 302	0,009 - 0,012	0,026 - 0,028	0,051 - 0,060	
	2 x 303	0,013 - 0,020	0,029 - 0,045	0,061 - 0,100	
	2 x 304	0,021 - 0,025	0,046 - 0,050	0,110 - 0,180	
	2 x 305			0,190 - 0,300	

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 74



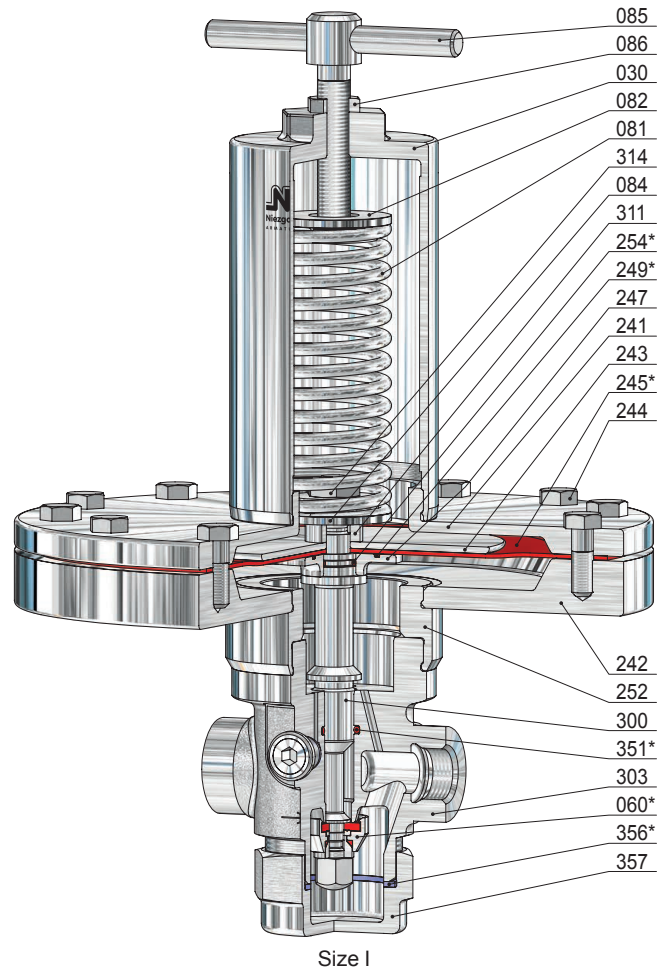
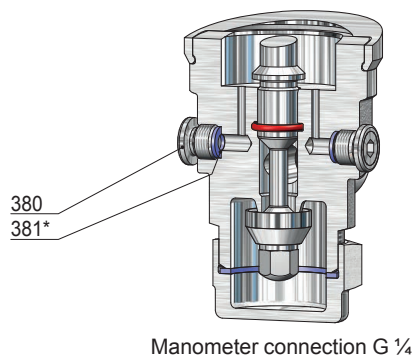
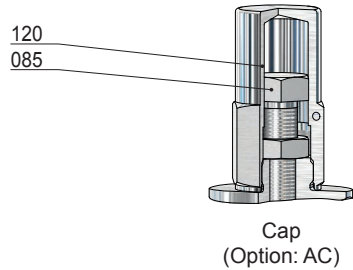
Item	Piece	Description	Item	Piece	Description
303	1	valve body	243	1	upper clamp plate
030	1	spring bonnet	244	12	screw (variable)
060 *	1	disc, complete	245 *	1	diaphragm
560	1	disc	247	1	lower clamp plate
061	1	pressure piece	249 *	1	o-ring
062	1	soft sealing	252	1	adapter
065	1	disc bolt	254 *	1	o-ring
071	1	o-ring	300	1	piston
072	1	locking ring	311	1	distance bush
073	1	o-ring (only for thermoplastics soft sealing)	314	1	lock nut
081	1	spring	351 *	1	o-ring
082	1	springplate, upper	356 *	1	sealing ring
084	1	springplate, lower	357	1	bottom plug
085	1	adjusting screw	380	2	screw plug
086	1	lock nut	381 *	2	sealing ring
120	1	cap			
241	1	upper housing			
242	1	lower housing			

* expendable parts

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 74



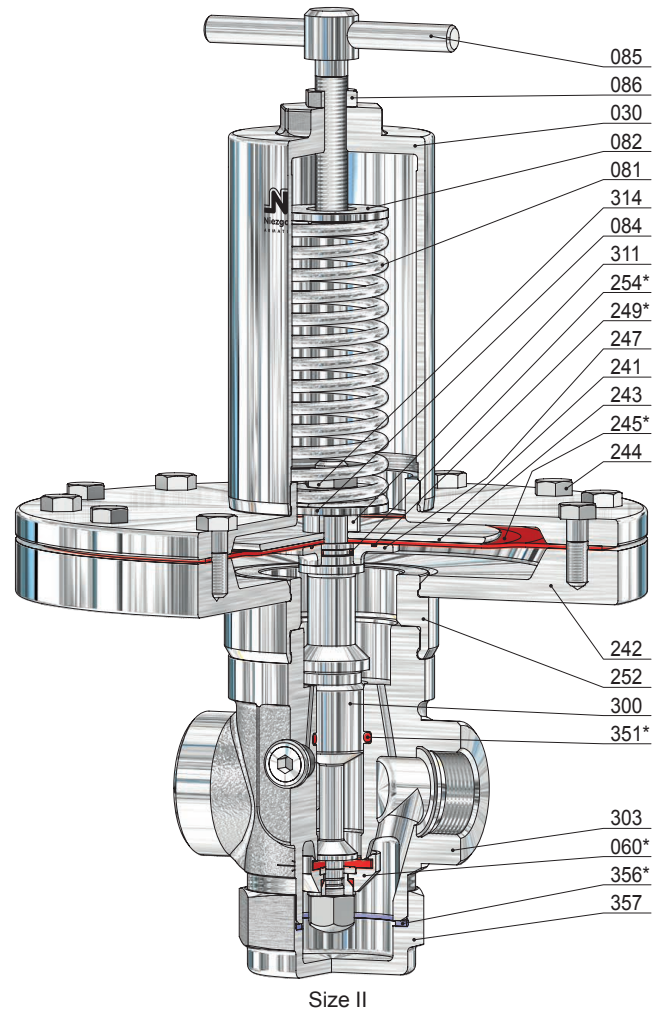
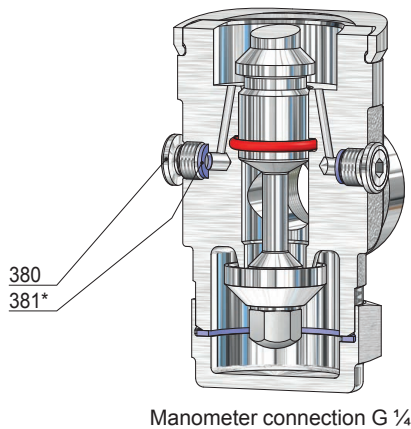
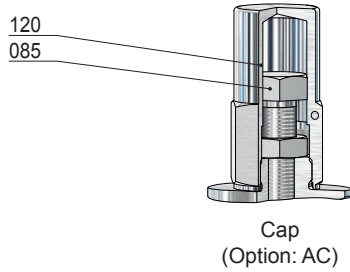
Item	Piece	Description	Item	Piece	Description
303	1	valve body	243	1	upper clamp plate
030	1	spring bonnet	244	12	screw (variable)
060 *	1	disc, complete	245 *	1	diaphragm
560	1	disc	247	1	lower clamp plate
061	1	pressure piece	249 *	1	o-ring
062	1	soft sealing	252	1	adapter
065	1	disc bolt	254 *	1	o-ring
071	1	o-ring	300	1	piston
072	1	locking ring	311	1	distance bush
073	1	o-ring (only for thermoplastics soft sealing)	314	1	lock nut
081	1	spring	351 *	1	o-ring
082	1	springplate, upper	356 *	1	sealing ring
084	1	springplate, lower	357	1	bottom plug
085	1	adjusting screw	380	2	screw plug
086	1	lock nut	381 *	2	sealing ring
120	1	cap			
241	1	upper housing			
242	1	lower housing			

* expendable parts

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 74



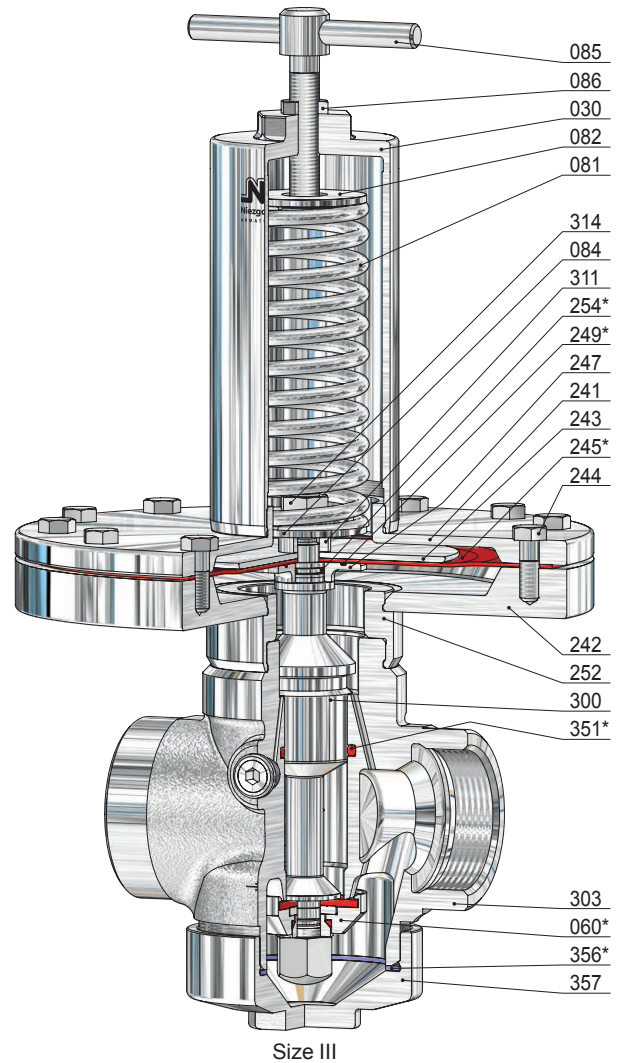
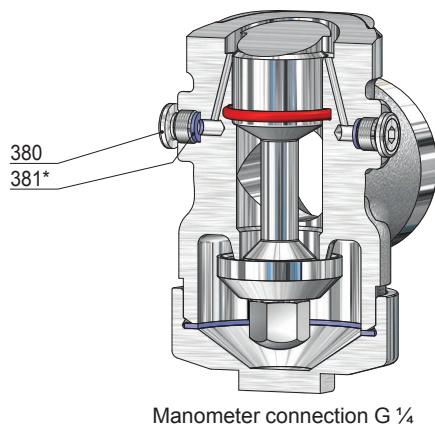
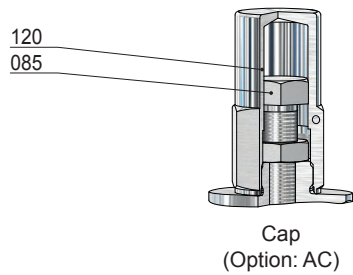
Item	Piece	Description	Item	Piece	Description
303	1	valve body	243	1	upper clamp plate
030	1	spring bonnet	244	12	screw (variable)
060 *	1	disc, complete	245 *	1	diaphragm
560	1	disc	247	1	lower clamp plate
061	1	pressure piece	249 *	1	o-ring
062	1	soft sealing	252	1	adapter
065	1	disc bolt	254 *	1	o-ring
071	1	o-ring	300	1	piston
072	1	locking ring	311	1	distance bush
073	1	o-ring (only for thermoplastics soft sealing)	314	1	lock nut
081	1	spring	351 *	1	o-ring
082	1	springplate, upper	356 *	1	sealing ring
084	1	springplate, lower	357	1	bottom plug
085	1	adjusting screw	380	2	screw plug
086	1	lock nut	381 *	2	sealing ring
120	1	cap			
241	1	upper housing			
242	1	lower housing			

* expendable parts

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 74



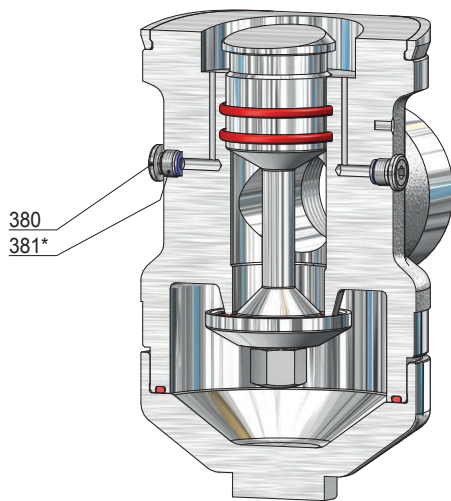
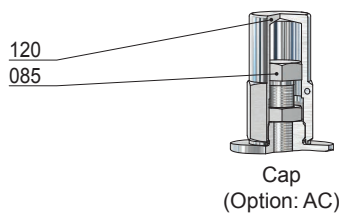
Item	Piece	Description	Item	Piece	Description
303	1	valve body	243	1	upper clamp plate
030	1	spring bonnet	244	12	screw <i>(variable)</i>
060 *	1	disc, complete	245 *	1	diaphragm
560	1	disc	247	1	lower clamp plate
061	1	pressure piece	249 *	1	o-ring
062	1	soft sealing	252	1	adapter
065	1	disc bolt	254 *	1	o-ring
071	1	o-ring	300	1	piston
072	1	locking ring	311	1	distance bush
073	1	o-ring <i>(only for thermoplastics soft sealing)</i>	314	1	lock nut
081	1	spring	351 *	1	o-ring
082	1	springplate, upper	356 *	1	sealing ring
084	1	springplate, lower	357	1	bottom plug
085	1	adjusting screw	380	2	screw plug
086	1	lock nut	381 *	2	sealing ring
120	1	cap			
241	1	upper housing			
242	1	lower housing			

* expendable parts

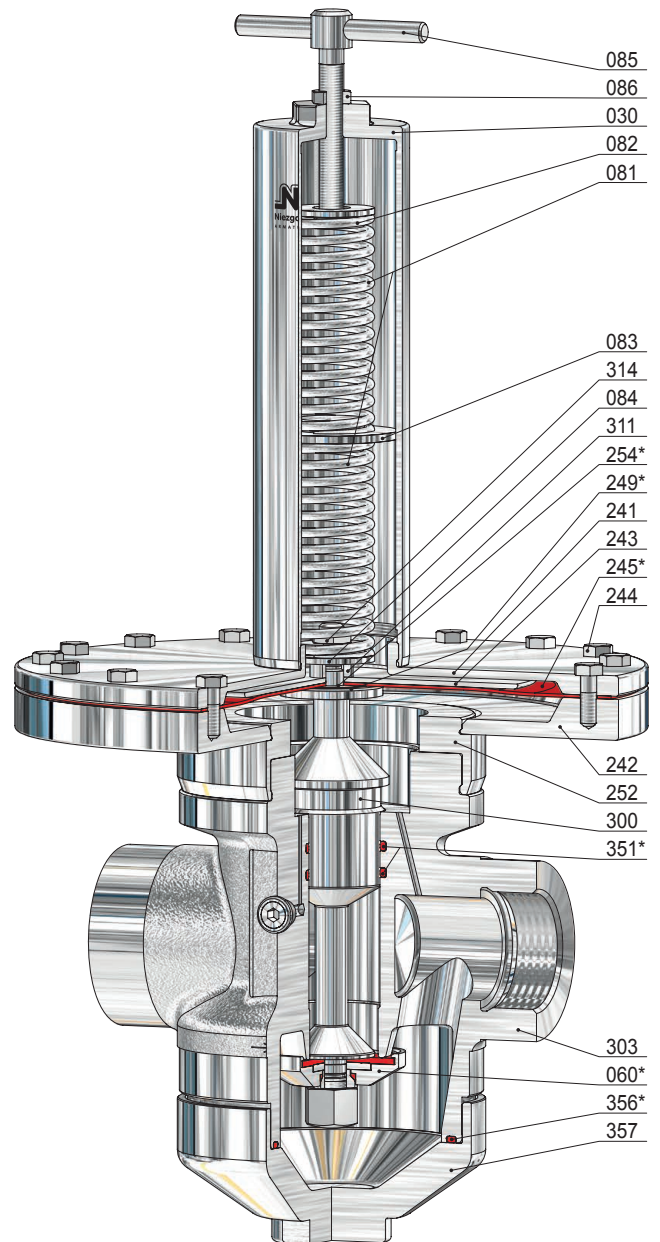
Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 74



Manometer connection G 1/4



Size IIIB

Item	Piece	Description	Item	Piece	Description	Item	Piece	Description
303	1	valve body	081	2	spring	252	1	adapter
030	1	spring bonnet	082	1	springplate, upper	254 *	1	o-ring
060 *	1	disc, complete	083	1	springplate, middle	300	1	piston
560	1	disc	084	1	springplate, lower	311	1	distance bush
061	1	pressure piece	085	1	adjusting screw	314	1	lock nut
062	1	soft sealing	086	1	lock nut	351 *	2	o-ring
065	1	disc bolt	120	1	cap	356 *	1	sealing ring
071	1	o-ring	241	1	upper housing	357	1	bottom plug
072	1	locking ring	242	1	lower housing	380	2	screw plug
073	1	o-ring (only for thermoplastics soft sealing)	243	1	upper clamp plate	381 *	2	sealing ring
			244	16	screw (variable)			
			245 *	1	diaphragm			
			249 *	1	o-ring			

* expendable parts

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 75

Standard version:

Material: Valve-body / media contact surfaces

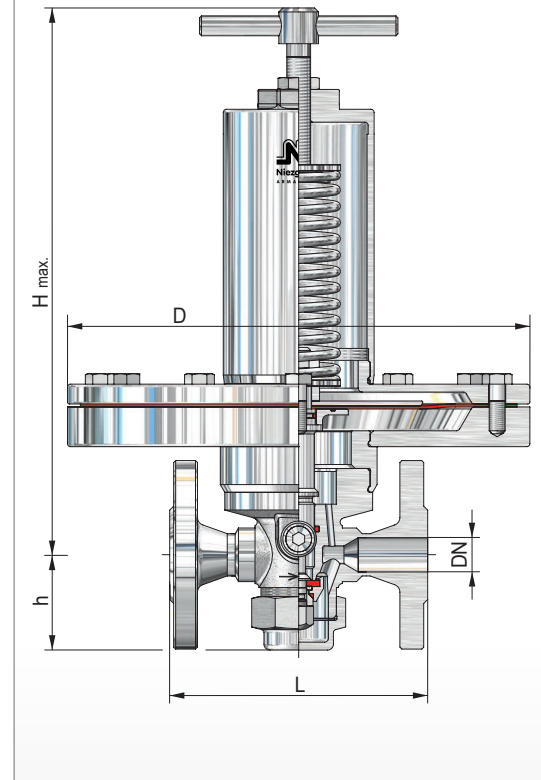
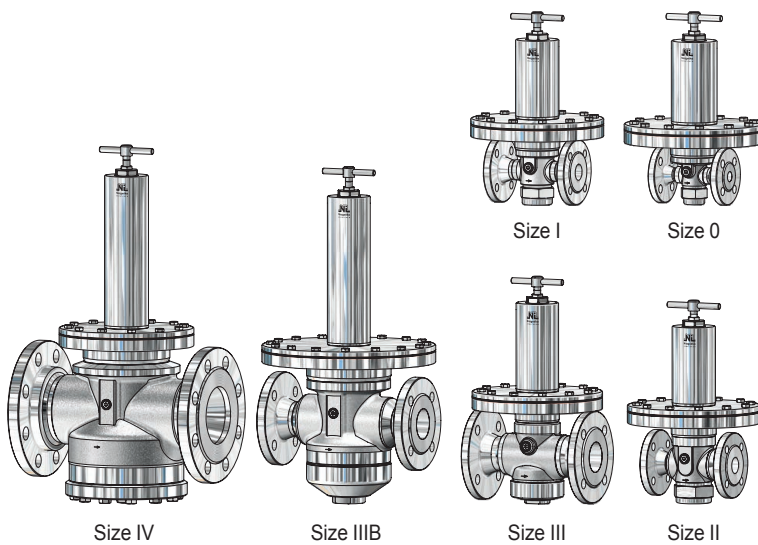
Typ 75.2: BG 0 - II 1.4301, 1.4571 / 1.4571
 BG III - IV 1.4571 / 1.4571

Connections:
 Flange connections: DIN EN / ASME B16.5

Sealings:
 FPM, EPDM
 PTFE, EPDM (steam up to 150°C)
 PTFE, AF100, EPDM (steam up to 200°C)

Approvals:

Pressure Equipment Directive: 2014/68/EU
 Declaration of Conformity



Size	Inlet			Outlet			Dimensions				Kvs value [m³/h]			
	DN	NPS	Inlet pressure range P1 [bar(g)] max.	DN	NPS	Reduced pressure range P2 min. [bar(g)] max.	Height 'H' max.		Diaphragm Ø = D					
							Toggle spindle [mm]	Cap [mm]	Design					
L	h	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]			
0	10	-	25	10	-	0,005 / 0,45	320	285	130	48	190	2,0		
	15	1/2		15	1/2								2,2	
I	15	1/2	16	15	1/2	0,005 / 0,40	310	290	130	58	190	3,0		
	20	3/4		20	3/4							3,2		
II	25	1	16	25	1	0,005 / 0,40	320	305	160	68	190	6,3		
	32	1 1/4		32	1 1/4							6,5		
III	40	1 1/2	16	40	1 1/2	0,005 / 0,40	350	335	200	85	405	310	235	12,5
	50	2		50	2									13,0
IIIB	50	2	16	50	2	0,005 / 0,30	535	465	300	145	405	310	235	27,5
	65	2 1/2		65	2 1/2									28,0
IV	80	3	16	80	3	0,005 / 0,30	545	470	290	157	405	310	235	28,5
	100	4		100	4									48,0
														50,0
														53,0

other design on request

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 75

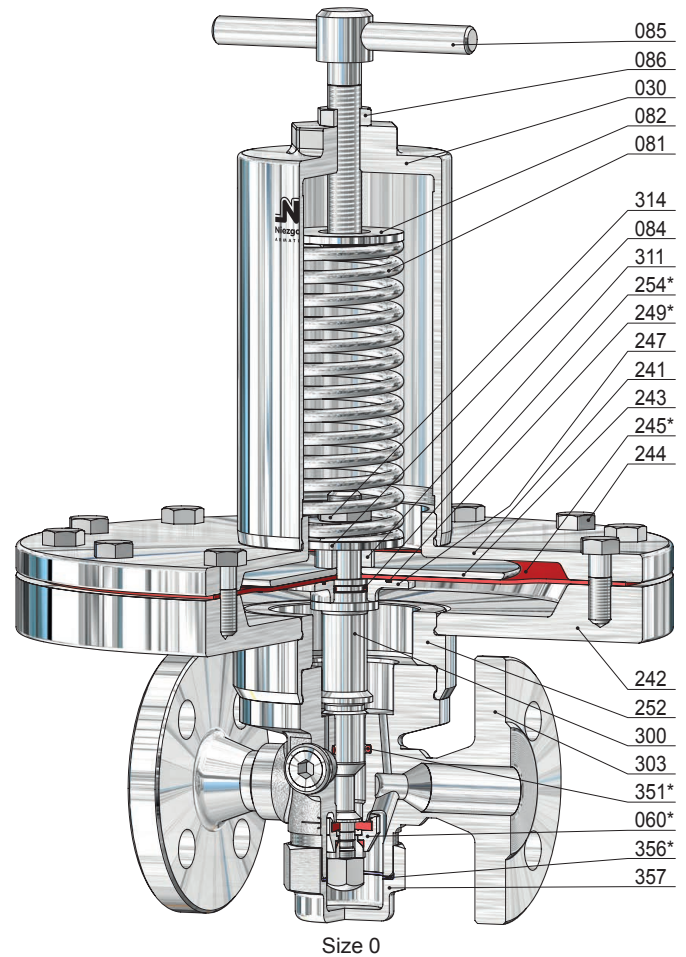
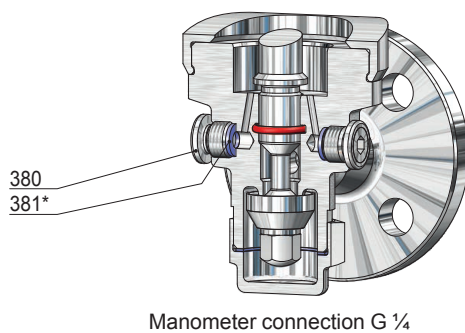
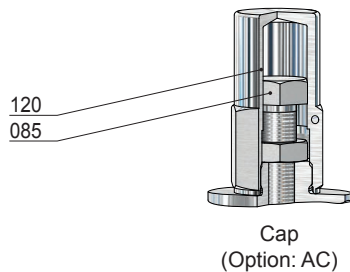
Spring ranges for reduced pressure P2

Diaphragm [mm]		Ø 405	Ø 310	Ø 235	Ø 190
Size	Spring no.	[bar(g)]			
0	301	0,005 - 0,008			
	302	0,009 - 0,015	0,026 - 0,030	0,051 - 0,070	0,11 - 0,15
	303	0,016 - 0,025	0,031 - 0,050	0,071 - 0,100	0,16 - 0,25
	304				0,26 - 0,45
I	301	0,005 - 0,008			
	302	0,009 - 0,015	0,026 - 0,030	0,051 - 0,070	0,11 - 0,14
	303	0,016 - 0,025	0,031 - 0,050	0,071 - 0,100	0,15 - 0,25
	304				0,26 - 0,40
II	301	0,005 - 0,008			
	302	0,009 - 0,014	0,026 - 0,030	0,051 - 0,065	0,11 - 0,14
	303	0,015 - 0,025	0,031 - 0,050	0,066 - 0,100	0,15 - 0,20
	304				0,21 - 0,40
III	301	0,005 - 0,007			
	302	0,008 - 0,010	0,026 - 0,028	0,051 - 0,060	0,11 - 0,13
	303	0,011 - 0,020	0,029 - 0,045	0,061 - 0,100	0,14 - 0,20
	304	0,021 - 0,025	0,046 - 0,050		0,21 - 0,40
IIIB	2 x 301	0,005 - 0,008			
	2 x 302	0,009 - 0,012	0,026 - 0,028	0,051 - 0,060	
	2 x 303	0,013 - 0,020	0,029 - 0,045	0,061 - 0,100	
	2 x 304	0,021 - 0,025	0,046 - 0,050	0,110 - 0,180	
	2 x 305			0,190 - 0,300	
IV	2 x 301	0,005 - 0,008			
	2 x 302	0,009 - 0,012	0,026 - 0,028	0,051 - 0,060	
	2 x 303	0,013 - 0,020	0,029 - 0,045	0,061 - 0,100	
	2 x 304	0,021 - 0,025	0,046 - 0,050	0,110 - 0,180	
	2 x 305			0,190 - 0,300	

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 75



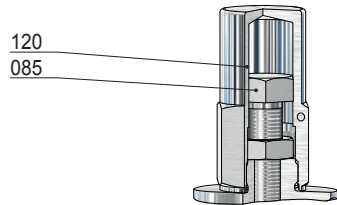
Item	Piece	Description	Item	Piece	Description
303	1	valve body	243	1	upper clamp plate
030	1	spring bonnet	244	12	screw (variable)
060 *	1	disc, complete	245 *	1	diaphragm
560	1	disc	247	1	lower clamp plate
061	1	pressure piece	249 *	1	o-ring
062	1	soft sealing	252	1	adapter
065	1	disc bolt	254 *	1	o-ring
071	1	o-ring	300	1	piston
072	1	locking ring	311	1	distance bush
073	1	o-ring (only for thermoplastics soft sealing)	314	1	lock nut
081	1	spring	351 *	1	o-ring
082	1	springplate, upper	356 *	1	sealing ring
084	1	springplate, lower	357	1	bottom plug
085	1	adjusting screw	380	2	screw plug
086	1	lock nut	381 *	2	sealing ring
120	1	cap			
241	1	upper housing			
242	1	lower housing			

* expendable parts

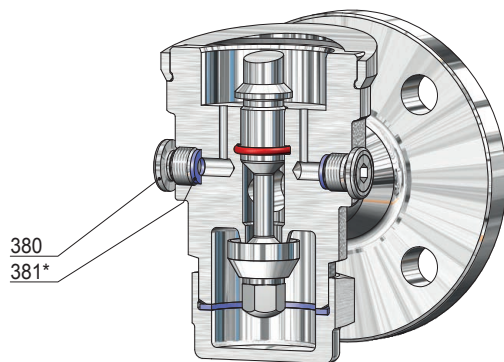
Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

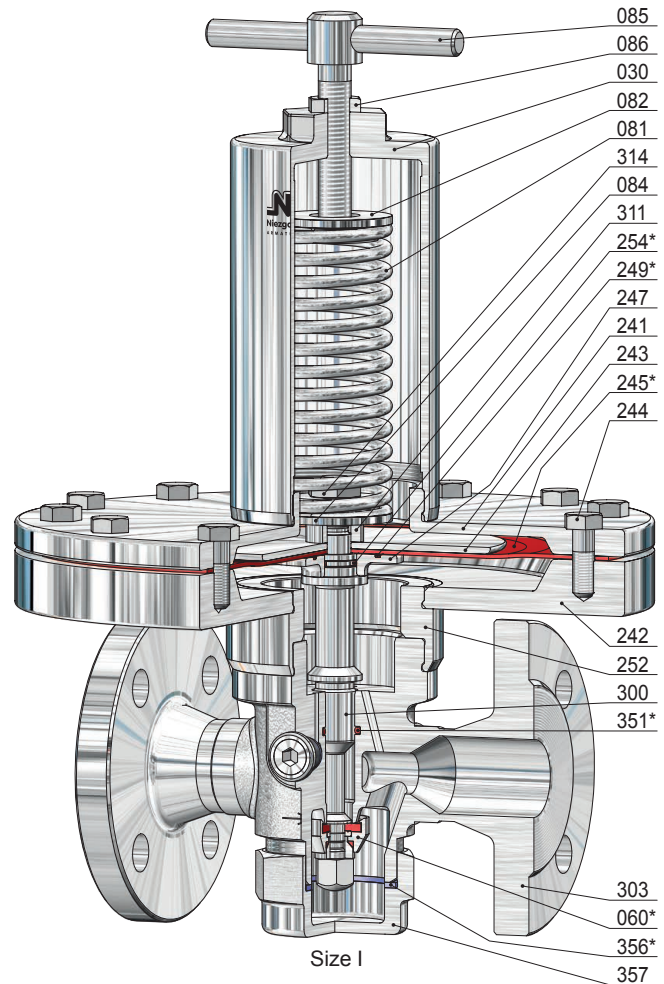
Typ 75



Cap
(Option: AC)



Manometer connection G 1/4



Size I

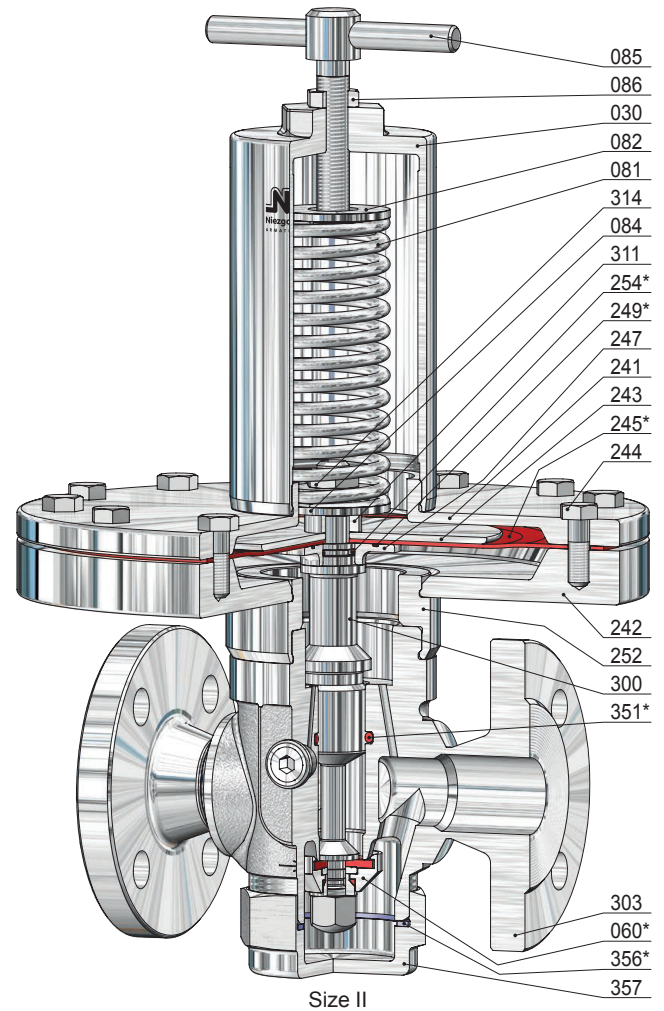
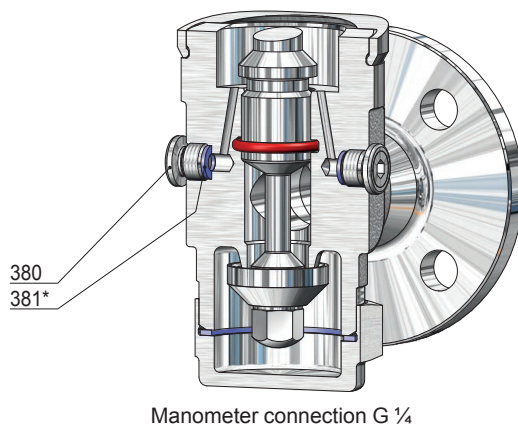
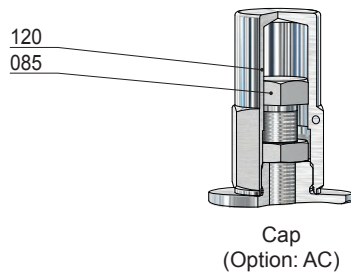
Item	Piece	Description	Item	Piece	Description
303	1	valve body	243	1	upper clamp plate
030	1	spring bonnet	244	12	screw (variable)
060 *	1	disc, complete	245 *	1	diaphragm
560	1	disc	247	1	lower clamp plate
061	1	pressure piece	249 *	1	o-ring
062	1	soft sealing	252	1	adapter
065	1	disc bolt	254 *	1	o-ring
071	1	o-ring	300	1	piston
072	1	locking ring	311	1	distance bush
073	1	o-ring (only for thermoplastics soft sealing)	314	1	lock nut
081	1	spring	351 *	1	o-ring
082	1	springplate, upper	356 *	1	sealing ring
084	1	springplate, lower	357	1	bottom plug
085	1	adjusting screw	380	2	screw plug
086	1	lock nut	381 *	2	sealing ring
120	1	cap			
241	1	upper housing			
242	1	lower housing			

* expendable parts

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 75



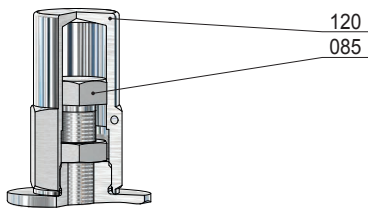
Item	Piece	Description	Item	Piece	Description
303	1	valve body	243	1	upper clamp plate
030	1	spring bonnet	244	12	screw (variable)
060 *	1	disc, complete	245 *	1	diaphragm
560	1	disc	247	1	lower clamp plate
061	1	pressure piece	249 *	1	o-ring
062	1	soft sealing	252	1	adapter
065	1	disc bolt	254 *	1	o-ring
071	1	o-ring	300	1	piston
072	1	locking ring	311	1	distance bush
073	1	o-ring (only for thermoplastics soft sealing)	314	1	lock nut
081	1	spring	351 *	1	o-ring
082	1	springplate, upper	356 *	1	sealing ring
084	1	springplate, lower	357	1	bottom plug
085	1	adjusting screw	380	2	screw plug
086	1	lock nut	381 *	2	sealing ring
120	1	cap			
241	1	upper housing			
242	1	lower housing			

* expendable parts

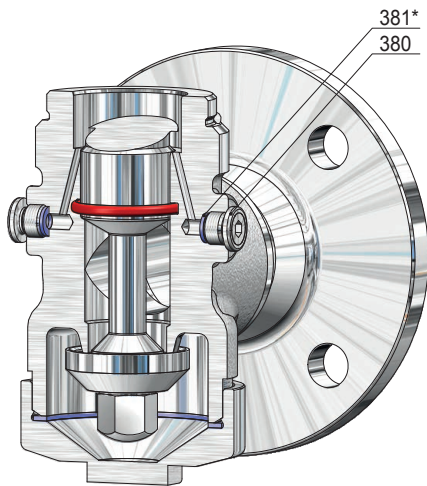
Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

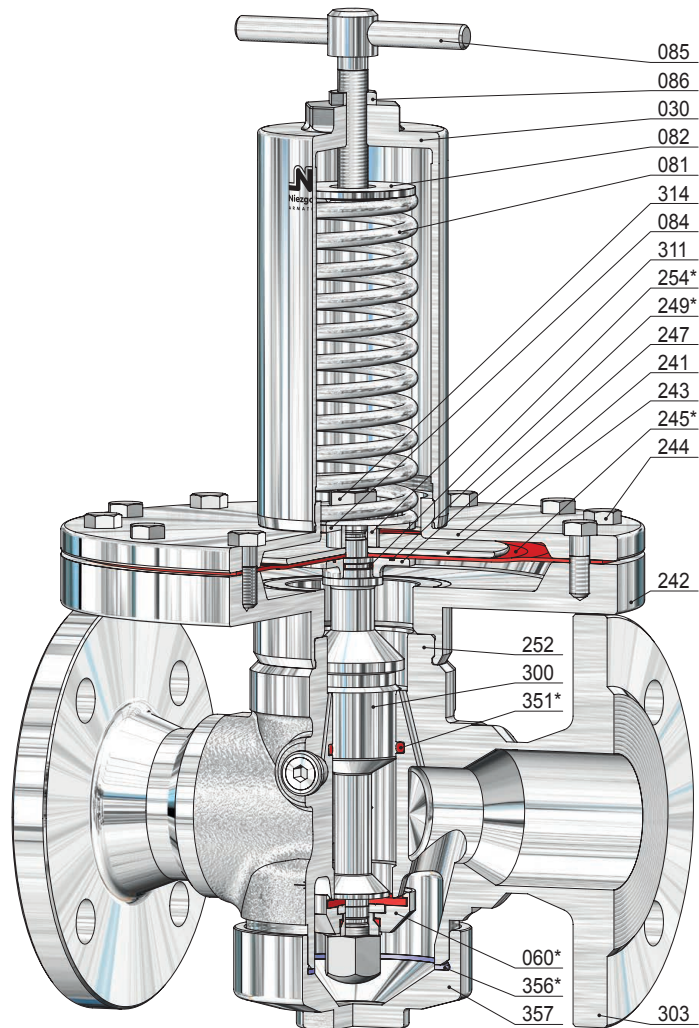
Typ 75



Cap
(Option: AC)



Manometer connection
G ¼



Size III

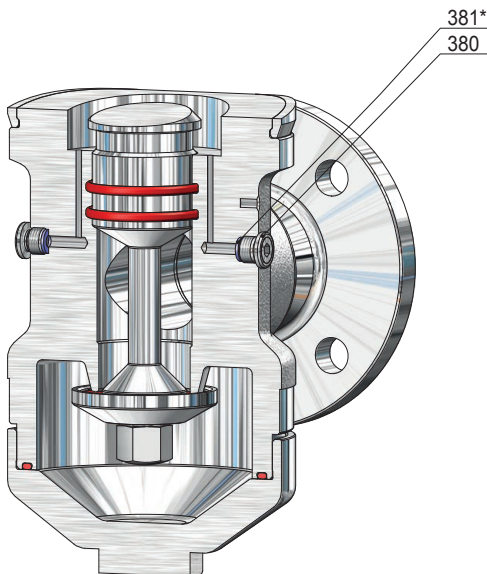
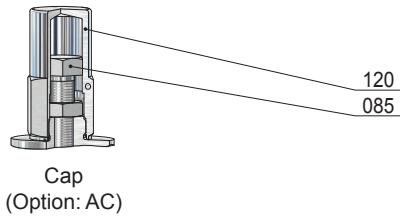
Item	Piece	Description	Item	Piece	Description
303	1	valve body	243	1	upper clamp plate
030	1	spring bonnet	244	12	screw <i>(variable)</i>
060 *	1	disc, complete	245 *	1	diaphragm
560	1	disc	247	1	lower clamp plate
061	1	pressure piece	249 *	1	o-ring
062	1	soft sealing	252	1	adapter
065	1	disc bolt	254 *	1	o-ring
071	1	o-ring	300	1	piston
072	1	locking ring	311	1	distance bush
073	1	o-ring <i>(only for thermoplastics soft sealing)</i>	314	1	lock nut
081	1	spring	351 *	1	o-ring
082	1	springplate, upper	356 *	1	sealing ring
084	1	springplate, lower	357	1	bottom plug
085	1	adjusting screw	380	2	screw plug
086	1	lock nut	381 *	2	sealing ring
120	1	cap			
241	1	upper housing			
242	1	lower housing			

* expendable parts

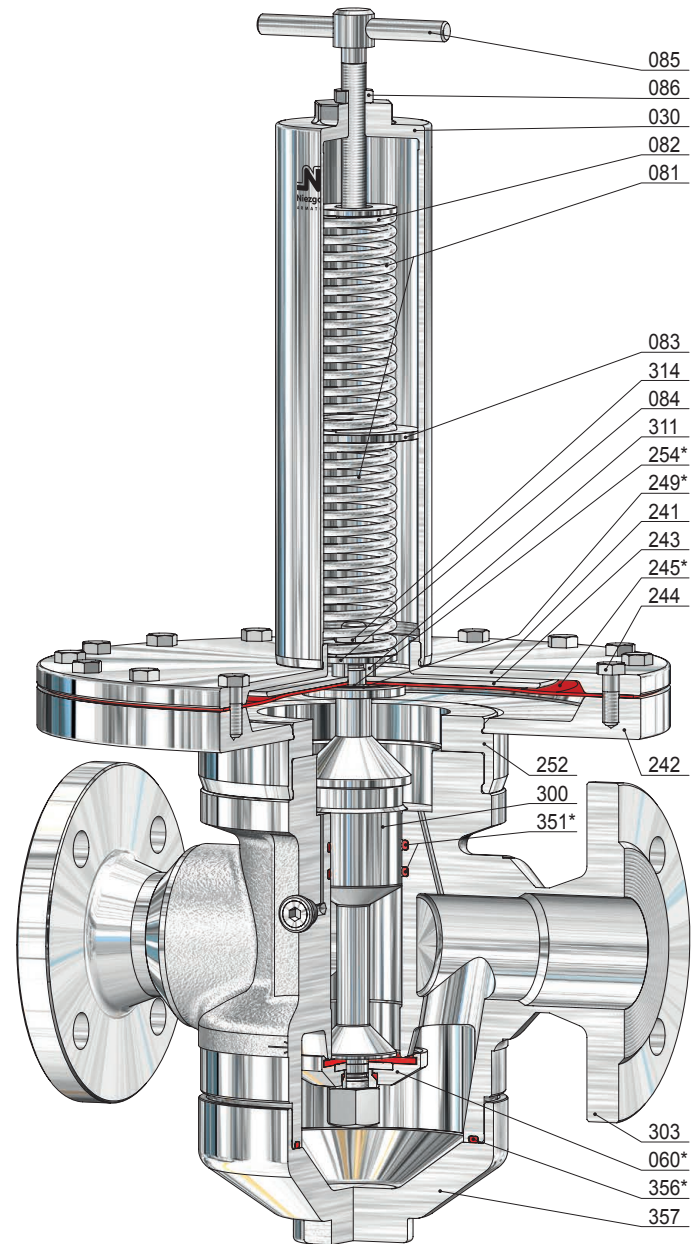
Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 75



Manometer connection G $\frac{1}{4}$



Size IIIB

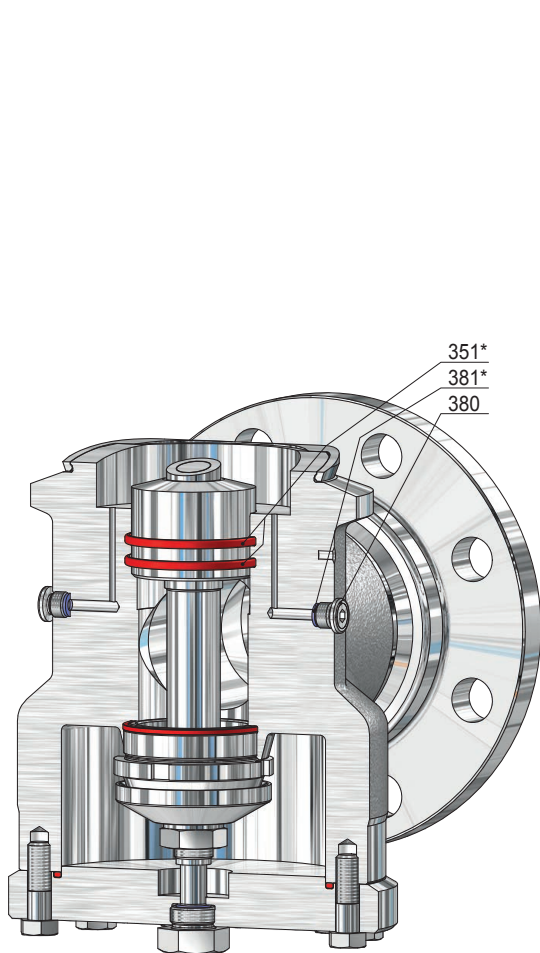
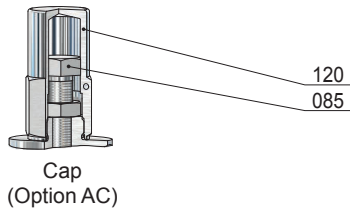
Item	Piece	Description	Item	Piece	Description	Item	Piece	Description
303	1	valve body	081	2	spring	252	1	adapter
030	1	spring bonnet	082	1	springplate, upper	254 *	1	o-ring
060 *	1	disc, complete	083	1	springplate, middle	300	1	piston
560	1	disc	084	1	springplate, lower	311	1	distance bush
061	1	pressure piece	085	1	adjusting screw	314	1	lock nut
062	1	soft sealing	086	1	lock nut	351 *	2	o-ring
065	1	disc bolt	120	1	cap	356 *	1	sealing ring
071	1	o-ring	241	1	upper housing	357	1	bottom plug
072	1	locking ring	242	1	lower housing	380	2	screw plug
073	1	o-ring (only for thermoplastics soft sealing)	243	1	upper clamp plate	381 *	2	sealing ring
			244	16	screw (variable)			
			245 *	1	diaphragm			
			249 *	1	o-ring			

* expendable parts

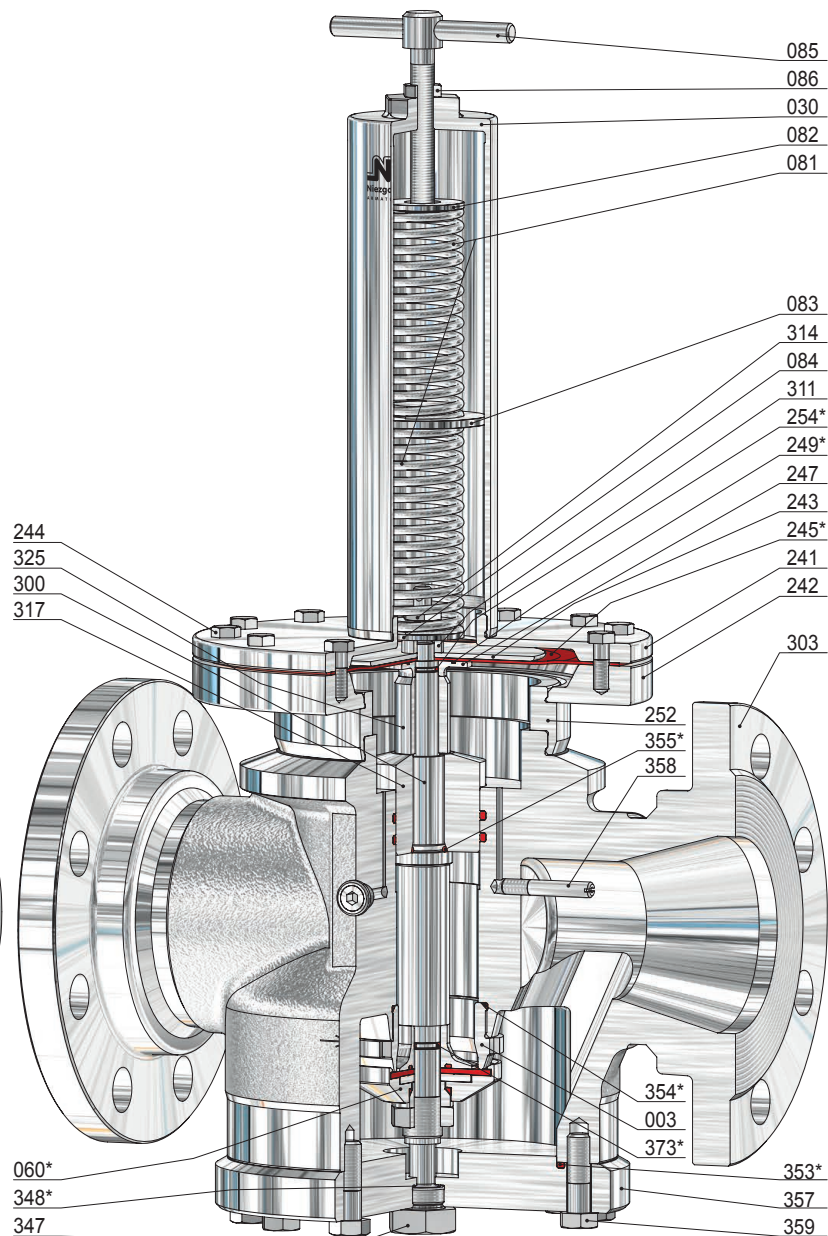
Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 75



Manometer connection G 1/4



Size IV

Item	Piece	Description	Item	Piece	Description	Item	Piece	Description
303	1	valve body	085	1	adjusting screw	325	1	distance bushing
003	1	seat	086	1	lock nut	347	1	screw
030	1	spring bonnet	120	1	cap	348 *	1	o-ring
060 *	1	disc, complete	241	1	upper housing	351 *	2	o-ring
560	1	disc	242	1	lower housing	353 *	1	o-ring
061	1	pressure piece	243	1	upper clamp plate	354 *	1	o-ring
062	1	soft sealing	244	12	screw (variable)	355 *	1	o-ring
065	1	disc bolt	245 *	1	diaphragm	357	1	bottom plug
071	1	o-ring	247	1	lower clamp plate	358	1	suction tube
072	1	locking ring	249 *	1	o-ring	359	12	screw
073	1	o-ring	252	1	adapter	373 *	1	o-ring
074	1	disc plate	254 *	1	o-ring	380	2	screw plug
081	2	spring	300	1	piston	381 *	2	sealing ring
082	1	springplate, upper	311	1	distance bush			
083	1	springplate, middle	314	1	lock nut			
084	1	springplate, lower	317	1	piston guide			

* expendable parts

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 76

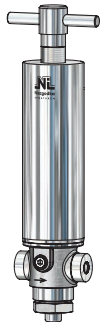
Standard version:

Material: Valve-body / media contact surfaces
Typ 76.2: BG I 1.4571 / 1.4571

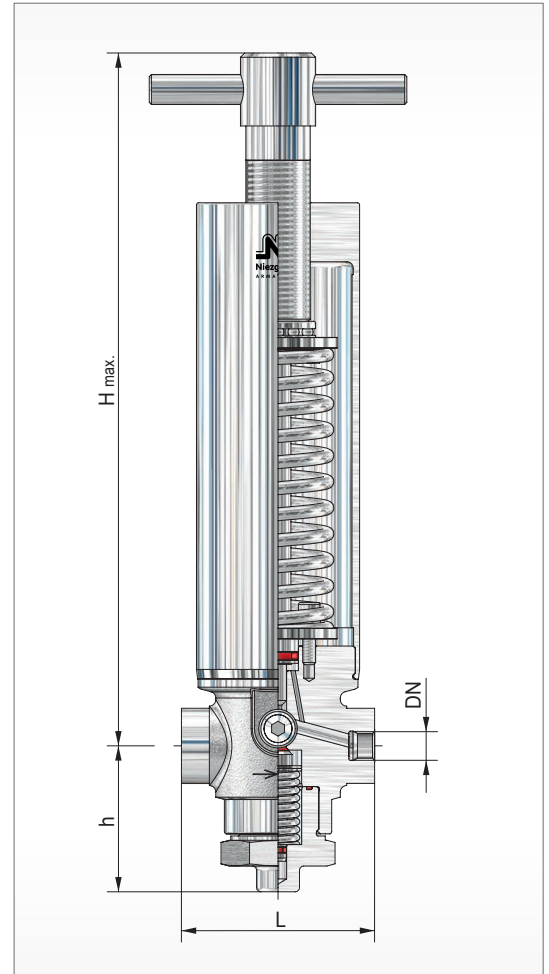
Connections: Screwed connection: DIN ISO 228 / ASME B1.20.1
Sealings: Soft sealing: Nylon
 Other seals: FPM, PTFE

Approvals:

Pressure Equipment Directive: 2014/68/EU
 Declaration of Conformity



Size I



Size	Inlet			Outlet			Dimensions			Kvs value [m³/h]	Weight ~ [kg]
	DN	G, NPT	Inlet pressure range P1 [bar(g)] max.	DN	G, NPT	Reduced pressure range P2 min. [bar(g)] max.	Height 'H' max.				
							Toggle spindle [mm]	L [mm]	h [mm]		
I	15	1/2	600	15	1/2	15 / 232	340	90	68	0,63	6,5

other design on request

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 76

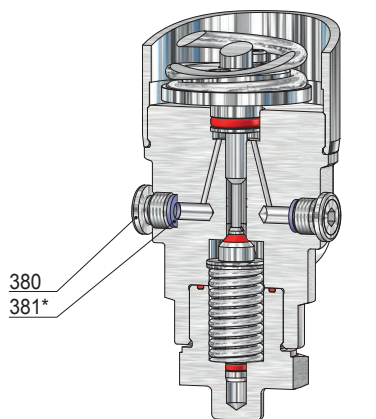
Spring ranges for reduced pressure P2

Piston plate [mm]		Ø 19	Ø 16
Size	Spring no.	[bar(g)]	
I	325	15,0 - 25,0	
	326	26,0 - 40,0	
	327	41,0 - 50,0	
	328	51,0 - 64,0	
	329	65,0 - 90,0	
	330	91,0 - 134,0	166,0 - 188,0
	331	135,0 - 165,0	189,0 - 232,0

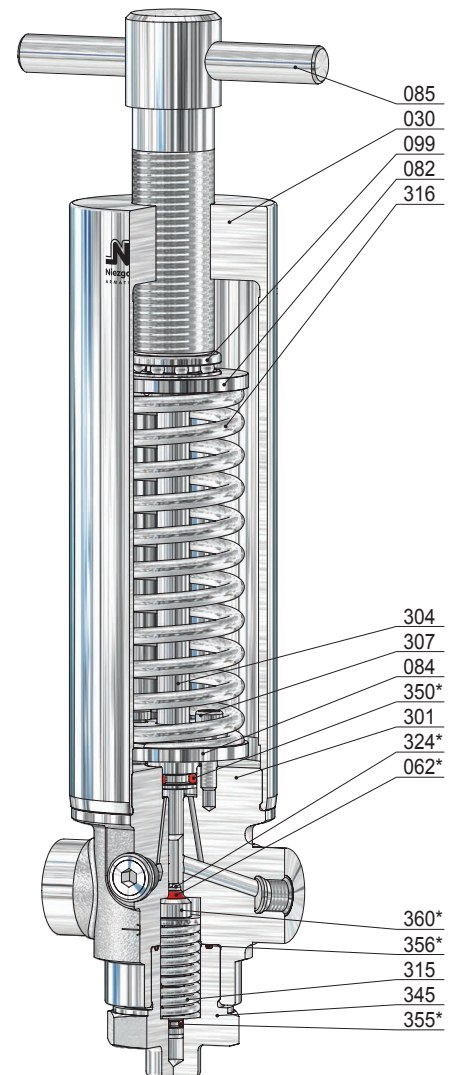
Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 76



Manometer connection G ¼



Size I

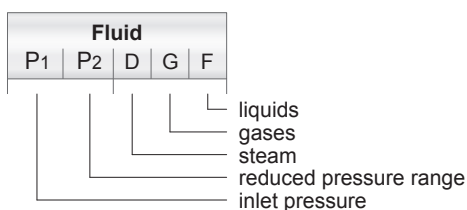
Item	Piece	Description	Item	Piece	Description
301	1	valve body	324 *	1	screw
030	1	spring bonnet	345	1	screw plug
062 *	1	soft sealing	350 *	1	o-ring
082	1	springplate, upper	355 *	1	o-ring
084	1	springplate, lower	356 *	1	sealing ring
085	1	adjusting screw	360 *	1	inlet pressure piston
099	1	antifriction bearing	380	2	screw plug
304	1	outlet pressure piston	381 *	2	sealing ring
307	2	screw			
315	1	inlet pressure spring			
316	1	outlet pressure spring			

* expendable parts



Index

Type	Use	Fluid	Material	Inlet DN [mm]	P1 max. [bar(g)]	P2 min. [bar(g)] max.
70 SKM	Pressure Reducing Valve, springloaded, piston-controlled, for gases and liquids	G/F	stainless steel	6 - 8 1/8 - 1/4	16	1,00 / 7,00
70 SKK	Pressure Reducing Valve, springloaded, piston-controlled, for steam, gases and liquids	D/G/F	stainless steel	8 - 15 1/4 - 1/2	63	0,35 / 17,00
70 SKS	Pressure Reducing Valve, springloaded, piston-controlled, for steam, gases and liquids	D/G/F	stainless steel	15 - 80 1/2 - 3	100	0,25 / 73,00
70 SKG	Pressure Reducing Valve, springloaded, piston-controlled, for steam, gases and liquids	D/G/F	stainless steel	65 - 100 2 1/2 - 4	40	0,20 / 12,00
70 SMK	Pressure Reducing Valve, springloaded, diaphragm-controlled, for steam, gases and liquids	D/G/F	stainless steel	8 - 15 1/4 - 1/2	25	0,005 / 0,45
70 SMS	Pressure Reducing Valve, springloaded, diaphragm-controlled, for steam, gases and liquids	D/G/F	stainless steel	15 - 80 1/2 - 3	25	0,005 / 0,40
70 SMG	Pressure Reducing Valve, springloaded, diaphragm-controlled, for steam, gases and liquids	D/G/F	stainless steel	65 - 100 2 1/2 - 4	25	0,005 / 0,30
<ul style="list-style-type: none"> Option list 						



Pressure-Reducing-Valve, springloaded

for gases and liquids

Typ 70 SKM

Standard version:

Material: Valve-body / media contact surfaces
Typ 70 SKM: BG 00 1.4571 / 1.4571

Connections:
 Screwed connection e.g. DIN ISO 228 IG

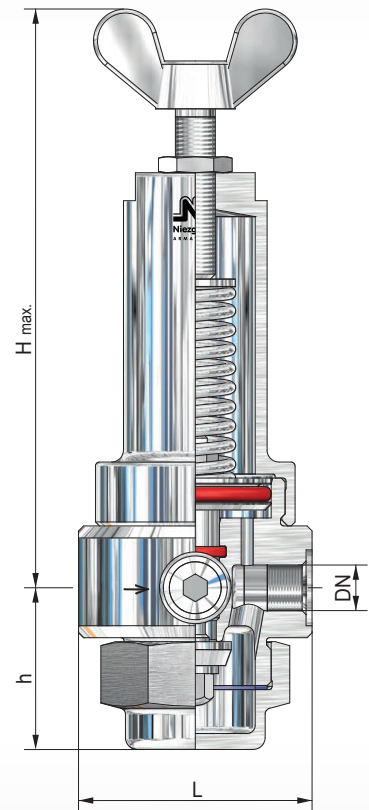
Options: Surface quality inside and outside
Disc seals: PTFE

Features:

- Relieved disc, independent of inlet pressure
- Medium-contacted inner parts $Ra \leq 2,6 \mu m$
- Piston controled
- Steam sterilisation up to 130°C
- Tight with zero-consumption

Approvals:

Pressure Equipment Directive: 2014/68/EU
 Declaration of Conformity



Size 00

Size	Inlet			Outlet			Dimensions			Kvs value [m³/h]
	PN			PN			Height 'H' max.			
	DN	G, NPT	Inlet pressure range P1 [bar(g)]	DN	G, NPT	Reduced pressure range P2 min. [bar(g)] max.	Thumbscrew [mm]	L [mm]	h [mm]	
00	6 8	1/8 1/4	16	6 8	1/8 1/4	1,00 / 7,00	160	58	36	0,63

other design on request

Pressure-Reducing-Valve, springloaded

for gases and liquids

**Typ 70
SKM**

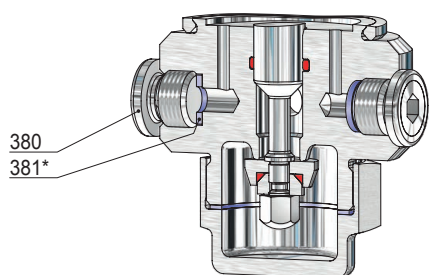
Spring ranges for reduced pressure P2

Piston plate [mm]		Ø 38
Size	Spring no.	[bar(g)]
00	635	1,00 - 2,00
	637	2,10 - 3,00
	640	3,10 - 4,00
	641	4,10 - 5,00
	643	5,10 - 6,00
	645	6,10 - 7,00

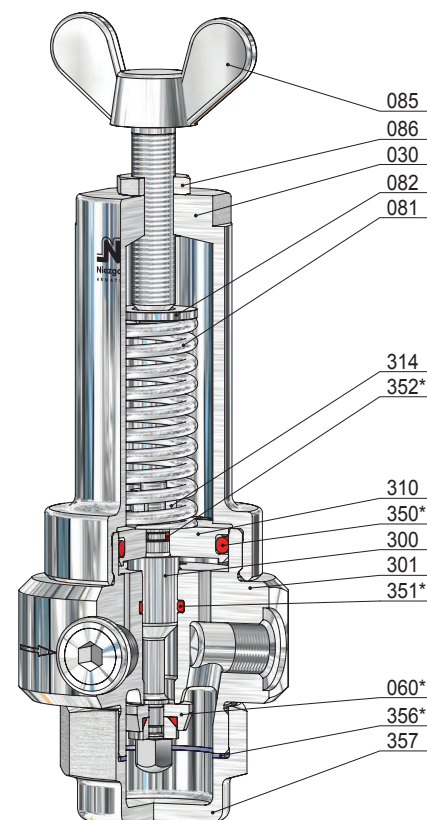
Pressure-Reducing-Valve, springloaded

for gases and liquids

Typ 70 SKM



Manometer connection G $\frac{1}{4}$



Size 00

Item	Piece	Description	Item	Piece	Description
301	1	valve body	350 *	1	o-ring
030	1	spring bonnet	351 *	1	o-ring
060 *	1	disc, complete	352 *	1	o-ring
560	1	disc	356 *	1	sealing ring
061	1	pressure piece	357	1	bottom plug
065	1	disc bolt	380	2	screw plug
071	1	o-ring	381 *	2	sealing ring
081	1	spring			
082	1	springplate, upper			
085	1	adjusting screw			
086	1	lock nut			
300	1	piston			
310	1	piston plate			
314	1	lock nut			

* expendable parts

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 70 SKK

Standard version:

Material: Valve-body / media contact surfaces
Typ 70 SKK: BG 0 1.4301 / 1.4571
 1.4435 / 1.4404

Connections:
 Aseptic flange e.g. DIN 11864-2 **F (...)**
 Flange e.g. DIN 2633 (PN16) **F**
 Screwed connection e.g. DIN ISO 228 **IG**
 Male union e.g. DIN 11851 **GA, GA (...)**
 Clamp liner e.g. DIN 32676 **CL, CL (...)**

Options:
 CIP able design
 Air loaded
 Surface quality inside and outside
 Seals with USP-, ADI-Certificate

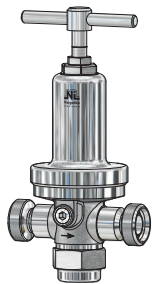
Features:
 • Forged valve body
 • Relieved disc, independent of inlet pressure
 • Medium-contacted inner parts $Ra \leq 2,6 \mu m$

Sealings:
 AF100 (steam up to 200°C)
FDA-konforme sealings:
 EPDM (steam sterilisation up to 140°C)
 PTFE, EPDM (steam up to 150°C)
 PTFE, EPDM (steam up to 200°C)

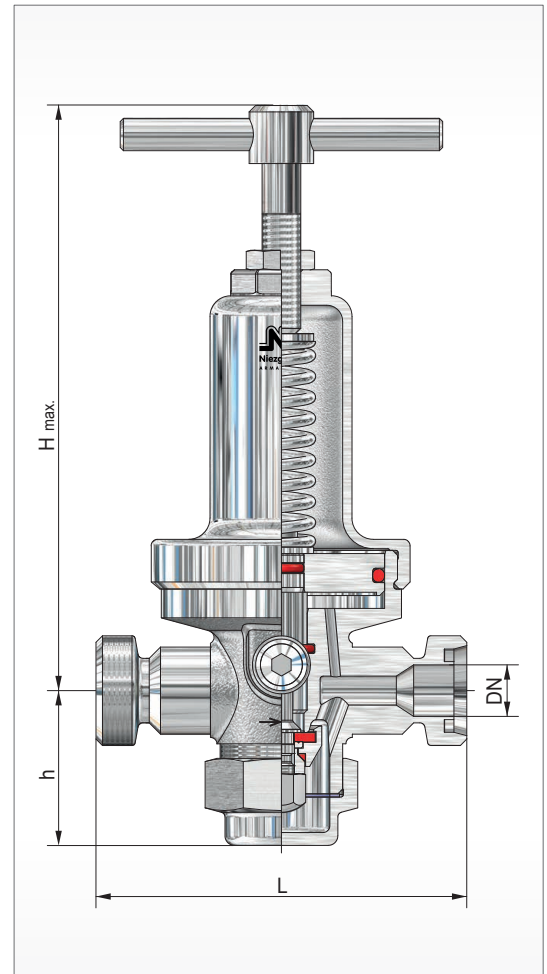
• Piston controlled
 • Tight with zero-consumption
 • Steam sterilisation up to 140°C

Approvals:

Pressure Equipment Directive: 2014/68/EU
 Declaration of Conformity



Size 0
GA



Size	Inlet			Outlet			Dimensions				Kvs value [m³/h]
	PN			PN			Height 'H' max.				
	DN	NPS	Inlet pressure range P1 [bar(g)]	DN	NPS	Reduced pressure range P2 min. [bar(g)] max.	Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]	
0	8 10 15	1/4 3/8 1/2	63	8 10 15	1/4 3/8 1/2	0,35 / 17,00	see page (A 70 SKK)				1,2 2,0 2,2

other design on request

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

**Typ 70
SKK**

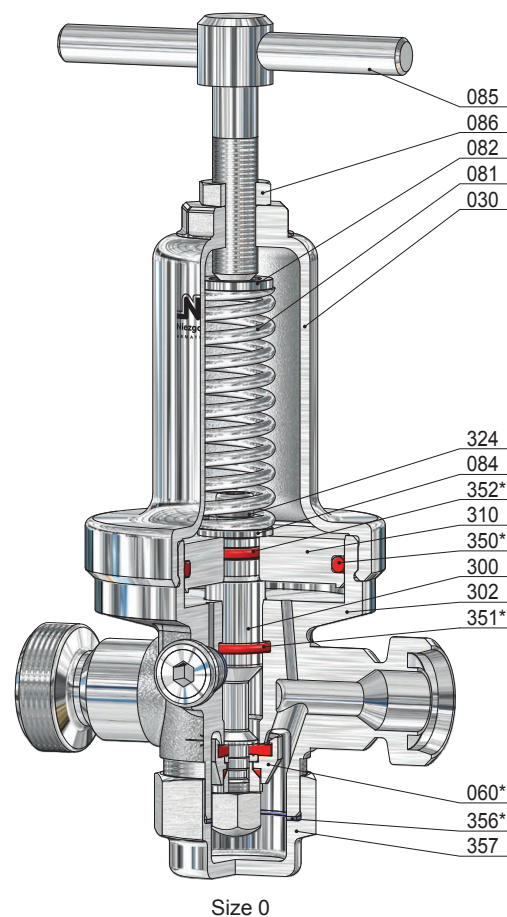
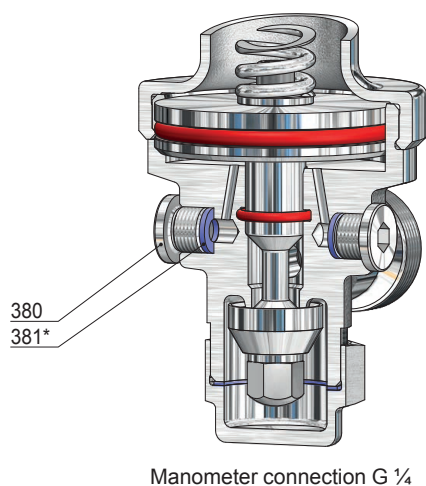
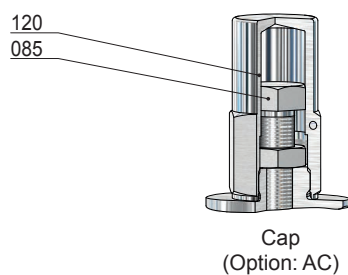
Spring ranges for reduced pressure P2

Piston plate [mm]		Ø 64	Ø 48	Ø 38	Ø 27
Size	Spring no.	[bar(g)]			
0	98	0,35 - 0,50			
	99	0,60 - 0,80			
	100	0,90 - 1,20			
	101	1,30 - 1,80	2,40 - 3,00	4,10 - 5,00	6,60 - 10,00
	102	1,90 - 2,30	3,10 - 4,00	5,10 - 6,50	10,10 - 12,00
	103				12,10 - 17,00

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 70 SKK



Item	Piece	Description	Item	Piece	Description
302	1	valve body	086	1	lock nut
030	1	spring bonnet	120	1	cap
060 *	1	disc, complete	300	1	piston
560	1	disc	310	1	piston plate
061	1	pressure piece	324	1	screw
062	1	soft sealing	350 *	1	o-ring
065	1	disc bolt	351 *	1	o-ring
071	1	o-ring	352 *	1	o-ring
072	1	locking ring	356 *	1	sealing ring
073	1	o-ring <i>(only for thermoplastics soft sealing)</i>	357	1	bottom plug
081	1	spring	380	2	screw plug
082	1	springplate, upper	381 *	2	sealing ring
084	1	springplate, lower			
085	1	adjusting screw			

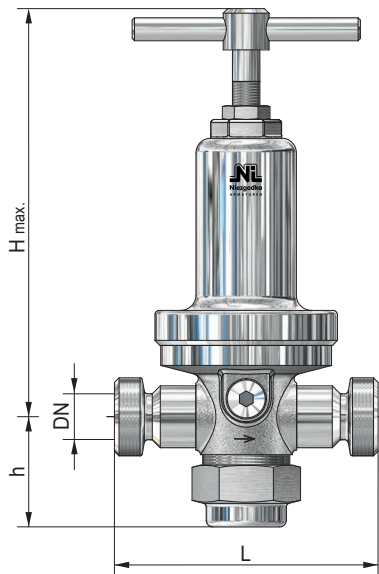
* expendable parts

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 70 SKK

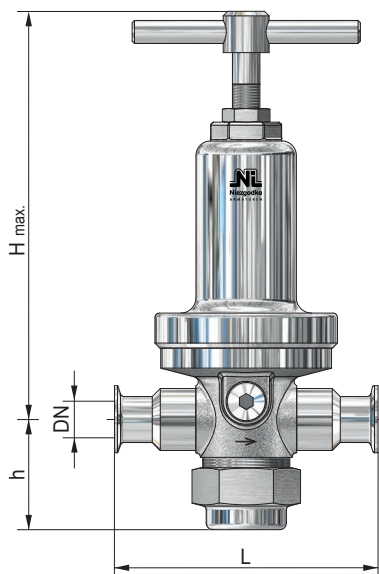
Connections



Series: SKK-GA / GA (AS)

Male union
e.g. DIN 11851 / 11864-1

Size	Inlet / Outlet		Dimensions				Weight ~ [kg]
	DN	Thread DIN 405	Height 'H' max.				
			Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]	
0	10	Rd 28x1/8"	205	180	115	48	2,2
	15	Rd 34x1/8"					2,2



Series: SKK-CL / CL (AS)

Clamp liner
e.g. DIN 32676 / 11864-3

Size	Inlet / Outlet		Dimensions				Weight ~ [kg]
	DN	NPS	Height 'H' max.				
			Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]	
0	10	3/8	205	180	115	48	2,1
	15	1/2					2,1

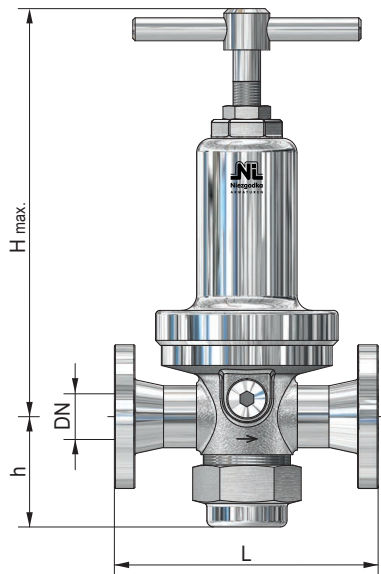
other connections on request.

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 70 SKK

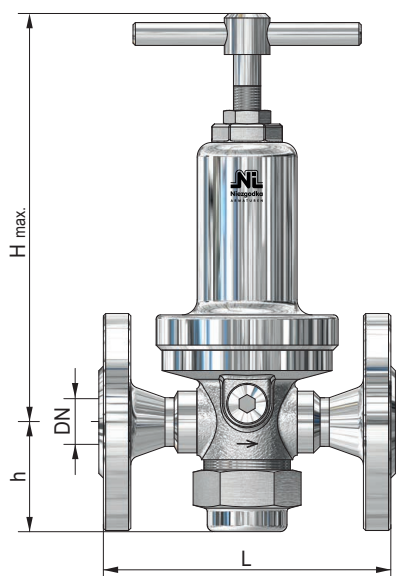
Connections



Series: SKK-F (...)

Flange (preferably flat and collar flanges collar flange)
e.g. DIN 11864-2 (AS), APV (APV), Varivent (VV)

Size	Inlet / Outlet	Dimensions				Weight	
		Height 'H' max.					
	DN	NPS	Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]	~ [kg]
0	10 15	3/8 1/2	205	180	115	48	



Series: SKK-F

Flange
e.g. DIN 2633 (PN 16) / ASME B16.5 Class 150

Size	Inlet / Outlet	Dimensions				Weight	
		Height 'H' max.					
	DN	NPS	Toggle spindle [mm]	Cap [mm]	L* [mm]	h [mm]	~ [kg]
0	10 15	- 1/2	205	180	130	48	

* up to PN 40 / Class 300 higher pressures on request

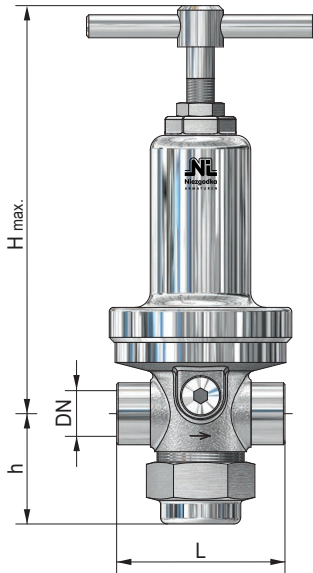
other connections on request.

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

**Typ 70
SKK**

Connections



Series: SKK-IG

Screwed connection
e.g. DIN ISO 228

Size	Inlet / Outlet	Dimensions				Weight ~ [kg]	
		Height 'H' max.					
	DN	G, NPT	Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]	
0	8	1/4	205	180	70	48	2,1
	10	3/8					2,0
	15	1/2					1,9

other connections on request.

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 70 SKS

Standard version:

Material:
Typ 70 SKS: BG I - II Valve-body / media contact surfaces 1.4301 / 1.4571
BG I - IIIB 1.4435 / 1.4404

Connections:
 Aseptic flange e.g. DIN 11864-2 **F (...)**
 Flange e.g. DIN 2633 (PN16) **F**
 Screwed connection e.g. DIN ISO 228 **IG**
 Male union e.g. DIN 11851 **GA, GA (...)**
 Clamp liner e.g. DIN 32676 **CL, CL (...)**

Options:
 CIP able design
 Air loaded
 Surface quality inside and outside
 Seals with USP-, ADI-Certificate

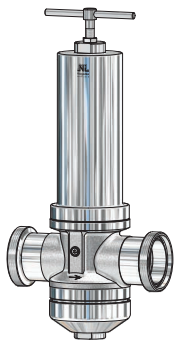
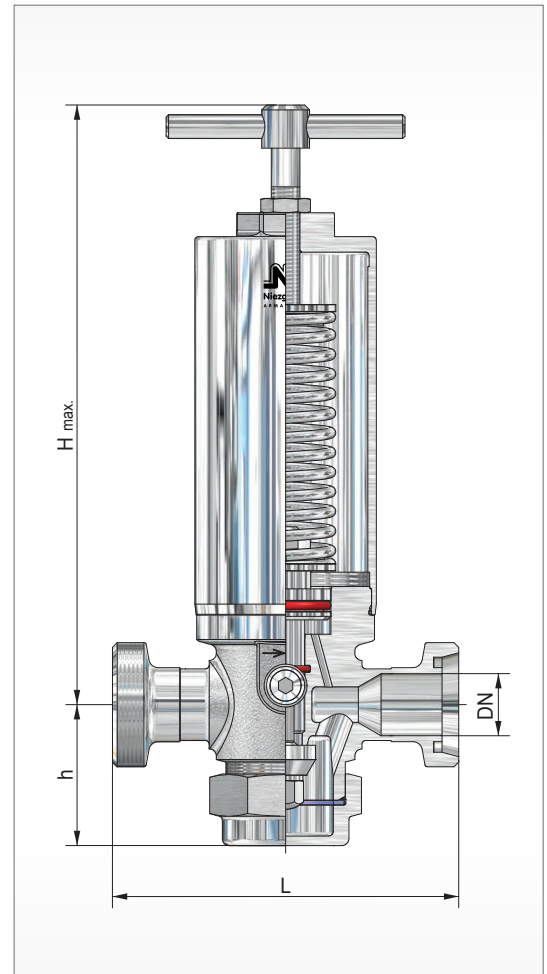
Sealings:
 AF100 (steam up to 200°C)
FDA-konforme sealings:
 EPDM (steam sterilisation up to 140°C)
 PTFE, EPDM (steam up to 150°C)
 PTFE, EPDM (steam up to 200°C)

Features:

- Forged valve body
- Relieved disc, independent of inlet pressure
- Medium-contacted inner parts Ra ≤ 2,6 µm
- Piston controlled
- Tight with zero-consumption
- Steam sterilisation up to 140°C

Approvals:

Pressure Equipment Directive: 2014/68/EU
 Declaration of Conformity



Size IIIB
GA



Size III
GA



Size II
GA



Size I
GA

Size	Inlet			Outlet			Dimensions				Kvs value [m³/h]
	PN			PN			Height 'H' max.				
	DN	NPS	Inlet pressure range P1 [bar(g)]	DN	NPS	Reduced pressure range P2 min. [bar(g)] max.	Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]	
I	15	1/2	100	15	1/2	0,35 / 73,00					3,0
	20	3/4	63	20	3/4						3,2
	25	1	63	25	1						3,5
	32	1 1/4	40	32	1 1/4						3,6
II	25	1	63	25	1	0,25 / 23,00					6,3
	32	1 1/4		32	1 1/4						6,5
	40	1 1/2		40	1 1/2						6,7
	50	2		50	2						7,0
	65	2 1/2		65	2 1/2						7,2
III	40	1 1/2	63	40	1 1/2	0,25 / 17,00					12,5
	50	2	40	50	2						13,0
	65	2 1/2	40	65	2 1/2						13,5
	80	3	40	80	3						13,7
IIIB	50	2	40	50	2	0,25 / 12,00					27,5
	65	2 1/2		65	2 1/2						28,0
	80	3		80	3						28,5

see page (A 70 SKS)

other design on request

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 70 SKS

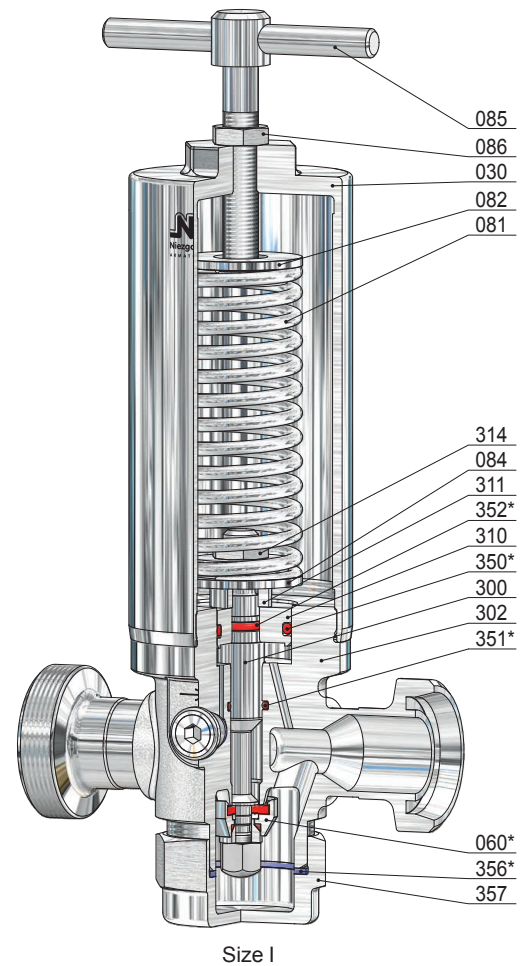
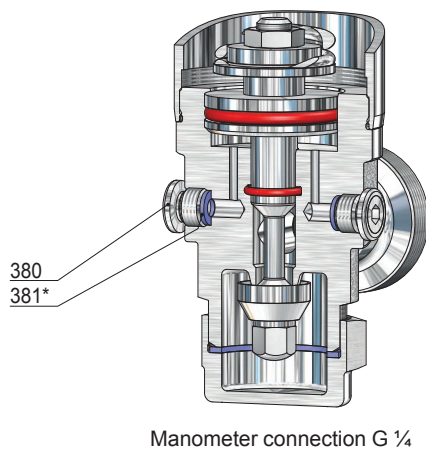
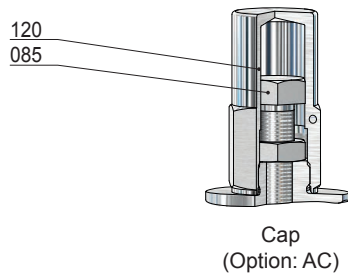
Spring ranges for reduced pressure P2

Piston plate [mm]	Ø 119	Ø 99	Ø 84	Ø 64	Ø 48	Ø 38	Ø 27
Size	Spring no.	[bar(g)]					
I	303			0,35 - 0,69			
	304			0,70 - 1,20			
	305			1,30 - 2,00			
	306			2,10 - 3,00	4,60 - 5,00	8,10 - 8,50	12,10 - 17,00
	307			3,10 - 4,50	5,10 - 8,00	8,60 - 12,00	17,10 - 25,00
	308						25,10 - 30,00
	309						30,10 - 38,00
	310						38,10 - 53,00
	311						53,10 - 73,00
II	303			0,25 - 0,35			
	304			0,36 - 0,65			
	305			0,66 - 1,00			
	306			1,10 - 1,50	2,10 - 2,80	4,10 - 5,00	7,10 - 8,00
	307			1,60 - 2,00	2,90 - 4,00	5,10 - 7,00	8,10 - 11,00
	308						11,10 - 14,00
	309						14,10 - 17,00
	310						17,10 - 23,00
III	323		0,25 - 0,35				
	324		0,36 - 0,60				
	325		0,61 - 1,00	1,10 - 1,40			
	326			1,50 - 2,00	2,60 - 3,50	4,10 - 6,50	
	327			2,10 - 2,50	3,60 - 4,00	6,60 - 7,50	
	328					7,60 - 8,50	
	329					8,60 - 12,00	
	330					12,10 - 17,00	
IIIB	353	0,25 - 0,45					
	354	0,46 - 0,75					
	355	0,76 - 1,00					
	356	1,10 - 1,60	1,70 - 2,40				
	357		2,50 - 4,00	4,10 - 5,50			
	358			5,60 - 7,50			
	359			7,60 - 9,00			
	360			9,10 - 12,00			

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 70 SKS



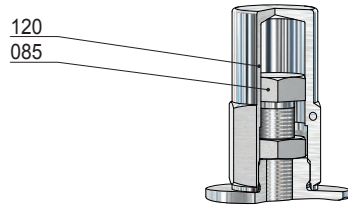
Item	Piece	Description	Item	Piece	Description
302	1	valve body	086	1	lock nut
030	1	spring bonnet	120	1	cap
060 *	1	disc, complete	300	1	piston
560	1	disc	310	1	piston plate
061	1	pressure piece	311	1	distance bush
062	1	soft sealing	314	1	screw
065	1	disc bolt	350 *	1	o-ring
071	1	o-ring	351 *	1	o-ring
072	1	locking ring	352 *	1	o-ring
073	1	o-ring <i>(only for thermoplastics soft sealing)</i>	356 *	1	sealing ring
081	1	spring	357	1	bottom plug
082	1	springplate, upper	380	2	screw plug
084	1	springplate, lower	381 *	2	sealing ring
085	1	adjusting screw			

* expendable parts

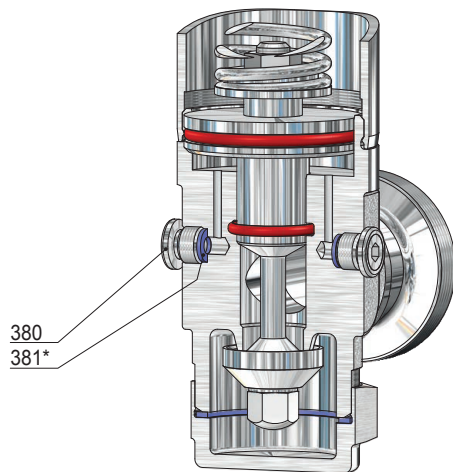
Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

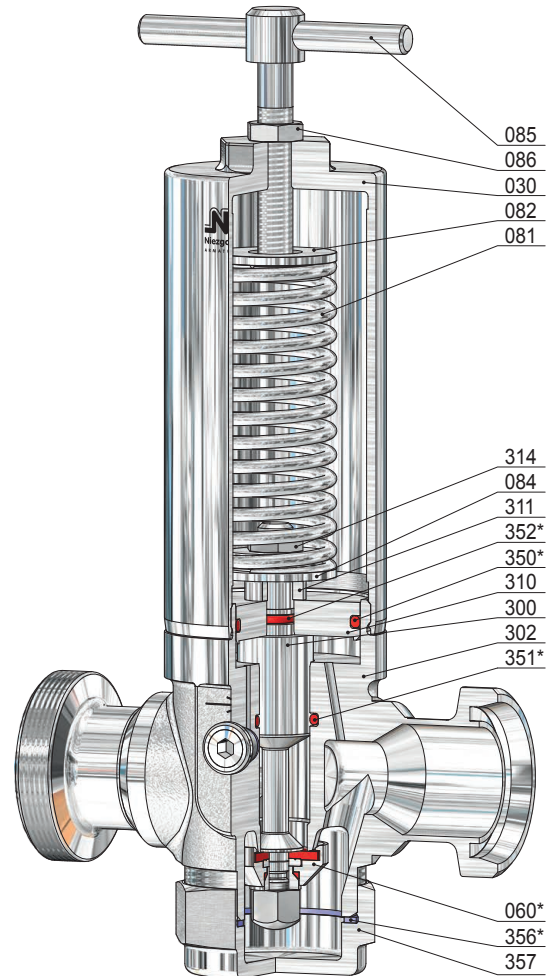
Typ 70 SKS



Cap
(Option: AC)



Manometer connection G ¼



Size II

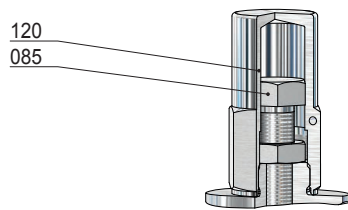
Item	Piece	Description	Item	Piece	Description
302	1	valve body	086	1	lock nut
030	1	spring bonnet	120	1	cap
060 *	1	disc, complete	300	1	piston
560	1	disc	310	1	piston plate
061	1	pressure piece	311	1	distance bush
062	1	soft sealing	314	1	screw
065	1	disc bolt	350 *	1	o-ring
071	1	o-ring	351 *	1	o-ring
072	1	locking ring	352 *	1	o-ring
073	1	o-ring <i>(only for thermoplastics soft sealing)</i>	356 *	1	sealing ring
081	1	spring	357	1	bottom plug
082	1	springplate, upper	380	2	screw plug
084	1	springplate, lower	381 *	2	sealing ring
085	1	adjusting screw			

* expendable parts

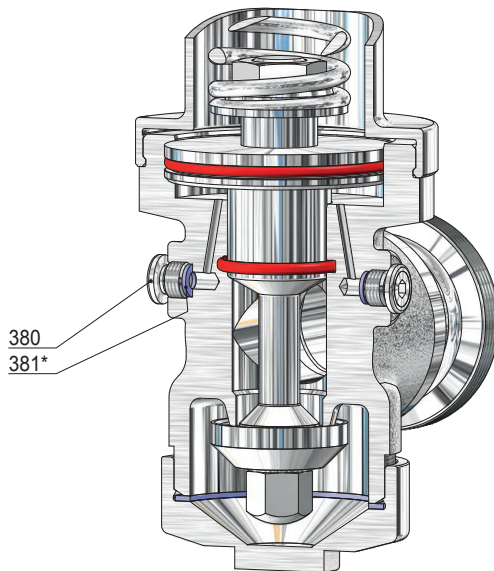
Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

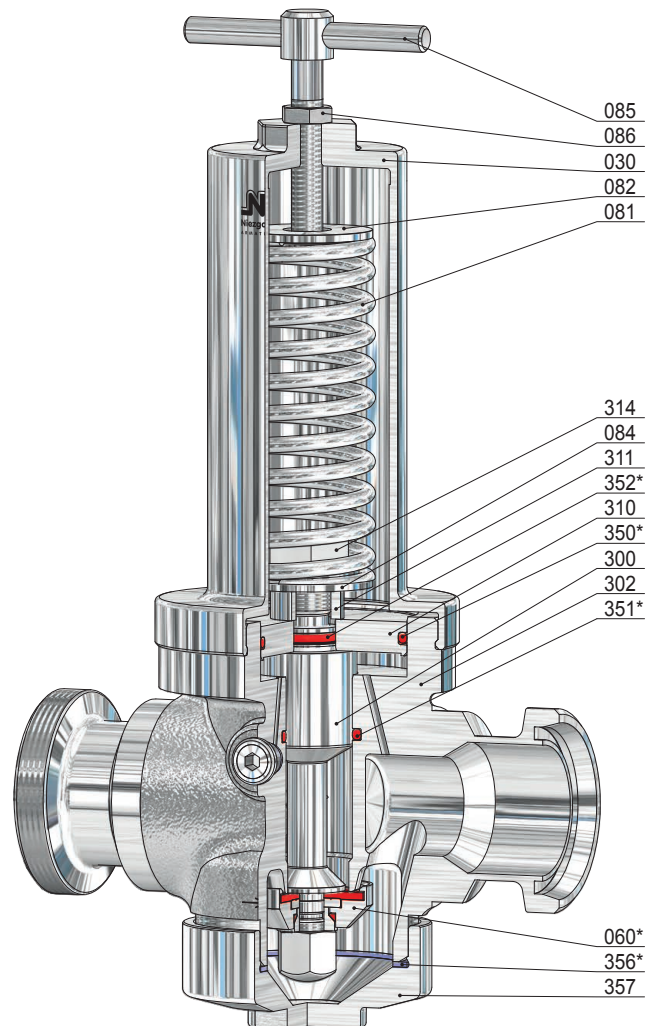
Typ 70 SKS



Cap
(Option: AC)



Manometer connection G 1/4



Size III

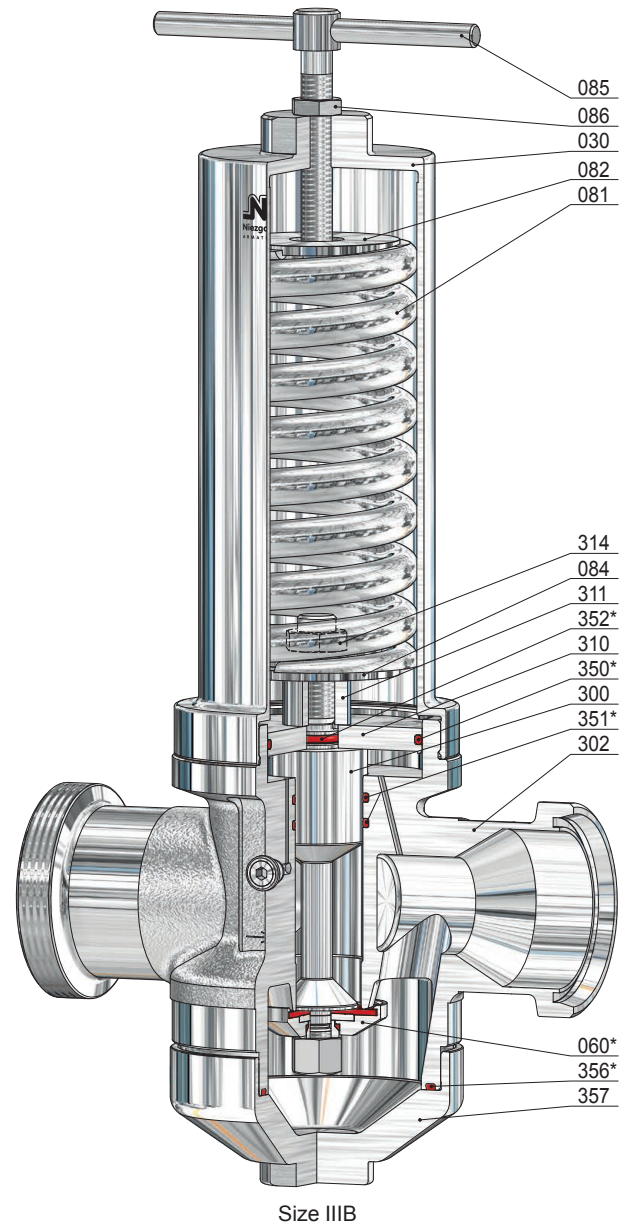
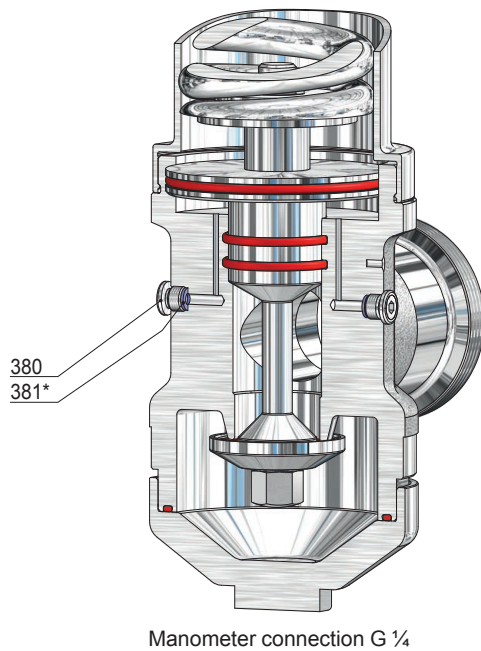
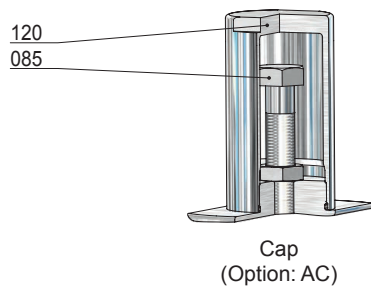
Item	Piece	Description	Item	Piece	Description
302	1	valve body	086	1	lock nut
030	1	spring bonnet	120	1	cap
060 *	1	disc, complete	300	1	piston
560	1	disc	310	1	piston plate
061	1	pressure piece	311	1	distance bush
062	1	soft sealing	314	1	screw
065	1	disc bolt	350 *	1	o-ring
071	1	o-ring	351 *	1	o-ring
072	1	locking ring	352 *	1	o-ring
073	1	o-ring <i>(only for thermoplastics soft sealing)</i>	356 *	1	sealing ring
081	1	spring	357	1	bottom plug
082	1	springplate, upper	380	2	screw plug
084	1	springplate, lower	381 *	2	sealing ring
085	1	adjusting screw			

* expendable parts

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 70 SKS



Item	Piece	Description	Item	Piece	Description
302	1	valve body	086	1	lock nut
030	1	spring bonnet	120	1	cap
060 *	1	disc, complete	300	1	piston
560	1	disc	310	1	piston plate
061	1	pressure piece	311	1	distance bush
062	1	soft sealing	314	1	screw
065	1	disc bolt	350 *	1	o-ring
071	1	o-ring	351 *	2	o-ring
072	1	locking ring	352 *	1	o-ring
073	1	o-ring <i>(only for thermoplastics soft sealing)</i>	356 *	1	sealing ring
081	1	spring	357	1	bottom plug
082	1	springplate, upper	380	2	screw plug
084	1	springplate, lower	381 *	2	sealing ring
085	1	adjusting screw			

* expendable parts

Pressure-Reducing-Valve, springloaded

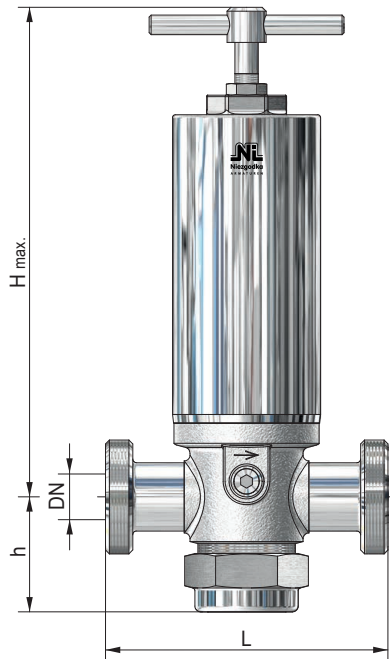
for steam, gases and liquids

Typ 70 SKS

Connections

Series: SKS-GA / GA (AS)

Male union
e.g. DIN 11851 / 11864-1

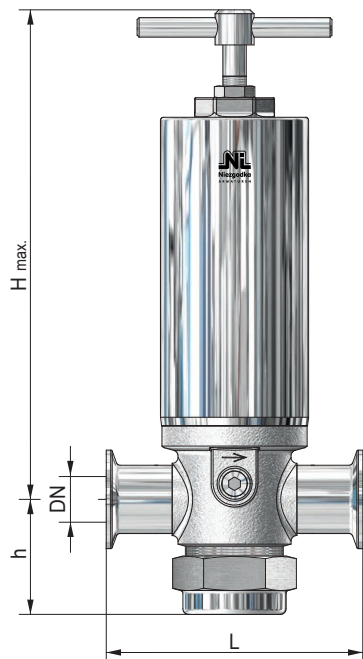


Size	Inlet / Outlet		Dimensions				Weight ~ [kg]
	DN	Thread	Height 'H' max.				
			Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]	
I	15	Rd 34x1/8"	275	255	129	58	4,1
	20	Rd 44x1/6"			135		4,1
	25	Rd 52x1/6"			145		4,6
	32 *	Rd 58x1/6"			145		5,2
II	25	Rd 52x1/6"	305	265	160	68	5,4
	32	Rd 58x1/6"			166		5,8
	40	Rd 65x1/6"			168		6,0
	50	Rd 78x1/6"			170		6,8
	65 *	Rd 95x1/6"			175		7,0
III	40	Rd 65x1/6"	325	305	208	85	10,5
	50	Rd 78x1/6"			212		11,0
	65	Rd 95x1/6"			222		11,5
	80 *	Rd 110x1/4"			235		12,0
IIIB	50	Rd 78x1/6"	545	495	270	145	30,5
	65	Rd 95x1/6"			280		31,5
	80 *	Rd 110x1/4"			290		32,0

* Applies only to DIN 11851

Series: SKS-CL / CL (AS)

Clamp liner
e.g. DIN 32676 / 11864-3



Size	Inlet / Outlet		Dimensions				Weight ~ [kg]
	DN	NPS	Height 'H' max.				
			Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]	
I	15	1/2	275	255	120	58	4,0
	20	3/4			120		4,0
	25	1			130		4,5
II	25	1	305	265	145	68	5,2
	32	1 1/4					5,6
	40	1 1/2					5,8
	50	2					6,5
III	40	1 1/2	325	305	180	85	9,8
	50	2					10,5
	65	2 1/2					11,5
IIIB	50	2	545	495	260	145	30,0
	65	2 1/2					31,0
	80	3					31,5

other connections on request.

Pressure-Reducing-Valve, springloaded

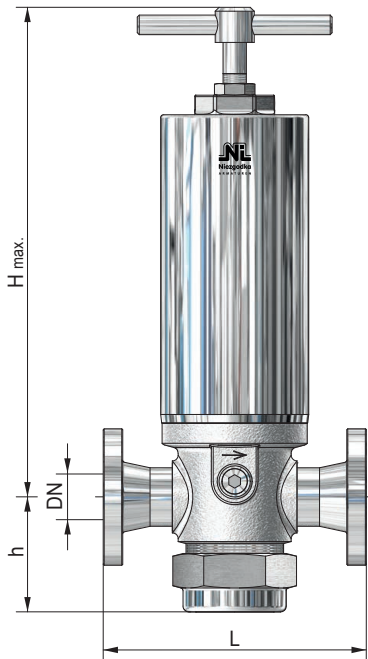
for steam, gases and liquids

Typ 70 SKS

Connections

Series: SKS-F (...)

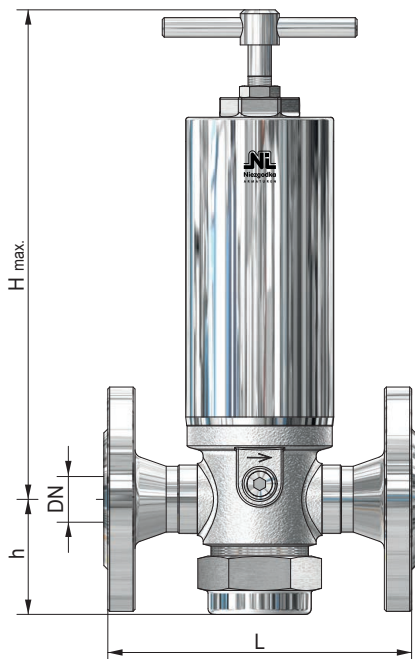
Flange (preferably flat and collar flanges collar flange)
e.g. DIN 11864-2 (AS), APV (APV), Varivent (VV)



Size	Inlet / Outlet		Dimensions				Weight
	DN	NPS	Height 'H' max.				
			Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]	~ [kg]
I	15	1/2	275	255	135	58	4,5
	20	3/4					4,5
	25	1					4,9
II	25	1	305	265	150	68	5,6
	32	1 1/4					6,2
	40	1 1/2					6,5
	50	2					7,2
III	40	1 1/2	325	305	190	85	11,0
	50	2					11,6
	65	2 1/2					12,6
IIIB	50	2	545	495	260	145	31,5
	65	2 1/2					32,5
	80	3					33,0

Series: SKS-F

Flange
e.g. DIN 2633 (PN 16) / ASME B16.5 Class 150



Size	Inlet / Outlet		Dimensions				Weight
	DN	NPS	Height 'H' max.				
			Toggle spindle [mm]	Cap [mm]	L* [mm]	h [mm]	~ [kg]
I	15	1/2	275	255	130	58	5,5
	20	3/4			150		5,5
	25	1			160		6,0
II	25	1	305	265	160	68	8,0
	32	1 1/4			180		9,0
	40	1 1/2			200		9,5
	50	2			230		10,5
III	65	2 1/2	325	305	290	85	11,5
	40	1 1/2			200		13,0
	50	2			230		14,0
	65	2 1/2			290		17,5
IIIB	80	3	545	495	310	145	19,0
	50	2			300		35,0
	65	2 1/2			290		36,0
	80	3			310		37,0

* up to PN 40 / Class 300 higher pressures on request

other connections on request.

Pressure-Reducing-Valve, springloaded

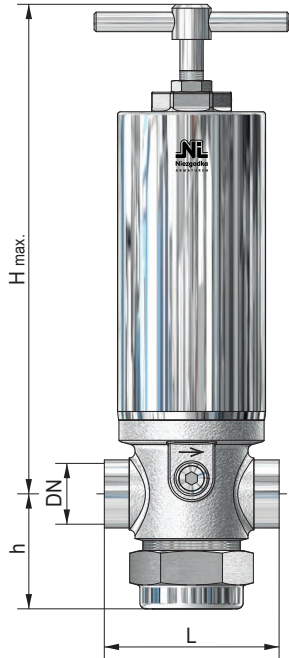
for steam, gases and liquids

Typ 70 SKS

Connections

Series: SKS-IG

Screwed connection
e.g. DIN ISO 228



Size	Inlet / Outlet	Dimensions				Weight ~ [kg]
		Height 'H' max.				
		Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]	
I	15 / 1/2	275	255	90	58	3,4
	20 / 3/4			90		3,5
	25 / 1			135		3,7
	32 / 1 1/4			140		3,9
II	25 / 1	305	265	105	68	4,6
	32 / 1 1/4			105		4,6
	40 / 1 1/2			155		4,7
	50 / 2			185		5,8
III	40 / 1 1/2	325	305	145	85	9,0
	50 / 2			145		9,4
	65 / 2 1/2			210		10,5
IIIB	50 / 2	545	495	220	145	29,0
	65 / 2 1/2			220		29,5

other connections on request.

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 70 SKG

Standard version:

Material: Valve-body / media contact surfaces
Typ 70 SKG: BG IV 1.4435 / 1.4404
 1.4571 / 1.4571

Connections:
 Aseptic flange e.g. DIN 11864-2 F (...)
 Flange e.g. DIN 2633 (PN16) F
 Male union e.g. DIN 11851 GA, GA (...)

Options:
 CIP able design
 Air loaded
 Surface quality inside and outside
 Seals with USP-, ADI-Certificate

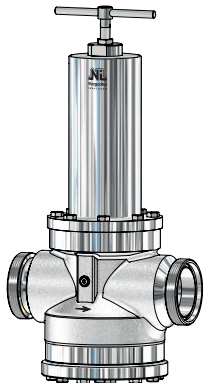
Sealings:
 AF100 (steam up to 200°C)
FDA-konforme sealings:
 EPDM (steam sterilisation up to 140°C)
 PTFE, EPDM (steam up to 150°C)
 PTFE, EPDM (steam up to 200°C)

Features:

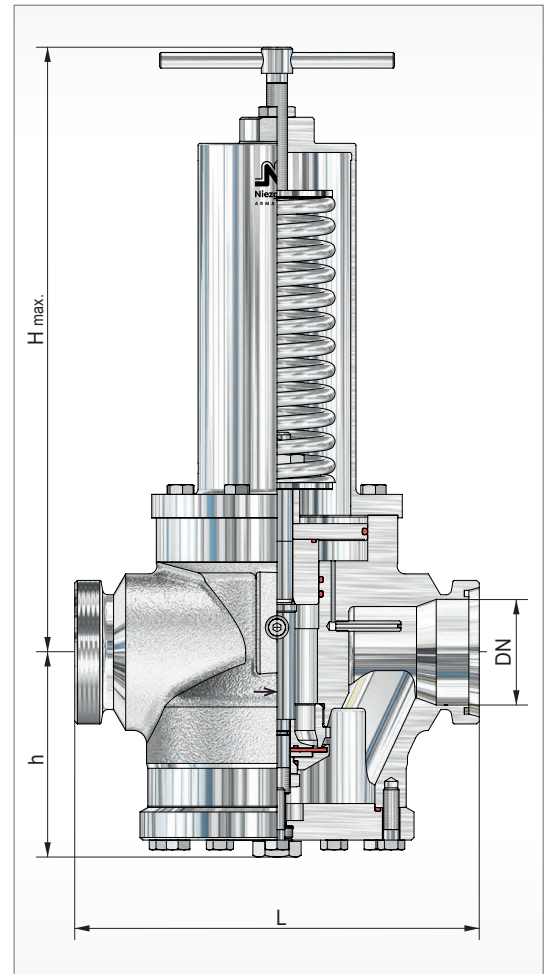
- Forged valve body
- Relieved disc, independent of inlet pressure
- Medium-contacted inner parts Ra ≤ 2,6 µm
- Piston controlled
- Tight with zero-consumption
- Steam sterilisation up to 140°C

Approvals:

Pressure Equipment Directive: 2014/68/EU
 Declaration of Conformity



Size IV
GA



BG	Inlet			Outlet			Dimensions				Kvs value [m³/h]
	PN			PN			Height 'H' max.				
	DN	NPS	Inlet pressure range P1 [bar(g)]	DN	NPS	Reduced pressure range P2 min. [bar(g)] max.	Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]	
IV	65 80 100	2 1/2 3 4	40	65 80 100	2 1/2 3 4	0,20 / 12,00	see page (A 70 SKG)				48,0 50,0 53,0

other design on request

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 70 SKG

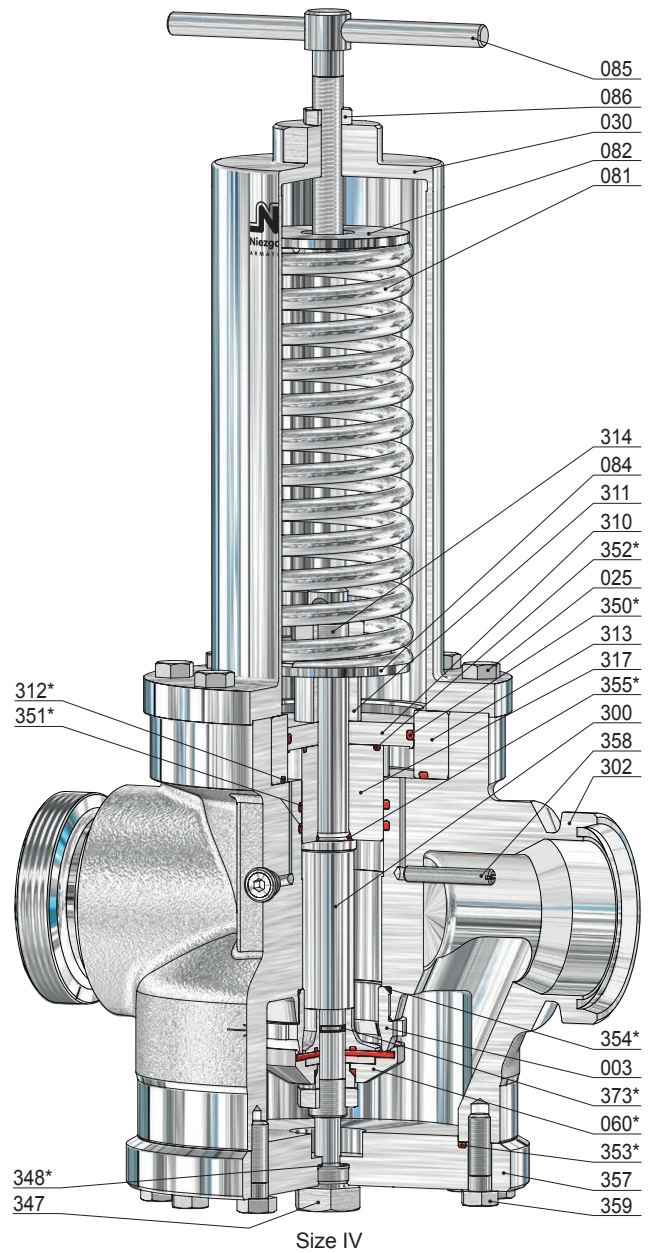
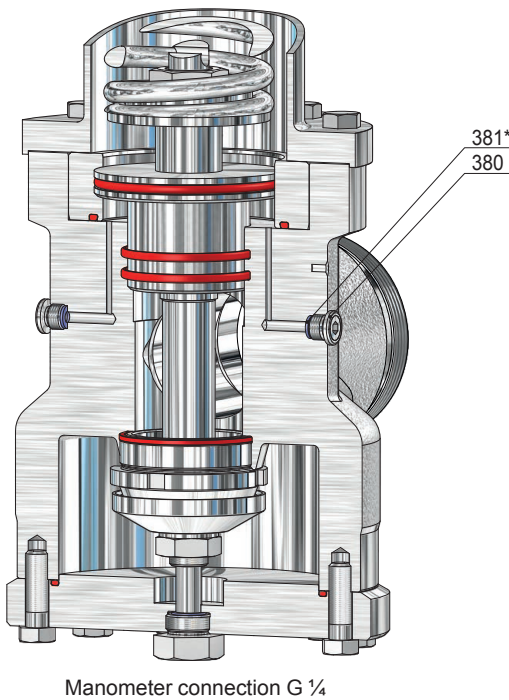
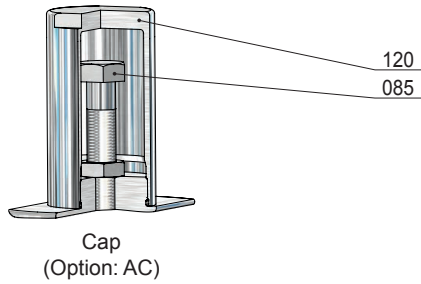
Spring ranges for reduced pressure P₂

Piston plate [mm]		Ø 139	Ø 99	Ø 84
Size	Spring no.	[bar(g)]		
IV	353	0,20 - 0,34		
	354	0,35 - 0,55		
	355	0,56 - 0,80		
	356	0,90 - 1,20	2,10 - 2,40	
	357	1,30 - 2,00	2,50 - 4,00	4,10 - 5,50
	358			5,60 - 7,50
	359			7,60 - 9,00
	360			9,10 - 12,00

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 70 SKG



Item	Piece	Description	Item	Piece	Description	Item	Piece	Description
302	1	valve body	082	1	springplate, upper	350 *	1	o-ring
003	1	seat	084	1	springplate, lower	351 *	2	o-ring
025	8	screw	085	1	adjusting screw	352 *	1	o-ring
030	1	spring bonnet	086	1	lock nut	353 *	1	o-ring
060 *	1	disc, complete	120	1	cap	354 *	1	o-ring
560	1	disc	300	1	piston	355 *	1	o-ring
061	1	pressure piece	310	1	piston plate	357	1	bottom plug
062	1	soft sealing	311	1	distance bush	358	1	suction tube
065	1	disc bolt	312 *	1	o-ring	359	12	screw
071	1	o-ring	313	1	piston plate ring	373 *	1	o-ring
072	1	locking ring	314	2	lock nut	380	2	screw plug
073	1	o-ring	317	1	piston guide	381 *	2	sealing ring
074	1	disc plate	347	1	screw			
081	1	spring	348 *	1	o-ring			

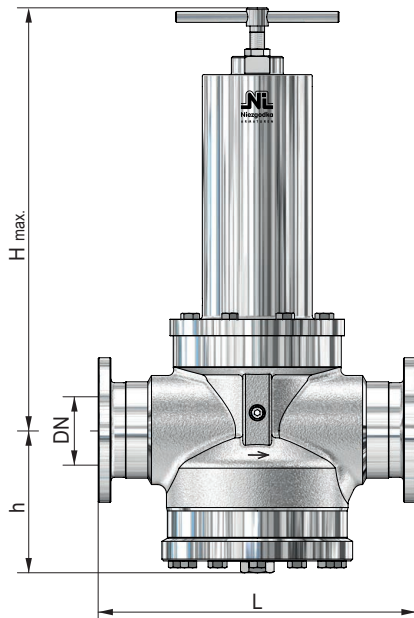
* expendable parts

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 70 SKG

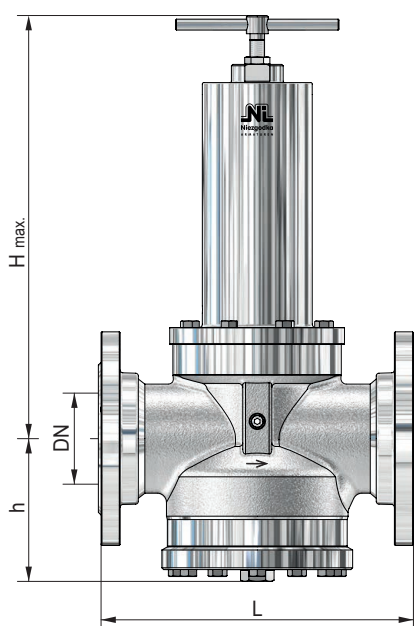
Connections



Series: SKG-F (...)

Flange (preferably flat and collar flanges collar flange)
e.g. DIN 11864-2 (AS), APV (APV), Varivent (VV)

Size	Inlet / Outlet	Dimensions				Weight ~ [kg]		
		Height 'H' max.						
		Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]			
IV	65	2 1/2	550	505	290	157	62,0	
	80	3			310			63,0
	100	4			350			



Series: SKG-F

Flange
e.g. DIN 2633 (PN 16) / ASME B16.5 Class 150

Size	Inlet / Outlet	Dimensions				Weight ~ [kg]		
		Height 'H' max.						
		Toggle spindle [mm]	Cap [mm]	L* [mm]	h [mm]			
IV	65	2 1/2	550	505	290	157	66,0	
	80	3			310			68,0
	100	4			350			

* up to PN 40 / Class 300 higher pressures on request

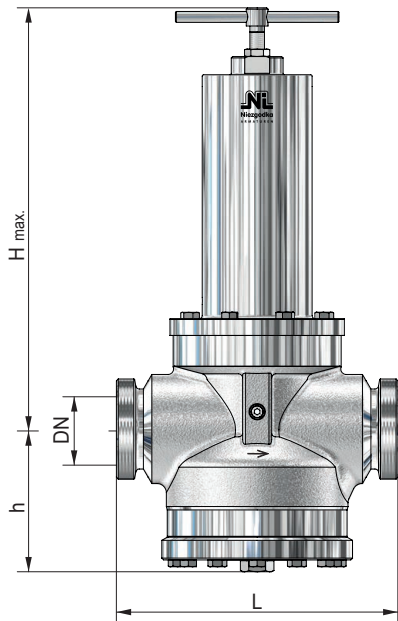
other connections on request.

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 70 SKG

Connections



Series: SKG-GA / GA (AS)

Male union
e.g. DIN 11851 / 11864-1

Size	Inlet	/ Outlet	Dimensions				Weight
			Height 'H' max.				
	DN	Thread	Toggle spindle	Cap	L	h	
		DIN 405	[mm]	[mm]	[mm]	[mm]	~ [kg]
IV	65	Rd 95x1/6"	550	505	350	157	61,0
	80	Rd 110x1/4"					62,0
	100	Rd 130x1/4"					63,0

other connections on request.

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 70 SMK

Standard version:

Material: Valve-body / media contact surfaces
Typ 70 SMK: BG 0 1.4301 / 1.4571
 1.4435 / 1.4404

Connections:

Aseptic flange e.g. DIN 11864-2 **F (...)**
 Flange e.g. DIN 2633 (PN16) **F**
 Screwed connection e.g. DIN ISO 228 **IG**
 Male union e.g. DIN 11851 **GA, GA (...)**
 Clamp liner e.g. DIN 32676 **CL, CL (...)**

Options:

CIP able design
 Air loaded
 Surface quality inside and outside
 Seals with USP-, ADI-Certificate

Sealings:

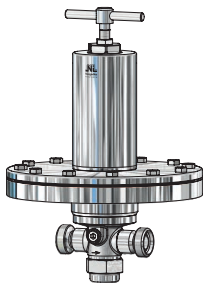
AF100 (steam up to 200°C)
FDA-konforme sealings:
 EPDM (steam sterilisation up to 140°C)
 PTFE, EPDM (steam up to 150°C)
 PTFE, EPDM (steam up to 200°C)

Features:

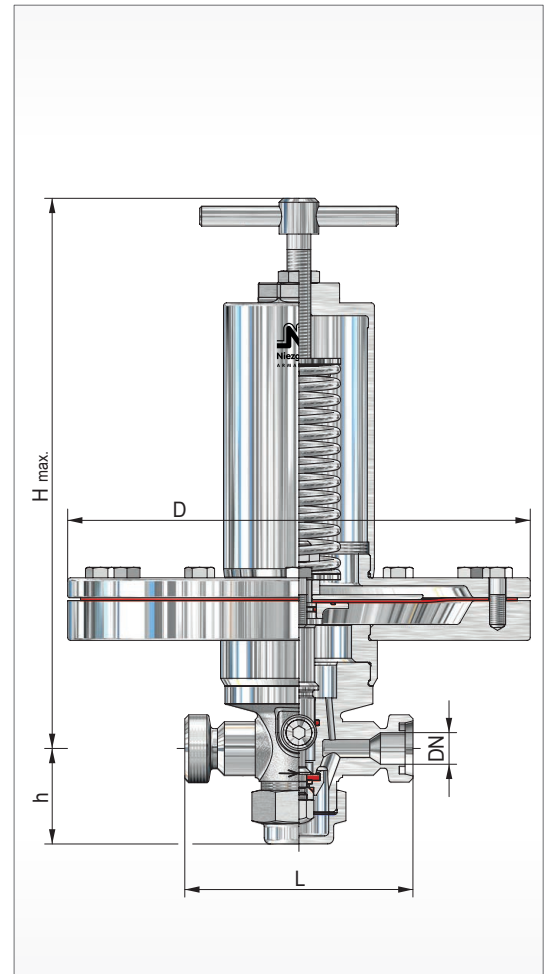
- Forged valve body
- Relieved disc, independent of inlet pressure
- Medium-contacted inner parts Ra ≤ 2,6 µm
- Diaphragm control
- Tight with zero-consumption
- Steam sterilisation up to 140°C

Approvals:

Pressure Equipment Directive: 2014/68/EU
 Declaration of Conformity



Size 0
GA



Size	Inlet			Outlet			Dimensions							Kvs value [m³/h]
	DN	NPS	Inlet pressure range P1 [bar(g)] max.	DN	NPS	Reduced pressure range P2 min. [bar(g)] max.	Height 'H' max.		Diaphragm Ø = D					
							Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]	Design [mm]			
0	8	1/4	25	8	1/4	0,005 / 0,45	see page (A 70 SMK)		405	310	235	190	1,2	
	10	3/8		2,0										
	15	1/2		2,2										

other design on request

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

**Typ 70
SMK**

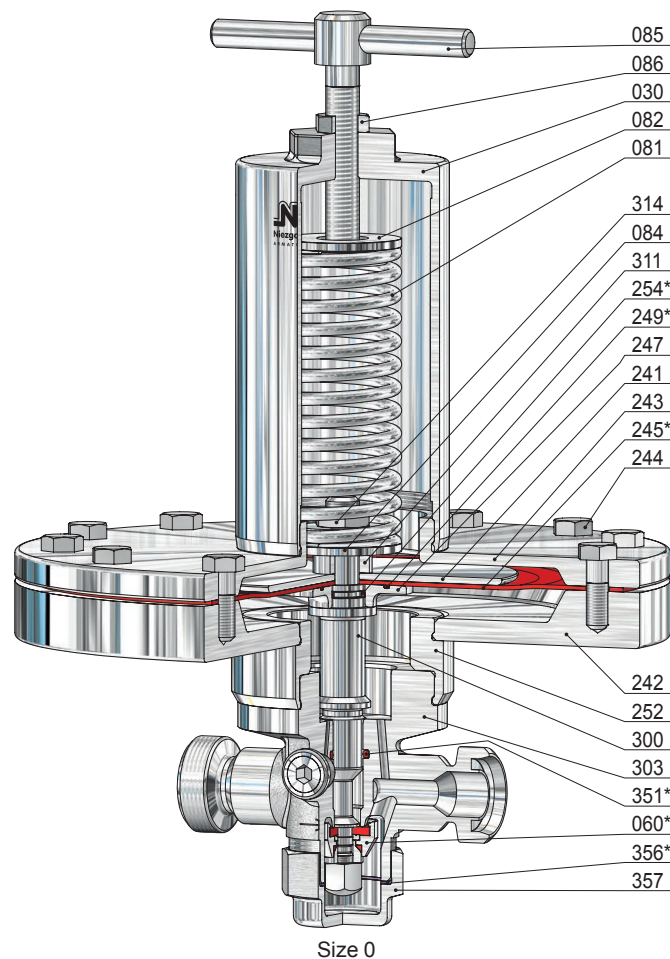
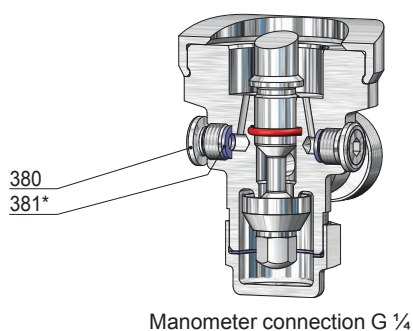
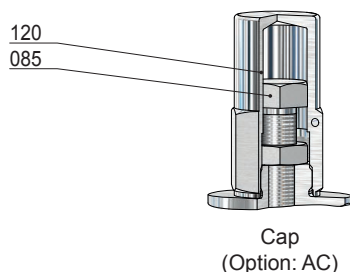
Spring ranges for reduced pressure P2

Diaphragm [mm]		Ø 405	Ø 310	Ø 235	Ø 190
Size	Spring no.	[bar(g)]			
0	301	0,005 - 0,008			
	302	0,009 - 0,015	0,026 - 0,030	0,051 - 0,070	0,11 - 0,15
	303	0,016 - 0,025	0,031 - 0,050	0,071 - 0,100	0,16 - 0,25
	304				0,26 - 0,45

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 70 SMK



Item	Piece	Description	Item	Piece	Description
303	1	valve body	243	1	upper clamp plate
030	1	spring bonnet	244	12	screw (variable)
060 *	1	disc, complete	245 *	1	diaphragm
560	1	disc	247	1	lower clamp plate
061	1	pressure piece	249 *	1	o-ring
062	1	soft sealing	252	1	adapter
065	1	disc bolt	254 *	1	o-ring
071	1	o-ring	300	1	piston
072	1	locking ring	311	1	distance bush
073	1	o-ring (only for thermoplastics soft sealing)	314	1	lock nut
081	1	spring	351 *	1	o-ring
082	1	springplate, upper	356 *	1	sealing ring
084	1	springplate, lower	357	1	bottom plug
085	1	adjusting screw	380	2	screw plug
086	1	lock nut	381 *	2	sealing ring
120	1	cap			
241	1	upper housing			
242	1	lower housing			

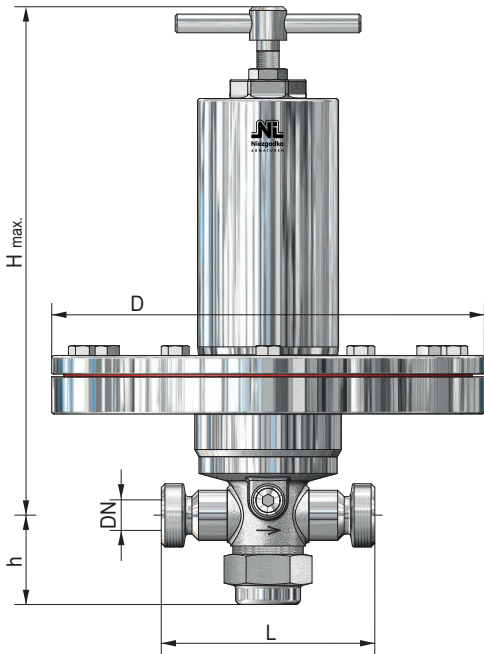
* expendable parts

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 70 SMK

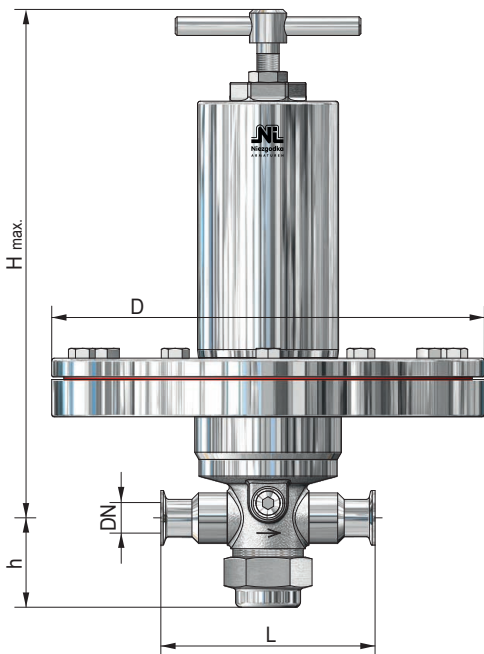
Connections



Series: SMK-GA / GA (AS)

Male union
e.g. DIN 11851 / 11864-1

Size	Inlet / Outlet		Dimensions				Weight				
	DN	Thread	Height 'H' max.	Toggle spindle	Cap	L	h	diaphragm Ø mm = D			
		DIN 405	[mm]	[mm]	[mm]	[mm]		Ø 405	Ø 310	Ø 235	Ø 190
								~ [kg]	~ [kg]	~ [kg]	~ [kg]
0	10	Rd 28x1/8	320		285	115	48	24,5	12,5	10,0	7,4
	15	Rd 34x1/8						24,8	12,8	10,6	8,0



Series: SMK-CL / CL (AS)

Clamp liner
e.g. DIN 32676 / 11864-3

Size	Inlet / Outlet		Dimensions				Weight				
	DN	NPS	Height 'H' max.	Toggle spindle	Cap	L	h	diaphragm Ø mm = D			
			[mm]	[mm]	[mm]	[mm]		Ø 405	Ø 310	Ø 235	Ø 190
								~ [kg]	~ [kg]	~ [kg]	~ [kg]
0	10	3/8	320		285	115	48	24,0	12,3	9,8	7,2
	15	1/2						24,4	12,5	10,4	7,8

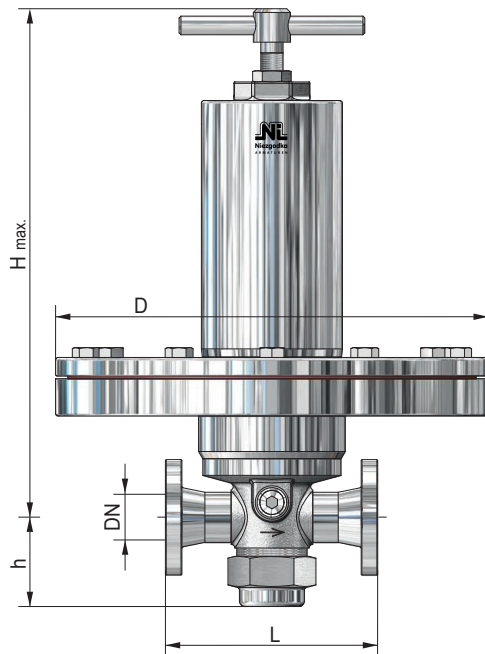
other connections on request.

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 70 SMK

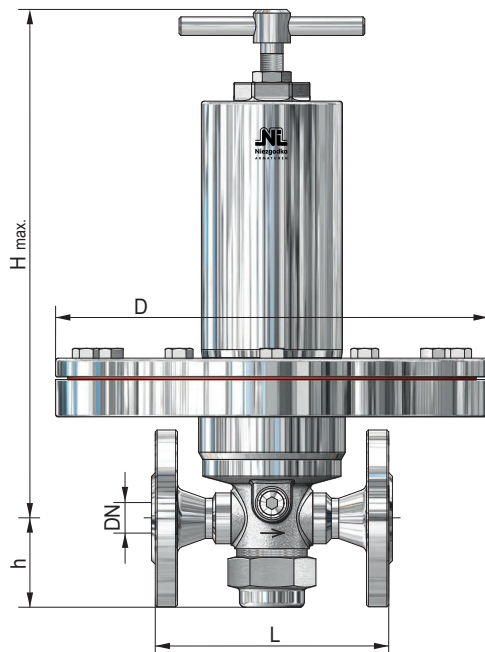
Connections



Series: SMK-F (...)

Flange (preferably flat and collar flanges collar flange)
e.g. DIN 11864-2 (AS), APV (APV), Varivent (VV)

Size	Inlet / Outlet		Dimensions				Weight			
	DN	NPS	Height 'H' max. Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]	diaphragm Ø mm = D			
0	10	3/8	320	285	115	48	Ø 405	Ø 310	Ø 235	Ø 190
	15	1/2					~ [kg]	~ [kg]	~ [kg]	~ [kg]



Series: SMK-F

Flange
e.g. DIN 2633 (PN 16) / ASME B16.5 Class 150

Size	Inlet / Outlet		Dimensions				Weight			
	DN	NPS	Height 'H' max. Toggle spindle [mm]	Cap [mm]	L* [mm]	h [mm]	diaphragm Ø mm = D			
0	10	-	320	285	130	48	Ø 405	Ø 310	Ø 235	Ø 190
	15	1/2					~ [kg]	~ [kg]	~ [kg]	~ [kg]

* up to PN 40 / Class 300 higher pressures on request

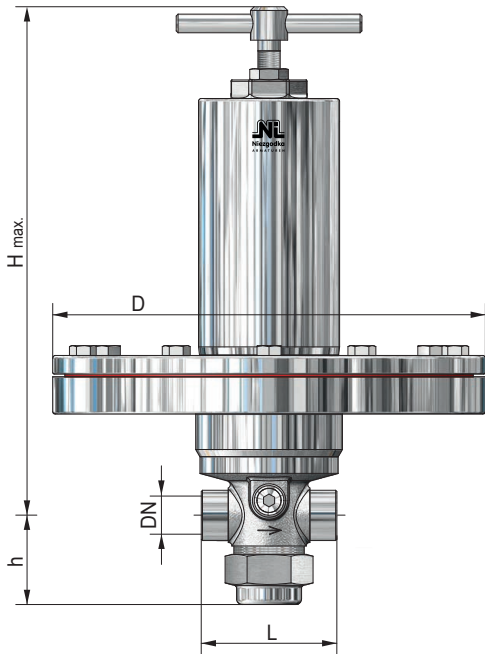
other connections on request.

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 70 SMK

Connections



Series: SMK-IG

Screwed connection
e.g. DIN ISO 228

Size	Inlet / Outlet		Dimensions				Weight			
	DN	G, NPT	Height 'H' max. Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]	diaphragm Ø mm = D			
							Ø 405	Ø 310	Ø 235	Ø 190
							~ [kg]	~ [kg]	~ [kg]	~ [kg]
0	8	1/4	320	285	70	48	23,6	12,0	9,6	7,0
	10	3/8					23,6	12,0	9,6	7,0
	15	1/2					24,0	12,2	10,2	7,6

other connections on request.

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 70 SMS

Standard version:

Material:
Typ 70 SMS: BG I - II Valve-body / media contact surfaces 1.4301 / 1.4571
BG I - IIIB 1.4435 / 1.4404

Connections:
 Aseptic flange e.g. DIN 11864-2 **F (...)**
 Flange e.g. DIN 2633 (PN16) **F**
 Screwed connection e.g. DIN ISO 228 **IG**
 Male union e.g. DIN 11851 **GA, GA (...)**
 Clamp liner e.g. DIN 32676 **CL, CL (...)**

Options:
 CIP able design
 Air loaded
 Surface quality inside and outside
 Seals with USP-, ADI-Certificate

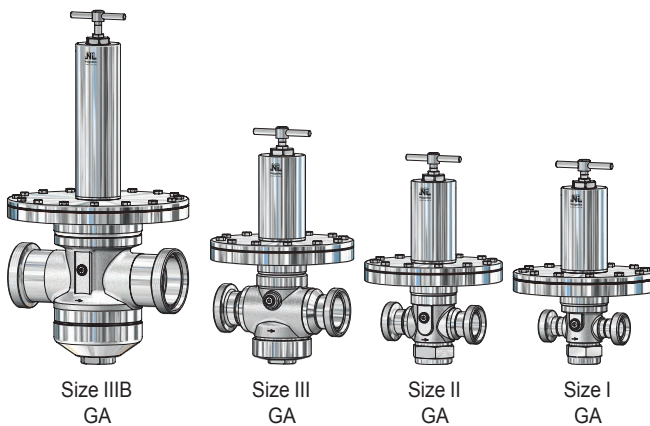
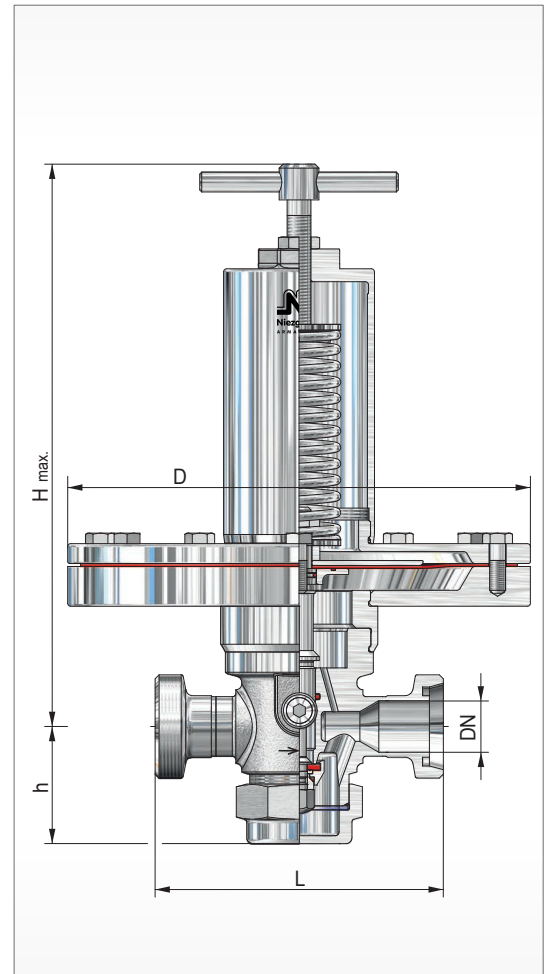
Sealings:
 AF100 (steam up to 200°C)
FDA-konforme sealings:
 EPDM (steam sterilisation up to 140°C)
 PTFE, EPDM (steam up to 150°C)
 PTFE, EPDM (steam up to 200°C)

Features:

- Forged valve body
- Relieved disc, independent of inlet pressure
- Medium-contacted inner parts Ra ≤ 2,6 µm
- Diaphragm control
- Tight with zero-consumption
- Steam sterilisation up to 140°C

Approvals:

Pressure Equipment Directive: 2014/68/EU
 Declaration of Conformity



Size	Inlet			Outlet			Dimensions				Kvs value [m³/h]																
	DN	NPS	Inlet pressure range P1 [bar(g)] max.	DN	NPS	Reduced pressure range P2 min. [bar(g)] max.	Height 'H' max.		Diaphragm Ø = D																		
							Toggle spindle [mm]	Cap [mm]	Design																		
L	h	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]																	
I	15	1/2	25	15	1/2	0,005 / 0,40	see page (A 70 SMS)	405	310	235	190	3,0															
	20	3/4		20	3/4							3,2															
	25	1		25	1							3,5															
II	25	1	16	25	1	0,005 / 0,40						see page (A 70 SMS)	405	310	235	190	6,3										
	32	1 1/4		32	1 1/4												6,5										
	40	1 1/2		40	1 1/2												6,7										
	50	2		50	2												6,9										
III	40	1 1/2	16	40	1 1/2	0,005 / 0,40											see page (A 70 SMS)	405	310	235	190	12,5					
	50	2		50	2																	13,0					
	65	2 1/2		65	2 1/2																	13,5					
IIIB	50	2	16	50	2	0,005 / 0,30																see page (A 70 SMS)	405	310	235	190	27,5
	65	2 1/2		65	2 1/2																						28,0
	80	3		80	3		28,5																				

other design on request

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 70 SMS

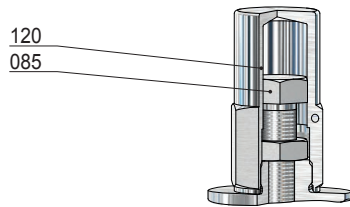
Spring ranges for reduced pressure P₂

Diaphragm [mm]		Ø 405	Ø 310	Ø 235	Ø 190
Size	Spring no.	[bar(g)]			
I	301	0,005 - 0,008			
	302	0,009 - 0,015	0,026 - 0,030	0,051 - 0,070	0,11 - 0,14
	303	0,016 - 0,025	0,031 - 0,050	0,071 - 0,100	0,15 - 0,25
	304				0,26 - 0,40
II	301	0,005 - 0,008			
	302	0,009 - 0,014	0,026 - 0,030	0,051 - 0,065	0,11 - 0,14
	303	0,015 - 0,025	0,031 - 0,050	0,066 - 0,100	0,15 - 0,20
	304				0,21 - 0,40
III	301	0,005 - 0,007			
	302	0,008 - 0,010	0,026 - 0,028	0,051 - 0,060	0,11 - 0,13
	303	0,011 - 0,020	0,029 - 0,045	0,061 - 0,100	0,14 - 0,20
	304	0,021 - 0,025	0,046 - 0,050		0,21 - 0,40
IIIB	2 x 301	0,005 - 0,008			
	2 x 302	0,009 - 0,012	0,026 - 0,028	0,051 - 0,060	
	2 x 303	0,013 - 0,020	0,029 - 0,045	0,061 - 0,100	
	2 x 304	0,021 - 0,025	0,046 - 0,050	0,110 - 0,180	
	2 x 305			0,190 - 0,300	

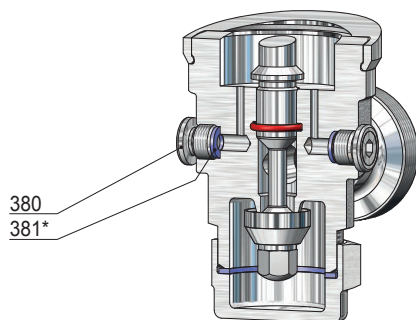
Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

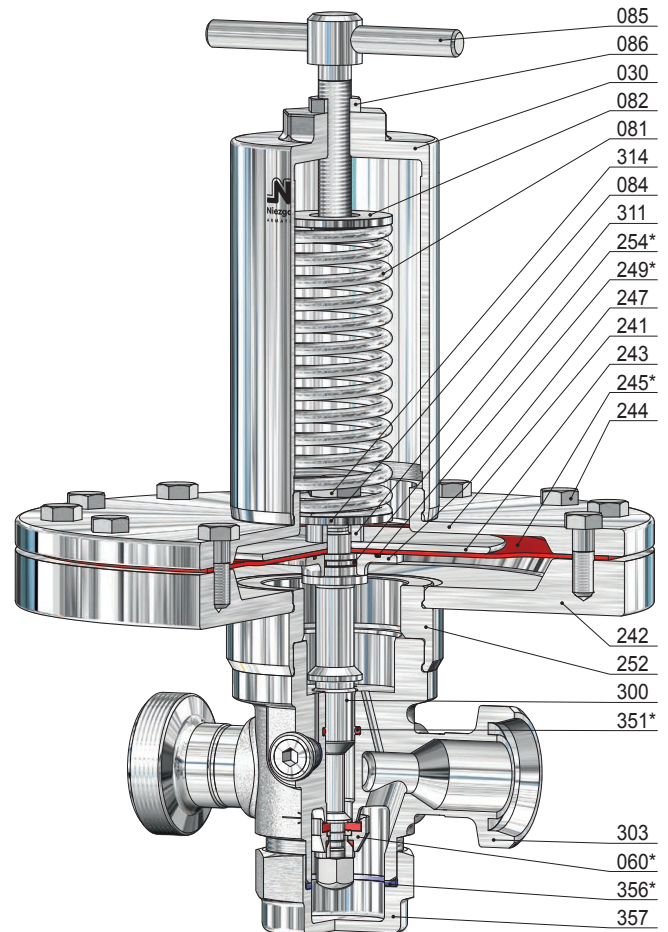
Typ 70 SMS



Cap
(Option: AC)



Manometer connection G 1/4



Size I

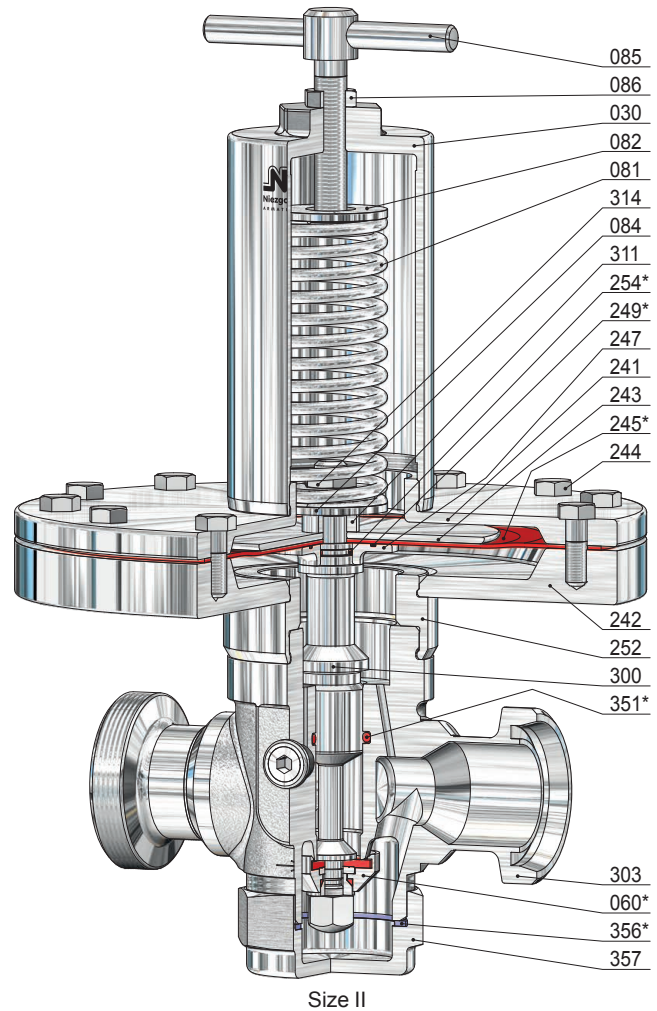
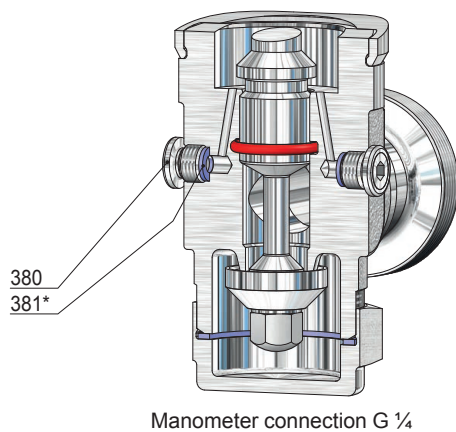
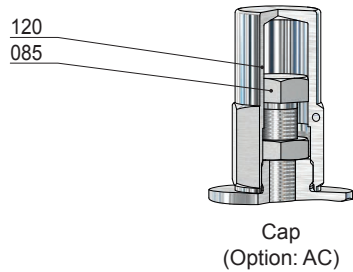
Item	Piece	Description	Item	Piece	Description
303	1	valve body	243	1	upper clamp plate
030	1	spring bonnet	244	12	screw (variable)
060 *	1	disc, complete	245 *	1	diaphragm
560	1	disc	247	1	lower clamp plate
061	1	pressure piece	249 *	1	o-ring
062	1	soft sealing	252	1	adapter
065	1	disc bolt	254 *	1	o-ring
071	1	o-ring	300	1	piston
072	1	locking ring	311	1	distance bush
073	1	o-ring (only for thermoplastics soft sealing)	314	1	lock nut
081	1	spring	351 *	1	o-ring
082	1	springplate, upper	356 *	1	sealing ring
084	1	springplate, lower	357	1	bottom plug
085	1	adjusting screw	380	2	screw plug
086	1	lock nut	381 *	2	sealing ring
120	1	cap			
241	1	upper housing			
242	1	lower housing			

* expendable parts

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 70 SMS



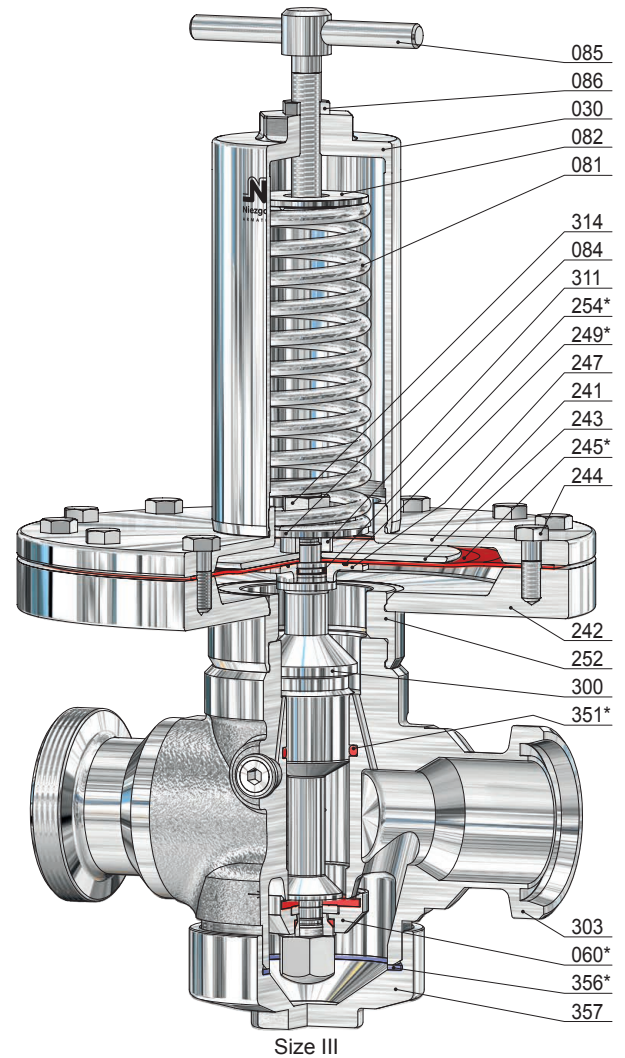
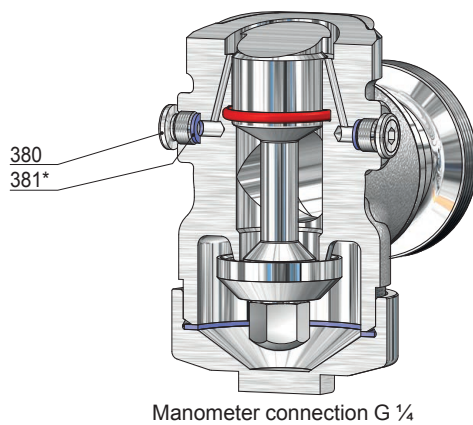
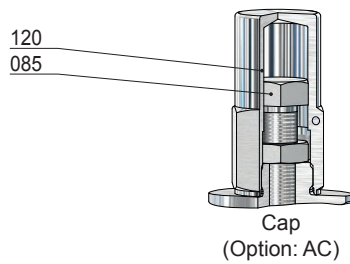
Item	Piece	Description	Item	Piece	Description
303	1	valve body	243	1	upper clamp plate
030	1	spring bonnet	244	12	screw (variable)
060 *	1	disc, complete	245 *	1	diaphragm
560	1	disc	247	1	lower clamp plate
061	1	pressure piece	249 *	1	o-ring
062	1	soft sealing	252	1	adapter
065	1	disc bolt	254 *	1	o-ring
071	1	o-ring	300	1	piston
072	1	locking ring	311	1	distance bush
073	1	o-ring (only for thermoplastics soft sealing)	314	1	lock nut
081	1	spring	351 *	1	o-ring
082	1	springplate, upper	356 *	1	sealing ring
084	1	springplate, lower	357	1	bottom plug
085	1	adjusting screw	380	2	screw plug
086	1	lock nut	381 *	2	sealing ring
120	1	cap			
241	1	upper housing			
242	1	lower housing			

* expendable parts

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 70 SMS



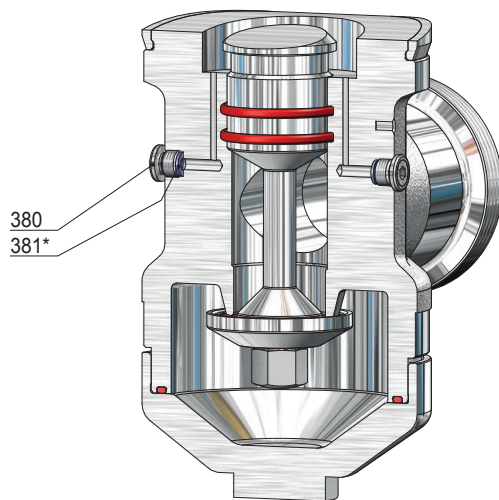
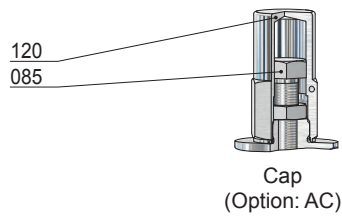
Item	Piece	Description	Item	Piece	Description
303	1	valve body	243	1	upper clamp plate
030	1	spring bonnet	244	12	screw (variable)
060 *	1	disc, complete	245 *	1	diaphragm
560	1	disc	247	1	lower clamp plate
061	1	pressure piece	249 *	1	o-ring
062	1	soft sealing	252	1	adapter
065	1	disc bolt	254 *	1	o-ring
071	1	o-ring	300	1	piston
072	1	locking ring	311	1	distance bush
073	1	o-ring (only for thermoplastics soft sealing)	314	1	lock nut
081	1	spring	351 *	1	o-ring
082	1	springplate, upper	356 *	1	sealing ring
084	1	springplate, lower	357	1	bottom plug
085	1	adjusting screw	380	2	screw plug
086	1	lock nut	381 *	2	sealing ring
120	1	cap			
241	1	upper housing			
242	1	lower housing			

* expendable parts

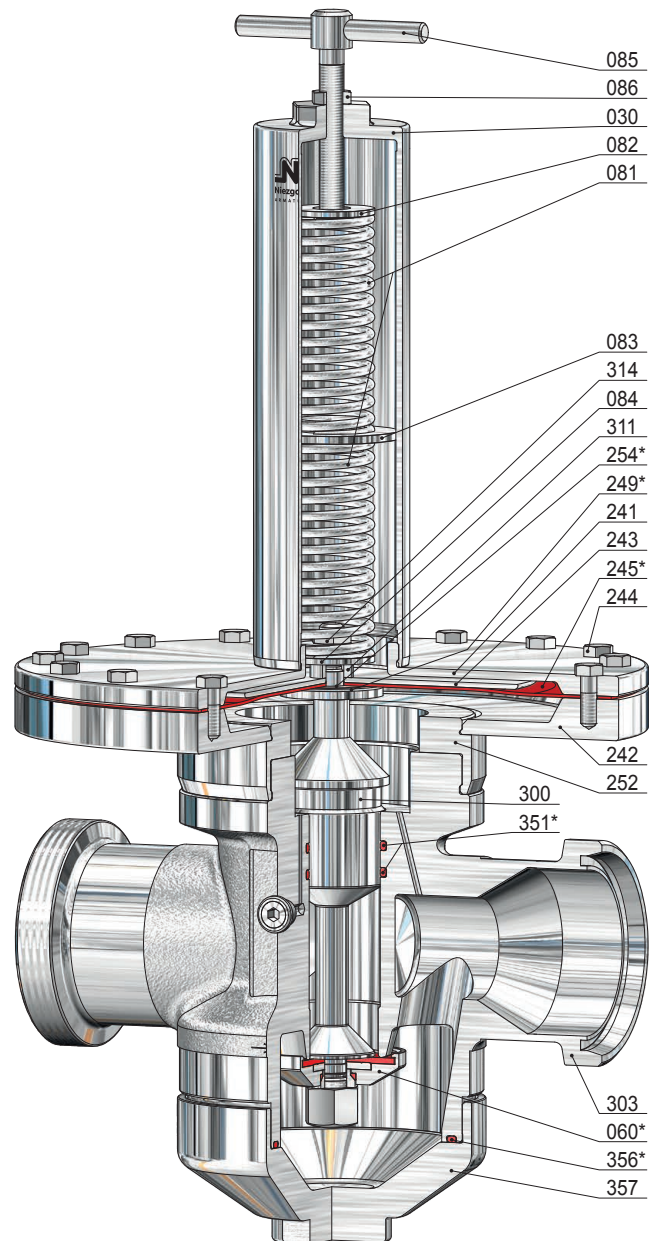
Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 70 SMS



Manometer connection G ¼



Size III B

Item	Piece	Description	Item	Piece	Description	Item	Piece	Description
303	1	valve body	081	2	spring	252	1	adapter
030	1	spring bonnet	082	1	springplate, upper	254 *	1	o-ring
060 *	1	disc, complete	083	1	springplate, middle	300	1	piston
560	1	disc	084	1	springplate, lower	311	1	distance bush
061	1	pressure piece	085	1	adjusting screw	314	1	lock nut
062	1	soft sealing	086	1	lock nut	351 *	2	o-ring
065	1	disc bolt	120	1	cap	356 *	1	sealing ring
071	1	o-ring	241	1	upper housing	357	1	bottom plug
072	1	locking ring	242	1	lower housing	380	2	screw plug
073	1	o-ring (only for thermoplastics soft sealing)	243	1	upper clamp plate	381 *	2	sealing ring
			244	16	screw (variable)			
			245 *	1	diaphragm			
			249 *	1	o-ring			

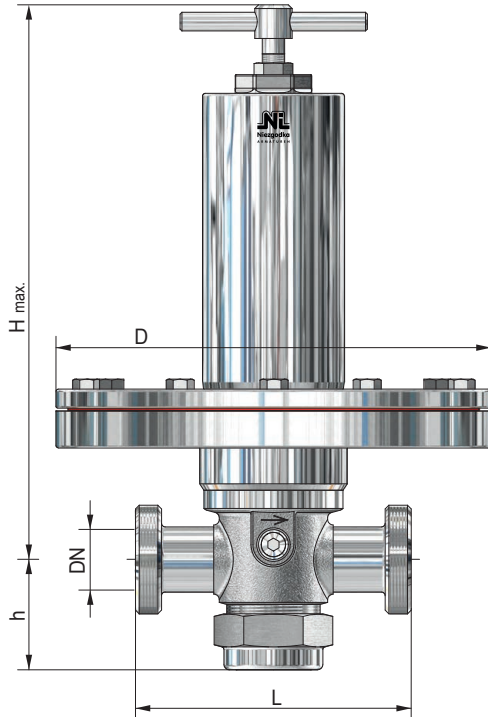
* expendable parts

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 70 SMS

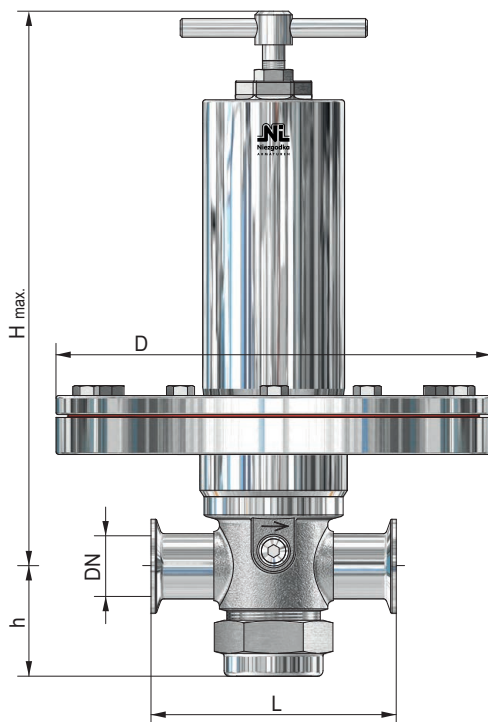
Connections



Series: SMS-GA / GA (AS)

Male union
e.g. DIN 11851 / 11864-1

Size	Inlet / Outlet		Dimensions				Weight			
	DN	Thread	Height 'H' max.				diaphragm Ø mm = D			
			Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]	Ø 405 ~ [kg]	Ø 310 ~ [kg]	Ø 235 ~ [kg]	Ø 190 ~ [kg]
I	15	Rd 34x1/8	310	290	129	58	18,5	14,0	10,5	6,5
	20	Rd 44x1/6			135		21,0	15,0	11,5	7,5
	25	Rd 52x1/6			145		22,5	16,0	13,0	9,0
II	25	Rd 52x1/6	320	305	160	68	23,0	17,0	16,0	10,0
	32	Rd 58x1/6			166		24,0	18,0	17,0	11,0
	40	Rd 65x1/6			168		27,0	19,5	18,5	12,5
	50	Rd 78x1/6			170		29,5	21,5	19,5	13,5
III	40	Rd 65x1/6	350	335	208	85	34,5	26,5	23,5	16,0
	50	Rd 78x1/6			212		36,0	28,0	25,0	18,0
	65	Rd 95x1/6			222		39,5	29,5	26,5	19,0
IIIB	50	Rd 78x1/6	535	465	270	145	47,0	36,0	29,0	-
	65	Rd 95x1/6			280		48,5	37,5	30,5	-
	80	Rd 110x1/4			290		50,0	40,0	32,0	-



Series: SMS-CL / CL (AS)

Clamp liner
e.g. DIN 32676 / 11864-3

Size	Inlet / Outlet		Dimensions				Weight			
	DN	NPS	Height 'H' max.				diaphragm Ø mm = D			
			Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]	Ø 405 ~ [kg]	Ø 310 ~ [kg]	Ø 235 ~ [kg]	Ø 190 ~ [kg]
I	15	1/2	310	290	120	58	18,0	13,0	11,0	6,0
	20	3/4			120		19,5	14,0	11,5	7,0
	25	1			130		21,5	15,5	12,5	8,5
II	25	1	320	305	145	68	22,0	16,5	15,0	9,5
	32	1 1/4			23,0		17,5	16,5	11,0	
	40	1 1/2			26,0		19,0	17,5	12,0	
	50	2			27,5		20,5	19,0	15,0	
III	40	1 1/2	350	335	180	85	33,0	25,0	22,5	15,5
	50	2			34,5		26,5	24,0	17,0	
	65	2 1/2			36,0		28,0	25,5	18,5	
IIIB	50	2	535	465	260	145	44,0	35,0	28,0	-
	65	2 1/2			45,5		36,5	29,5	-	
	80	3			47,0		38,0	31,5	-	

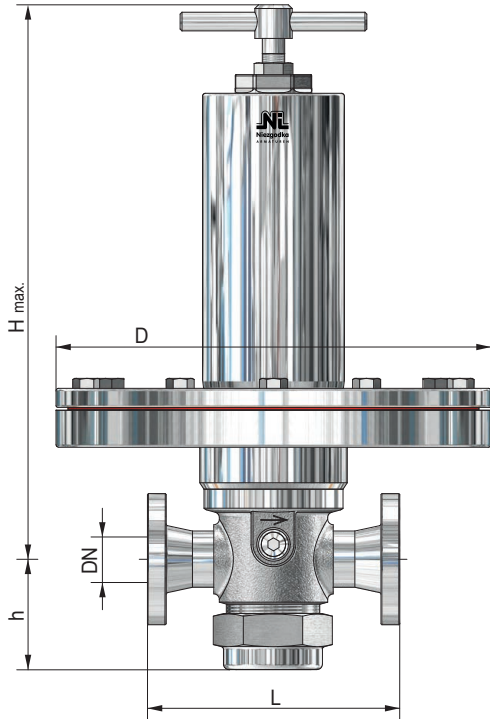
other connections on request.

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 70 SMS

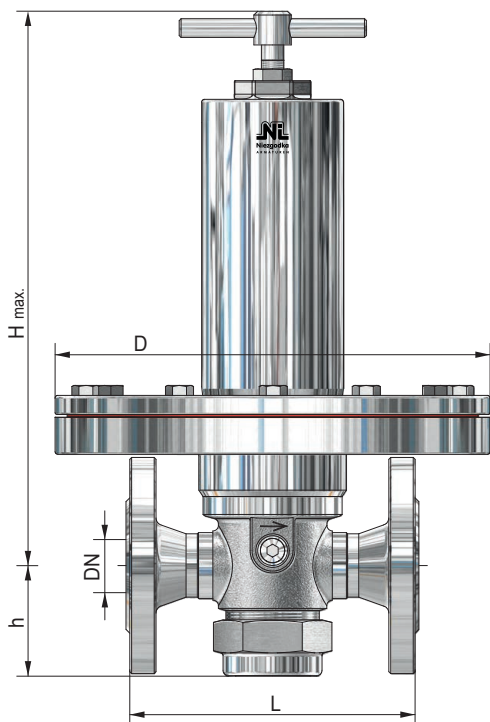
Connections



Series: SMS-F (...)

Flange (preferably flat and collar flanges collar flange)
e.g. DIN 11864-2 (AS), APV (APV), Varivent (VV)

Size	Inlet / Outlet		Dimensions				Weight			
	DN	NPS	Height 'H' max.				diaphragm Ø mm = D			
			Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]	Ø 405 ~ [kg]	Ø 310 ~ [kg]	Ø 235 ~ [kg]	Ø 190 ~ [kg]
I	15	1/2	310	290	135	58	19,0	15,0	11,5	7,0
	20	3/4					20,0	16,0	13,0	8,5
	25	1					21,0	16,5	14,0	10,0
II	25	1	320	305	150	68	24,5	18,0	17,0	11,0
	32	1 1/4					26,5	19,5	18,0	12,0
	40	1 1/2					29,0	20,5	19,5	13,0
	50	2					31,0	22,0	20,5	14,5
III	40	1 1/2	350	335	190	85	36,0	29,0	26,5	17,5
	50	2					38,0	31,0	28,0	19,0
	65	2 1/2					41,0	33,0	29,5	21,0
IIIB	50	2	535	465	260	145	48,5	38,0	31,5	-
	65	2 1/2					50,0	39,5	34,5	-
	80	3					53,0	42,0	37,0	-



Series: SMS-F

Flange
e.g. DIN 2633 (PN 16) / ASME B16.5 Class 150

Size	Inlet / Outlet		Dimensions				Weight			
	DN	NPS	Height 'H' max.				diaphragm Ø mm = D			
			Toggle spindle [mm]	Cap [mm]	L* [mm]	h [mm]	Ø 405 ~ [kg]	Ø 310 ~ [kg]	Ø 235 ~ [kg]	Ø 190 ~ [kg]
I	15	1/2	310	290	130	58	26,5	16,0	12,0	10,2
	20	3/4			150		28,0	17,0	12,5	10,5
II	25	1	320	305	160	68	28,5	18,5	14,0	13,0
	32	1 1/4			180		30,5	21,0	15,00	13,2
	40	1 1/2			200		33,5	23,0	19,0	16,5
III	50	2	350	335	230	85	35,0	25,0	20,5	18,5
	50	2			300		48,0	39,0	34,0	-
IIIB	65	2 1/2	535	465	290	145	52,0	42,0	36,0	-
	80	3			310		54,0	44,5	39,5	-

* up to PN 40 / Class 300 higher pressures on request

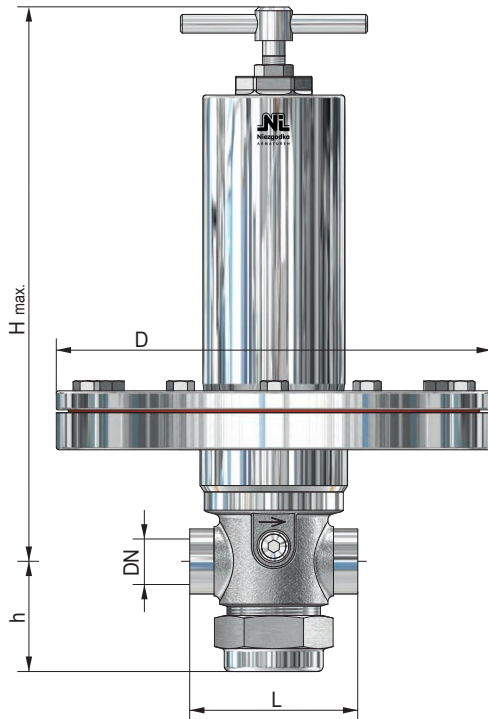
other connections on request.

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 70 SMS

Connections



Series: SMS-IG

Screwed connection
e.g. DIN ISO 228

Size	Inlet / Outlet		Dimensions				Weight			
			Height 'H' max.				diaphragm Ø mm = D			
	DN	G, NPT	Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]	Ø 405 ~ [kg]	Ø 310 ~ [kg]	Ø 235 ~ [kg]	Ø 190 ~ [kg]
I	15	1/2	310	290	90	58	18,0	15,5	10,0	9,0
	20	3/4			90		19,5	15,5	10,5	9,0
	25	1			135		22,0	16,0	11,5	9,5
II	25	1	320	305	105	68	26,0	16,5	12,5	10,5
	32	1 1/4			105		27,5	17,5	12,0	11,0
	40	1 1/2			155		28,0	18,5	13,0	11,5
	50	2			185		30,0	19,0	14,0	12,0
III	40	1 1/2	350	335	145	85	30,5	20,0	14,5	12,5
	50	2			145		32,5	21,0	15,5	13,0
	65	2 1/2			210		34,5	23,0	16,0	14,0
IIIB	50	2	535	465	220	145	45,0	34,0	29,5	-
	65	2 1/2			220		45,5	34,5	30,0	-

other connections on request.

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 70 SMG

Standard version:

Material: Valve-body / media contact surfaces
Typ 70 SMG: BG IV 1.4435 / 1.4404
 1.4571 / 1.4571

Connections:
 Aseptic flange e.g. DIN 11864-2 **F (...)**
 Flange e.g. DIN 2633 (PN16) **F**
 Male union e.g. DIN 11851 **GA, GA (...)**

Options:
 CIP able design
 Air loaded
 Surface quality inside and outside
 Seals with USP-, ADI-Certificate

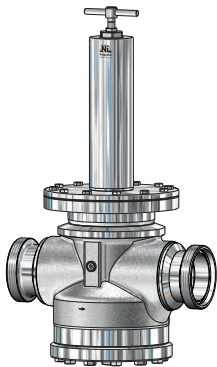
Sealings:
 AF100 (steam up to 200°C)
FDA-konforme sealings:
 EPDM (steam sterilisation up to 140°C)
 PTFE, EPDM (steam up to 150°C)
 PTFE, EPDM (steam up to 200°C)

Features:

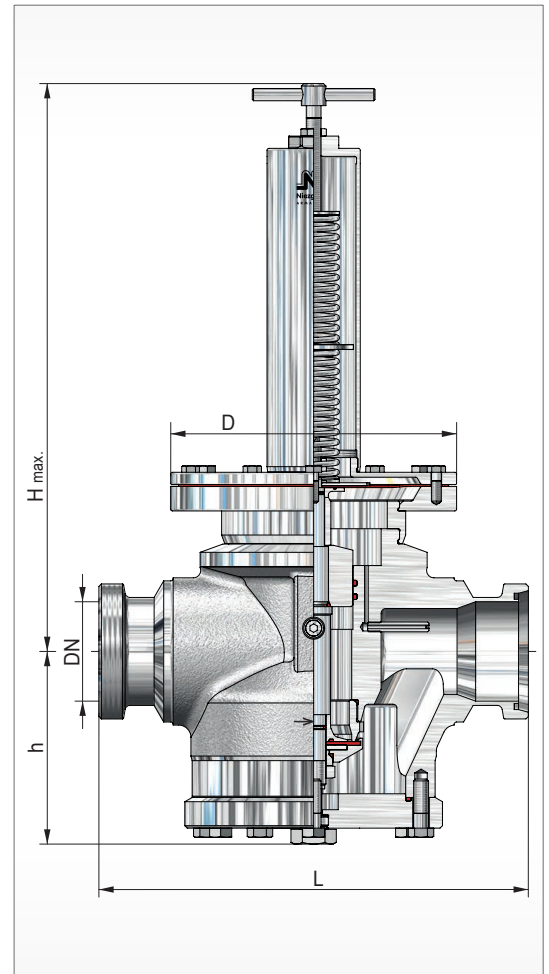
- Forged valve body
- Relieved disc, independent of inlet pressure
- Medium-contacted inner parts Ra ≤ 2,6 µm
- Diaphragm control
- Tight with zero-consumption
- Steam sterilisation up to 140°C

Approvals:

Pressure Equipment Directive: 2014/68/EU
 Declaration of Conformity



Size IV
GA



Size	Inlet			Outlet			Dimensions						Kvs value [m³/h]
	DN	NPS	Inlet pressure range P1 [bar(g)] max.	DN	NPS	Reduced pressure range P2 min. [bar(g)] max.	Height 'H' max.		Diaphragm Ø = D				
							Toggle spindle [mm]	Cap [mm]	Design		Design		
IV	65	2 1/2	25	65	2 1/2	0,005 / 0,30	see page (A 70 SMG)	405	310	235	-	-	
	80	3		80	3								
	100	4		100	4								

other design on request

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

**Typ 70
SMG**

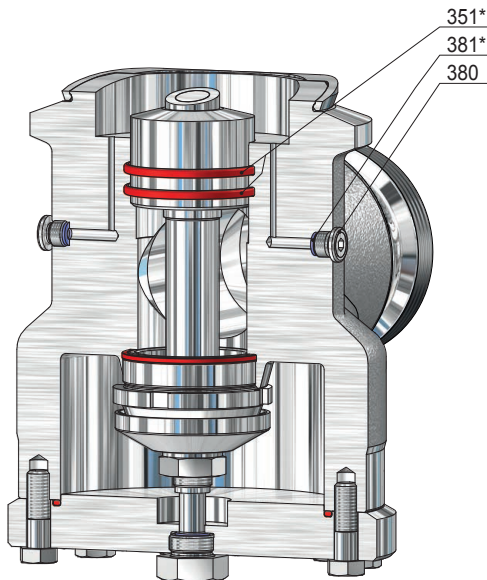
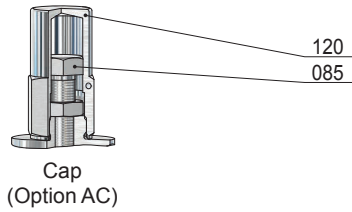
Spring ranges for reduced pressure P₂

Diaphragm [mm]		Ø 405	Ø 310	Ø 235	Ø 190
Size	Spring no.	[bar(g)]			
IV	2 x 301	0,005 - 0,008			
	2 x 302	0,009 - 0,012	0,026 - 0,028	0,051 - 0,060	
	2 x 303	0,013 - 0,020	0,029 - 0,045	0,061 - 0,100	
	2 x 304	0,021 - 0,025	0,046 - 0,050	0,110 - 0,180	
	2 x 305			0,190 - 0,300	

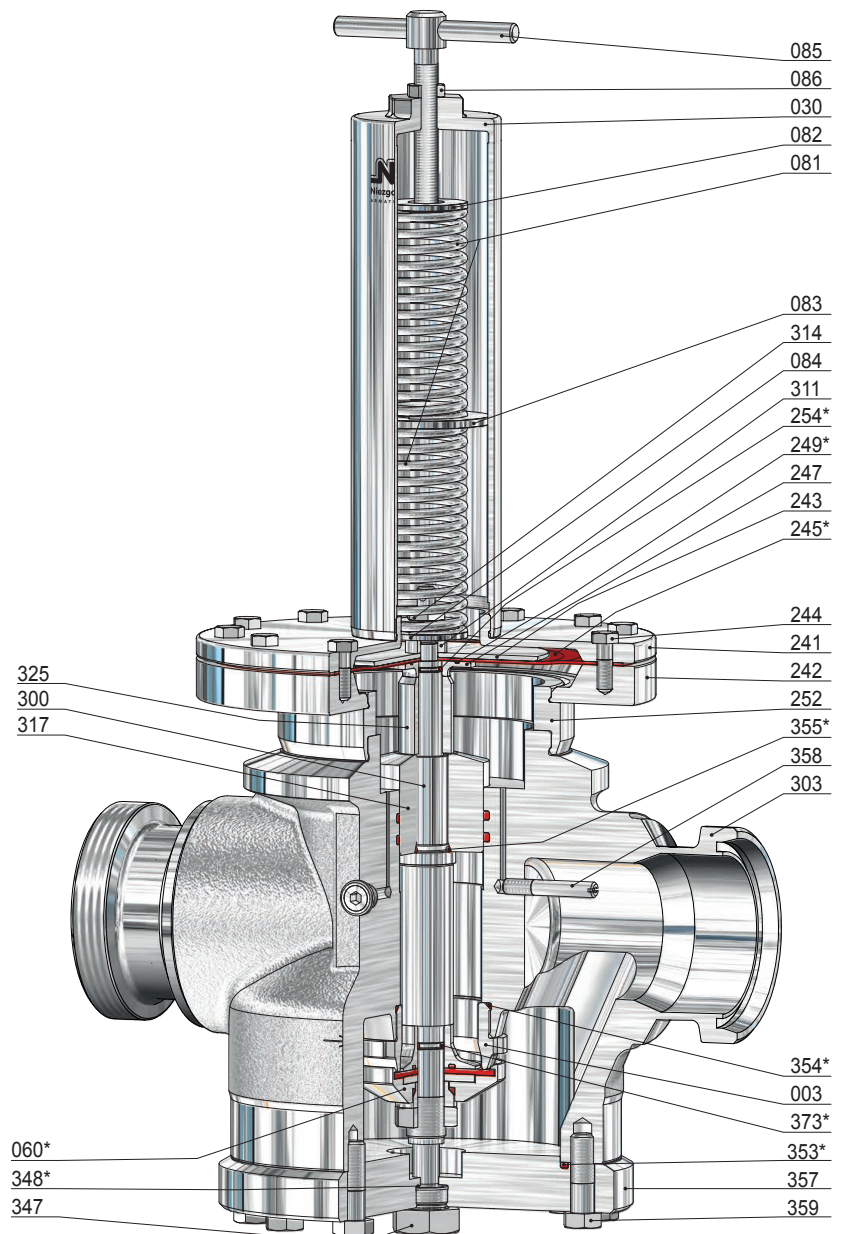
Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 70 SMG



Manometer connection G 1/4



Size IV

Item	Piece	Description	Item	Piece	Description	Item	Piece	Description
303	1	valve body	085	1	adjusting screw	325	1	distance bushing
003	1	seat	086	1	lock nut	347	1	screw
030	1	spring bonnet	120	1	cap	348 *	1	o-ring
060 *	1	disc, complete	241	1	upper housing	351 *	2	o-ring
560	1	disc	242	1	lower housing	353 *	1	o-ring
061	1	pressure piece	243	1	upper clamp plate	354 *	1	o-ring
062	1	soft sealing	244	12	screw (variable)	355 *	1	o-ring
065	1	disc bolt	245 *	1	diaphragm	357	1	bottom plug
071	1	o-ring	247	1	lower clamp plate	358	1	suction tube
072	1	locking ring	249 *	1	o-ring	359	12	screw
073	1	o-ring	252	1	adapter	373 *	1	o-ring
074	1	disc plate	254 *	1	o-ring	380	2	screw plug
081	2	spring	300	1	piston	381 *	2	sealing ring
082	1	springplate, upper	311	1	distance bush			
083	1	springplate, middle	314	1	lock nut			
084	1	springplate, lower	317	1	piston guide			

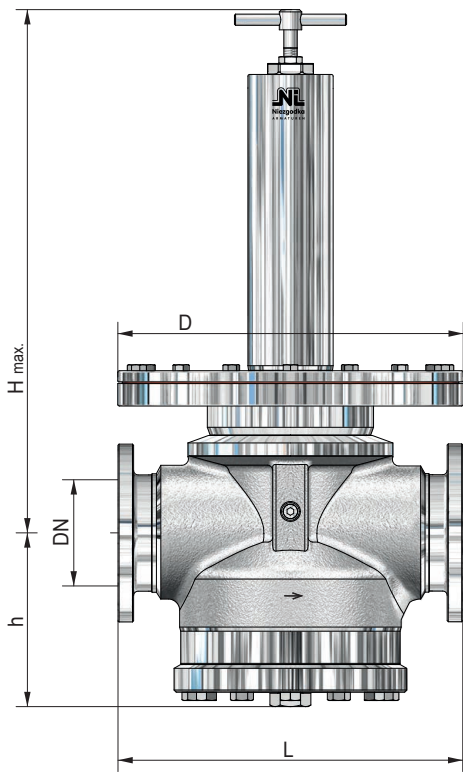
* expendable parts

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 70 SMG

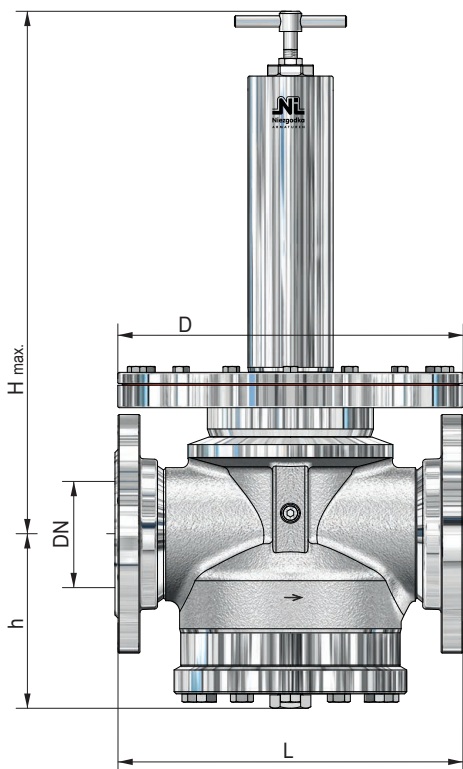
Connections



Series: SMG-F (...)

Flange (preferably flat and collar flanges collar flange)
e.g. DIN 11864-2 (AS), APV (APV), Varivent (VV)

Size	Inlet / Outlet		Dimensions				Weight			
	DN	NPS	Height 'H' max.				diaphragm Ø mm = D			
			Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]	Ø 405 ~ [kg]	Ø 310 ~ [kg]	Ø 235 ~ [kg]	- -
IV	65	2 1/2	545	470	290	157	59,0	51,0	48,5	-
	80	3					61,2	53,5	49,5	-
	100	4					64,0	55,6	51,5	-



Series: SMG-F

Flange
e.g. DIN 2633 (PN 16) / ASME B16.5 Class 150

Size	Inlet / Outlet		Dimensions				Weight			
	DN	NPS	Height 'H' max.				diaphragm Ø mm = D			
			Toggle spindle [mm]	Cap [mm]	L* [mm]	h [mm]	Ø 405 ~ [kg]	Ø 310 ~ [kg]	Ø 235 ~ [kg]	- -
IV	65	2 1/2	545	470	290	157	64,5	59,0	54,5	-
	80	3					68,0	62,0	57,0	-
	100	4					73,5	67,0	62,5	-

* up to PN 40 / Class 300 higher pressures on request

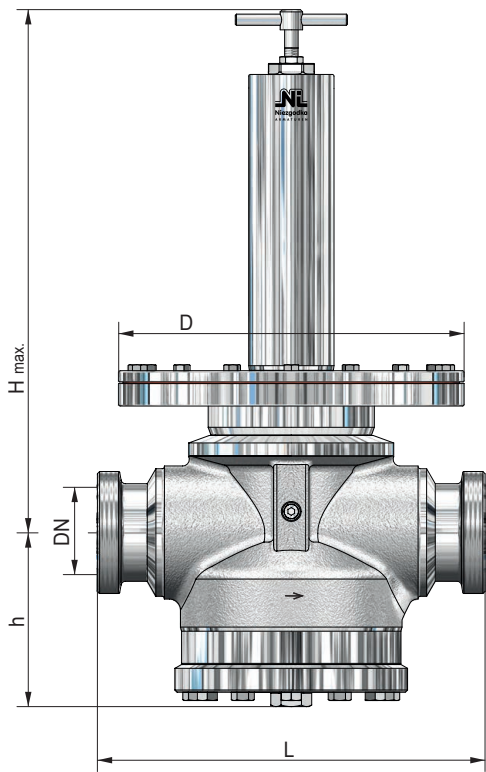
other connections on request.

Pressure-Reducing-Valve, springloaded

for steam, gases and liquids

Typ 70 SMG

Connections



Series: SMG-GA / GA (AS)

Male union
e.g. DIN 11851 / 11864-1

Size	Inlet / Outlet		Dimensions				Weight			
		Thread	Height 'H' max.				diaphragm Ø mm = D			
			Toggle spindle	Cap			Ø 405	Ø 310	Ø 235	-
IV	65	Rd 95x1/6"	545	470	350	157	58,2	50,0	46,5	-
	80	Rd 110x1/4"					60,5	52,2	48,5	-
	100	Rd 130x1/4"					62,5	54,5	50,5	-

other connections on request.

Option list

for pressure reducing valves



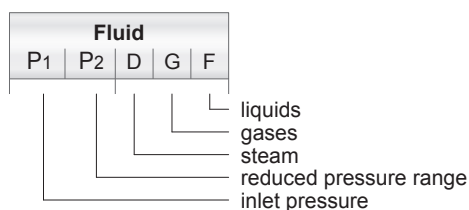
9

Option	Description	Typ 70 SKM	Typ 70 SKK	Typ 70 SKS	Typ 70 SKG	Typ 70 SMK	Typ 70 SMS	Typ 70 SMG
AA	Bottom cap additionally with drainage G ½ as well as SS-plug with PTFE seal		●	●	●	●	●	●
AB	Bottom cap with drainage G ½, PTFE seal as well as drain- and sample valve series EVE-327, DN10 with hose connection Ø 10 mm		●	●	●	●	●	●
AC	Pressure reducing valve adjusting screw and protective cap		●	●	●	●	●	●
AD	Relief drill hole in the spring bonnet		●	●	●	●	●	●
BA	Body with one pressure gauge connection G ¼ on indicated position		●	●	●	●	●	●
BB	Body on both sides without pressure gauge connection G ¼	●	●	●	●	●	●	●
CA	FDA - Certificate for the seals	●	●	●	●	●	●	●
DA	Bonnet for panel installation including 2 stainless steel - attaching nut, square spindle with removable handwheel	●	●	●				
EA	Adjustable selected reduced pressure by air loaded design of the bonnet (remote control); Accessories: Shut off automatic fine filter and precision reducing valve series AFR-418		●	●	●	●	●	●
FA	Body outside electropolished	●	●	●	●	●	●	●
FB	Pressure reducing valve completely outside electropolished	●	●	●	●	●	●	●
FC	Body outside glass blasted	●	●	●	●	●	●	●
FD	Pressure reducing valve completely outside glassblasted	●	●	●	●	●	●	●
FE	Pressure reducing valve completely outside ground and polished with Ra ≤ 1,2 µm	●	●	●	●	●	●	●
GA	Body inside glass blasted with Ra ≤ 2,0 µm		●	●		●	●	
GB	Medium contacted surfaces with roughness Ra ≤ 1,6 µm		●	●	●	●	●	●
GC	Medium contacted surfaces with roughness Ra ≤ 0,8 µm		●	●	●	●	●	●
GD	Medium contacted surfaces with roughness Ra ≤ 0,5 µm		●	●	●	●	●	●
HA	CIP able by additional equipments according to our scheme 200 A / 209 B		●	●	●	●	●	●
ZA	Next larger spring bonnet size I		●					



Index

Type	Use	Fluid	Material	Inlet DN [mm]	P1	
					min. [bar(g)]	max.
80	Initial Pressure Controller, springloaded, piston-controlled, for steam, gases and liquids	D/G/F	stainless steel	8 - 65 1/4 - 2 1/2	0,25	104
81	Initial Pressure Controller, springloaded, piston-controlled, for steam, gases and liquids	D/G/F	stainless steel	10 - 100 1/2 - 4	0,20	104
84	Initial Pressure Controller, springloaded, diaphragm-controlled, for steam, gases and liquids	D/G/F	stainless steel	8 - 65 1/4 - 2 1/2	0,005	0,45
85	Initial Pressure Controller, springloaded, diaphragm-controlled, for steam, gases and liquids	D/G/F	stainless steel	10 - 100 1/2 - 4	0,005	0,45



Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80

Standard version:

Material: Valve-body / media contact surfaces

Typ 80.2: BG 0 - II 1.4301, 1.4571 / 1.4571
BG III - IIIB 1.4571 / 1.4571

Connections:

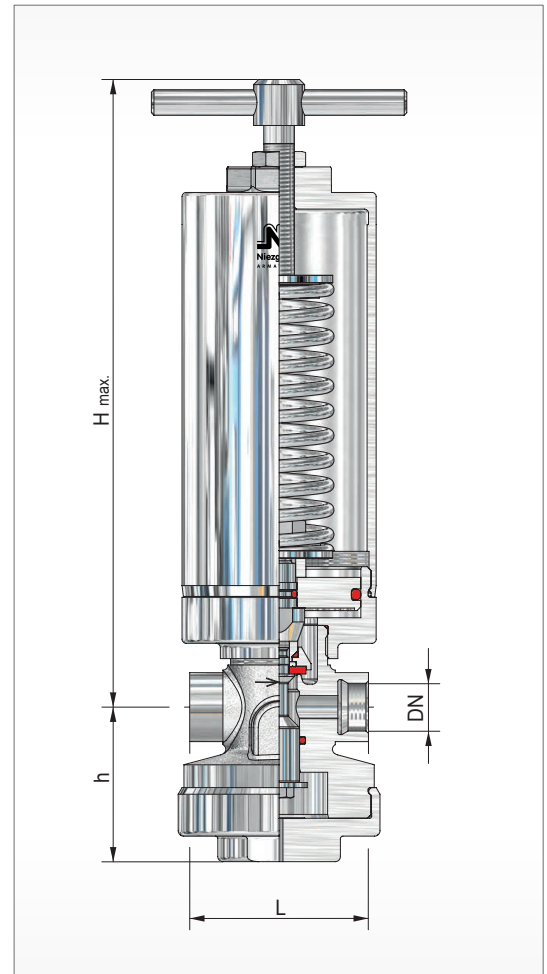
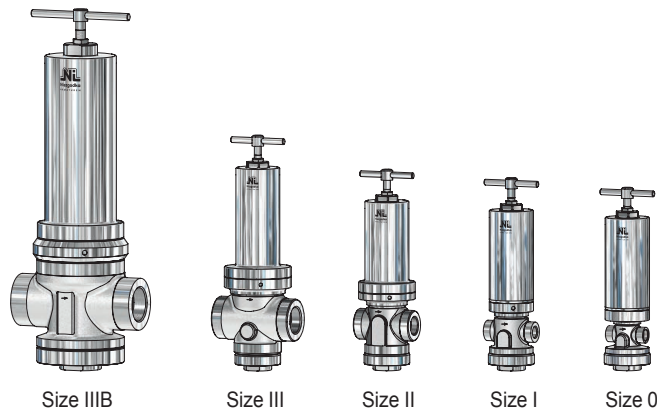
Screwed connection: DIN ISO 228 / ASME B1.20.1

Sealings:

FPM, EPDM
 PTFE, EPDM (steam up to 150°C)
 PTFE, AF100, EPDM (steam up to 200°C)

Approvals:

Pressure Equipment Directive: 2014/68/EU
 Declaration of Conformity



Size	Inlet			Outlet		Dimensions				Kvs value
	PN			DN	G, NPT	Height 'H' max.				
	DN	G, NPT	Initial pressure range P1 min. [bar(g)] max.			Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]	[m³/h]
0	8	1/4	0,35 / 104,00	8	1/4	275	265	70	59	1,2
	10	3/8		70	2,0					
	15	1/2		70	2,2					
I	15	1/2	0,35 / 59,00	15	1/2	305	270	90	67	3,0
	20	3/4		90	3,2					
	25*	1*		135	3,5					
II	25	1	0,25 / 25,00	25	1	315	275	105	75	6,3
	32	1 1/4		105	6,5					
	40*	1 1/2*		155	6,7					
III	40	1 1/2	0,25 / 17,00	40	1 1/2	360	325	145	90	12,5
	50	2		145	13,0					
	65*	2 1/2*		210	13,5					
IIIB	50	2	0,25 / 12,00	50	2	570	535	220	112	27,5
	65	2 1/2		220	28,0					

other design on request

* special size

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80

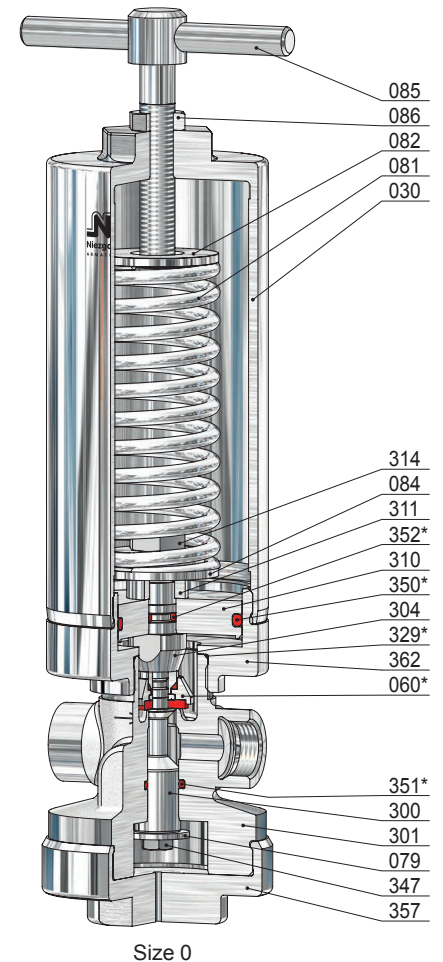
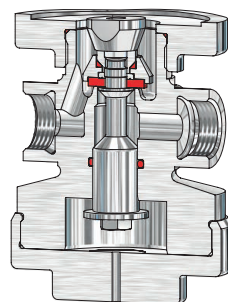
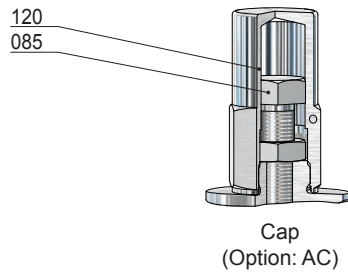
Spring ranges for initial pressure P1

Piston plate [mm]		Ø 119	Ø 99	Ø 84	Ø 64	Ø 48	Ø 38	Ø 27
Size	Spring no.	[bar(g)]						
0	303				0,35 - 0,70			
	304				0,71 - 1,20			
	305				1,30 - 2,00			
	306				2,10 - 3,00	4,60 - 6,00	9,10 - 10,00	15,10 - 26,00
	307				3,10 - 4,50	6,10 - 9,00	10,10 - 15,00	26,10 - 39,00
	308							39,10 - 48,00
	309							48,10 - 62,00
	310							62,10 - 85,00
	311							85,10 - 104,00
I	303				0,35 - 0,70			
	304				0,71 - 1,00			
	305				1,10 - 2,00			
	306				2,10 - 3,00	4,60 - 6,00	8,60 - 10,00	15,10 - 25,00
	307				3,10 - 4,50	6,10 - 8,50	10,10 - 15,00	25,10 - 38,00
	308							38,10 - 46,00
	309							46,10 - 59,00
II	303			0,25 - 0,40				
	304			0,41 - 0,70				
	305			0,71 - 1,00				
	306			1,10 - 1,60	2,60 - 3,00	4,60 - 7,00	10,10 - 14,00	
	307			1,70 - 2,50	3,10 - 4,50	7,10 - 10,00	14,10 - 21,00	
	308						21,10 - 25,00	
III	323		0,25 - 0,40					
	324		0,41 - 0,70					
	325		0,71 - 1,00	1,10 - 1,50	2,60 - 3,50	6,60 - 11,00		
	326			1,60 - 2,50	3,60 - 5,50	11,10 - 17,00		
	327				5,60 - 6,50			
IIIB	353	0,25 - 0,50						
	354	0,51 - 0,90						
	355	1,00 - 1,30						
	356	1,40 - 2,00	2,10 - 3,00					
	357		3,10 - 5,50	5,60 - 9,00				
	358			9,10 - 12,00				

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80



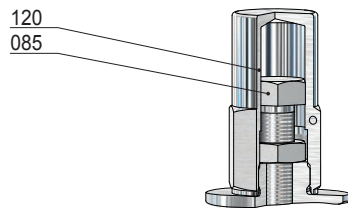
Item	Piece	Description	Item	Piece	Description
301	1	valve body	120	1	cap
030	1	spring bonnet	300	1	piston
060 *	1	disc, complete	304	1	inlet pressure piston
560	1	disc	310	1	piston plate
061	1	pressure piece	311	1	distance bush
062	1	soft sealing	314	1	lock nut
071	1	o-ring	329 *	1	o-ring
072	1	locking ring	347	1	screw
073	1	o-ring (only for thermoplastics soft sealing)	350 *	1	o-ring
079	1	lift stopper	351 *	1	o-ring
081	1	spring	352 *	1	o-ring
082	1	springplate, upper	357	1	bottom plug
084	1	springplate, lower	362	1	adapter
085	1	adjusting screw			
086	1	lock nut			

* expendable parts

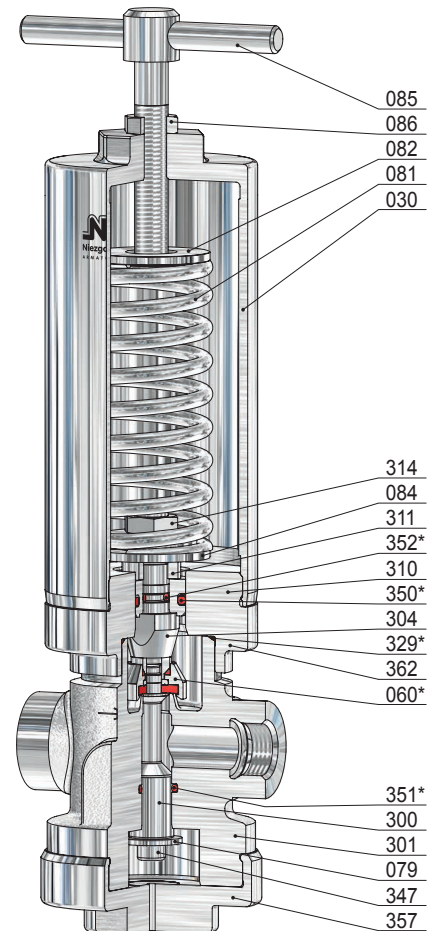
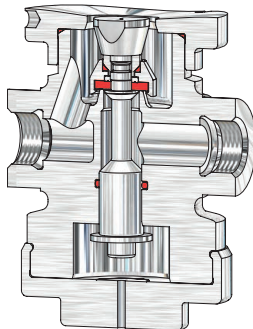
Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80



Cap
(Option: AC)



Size I

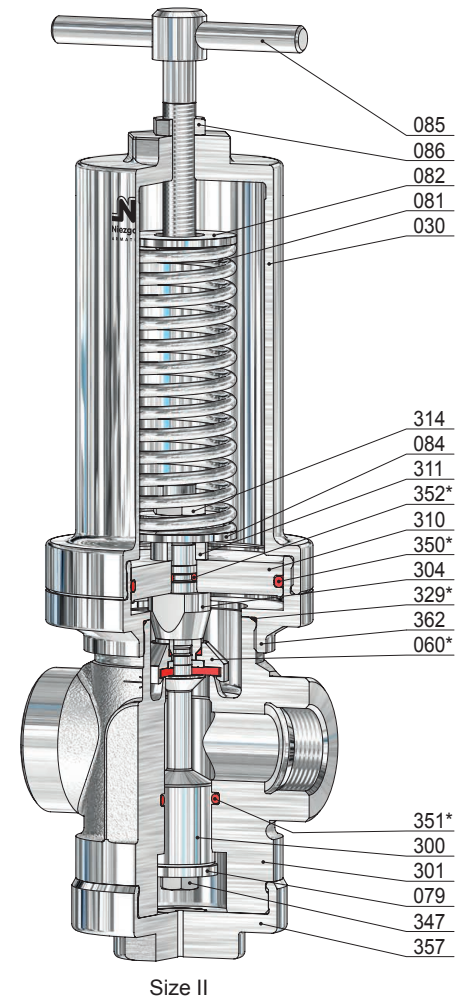
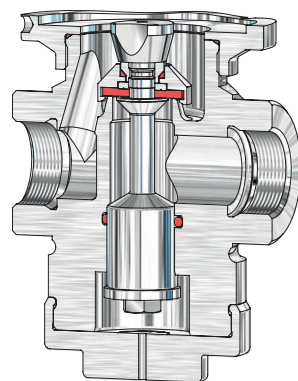
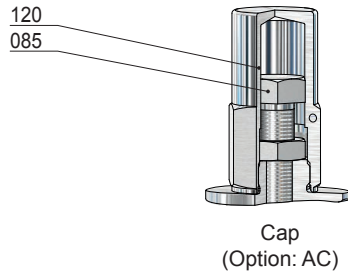
Item	Piece	Description	Item	Piece	Description
301	1	valve body	120	1	cap
030	1	spring bonnet	300	1	piston
060 *	1	disc, complete	304	1	inlet pressure piston
560	1	disc	310	1	piston plate
061	1	pressure piece	311	1	distance bush
062	1	soft sealing	314	1	lock nut
071	1	o-ring	329 *	1	o-ring
072	1	locking ring	347	1	screw
073	1	o-ring (only for thermoplastics soft sealing)	350 *	1	o-ring
079	1	lift stopper	351 *	1	o-ring
081	1	spring	352 *	1	o-ring
082	1	springplate, upper	357	1	bottom plug
084	1	springplate, lower	362	1	adapter
085	1	adjusting screw			
086	1	lock nut			

* expendable parts

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80



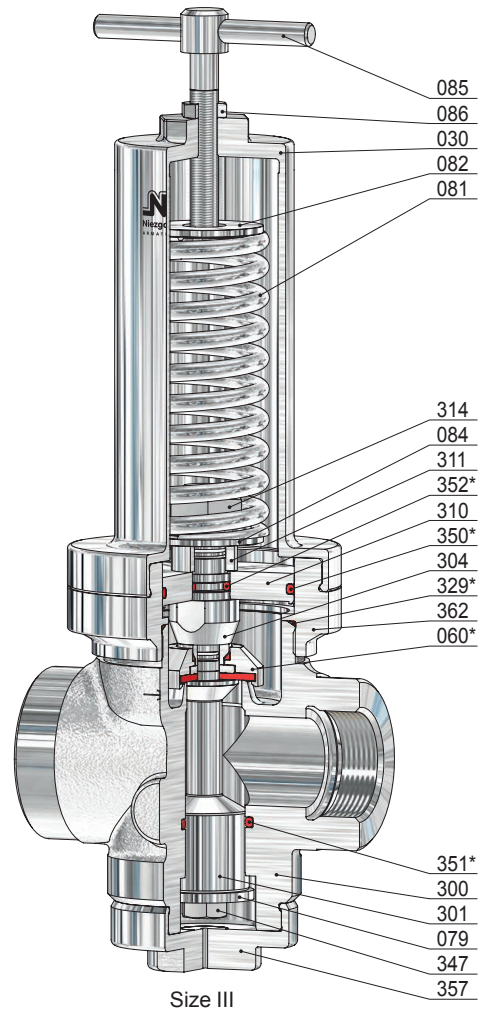
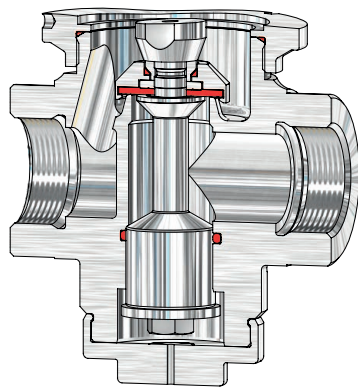
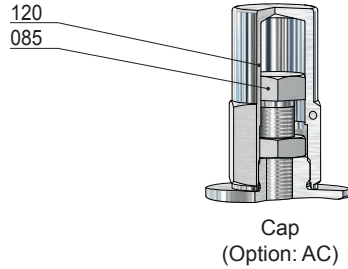
Item	Piece	Description	Item	Piece	Description
301	1	valve body	120	1	cap
030	1	spring bonnet	300	1	piston
060 *	1	disc, complete	304	1	inlet pressure piston
560	1	disc	310	1	piston plate
061	1	pressure piece	311	1	distance bush
062	1	soft sealing	314	1	lock nut
071	1	o-ring	329 *	1	o-ring
072	1	locking ring	347	1	screw
073	1	o-ring <i>(only for thermoplastics soft sealing)</i>	350 *	1	o-ring
079	1	lift stopper	351 *	1	o-ring
081	1	spring	352 *	1	o-ring
082	1	springplate, upper	357	1	bottom plug
084	1	springplate, lower	362	1	adapter
085	1	adjusting screw			
086	1	lock nut			

* expendable parts

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80



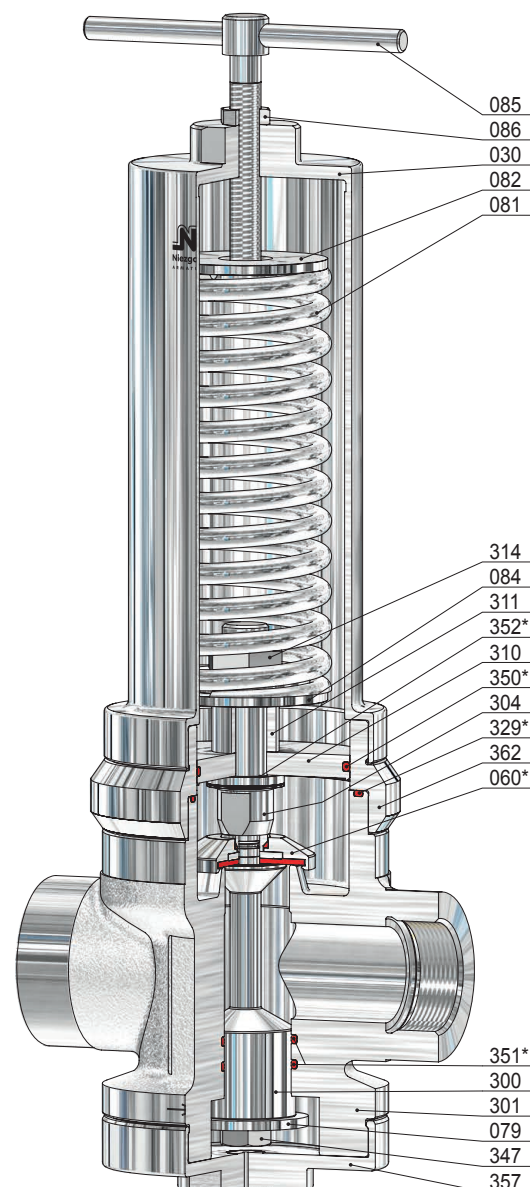
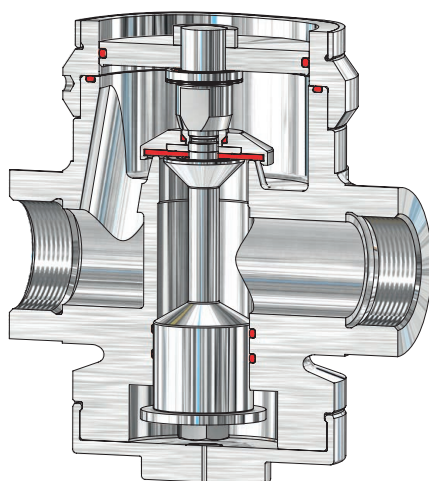
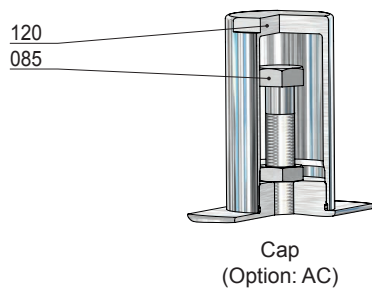
Item	Piece	Description	Item	Piece	Description
301	1	valve body	120	1	cap
030	1	spring bonnet	300	1	piston
060 *	1	disc, complete	304	1	inlet pressure piston
560	1	disc	310	1	piston plate
061	1	pressure piece	311	1	distance bush
062	1	soft sealing	314	1	lock nut
071	1	o-ring	329 *	1	o-ring
072	1	locking ring	347	1	screw
073	1	o-ring <i>(only for thermoplastics soft sealing)</i>	350 *	1	o-ring
079	1	lift stopper	351 *	1	o-ring
081	1	spring	352 *	1	o-ring
082	1	springplate, upper	357	1	bottom plug
084	1	springplate, lower	362	1	adapter
085	1	adjusting screw			
086	1	lock nut			

* expendable parts

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80



Size IIIB

Item	Piece	Description	Item	Piece	Description
301	1	valve body	120	1	cap
030	1	spring bonnet	300	1	piston
060 *	1	disc, complete	304	1	inlet pressure piston
560	1	disc	310	1	piston plate
061	1	pressure piece	311	1	distance bush
062	1	soft sealing	314	1	lock nut
071	1	o-ring	329 *	1	o-ring
072	1	locking ring	347	1	screw
073	1	o-ring (only for thermoplastics soft sealing)	350 *	1	o-ring
079	1	lift stopper	351 *	2	o-ring
081	1	spring	352 *	1	o-ring
082	1	springplate, upper	357	1	bottom plug
084	1	springplate, lower	362	1	adapter
085	1	adjusting screw			
086	1	lock nut			

* expendable parts

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 81

Standard version:

Material: Valve-body / media contact surfaces

Typ 81.2: BG 0 - II 1.4301, 1.4571 / 1.4571
 BG III - IV 1.4571 / 1.4571

Connections:

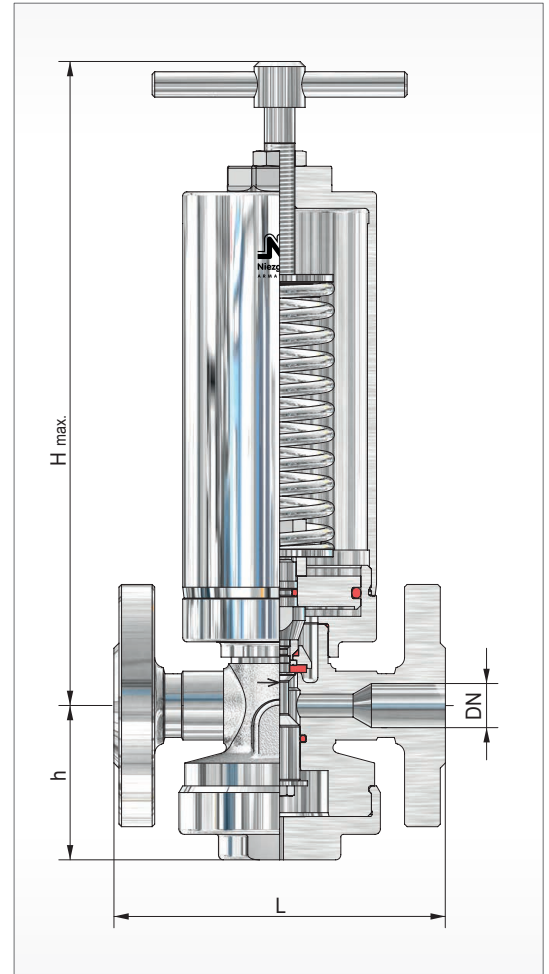
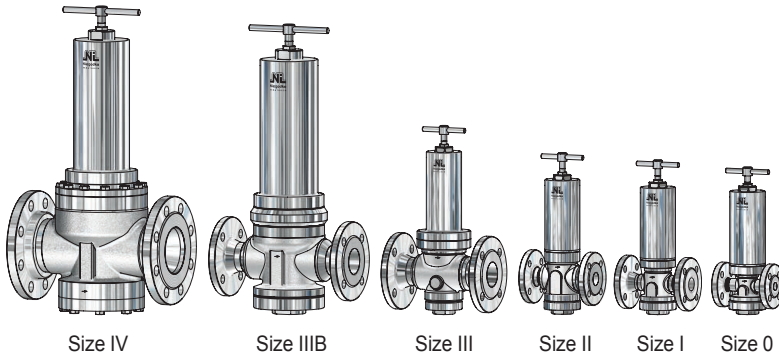
Flange connections: DIN EN / ASME B16.5

Sealings:

FPM, EPDM
 PTFE, EPDM (steam up to 150°C)
 PTFE, AF100, EPDM (steam up to 200°C)

Approvals:

Pressure Equipment Directive: 2014/68/EU
 Declaration of Conformity



Size	Inlet			Outlet		Dimensions				Kvs value [m³/h]
	DN	NPS	Initial pressure range P1 min. [bar(g)] max.	DN	NPS	Height 'H' max.				
						Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]	
0	10	-	0,35 / 104,00	10	-	275	265	130	59	2,0
	15	1/2		15	1/2					2,2
I	15	1/2	0,35 / 59,00	15	1/2	305	270	130	67	3,0
	20	3/4		20	3/4			3,2		
	25*	1*		25*	1*			3,5		
II	25	1	0,25 / 25,00	25	1	315	275	160	75	6,3
	32	1 1/4		32	1 1/4			6,5		
	40*	1 1/2*		40*	1 1/2*			6,7		
III	40	1 1/2	0,25 / 17,00	40	1 1/2	360	325	200	90	12,5
	50	2		50	2			13,0		
	65*	2 1/2*		65*	2 1/2*			13,5		
IIIB	50	2	0,25 / 12,00	50	2	570	535	300	112	27,5
	65	2 1/2		65	2 1/2			28,0		
	80	3		80	3			28,5		
IV	65	2 1/2	0,20 / 13,20	65	2 1/2	600	565	290	140	48,0
	80	3		80	3			50,0		
	100	4		100	4			53,0		

other design on request

* special size

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 81

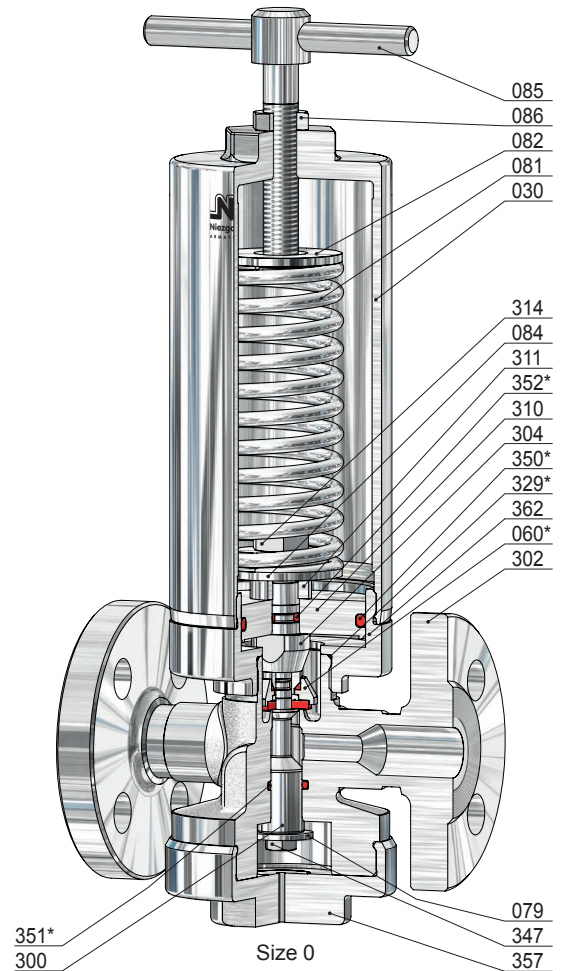
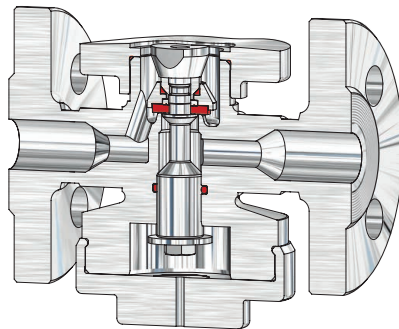
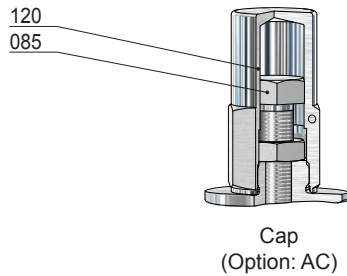
Spring ranges for initial pressure P1

Piston plate [mm]	Ø 139	Ø 119	Ø 99	Ø 84	Ø 64	Ø 48	Ø 38	Ø 27
Size	Spring no.	[bar(g)]						
0	303				0,35 - 0,70			
	304				0,71 - 1,20			
	305				1,30 - 2,00			
	306				2,10 - 3,00	4,60 - 6,00	9,10 - 10,00	15,10 - 26,00
	307				3,10 - 4,50	6,10 - 9,00	10,10 - 15,00	26,10 - 39,00
	308							39,10 - 48,00
	309							48,10 - 62,00
	310							62,10 - 85,00
	311							85,10 - 104,00
I	303				0,35 - 0,70			
	304				0,71 - 1,00			
	305				1,10 - 2,00			
	306				2,10 - 3,00	4,60 - 6,00	8,60 - 10,00	15,10 - 25,00
	307				3,10 - 4,50	6,10 - 8,50	10,10 - 15,00	25,10 - 38,00
	309							46,10 - 59,00
II	303			0,25 - 0,40				
	304			0,41 - 0,70				
	305			0,71 - 1,00				
	306			1,10 - 1,60	2,60 - 3,00	4,60 - 7,00	10,10 - 14,00	
	307			1,70 - 2,50	3,10 - 4,50	7,10 - 10,00	14,10 - 21,00	
	308						21,10 - 25,00	
III	323		0,25 - 0,40					
	324		0,41 - 0,70					
	325		0,71 - 1,00	1,10 - 1,50	2,60 - 3,50	6,60 - 11,00		
	326			1,60 - 2,50	3,60 - 5,50	11,10 - 17,00		
	327				5,60 - 6,50			
IIIB	353		0,25 - 0,50					
	354		0,51 - 0,90					
	355		1,00 - 1,30					
	356		1,40 - 2,00	2,10 - 3,00				
	357			3,10 - 5,50	5,60 - 9,00			
	358				9,10 - 12,00			
IV	353	0,20 - 0,43						
	354	0,44 - 0,70						
	355	0,71 - 1,00						
	356	1,10 - 1,50		2,60 - 4,10				
	357	1,60 - 2,50		4,20 - 6,80	6,90 - 13,20			

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 81



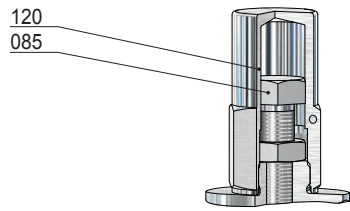
Item	Piece	Description	Item	Piece	Description
302	1	valve body	120	1	cap
030	1	spring bonnet	300	1	piston
060 *	1	disc, complete	304	1	inlet pressure piston
560	1	disc	310	1	piston plate
061	1	pressure piece	311	1	distance bush
062	1	soft sealing	314	1	lock nut
071	1	o-ring	329 *	1	o-ring
072	1	locking ring	347	1	screw
073	1	o-ring (only for thermoplastics soft sealing)	350 *	1	o-ring
079	1	lift stopper	351 *	1	o-ring
081	1	spring	352 *	1	o-ring
082	1	springplate, upper	357	1	bottom plug
084	1	springplate, lower	362	1	adapter
085	1	adjusting screw			
086	1	lock nut			

* expendable parts

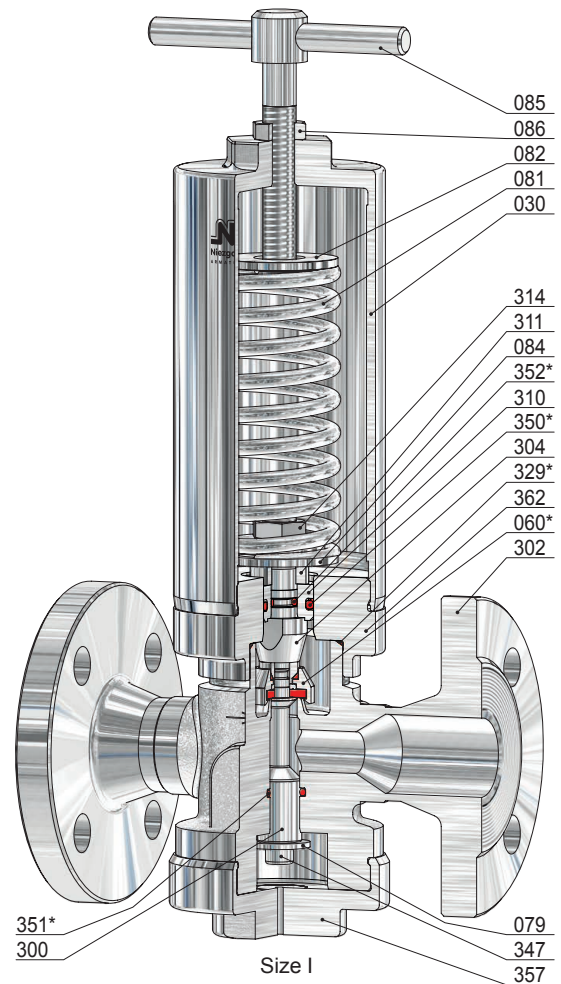
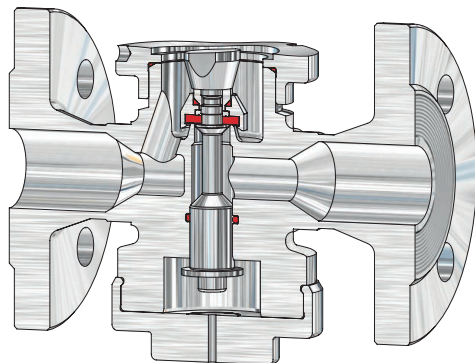
Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 81



Cap
(Option: AC)



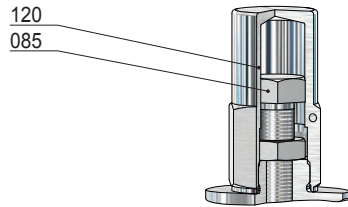
Item	Piece	Description	Item	Piece	Description
302	1	valve body	120	1	cap
030	1	spring bonnet	300	1	piston
060 *	1	disc, complete	304	1	inlet pressure piston
560	1	disc	310	1	piston plate
061	1	pressure piece	311	1	distance bush
062	1	soft sealing	314	1	lock nut
071	1	o-ring	329 *	1	o-ring
072	1	locking ring	347	1	screw
073	1	o-ring (only for thermoplastics soft sealing)	350 *	1	o-ring
079	1	lift stopper	351 *	1	o-ring
081	1	spring	352 *	1	o-ring
082	1	springplate, upper	357	1	bottom plug
084	1	springplate, lower	362	1	adapter
085	1	adjusting screw			
086	1	lock nut			

* expendable parts

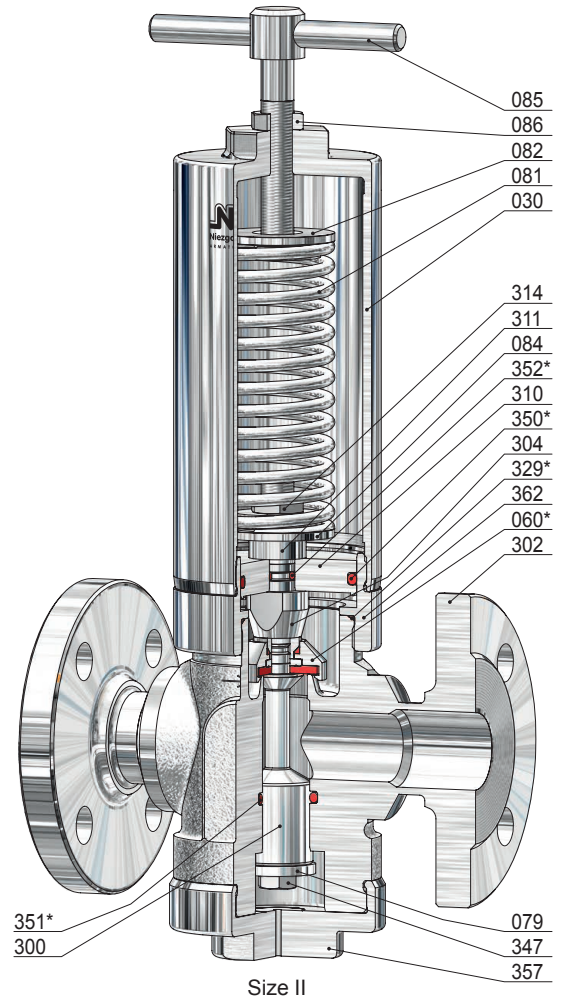
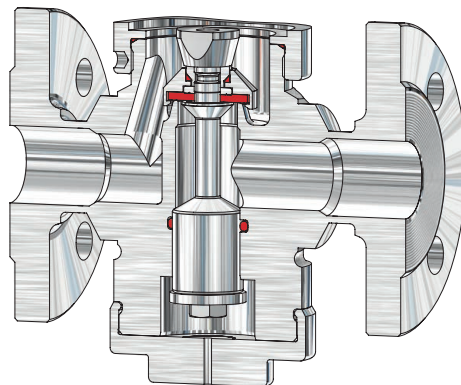
Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 81



Cap
(Option: AC)



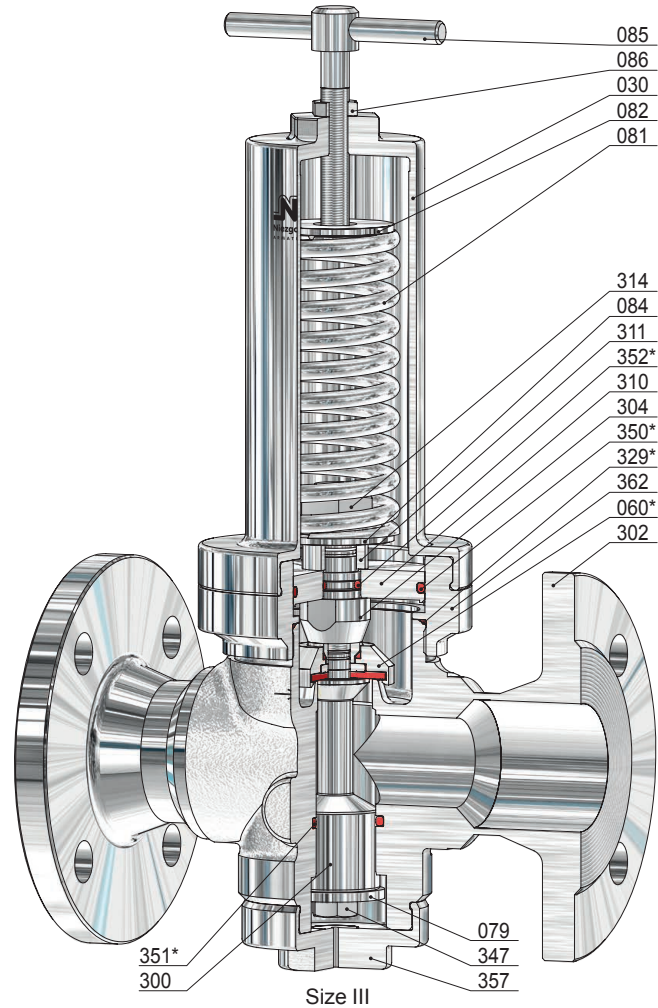
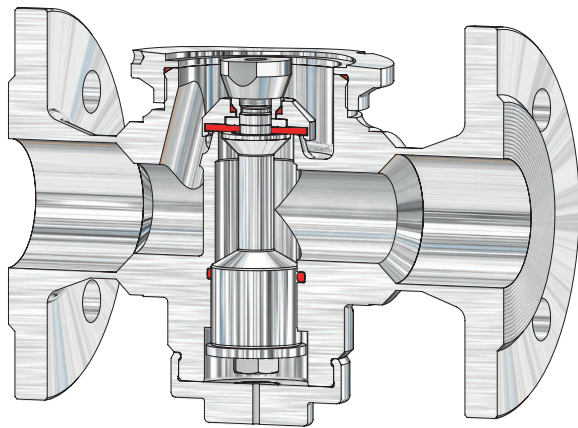
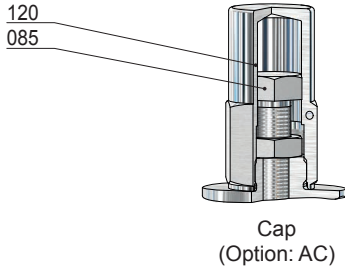
Item	Piece	Description	Item	Piece	Description
302	1	valve body	120	1	cap
030	1	spring bonnet	300	1	piston
060 *	1	disc, complete	304	1	inlet pressure piston
560	1	disc	310	1	piston plate
061	1	pressure piece	311	1	distance bush
062	1	soft sealing	314	1	lock nut
071	1	o-ring	329 *	1	o-ring
072	1	locking ring	347	1	screw
073	1	o-ring (only for thermoplastics soft sealing)	350 *	1	o-ring
079	1	lift stopper	351 *	1	o-ring
081	1	spring	352 *	1	o-ring
082	1	springplate, upper	357	1	bottom plug
084	1	springplate, lower	362	1	adapter
085	1	adjusting screw			
086	1	lock nut			

* expendable parts

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 81



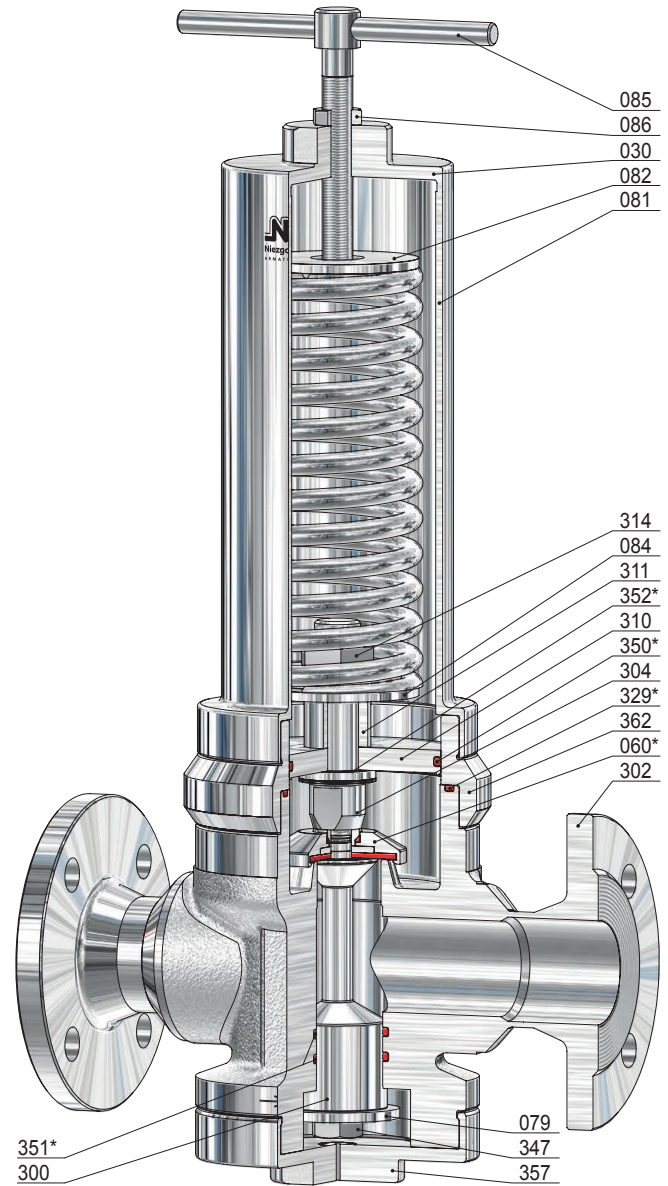
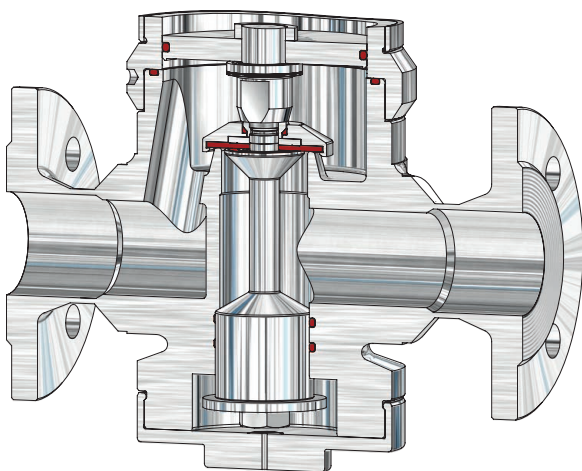
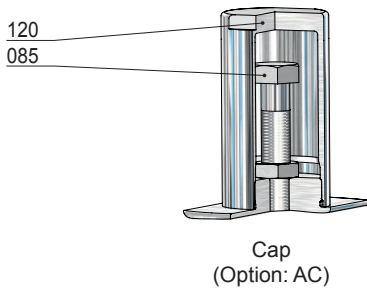
Item	Piece	Description	Item	Piece	Description
302	1	valve body	120	1	cap
030	1	spring bonnet	300	1	piston
060 *	1	disc, complete	304	1	inlet pressure piston
560	1	disc	310	1	piston plate
061	1	pressure piece	311	1	distance bush
062	1	soft sealing	314	1	lock nut
071	1	o-ring	329 *	1	o-ring
072	1	locking ring	347	1	screw
073	1	o-ring (only for thermoplastics soft sealing)	350 *	1	o-ring
079	1	lift stopper	351 *	1	o-ring
081	1	spring	352 *	1	o-ring
082	1	springplate, upper	357	1	bottom plug
084	1	springplate, lower	362	1	adapter
085	1	adjusting screw			
086	1	lock nut			

* expendable parts

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 81



Size IIIB

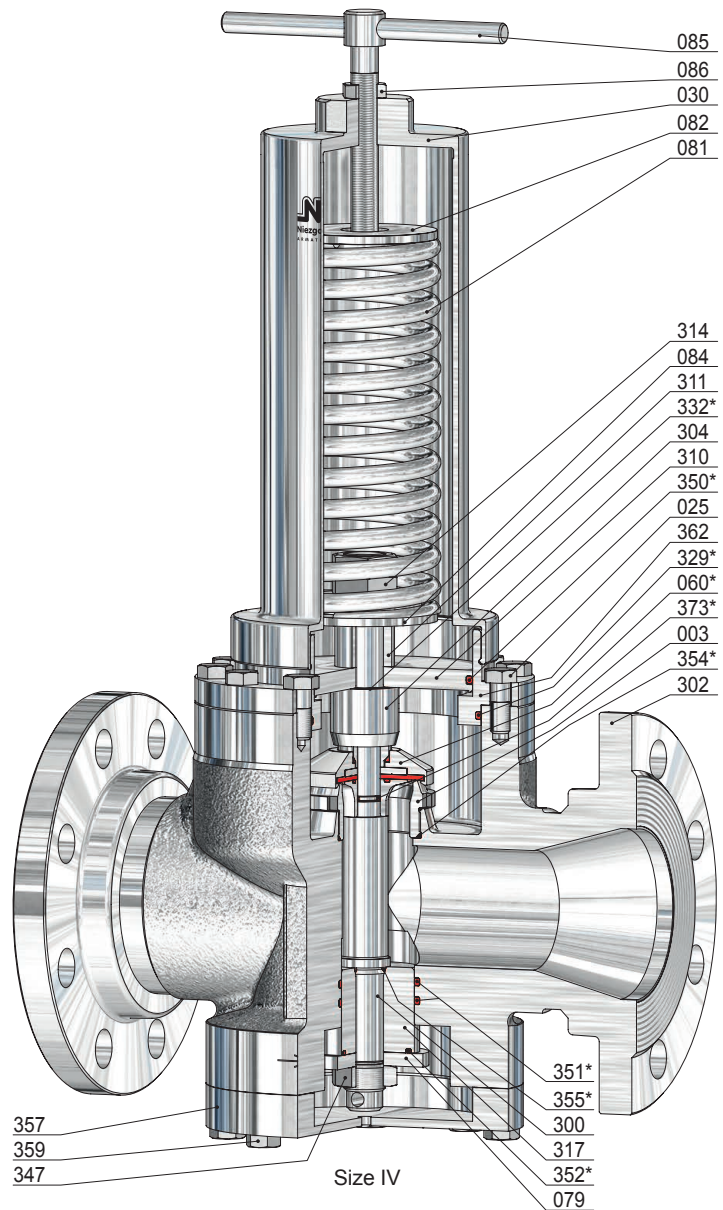
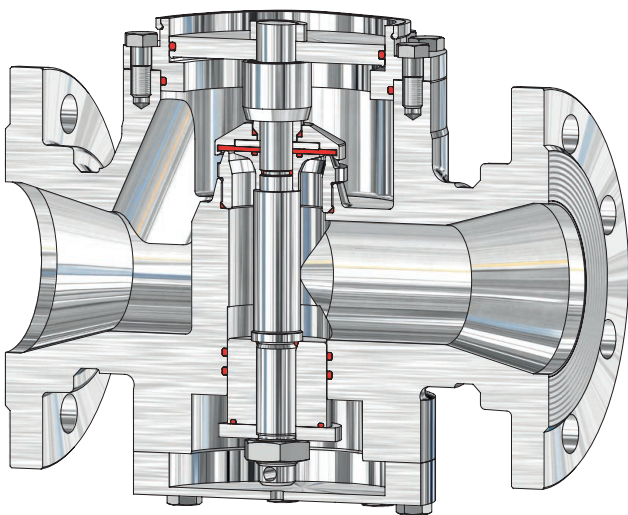
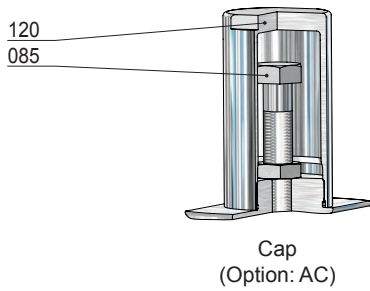
Item	Piece	Description	Item	Piece	Description
302	1	valve body	120	1	cap
030	1	spring bonnet	300	1	piston
060 *	1	disc, complete	304	1	inlet pressure piston
560	1	disc	310	1	piston plate
061	1	pressure piece	311	1	distance bush
062	1	soft sealing	314	1	lock nut
071	1	o-ring	329 *	1	o-ring
072	1	locking ring	347	1	screw
073	1	o-ring (only for thermoplastics soft sealing)	350 *	1	o-ring
079	1	lift stopper	351 *	2	o-ring
081	1	spring	352 *	1	o-ring
082	1	springplate, upper	357	1	bottom plug
084	1	springplate, lower	362	1	adapter
085	1	adjusting screw			
086	1	lock nut			

* expendable parts

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 81



Item	Piece	Description	Item	Piece	Description	Item	Piece	Description
302	1	valve body	081	1	spring	332 *	1	o-ring
003	1	seat	082	1	springplate, upper	347	1	screw
025	12	screw	084	1	springplate, lower	350 *	1	o-ring
030	1	spring bonnet	085	1	adjusting screw	351 *	2	o-ring
060 *	1	disc, complete	086	1	lock nut	352 *	1	o-ring
560	1	disc	120	1	cap	354 *	1	o-ring
061	1	pressure piece	300	1	piston	355 *	1	o-ring
062	1	soft sealing	304	1	inlet pressure piston	357	1	bottom plug
071	1	o-ring	310	1	piston plate	359	8	screw
072	1	locking ring	311	1	distance bush	362	1	adapter
073	1	o-ring	314	2	lock nut	373 *	1	o-ring
074	1	disc plate	317	1	piston guide			
079	1	lift stopper	329 *	1	o-ring			

* expendable parts

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 84

Standard version:

Material: Valve-body / media contact surfaces

Typ 84.2: BG 0 - II 1.4301, 1.4571 / 1.4571

BG III - IIIB 1.4571 / 1.4571

Sealings:

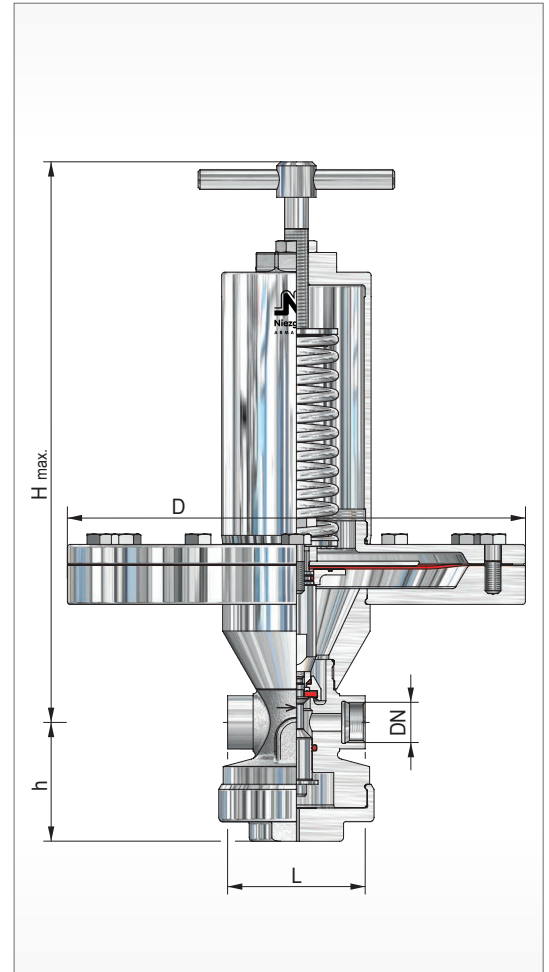
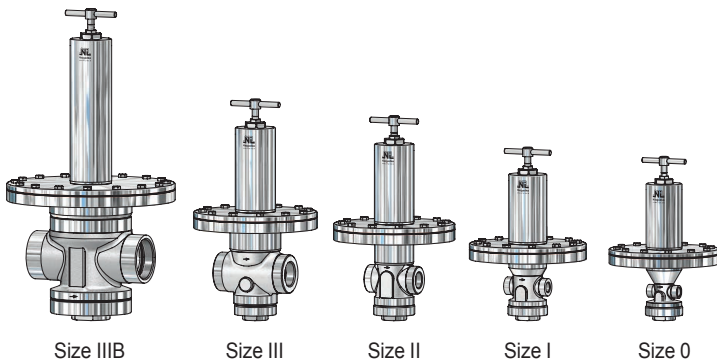
Screwed connection: DIN ISO 228 / ASME B1.20.1 FPM, EPDM

PTFE, EPDM (steam up to 150°C)

PTFE, AF100, EPDM (steam up to 200°C)

Approvals:

Pressure Equipment Directive: 2014/68/EU
Declaration of Conformity



Size	Inlet			Outlet			Dimensions				Kvs value [m³/h]				
	PN			PN			Height 'H' max.		Diaphragm Ø = D						
	DN	G, NPT	Initial pressure range P1 min. [bar(g)] max.	DN	G, NPT		Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]		Design			
0	8	1/4	0,005 / 0,45	8	1/4		330	290	70	59	405	310	235	190	1,2
	10	3/8		10	3/8				70	2,0					
	15	1/2		15	1/2				70	2,2					
I	15	1/2	0,005 / 0,45	15	1/2		305	290	90	67	405	310	235	190	3,0
	20	3/4		20	3/4				90	3,2					
	25*	1*		25*	1*				135	3,5					
II	25	1	0,005 / 0,40	25	1		345	330	105	78	405	310	235	190	6,3
	32	1 1/4		32	1 1/4				105	6,5					
	40*	1 1/2*		40*	1 1/2*				155	6,7					
III	40	1 1/2	0,005 / 0,45	40	1 1/2		365	335	145	90	405	310	235	190	12,5
	50	2		50	2				145	13,0					
	65*	2 1/2*		65*	2 1/2*				210	13,5					
IIIB	50	2	0,005 / 0,35	50	2		525	460	220	112	405	310	235	190	27,5
	65	2 1/2		65	2 1/2				-	28,0					

other design on request

* special size

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 84

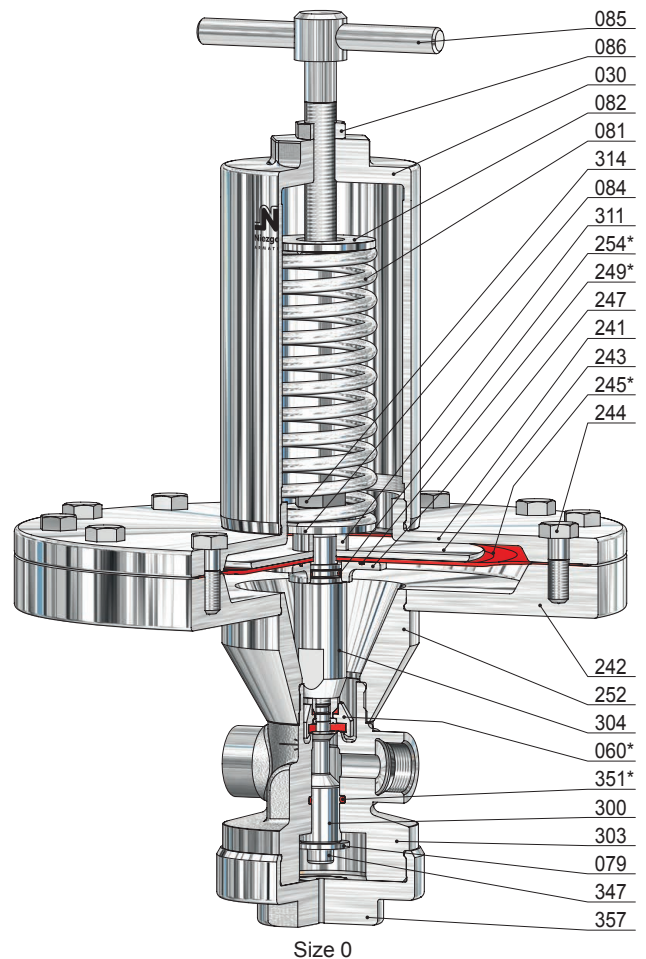
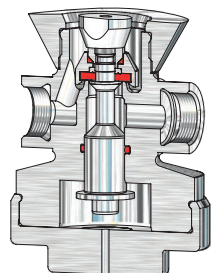
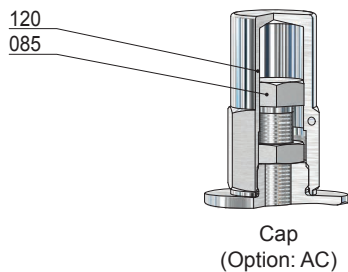
Spring ranges for initial pressure P₁

Diaphragm [mm]		Ø 405	Ø 310	Ø 235	Ø 190
Size	Spring no.	[bar(g)]			
0	301	0,005 - 0,008			
	302	0,009 - 0,015	0,026 - 0,030	0,051 - 0,075	0,11 - 0,15
	303	0,016 - 0,025	0,031 - 0,050	0,076 - 0,100	0,16 - 0,25
	304				0,26 - 0,45
I	301	0,005 - 0,008			
	302	0,009 - 0,015	0,026 - 0,030	0,051 - 0,070	0,11 - 0,15
	303	0,016 - 0,025	0,031 - 0,050	0,071 - 0,100	0,16 - 0,25
	304				0,26 - 0,45
II	301	0,005 - 0,008			
	302	0,009 - 0,015	0,026 - 0,030	0,051 - 0,065	0,11 - 0,14
	303	0,016 - 0,025	0,031 - 0,050	0,066 - 0,100	0,15 - 0,25
	304				0,26 - 0,40
III	301	0,005 - 0,008			
	302	0,009 - 0,014	0,026 - 0,028	0,051 - 0,065	0,11 - 0,15
	303	0,015 - 0,020	0,029 - 0,050	0,066 - 0,100	0,16 - 0,25
	304	0,021 - 0,025			0,26 - 0,45
IIIB	2 x 301	0,005 - 0,008			
	2 x 302	0,009 - 0,012	0,026 - 0,029	0,051 - 0,070	
	2 x 303	0,013 - 0,020	0,030 - 0,050	0,071 - 0,100	
	2 x 304	0,021 - 0,025		0,110 - 0,200	
	2 x 305			0,210 - 0,350	

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 84



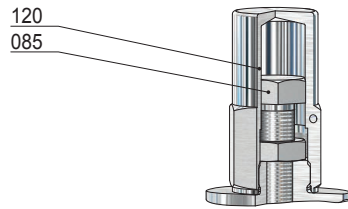
Item	Piece	Description	Item	Piece	Description
303	1	valve body	243	1	upper clamp plate
030	1	spring bonnet	244	12	screw (variable)
060 *	1	disc, complete	245 *	1	diaphragm
560	1	disc	247	1	lower clamp plate
061	1	pressure piece	249 *	1	o-ring
062	1	soft sealing	252	1	adapter
071	1	o-ring	254 *	1	o-ring
072	1	locking ring	300	1	piston
073	1	o-ring (only for thermoplastics soft sealing)	304	1	inlet pressure piston
079	1	lift stopper	311	1	distance bush
081	1	spring	314	1	lock nut
082	1	springplate, upper	347	1	screw
084	1	springplate, lower	351 *	1	o-ring
085	1	adjusting screw	357	1	bottom plug
086	1	lock nut			
120	1	cap			
241	1	upper housing			
242	1	lower housing			

* expendable parts

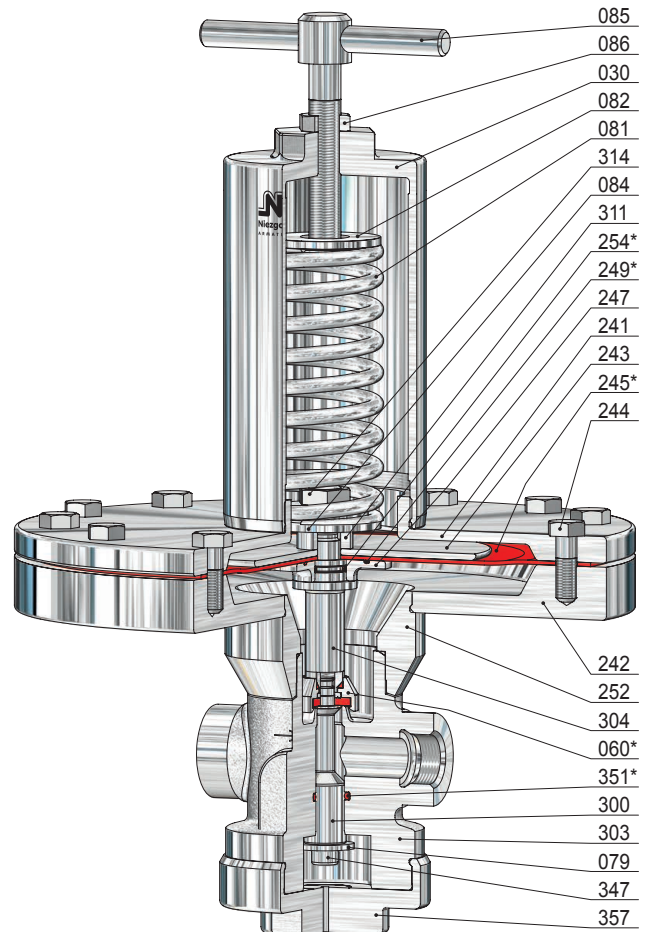
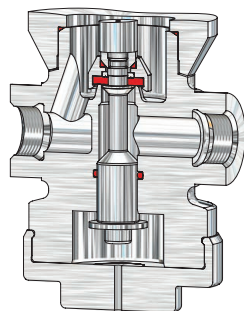
Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 84



Cap
(Option: AC)



Size I

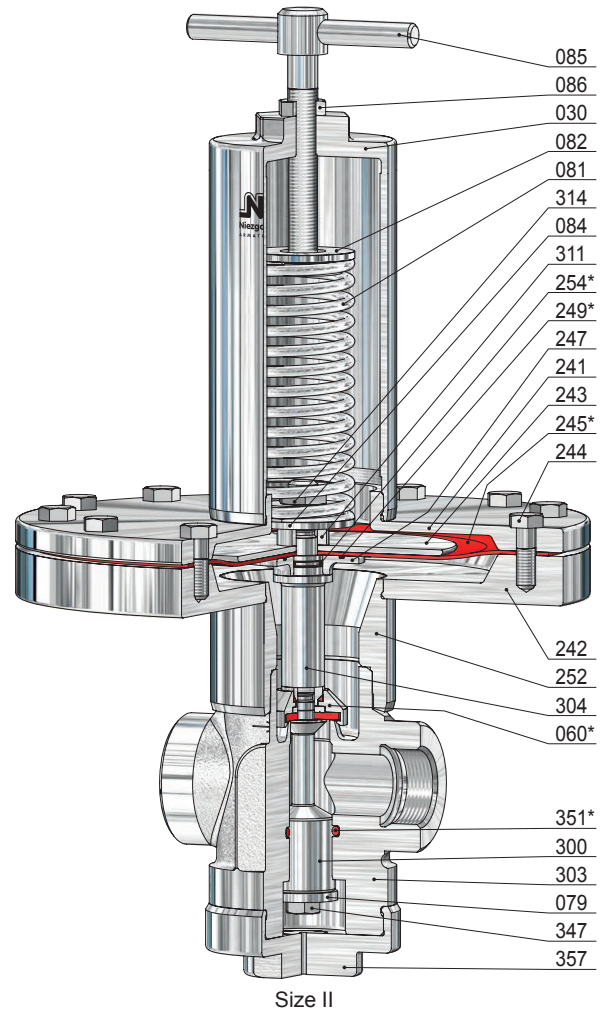
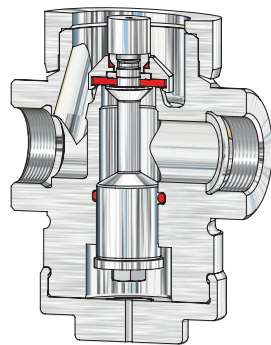
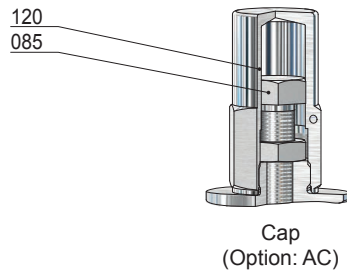
Item	Piece	Description	Item	Piece	Description
303	1	valve body	243	1	upper clamp plate
030	1	spring bonnet	244	12	screw <i>(variable)</i>
060 *	1	disc, complete	245 *	1	diaphragm
560	1	disc	247	1	lower clamp plate
061	1	pressure piece	249 *	1	o-ring
062	1	soft sealing	252	1	adapter
071	1	o-ring	254 *	1	o-ring
072	1	locking ring	300	1	piston
073	1	o-ring <i>(only for thermoplastics soft sealing)</i>	304	1	inlet pressure piston
079	1	lift stopper	311	1	distance bush
081	1	spring	314	1	lock nut
082	1	springplate, upper	347	1	screw
084	1	springplate, lower	351 *	1	o-ring
085	1	adjusting screw	357	1	bottom plug
086	1	lock nut			
120	1	cap			
241	1	upper housing			
242	1	lower housing			

* expendable parts

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 84



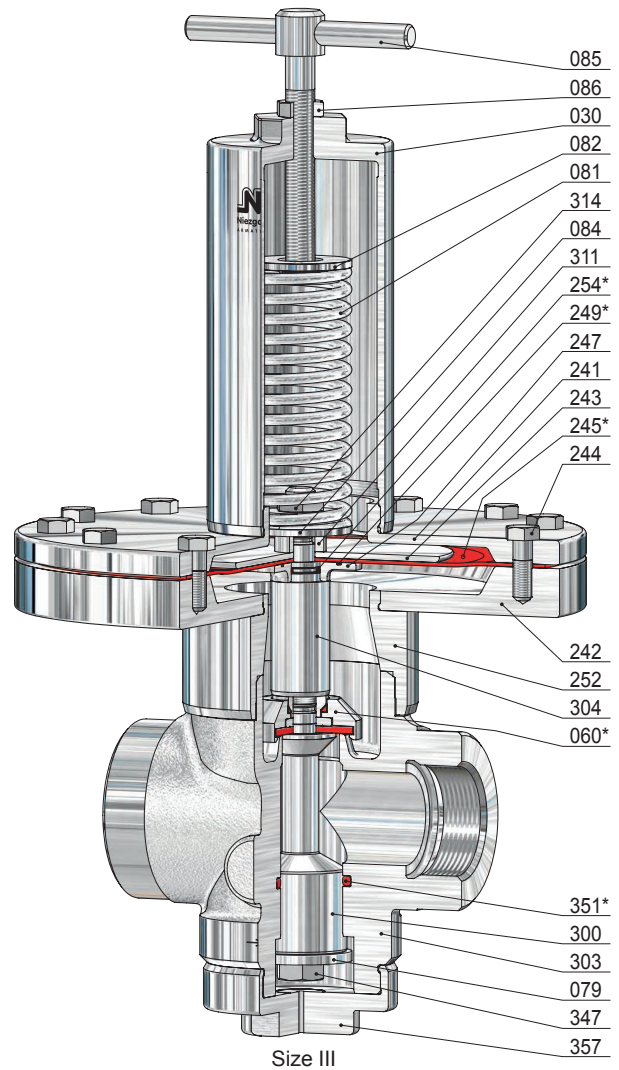
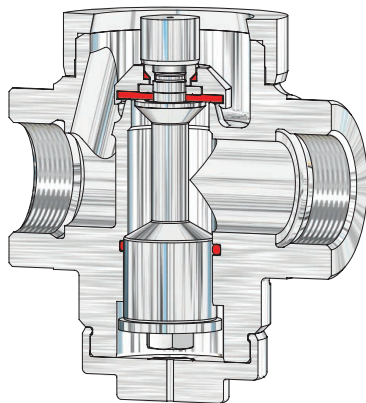
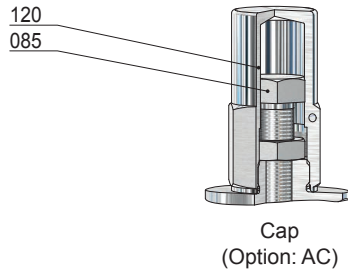
Item	Piece	Description	Item	Piece	Description
303	1	valve body	243	1	upper clamp plate
030	1	spring bonnet	244	12	screw (variable)
060 *	1	disc, complete	245 *	1	diaphragm
560	1	disc	247	1	lower clamp plate
061	1	pressure piece	249 *	1	o-ring
062	1	soft sealing	252	1	adapter
071	1	o-ring	254 *	1	o-ring
072	1	locking ring	300	1	piston
073	1	o-ring (only for thermoplastics soft sealing)	304	1	inlet pressure piston
079	1	lift stopper	311	1	distance bush
081	1	spring	314	1	lock nut
082	1	springplate, upper	347	1	screw
084	1	springplate, lower	351 *	1	o-ring
085	1	adjusting screw	357	1	bottom plug
086	1	lock nut			
120	1	cap			
241	1	upper housing			
242	1	lower housing			

* expendable parts

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 84



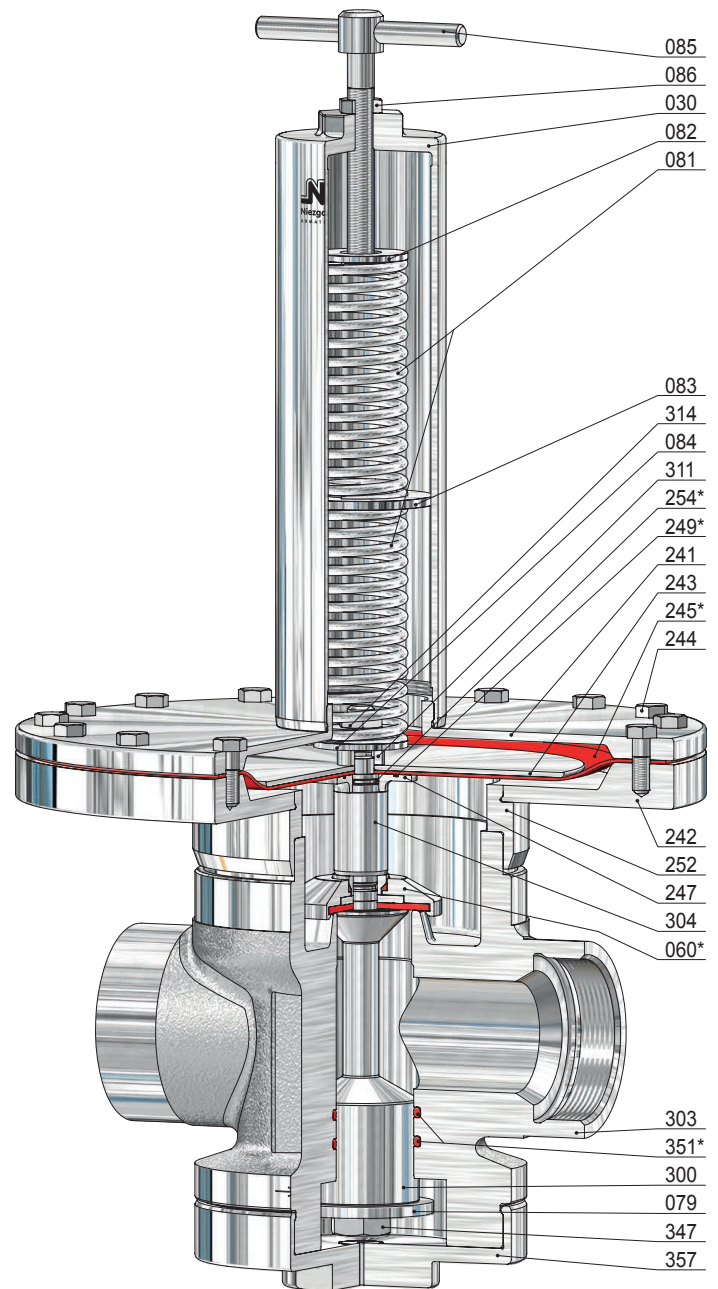
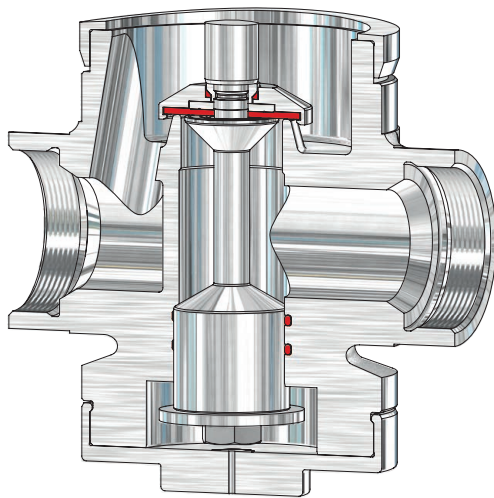
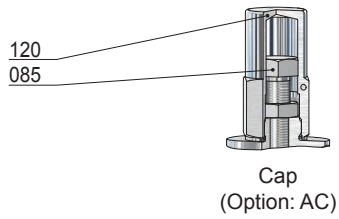
Item	Piece	Description	Item	Piece	Description
303	1	valve body	243	1	upper clamp plate
030	1	spring bonnet	244	12	screw (variable)
060 *	1	disc, complete	245 *	1	diaphragm
560	1	disc	247	1	lower clamp plate
061	1	pressure piece	249 *	1	o-ring
062	1	soft sealing	252	1	adapter
071	1	o-ring	254 *	1	o-ring
072	1	locking ring	300	1	piston
073	1	o-ring (only for thermoplastics soft sealing)	304	1	inlet pressure piston
079	1	lift stopper	311	1	distance bush
081	1	spring	314	1	lock nut
082	1	springplate, upper	347	1	screw
084	1	springplate, lower	351 *	1	o-ring
085	1	adjusting screw	357	1	bottom plug
086	1	lock nut			
120	1	cap			
241	1	upper housing			
242	1	lower housing			

* expendable parts

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 84



Size III B

Item	Piece	Description	Item	Piece	Description	Item	Piece	Description
303	1	valve body	083	1	springplate, middle	300	1	piston
030	1	spring bonnet	084	1	springplate, lower	304	1	inlet pressure piston
060 *	1	disc, complete	085	1	adjusting screw	311	1	distance bush
560	1	disc	086	1	lock nut	314	1	lock nut
061	1	pressure piece	120	1	cap	347	1	screw
062	1	soft sealing	241	1	upper housing	351 *	2	o-ring
071	1	o-ring	242	1	lower housing	357	1	bottom plug
072	1	locking ring	243	1	upper clamp plate			
073	1	o-ring (only for thermoplastics soft sealing)	244	16	screw (variable)			
			245 *	1	diaphragm			
			247	1	lower clamp plate			
079	1	lift stopper	249 *	1	o-ring			
081	2	spring	252	1	adapter			
082	1	springplate, upper	254 *	1	o-ring			

* expendable parts

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 85

Standard version:

Material: Valve-body / media contact surfaces

Typ 85.2: BG 0 - II 1.4301, 1.4571 / 1.4571

BG III - IV 1.4571 / 1.4571

Connections:

Flange connections: DIN EN / ASME B16.5

Sealings:

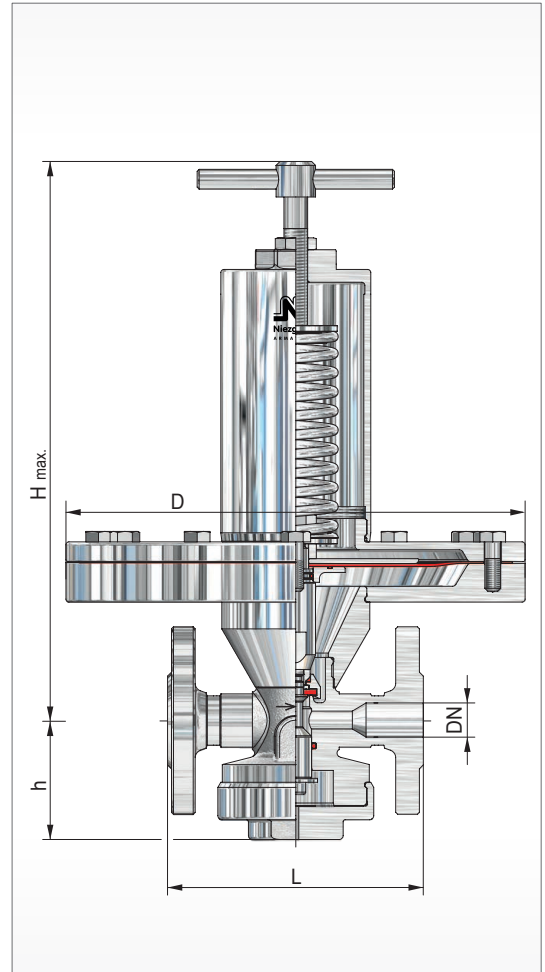
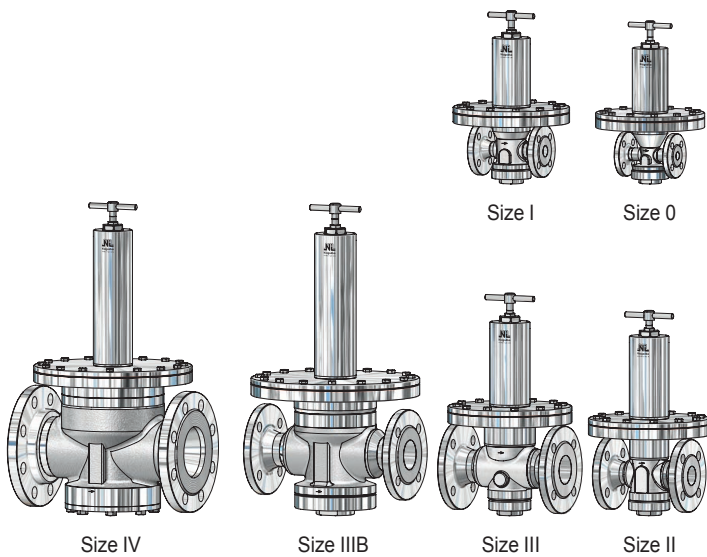
FPM, EPDM

PTFE, EPDM (steam up to 150°C)

PTFE, AF100, EPDM (steam up to 200°C)

Approvals:

Pressure Equipment Directive: 2014/68/EU
Declaration of Conformity



Size	Inlet			Outlet			Dimensions				Kvs value [m³/h]			
	DN	NPS	Initial pressure range P1 min. [bar(g)] max.	DN	NPS	Height 'H' max. Toggle spindle [mm]	Diaphragm Ø = D			Design				
							Cap	L	h			[mm]	[mm]	[mm]
0	10	-	0,005 / 0,45	10	-	330	290	130	59	405	310	235	190	2,0
	15	½		15	½									2,2
I	15	½	0,005 / 0,45	15	½	305	290	130	67					3,0
	20	¾		20	¾									3,2
II	25	1	0,005 / 0,40	25	1	345	330	160	78					6,3
	32	1 ¼		32	1 ¼									6,5
III	40	1 ½	0,005 / 0,45	40	1 ½	365	335	200	90				12,5	
	50	2		50	2								13,0	
III B	50	2	0,005 / 0,35	50	2	525	460	290	112				27,5	
	80	3		80	3								28,0	
IV	65	2 ½	0,005 / 0,38	65	2 ½	510	490	290	157	48,0				
	80	3		80	3					50,0				
	100	4		100	4					53,0				

other design on request

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 85

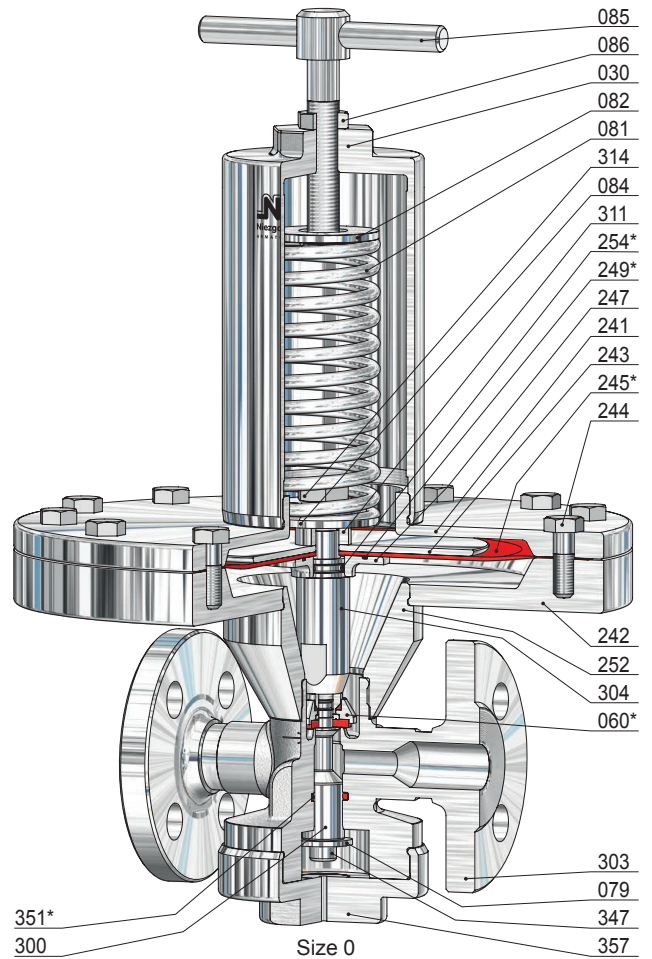
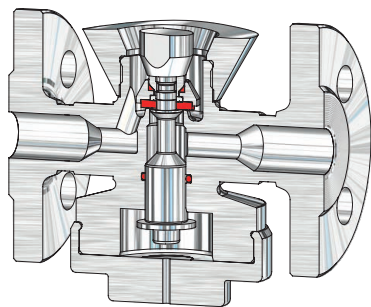
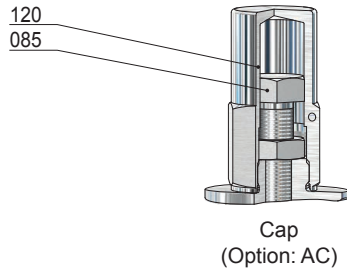
Spring ranges for initial pressure P₁

Diaphragm [mm]		Ø 405	Ø 310	Ø 235	Ø 190
Size	Spring no.	[bar(g)]			
0	301	0,005 - 0,008			
	302	0,009 - 0,015	0,026 - 0,030	0,051 - 0,075	0,11 - 0,15
	303	0,016 - 0,025	0,031 - 0,050	0,076 - 0,100	0,16 - 0,25
	304				0,26 - 0,45
I	301	0,005 - 0,008			
	302	0,009 - 0,015	0,026 - 0,030	0,051 - 0,070	0,11 - 0,15
	303	0,016 - 0,025	0,031 - 0,050	0,071 - 0,100	0,16 - 0,25
	304				0,26 - 0,45
II	301	0,005 - 0,008			
	302	0,009 - 0,015	0,026 - 0,030	0,051 - 0,065	0,11 - 0,14
	303	0,016 - 0,025	0,031 - 0,050	0,066 - 0,100	0,15 - 0,25
	304				0,26 - 0,40
III	301	0,005 - 0,008			
	302	0,009 - 0,014	0,026 - 0,028	0,051 - 0,065	0,11 - 0,15
	303	0,015 - 0,020	0,029 - 0,050	0,066 - 0,100	0,16 - 0,25
	304	0,021 - 0,025			0,26 - 0,45
IIIB	2 x 301	0,005 - 0,008			
	2 x 302	0,009 - 0,012	0,026 - 0,029	0,051 - 0,070	
	2 x 303	0,013 - 0,020	0,030 - 0,050	0,071 - 0,100	
	2 x 304	0,021 - 0,025		0,110 - 0,200	
	2 x 305			0,210 - 0,350	
IV	2 x 301	0,005 - 0,008			
	2 x 302	0,009 - 0,014	0,026 - 0,030	0,053 - 0,077	
	2 x 303	0,015 - 0,025	0,031 - 0,052	0,078 - 0,130	
	2 x 304			0,140 - 0,230	
	2 x 305			0,240 - 0,380	

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 85



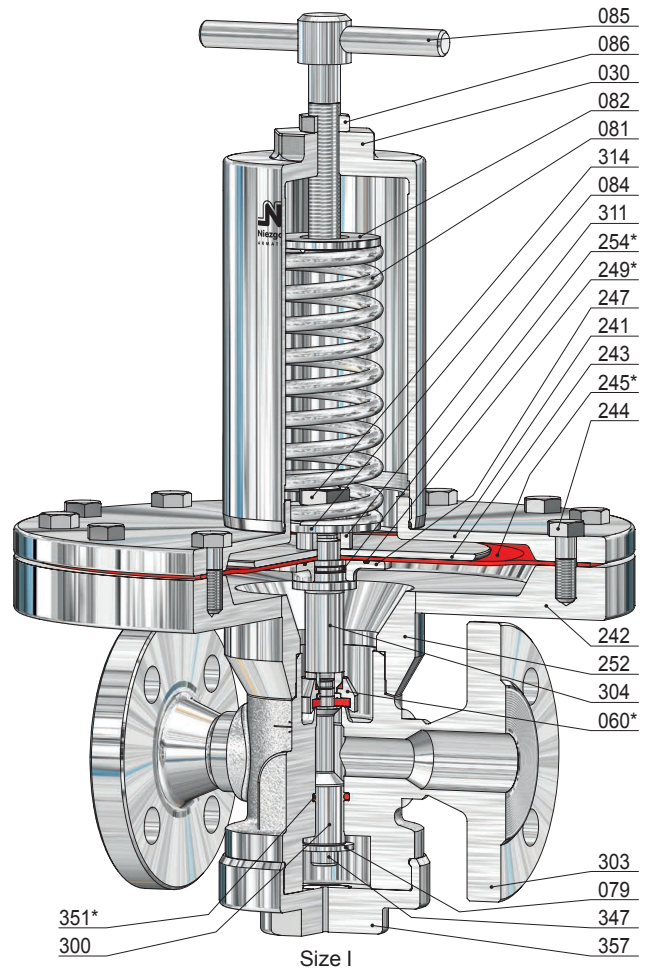
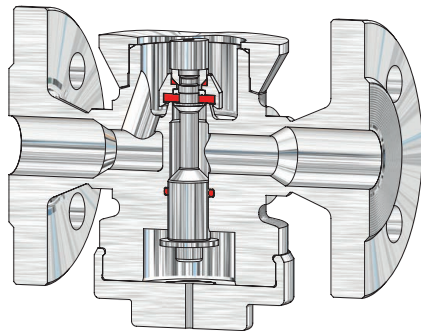
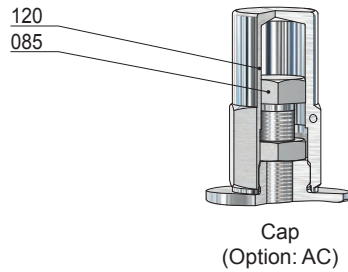
Item	Piece	Description	Item	Piece	Description
303	1	valve body	243	1	upper clamp plate
030	1	spring bonnet	244	12	screw (variable)
060 *	1	disc, complete	245 *	1	diaphragm
560	1	disc	247	1	lower clamp plate
061	1	pressure piece	249 *	1	o-ring
062	1	soft sealing	252	1	adapter
071	1	o-ring	254 *	1	o-ring
072	1	locking ring	300	1	piston
073	1	o-ring (only for thermoplastics soft sealing)	304	1	inlet pressure piston
079	1	lift stopper	311	1	distance bush
081	1	spring	314	1	lock nut
082	1	springplate, upper	347	1	screw
084	1	springplate, lower	351 *	1	o-ring
085	1	adjusting screw	357	1	bottom plug
086	1	lock nut			
120	1	cap			
241	1	upper housing			
242	1	lower housing			

* expendable parts

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 85



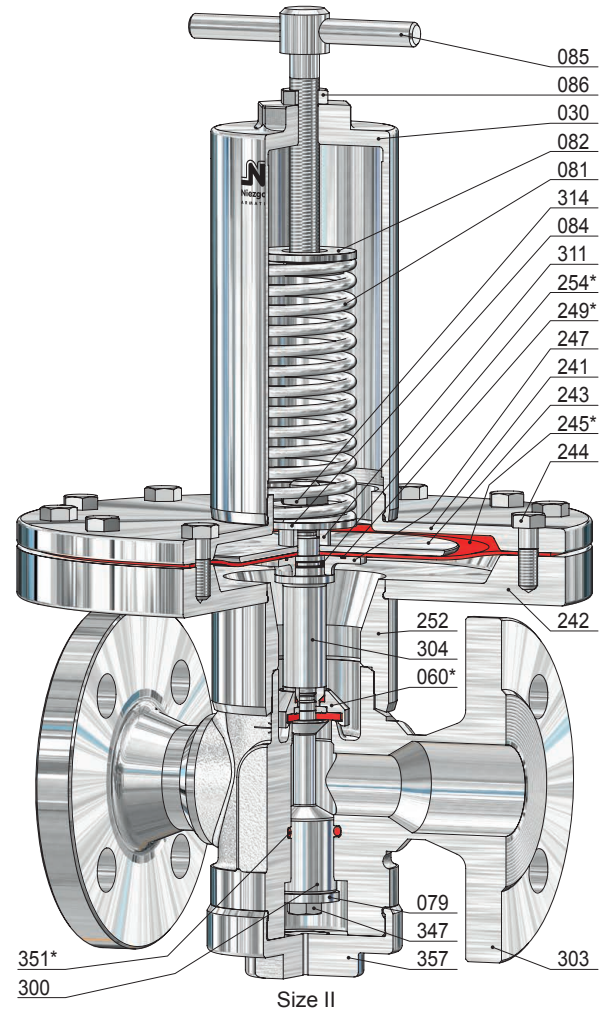
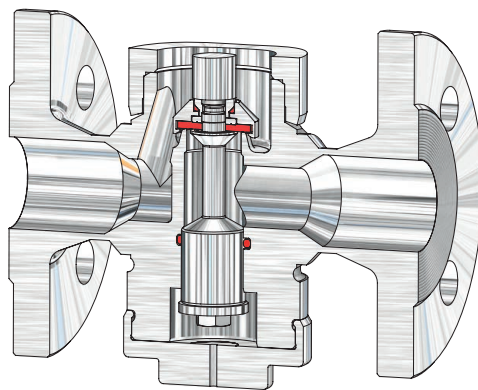
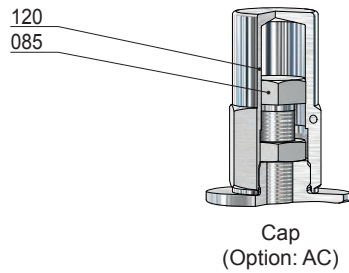
Item	Piece	Description	Item	Piece	Description
303	1	valve body	243	1	upper clamp plate
030	1	spring bonnet	244	12	screw (variable)
060 *	1	disc, complete	245 *	1	diaphragm
560	1	disc	247	1	lower clamp plate
061	1	pressure piece	249 *	1	o-ring
062	1	soft sealing	252	1	adapter
071	1	o-ring	254 *	1	o-ring
072	1	locking ring	300	1	piston
073	1	o-ring (only for thermoplastics soft sealing)	304	1	inlet pressure piston
079	1	lift stopper	311	1	distance bush
081	1	spring	314	1	lock nut
082	1	springplate, upper	347	1	screw
084	1	springplate, lower	351 *	1	o-ring
085	1	adjusting screw	357	1	bottom plug
086	1	lock nut			
120	1	cap			
241	1	upper housing			
242	1	lower housing			

* expendable parts

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 85



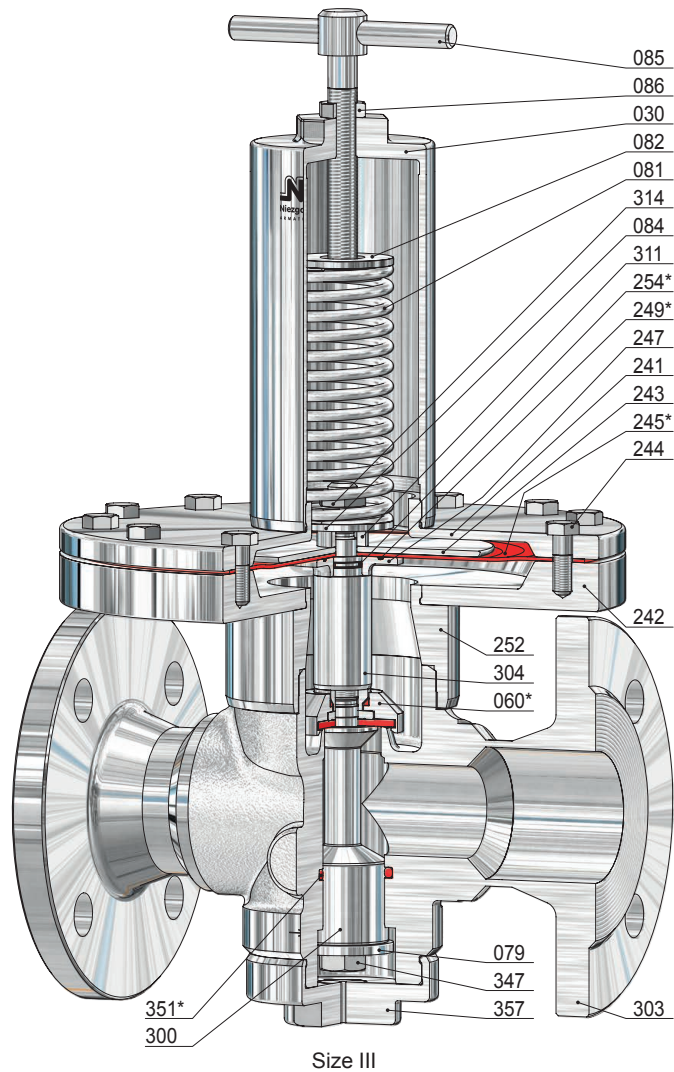
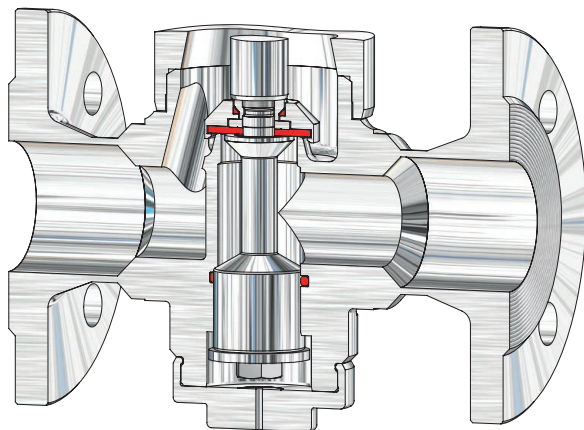
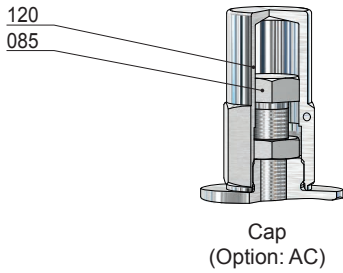
Item	Piece	Description	Item	Piece	Description
303	1	valve body	243	1	upper clamp plate
030	1	spring bonnet	244	12	screw (variable)
060 *	1	disc, complete	245 *	1	diaphragm
560	1	disc	247	1	lower clamp plate
061	1	pressure piece	249 *	1	o-ring
062	1	soft sealing	252	1	adapter
071	1	o-ring	254 *	1	o-ring
072	1	locking ring	300	1	piston
073	1	o-ring (only for thermoplastics soft sealing)	304	1	inlet pressure piston
079	1	lift stopper	311	1	distance bush
081	1	spring	314	1	lock nut
082	1	springplate, upper	347	1	screw
084	1	springplate, lower	351 *	1	o-ring
085	1	adjusting screw	357	1	bottom plug
086	1	lock nut			
120	1	cap			
241	1	upper housing			
242	1	lower housing			

* expendable parts

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 85



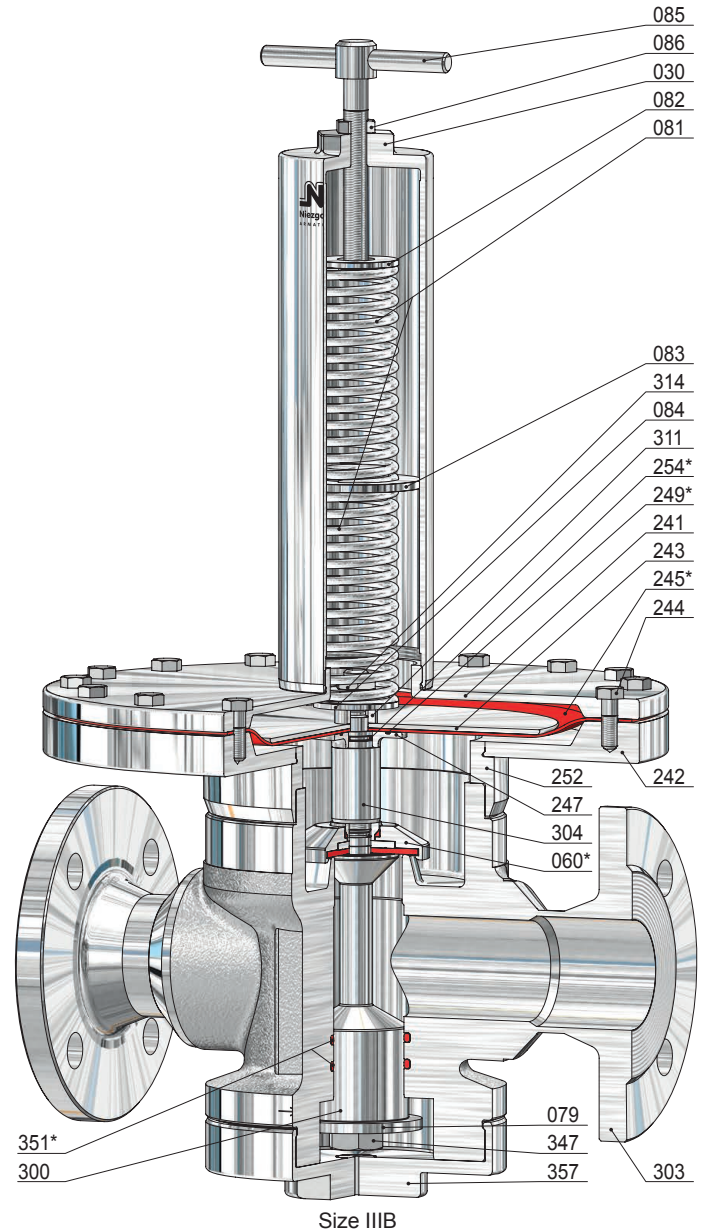
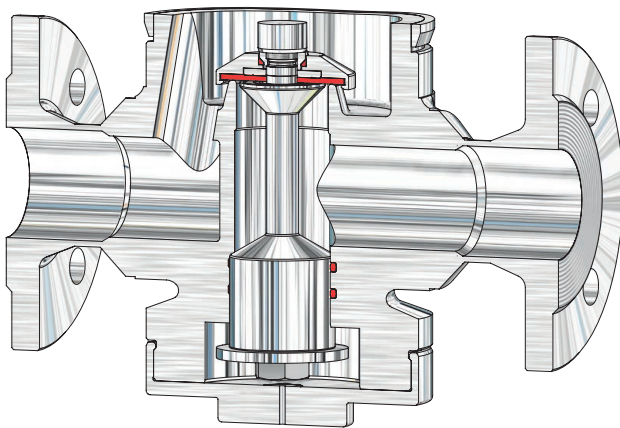
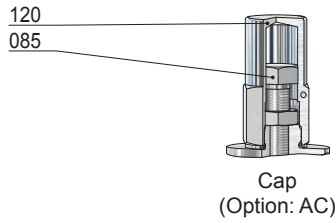
Item	Piece	Description	Item	Piece	Description
303	1	valve body	243	1	upper clamp plate
030	1	spring bonnet	244	12	screw (variable)
060 *	1	disc, complete	245 *	1	diaphragm
560	1	disc	247	1	lower clamp plate
061	1	pressure piece	249 *	1	o-ring
062	1	soft sealing	252	1	adapter
071	1	o-ring	254 *	1	o-ring
072	1	locking ring	300	1	piston
073	1	o-ring (only for thermoplastics soft sealing)	304	1	inlet pressure piston
079	1	lift stopper	311	1	distance bush
081	1	spring	314	1	lock nut
082	1	springplate, upper	347	1	screw
084	1	springplate, lower	351 *	1	o-ring
085	1	adjusting screw	357	1	bottom plug
086	1	lock nut			
120	1	cap			
241	1	upper housing			
242	1	lower housing			

* expendable parts

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 85



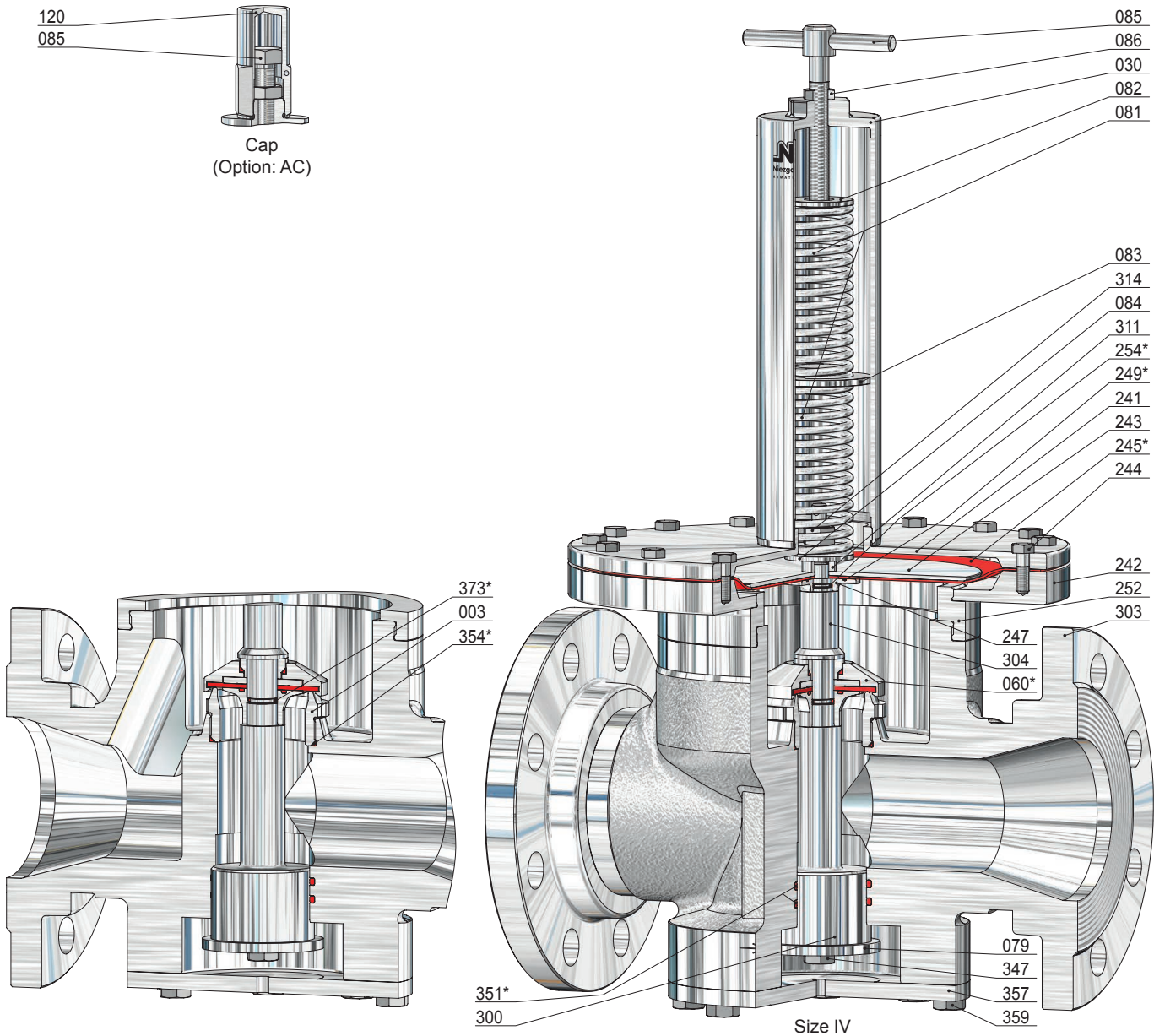
Item	Piece	Description	Item	Piece	Description	Item	Piece	Description
303	1	valve body	083	1	springplate, middle	300	1	piston
030	1	spring bonnet	084	1	springplate, lower	304	1	inlet pressure piston
060 *	1	disc, complete	085	1	adjusting screw	311	1	distance bush
560	1	disc	086	1	lock nut	314	1	lock nut
061	1	pressure piece	120	1	cap	347	1	screw
062	1	soft sealing	241	1	upper housing	351 *	2	o-ring
071	1	o-ring	242	1	lower housing	357	1	bottom plug
072	1	locking ring	243	1	upper clamp plate			
073	1	o-ring (only for thermoplastics soft sealing)	244	16	screw (variable)			
			245 *	1	diaphragm			
			247	1	lower clamp plate			
079	1	lift stopper	249 *	1	o-ring			
081	2	spring	252	1	adapter			
082	1	springplate, upper	254 *	1	o-ring			

* expendable parts

Initial-Pressure-Controller, springloaded

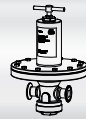
for steam, gases and liquids

Typ 85



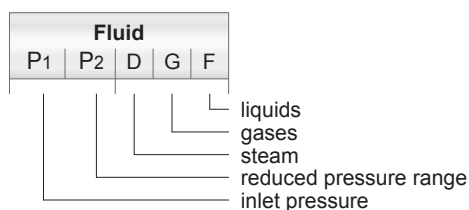
Item	Piece	Description	Item	Piece	Description	Item	Piece	Description
303	1	valve body	083	1	springplate, middle	300	1	piston
003	1	seat	084	1	springplate, lower	304	1	inlet pressure piston
030	1	spring bonnet	085	1	adjusting screw	311	1	distance bush
060 *	1	disc, complete	086	1	lock nut	314	1	lock nut
560	1	disc	120	1	cap	347	1	screw
061	1	pressure piece	241	1	upper housing	351 *	2	o-ring
062	1	soft sealing	242	1	lower housing	354 *	1	o-ring
071	1	o-ring	243	1	Klemmplatte, oben	357	1	bottom plug
072	1	locking ring	244	16	screw (variable)	359	8	screw
073	1	o-ring	245 *	1	diaphragm	373 *	1	o-ring
074	1	disc plate	247	1	lower clamp plate			
079	1	lift stopper	249 *	1	o-ring			
081	2	spring	252	1	adapter			
082	1	springplate, upper	254 *	1	o-ring			

* expendable parts



Index

Type	Use	Fluid	Material	Inlet DN [mm]	P1	
					min. [bar(g)]	max.
80 SKK	Initial Pressure Controller, springloaded, piston-controlled, for steam, gases and liquids	D/G/F	stainless steel	8 - 15 ¼ - ½	0,35	/ 104,0
80 SKS	Initial Pressure Controller, springloaded, piston-controlled, for steam, gases and liquids	D/G/F	stainless steel	15 - 80 ½ - 3	0,25	/ 59,0
80 SKG	Initial Pressure Controller, springloaded, piston-controlled, for steam, gases and liquids	D/G/F	stainless steel	65 - 100 2 ½ - 4	0,20	/ 13,20
80 SMK	Initial Pressure Controller, springloaded, diaphragm-controlled, for steam, gases and liquids	D/G/F	stainless steel	8 - 15 ¼ - ½	0,005	/ 0,45
80 SMS	Initial Pressure Controller, springloaded, diaphragm-controlled, for steam, gases and liquids	D/G/F	stainless steel	15 - 80 ½ - 3	0,005	/ 0,45
80 SMG	Initial Pressure Controller, springloaded, diaphragm-controlled, for steam, gases and liquids	D/G/F	stainless steel	65 - 100 2 ½ - 4	0,005	/ 0,38
•	Option list					



Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80 SKK

Standard version:

Material: Valve-body / media contact surfaces
Typ 80 SKK: BG 0 1.4301 / 1.4571
 1.4435 / 1.4404

Connections:
 Aseptic flange e.g. DIN 11864-2 **F (...)**
 Flange e.g. DIN 2633 (PN16) **F**
 Screwed connection e.g. DIN ISO 228 **IG**
 Male union e.g. DIN 11851 **GA, GA (...)**
 Clamp liner e.g. DIN 32676 **CL, CL (...)**

Options:
 CIP able design
 Air loaded
 Surface quality inside and outside
 Seals with USP-, ADI-Certificate

Sealings:
 AF100 (steam up to 200°C)
FDA-konforme sealings:
 EPDM (steam sterilisation up to 140°C)
 PTFE, EPDM (steam up to 150°C)
 PTFE, EPDM (steam up to 200°C)

Features:

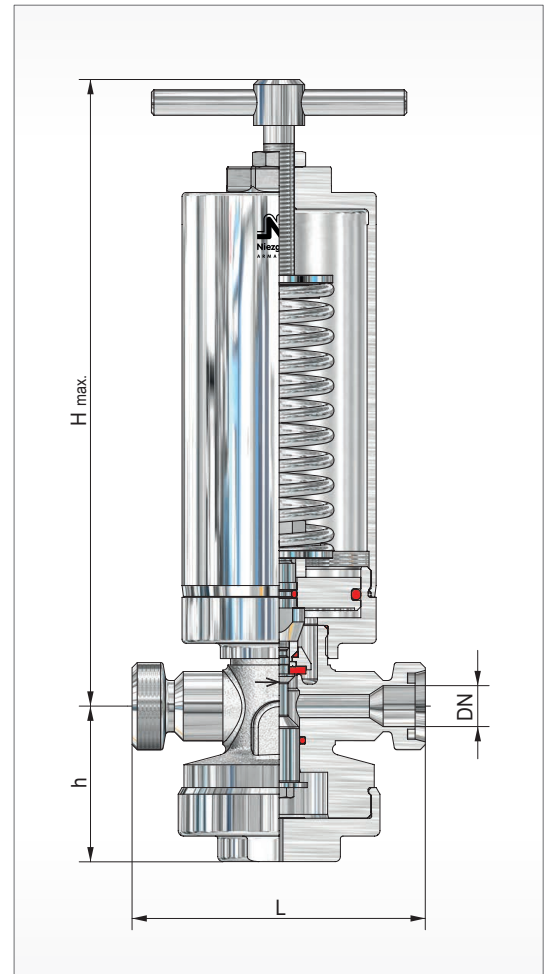
- Forged valve body
- Loaded disc, reprints independent
- Medium-contacted inner parts Ra ≤ 2,6 µm
- Piston controlled
- Steam sterilisation up to 140°C

Approvals:

Pressure Equipment Directive: 2014/68/EU
 Declaration of Conformity



Size 0
GA



Size	Inlet			Outlet		Dimensions				Kvs value
	PN			DN	NPS	Height 'H' max.				
	DN	NPS	Initial pressure range P1 min. [bar(g)] max.			Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]	[m³/h]
0	8	1/4	0,35 / 104,00	8	1/4	see page (A 80 SKK)				1,2
	10	3/8		10	3/8					2,0
	15	1/2		15	1/2					2,2

other design on request

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

**Typ 80
SKK**

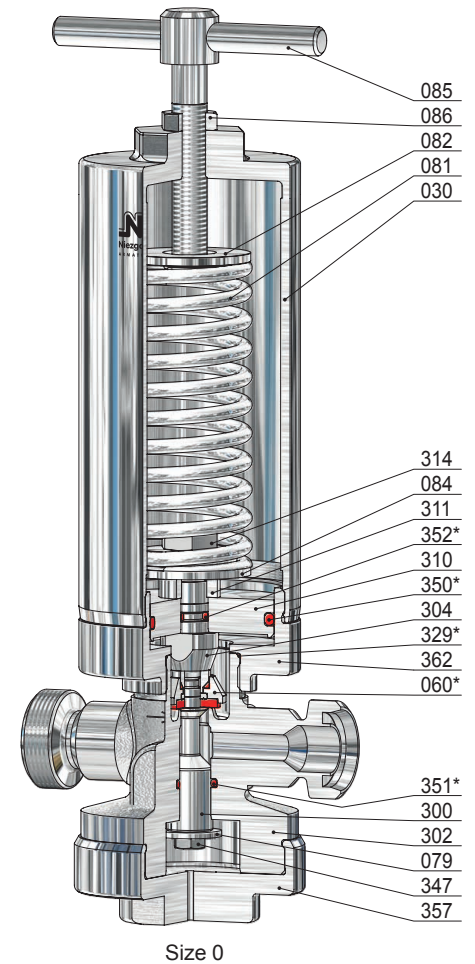
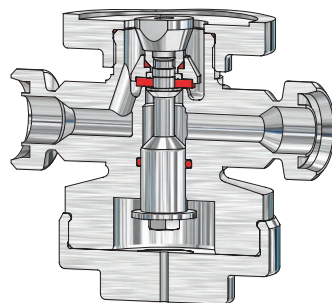
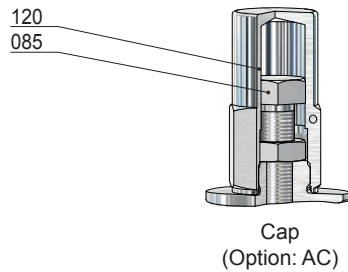
Spring ranges for initial pressure P1

Piston plate [mm]		Ø 64	Ø 48	Ø 38	Ø 27
Size	Spring no.	[bar(g)]			
0	303	0,35 - 0,70			
	304	0,71 - 1,20			
	305	1,30 - 2,00			
	306	2,10 - 3,00	4,60 - 6,00	9,10 - 10,00	15,10 - 26,00
	307	3,10 - 4,50	6,10 - 9,00	10,10 - 15,00	26,10 - 39,00
	308				39,10 - 48,00
	309				48,10 - 62,00
	310				62,10 - 85,00
	311				85,10 - 104,00

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80 SKK



Item	Piece	Description	Item	Piece	Description
302	1	valve body	120	1	cap
030	1	spring bonnet	300	1	piston
060 *	1	disc, complete	304	1	inlet pressure piston
560	1	disc	310	1	piston plate
061	1	pressure piece	311	1	distance bush
062	1	soft sealing	314	1	lock nut
071	1	o-ring	329 *	1	o-ring
072	1	locking ring	347	1	screw
073	1	o-ring <i>(only for thermoplastics soft sealing)</i>	350 *	1	o-ring
079	1	lift stopper	351 *	1	o-ring
081	1	spring	352 *	1	o-ring
082	1	springplate, upper	357	1	bottom plug
084	1	springplate, lower	362	1	adapter
085	1	adjusting screw			
086	1	lock nut			

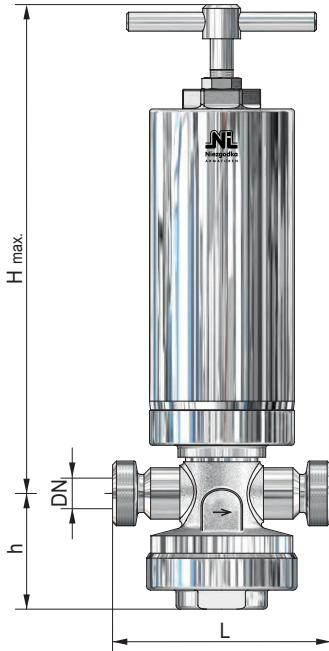
* expendable parts

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80 SKK

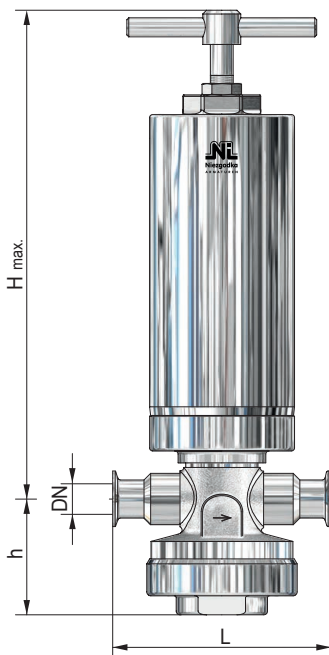
Connections



Series: SKK-GA / GA (AS)

Male union
e.g. DIN 11851 / 11864-1

Size	Inlet / DN	Outlet Thread DIN 405	Dimensions				Weight ~ [kg]
			Height 'H' max.				
			Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]	
0	10 15	Rd 28x1/8" Rd 34x1/8"	275	265	115	59	3,5 3,6



Series: SKK-CL / CL (AS)

Clamp liner
e.g. DIN 32676 / 11864-3

Size	Inlet / DN	Outlet NPS	Dimensions				Weight ~ [kg]
			Height 'H' max.				
			Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]	
0	10 15	3/8 1/2	275	265	115	59	3,4 3,5

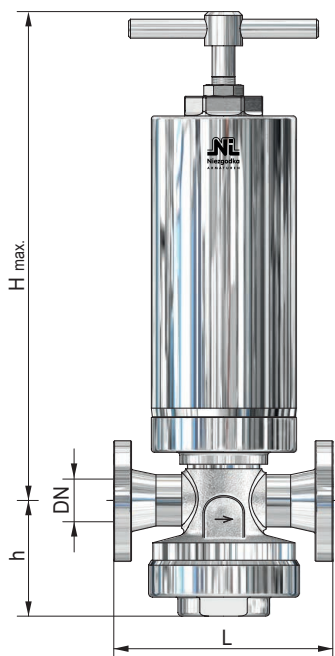
other connections on request.

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80 SKK

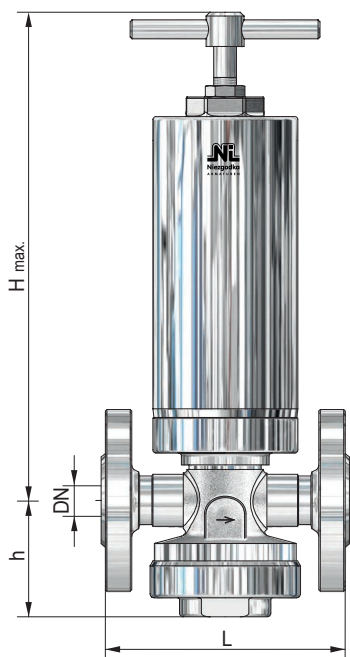
Connections



Series: SKK-F (...)

Flange (preferably flat and collar flanges collar flange)
e.g. DIN 11864-2 (AS), APV (APV), Varivent (VV)

Size	Inlet / Outlet	Dimensions				Weight ~ [kg]	
		Height 'H' max.					
		Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]		
0	10	3/8	275	265	115	59	4,8
	15	1/2					



Series: SKK-F

Flange
e.g. DIN 2633 (PN 16) / ASME B16.5 Class 150

Size	Inlet / Outlet	Dimensions				Weight ~ [kg]	
		Height 'H' max.					
		Toggle spindle [mm]	Cap [mm]	L* [mm]	h [mm]		
0	10	-	275	265	130	59	5,5
	15	1/2					5,6

* up to PN 40 / Class 300 higher pressures on request

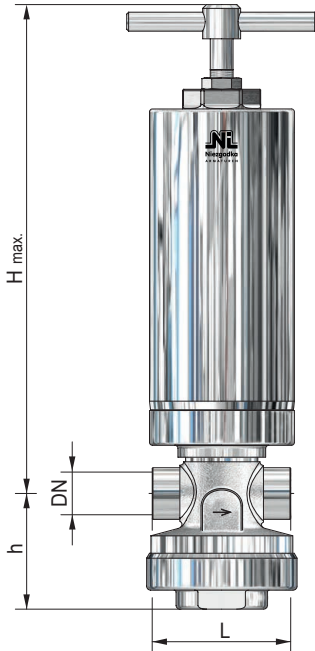
other connections on request.

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80 SKK

Connections



Series: SKK-IG

Screwed connection
e.g. DIN ISO 228

Size	Inlet / Outlet	Dimensions				Weight ~ [kg]	
		Height 'H' max.					
	DN	G, NPT	Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]	
0	8	1/4	275	265	70	48	3,1
	10	3/8					3,0
	15	1/2					2,9

other connections on request.

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80 SKS

Standard version:

Material: Valve-body / media contact surfaces
Typ 80 SKS: BG I - II 1.4301 / 1.4571
BG I - IIIB 1.4435 / 1.4404

Connections:
 Aseptic flange e.g. DIN 11864-2 **F (...)**
 Flange e.g. DIN 2633 (PN16) **F**
 Screwed connection e.g. DIN ISO 228 **IG**
 Male union e.g. DIN 11851 **GA, GA (...)**
 Clamp liner e.g. DIN 32676 **CL, CL (...)**

Options:
 CIP able design
 Air loaded
 Surface quality inside and outside
 Seals with USP-, ADI-Certificate

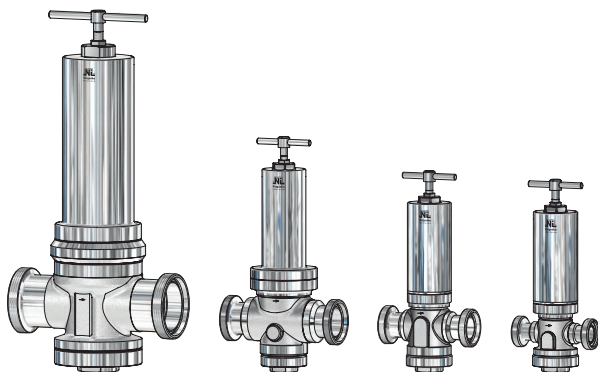
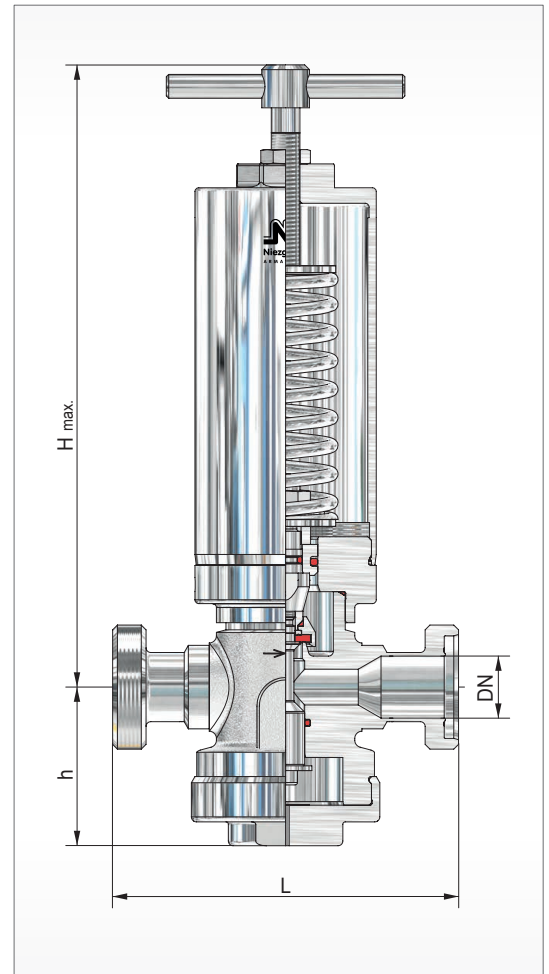
Sealings:
 AF100 (steam up to 200°C)
FDA-konforme sealings:
 EPDM (steam sterilisation up to 140°C)
 PTFE, EPDM (steam up to 150°C)
 PTFE, EPDM (steam up to 200°C)

Features:

- Forged valve body
- Loaded disc, reprints independent
- Medium-contacted inner parts Ra ≤ 2,6 µm
- Piston controlled
- Steam sterilisation up to 140°C

Approvals:

Pressure Equipment Directive: 2014/68/EU
 Declaration of Conformity



Size IIIB
GA

Size III
GA

Size II
GA

Size I
GA

Size	Inlet			Outlet		Dimensions				Kvs value
	PN			DN	NPS	Height 'H' max.				
	DN	NPS	Initial pressure range P1 min. [bar(g)] max.			Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]	[m³/h]
I	15	1/2	0,35 / 59,00	15	1/2	see page (A 80 SKS)				3,0
	20	3/4		20	3/4					3,2
	25	1		25	1					3,5
	32	1 1/4		32	1 1/4					3,6
II	25	1	0,25 / 25,00	25	1					6,3
	32	1 1/4		32	1 1/4					6,5
	40	1 1/2		40	1 1/2					6,7
	50	2		50	2					7,0
	65	2 1/2		65	2 1/2					7,5
III	40	1 1/2	0,25 / 17,00	40	1 1/2					12,5
	50	2		50	2	13,0				
	65	2 1/2		65	2 1/2	13,5				
	80	3		80	3	14,0				
IIIB	50	2	0,25 / 12,00	50	2	27,5				
	65	2 1/2		65	2 1/2	28,0				
	80	3		80	3	28,5				

other design on request

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80 SKS

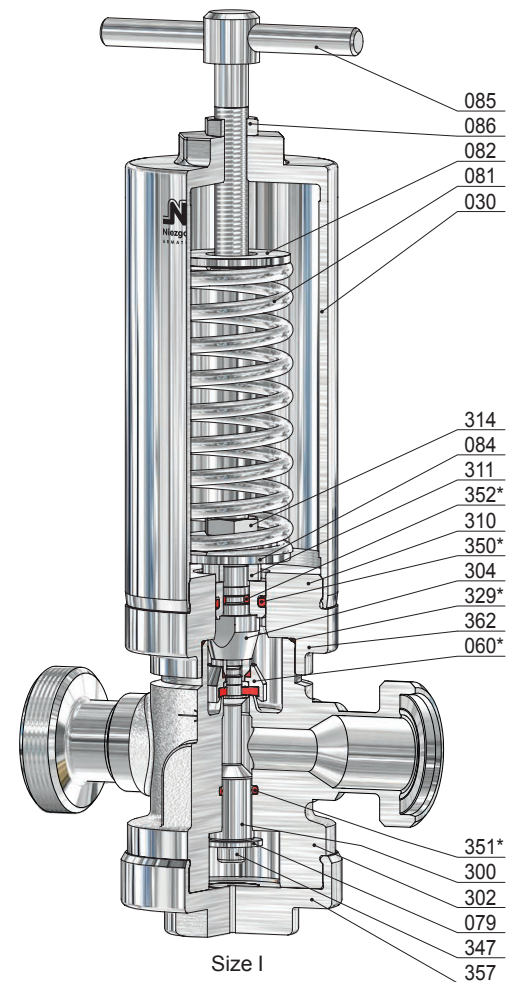
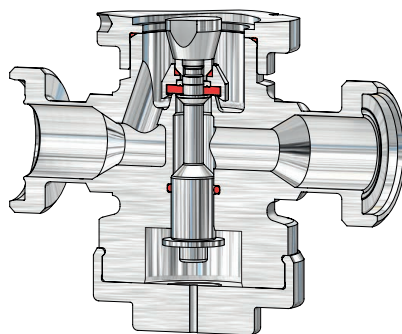
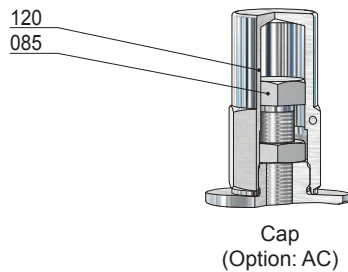
Spring ranges for initial pressure P1

Piston plate [mm]		Ø 119	Ø 99	Ø 84	Ø 64	Ø 48	Ø 38	Ø 27
Size	Spring no.	[bar(g)]						
I	303				0,35 - 0,70			
	304				0,71 - 1,00			
	305				1,10 - 2,00			
	306				2,10 - 3,00	4,60 - 6,00	8,60 - 10,00	15,10 - 25,00
	307				3,10 - 4,50	6,10 - 8,50	10,10 - 15,00	25,10 - 38,00
	308							38,10 - 46,00
	309							46,10 - 59,00
II	303			0,25 - 0,40				
	304			0,41 - 0,70				
	305			0,71 - 1,00				
	306			1,10 - 1,60	2,60 - 3,00	4,60 - 7,00	10,10 - 14,00	
	307			1,70 - 2,50	3,10 - 4,50	7,10 - 10,00	14,10 - 21,00	
	308						21,10 - 25,00	
III	323		0,25 - 0,40					
	324		0,41 - 0,70					
	325		0,71 - 1,00	1,10 - 1,50	2,60 - 3,50	6,60 - 11,00		
	326			1,60 - 2,50	3,60 - 5,50	11,10 - 17,00		
	327				5,60 - 6,50			
IIIB	353	0,25 - 0,50						
	354	0,51 - 0,90						
	355	1,00 - 1,30						
	356	1,40 - 2,00	2,10 - 3,00					
	357		3,10 - 5,50	5,60 - 9,00				
	358			9,10 - 12,00				

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80 SKS



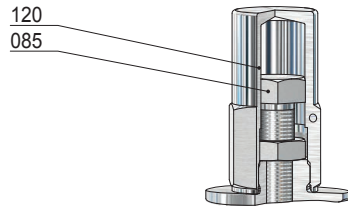
Item	Piece	Description	Item	Piece	Description
302	1	valve body	120	1	cap
030	1	spring bonnet	300	1	piston
060 *	1	disc, complete	304	1	inlet pressure piston
560	1	disc	310	1	piston plate
061	1	pressure piece	311	1	distance bush
062	1	soft sealing	314	1	lock nut
071	1	o-ring	329 *	1	o-ring
072	1	locking ring	347	1	screw
073	1	o-ring (only for thermoplastics soft sealing)	350 *	1	o-ring
079	1	lift stopper	351 *	1	o-ring
081	1	spring	352 *	1	o-ring
082	1	springplate, upper	357	1	bottom plug
084	1	springplate, lower	362	1	adapter
085	1	adjusting screw			
086	1	lock nut			

* expendable parts

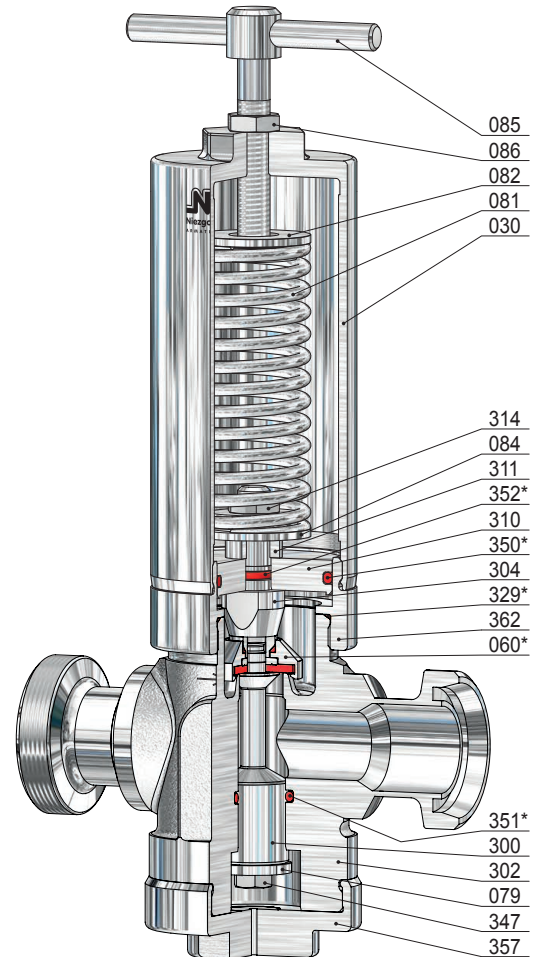
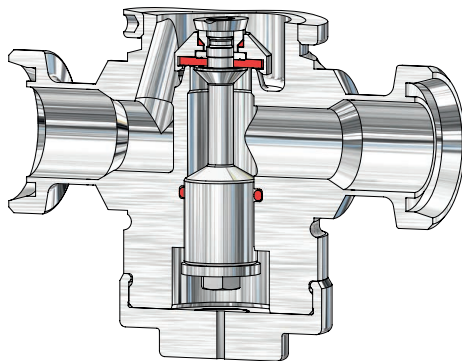
Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80 SKS



Cap
(Option: AC)



Size II

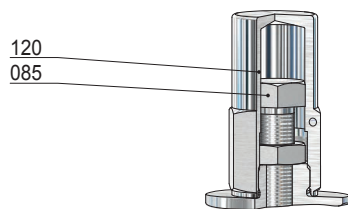
Item	Piece	Description	Item	Piece	Description
302	1	valve body	120	1	cap
030	1	spring bonnet	300	1	piston
060 *	1	disc, complete	304	1	inlet pressure piston
560	1	disc	310	1	piston plate
061	1	pressure piece	311	1	distance bush
062	1	soft sealing	314	1	lock nut
071	1	o-ring	329 *	1	o-ring
072	1	locking ring	347	1	screw
073	1	o-ring <i>(only for thermoplastics soft sealing)</i>	350 *	1	o-ring
079	1	lift stopper	351 *	1	o-ring
081	1	spring	352 *	1	o-ring
082	1	springplate, upper	357	1	bottom plug
084	1	springplate, lower	362	1	adapter
085	1	adjusting screw			
086	1	lock nut			

* expendable parts

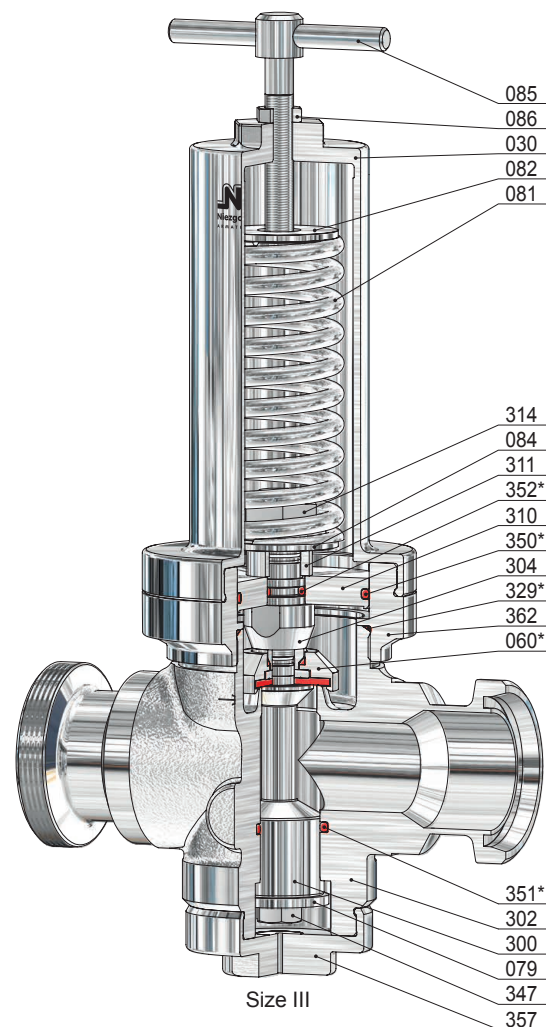
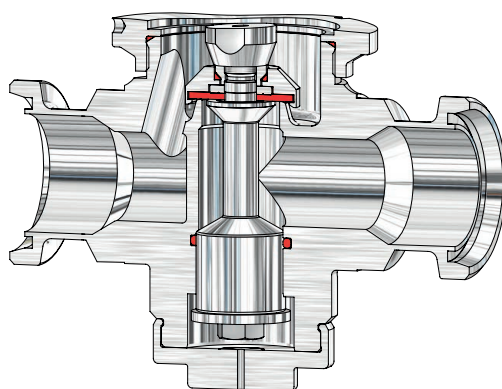
Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80 SKS



Cap
(Option: AC)



Size III

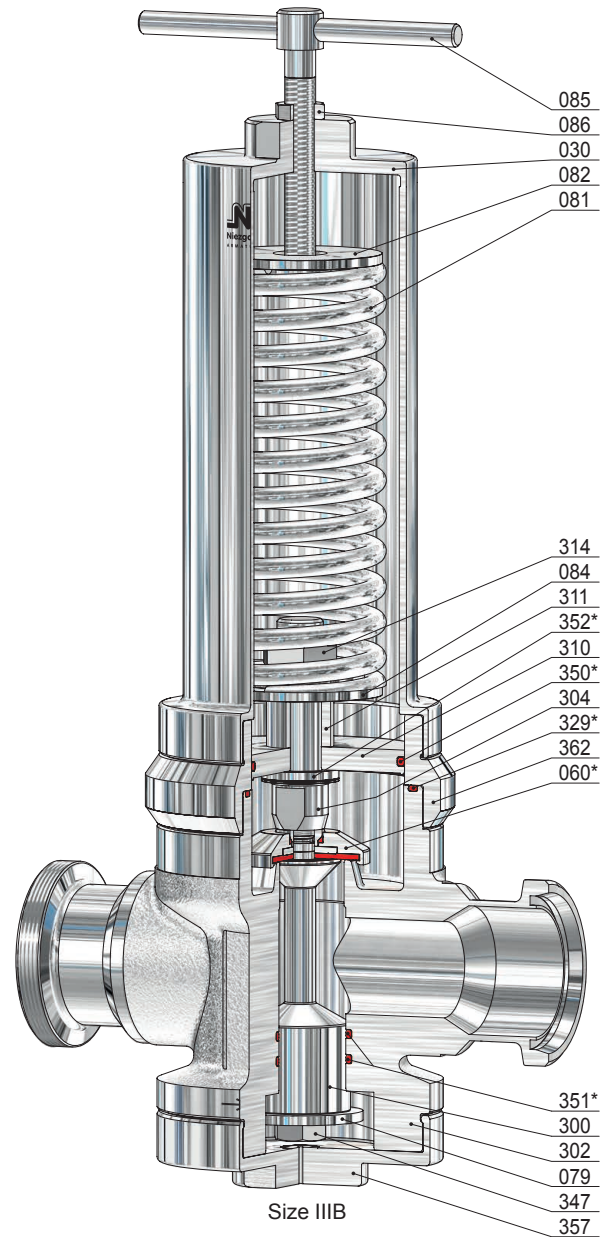
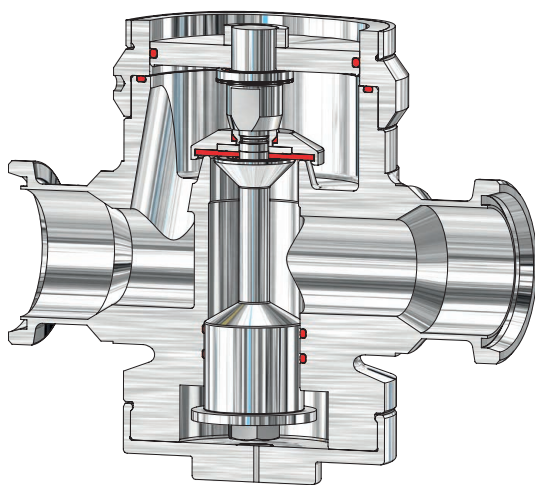
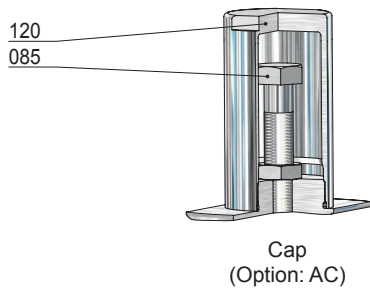
Item	Piece	Description	Item	Piece	Description
302	1	valve body	120	1	cap
030	1	spring bonnet	300	1	piston
060 *	1	disc, complete	304	1	inlet pressure piston
560	1	disc	310	1	piston plate
061	1	pressure piece	311	1	distance bush
062	1	soft sealing	314	1	lock nut
071	1	o-ring	329 *	1	o-ring
072	1	locking ring	347	1	screw
073	1	o-ring (only for thermoplastics soft sealing)	350 *	1	o-ring
079	1	lift stopper	351 *	1	o-ring
081	1	spring	352 *	1	o-ring
082	1	springplate, upper	357	1	bottom plug
084	1	springplate, lower	362	1	adapter
085	1	adjusting screw			
086	1	lock nut			

* expendable parts

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80 SKS



Item	Piece	Description	Item	Piece	Description
302	1	valve body	120	1	cap
030	1	spring bonnet	300	1	piston
060 *	1	disc, complete	304	1	inlet pressure piston
560	1	disc	310	1	piston plate
061	1	pressure piece	311	1	distance bush
062	1	soft sealing	314	1	lock nut
071	1	o-ring	329 *	1	o-ring
072	1	locking ring	347	1	screw
073	1	o-ring (only for thermoplastics soft sealing)	350 *	1	o-ring
079	1	lift stopper	351 *	2	o-ring
081	1	spring	352 *	1	o-ring
082	1	springplate, upper	357	1	bottom plug
084	1	springplate, lower	362	1	adapter
085	1	adjusting screw			
086	1	lock nut			

* expendable parts

Initial-Pressure-Controller, springloaded

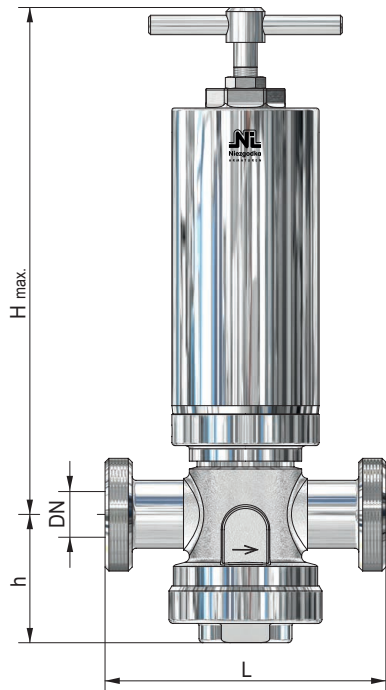
for steam, gases and liquids

Typ 80 SKS

Connections

Series: SKS-GA / GA (AS)

Male union
e.g. DIN 11851 / 11864-1

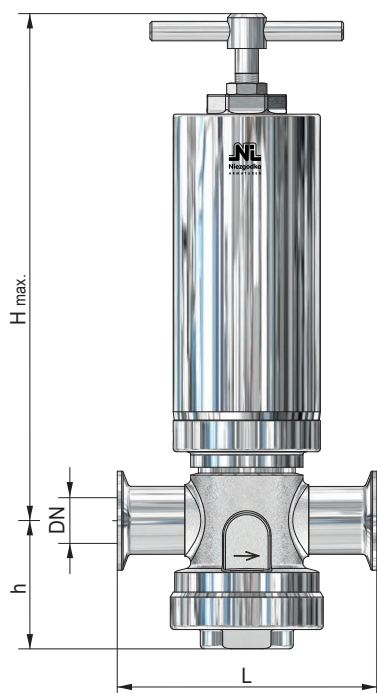


Size	Inlet / Outlet		Dimensions				Weight ~ [kg]
	DN	Thread DIN 405	Height H max.				
			Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]	
I	15	Rd 34x1/8"	305	270	129	67	4,3
	20	Rd 44x1/6"					
	25	Rd 52x1/6"					
	32 *	Rd 58x1/6"					
II	25	Rd 52x1/6"	315	275	160	75	5,8
	32	Rd 58x1/6"					
	40	Rd 65x1/6"					
	50	Rd 78x1/6"					
	65 *	Rd 95x1/6"					
III	40	Rd 65x1/6"	360	325	208	90	9,6
	50	Rd 78x1/6"					
	65	Rd 95x1/6"					
	80 *	Rd 110x1/4"					
IIIB	50	Rd 78x1/6"	570	535	270	112	26,5
	65	Rd 95x1/6"					
	80 *	Rd 110x1/4"					

* applies only to DIN 11851

Series: SKS-CL / CL (AS)

Clamp liner
e.g. DIN 32676 / 11864-3



Size	Inlet / Outlet		Dimensions				Weight ~ [kg]
	DN	NPS	Height H max.				
			Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]	
I	15	1/2	305	270	120	67	4,2
	20	3/4					
	25	1					
II	25	1	315	275	145	75	5,7
	32	1 1/4					
	40	1 1/2					
	50	2					
III	40	1 1/2	360	325	180	90	9,5
	50	2					
	65	2 1/2					
IIIB	50	2	570	535	260	112	25,5
	65	2 1/2					
	80	3					

other connections on request.

Initial-Pressure-Controller, springloaded

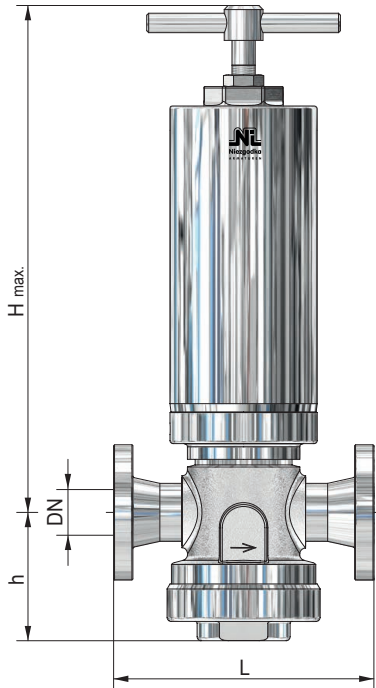
for steam, gases and liquids

Typ 80 SKS

Connections

Series: SKS-F (...)

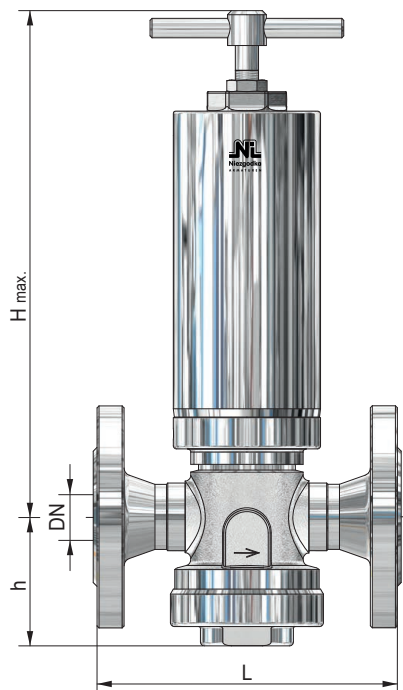
Flange (preferably flat and collar flanges collar flange)
e.g. DIN 11864-2 (AS), APV (APV), Varivent (VV)



Size	Inlet / Outlet	Dimensions				Weight ~ [kg]	
		Height 'H' max.					
		Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]		
I	15	1/2	305	270	135	67	5,0
	20	3/4					
	25	1					
II	25	1	315	275	150	75	6,4
	32	1 1/4					6,5
	40	1 1/2					6,6
	50	2					6,8
III	40	1 1/2	360	325	190	90	11,0
	50	2					12,0
	65	2 1/2					13,2
IIIB	50	2	570	535	260	112	34,5
	65	2 1/2					35,5
	80	3					37,0

Series: SKS-F

Flange
e.g. DIN 2633 (PN 16) / ASME B16.5 Class 150



Size	Inlet / Outlet	Dimensions				Weight ~ [kg]	
		Height 'H' max.					
		Toggle spindle [mm]	Cap [mm]	L* [mm]	h [mm]		
I	15	1/2	305	270	130	67	5,7
	20	3/4			150		6,6
	25	1			160		7,2
II	25	1	315	275	160	75	6,6
	32	1 1/4			180		7,5
	40	1 1/2			200		8,5
	50	2			230		9,8
III	65	2 1/2	360	325	290	90	11,5
	40	1 1/2			200		13,0
	50	2			230		15,0
	65	2 1/2			290		20,0
IIIB	80	3	570	535	310	112	27,0
	50	2			300		36,0
	65	2 1/2			290		37,5
	80	3			310		39,0

* up to PN 40 / Class 300 higher pressures on request

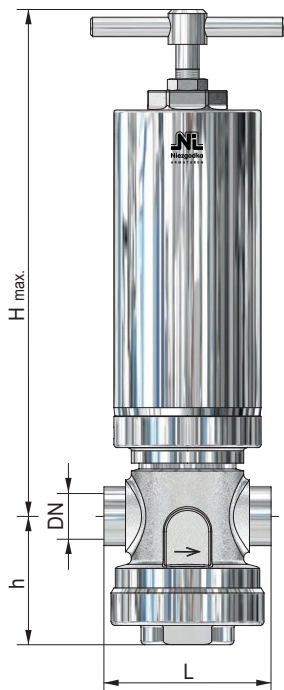
other connections on request.

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80 SKS

Connections



Series: SKS-IG

Screwed connection
e.g. DIN ISO 228

Size	Inlet / Outlet	Dimensions				Weight ~ [kg]
		Height 'H' max.				
		Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]	
I	15 / 1/2	305	270	90	67	4,2
	20 / 3/4			90		4,0
	25 / 1			135		4,3
	32 / 1 1/4			140		4,5
II	25 / 1	315	275	105	75	5,7
	32 / 1 1/4			105		5,5
	40 / 1 1/2			155		5,7
	50 / 2			185		6,8
III	40 / 1 1/2	360	325	145	90	9,5
	50 / 2			145		9,2
	65 / 2 1/2			210		10,4
IIIB	50 / 2	570	535	220	112	28,5
	65 / 2 1/2			220		29,5

other connections on request.

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80 SKG

Standard version:

Material: Valve-body / media contact surfaces
Typ 80 SKG: BG IV 1.4435 / 1.4404
 1.4571 / 1.4571

Connections:
 Aseptic flange e.g. DIN 11864-2 **F (...)**
 Flange e.g. DIN 2633 (PN16) **F**
 Male union e.g. DIN 11851 **GA, GA (...)**

Options:
 CIP able design
 Air loaded
 Surface quality inside and outside
 Seals with USP-, ADI-Certificate

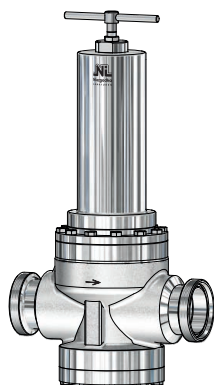
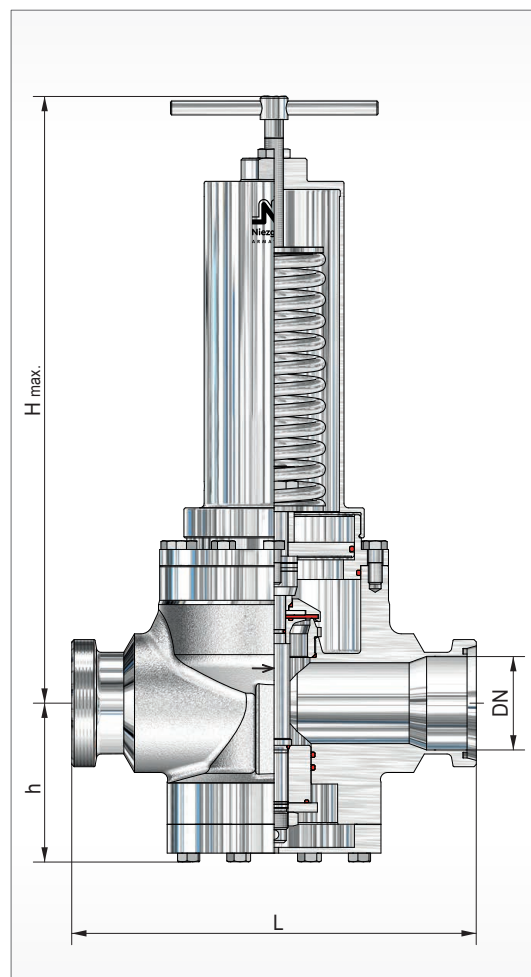
Sealings:
 AF100 (steam up to 200°C)
FDA-konforme sealings:
 EPDM (steam sterilisation up to 140°C)
 PTFE, EPDM (steam up to 150°C)
 PTFE, EPDM (steam up to 200°C)

Features:

- Forged valve body
- Loaded disc, reprints independent
- Medium-contacted inner parts Ra ≤ 2,6 µm
- Piston controlled
- Steam sterilisation up to 140°C

Approvals:

Pressure Equipment Directive: 2014/68/EU
 Declaration of Conformity



Size IV
GA

Size	Inlet			Outlet		Dimensions				Kvs value
	PN			DN	NPS	Height 'H' max.				
	DN	NPS	Initial pressure range P1 min. [bar(g)] max.			Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]	[m³/h]
IV	65	2 1/2	0,20 / 13,20	65	2 1/2	see page (A 80 SKG)				48,0
	80	3		80	3					50,0
	100	4		100	4					53,0

other design on request

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80 SKG

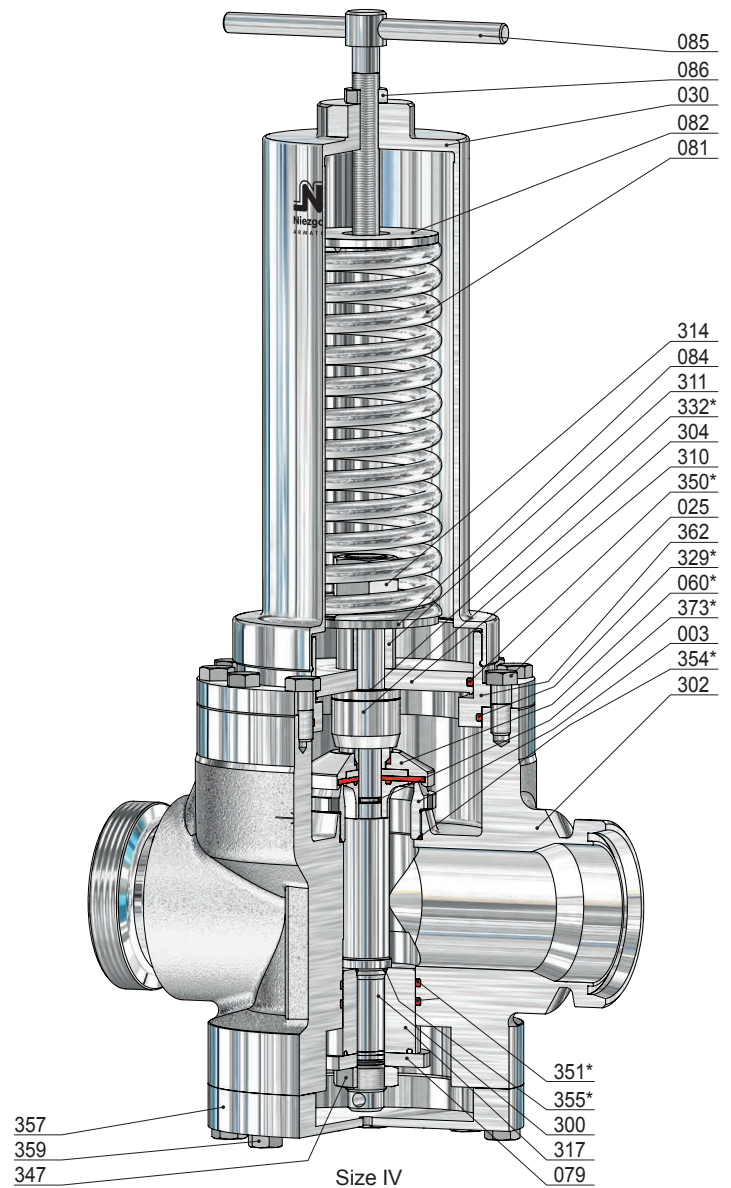
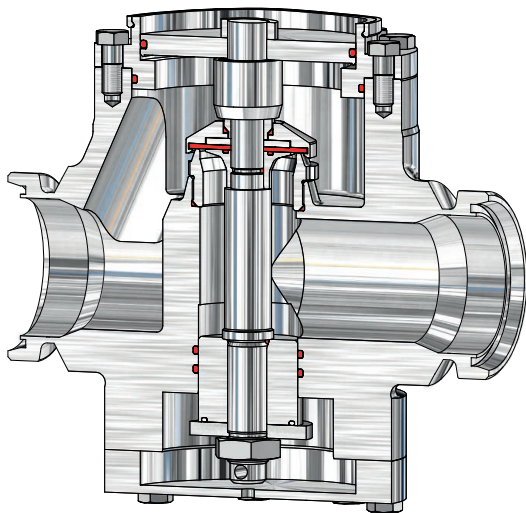
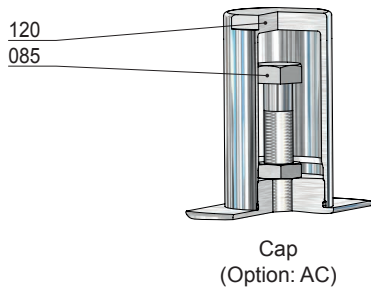
Spring ranges for initial pressure P1

Piston plate [mm]		Ø 139	Ø 99	Ø 84
Size	Spring no.	[bar(g)]		
IV	353	0,20 - 0,43		
	354	0,44 - 0,70		
	355	0,71 - 1,00		
	356	1,10 - 1,50	2,60 - 4,10	
	357	1,60 - 2,50	4,20 - 6,80	6,90 - 13,20

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80 SKG



Item	Piece	Description	Item	Piece	Description	Item	Piece	Description
302	1	valve body	081	1	spring	332 *	1	o-ring
003	1	seat	082	1	springplate, upper	347	1	screw
025	12	screw	084	1	springplate, lower	350 *	1	o-ring
030	1	spring bonnet	085	1	adjusting screw	351 *	2	o-ring
060 *	1	disc, complete	086	1	lock nut	352 *	1	o-ring
560	1	disc	120	1	cap	354 *	1	o-ring
061	1	pressure piece	300	1	piston	355 *	1	o-ring
062	1	soft sealing	304	1	inlet pressure piston	357	1	bottom plug
071	1	o-ring	310	1	piston plate	359	8	screw
072	1	locking ring	311	1	distance bush	362	1	adapter
073	1	o-ring	314	2	lock nut	373 *	1	o-ring
074	1	disc plate	317	1	piston guide			
079	1	lift stopper	329 *	1	o-ring			

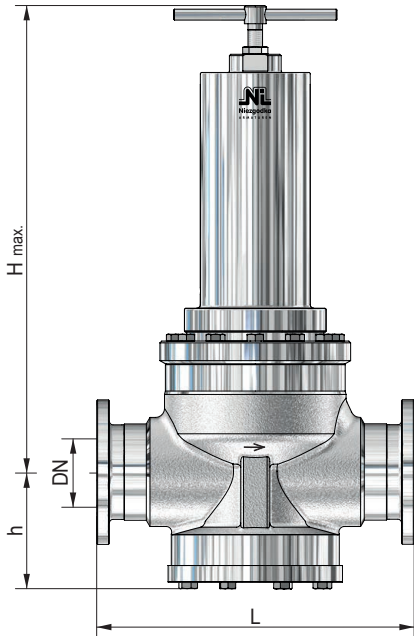
* expendable parts

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80 SKG

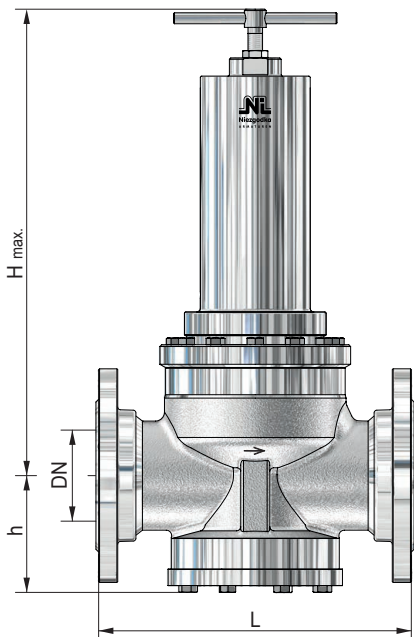
Connections



Series: SKG-F (...)

Flange (preferably flat and collar flanges collar flange)
e.g. DIN 11864-2 (AS), APV (APV), Varivent (VV)

Size	Inlet / Outlet	Dimensions				Weight ~ [kg]	
		Height 'H' max.					
		Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]		
IV	65	2 1/2	600	565	290	140	50,0
	80	3			310		51,0
	100	4			350		56,0



Series: SKG-F

Flange
e.g. DIN 2633 (PN 16) / ASME B16.5 Class 150

Size	Inlet / Outlet	Dimensions				Weight ~ [kg]	
		Height 'H' max.					
		Toggle spindle [mm]	Cap [mm]	L* [mm]	h [mm]		
IV	65	2 1/2	600	565	290	140	52,0
	80	3			310		57,0
	100	4			350		64,0

* up to PN 40 / Class 300 higher pressures on request

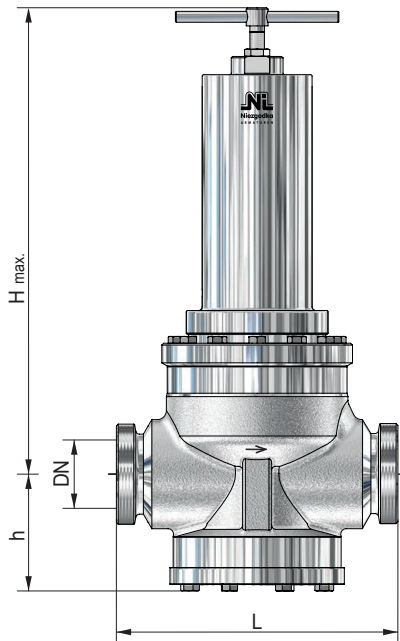
other connections on request.

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80 SKG

Connections



Series: SKG-GA / GA (AS)

Male union
e.g. DIN 11851 / 11864-1

Size	Inlet /	Outlet	Dimensions				Weight
			Height 'H' max.				
	DN	Thread	Toggle spindle	Cap	L	h	
		DIN 405	[mm]	[mm]	[mm]	[mm]	~ [kg]
IV	65	Rd 95x1/6"	600	565	350	140	48,0
	80	Rd 110x1/4"					
	100	Rd 130x1/4"					

other connections on request.

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80 SMK

Standard version:

Material: Valve-body / media contact surfaces
Typ 80 SMK: BG 0 1.4301 / 1.4571
 1.4435 / 1.4404

Connections:
 Aseptic flange e.g. DIN 11864-2 **F (...)**
 Flange e.g. DIN 2633 (PN16) **F**
 Screwed connection e.g. DIN ISO 228 **IG**
 Male union e.g. DIN 11851 **GA, GA (...)**
 Clamp liner e.g. DIN 32676 **CL, CL (...)**

Options:
 CIP able design
 Air loaded
 Surface quality inside and outside
 Seals with USP-, ADI-Certificate

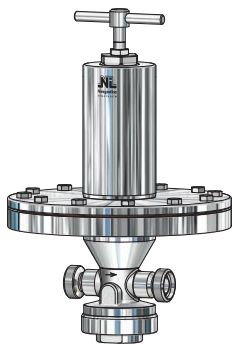
Sealings:
 AF100 (steam up to 200°C)
FDA-konforme sealings:
 EPDM (steam sterilisation up to 140°C)
 PTFE, EPDM (steam up to 150°C)
 PTFE, EPDM (steam up to 200°C)

Features:

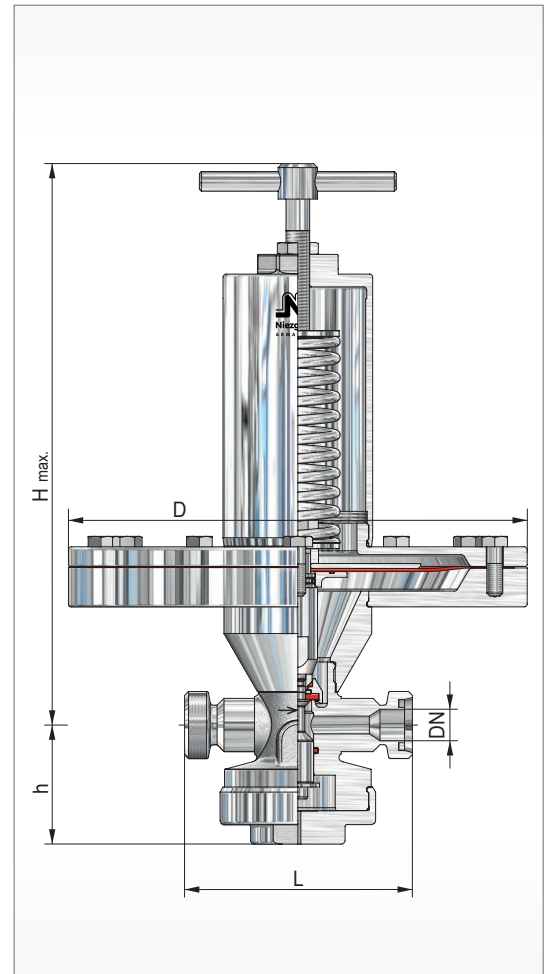
- Forged valve body
- Loaded disc, reprints independent
- Medium-contacted inner parts Ra ≤ 2,6 µm
- Diaphragm control
- Steam sterilisation up to 140°C

Approvals:

Pressure Equipment Directive: 2014/68/EU
 Declaration of Conformity



Size 0
GA



Size	Inlet		Outlet		Dimensions				Kvs value											
	PN		DN	NPS	Height 'H' max.		Diaphragm Ø = D													
	DN	NPS			Toggle spindle	Cap	L	h		Design										
			min.	max.			[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[m³/h]
0	8	1/4	0,005	/ 0,45	8	1/4	see page (A 80 SMK)	405	310	235	190									1,2
	10	3/8			10	3/8														2,0
	15	1/2			15	1/2														2,2

other design on request

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80 SMK

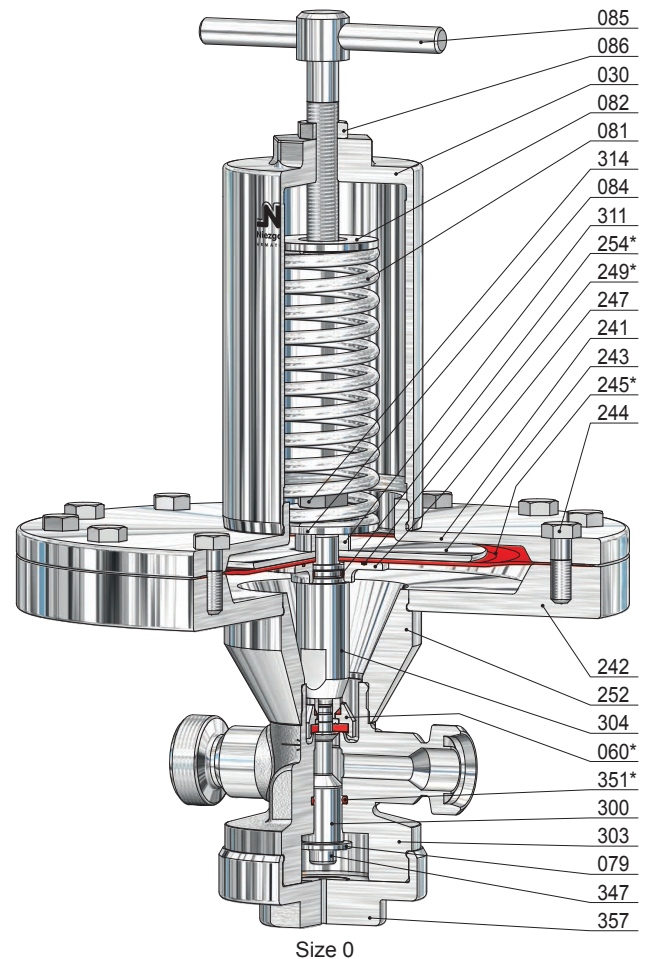
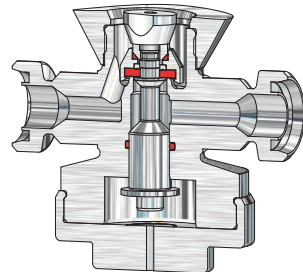
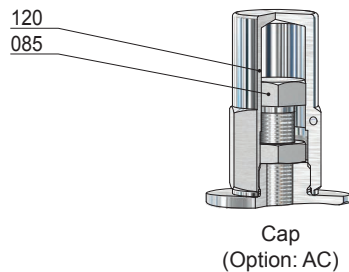
Spring ranges for initial pressure P1

Diaphragm [mm]		Ø 405	Ø 310	Ø 235	Ø 190
Size	Spring no.	[bar(g)]			
0	301	0,005 - 0,008			
	302	0,009 - 0,015	0,026 - 0,030	0,051 - 0,075	0,11 - 0,15
	303	0,016 - 0,025	0,031 - 0,050	0,076 - 0,100	0,16 - 0,25
	304				0,26 - 0,45

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80 SMK



Item	Piece	Description	Item	Piece	Description
303	1	valve body	243	1	upper clamp plate
030	1	spring bonnet	244	12	screw (variable)
060 *	1	disc, complete	245 *	1	diaphragm
560	1	disc	247	1	lower clamp plate
061	1	pressure piece	249 *	1	o-ring
062	1	soft sealing	252	1	adapter
071	1	o-ring	254 *	1	o-ring
072	1	locking ring	300	1	piston
073	1	o-ring (only for thermoplastics soft sealing)	304	1	inlet pressure piston
079	1	lift stopper	311	1	distance bush
081	1	spring	314	1	lock nut
082	1	springplate, upper	347	1	screw
084	1	springplate, lower	351 *	1	o-ring
085	1	adjusting screw	357	1	bottom plug
086	1	lock nut			
120	1	cap			
241	1	upper housing			
242	1	lower housing			

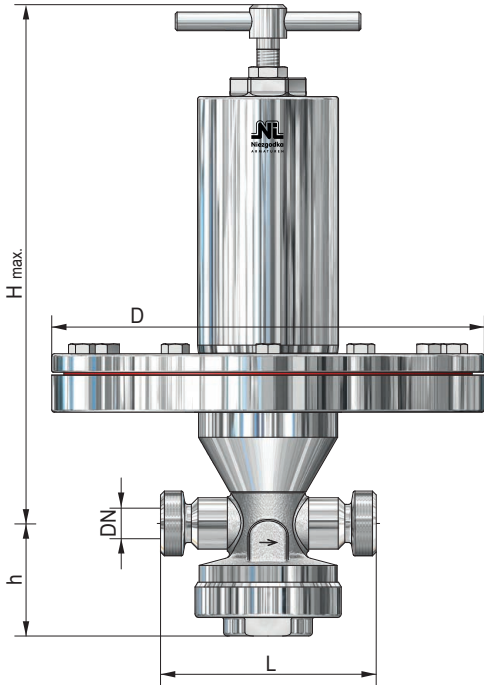
* expendable parts

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80 SMK

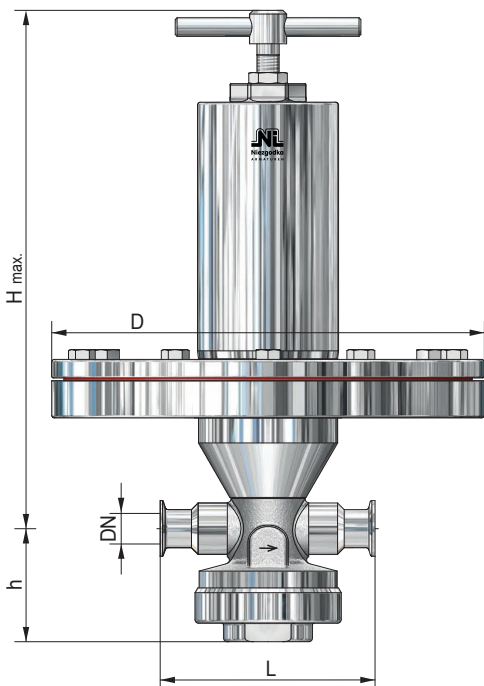
Connections



Series: SMK-GA / GA (AS)

Male union
e.g. DIN 11851 / 11864-1

Size	Inlet / Outlet		Dimensions				Weight			
	DN	Thread	Height 'H' max. Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]	Diaphragm Ø mm = D			
		DIN 405					Ø 405 ~ [kg]	Ø 310 ~ [kg]	Ø 235 ~ [kg]	Ø 190 ~ [kg]
0	10	Rd 28x1/8"	330	290	115	59	23,8	13,6	10,8	8,2
	15	Rd 34x1/8"					27,0	14,8	11,8	8,4



Series: SMK-CL / CL (AS)

Clamp liner
e.g. DIN 32676 / 11864-3

Size	Inlet / Outlet		Dimensions				Weight			
	DN	NPS	Height 'H' max. Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]	Diaphragm Ø mm = D			
							Ø 405 ~ [kg]	Ø 310 ~ [kg]	Ø 235 ~ [kg]	Ø 190 ~ [kg]
0	10	3/8	330	290	130	59	23,6	14,0	10,4	7,8
	15	1/2					23,4	15,2	11,4	8,4

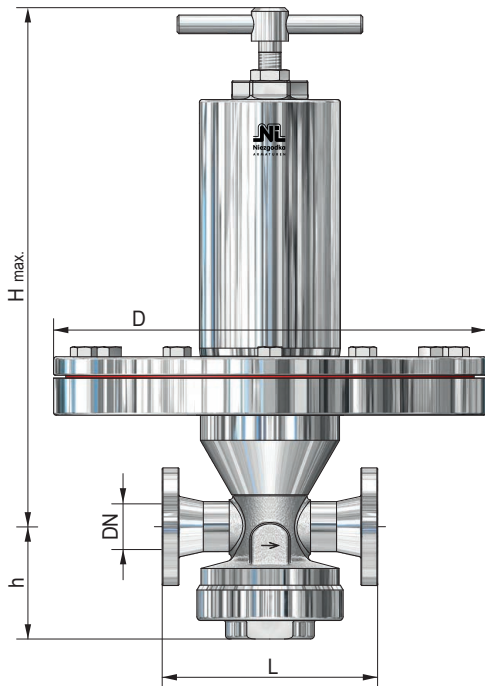
other connections on request.

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80 SMK

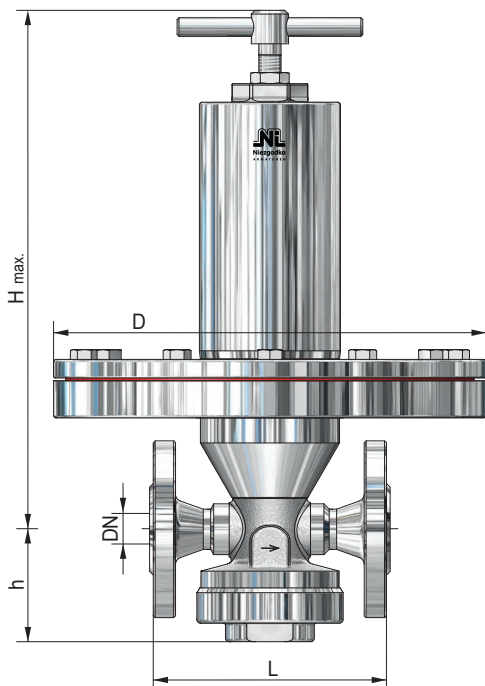
Connections



Series: SMK-F (...)

Flange (preferably flat and collar flanges collar flange)
e.g. DIN 11864-2 (AS), APV (APV), Varivent (VV)

Size	Inlet / Outlet		Dimensions				Weight			
	DN	NPS	Height 'H' max. Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]	diaphragm Ø mm = D			
							Ø 405 ~ [kg]	Ø 310 ~ [kg]	Ø 235 ~ [kg]	Ø 190 ~ [kg]
0	10	3/8	330	290	115	59	23,8	14,0	11,2	8,4
	15	1/2					26,8	15,0	12,0	9,5



Series: SMK-F

Flange
e.g. DIN 2633 (PN 16) / ASME B16.5 Class 150

Size	Inlet / Outlet		Dimensions				Weight			
	DN	NPS	Height 'H' max. Toggle spindle [mm]	Cap [mm]	L* [mm]	h [mm]	diaphragm Ø mm = D			
							Ø 405 ~ [kg]	Ø 310 ~ [kg]	Ø 235 ~ [kg]	Ø 190 ~ [kg]
0	10	-	330	290	130	59	26,0	14,8	12,0	9,0
	15	1/2					27,4	16,2	13,4	10,4

* up to PN 40 / Class 300 higher pressures on request

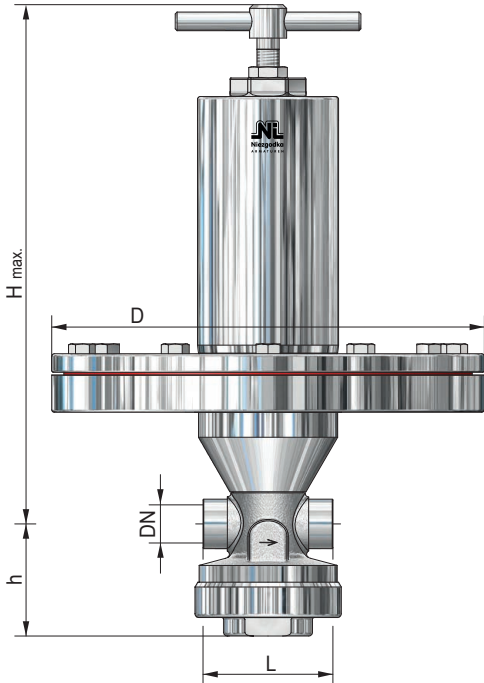
other connections on request.

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80 SMK

Connections



Series: SMK-IG

Screwed connection
e.g. DIN ISO 228

Size	Inlet / Outlet		Dimensions				Weight			
	DN	G, NPT	Height 'H' max. Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]	diaphragm Ø mm = D			
0	8	1/4	330	290	70	59	Ø 405	Ø 310	Ø 235	Ø 190
	10	3/8					~ [kg]	~ [kg]	~ [kg]	~ [kg]
	15	1/2					~ [kg]	~ [kg]	~ [kg]	~ [kg]

other connections on request.

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80 SMS

Standard version:

Material: Valve-body / media contact surfaces
Typ 80 SMS: BG I - II 1.4301 / 1.4571
BG I - IIIB 1.4435 / 1.4404

Connections:
 Aseptic flange e.g. DIN 11864-2 **F (...)**
 Flange e.g. DIN 2633 (PN16) **F**
 Screwed connection e.g. DIN ISO 228 **IG**
 Male union e.g. DIN 11851 **GA, GA (...)**
 Clamp liner e.g. DIN 32676 **CL, CL (...)**

Options:
 CIP able design
 Air loaded
 Surface quality inside and outside
 Seals with USP-, ADI-Certificate

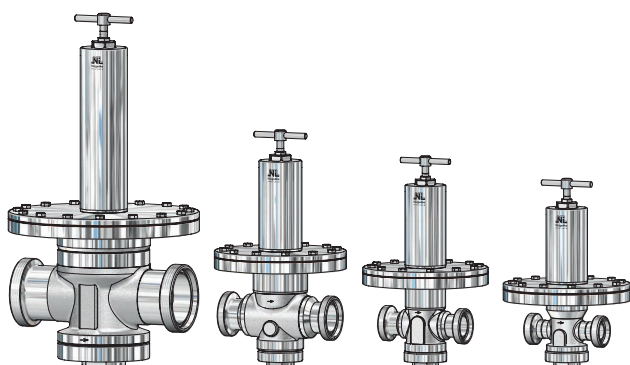
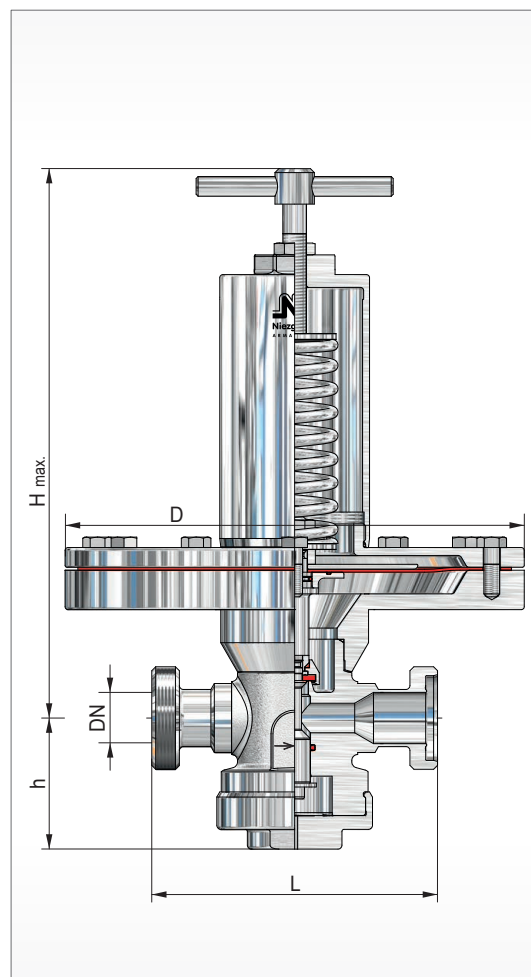
Sealings:
 AF100 (steam up to 200°C)
FDA-konforme sealings:
 EPDM (steam sterilisation up to 140°C)
 PTFE, EPDM (steam up to 150°C)
 PTFE, EPDM (steam up to 200°C)

Features:

- Forged valve body
- Loaded disc, reprints independent
- Medium-contacted inner parts Ra ≤ 2,6 µm
- Diaphragm control
- Steam sterilisation up to 140°C

Approvals:

Pressure Equipment Directive: 2014/68/EU
 Declaration of Conformity



Size IIIB
GA

Size III
GA

Size II
GA

Size I
GA

Size	Inlet			Outlet		Dimensions								Kvs value [m³/h]					
	DN	NPS	PN		DN	NPS	Height 'H' max.		Diaphragm Ø = D										
			Inlet pressure range P1 min. [bar(g)] max.				Toggle spindle [mm]	Cap [mm]	Design										
							L [mm]	h [mm]											
I	15	1/2	0,005 / 0,45		15	1/2	see page (A 80 SMS)	405	310	235	190	-	3,0						
	20	3/4			20	3/4							3,2						
	25	1			25	1							3,5						
II	25	1	0,005 / 0,40		25	1													6,3
	32	1 1/4			32	1 1/4													6,5
	40	1 1/2			40	1 1/2													6,7
III	50	2	0,005 / 0,45		50	2													7,0
	40	1 1/2			40	1 1/2													12,5
	50	2			50	2													13,0
IIIB	65	2 1/2	0,005 / 0,35		65	2 1/2													13,5
	50	2			50	2													27,5
	65	2 1/2			65	2 1/2													28,0
	80	3			80	3							28,5						

other design on request

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80 SMS

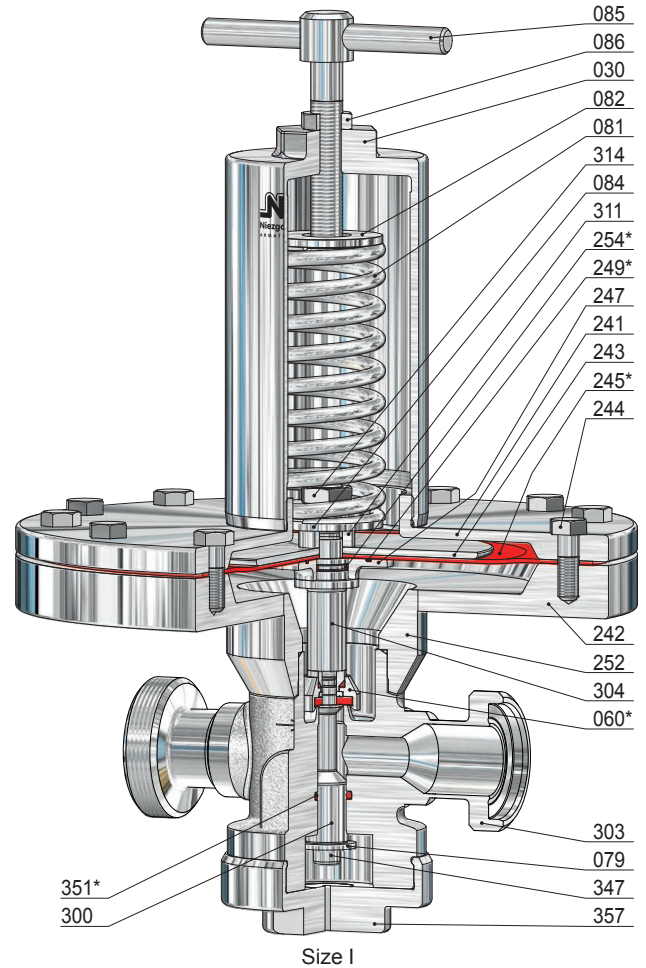
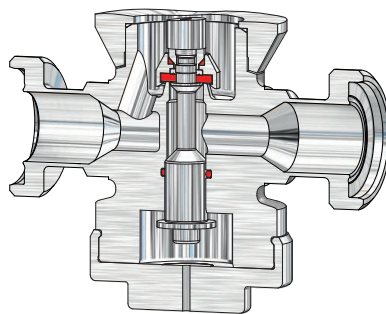
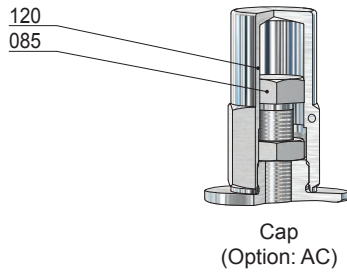
Spring ranges for initial pressure P1

Diaphragm [mm]		Ø 405	Ø 310	Ø 235	Ø 190
Size	Spring no.	[bar(g)]			
I	301	0,005 - 0,008			
	302	0,009 - 0,015	0,026 - 0,030	0,051 - 0,070	0,11 - 0,15
	303	0,016 - 0,025	0,031 - 0,050	0,071 - 0,100	0,16 - 0,25
	304				0,26 - 0,45
II	301	0,005 - 0,008			
	302	0,009 - 0,015	0,026 - 0,030	0,051 - 0,065	0,11 - 0,14
	303	0,016 - 0,025	0,031 - 0,050	0,066 - 0,100	0,15 - 0,25
	304				0,26 - 0,40
III	301	0,005 - 0,008			
	302	0,009 - 0,014	0,026 - 0,028	0,051 - 0,065	0,11 - 0,15
	303	0,015 - 0,020	0,029 - 0,050	0,066 - 0,100	0,16 - 0,25
	304	0,021 - 0,025			0,26 - 0,45
IIIB	2 x 301	0,005 - 0,008			
	2 x 302	0,009 - 0,012	0,026 - 0,029	0,051 - 0,070	
	2 x 303	0,013 - 0,020	0,030 - 0,050	0,071 - 0,100	
	2 x 304	0,021 - 0,025		0,110 - 0,200	
	2 x 305			0,210 - 0,350	

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80 SMS



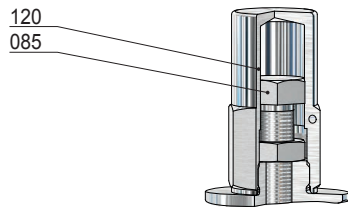
Item	Piece	Description	Item	Piece	Description
303	1	valve body	243	1	upper clamp plate
030	1	spring bonnet	244	12	screw (variable)
060 *	1	disc, complete	245 *	1	diaphragm
560	1	disc	247	1	lower clamp plate
061	1	pressure piece	249 *	1	o-ring
062	1	soft sealing	252	1	adapter
071	1	o-ring	254 *	1	o-ring
072	1	locking ring	300	1	piston
073	1	o-ring (only for thermoplastics soft sealing)	304	1	inlet pressure piston
079	1	lift stopper	311	1	distance bush
081	1	spring	314	1	lock nut
082	1	springplate, upper	347	1	screw
084	1	springplate, lower	351 *	1	o-ring
085	1	adjusting screw	357	1	bottom plug
086	1	lock nut			
120	1	cap			
241	1	upper housing			
242	1	lower housing			

* expendable parts

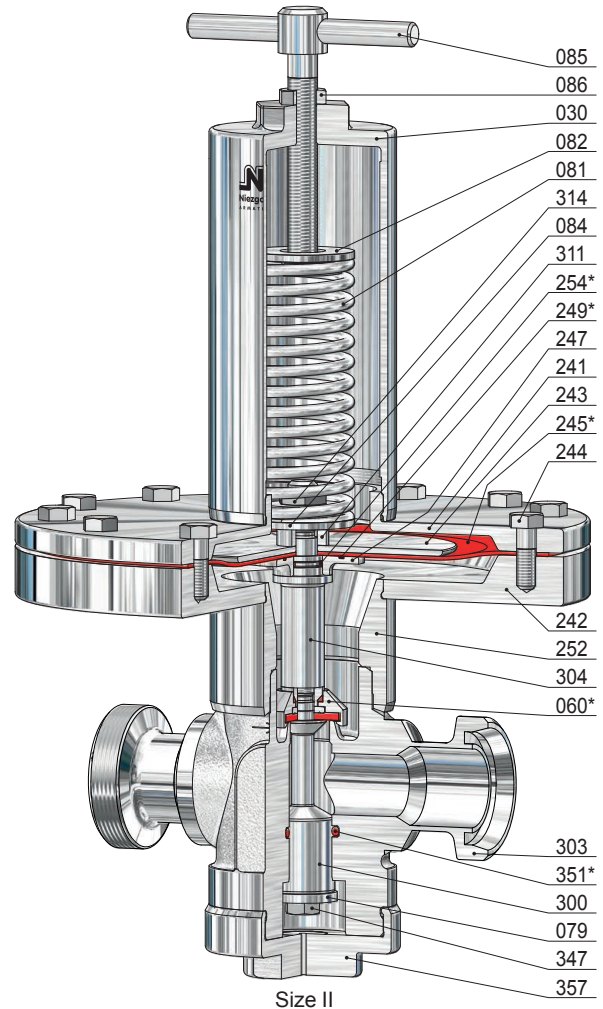
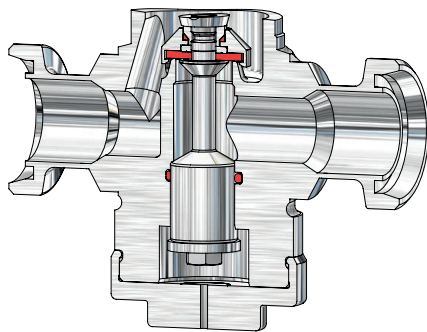
Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80 SMS



Cap
(Option: AC)



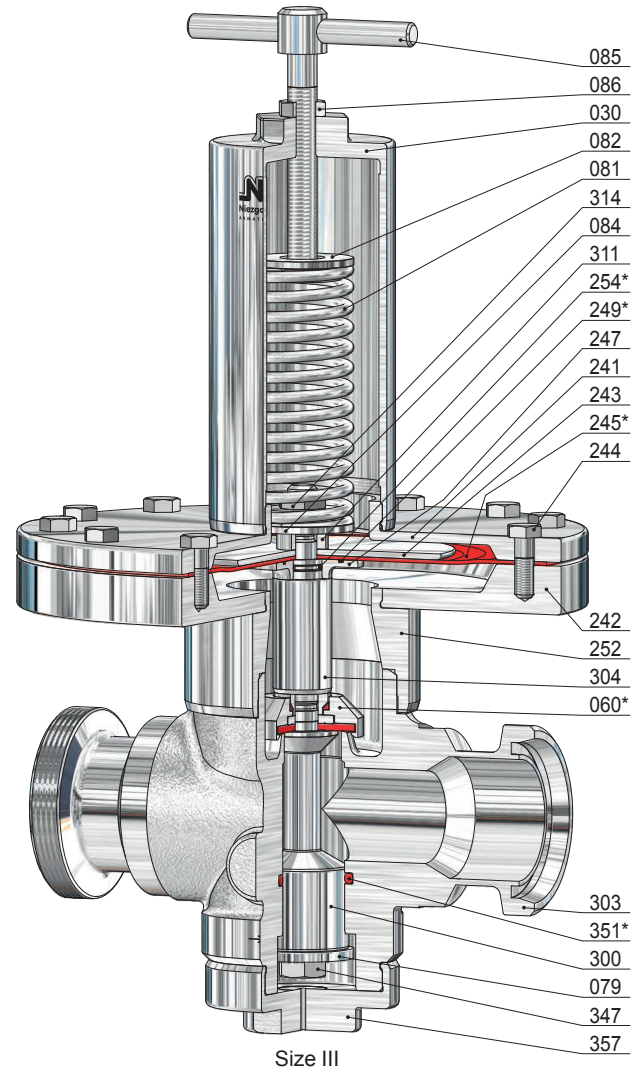
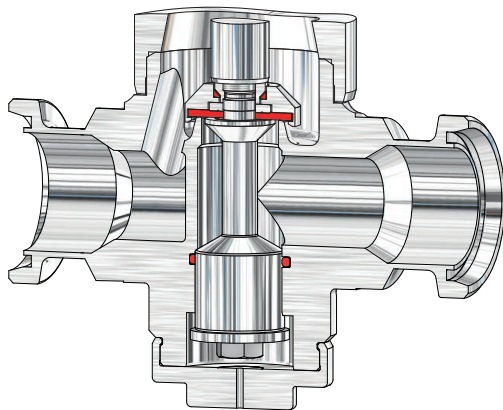
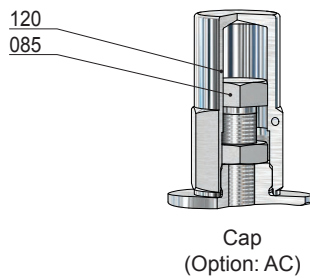
Item	Piece	Description	Item	Piece	Description
303	1	valve body	243	1	upper clamp plate
030	1	spring bonnet	244	12	screw (<i>variable</i>)
060 *	1	disc, complete	245 *	1	diaphragm
560	1	disc	247	1	lower clamp plate
061	1	pressure piece	249 *	1	o-ring
062	1	soft sealing	252	1	adapter
071	1	o-ring	254 *	1	o-ring
072	1	locking ring	300	1	piston
073	1	o-ring (<i>only for thermoplastics soft sealing</i>)	304	1	inlet pressure piston
079	1	lift stopper	311	1	distance bush
081	1	spring	314	1	lock nut
082	1	springplate, upper	347	1	screw
084	1	springplate, lower	351 *	1	o-ring
085	1	adjusting screw	357	1	bottom plug
086	1	lock nut			
120	1	cap			
241	1	upper housing			
242	1	lower housing			

* expendable parts

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80 SMS



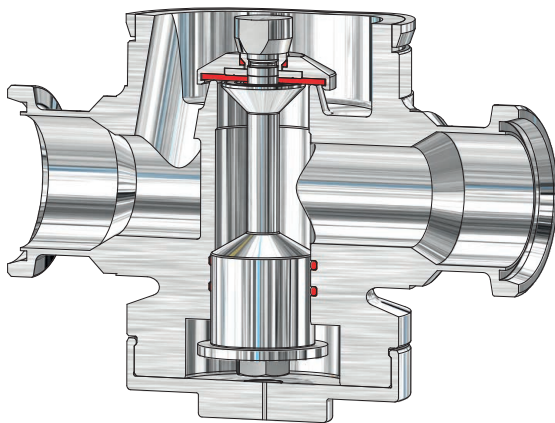
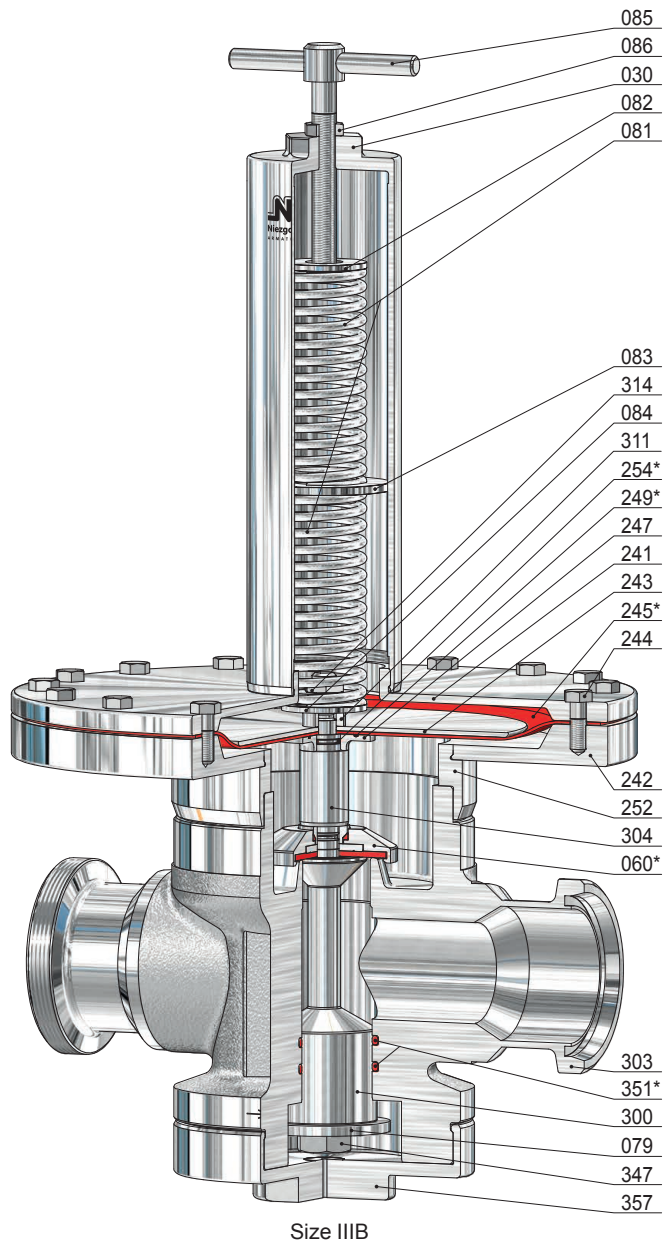
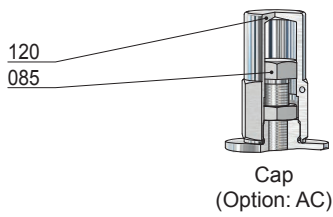
Item	Piece	Description	Item	Piece	Description
303	1	valve body	243	1	upper clamp plate
030	1	spring bonnet	244	12	screw (<i>variable</i>)
060 *	1	disc, complete	245 *	1	diaphragm
560	1	disc	247	1	lower clamp plate
061	1	pressure piece	249 *	1	o-ring
062	1	soft sealing	252	1	adapter
071	1	o-ring	254 *	1	o-ring
072	1	locking ring	300	1	piston
073	1	o-ring (<i>only for thermoplastics soft sealing</i>)	304	1	inlet pressure piston
079	1	lift stopper	311	1	distance bush
081	1	spring	314	1	lock nut
082	1	springplate, upper	347	1	screw
084	1	springplate, lower	351 *	1	o-ring
085	1	adjusting screw	357	1	bottom plug
086	1	lock nut			
120	1	cap			
241	1	upper housing			
242	1	lower housing			

* expendable parts

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80 SMS



Item	Piece	Description	Item	Piece	Description	Item	Piece	Description
303	1	valve body	083	1	springplate, middle	300	1	piston
030	1	spring bonnet	084	1	springplate, lower	304	1	inlet pressure piston
060 *	1	disc, complete	085	1	adjusting screw	311	1	distance bush
560	1	disc	086	1	lock nut	314	1	lock nut
061	1	pressure piece	120	1	cap	347	1	screw
062	1	soft sealing	241	1	upper housing	351 *	2	o-ring
071	1	o-ring	242	1	lower housing	357	1	bottom plug
072	1	locking ring	243	1	upper clamp plate			
073	1	o-ring <i>(only for thermoplastics soft sealing)</i>	244	16	screw <i>(variable)</i>			
079	1	lift stopper	245 *	1	diaphragm			
081	2	spring	247	1	lower clamp plate			
082	1	springplate, upper	249 *	1	o-ring			
			252	1	adapter			
			254 *	1	o-ring			

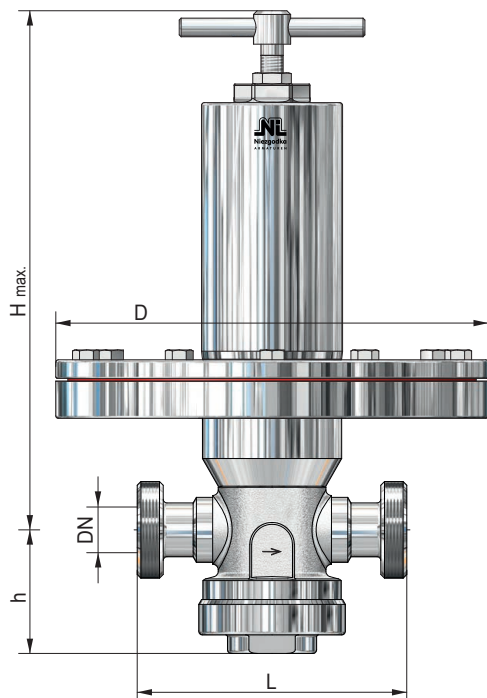
* expendable parts

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80 SMS

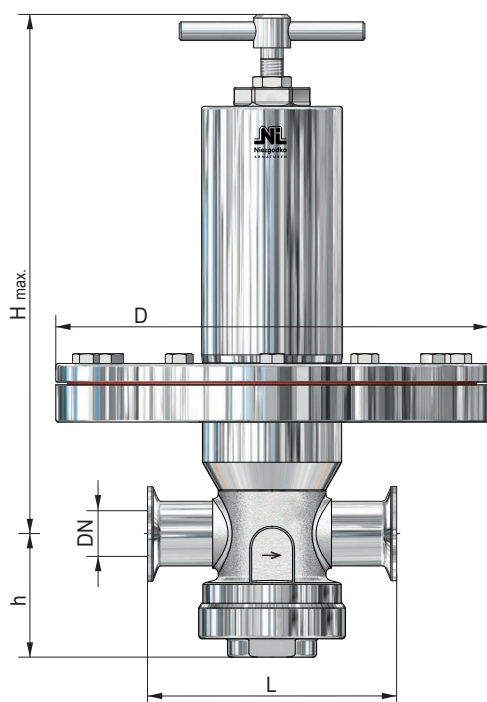
Connections



Series: SMK-GA / GA (AS)

Male union
e.g. DIN 11851 / 11864-1

Size	Inlet / Outlet		Dimensions				Weight			
	DN	Thread	Height 'H' max.				Diaphragm Ø mm = D			
			Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]	Ø 405 ~ [kg]	Ø 310 ~ [kg]	Ø 235 ~ [kg]	Ø 190 ~ [kg]
I	15	Rd 34x1/8	305	290	129	67	21,0	14,4	9,2	6,4
	20	Rd 44x1/6			135		22,0	15,0	10,5	7,2
	25	Rd 52x1/6			145		23,0	16,5	11,6	8,0
II	25	Rd 52x1/6	345	330	160	78	24,5	16,8	12,2	6,4
	32	Rd 58x1/6			166		24,8	17,2	12,6	7,4
	40	Rd 65x1/6			168		26,0	17,6	13,4	8,0
	50	Rd 78x1/6			170		27,0	18,5	14,0	9,5
III	40	Rd 65x1/6	365	335	208	90	24,5	20,6	15,8	11,4
	50	Rd 78x1/6			212		26,5	21,4	16,4	12,8
	65	Rd 95x1/6			222		27,0	22,0	17,0	15,5
IIIB	50	Rd 78x1/6	525	460	270	112	42,0	31,4	26,4	22,2
	65	Rd 95x1/6			280		43,0	32,0	27,8	22,8
	80	Rd 110x1/4			290		44,0	33,5	28,8	24,2



Series: SMK-CL / CL (AS)

Clamp liner
e.g. DIN 32676 / 11864-3

Size	Inlet / Outlet		Dimensions				Weight			
	DN	NPS	Height 'H' max.				Diaphragm Ø mm = D			
			Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]	Ø 405 ~ [kg]	Ø 310 ~ [kg]	Ø 235 ~ [kg]	Ø 190 ~ [kg]
I	15	1/2	305	290	120	67	20,0	14,0	9,0	5,3
	20	3/4			120		21,0	14,5	10,0	6,4
	25	1			130		22,5	16,0	11,4	7,5
II	25	1	345	330	145	78	23,5	16,5	12,0	6,2
	32	1 1/4			24,5		17,0	12,5	7,0	
	40	1 1/2			25,5		17,4	13,0	7,8	
	50	2			26,5		18,0	13,5	9,0	
III	40	1 1/2	365	335	180	90	24,0	20,5	15,5	11,0
	50	2			24,5		21,0	16,0	12,0	
	65	2 1/2			26,2		21,5	16,5	14,5	
IIIB	50	2	525	460	260	112	41,5	31,0	26,0	22,0
	65	2 1/2			42,5		31,5	27,5	22,5	
	80	3			43,5		32,5	28,5	24,0	

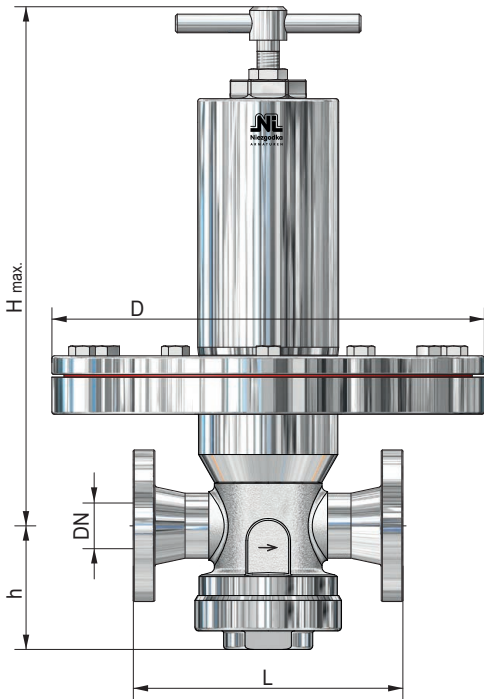
other connections on request.

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80 SMS

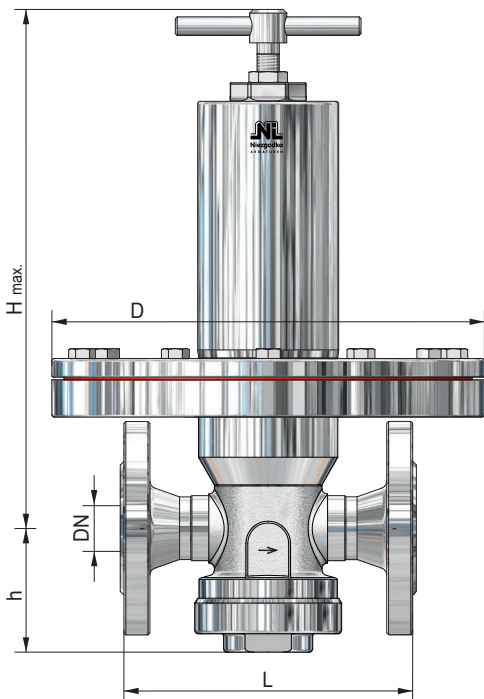
Connections



Series: SMK-F (...)

Flange (preferably flat and collar flanges collar flange)
e.g. DIN 11864-2 (AS), APV (APV), Varivent (VV)

Size	Inlet / Outlet		Dimensions				Weight			
	DN	NPS	Height 'H' max.				diaphragm Ø mm = D			
			Toggle spindle	Cap	L	h	Ø 405	Ø 310	Ø 235	Ø 190
[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	~ [kg]	~ [kg]	~ [kg]	~ [kg]	
I	15	1/2	305	290	135	67	21,2	14,5	9,4	6,8
	20	3/4					22,2	15,2	10,6	7,5
	25	1					23,2	16,6	11,8	8,5
II	25	1	345	330	150	78	24,6	18,5	15,0	7,4
	32	1 1/4					25,0	19,5	15,4	9,0
	40	1 1/2					26,2	21,0	16,0	12,0
III	50	2	365	335	190	90	27,2	22,4	19,5	13,5
	40	1 1/2					28,0	20,8	16,2	11,6
	50	2					30,5	21,8	17,0	13,0
IIIB	65	2 1/2	525	460	260	112	31,5	23,0	18,5	15,6
	50	2					42,4	31,6	26,6	22,4
	65	2 1/2					43,2	32,4	28,0	23,5
80	3	44,5	33,8	29,0	24,5					



Series: SMK-F

Flange
e.g. DIN 2633 (PN 16) / ASME B16.5 Class 150

Size	Inlet / Outlet		Dimensions				Weight			
	DN	NPS	Height 'H' max.				diaphragm Ø mm = D			
			Toggle spindle	Cap	L	h	Ø 405	Ø 310	Ø 235	Ø 190
[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	~ [kg]	~ [kg]	~ [kg]	~ [kg]	
I	15	1/2	305	290	130	67	21,5	16,5	13,5	11,0
	20	3/4					22,4	18,0	14,5	11,5
II	25	1	345	330	160	78	24,8	19,0	14,5	12,0
	32	1 1/4					25,5	20,0	16,0	13,0
III	40	1 1/2	366	335	200	90	33,5	24,0	19,2	14,0
	50	2					230	35,0	26,0	20,5
IIIB	50	2	525	460	300	112	47,0	36,0	32,0	28,0
	65	2 1/2					48,0	37,2	33,5	29,0
	80	3					49,0	38,5	34,0	30,0

* up to PN 40 / Class 300 higher pressures on request

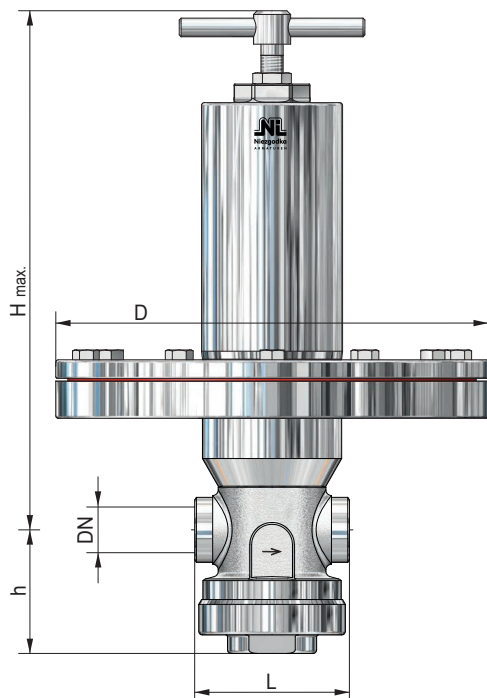
other connections on request.

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80 SMS

Connections



Series: SMK-IG

Screwed connection
e.g. DIN ISO 228

Size	Inlet / Outlet		Dimensions				Weight			
			Height 'H' max.				diaphragm Ø mm = D			
	DN	G, NPT	Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]	Ø 405 ~ [kg]	Ø 310 ~ [kg]	Ø 235 ~ [kg]	Ø 190 ~ [kg]
I	15	1/2	305	290	90	67	18,5	13,0	8,8	5,0
	20	3/4					19,5	13,5	10,0	5,5
	25	1					21,5	16,2	11,0	7,0
II	25	1	345	330	105	78	23,0	16,2	11,5	6,0
	32	1 1/4					22,0	15,8	11,0	6,5
	40	1 1/2					23,0	16,2	13,0	7,5
	50	2					23,5	17,2	14,2	8,5
III	40	1 1/2	365	335	145	90	23,5	19,8	15,2	10,0
	50	2					23,0	18,6	14,8	11,0
	65	2 1/2					24,5	22,0	16,2	13,0
IIIB	50	2	525	460	220	112	41,0	30,5	25,5	20,5
	65	2 1/2					42,5	31,0	27,0	22,0

other connections on request.

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80 SMG

Standard version:

Material: Valve-body / media contact surfaces
Typ 80 SMG: BG IV 1.4435 / 1.4404
 1.4571 / 1.4571

Connections:
 Aseptic flange e.g. DIN 11864-2 **F (...)**
 Flange e.g. DIN 2633 (PN16) **F**
 Male union e.g. DIN 11851 **GA, GA (...)**

Options:
 CIP able design
 Air loaded
 Surface quality inside and outside
 Seals with USP-, ADI-Certificate

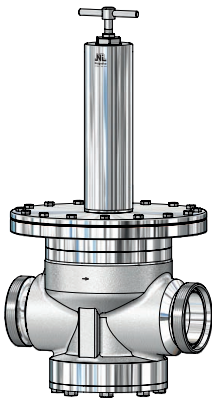
Sealings:
 AF100 (steam up to 200°C)
FDA-konforme sealings:
 EPDM (steam sterilisation up to 140°C)
 PTFE, EPDM (steam up to 150°C)
 PTFE, EPDM (steam up to 200°C)

Features:

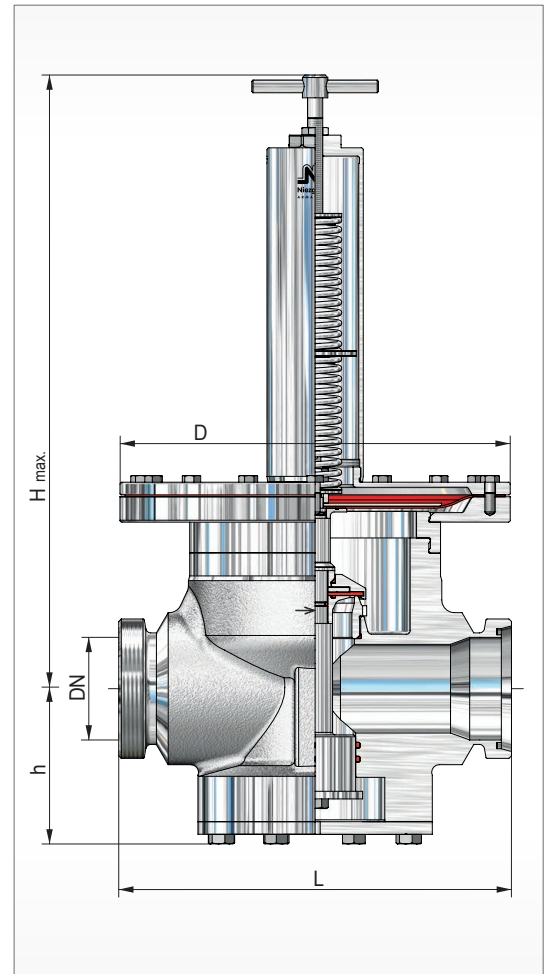
- Forged valve body
- Loaded disc, reprints independent
- Medium-contacted inner parts Ra ≤ 2,6 µm
- Diaphragm control
- Steam sterilisation up to 140°C

Approvals:

Pressure Equipment Directive: 2014/68/EU
 Declaration of Conformity



Size IV
GA



Size	Inlet			Outlet		Dimensions				Kvs value					
	DN	NPS	PN		DN	NPS	Height 'H' max.		Diaphragm Ø = D						
			Inlet pressure range P1				Toggle spindle	Cap	L	h	Design				
			min.	max.			[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[m³/h]
IV	65	2 1/2	0,005 / 0,38		65	2 1/2	see page (A 80 SMG)		405	310	235	-		48,0	
	80	3			80	3								50,0	
	100	4			100	4								53,0	

other design on request

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

**Typ 80
SMG**

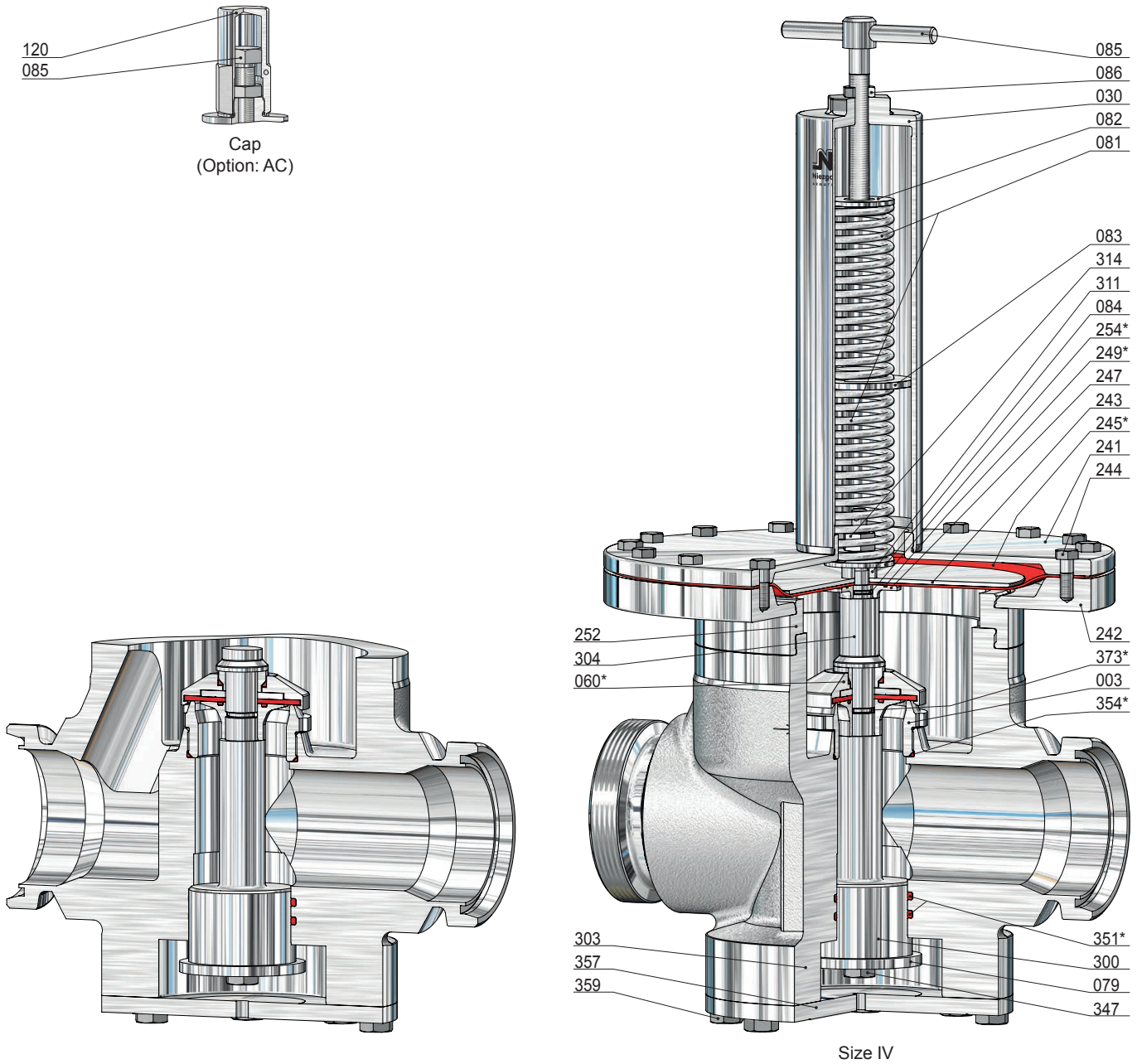
Spring ranges for initial pressure P1

Diaphragm [mm]		Ø 405	Ø 310	Ø 235
Size	Spring no.	[bar(g)]		
IV	2 x 301	0,005 - 0,008		
	2 x 302	0,009 - 0,014	0,026 - 0,030	0,053 - 0,07
	2 x 303	0,015 - 0,025	0,031 - 0,052	0,078 - 0,13
	2 x 304			0,14 - 0,23
	2 x 305			0,24 - 0,38

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80 SMG



Item	Piece	Description	Item	Piece	Description	Item	Piece	Description
303	1	valve body	083	1	springplate, middle	300	1	piston
003	1	seat	084	1	springplate, lower	304	1	inlet pressure piston
030	1	spring bonnet	085	1	adjusting screw	311	1	distance bush
060 *	1	disc, complete	086	1	lock nut	314	1	lock nut
560	1	disc	120	1	cap	347	1	screw
061	1	pressure piece	241	1	upper housing	351 *	2	o-ring
062	1	soft sealing	242	1	lower housing	354 *	1	o-ring
071	1	o-ring	243	1	Klemmplatte, oben	357	1	bottom plug
072	1	locking ring	244	16	screw (variable)	359	8	screw
073	1	o-ring	245 *	1	diaphragm	373 *	1	o-ring
074	1	disc plate	247	1	lower clamp plate			
079	1	lift stopper	249 *	1	o-ring			
081	2	spring	252	1	adapter			
082	1	springplate, upper	254 *	1	o-ring			

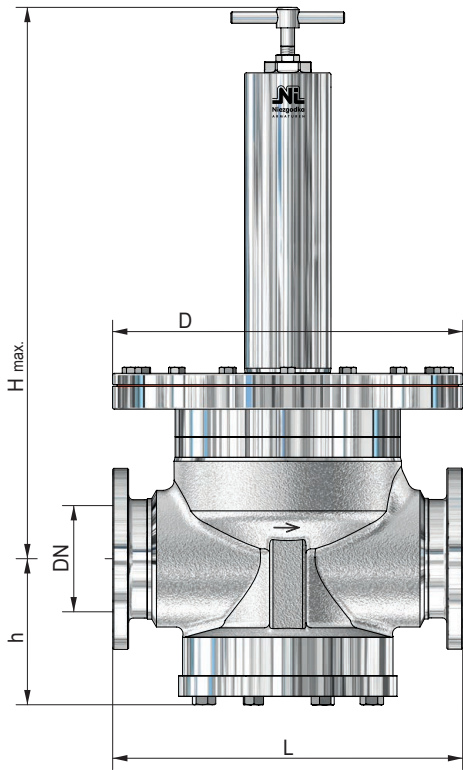
* expendable parts

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80 SMG

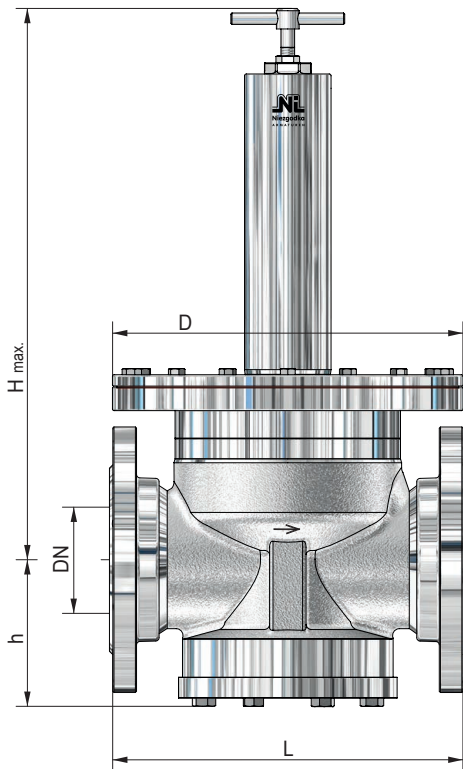
Connections



Series: SMG-F (...)

Flange (preferably flat and collar flanges collar flange)
e.g. DIN 11864-2 (AS), APV (APV), Varivent (VV)

Size	Inlet / Outlet		Dimensions				Weight			
	DN	NPS	Height 'H' max.				diaphragm Ø mm = D			
			Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]	Ø 405 ~ [kg]	Ø 310 ~ [kg]	Ø 235 ~ [kg]	- -
IV	65	2 1/2	560	490	290	157	63,0	52,0	47,0	-
	80	3					61,0	50,0	45,0	-
	100	4					67,0	55,0	49,0	-



Series: SMG-F

Flange
e.g. DIN 2633 (PN 16) / ASME B16.5 Class 150

Size	Inlet / Outlet		Dimensions				Weight			
	DN	NPS	Height 'H' max.				diaphragm Ø mm = D			
			Toggle spindle [mm]	Cap [mm]	L* [mm]	h [mm]	Ø 405 ~ [kg]	Ø 310 ~ [kg]	Ø 235 ~ [kg]	- -
IV	65	2 1/2	560	490	290	157	66,0	58,0	48,0	-
	80	3					69,0	57,0	53,0	-
	100	4					46,0	64,0	61,0	-

* up to PN 40 / Class 300 higher pressures on request

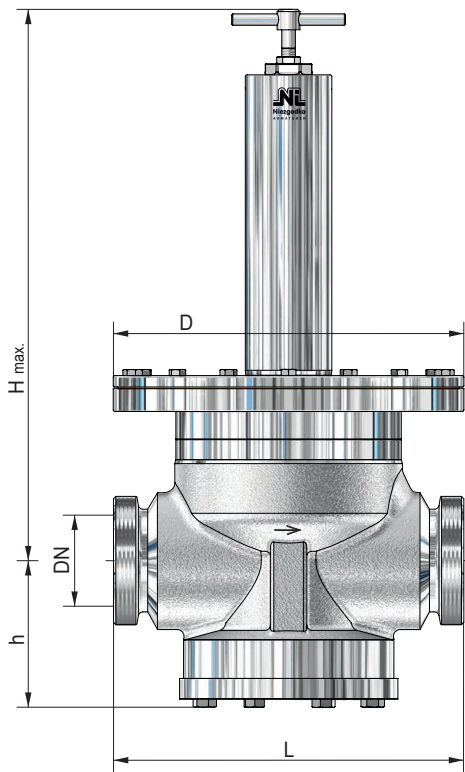
other connections on request.

Initial-Pressure-Controller, springloaded

for steam, gases and liquids

Typ 80 SMG

Connections



Series: SMG-GA / GA (AS)

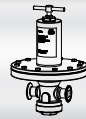
Male union
e.g. DIN 11851 / 11864-1

Size	Inlet / Outlet		Dimensions				Weight			
	DN	Thread	Height 'H' max.				Diaphragm Ø mm = D			
		DIN 405	Toggle spindle [mm]	Cap [mm]	L [mm]	h [mm]	Ø 405 ~ [kg]	Ø 310 ~ [kg]	Ø 235 ~ [kg]	-
IV	65	Rd 95x1/6"	560	490	350	157	61,0	47,0	45,0	-
	80	Rd 110x1/4"					60,0	49,0	46,0	-
	100	Rd 130x1/4"					65,0	54,0	50,0	-

other connections on request.

Option list

for Initial-Pressure-Controller



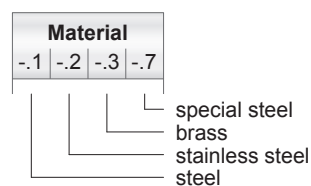
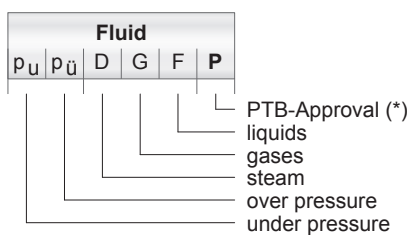
11

Option	Description	Typ 80 SKK	Typ 80 SKS	Typ 80 SKG	Typ 80 SMK	Typ 80 SMS	Typ 80 SMG
AC	Initial pressure controller adjusting screw and protective cap	●	●	●	●	●	●
AD	Relief drill hole in the spring bonnet	●	●	●	●	●	●
BA	Body with one pressure gauge connection G ¼ on indicated position	●	●	●	●	●	●
BD	Body on both sides with pressure gauge connection G ¼	●	●	●	●	●	●
DA	Bonnet for panel installation including 2 stainless steel - attaching nut, square spindle with removable handwheel	●	●				
EA	Adjustable selected initial pressure by air loaded design of the bonnet (remote control); Accessories: Shut off automatic fine filter and precision reducing valve series AFR-418	●	●	●	●	●	●
FA	Body outside electropolished	●	●	●	●	●	●
FB	Initial pressure controller completely outside electropolished	●	●	●	●	●	●
FC	Body outside glass blasted	●	●	●	●	●	●
FD	Initial pressure controller completely outside glass blasted	●	●	●	●	●	●
FE	Initial pressure controller completely outside ground and polished with Ra ≤ 1,2 µm	●	●	●	●	●	●
GA	Body inside glass blasted with Ra ≤ 2,0 µm	●	●		●	●	
GB	Medium contacted surfaces with roughness Ra ≤ 1,6 µm	●	●	●	●	●	●
GC	Medium contacted surfaces with roughness Ra ≤ 0,8 µm	●	●	●	●	●	●
GD	Medium contacted surfaces with roughness Ra ≤ 0,5 µm	●	●	●	●	●	●
HA	CIP able by additional equipments according to our scheme 200 A / 209 B	●	●	●	●	●	●



Index

Type	Use	*	Fluid	Material				DN	P _u [bar(g)]	P _ü [bar(g)]
				-1	-2	-3	-7			
9	Vacuum- Relief- Valve for steam and gases, flameproof design	P	D/G	●				1 - 2	- 0,03 / - 0,80	-
90	Vacuum- and Pressure- Relief- Valve for non-toxic steam and gases	-	D/G	●	●			½ - 2	- 0,01 / - 0,95	0,05 - 4
91	Vacuum- Relief- Valve, springloaded for non-toxic steam and gases	-	D/G	●	●			½ - 2	- 0,05 / - 0,95	-



Vacuum-Relief-Valve

for steam and gases, flameproof design

Typ 9

Standard version:

Material: Inlet body / Seat
Typ 9.2: 1.4571 / 1.4571

Temperature ranges

-20°C to 200°C

Connections:
 Screwed connection: DIN ISO 228

soft seated
 FPM / PTFE-sheathed

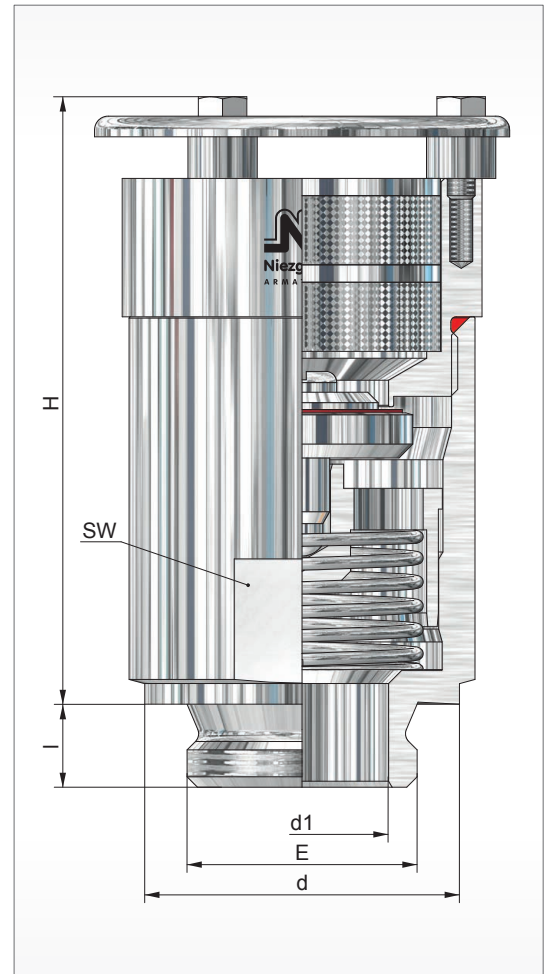
Approvals:

Pressure Equipment Directive: 2014/68/EU
 Declaration of Conformity



National metrology institute providing scientific and technical services (PTB):

III B/S-1562
 III B/S-1563



G 1 1/2



G 1

Size	Inlet			Outlet A	Dimensions		Height 'H' for head			Set pressure p [bar(g)]	Weight ~ [kg]
	E	d [mm]	I (G) [mm]		SW [mm]	d1 [mm]			H [mm]		
I	1	46	12	free	46	25			85	-0,03	0,70
										-0,05	
										-0,10	
										-0,20	
										-0,30	
II	1 1/2	64	14		70	40			98	-0,03	1,80
										-0,04	
										-0,10	
III	2	68	14		46					-0,20	
										-0,40	
				-0,80							

other design on request

Vacuum-Relief-Valve

for steam and gases, flameproof design

Typ 9

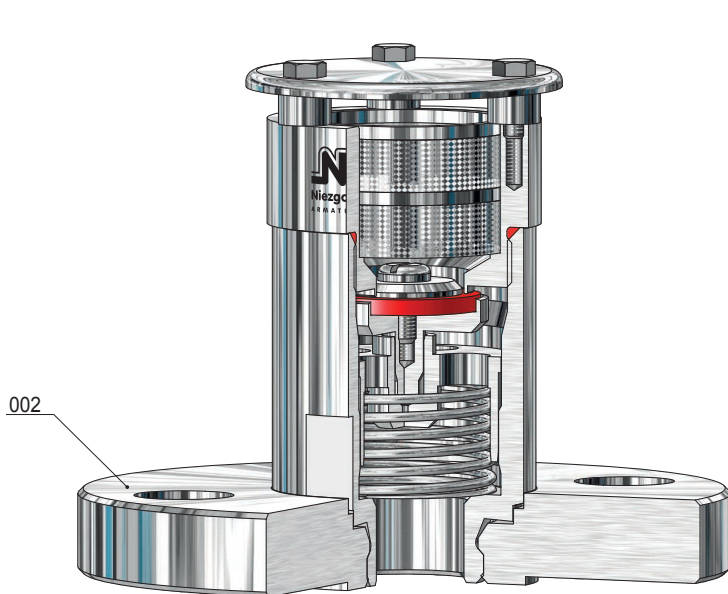
Discharge capacities

Size	G 1					G 1½, G 2				
Inlet	G 1					G 1½, G 2				
Set pressure [bar(g)]	-0,03	-0,10	-0,20	-0,30	-0,50	-0,04	-0,10	-0,20	-0,50	-0,80
Fluid	Air 0°C									
	[m ³ _n /h]									
Under pressure	pe [bar(g)]									
pe [bar(g)]										
-0,10		0								
-0,15		57								
-0,20		68	0							
-0,25		76	47							
-0,30		84	76	0						
-0,35		89	96	70						
-0,40		92	102	95						
-0,45		97	108	104						
-0,50		101	111	110						

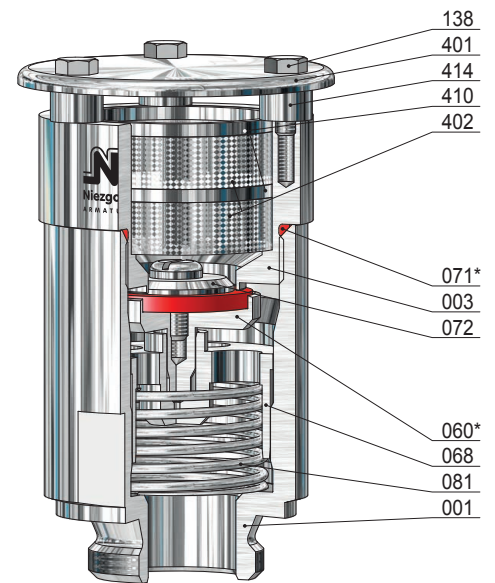
Vacuum-Relief-Valve

for steam and gases, flameproof design

Typ 9



with Flange connection acc.
to DIN / ASME



with screwed connection acc.
to ISO 228

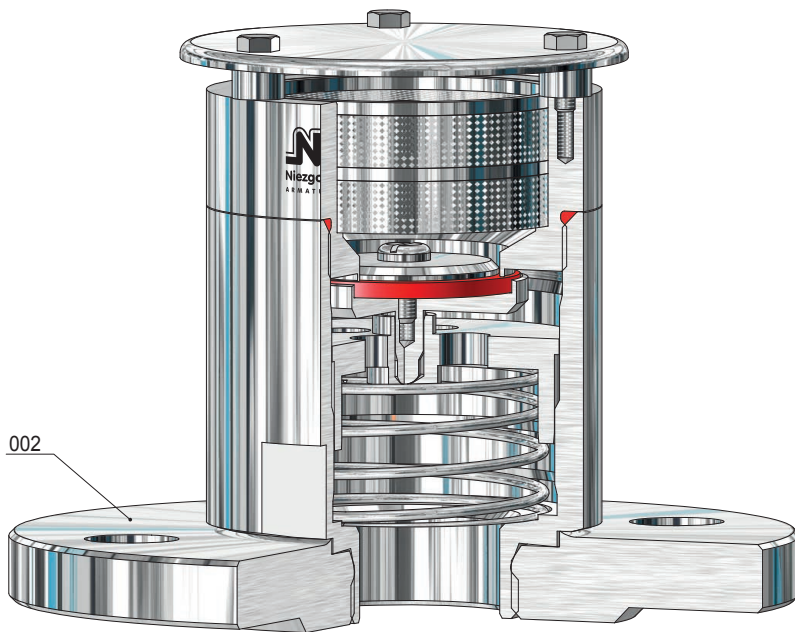
Item	Piece	Description	Item	Piece	Description
001	1	inlet body	138	3	screw
002	1	inlet flange	401	1	plate
003	1	seat	402	2	flameproof filter
060 *	1	disc, complete	410	2	distance ring
560	1	disc	414	3	screwed bushing
062	1	soft sealing			
064	1	disc screw			
068	1	disc guidance			
071 *	1	o-ring			
072	1	locking ring			
081	1	spring			

* expendable parts

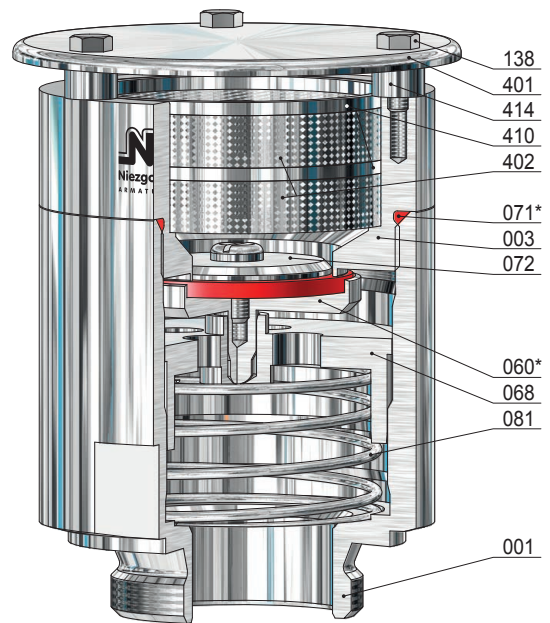
Vacuum-Relief-Valve

for steam and gases, flameproof design

Typ 9



with Flange connection acc.
to DIN / ASME



with screwed connection acc.
to ISO 228

Item	Piece	Description	Item	Piece	Description
001	1	inlet body	138	3	screw
002	1	inlet flange	401	1	plate
003	1	seat	402	2	flameproof filter
060 *	1	disc, complete	410	2	distance ring
560	1	disc	414	3	screwed bushing
062	1	soft sealing			
064	1	disc screw			
068	1	disc guidance			
071 *	1	o-ring			
072	1	locking ring			
081	1	spring			

* expendable parts

Vacuum and Pressure-Relief-Valve

for non-toxic steam and gases

Typ 90

Standard version:

Temperature ranges

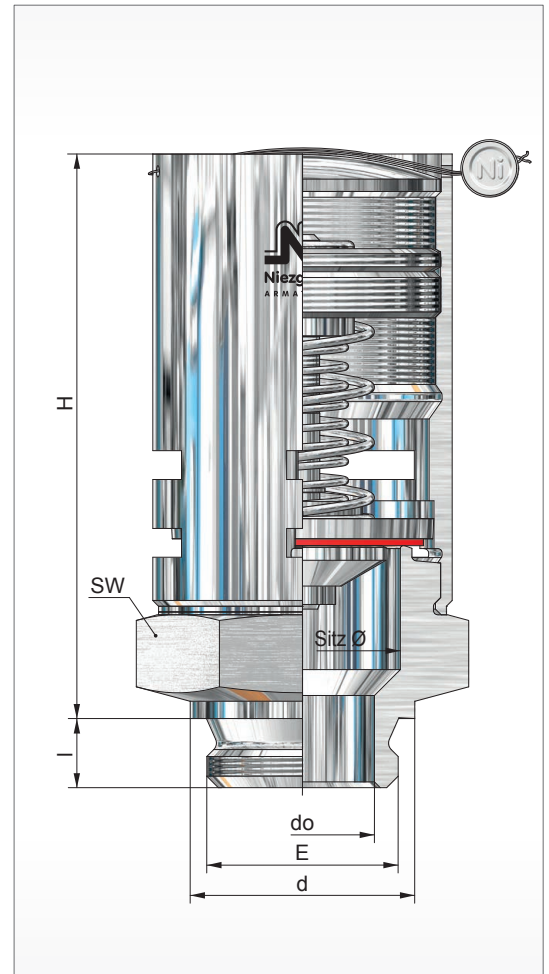
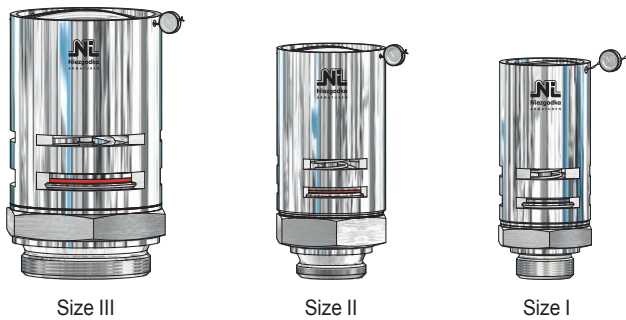
Material: Inlet body / Bonnet pipe
Typ 90.2: 1.4571 / 1.4301
Typ 90.3: 2.0401 / 2.0401

-20°C to 140°C

Connections: soft seated
 Screwed connection: DIN ISO 228 see techn. appendix: KWD-1

Approvals:

Pressure Equipment Directive: 2014/68/EU
 Declaration of Conformity



Size	Inlet			Outlet A	Dimensions			Height 'H'			Underpressure		Overpressure		Weight ~ [kg]
	E	d	l (G)		SW	do	Sitz Ø	H	p U min.	p U max.	p Ü min.	p Ü max.			
		[mm]	[mm]		[mm]	[mm]	[mm]	[mm]	[bar(g)]	[bar(g)]	[bar(g)]	[bar(g)]			
I	1/2	26	12	frei	41	13	28	88	-0,01	-0,90	0,05	3,5	0,32		
	3/4	32	12			18									
II	1	39	12		50	25	34	94	-0,01	-0,90	0,04	4,0	0,41		
	1 1/4	49	14			32									
III	1 1/2 *	55	16		70	38	52	106	-0,03	-0,95	0,10	3,5	0,73		
	2 *	68	20			48									

other design on request

*) not in type 90.3

Vacuum and Pressure-Relief-Valve

for non-toxic steam and gases

Typ 90

Overpressure function

Size	I		II		III	
Inlet	G ½	G ¾	G 1	G 1¼	G 1½	G 2
Fluid	Air 0°C [m ³ /h]					
pe [bar(g)]						
0,1	26	26	50	50	150	150
0,2	38	38	74	74	171	171
0,3	49	49	94	94	218	218
0,4	58	58	113	113	260	260
0,5	65	65	126	126	290	290
1,0	101	101	195	195	451	451
1,5	131	131	252	252	583	583
2,0	162	162	312	312	722	722
2,5	195	195	376	376	868	868
3,0	222	222	429	429	922	922

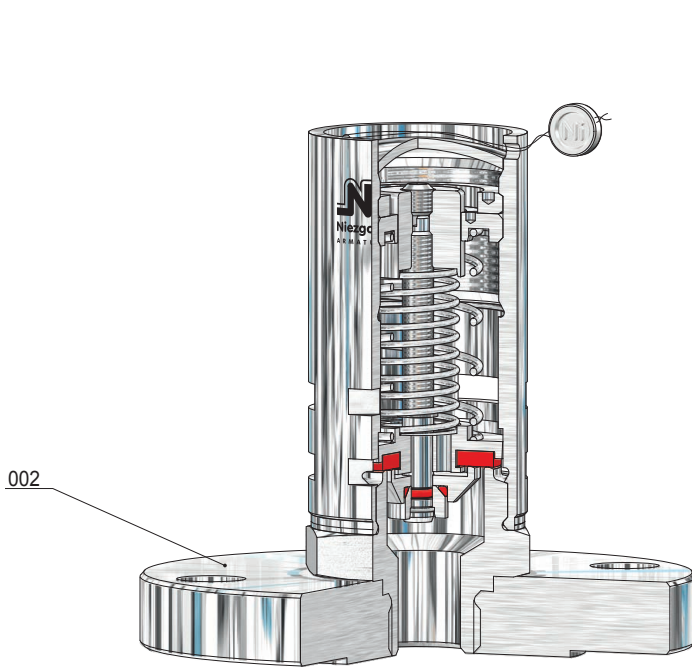
Underpressure function

Size	I		II		III	
Inlet	G ½	G ¾	G 1	G 1¼	G 1½	G 2
Fluid	Air 0°C [m ³ /h]					
pe [bar(g)]						
- 0,05	7	7	18	18	37	37
- 0,1	10	10	24	24	51	51
- 0,2	13	13	33	33	70	70
- 0,3	15	15	39	39	81	81
- 0,4	17	17	43	43	90	90
- 0,5	18	18	44	44	93	93
- 0,6	18	18	45	45	96	96
- 0,7	18	18	46	46	98	98
(- 0,8)						
(- 0,9)						

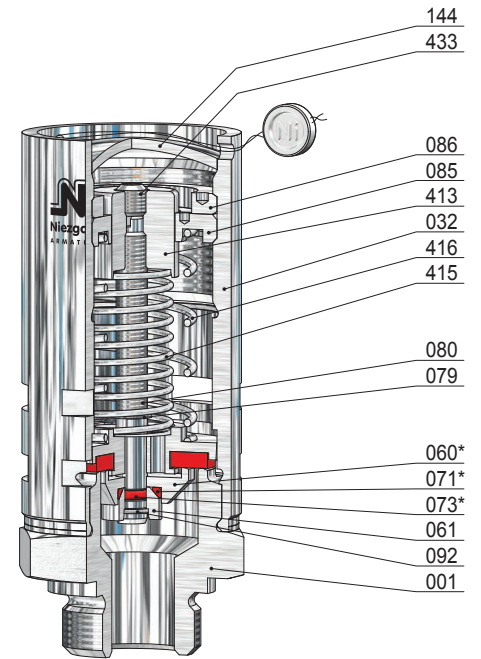
Vacuum and Pressure-Relief-Valve

for non-toxic steam and gases

Typ 90



BG I
with Flange connection acc.
to DIN / ASME



BG I
with screwed connection acc.
to ISO 228

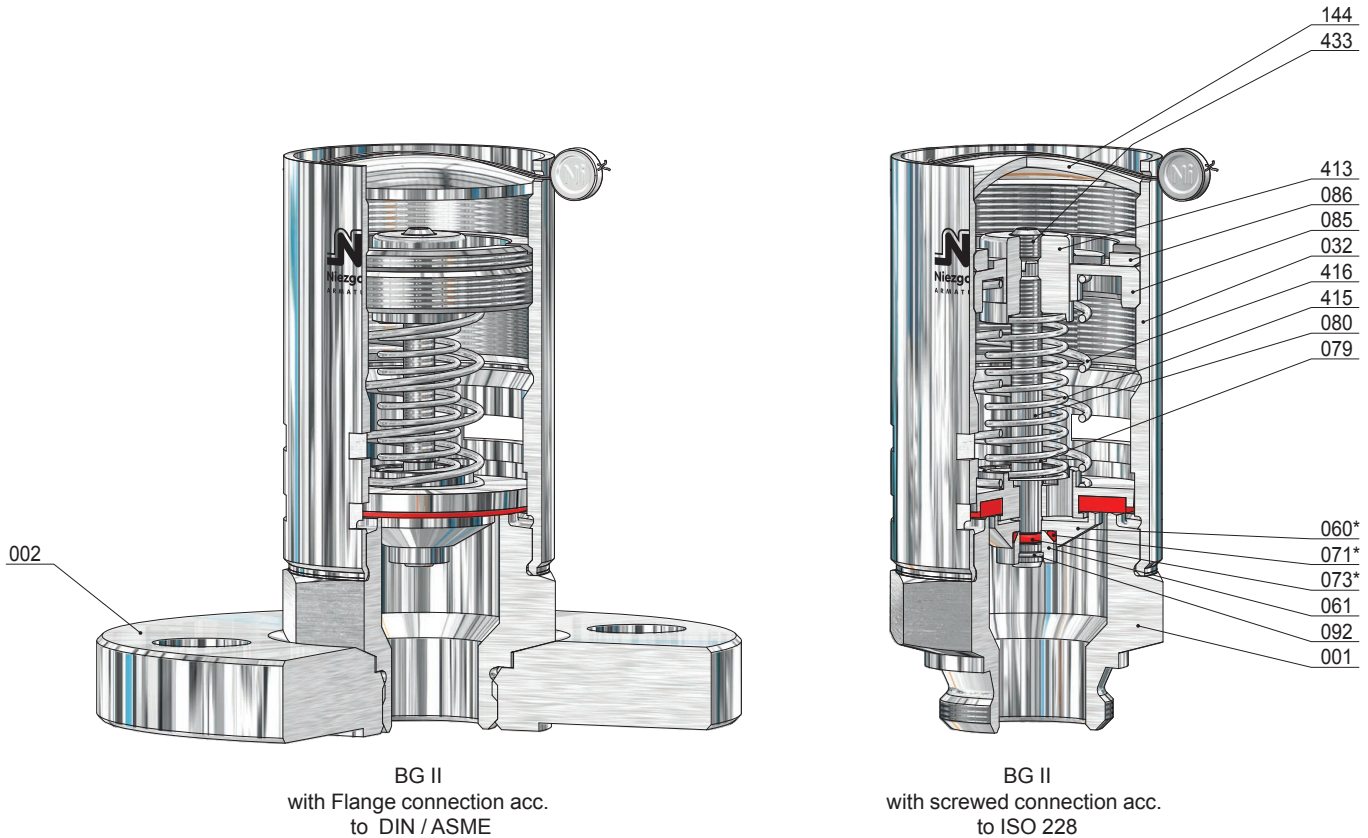
Item	Piece	Description	Item	Piece	Description
001	1	inlet body	085	1	adjusting screw
002	1	inlet flange	086	1	lock nut
032	1	bonnet pipe	092	1	lock ring
060 *	1	disc, complete	144	1	lock washer
062	1	soft sealing	413	1	guide plate
403	1	overpressure disc	415	1	underpressure spring
404	1	underpressure disc	416	1	overpressure spring
061	1	pressure piece	433	1	screwed pin
071 *	1	o-ring			
073 *	1	o-ring			
079	1	lift stopper			
080	1	spindle			

* expendable parts

Vacuum and Pressure-Relief-Valve

for non-toxic steam and gases

Typ 90



BG II
with Flange connection acc.
to DIN / ASME

BG II
with screwed connection acc.
to ISO 228

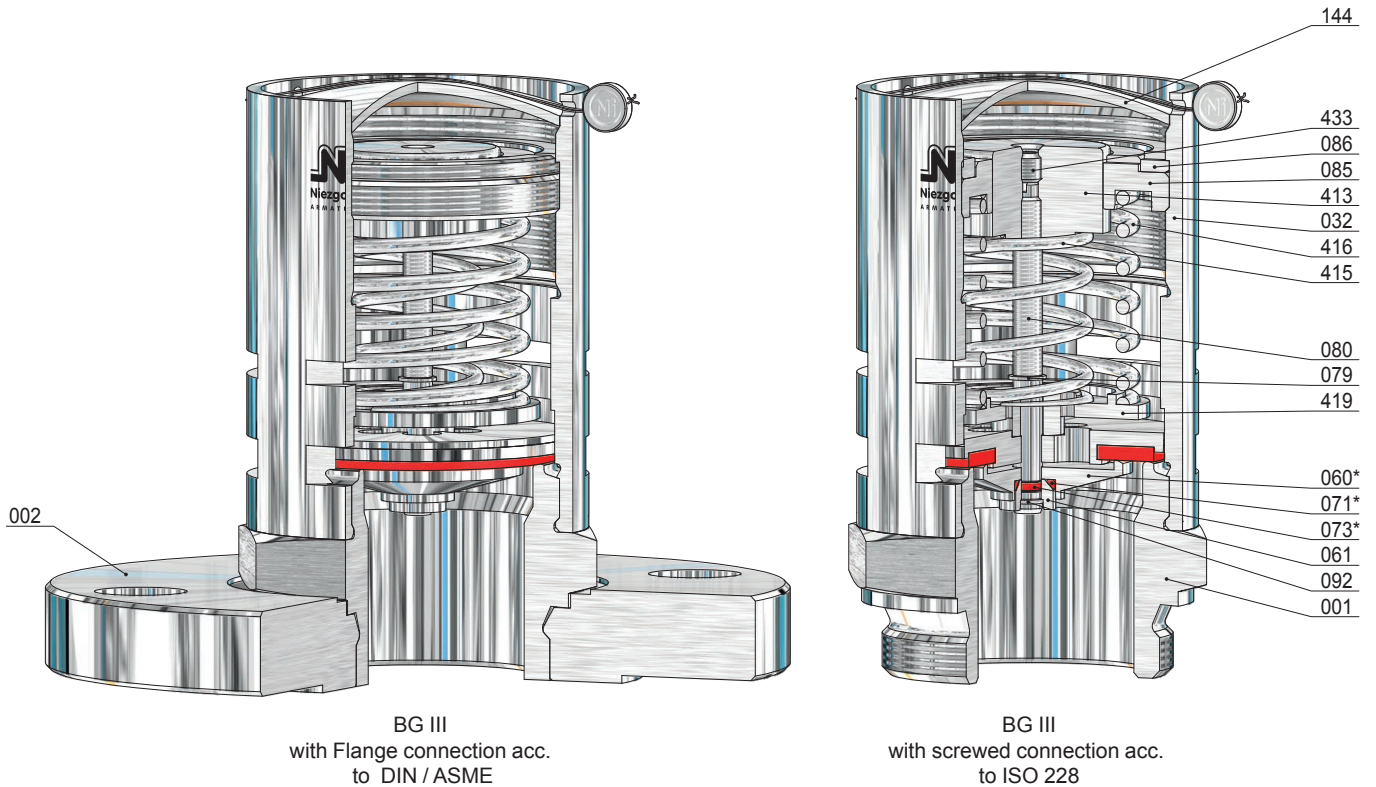
Item	Piece	Description	Item	Piece	Description
001	1	inlet body	085	1	adjusting screw
002	1	inlet flange	086	1	lock nut
032	1	bonnet pipe	092	1	lock ring
060 *	1	disc, complete	144	1	lock washer
062	1	soft sealing	413	1	guide plate
403	1	overpressure disc	415	1	underpressure spring
404	1	underpressure disc	416	1	overpressure spring
061	1	pressure piece	433	1	screwed pin
071 *	1	o-ring			
073 *	1	o-ring			
079	1	lift stopper			
080	1	spindle			

* expendable parts

Vacuum and Pressure-Relief-Valve

for non-toxic steam and gases

Typ 90



Item	Piece	Description	Item	Piece	Description
001	1	inlet body	085	1	adjusting screw
002	1	inlet flange	086	1	lock nut
032	1	bonnet pipe	092	1	lock ring
060 *	1	disc, complete	144	1	lock washer
062	1	soft sealing	413	1	guide plate
403	1	overpressure disc	415	1	underpressure spring
404	1	underpressure disc	416	1	overpressure spring
061	1	pressure piece	419	1	lower spring carrier
071 *	1	o-ring	433	1	screwed pin
073 *	1	o-ring			
079	1	lift stopper			
080	1	spindle			

* expendable parts

Vacuum-Relief-Valve, springloaded

for non-toxic steam and gases

Typ 91

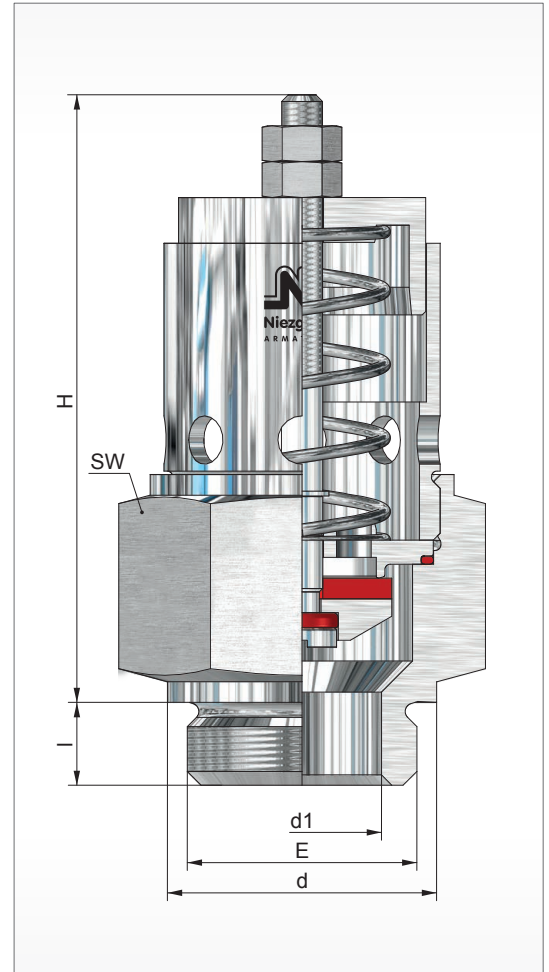
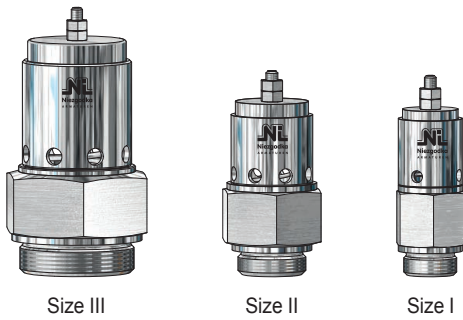
Standard version:

Operating temperature

Material:	Inlet body	/ Bonnet pipe	
Typ 91.2:	1.4571	/ 1.4301	-60°C to 150°C
Typ 91.3:	2.0401	/ 2.0401	-10°C to 130°C
Connections:			soft seated
Screwed connection: DIN ISO 228			see techn. appendix: KWD-1

Approvals:

Pressure Equipment Directive: 2014/68/EU
Declaration of Conformity



Size	Inlet			Outlet A	Dimensions		Height 'H'			Underpressure		Weight ~ [kg]		
	E	d	l (G)		SW	d1			H	p U min. [bar(g)]	p U max. [bar(g)]			
I	1/2	26	12	free	32	12			92	- 0,05	- 0,95	0,35		
	3/4	32				18								
II	1	39	12		46	23							92	0,52
	1 1/4	46	14			25								
III	1 1/2	55	14		60	38							125	1,25
	2	68				48								

other design on request

Vacuum-Relief-Valve, springloaded

for non-toxic steam and gases

Typ 91

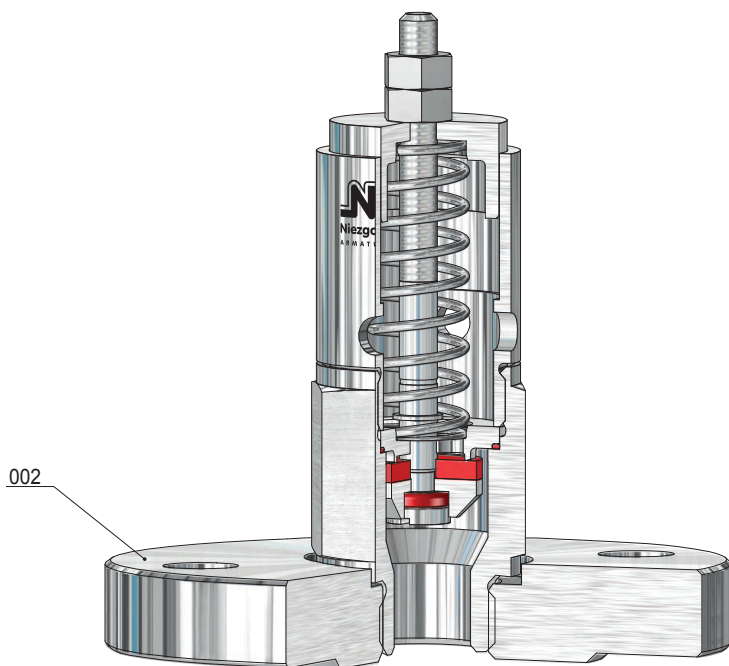
Discharge capacities

Size	I		II		III	
Inlet	G ½	G ¾	G 1	G 1¼	G 1½	G 2
d1 [mm]	12	18	23	25	38	48
Fluid	Air 0°C [m ³ /h]					
De [bar(g)]						
-0,05	11	11	19	19	55	55
-0,1	23	23	33	33	89	89
-0,2	32	32	45	45	126	126
-0,3	40	40	54	54	154	154
-0,4	44	44	66	66	177	177
-0,5	47	47	72	72	191	191
-0,6	50	50	80	80	203	203
-0,7					212	212
-0,8					212	212
-0,9						

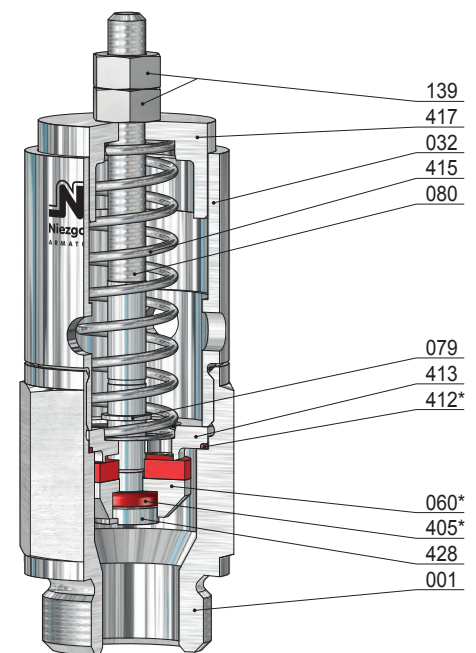
Vacuum-Relief-Valve, springloaded

for non-toxic steam and gases

Typ 91



Size I
with Flange connection acc.
to DIN / ASME



Size I
with screwed connection acc.
to ISO 228

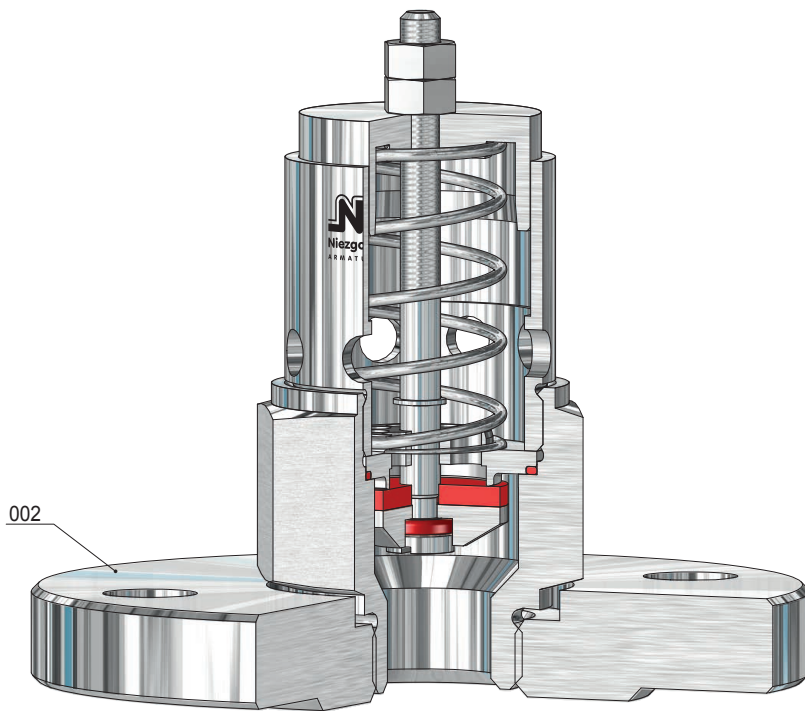
Item	Piece	Description	Item	Piece	Description
001	1	inlet body	405 *	1	o-ring
002	1	inlet flange	412 *	1	o-ring
032	1	bonnet pipe	413	1	guide plate
060 *	1	disc, complete	415	1	underpressure spring
062	1	disc	417	1	spring carrier
404	1	underpressure disc	428	1	spindle screw
079	1	lift stopper			
080	1	spindle			
139	2	nut			

* expendable parts

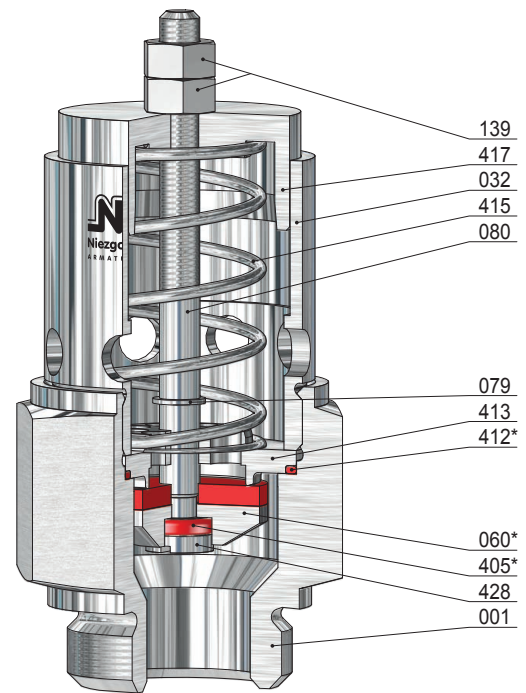
Vacuum-Relief-Valve, springloaded

for non-toxic steam and gases

Typ 91



Size II
with Flange connection acc.
to DIN / ASME



Size II
with screwed connection acc.
to ISO 228

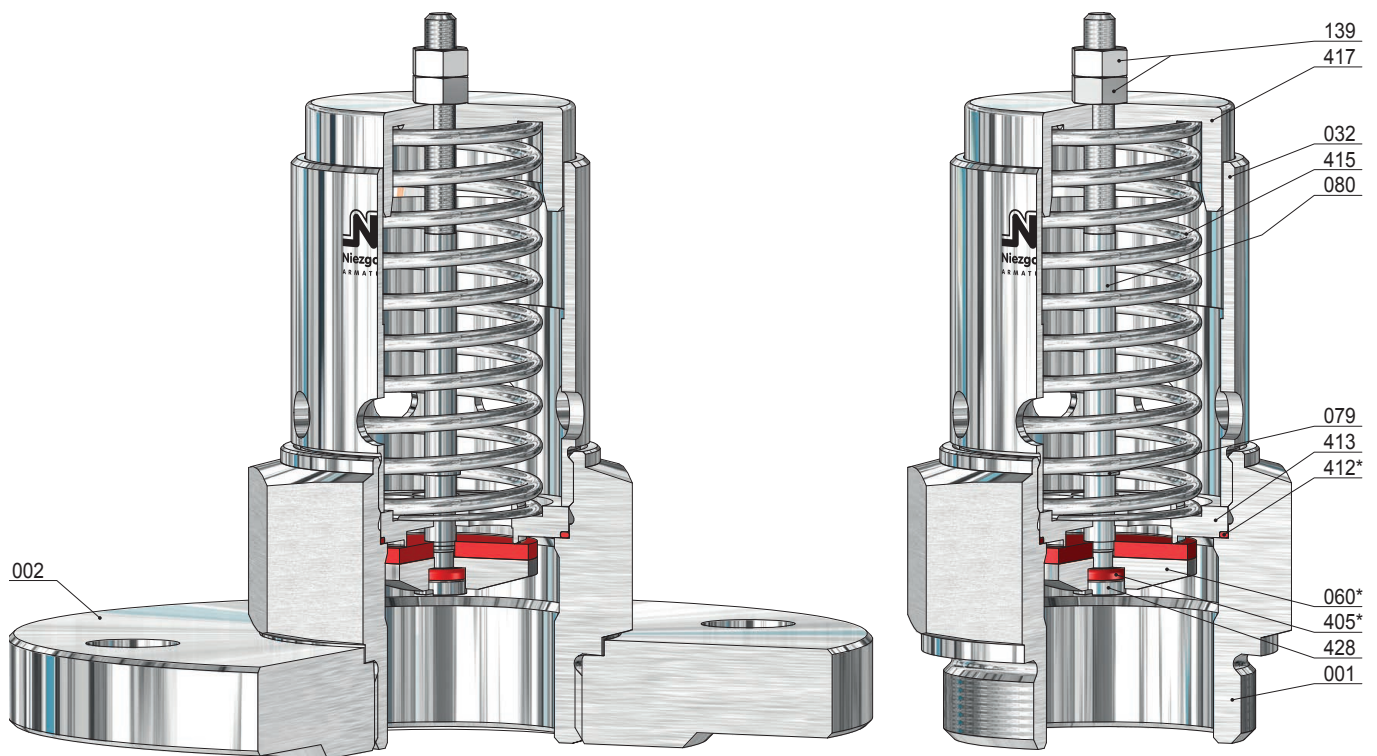
Item	Piece	Description	Item	Piece	Description
001	1	inlet body	405 *	1	o-ring
002	1	inlet flange	412 *	1	o-ring
032	1	bonnet pipe	413	1	guide plate
060 *	1	disc, complete	415	1	underpressure spring
062	1	disc	417	1	spring carrier
404	1	underpressure disc	428	1	spindle screw
079	1	lift stopper			
080	1	spindle			
139	2	nut			

* expendable parts

Vacuum-Relief-Valve, springloaded

for non-toxic steam and gases

Typ 91

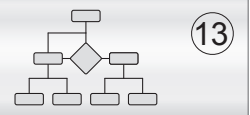


Size III
with Flange connection acc.
to DIN / ASME

Size III
with screwed connection acc.
to ISO 228

Item	Piece	Description	Item	Piece	Description
001	1	inlet body	405 *	1	o-ring
002	1	inlet flange	412 *	1	o-ring
032	1	bonnet pipe	413	1	guide plate
060 *	1	disc, complete	415	1	underpressure spring
062	1	disc	417	1	spring carrier
404	1	underpressure disc	428	1	spindle screw
079	1	lift stopper			
080	1	spindle			
139	2	nut			

* expendable parts



Index

- **Instructions**

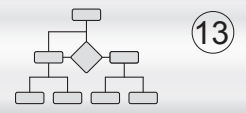
- Installation and operating instructions for CIP design

- **Diagram**

- CIP design
- Pressure regulation of vessel



Further information on our website



Pressure reduction valve, CIP-compatible, type 70.2, construction series SKS and SMS with 1:1 pressure transducer PDU - 458/92 and optional pneumatic load increase or pneumatic remote setting of reference value.

1.0 Set-up and scope of delivery

The arrangement of the instruments in accordance with diagrams 200 A, 200 B or 209 A shows a CIP-compatible design of the pressure reduction valve type 70.2, construction series SKS or SMS. CIP-compatibility is attained through the demarcation of the dead space-related control piston space or diaphragm space in the pressure reduction valve of the flow medium to be regulated and the activation of the air-pressure signal P2 that is identical to low pressure, on the control piston or diaphragm space of the pressure reduction valve through the connection (12).

Diagram 200 A:

- (1, 2, 2A) Lockable automatic fine filter and reduction station, construction series **AFR-418-ZL**, comprising:
 - 1 Air pressure shut-off valve, connection G1/4.
 - 2A Dirt filter with liquid separator and automatic condensate drain, drain connection G1/4.
 - 2 Precision pressure reducer with manometer NG 40, with GLF, for the display of *inlet pressure line ZL* and screw connection **8 mm AD** for the incoming air duct (8).
(Positions 1, 2 and 2A are supplied as assembly unit).
 - 3 1:1 Pressure transducer, construction series **PDU-458/92**, DN 50 DIN 11851 (conical connecting piece / grooved union nut), complete with filter and restrictive screw joint at the inlet, grooved union nut (Rd.78 x 1/6) and screw connections 8 mm AD for the incoming air duct (8) and measuring pressure line (9).
 - 4 Manometer **NG 63**, with GLF, for the display of the measuring pressure P2* that is identical with low pressure (mounted on the front side).
 - 5 Pressure reduction valve **type 70.2, construction series SKS or SMS, CIP design** (with option HB: without pulse drilling, with double gasket sealing of relief piston and leakage control drilling).
 - 6 Drain valve and check valve of the construction series **EVE-327-CIP** (only for installation position with standing spring bonnet and only for option AB).
 - 7 Diaphragm seal manometer for the display of primary pressure P1 (not contained in delivery scope).
 - 8 Incoming air duct **8 mm AD**.
 - 9 Measuring pressure line **8 mm AD**.
 - 11 Diaphragm seal manometer for the display of low pressure P2 (not contained in delivery scope).
 - 12 Connection G1/4 on pressure reducing valve with screw connection 8 mm AD for the measuring pressure line (9).

Diagram 200 B:

- (1, 2, 2A) Lockable automatic fine filter and reduction station, construction series **AFR-418-T-ZL**, comprising:
 - 1 Air pressure shut-off valve, connection G1/4.
 - 2A Dirt filter with liquid separator and automatic condensate drain, drain connection G1/4.
 - 2 Precision pressure reducer with manometer NG 40, with GLF, for the display of *inlet pressure line ZL* and screw connection **8 mm AD** for the incoming air duct (8).
 - 14 **T-piece**, G $\frac{1}{4}$ A x G $\frac{1}{4}$ x G $\frac{1}{4}$ A with screw connection **6 mm AD** (15) for the load pressure line (10).
(Positions 1, 2, 2A, 14 and 15 will be delivered as assembly unit).
 - 5 Pressure reduction valve **type 70.2, construction series SKS or SMS, CIP design with pneumatic load** (with option HB: without pulse drilling, with double gasket sealing of relief piston and leakage control drilling and option EC: spring bonnet for pneumatic load (Spring bonnet with adjustable screw and gas-proof cap, spring bonnet pressure-sealed up to 8 bar(g))).
 - 10 Load pressure line **6 mm AD**.
 - 19 **2/2-way ball cock with air bleeding hole G 1/4** or **3/2-way magnet valve G1/4**, directly controlled, with screw connections **6 mm AD** for the load pressure line (10); (Valve for the activation of air pressure of a max. of 2.5 bar(g) (Construction series SMS) or a max. of 8 bar(g) (Construction series SKS) on the spring bonnet for the forcible opening of the pressure reduction valve for the CIP cleaning process).
 - 20 Connection G1/4 on the spring bonnet with screw connection **6 mm AD** for the load pressure line (10).

For positions 3 to 12 see explanations for diagram 200 A.

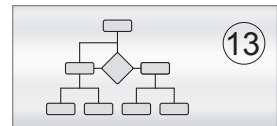
Diagram 209 A:

- (1*, 2*, 2A*) Lockable automatic fine filter and reduction station, construction series **AFR-418-PS**, comprising:
 - 1* Compressed air shut-off valve, connection G1/4.
 - 2A* Dirt filter with liquid separator and automatic condensate drain, drain connection G1/4.
 - 2* Precision pressure reducer with manometer NG 40, with GLF, for the display of *reference value pressure PS* and screw connection **6 mm AD** for the load pressure line (10).
(Positions 1*, 2* and 2A* will be supplied as assembly unit).
 - 5 Pressure reduction valve **type 70.2, construction series SKS or SMS, CIP design with pneumatic remote setting of reference value** (without spring) (with option HB: without pulse drilling, with double gasket sealing of relief piston and leakage control hole and option EC: spring bonnet for pneumatic load (spring bonnet with gas-proof cap, spring bonnet pressure-sealed up to 8 bar(g))).
 - 10 Load pressure line **6 mm AD**
 - 20 Connection G1/4 on the spring bonnet with screw connection 6 mm AD for the load pressure line (10).

For positions 1 to 12, see explanations on diagram 200 A.

Installation and operating instruction

for the design of CIP



2.0 Functionality for instrument arrangement in accordance with diagram 200 A

The air coming from the network of compressed air flows through the compressed air shut-off valve (1) of the automatic fine filter and reduction station, construction series **AFR-418-T-ZL** for the dirt filter with liquid separator and automatic drain (2A). Here, condensate and impurities are separated and automatically drained away. The cleaned air in the precision pressure reducer (2) is subsequently reduced to the necessary incoming compressed air ZL and led into the inlet of the 1:1 pressure transducer (3) through the incoming air duct (8).

The inlet pressure line ZL shall be set to 0.4 bar(g) in excess of the low pressure P2 to be regulated ($ZL = P2 + 0.4 \text{ bar(g)}$); for pressures below 1.0 bar(g) however, always set to $ZL = 1.4 \text{ bar(g)}$.

The 1:1 pressure transducer mounted on the product low pressure line converts the product low pressure P2 (gases, vapors, liquids) that is meant to be regulated, through a diaphragm / nozzle system with high precision into a proportional, pneumatic measuring pressure P2*. The incoming air ZL with **minimum ZL = 1.4 bar(g) and maximum ZL = 4.4 bar(g)** will, through a fixed restrictor, penetrate the annular space of the pressure transducer at the inlet, which has a centrally positioned modulation nozzle with exhaust air throttle screw (F) and is connected with the pressure transducer outlet. The annular space is demarcated from the diaphragms. The exterior of the diaphragms is charged by product pressure P2. Given the availability of inlet pressure line ZL and product pressure P2 = Null, the measuring diaphragms are deflected in the direction of the lesser product pressure and move away from the modulation nozzle. The complete incoming air is blown out into the surrounding through the modulation nozzle with exhaust air throttle screw (F) and no measuring pressure P2* can accumulate in the annular space. The measuring pressure P2* on the outlet of the pressure transducer will therefore also be zero. Should the product pressure P2 surge, the diaphragm will be pressed against the modulation nozzle and shut it off. Measuring pressure P2* in the pressure transducer will increase until it reaches the level of the product pressure P2. It cannot exceed it because the diaphragm will then move away from the modulation nozzle and impede any further pressure hike through the blow out into the surroundings, from the exhaust air throttle screw (F). In a balanced state, the volume of incoming and outgoing air is equal. Based on this principle, the measuring pressure P2* always stands at product pressure P2. Measuring pressure P2* is available at the outlet of the pressure transducer and is led through the measuring pressure line (9) to the control piston or diaphragm space of the pressure reduction valve (5) through the connection (12).

The pressure reduction valves of type 70.2, construction series **SKK, SKS or SMK, SMS** are primary pressure-relieved and depending on the range of low pressure, are either piston or diaphragm-controlled proportional controller with spring loading or optionally with pneumatic loading (specification of pneumatic reference value). This is applied to ensure the maintenance of constant low pressure P2 at a reference value that can be preset.

Every desired reference value of the low pressure P2 can be set from 10 mbar to 4.0 bar(g) within the working range of the 1:1 pressure transducer through the usage of piston plates or diaphragms of different diameters in connection with control springs of different force ranges and the modification of the spring force within a force range through the reference value setting screw.

Should the pipeline lack pressure, the piston plates / diaphragms will be pushed into the open position with piston and disc while the control spring is pretensioned. If there is primary pressure, the flow medium will flow through and between the seat and disc and will be throttled. The resultant low pressure P2, which merges depending on the pretensioning of the control spring and travel of the disc will be converted by the 1:1 pressure transducer into the proportional measuring pressure P2* and conveyed through the pressure transducer outlet and measuring pressure line (9) to the control piston or diaphragm space of the pressure reduction valve (5) through the connection (12). The measuring pressure P2* acts on the piston plate (310) or diaphragms (245) and generates a pressure force in the direction of closure, which is in force comparison with the adjustable spring force of the control spring (081) as reference value **PS**.

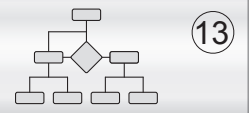
Should the low pressure $P2 = P2^*$ exceed the reference value **PS** that was preset on the setting screw – either through less consumption and/or increased primary pressure – the valve travel and thereby the throttle area on the disc will be reduced until a balance is re-established between the pressure force on the piston plate / diaphragms and the spring force.

In the event of rising low pressure / measuring pressure $P2 = P2^*$, the piston plate / diaphragm with disc will move in the closing direction and upon dwindling low pressure / measuring pressure $P2 = P2^*$, in the opening direction of the disc. Should the low pressure / measuring pressure $P2 = P2^*$ attain the preset reference value with the prevailing flow capacity, there will be a balance of forces and the disc will remain in the assumed travel position.

If the low pressure $P2 = P2^*$ drops – either through increased consumption and/or through plunging primary pressure – the piston plate / diaphragm with disc will move immediately to a new position of balance to the spring force. In the process, the valve travel and thereby the throttle area will be enlarged until a balance is also re-established between the closing force and the spring force of the control spring.

In case of a drop in flow capacity, low pressure / measuring pressure $P2 = P2^*$ will rise and the disc will move in the closing direction. In case of a zero flow rate or shut-off of the low pressure line, the low pressure / measuring pressure $P2 = P2^*$ will increase by the closing pressure and the pressure reduction valve will shut off tightly.

The manometer (4) positioned on the pressure reduction valve (5) serves the purpose of displaying the measuring pressure P2* and thereby, the control of the function of the 1:1 pressure transducer.



2.1 Functionality for instrument arrangement with pneumatic loading in accordance with diagram 200 B

The basic functionality of the pressure control system is as described below in section 2.0.

Moreover, a forced opening of the pressure reduction valve may occur during the CIP process through the loading of air pressure on the spring bonnet. By this means, pressure reduction of the CIP media to the preset reference value PS will be impeded and the maximum flow capacity attained for the CIP media through the pressure reduction valve.

For pneumatic loading, the loading pressure line 6 mm AD (10) shall be arranged with a 2/2-way ball cock with air-bleeding holes (19) or with a 3/2-way magnet valve (19) between the screw connection (15) on the T-piece (14) of the automatic fine filter and reduction station, construction series **AFR-418-T-ZL** and the screw connection (20) of the spring bonnet of the pressure reduction valve (5).

The 2/2-way ball cock with air-bleeding hole (19) or the 3/2-way magnet valve (19) shall be installed in the load pressure line (10) in such a way that the loading pressure exerted by the connection (15) is shut off while the product pressure is being regulated and at the same time, the spring bonnet of the pressure reduction valve performs deaeration into the atmosphere through the 2/2-way ball cock with air-bleeding hole or through the 3/2-way magnet valve.

Caution!



A spring bonnet that is not air-bled during the process of pressure regulation leads to malfunction (undesired displacement of the reference value).

During the CIP process, the spring bonnet of the pressure reduction valve (5) shall be charged with the loading pressure by opening the 2/2-way ball cock with air-bleeding hole or by opening the 3/2-way magnet valve. The loading pressure acts on the piston plate and pushes the valve open.

After completing the CIP process, the 2/2-way ball cock with air-bleeding hole or the 3/2-way magnet valve shall be shut again and the pressure from the spring bonnet escapes through the air-bleeding hole or through the respective outlet of the 3/2-way magnet valve.

The control spring (081) assumes the specified reference value once again.

The loading pressure on the spring bonnet shall not exceed 8.0 bar(g) for pressure reduction valves of the type 70.2, construction series SKS and 1.6 to 2.5 bar(g) for pressure reduction valves of the type 70.2, construction series SMS depending on the diameter of the diaphragm.

These maximum pressures shall not be exceeded. If necessary, the loading pressure shall be reduced to these maximum pressures through one more pressure reducer in the loading pressure line (10).

2.2 Functionality for instrument arrangement with pneumatic remote setting of reference value in accordance with diagram 209 A

The basic functionality of the pressure control system is as described in section 2.0.

Rather than presetting the reference value through the adjustable spring force, the reference value can be preset through air pressure on the spring bonnet. The air pressure acts on the opposite side of the piston plate / diaphragm that is charged with the low pressure / measuring pressure $P_2 = P_2^*$ and generates the reference value force that is required for the regulation process; the control spring (081) will not apply in that case.

For the pneumatic remote setting of the reference value, the outlet of the automatic fine filter and reduction station, construction series **AFR-418-PS** (1*, 2A*, 2*) is connected with the connection (20) of the spring bonnet of the pressure reduction valve (5) through the loading pressure line 6 mm AD (10).

The desired reference value PS of the product's pressure reduction valve (5) is adjusted with the setting screw on the precision pressure reducer (2*).

Only precision pressure reducer with secondary deaeration system and reverse control hysteresis ≤ 0.1 bar(g) shall be applied for the presetting of reference value to keep reference value fluctuations and thereby also control deviations at the barest minimum.

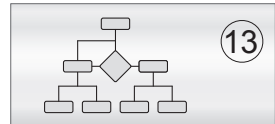
The air pressure on the spring bonnet shall not exceed 8.0 bar(g) for pressure reduction valves of the type 70.2, construction series SKS and 1.6 to 2.5 bar(g) for pressure reduction valves of the type 70.2, construction series SMS depending on the diameter of the diaphragm. These maximum pressures shall not be exceeded.

The pneumatic remote setting of the reference value shall be used as a matter of preference if, during the process sequences, several different low pressures are compelled to be run in a temporally consecutive manner and on-the-spot setting of the individual reference values on the pressure reduction valve (5) means unacceptable labor. An easy-to-operate manual remote setting of the reference value is facilitated by line lengths of up to 15 meters between the pressure reduction valve (5) and the automatic fine filter and reduction station, construction series **AFR-418-PS**.

If necessary, the pneumatic presetting of reference value or reference value adjustment will be realized also through the output pressure of a proportional pressure control valve that is activated through an SPS control system.

Installation and operating instruction

for the design of CIP



3.0 Guidelines for installation

General installation guidelines for pressure reduction valves see (Catalog group 15)
Type 70.2, construction series SKK, SKS und SMK, SMS.

The following points shall be observed as complementation:

1. The installation of the pressure reduction valve (5) should be performed in the horizontal pipeline preferably with suspended spring bonnet to facilitate the automatic discharge of the locking cap. If the spring bonnet is installed upright, the locking cap shall be fitted with a water discharge hole and / or a discharge valve to facilitate discharge through the valve if deemed necessary. In case of pressure reduction valves of the type 70.2, construction series SMK and SMS, installation shall always be performed in the horizontal pipeline with suspended spring bonnet.
2. A distance of $\geq 15 \times DN_A$ shall be maintained between the pressure reduction valve (5) and the 1:1 pressure transducer.
3. For pressure reduction valves smaller than DN 50, the low pressure line immediately behind the pressure reduction valve shall either be expanded to DN 50 or the pressure transducer arranged on the consumer (e.g. vessel). The expansion to DN 50 shall be performed to a minimum length of 1.25 m. The 1:1 pressure transducer shall be arranged at a distance of approx. 0.75 m (= $15 \times DN 50$) behind the pressure reduction valve (5) on the crowm of the pipe. The pipeline can be drawn-in to the relevant nominal size about 0.5 m behind the pressure transducer. The retraction or expansion should be performed preferably in an eccentric manner to allow for drainage without residues.
4. The required safety valves shall basically be arranged behind the pressure transducer. The distance from pressure transducer shall be a minimum of $10 \times DN$ (0.5 m).
5. For the installation of the 1:1 pressure transducer, provision shall be made for a threaded connector with the shortest possible height (DN 50 in accordance with DIN 11851) on the pipeline. The pressure transducer will be supplied with the respective grooved union nut DN 50.
6. The diaphragm protector (plastic cap) shall be removed before installing the pressure transducer.
7. The screw connections G 1/8 x 8 mm AD that are equally supplied shall be used for the connection of the incoming air duct (8) and the measuring pressure line (9) on the pressure transducer.
8. The connection of the incoming air duct (8) to the precision pressure reducer (2) of the automatic fine filter and reduction station, construction series AFR-418 and the measuring pressure line (9) to connection (12) of the pressure reduction valve (5) shall be performed through the pre-installed or equally supplied screw connections 8 mm AD.
9. Plastic hose lines 8 mm AD are recommended as lines (8; 9).
10. The automatic fine filter and reduction station, construction series AFR-418-ZL (1, 2, 2A) shall be arranged hanging.
11. If the installation of a switchboard is desired, a precision pressure reducer (2) may be installed also with horizontal spring bonnet (switchboard fastening thread M22x1 with washer and hexagon nut on the spring bonnet of the precision pressure reducer). For this purpose, the precision pressure reducer (2) shall be turned accordingly by 90° as against the filter automatic deflector and double nipple. The filter with liquid separator and automatic deflector (2A) shall always be arranged hanging.
12. The respective line for discharging the condensate shall be connected to connection G $\frac{1}{4}$ of the deflector (2A).
13. The length of the line between precision pressure reducer (2) and pressure transducer shall not exceed 5 meters at a line length of 8 mm AD. More length will be provided on demand.
14. The length of the line between pressure transducer (3) and pressure reduction valve, type 70.2, construction series SK und SM (5) may – upon the arrangement of the pressure transducer e.g. on the vessel – measure up to 20 m. More length will be provided on demand.

In case of pressure reduction valves with pneumatic loading in accordance with diagram 200 B or with pneumatic setting of reference value in accordance with diagram 209 A, the details provided in items 8 to 13 shall apply accordingly, to the installation position of the automatic fine filter and reduction station, construction series AFR-418 and the length of the lines.

The screw connections and the plastic hose lines shall have a deviant 6 mm AD for pneumatic loading or remote setting of reference value.

Load pressure on the spring bonnet shall not exceed 8.0 bar(g) for pressure reduction valves of the type 70.2, construction series SKS and 1.6 to 2.5 bar(g) for pressure reduction valves of the type 70.2, construction series SMS depending on the diameter of the diaphragm.

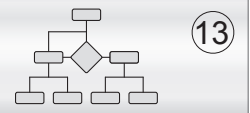
These maximum pressures shall not be exceeded. If necessary, the load pressure shall be reduced to these maximum pressures through one more pressure reduction valve in the loading pressure line (10).

Caution!



All loose screw connections that are supplied should be assembled using sealing compound paste.

Sealing tapes shall be avoided. Leakages in the pneumatic system of the measuring pressure P2* may lead to function impairments or loss of function on the part of the pressure control system. For this reason, all screw connections and structural components that are loaded with the measuring pressure P2* (screw connections on the pressure transducer (3), hose connections on the pressure transducer (3) and pressure reduction valve (5), hose (9), screw connection (12) on the pressure reduction valve (5), manometer connection (4) on the pressure reduction valve (5)) shall be subjected to leak-tightness test before putting into operation (by brushing with foaming agent).



4.0 Putting into operation for the arrangement of instruments in accordance with diagram 200 A / 200 B

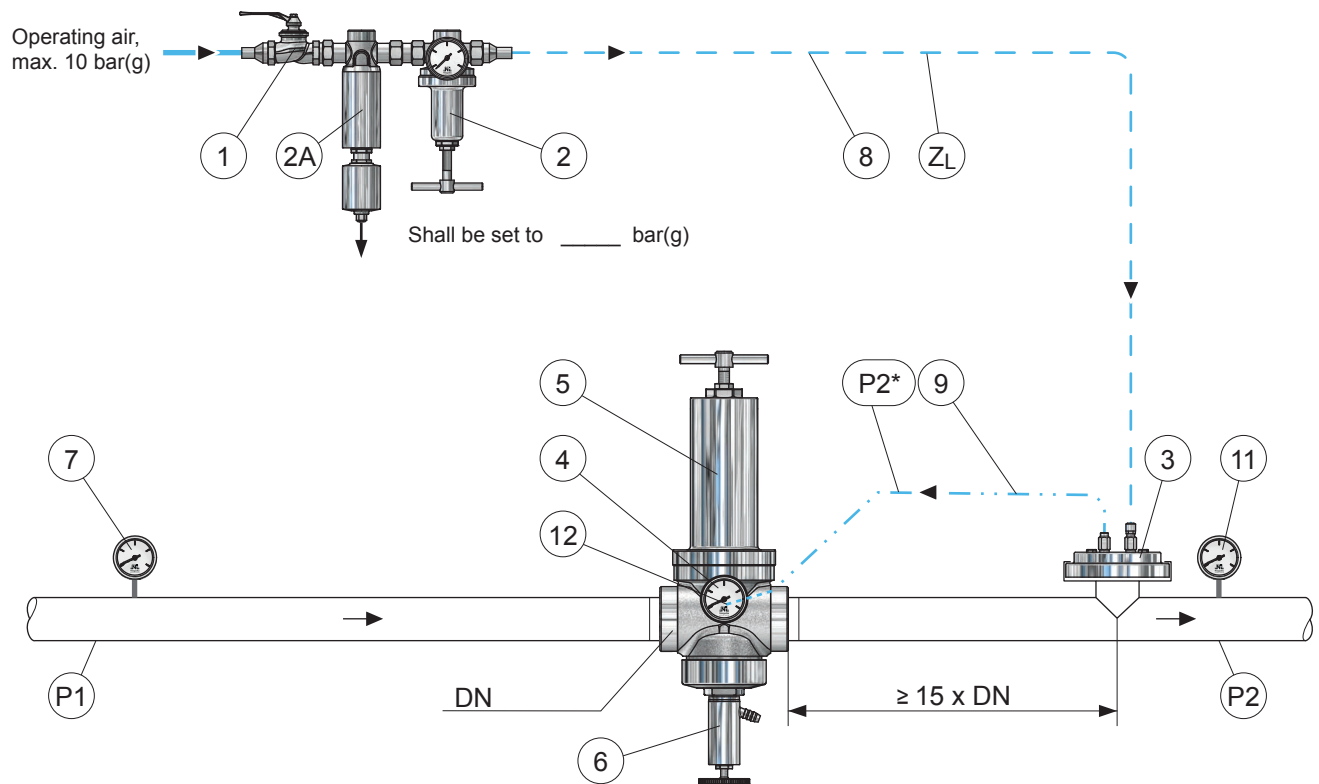
1. Fully relieve the control springs of the pressure reduction valve (5) and the precision pressure reducer (2) for supplying the 1:1 pressure transducer (3) by turning the setting screw to the left.
2. Shutting of the 2/2-way ball cock with air-bleeding hole (19) or of the 3/2-way magnet valve (19) in the loading pressure line (10).
3. Slow opening of the compressed air shut-off valve (1) of the automatic fine filter and reduction station, construction series AFR-418 for the supply of the 1:1 pressure transducer.
4. Setting of the inlet pressure line on the precision pressure reducer (2) of the automatic fine filter and reduction station for the supply of the 1:1 pressure transducer to the predetermined value **$Z_L = 1.4 \text{ bar(g)}$ for low pressures of up to 1 bar(g) or $Z_L = P_2 + 0.4 \text{ bar(g)}$ for low pressures over 1 bar(g) to 4 bar(g)** by tightening the control spring (clockwise turning of setting screw). The setting screw shall be secured through the counter nut after the completion of setting.
5. Slow opening of the inlet valve on the side of primary pressure (not shown in diagram 200 A or 200 B) before the pressure reduction valve (5) until the primary pressure reaches its final value manometer (7).
6. Low pressure P_2 shall subsequently be set to the desired reference value on the pressure reduction valve (5), whereby consumption (flow-through) must be available on the outlet side. For this purpose, the setting screw shall be turned clockwise while keeping an eye on the manometer (11) on the outlet or the manometer (4) on the pressure reduction valve (5), until the desired reference value for low pressure P_2 has been attained. The setting screw shall be secured through the counter nut after the completion of setting.
Strongly pulsating flows and jerk-type pressure loads shall be avoided.

4.1 Putting into operation for the arrangement of instruments with the pneumatic remote setting of reference value in accordance with diagram 209 A

1. Fully relieve the control springs of the pressure reduction valve (5), of the precision pressure reducer (2) for the supply of the 1:1 pressure transducer (3) and the precision pressure reducer (2*) for the remote setting of the reference value by turning the setting screw left.
2. Slow opening of the compressed air shut-off cock (1) of the automatic fine filter and reduction station, construction series AFR-418- Z_L for the supply of the 1:1 pressure transducer.
3. Setting of *inlet pressure line* Z_L on the precision pressure reducer (2) of the automatic fine filter and reduction station for the supply of the 1:1 pressure transducer to the predetermined value **$Z_L = 1.4 \text{ bar(g)}$ for low pressures $\leq 1.0 \text{ bar(g)}$ or $Z_L = P_2 + 0.4 \text{ bar(g)}$ for low pressures over 1.0 bar(g) to 4.0 bar(g)** by tightening the control spring (clockwise turning of setting screw) while keeping an eye on the manometer on precision pressure reducer (2). The setting screw shall be secured through the counter nut after the completion of setting.
4. Slow opening of the compressed air shut-off cock (1) of the automatic fine filter and reduction station, construction series AFR-418- PS for the remote setting of the reference value.
5. Presetting of the *reference value pressure* PS on the precision pressure reducer (2*) of the automatic fine filter and reduction station for the remote setting of the reference value to the desired reference value for low pressure P_2 by tightening the control spring (clockwise turning of the setting screw) while keeping an eye on the manometer on the precision pressure reducer (2). The setting screw shall be secured through the counter nut after the completion of setting.
6. Slow opening of the inlet valve on the primary pressure side (not shown in diagram 209 A) before the pressure reduction valve (5) until the primary pressure (see manometer (7)) reaches its final value, whereby consumption (flow-through) must be available on the outlet side. Strongly pulsating flows and jerk-type pressure loads shall be avoided.
7. Should low pressure P_2 deviate from the desired reference value, the *reference value pressure* PS can be corrected on the precision pressure reducer (2*) of the automatic fine filter and reduction station. The reference value pressure is increased by tightening the control spring (clockwise turning of setting screw) while keeping an eye on the manometer (4) on the pressure reduction valve (5) and reduced by relieving (counter-clockwise turning of the setting screw) until the *desired reference value* PS is attained for low pressure P_2 .
The setting screw shall be secured through the counter nut after the completion of setting.

Pressure reduction valve with 1:1 low pressure-pressure transducer

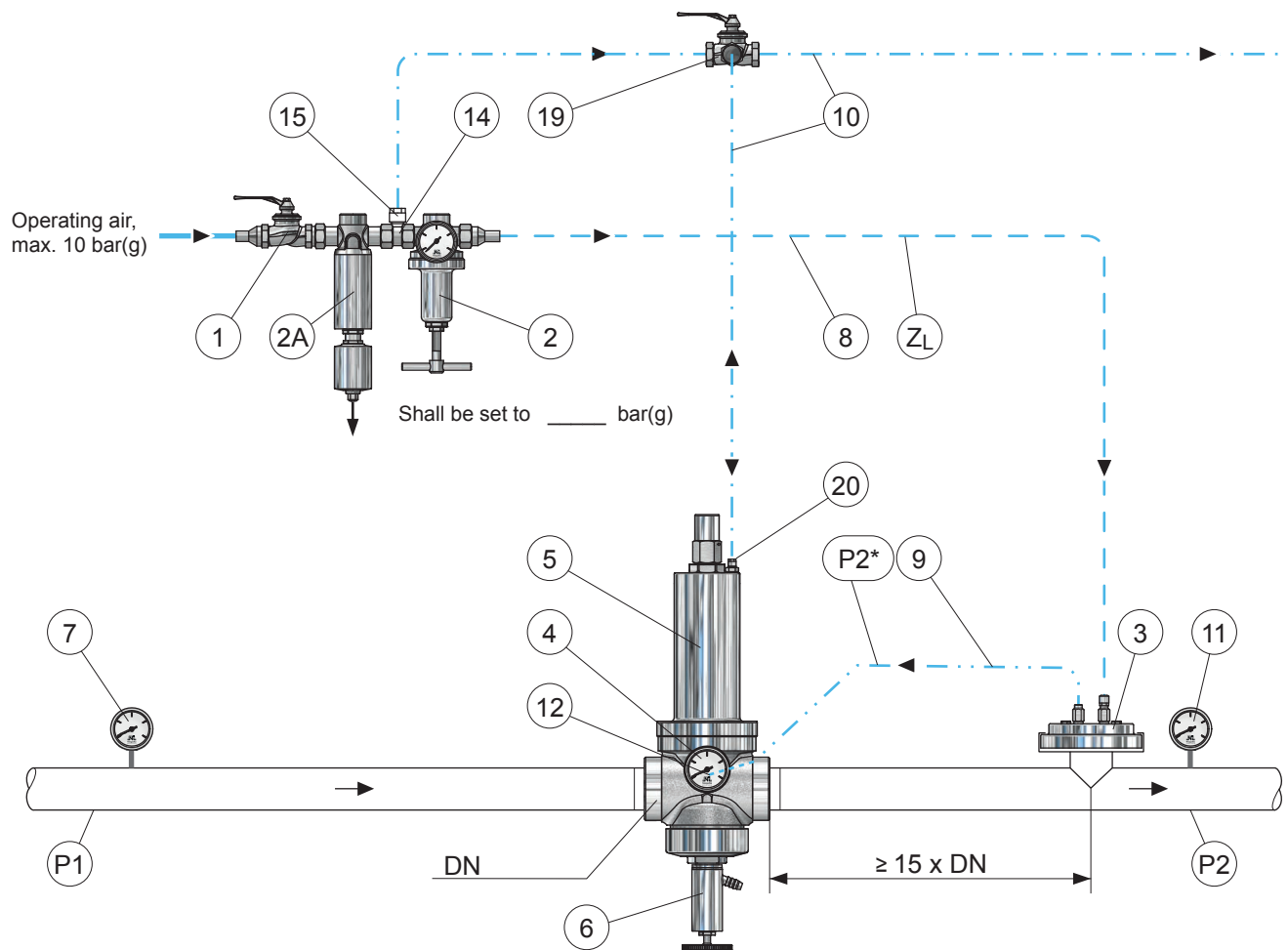
In case of pressure reducers that are smaller than DN 50, the low pressure line shall either be expanded or the pressure transducer is mounted directly on the consumer (e.g. vessel).



Item	Description	Item	Description	Item	Description
1	stopcock	11	manometer		
2	precision pressure reducer	12	screw connection		
2A	fine filter			P1	inlet pressure
3	pressure transformer			P2	reduced pressure
4	manometer			P2*	measuring pressure
5	pressure reducing valve			ZL	inlet pressure line
6	discharge and check valve				
7	manometer				
8	inlet pressure line				
9	pilot pressure line				

Pressure reduction valve with 1:1 low pressure-pressure transducer pneumatic load increase

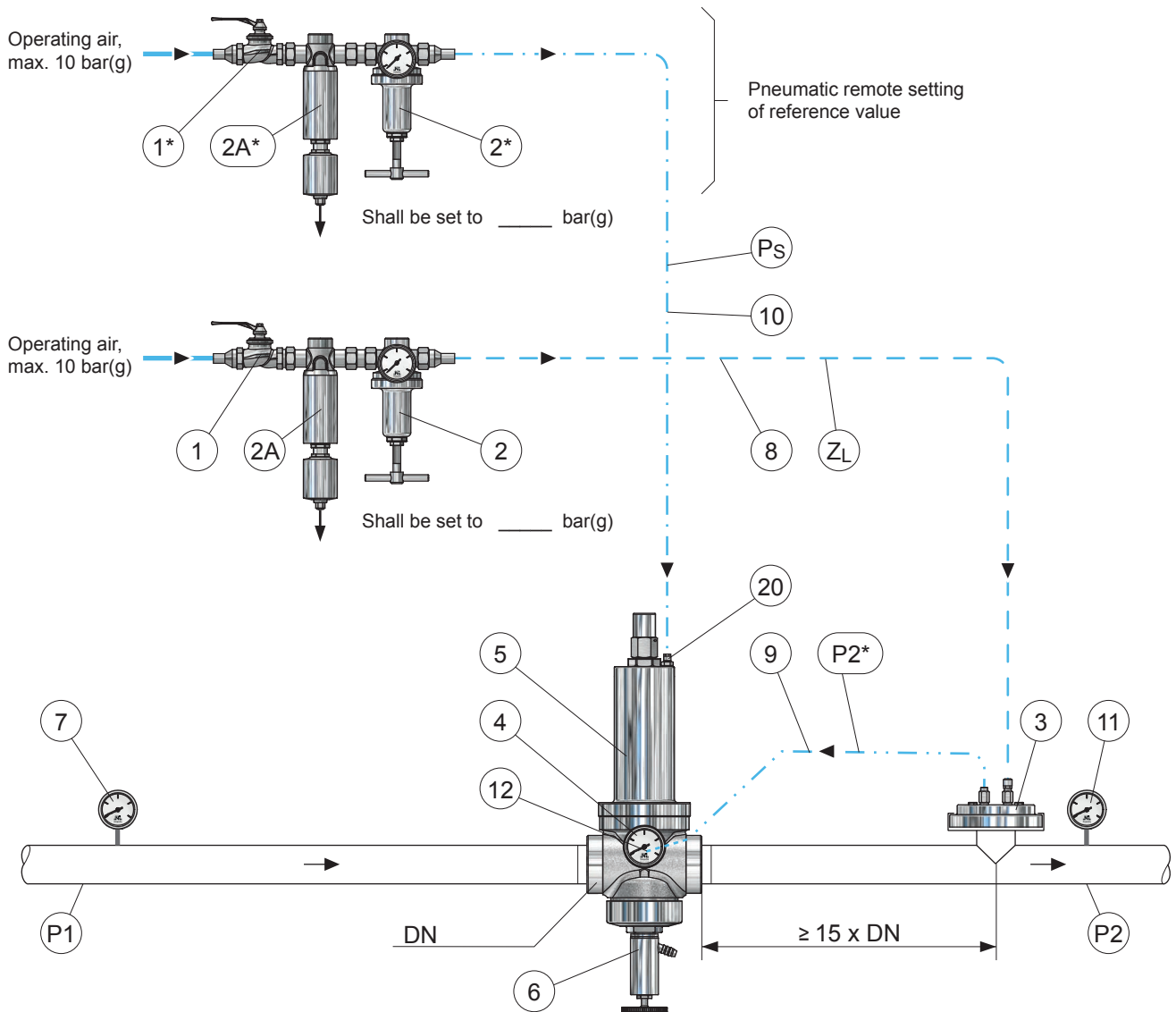
In case of pressure reducers that are smaller than DN 50, the low pressure line shall either be expanded or the pressure transducer is mounted directly on the consumer (e.g. vessel).



Item	Description	Item	Description	Item	Description
1	stopcock	10	load pressure line	20	screw connection
2	precision pressure reducer	11	manometer		
2A	fine filter	12	screw connection	P1	inlet pressure
3	pressure transformer			P2	reduced pressure
4	manometer	14	T-connector	P2*	measuring pressure
5	pressure reducing valve	15	screw		
6	discharge and check valve			ZL	inlet pressure line
7	manometer				
8	inlet pressure line	19	2/2 way ball cock with air bleeding hole		
9	pilot pressure line				

Pressure reduction valve with 1:1 low pressure-pressure transducer and with pneumatic setting of reference value

In case of pressure reducers that are smaller than DN 50, the low pressure line shall either be expanded or the pressure transducer is mounted directly on the consumer (e.g. vessel).



Item	Description	Item	Description	Item	Description
1	stopcock	10	load pressure line	20	screw connection
2	precision pressure reducer	11	manometer		
2A	fine filter	12	screw connection	P1	inlet pressure
3	pressure transformer			P2	reduced pressure
4	manometer			P2*	measuring pressure
5	pressure reducing valve			Ps	pneumatic reference value
6	discharge and check valve			ZL	inlet pressure line
7	manometer				
8	inlet pressure line				
9	pilot pressure line				

Vessel pressure (tank pressure) regulation with automatic pressure control valves

Keeping vessel pressure constant is one of the most frequent control-technical problems in the beverage industry. In the process, vessel pressure is kept constant within given limits in spite of the impact of disturbance variables such as primary pressure fluctuations, filling of vessel or emptying of vessel, heating or cooling of the content of vessel.

The simplest and cheapest vessel pressure control system can be realized with automatic pressure regulation valves i.e. with a pressure reduction valve for the reduction of the media pressure of the pipeline (air, nitrogen, Co₂, ...) to the desired vessel pressure while the vessel is being emptied, and with a primary pressure regulation valve (overflow regulation valve, pressure retention valve) for the discharge of the gaseous medium while filling liquid into the vessel and if the set vessel pressure is exceeded. At the same time, the pressure reduction valve assumes the pretensioning of the vessel with gas while the vessel is empty.

The automatic pressure regulation valves (pressure reduction valves / primary pressure regulation valves) can be designed in the respective variations for compliance with the standards required of industrial manufacturing equipment. The pressure regulation valves for the vessel pressure regulation can thus be designed in a dampable i.e. SIP-compatible or optionally, CIP-compatible manner. The vessel pressures can be selected from a minimum of approx. 10 mbar to a maximum of 80 bar(g) in accordance with the setting ranges of the pressure reduction valves and primary pressure regulation valves.

A “vessel head pressure regulation system” or a “vessel outflow pressure regulation system” can be realized depending on the arrangement of the pressure measuring positions. Pressure regulation in vessel head is more frequently designed and keeps gas pressure constant independent of fill-up level.

In regulating the pressure of vessel outflow, pressure is kept constant at the vessel's outflow. In the process, the static pressure of the changing liquid column (full vessel / empty vessel) is also captured and must be compensated through the gas pressure in the vessel head ($P_{\text{OUTFLOW}} = P_{\text{LIQUID}} + P_{\text{GAS}} = \text{const.}$). Major differences in fill-up level translate into strong changes in the gas pressure in vessel head. The pressure regulation system of vessel outflow can be realized only with external impulse pipes, which capture vessel outflow and transmit same to the control piston space of the pressure reduction valve and primary pressure regulation valve. Depending on the required hygienic standards, the external impulse pipes can either be connected directly to the pipeline or the product pressure is converted to proportional air pressure through a 1:1 pressure transducer (CIP design).

The setting of the reference value for the vessel pressure can continue to be performed mechanically on the pressure reduction valve (inflow pressure) and on the primary pressure regulation valve (outflow pressure) either on individual basis or separately from one another, or there will be a pneumatic reference value specification for both valves together. In the process, the reference value of the primary pressure regulation valve shall be set higher than the reference value of the pressure reduction valve through a pretensioning spring in the primary pressure regulation valve. The pneumatic reference value specification is limited to pressures of a maximum of 8 bar(g).

For the vessel pressure regulation system, the reference value of the primary pressure regulator should be set higher than the reference value of the pressure reduction valve by a minimum of the amount of the control deviation to be expected of the pressure reduction valve to avoid losses of media; in the process, reference value figures that are very close to one another ensure that gas flowing in through the pressure reducer flows out almost immediately through the primary pressure regulation valve.

In case of low standards required of the precision of vessel pressure regulation, i.e. in the event of huge pressure differences between the minimum and maximum permissible vessel pressure, the primary pressure regulation valve may, if applicable, be replaced by a relief valve.

A few examples below:

- 210 A :** Vessel pressure regulation with joint pneumatic setting of reference value
- 216 A :** Vessel pressure regulation with mechanical setting of reference value
- 216 B :** Vessel pressure regulation with pneumatic setting of reference value
- 217 A :** Vessel pressure regulation with 1:1 pressure transducer for constant outflow pressure in CIP design with mechanical setting of reference value
- 217 B :** Vessel pressure regulation with 1:1 pressure transducer for constant outflow pressure in CIP design with pneumatic setting of reference value
- 221 A :** Vessel pressure regulation with 1:1 pressure transducer in CIP design with mechanical setting of reference value
- 221 B :** Vessel pressure regulation with 1:1 pressure transducer in CIP design with pneumatic setting of reference value



Further information on our website

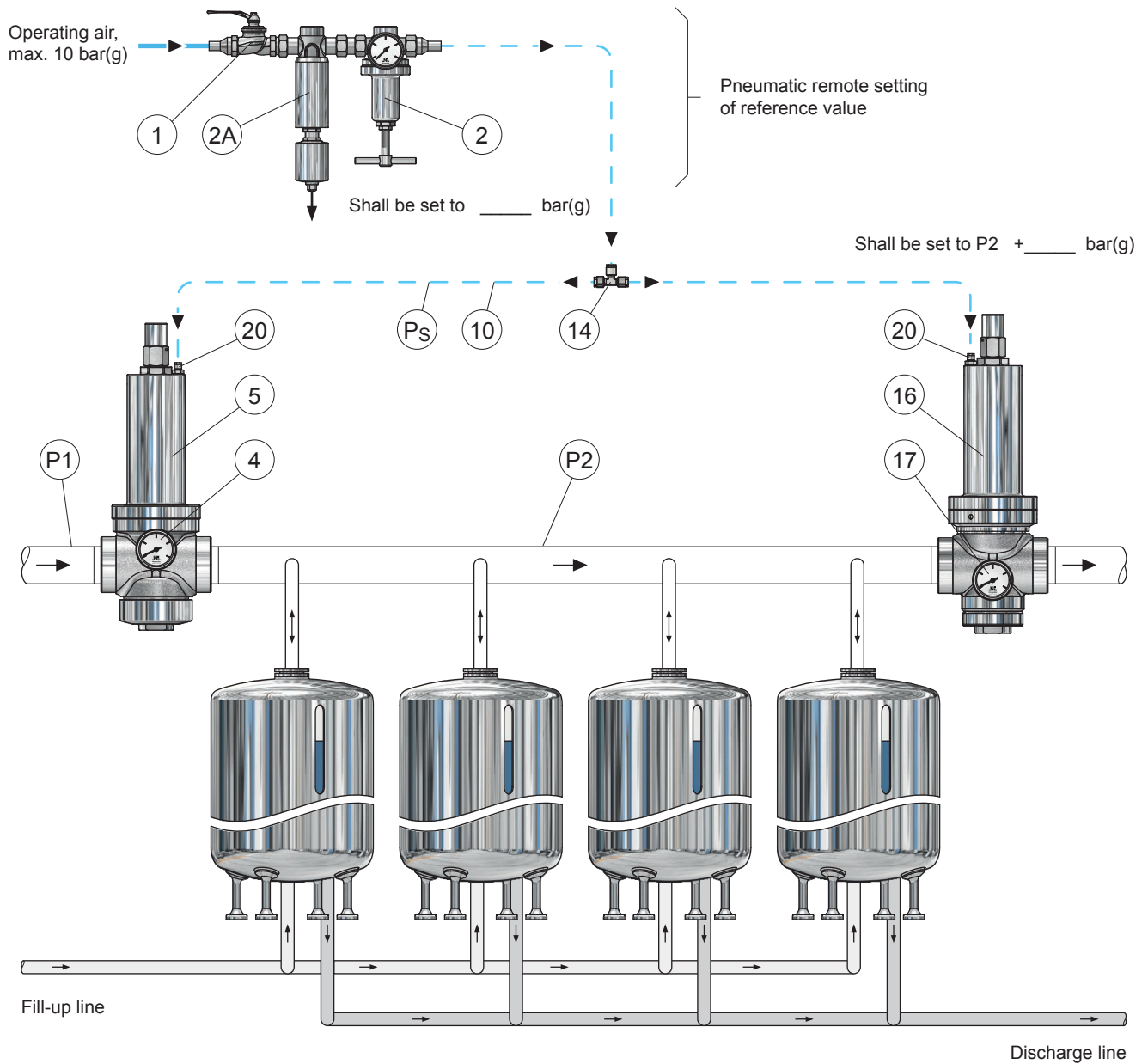
Vessel pressure control

System DMV / VDR-PSW

210 A

Switching Pressure reduction valve / Overflow regulation valve

Vessel pressure regulation with joint pneumatic setting of reference value.



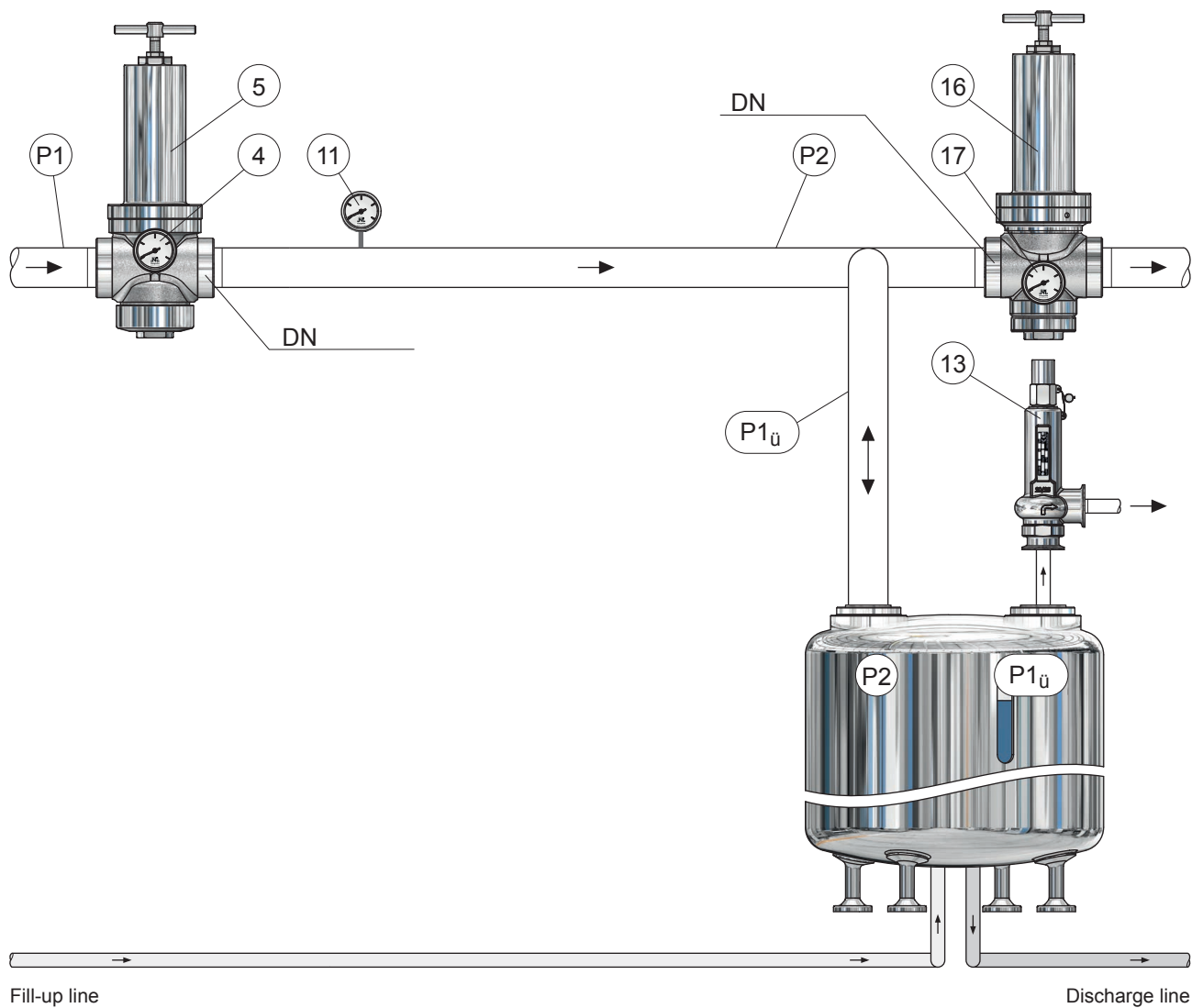
Item	Description	Item	Description	Item	Description
1	stopcock	10	load pressure line	20	screw connection
2	precision pressure reducer			P1	inlet pressure
2A	fine filter	14	T-connector	P2	reduced pressure
4	manometer	16	initial pressure controller	Ps	pneumatic reference value
5	pressure reducing valve	17	manometer		

Vessel pressure control

System DMV / VDR

216 A

Vessel pressure regulation with mechanical setting of reference value



Item	Description	Item	Description	Item	Description
		11	manometer		
4	manometer	13	safety valve	P1	inlet pressure
5	pressure reducing valve	16	initial pressure controller	P1ü	inlet pressure Excess pressure
		17	manometer	P2	reduced pressure



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• Introduction

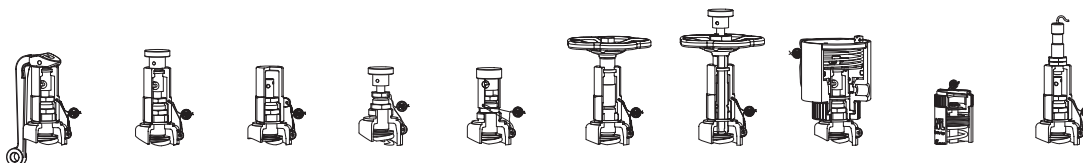
- Option list for valveheads

• Instructions

- Installation and operating instructions
- Instructions for maintenance and repair
Examples for type 140 and type 70 / 71 BG 0-IIIB
For further information, see our website
- Storage, transport and commissioning

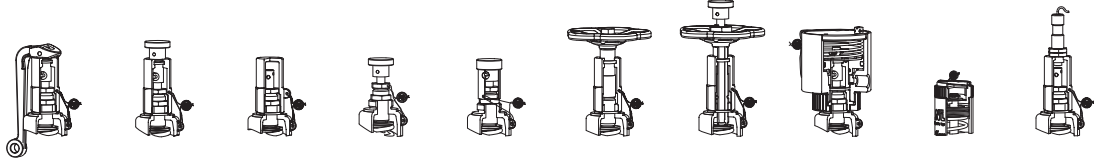
• Indication

- Traces of wear and tear at fittings
- Storage of elastomeric products
- Table of soft sealings
- Troubleshooting of malfunctions
- Surface Quality



Type	Size	Head A	Head B	Head C	Head D	Head E	Head F	Head G	Head H	Head M	Head T
<i>Catalog group 3</i>											
1	I	●	●	●	●	●	●	●	●		●
	II	●	●	●	●	●	●	●	●		●
5				●	●						
10	I	●	●	●					●		●
	II	●	●	●					●		●
14	I	●	●	●		●	●	●	●		●
18	I	●	●	●					●		●
	II	●	●	●					●		●
19	II	●	●	●					●		●
21 (E)		●		●							●
21 (S)		●		●							●
50				●							
140	I	●	●	●					●		●

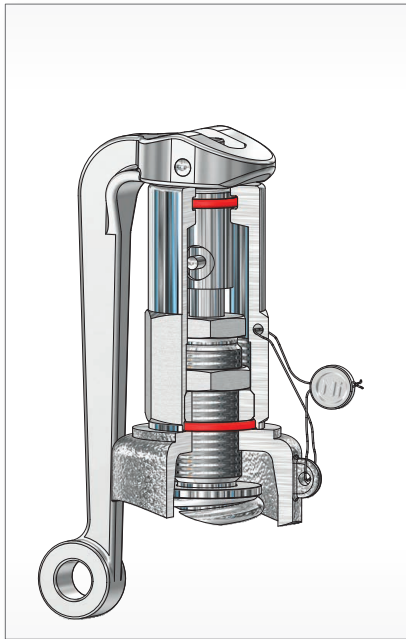
<i>Catalog group 4</i>											
3	I	●	●	●			●	●	●		●
	II	●		●			●	●	●		●
	III	●		●			●	●	●		●
	IV	●		●			●	●	●		●
30	I	●		●					●		●
	II	●		●					●		●
	III	●		●					●		●
	IV	●		●					●		●
31	I	●		●					●		●
	II	●		●					●		●
	III	●		●					●		●
	IV	●		●					●		●
32	I	●		●					●		●
	II	●		●					●		●
	III	●		●					●		●
	IV	●		●					●		●
33	II	●		●					●		●
	III	●		●					●		●
	IV	●		●					●		●



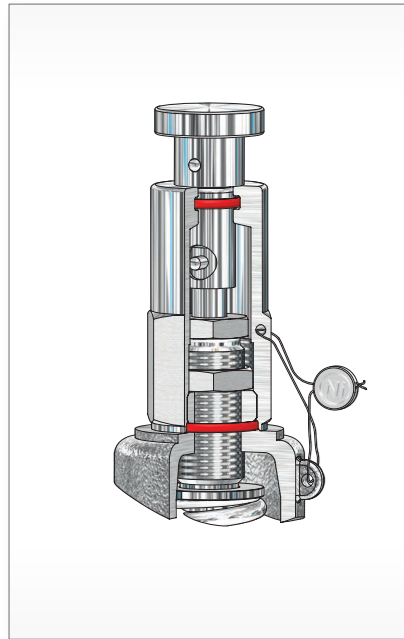
Type	Size	Head A	Head B	Head C	Head D	Head E	Head F	Head G	Head H	Head M	Head T
<i>Catalog group 5</i>											
35 (E)	I	●	●	●			●		●		●
	II	●		●			●		●		●
	III	●		●			●		●		●
	IV	●		●			●		●		●
35 (S)	I	●	●	●					●		●
	III	●		●					●		●

<i>Catalog group 6</i>											
4				●	●						
6				●		●					
11	I									●	
	II									●	
62		●		●							
66										●	
67				●	●	●					
69										●	
98					●						
110	I									●	
	II									●	

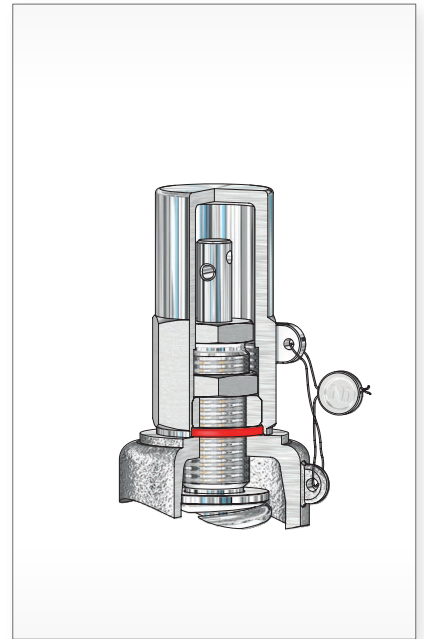
<i>Catalog group 7</i>											
7 (S)		●		●							
7 (E)		●		●							
12											
13	I	●		●			●				●
	II	●		●			●				●
	III	●		●			●				●
	IV	●		●			●				●
	V	●		●			●				●
22 (S)		●		●							●
22 (E)		●		●							●
24				●							



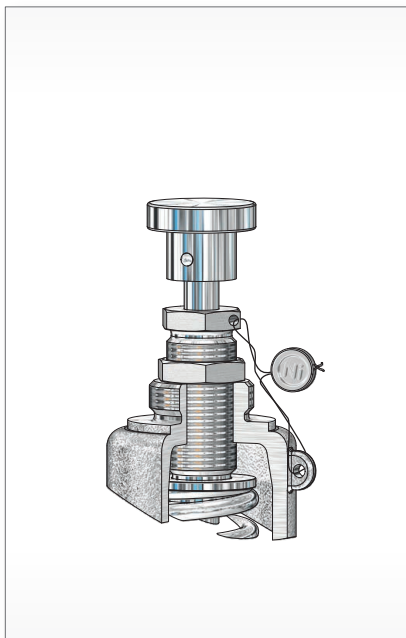
Head A
(gastight with easing lever)



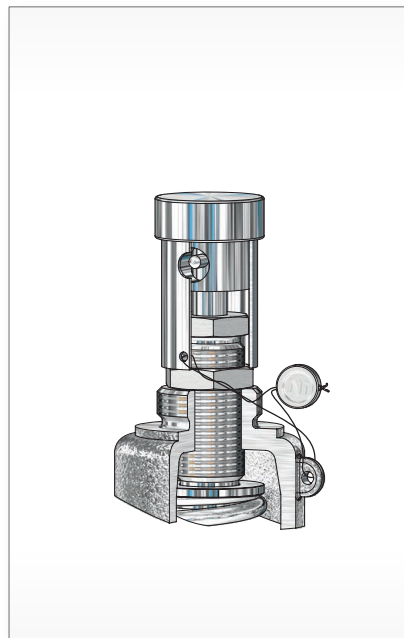
Head B
(gastight with lifting button)
(gasdicht mit Lüfteknopf)



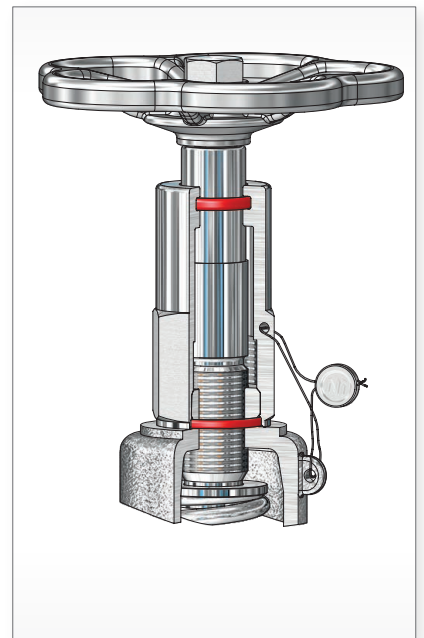
Head C
(gastight with cap)



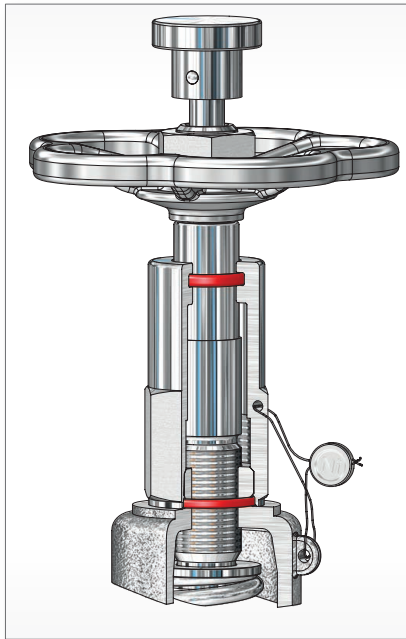
Head D
(with lifting button)



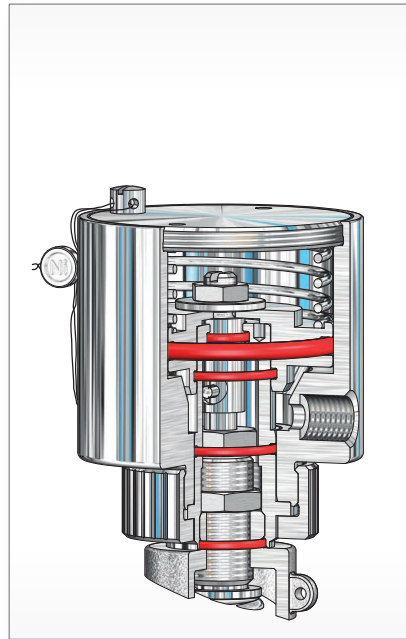
Head E
(with supported lifting button)



Head F
(gastight with handwheel)



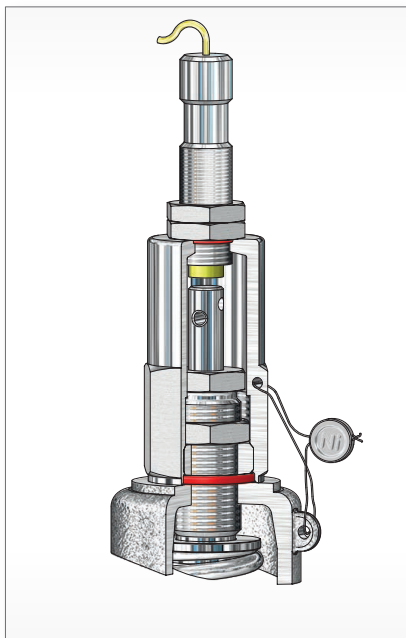
Head G
(gaslight with handwheel
and lifting button)



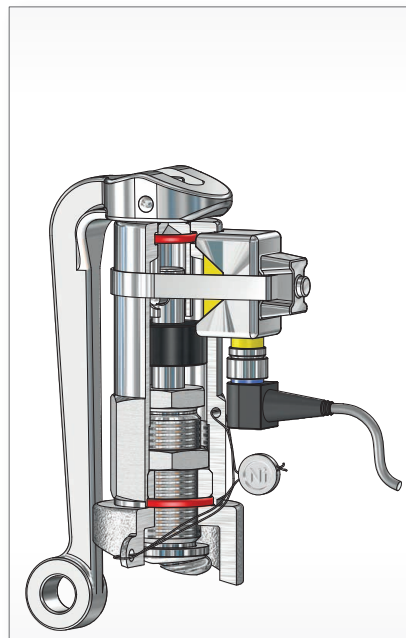
Head H
(with pneumatic lifting)



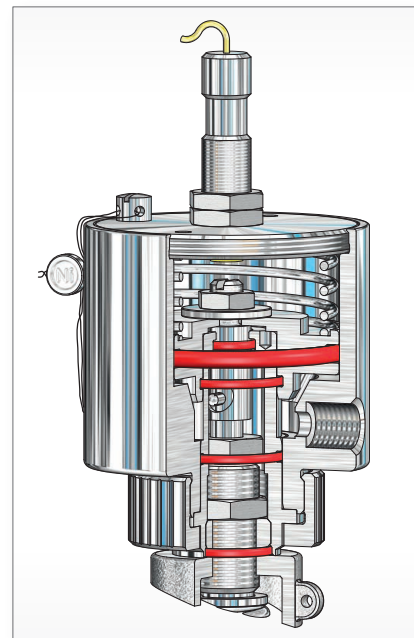
Head M
(with manual lifting device)



Head T
(sensor)



Head AT
(sensor)



Head HT
(sensor)



Safety- / Relief-Valves are instruments of high quality and should be handled with care. The disc (060) and the seat (001 / 003) are manufactured out of hardened or tempered steel and are grinded and lapped to give positive sealing. If the valve disc and seat were handled improper or faulty they will get defect.

Function:

When the pressure before the Safety- / Relief-Valves reaches the set pressure, the valve commences to lift, i.e. open a little at first to discharge a small amount of medium. If the pressure continues to rise, it will open further and more medium is discharged. At a max. pressure increase of 10% (5%), the stroke required for the mass flow to be discharged is reached. When the pressure drops to 10% (gases / vapours and gases) or 20% (incompressible medium / liquids) below the set pressure, the valve closes and no fluid escapes anymore.

Maintenance:

Safety- / Relief-Valves are designed regarding design and construction in such a way that an optimum of quality is achieved, and that they are easy to service. A minimum of care and maintenance is the result when our fittings are applied. The maintenance work, however, is permitted to be carried out only by trained personnel.

We suggest the following:



In and outlets are provided with protective caps. These are to be removed before the installation. The valves may not be thrown (leakage/failure in operation may result).

The whole system has to be rinsed before installation of the valve! If the plant should not be sufficiently purified or in the case of an inappropriate assembly, the valve may be leaky already upon first response. The assembly of the threaded valves should be carried through without using hemp or PTFE-tape. Metal sealing rings are to be preferred.

The Safety- / Relief-Valves have to be fitted vertically with the spindle (080) in an upright position. For a perfect function in the long run it is also necessary to install the valve without tension into the plant.

In order to prevent the misuse of the lifting lever (head "A") it is binding wire in the closed position. If the mounting is correct and the pressure is arrived at 85% of the adjusted set pressure the lifting device can be set in motion. The same is valid for lifting heads "B", "D" and "E": To check the head type "C", the valve should be exposed to response pressure only externally by gas or with a sufficiently purified plant.

For the valves (particularly) used in steam applies:

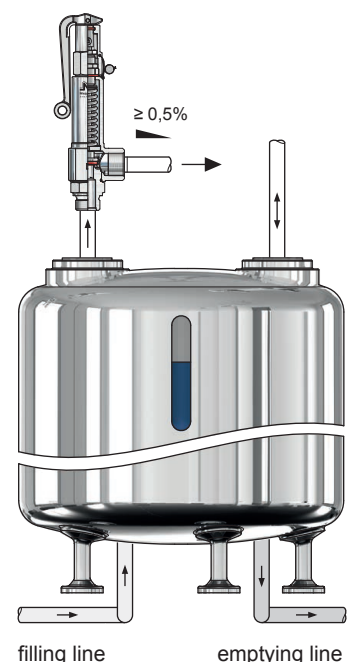
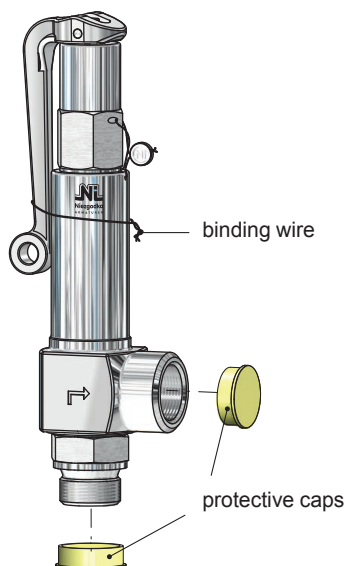
Routining the functioning by operating the ventilation at least every 4 weeks.

Foreign substances in the pipeline (such as jointing materials) will seriously damage the seating area of the valve. By operating the lifting device small deposits of foreign matters can be effectively cleared from the valve disc (060) and seat (001 / 003). (In doing this, a clear stroke of the valve spindle (080) must be achieved).

The feed nozzle for the valve must be as short as possible and must have at least the same nominal width as the valve. The pressure loss in the inlet pipe should not exceed 3 % of the set pressure.

The blow-off pipe should be mounted with downward gradient in sufficient dimensioning. Resulting condensate must be exhausted safely. Inside the blow-off pipe the backpressure of max. 10 % of the set pressure should not be exceeded.

The operating pressure of the plant should be at least 5% below the closing pressure of the valve (pressure peaks in case of piston pumps must be taken into consideration!). Thus a perfect closing of the valve after blow-off is ensured.



Mounting Instructions

for Vacuum and Pressure Relief Valves



15

Vacuum and Pressure Relief Valves are instruments of high quality and should be handled with care. The disc (060) and the seat (001 / 003) are manufactured out of hardened or tempered steel and are grinded and lapped to give positive sealing. If the valve disc and seat were handled improper or faulty they will get defect.

Procedure of ventilating: The overpressure disc (403) closes through the pressure of the overpressure spring (416) and opens through the overpressure appearing in the vessel.

Procedure of evacuating: The underpressure disc (404) closes through the pressure of the underpressure spring (415) and opens through the vacuum appearing in the vessel.

The springs are constructed for the desired set pressure.

Function:

The valves are used as vacuum limiting valves, not as vacuum control valves. As soon as the allowable vacuum pressure in the tank has been reached, the differential pressure between outside and inside of the vessel overcomes the force of the spring tension. So the valve disc is opened and the air can rush through the borings of the valve into the vessel.

When the setted vacuum pressure is reached again by the inflowing air, the valvespring and the internal pressure of the tank shut the valve.

Adjustment of initial response pressure

The Vacuum and Pressure Relief Valves can be adjusted within specific limits. After the removal of the lead seal and the lock washer (144),

- the aeration reaction pressure can be adjusted or readjusted by turning the guide plate (413) and
- the de-aeration reaction pressure by turning the adjusting screw (085).

We suggest the following:



Inlets are provided with protective caps. These are to be removed before the installation. The valves may not be thrown (leakage/failure in operation may result).

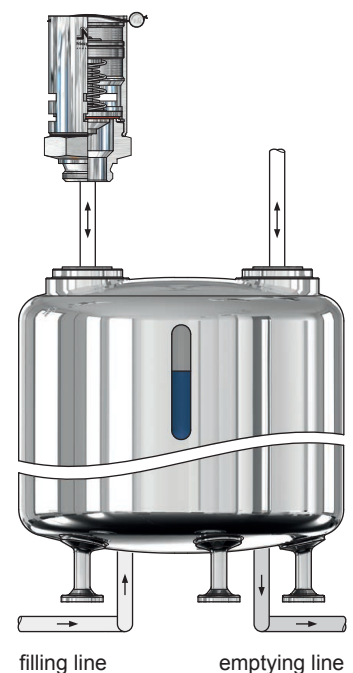
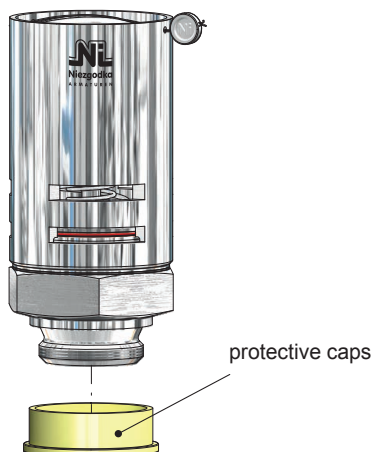
The whole system has to be rinsed before installation of the valve! If the plant should not be sufficiently clean or in the case of an inappropriate assembly, the valve may be leaky already upon first response. The assembly of the threaded valves should be carried through without using hemp or PTFE-tape. Metal sealing rings are to be preferred.

The Vacuum and Pressure Relief Valves have to be fitted vertically with the spindle (080) in an upright position, and at the highest point of the respective devices or containers.

For a perfect function in the long run it is also necessary to install the valve without tension into the plant.

Maintenance:

The valves do not need any servicing, if they are mounted carefully and free of dust, so that no pollution could find the way between the moving parts or between seat (001 / 003) and disc (060). But we recommend an annual functional test..



Mounting Instructions

for Vacuum Relief Valves



15

Vacuum Relief Valves are instruments of high quality and should be handled with care. The disc (060) and the seat (001 / 003) are manufactured out of hardened or tempered steel and are grinded and lapped to give positive sealing. If the valve disc and seat were handled improper or faulty they will get defect.

Aeration process: The valve disc closes through spring pressure (081) and opens through the vacuum appearing in the vessel.

The springs are constructed for the desired set pressure.

Function:

The valves are used as vacuum limiting valves, not as vacuum control valves. As soon as the allowable vacuum pressure in the tank has been reached, the differential pressure between outside and inside of the vessel overcomes the force of the spring (081) tension. So the valve disc (060) is opened and the air can rush through the borings of the inlet body (001) into the vessel.

When the setted vacuum pressure is reached again by the inflowing air, the valvespring and the internal pressure of the tank shut the valve.

Adjustment of initial response pressure

Reaction pressure can be adjusted only through the replacement of the spring (081).

We suggest the following:



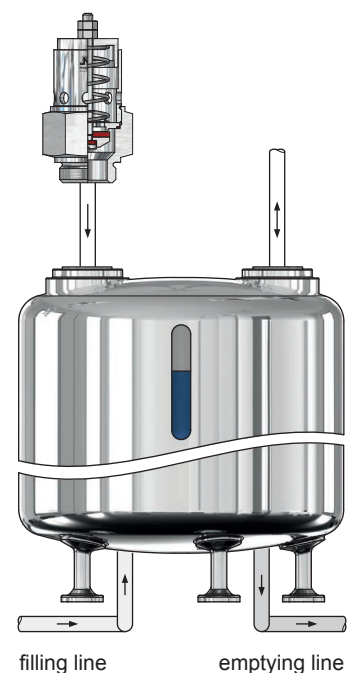
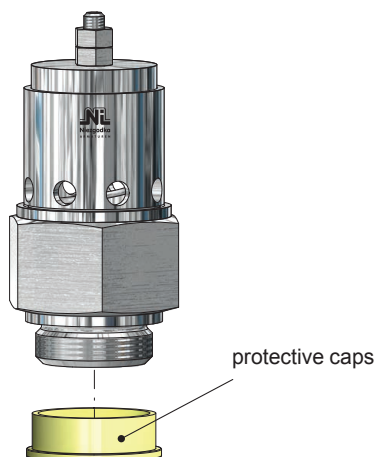
Inlets are provided with protective caps. These are to be removed before the installation. The valves may not be thrown (leakage/failure in operation may result).

The whole system has to be rinsed before installation of the valve! If the plant should not be sufficiently clean or in the case of an inappropriate assembly, the valve may be leaky already upon first response. The assembly of the threaded valves should be carried through without using hemp or PTFE-tape. Metal sealing rings are to be preferred.

The Vacuum Relief Valves must be fitted vertically at the highest point of the declared apparatus. For a perfect function in the long run it is also necessary to install the valve without tension into the plant.

Maintenance:

The valves do not need any servicing, if they are mounted carefully and free of dust, so that no pollution could find the way between the moving parts or between seat (001 / 003) and disc (060). But we recommend an annual functional test..





1. Installation

The preferred location of pressure reducing valves in pipework systems is where operating conditions are stable, that is not immediately upstream or downstream from bends, branches, pressure devices, stop valve fittings or similar restricting elements, and not adjacent to consumer points. They should be fitted to horizontal sections of the pipe. Where not specified to the contrary, the unit can be fitted with the spring cap up or down. With steam the spring cap must point downwards.

Figures 1 - 4 show the most common position for installing a pressure reducing valve into a pipe. On operationally sensitive installations, i.e. where a fault in the pressure reducing valve could result in an unacceptable breakdown of downstream consumer units, a by-pass with a shut-off device (fig. 5 - 6) must be provided.

In the event of a fault, emergency operation can then be maintained via the by-pass. The by-pass must be kept closed during normal operation. Before installing a pressure reducing valve, the pipework must be carefully cleaned and flushed out. If fouling during operation is unavoidable, a strainer (4) must be fitted. After removing it from its packaging and taking off the plastic caps, the pressure reducing valve is to be fitted to the pipe, taking care to observe the direction of flow (arrow).

Pressure reducing valves are regulating devices, not shut-off elements providing leak-proof seating. According to VDI/VDE Guidelines 2174, a leakage rate of 0.05% of the Kvs-value is permitted. We therefore recommend that a shut-off valve (1) be fitted upstream of the pressure reducing valve.

2. Safety Devices

The Accident Prevention Regulations VBG 17, which stipulates the provision of a safety device, e.g. a safety valve (7), to prevent the maximum permissible pressure from being exceeded in the downstream section of the pipe, must be complied with. The safety valve must be adequately rated.

If a shut-off valve (3) is interposed between the pressure reducing valve (5) and the safety valve (7), for example when a by-pass is fitted as in (fig. 5 - 6), it may become necessary to fit a further safety valve (6) to protect the pressure reducing valve. This is the case when the input pressure is greater than the maximum permitted pressure in the output section of the pressure reducing valve. The minimum response pressure of this safety valve should be at least 10% greater than the minimum response pressure of the system safety valve (7). It must not, however, be greater than the nominal pressure on the output side of the pressure reducing valve.

In addition, it is incumbent upon the system operator to ensure that any medium escaping from the spring cap, as a result of the control piston seal or the diaphragm becoming defective, cause no damage. If necessary, a drainage tube must be fitted to the spring cap to conduct any leakage away.

3. Operation

Before leaving the factory, the pressure reducing valve has been checked for leaks. With steam, it will be necessary to tighten the screws and the bottom plug (357) the pressure reducing valve has thoroughly heated up.

Before putting the valve into operation, the spring (081) should be released (by turning the adjusting screw (085) anticlockwise).

The upstream shut-off element (1) must be opened slowly until the input pressure [pressure gauge (8)] reaches its limit. The output pressure should then be set to required pressure (preset level) whereby there must be some medium consumption on the outlet side. To achieve this, the adjusting screw (085) is turned clockwise, observing the output side pressure gauge (9), until the reduced pressure is reached. Once the adjustment is complete, the adjusting screw (085) should be secured with the locknut (086).

A sharply fluctuating flow or shock pressure loading are to be avoided.



Piston design

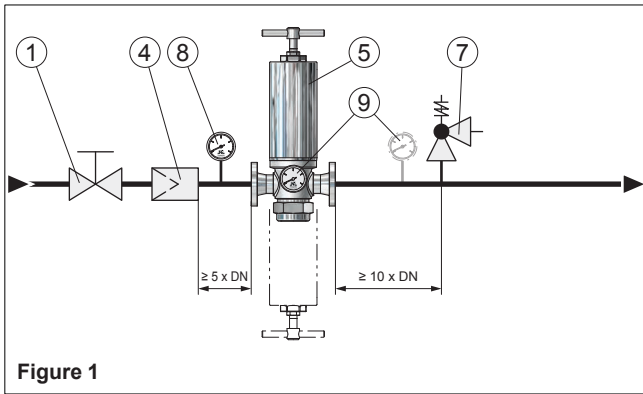


Figure 1

Diahragm design

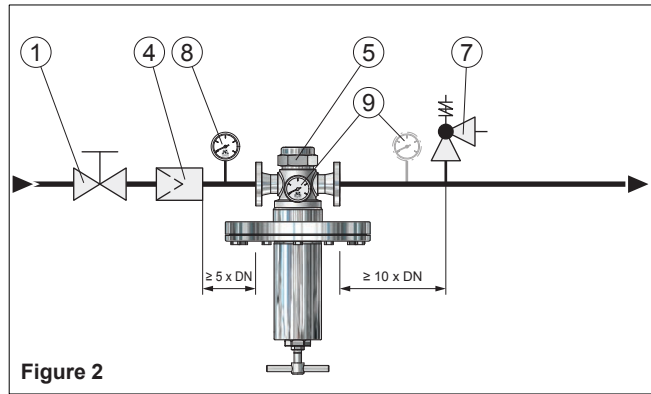


Figure 2

Pressure reducing valve without bypass pipeline

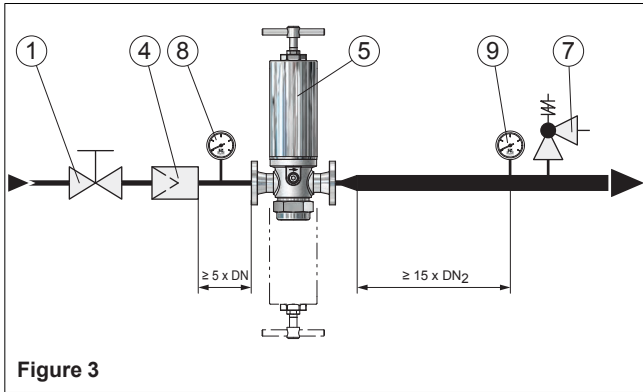


Figure 3

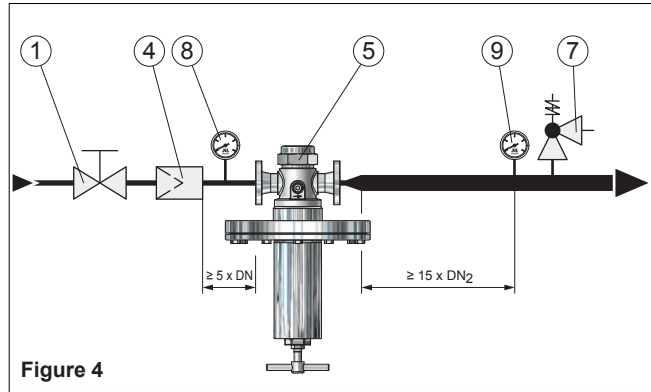


Figure 4

Pressure reducing valve without bypass pipeline with pipe downstream enlargement at the outlet

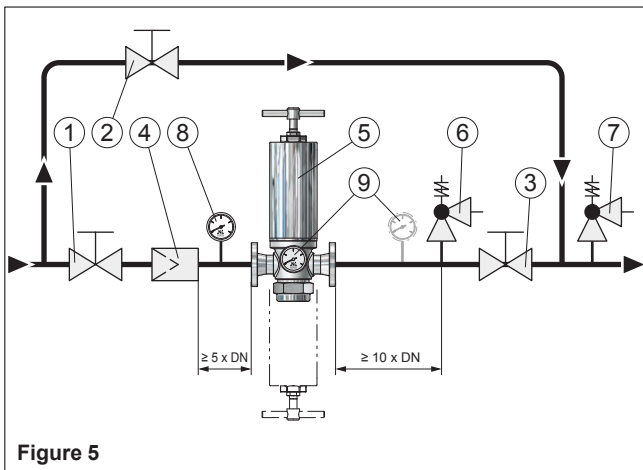


Figure 5

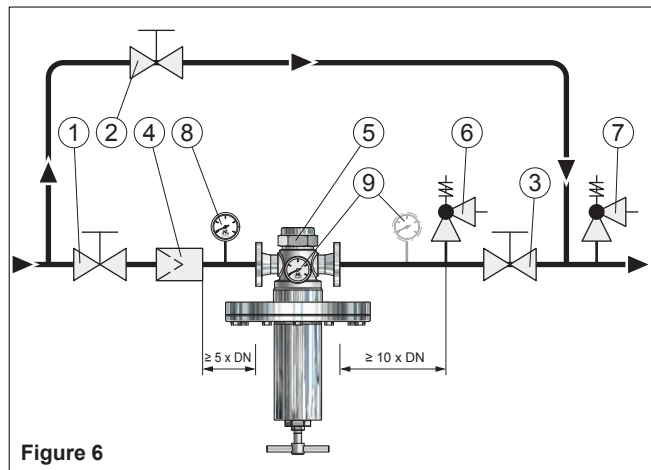


Figure 6

Pressure reducing valve with bypass pipeline

Unless specified differently the spring cap can face either upwards or downwards.
When the pressure reducer is used for steam, it has to be fitted with the spring cap facing downwards.

Item	Description	Item	Description	Item	Description
1	Shut-off valve	4	Strainer	7	Safety valve
2	Shut-off valve	5	Pressure reducing valve	8	Pressure gauge
3	Shut-off valve	6	Safety valve	9	Pressure gauge



1. Installation

Initial pressure controller valves are preferably to be installed at places in pipeline systems with smooth operation conditions, which means, as a consequence, not directly upstream or downstream of elbows, pipe manifolds, distributors, pressure generators, shut-off valves, isolating valves or other throttling devices. The installation should be carried out in horizontally positioned pipeline systems. The spring hood can, unless stated differently, be installed at the bottom or at the top. In the case of liquids, the spring hood should show in the bottom direction; in the case of steam the spring hood must show in the bottom direction.

The Illustrations 1 - 4 show the most frequent way of installation of an initial pressure controller valve in the pipeline. In installations which are highly important for the operation of the plant and whose breakdown would cause an unacceptable stoppage of the plant, a stop-and-check bypass duct (Illustration 5 - 6) can be installed. In the case of a breakdown, an emergency operation can be maintained by means of the bypass. Under normal operation conditions, the bypass is to be held closed.

Prior to the installation of the initial pressure controller valve, the pipeline must be cleaned and rinsed carefully. A sediment separator in the form of a dirt catcher (4) is to be provided if a contamination cannot be prevented during operation. After the removal of the packaging material, including plastic closing caps, the installation of the initial pressure controller valve is to be carried out in the pipeline, while the flow direction (arrow) indicated must be observed.

Initial pressure controller valves do not, as regulating valves, represent any sort of check valves which warrant a tight seat. According to VDI/VDE Guideline 2174, a leakage of 0.05 % of the Kvs value is permissible. We recommend, therefore, the installation of an upstream shut-off valve (1).

2. Safety Devices

Initial pressure controller valves are no substitute for safety installations.

The pipeline or installation inserted upstream of the initial pressure controller valve must, for this reason, be secured by means of a safety device, for instance by means of a safety valve (6). The safety valve must be designed with dimensions sufficiently large. The response pressure of the safety valve should be set approximately 40 percent above the maximum setting pressure of the initial pressure controller valves so that a blowing off at slight pressure fluctuations is avoided. Furthermore, the operator must also safeguard that the medium that is released in case the control piston seal or diaphragm is damaged from the spring hood does not represent an environmental risk. If necessary, a leakage pipeline must be connected at the spring hood.

3. Operation

Before leaving the factory, the pressure controller valve has been checked for leaks. With steam, it will be necessary to tighten the screws and the bottom plug (357) the pressure controller valve has thoroughly heated up.

Before putting the valve into operation, the spring (081) should be released (by turning the adjusting screw (085) anticlockwise).

Initially, the downstream checking valve (2) must be opened, and subsequently the upstream checking valve (1) can be opened.

Next, the upstream pressure or excess flowing pressure value is to be set to the desired pressure value. For this purpose, the adjusting screw (085) is to be rotated in the clockwise direction until the upstream pressure value is reached. In this connection, the upstream manometer (7) must be observed. Once the adjustment is complete, the adjusting screw (085) should be secured with the lock nut (086).

A sharply fluctuating flow or shock pressure loading are to be avoided.



Piston design

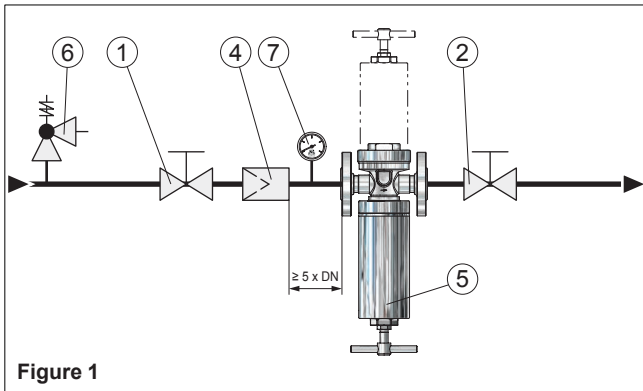


Figure 1

Diahragm design

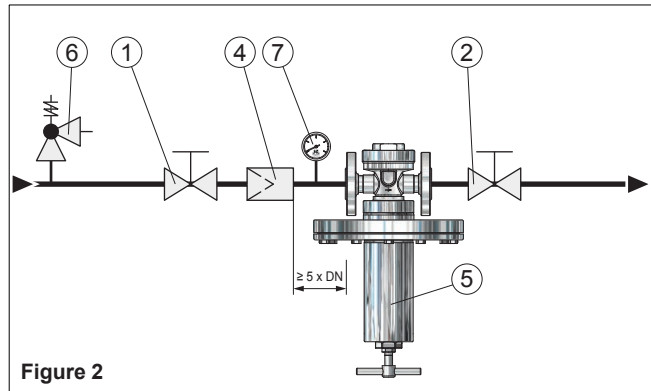


Figure 2

Initial pressure controller valve without bypass pipeline

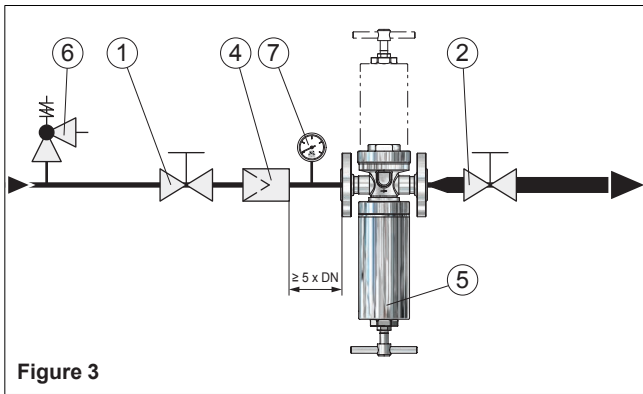


Figure 3

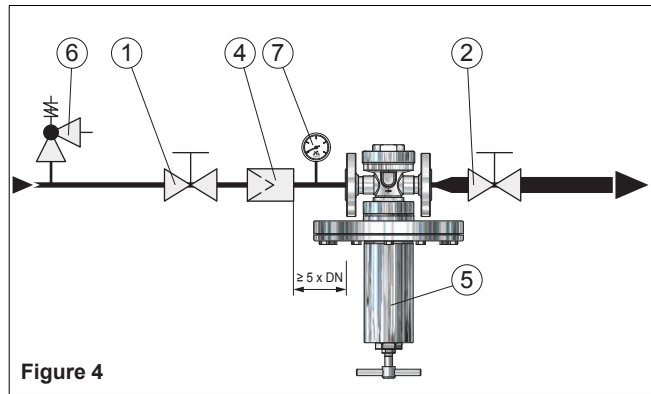


Figure 4

Initial pressure controller valve without bypass pipeline with pipe downstream enlargement at the outlet

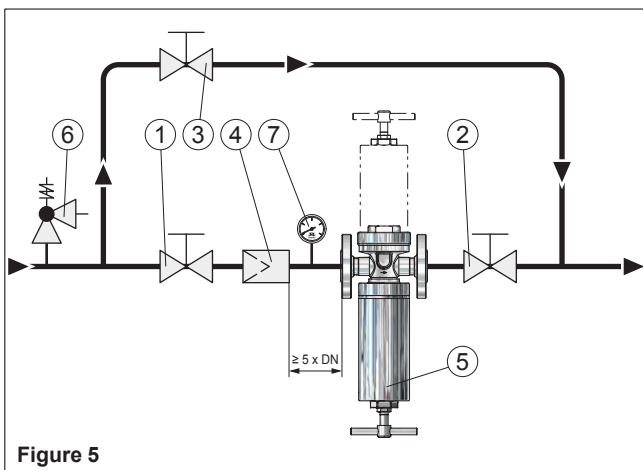


Figure 5

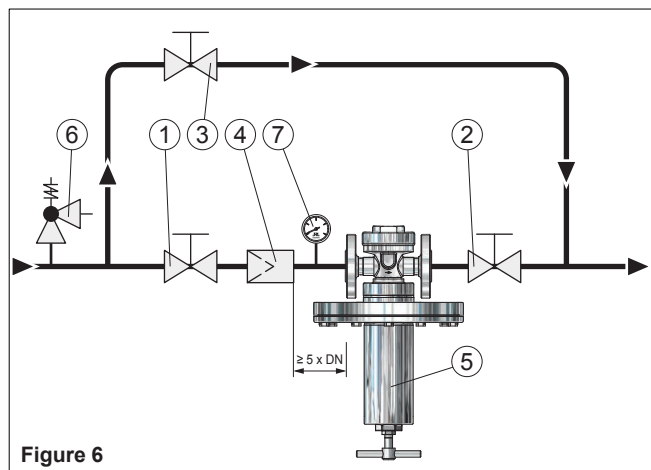


Figure 6

Initial pressure controller valve with bypass pipeline

The installation of an initial pressure controller valve is in the case of gases in a standing position, in the case of liquids preferably in a suspended position, in the case of steam only in a suspended position.

Item	Description	Item	Description	Item	Description
1	Shut-off valve	4	Strainer	7	Pressure gauge
2	Shut-off valve	5	Initial pressure controller valve		
3	Shut-off valve	6	Safety valve		



Maintenance:

NI-Safety- / Relief Valves are designed regarding design and construction in such a way that an optimum of quality is achieved, and that they are easy to service. A minimum of care and maintenance is the result when our fittings are applied.

For the replacement of spare-parts it is also recommended to have this work executed only in an authorized workshop. If no suitable repair means are available it is best to return the complete safety valve to the plant of **Niezgodka GmbH**. All spare-parts supplied by us are suitable for the installation into our safety- / relief valves without restriction. It is, however, necessary to state in the order the number of the delivery note/invoices or the commission number since the safety- / relief valves supplied are adjusted to their particular application.

Test intervals:

The minimum test intervals for safety- / relief valves especially activated by steam are four weeks. Test intervals for other applications must be determined by the user in compliance with the operation conditions. Tests and examinations are to be executed at least during each internal or external examination of the pertaining pressure device.

Regular releasing:

The release device of safety- / relief valves must be actuated regularly in order to examine the function and to remove soiling, if any. This is possible manually in the case of valves with valve head "A", "B", "E", "M" and "H" at a pressure rate $\geq 85\%$ of the set pressure. Valves with head "C" (gas tight with cap) should be brought to the release pressure only externally with gas or at a 100% clean device.

Leaks:

Leaks may be caused in the case of safety- / relief valves due to soiling between seat (001 / 003) and disc (060) or through damage of the sealing surfaces that were caused on account of soiling in the medium or by the medium itself. Soiling can be removed by causing the safety- / relief valves through releasing to blow off. If it fails to remove the soiling in this way, it must be assumed that the sealing surfaces are damaged. The damage can be removed by post-processing (lapping). The work involved should be carried out only in the plant of the manufacturer or by a workshop authorized by the manufacturer. Leaks may also occur when the operating pressure is too close to the reaction pressure. In such a case, the design of the safety- / relief valves is to be examined.

Corrosion protection:

NI-Safety- / Relief Valves that are not corrosion protected are provided with a protective paint cover in the plant of the manufacturer. In a moist environment it may become necessary to apply later additional corrosion protection layers. In this case it must be seen to it that the function of movable components (e.g. spindle (080) and disc (060)) is not affected. Heads with manual release, the blowing off space and freely blowing off safety- / relief valves should not be painted later. For heavily corrosive conditions, safety- / relief valves made of special steel should be used.

Adjustment of initial response pressure with „no“ changing of springs

Attention!



- Observe spring setting range.
- Dismantle valve head - see (Group **A**).
- Lock spindle (080) to prevent turning when adjusting.
- Release lock nut (086); by turning the pressure screw (085) increasing or reducing response pressure.
- Secure spring setting using the lock nut (086).
- Assemble valve head - see (Group **A**) in reverse sequence.

Adjustment of the initial response pressure, „including“ changing of springs

Attention!



- Observe spring setting range.
- Dismantle valve head - see (Group **A**).
- Secure spindle (080) against turning when carrying out all adjustment work.
- Release lock nut (086); fully relieve the spring (081) by turning the adjusting screw (085).
- Screw off the inlet body (001), remove o-ring (005).
- Remove complete assembly "D" by pulling downwards; pull upwards using spindle to remove springplate upper seat (082) and spring (081).
- Clean seating (001 / 003) and disc (060), replace spring (081).
- Replace damaged parts.
- Reassemble in reverse sequence.
- Secure spring setting using the lock nut (086).
- Assemble valve head - see (Group **A**) in reverse sequence.



For further information, see our website

Instructions for maintenance and repair

examples for safety and relief valves



15

Attention!



Care must be taken to ensure that the system is depressurised prior to assembly, dismantling or opening of the safety/relief valve. The remaining dimensions and seal properties, preloading forces, tightening torques etc. are to be determined by the user themselves in accordance with the operating instructions. In doing so special attention must be paid to the following:

Medium residues in the safety/relief valve or in the spring cap represent a serious chemical burning, burns and poisoning hazard. It must, therefore, be established prior to removing a valve from the plant which medium could be present in the safety/relief valve. Appropriate safety measures must be taken.

Proceed as follows to dismantle:

- 1) Piping and safety/relief valve must be depressurised.
- 2) Remove the valve from the piping to facilitate servicing and repair work.

Group **A**:

Head A: knock out notched groove pin (133), remove lifting lever (125), screw off lifting cap (121), remove o-ring (130, 131); knock out notched groove pin (132), remove coupling (122).

Head C: screw off cap (120), remove o-ring (130)

Group **B**:

Always lock spindle (080) to prevent it being turned out of position when making any adjustments.

Head A and C: Loosen lock nut (086); fully relieve the spring (081) by turning the pressure adjusting screw (085).

Group **C**:

Screw off inlet body (001), remove o-ring (005).

Group **D**:

Pull complete Group D out (pull downwards); extract (upwards) springplate upper seat (082), spring (081), springplate lower seat (084) using spindle (080); extract disc (downwards) (060); lift off lock ring (092).

Proceed as follows to reassemble:

Reassembly is conducted in reverse sequence.

Pay attention to the adjustment range of the springs.

Set response pressure using the pressure adjusting screw (085) and lock with the lock nut (086).

Miscellaneous:

Damaged parts and o-rings must be replaced. Carefully clean sealing surfaces (001 / 060), o-ring grooves.

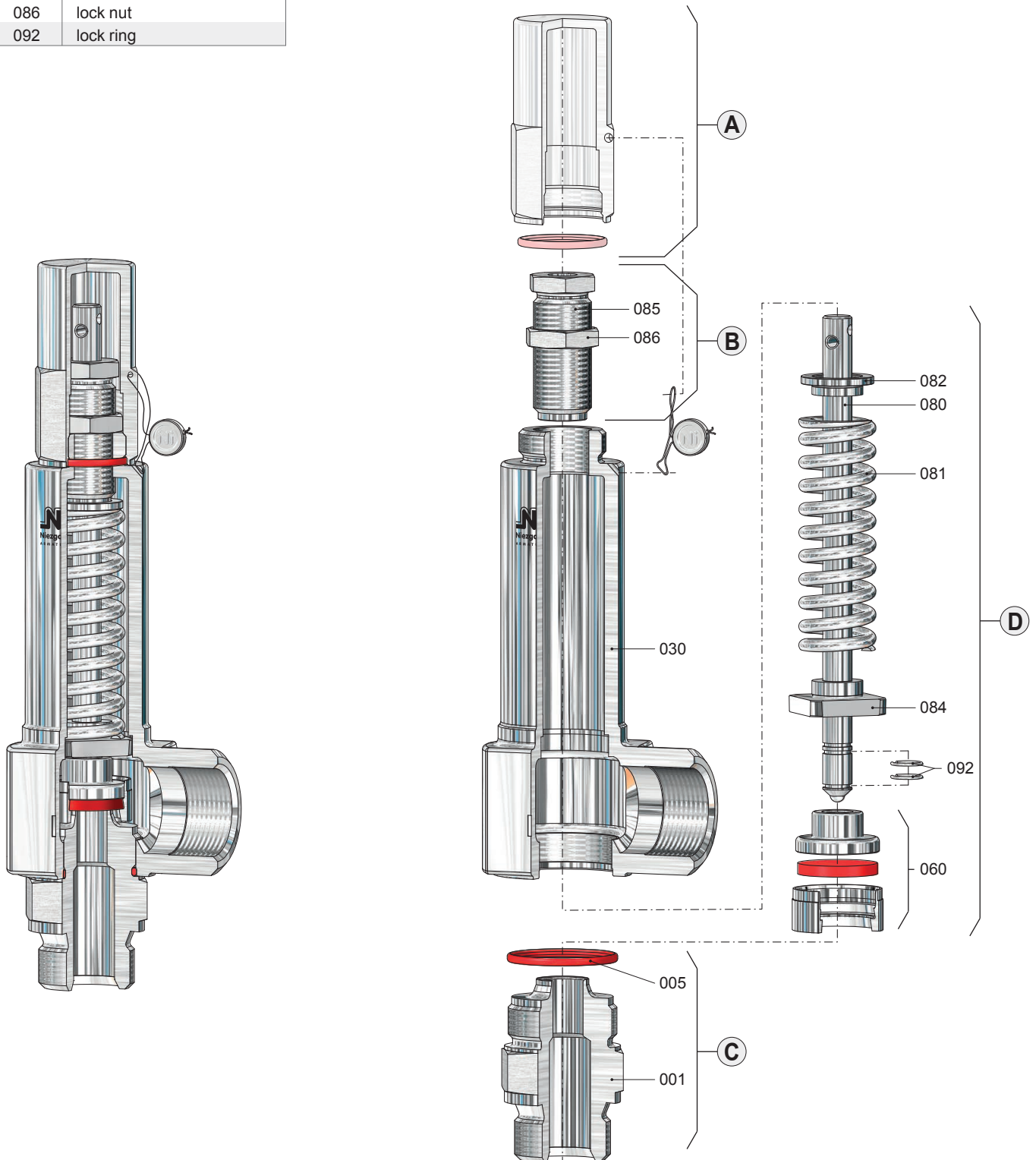
Instructions for maintenance and repair

examples for safety and relief valves



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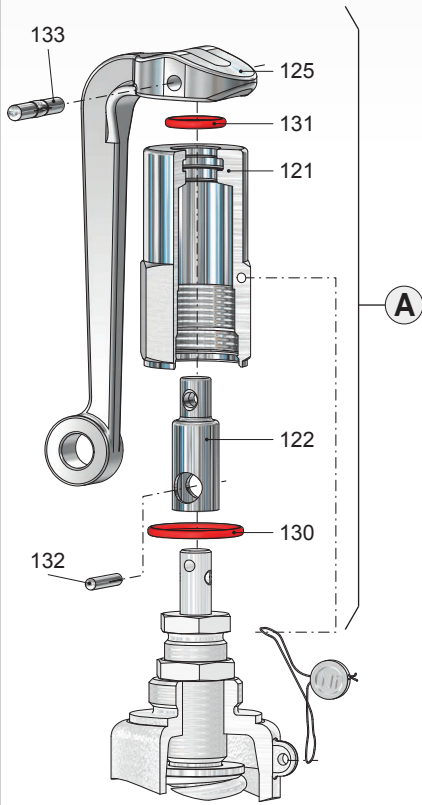
Item	Description
001	inlet body
005 *	o-ring
030	spring bonnet
060 *	disc, complete
080	spindle
081	spring
082	springplate, upper
084	springplate, lower
085	adjusting screw
086	lock nut
092	lock ring



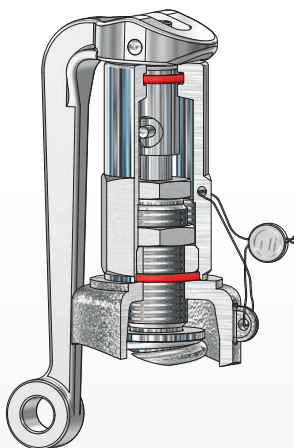
* expendable parts



Valve head A

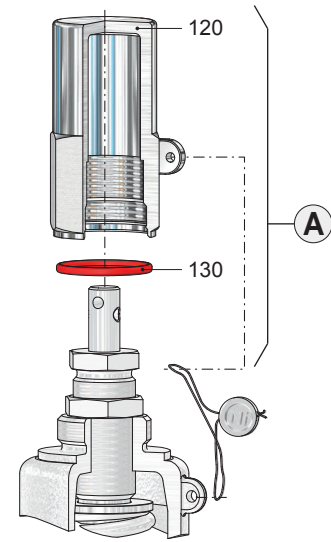


Item	Description
121	lifting cap
122	coupling
125	lifting lever
130 *	o-ring
131 *	o-ring
132	groove pin
133	groove pin

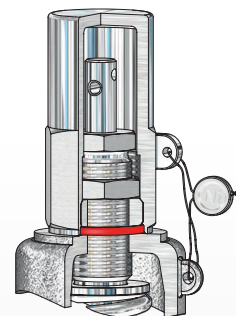


* expendable parts

Valve head C



Item	Description
120	cap
130 *	o-ring





Maintenance:

NI pressure reduction valves shall be provided in design and manufacture in such a way that optimal quality and service-friendliness is attained. Minimum care and maintenance is the result when using our fittings.

We recommend to have the pressure reduction valves / spare parts replaced only in an authorized technical workshop. In the absence of adequate means of repair, it is advisable to send the complete valve on the **Niezgodka GmbH** by post. All spare parts supplied by us are suitable for installation in our valves without exception. Since the valves supplied are however adapted to the respective case of application, it is necessary to also state our **valve number** and the delivery slip / invoice number or order number of processing while placing order for spare parts.

Test intervals:

Depending on the properties of the medium and the operational circumstances in the facility, maintenance shall be performed or function of valve verified once each year or also at shorter intervals.

Leakages:

Faults are often caused by soiling, which result in damages or softening of seals:

Leakages on the piston plate sealing (o-ring 350) are indicated by medium escaping through the spring hood opening. To repair, the respective o-ring (350) shall be renewed. A strong increase in back pressure at low removal rate is an indication of a defective soft sealing (062).

Caution!



In case of oxygen, keep all parts free of oil and grease. For operation in oxygen-charged atmosphere (-25°C/+250°C), only approved lubricants, e.g. „ **gleitmo 594** “ shall be used for the lubrication of the o-rings, media-contacting guide areas and thread connections.

Adjustment of initial response pressure with „ no “ changing of springs

Attention!



- Observe spring setting range.
- Dismantle valve head - see (Group **A**).
- Release lock nut (086); by turning the pressure screw (085) increasing or reducing response pressure.
- Secure spring setting using the lock nut (086).
- Assemble valve head - see (Group **A**) in reverse sequence.

Adjustment of the initial response pressure, „ including “ changing of springs

Attention!



- Observe spring setting range.
- Dismantle valve head - see (Group **A**).
- Release lock nut (086); fully relieve the spring (081) by turning the adjusting screw (085).
- Screw off spring bonnet (030); remove upper spring plate (082) and spring (081).
- Other spring (081) to use
- Replace damaged parts.
- Reassemble in reverse sequence.
- Secure spring setting using the lock nut (086).
- Assemble valve head - see (Group **A**) in reverse sequence.



For further information, see our website

Instructions for maintenance and repair

examples for pressure-reducing-valve type 70 / 71 BG 0-IIIB and series type 70 SKK, SKS



15

Attention!



Care must be taken to ensure that the system is depressurised prior to assembly, dismantling or opening of the pressure reducing valve. The remaining dimensions and seal properties, preloading forces, tightening torques etc. are to be determined by the user themselves in accordance with the operating instructions. In doing so special attention must be paid to the following:

Medium residues in the pressure reducing valve or in the spring cap represent a serious chemical burning, burns and poisoning hazard. It must, therefore, be established prior to removing a valve from the plant which medium could be present in the pressure reducing valve. Appropriate safety measures must be taken.

Proceed as follows to dismantle:

- 1) Piping and pressure reducing valve must be depressurised.
- 2) Remove the valve from the piping to facilitate servicing and repair work.

Group **A**:

Toggle spindle: loosen lock nut (086); fully relieve the spring (081) by turning the pressure toggle spindle (085).

Head C: screw off cap (120).

Group **B**:

Toggle spindle: screw off spring bonnet (030); remove upper spring plate (082) and spring (081).

Head C: loosen lock nut (086); fully relieve the spring (081) by turning the pressure adjusting screw (085); screw off spring bonnet (030); remove upper spring plate (082) and spring (081).

Group **C**:

Remove bottom plug (357) with packing ring (356).

Check whether movable components (piston (300) with piston plate (310), distance ring (311) and lower spring plate (084) on the upper end and disc components (060)) on the bottom end are running smoothly by pressing against them alternatively.

If they do not run smoothly or if you discover leaks on the seat or piston plate (310), continue with uninstalling:

Group **D**:

Hold the components installed at the lock nut (314) or screw (324) and loosen disc bolt (065).

Remove the disc components (pressure piece (061), disc (560) with o-ring (071), locking ring (072) and soft sealing (062)).

With disc seal thermoplastics additional o-ring dismantled (073).

Pull out components (piston (300) with piston plate (310), distance bush (311) and springplate (084)) from the valve-body (301, 302).

Remove the o-ring (351) or both o-rings (351) in the CIP.

If required, piston plate (310), piston (300), lower springplate (084) and distance bush (311) can be uninstalled as follows:

Place piston plate (310) axially into bench vice (Warning: use soft splits!) and loosen lock nut (314).

Remove springplate (084) and distance bush (311). Remove piston (300) with o-ring (352) from piston plate (310).

Proceed as follows to reassemble:

After uninstalling and cleaning, you may have to remove pressure points in the surface of the valve-body and of the piston by grinding it with very fine emery paper. If the piston surface looks as if has been eaten into, the piston must always be replaced because the o-ring (351) will no longer be able to seal the destroyed surface.

All soft seals (disc soft sealing (062), o-ring) **must be replaced** (included in maintenance kit). To install, perform the opposite of the uninstall procedure (last step first, etc.). To lubricate the o-rings and the media-contact surfaces as well as the winding connections (pressure screw, bottom plug, cap) we recommend the food-use lubricant „ **gleitmo 591** “ (-25°C/+250°C).

The disc bolt (065) **must be secured with a suitable screw lock (LOCTITE)**! Prior to installing the disc bolt (065) you will have to check whether the winding connection is smooth, and if not, make sure it is (remove all residue from the screw lock).

When tightening the disc nut (065) you must comply with the following **fastening torque**:

Winding M8: 1.5 Nm;

Winding M10: 3 Nm;

Winding M14 x 1.5: 5 Nm;

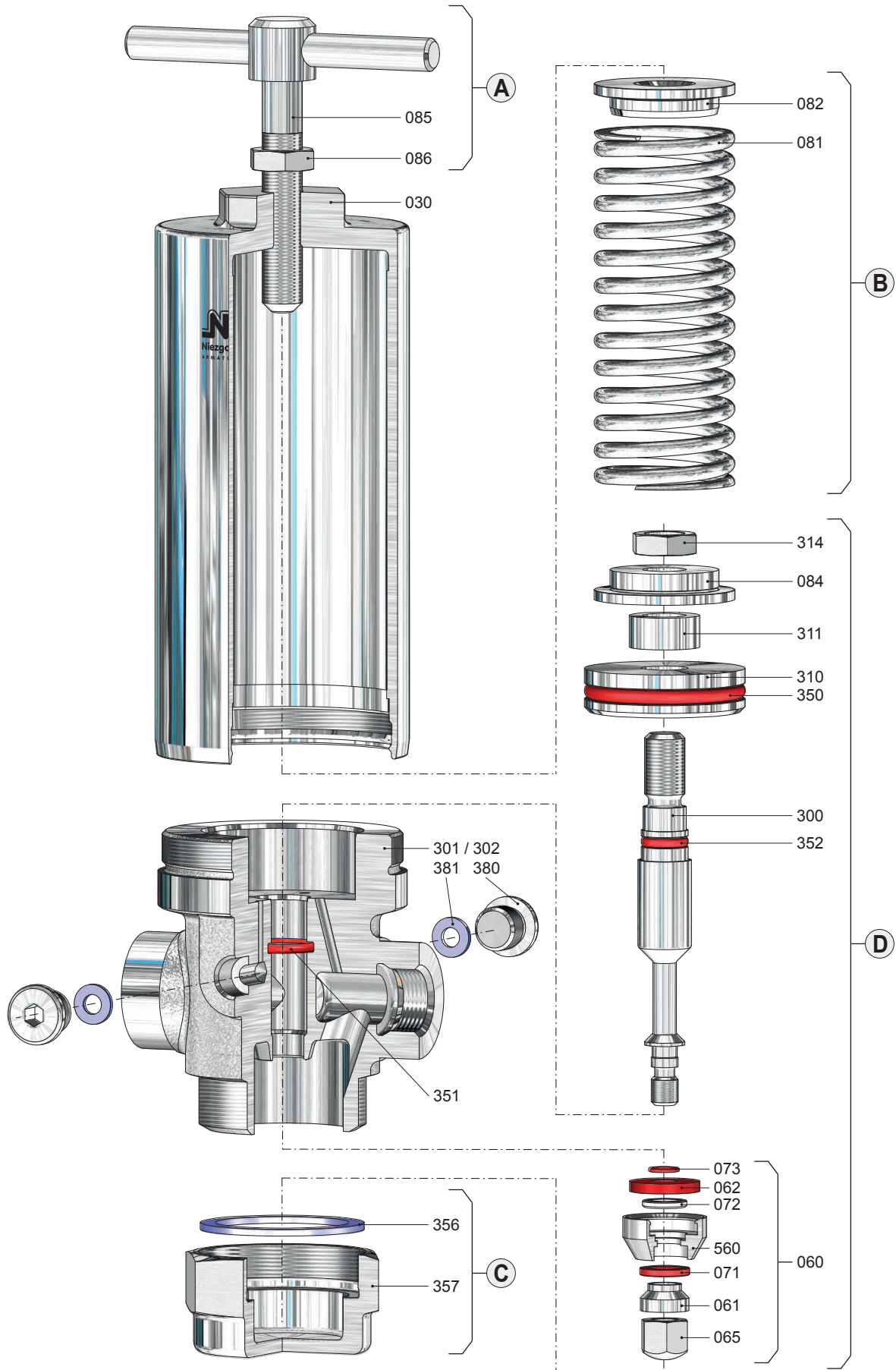
Winding M16 x 1.5: 8 Nm.

Instructions for maintenance and repair

examples for pressure-reducing-valve type 70 / 71 BG 0-IIIB and series type 70 SKK, SKS



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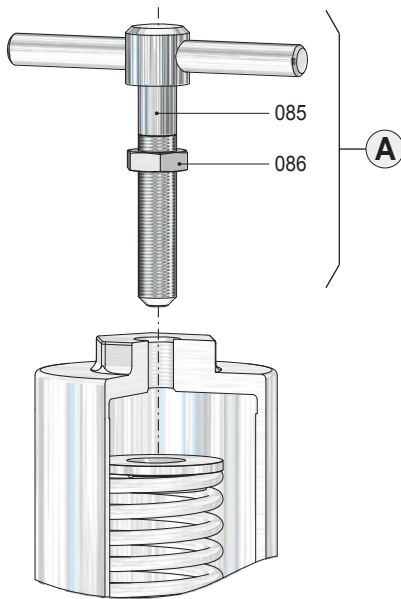
Instructions for maintenance and repair

examples for pressure-reducing-valve type 70 / 71 BG 0-IIIB and series type 70 SKK, SKS

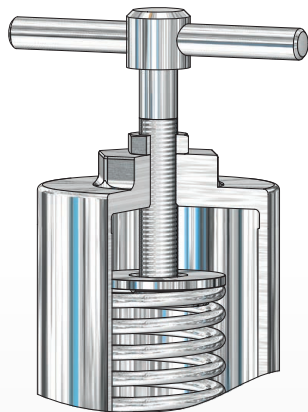


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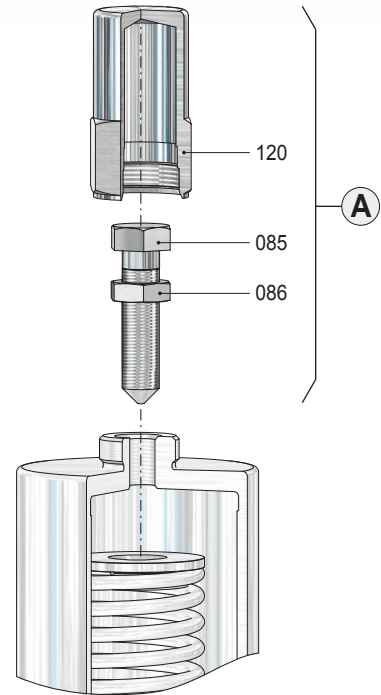
Toggle spindle



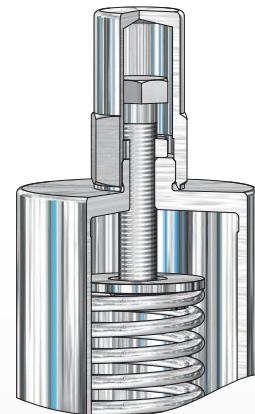
Item	Description
085	adjusting screw
086	lock nut



Valve head A



Item	Description
085	adjusting screw
086	lock nut
120	cap



* expendable parts



General: **NI-Valves** are high quality products which must be treated with care. The sealing faces on the seating (001 / 003) and disc (060) are hardened, annealed, ground and lapped. Improper handling can cause them to be damaged, resulting in leakage and inoperability. They must therefore be protected against shocks (throwing, impacting, hitting etc.). On valves equipped with a venting lever etc., the lever must not be misused as a carrying handle. All valves are to be properly secured to prevent them falling over or falling down in the course of transportation, fitting and maintenance.

Observe the following storage instructions:

Environment: Places of storage must be clean and dry.

Temperatures: **NI-Valves** should be stored at temperatures between 5°C to 35°C, the best being 10°C to 20°C. The instructions for disc sealing must be complied with in the case of soft sealing valves.

Transportation: Only use suitable packing materials for transportation. Inlet and outlet apertures are to be protected for transportation purposes by caps or plugs which are only to be removed shortly prior to assembly.

Commissioning:

Delayed initial opening caused by so-called sticking (adhesion) effect of the seating (001 / 003) and disc (060) is quite normal after transportation and longer storage of valves with a preset response pressure. This applies both to metal/elastomers sealing faces and highly polished metal/metal faces.

When the valve has been fitted the sealing faces are separated by pressurisation higher than the actual response pressure and by operating the venting lever.

The valve, together with the preset pressure response, is now fully functional, taking the permissible pressure increase/closing pressure into consideration.

Attention!



- The regional safety regulations are to be observed.
- The material, pressure, temperature and flow direction specifications must be checked prior to commissioning.
- The valve data are to be checked for position (arrangement) in the system.
- Residues in pipelines and valves (welding beads, grinding dust, dirt etc.) lead to leakage or damage.
- Touching the valve can give rise to the risk of injury when it is operated at high medium temperatures of (>50°C) or low temperatures of (>0°C).
- Remove the blocking screw (149), which may have been used, from the cap (120).
- Remove protective caps and lever fixtures prior to commissioning.
- Sticking, freezing or blockage of the valve is to be avoided without fail.
- When a blow-out pipe is not used, the medium can suddenly escape from the valve outlet aperture. **Hazard!**
- Large amounts of flow noise can be heard when blowing out.

Care is to be taken to ensure prior to putting a new system into operation or restarting a system that has been subject to repair or conversion that:

- All work is completed in an orderly manner!
- The valve is in the correct function position.
- Safety devices are in place.



Our fittings are designed in construction and manufacture in such a way that an optimum in quality and service friendliness is achieved. A minimum of care and maintenance is the result when our fittings are used for application.

Attention!



Prescribed regular checking, such as pursuant to AD and TRD, is, however, necessary for reasons of safety.

Leakage of fittings occur usually only on account of damage through the medium or through foreign matter at the sealing surfaces (seat and/or disc). Damage of this type can be repaired by lapping of the sealing surfaces it is recommended to have this carried out by specialized technicians.

Regarding the replacement of components of the fittings / spare parts it is also recommended to have this work also carried out only in a specialized workshop. In case there is no suitable repair equipment available, then it is advisable to send the complete fitting to us.

All spare parts supplied by us are suitable for the assembly in our fittings, that is without restriction. It is, however, required to state in your order for spare parts **Valve No.** our **Delivery note No.** / **Invoice No.** or **Consignment No.** of the transaction because the fittings supplied are adjusted to the individual case of application.

Storage of elastomeric products

Request to the storage, cleaning and maintenance



15

The proper storage of elastomer products directly influences the service life of the respective sealing materials. Environmental influences such as oxygen, ozone, heat, moisture and solvents essentially impair the quality of the elastomers during their storage time.

Therefore, it is important that they are stored properly.

Directives for storage of rubber products are standardised pursuant to DIN 7716 and ISO 2230.

Generally, the consumption should remain in motion according to storage and retrieval (first in, first out (FIFO)).

The condition of seals stored for a long time may be inspected under slight expansion stress.

Fine cracks on the surface cause rejection of the seals.

Elastomers can best be cleaned with water and a slight soap additive.

Attention!



The following framework conditions must be complied with in storage to achieve the best service life:

Heat	The storage temperature should be between (283 K) / +10°C and (293 K) / +20°C. Deviations reduce service life. Direct contact with heat sources (e.g. radiator) or direct solar radiation must be avoided.
Moisture	The relative humidity in storage rooms should be below 70%. Extremely moist or dry conditions should be avoided.
Oxygen / Ozone	If possible, maintain the original packaging or store under exclusion of air (no circulation). Do not operate any ozone-producing devices in the storage room.
Light	Elastomer seals should be stored protected from light sources. Specifically, direct sunlight and strong artificial lighting with UV share must be avoided. Darkened storage sites (e.g. cabinets) must be preferred.
Contact	During storage, specifically ensure that direct contact with solvents, fuels, lubricants, chemicals, acids, etc. is avoided.
Deformation	Elastomer seals should be stored free of compression and deformation in the relaxed condition. O-rings must not be expanded, folded, bent or hung over hooks.

The following table shows the maximum service life/storage time of elastomers (finished parts):

Material	Abbreviation	Storage time	Comment
Aflas	AF100	10 year	
EPDM	EPDM	6 year	
Kalrez®	FFKM	10 year	
Perbunan	NBR	4 year	
Silikon	(F)VMQ	10 year	
Teflon	PTFE	8 year	
Ultrathan	ULT	8 year	
Viton®	FPM	10 year	

In the scope of the annual inventory, seals older than the max. service life are sorted out.

Table of soft sealings

Elastomeres and Thermoplasts



15

Ni - short-sign	ISO - short-sign	ASTM - short-sign	Material - type	Range of pressure and temperature limits			Range of application
				Flat seal	O - ring	$\Delta P (P_1/P_2)^2$	

Elastomere

AF 100	TFE/P	TFE/P	Aflas®	-	< 63 bar - 5°C to +200°C	≤ 25 bar	Good resistance against hot water and steam.
EPDM 1)	EPDM	EPDM	APTK® Ethylen-Propylen-Dien-Kautschuk	≤ 16 bar - 40°C to +120°C - 40°C to +140°C 2)	< 120 bar - 40°C to +140°C - 40°C to +150°C 2)	≤ 25 bar	Good resistance against a lot of chemicals, hot water, steam, alkaline solution, acids, alcohol. Average mechanical characteristics. Ozone resistant, not oil resistant.
FPM 1)	FPM	FKM	Viton® Fluor-Kautschuk	≤ 25 bar - 20°C to +200°C	< 200 bar - 20°C to +200°C	≤ 40 bar	Good resistance against a lot of chemicals, mineral oil, hot air, acid. Average to good mechanical characteristics.
FFKM	-	FFKM	Kalrez® Perfluor-Kautschuk	≤ 25 bar - 30°C to +260°C	< 120 bar - 30°C to +260°C	≤ 40 bar	Very good resistance against a lot of chemicals, oxygen, ozone, mineral oil. Good thermal and mechanical characteristics.
FVMQ	-	-	Silastic Fluorsilikon-Kautschuk	< 10 bar - 60°C to +200°C	< 10 bar - 60°C to +200°C	< 25 bar	Good resistance to oils, fuels and solvents.
PUR 1)	AU	AU	Vulkollan® Polyurethan	≤ 30/35 bar - 30°C to + 80°C	-	< 35 bar	Good resistance against a lot of chemicals, hydraulic oil, alcohol, fuel. Very good mechanical characteristics.
NBR 1)	NBR	NBR	Acrylnitril-Butadien-Kautschuk	-	- 20°C to +120°C	< 25 bar	Good mechanical properties in comparison with other elastomers, a higher abrasion resistance.
Silikon	VMQ	VMQ	Silikon	< 6 bar - 60°C to +200°C	< 10 bar - 60°C to +200°C	≤ 25 bar	Good resistance against hot gas and air. Average mechanical characteristics.
ULT	-	-	Ultran®	-	- 30°C to + 80°C	≤ 25 bar	
Vespeel	-	-	Vespeel® Polyimid	40 - 500 bar - 270°C to +250°C	-	≤ 200 bar	Very good resistance against CO ₂ . Very good thermal and mechanical characteristics.

Thermoplasts

Nylon 1)	PA	PA	Nylon® Polyamid	≤ 120 bar do 8 ≤ 50 bar - 40°C to + 80°C	-	≤ 160 bar	Good resistance against a lot of chemicals, fuel, cooling liquid, silicone oil. Good mechanical characteristics.
PEEK 1000	-	-	Ketron	40 - 900 bar - 60°C to +250°C	-	< 200 bar	Very good resistance against a lot of chemicals. Very good thermal and mechanical characteristics.
PTFE 1) PTFE/GL	PTFE	PTFE	Teflon® Polytetrafluorethylen	≤ 15/25 bar - 200°C to +260°C	-	≤ 50 bar	Good resistance against chemicals, acid, alkaline solution, solvent, oil. Good thermal and average mechanical characteristics.
PVDF	-	-	Polyvinylidenfluorid	≤ 45 bar - 40°C to +150°C	-	≤ 100 bar	Very good resistance against chemicals, gasiform oxygen. Very good mechanical characteristics.
RCH 1000	PE	PE	Polyethylen (PE)	≤ 45 bar - 270°C to + 80°C	-	≤ 50 bar	Good resistance against a lot of chemicals, cryogenic media. Good mechanical characteristics.

1) Standard soft sealing

2) Applies only to pressure reducing valves and initial pressure controller

At raised set pressure maximum operating temperatur is reduced.

Troubleshooting operating problems

for safety and relief valves



15

Fault	Possible cause	Remedy
Safety / relief valve doesn't respond	Flange and threaded protection caps have not been removed	Remove flange and threaded protection caps
	Spindle blocking screw (149) not removed	Remove spindle blocking screw (149)
	bellow designe (161) faulty, no longer compensates counter pressure	Replace safety / relief valve
	Viscous / sticky / hardening medium	Regular brief venting or heating /cooling of the safety / relief valve
	Icing incurred when blowing out	Use a heating jacket!
	The setting pressure is too high / too low	Either replace or readjust safety / relief valve
Can't be vented	Pressure below $\leq 85\%$ of response pressure	It must be possible to briefly vent the safety/relief valve over $\geq 85\%$ of response pressure
Safety / relief valve seating leaky	The operating pressure is $\geq 90\%$ of response pressure	The operating pressure must be $\leq 90\%$ of response pressure
	Contamination between seating (001 / 003) and disc (060)	Brief venting of safety / relief valve, replace if necessary
Injuries caused by fluid residues	Risk of caustic burning, burning and / or poisoning	Establish which fluid is in the safety / relief valve before it is dismantled
Flutter	over-dimensioned safety / relief valve	Use smaller safety / relief valve
Opening pressure too high	Safety / relief valve too small	Use larger valve

Troubleshooting operating problems

for Pressure-Reducing-Valve



15

Fault	Possible cause	Remedy
increasing low pressure at less removal or zero removal	defective soft sealing (062) and/or defective piston o-ring (351)	Replace soft sealing (062) and/or replace piston o-ring (351), better still replace all sealing materials!
escaping medium at spring bonnet (030)	defective piston plate O-ring (350) or defective diaphragms (245)	Replace o-ring (350) or diaphragms (245), better, replace all sealing materials!
escaping medium at bottom plug (357)	setting of packing ring (356) or slackening of bottom plug (357)	Tighten the bottom plug (357) using the screw-wrench, eventually, replace packing ring (356)
no medium passage through the pressure reduction valve	pressure reduction valve installed against the direction of flow	Install pressure reduction valve in the direction of flow indicated (arrow)
pressure gauge on pressure reduction valve indicates no pressure even though there is pressure	pressure gauge boring blocked by residues of PTFE sealing or pressure gauge faulty	Remove sealing residues from the pressure gauge boring of the pressure reducer housing, install new pressure gauge sealing and replace pressure gauge if out of order
low pressure P2 plunges strongly upon removal and cannot be increased even through the adjustment of the set-point value (turning of setting screw clockwise)	dimensioning of pressure reduction valve too small	Insert pressure reduction valve with higher Kvs value
pressure reduction valve works in a jerky manner, regular deviations are higher than usual, pressure reducer does not shut at zero removal	sluggish movement of pressure reduction valve through medium soiling and subsequently damaged surfaces in guide areas, dynamically stressed o-rings (350, 351) without sufficient lubricant	Perform maintenance work for pressure reduction valves in accordance with the Servicing and Repair Manual (Technical Documentation); clean parts, smoothen damaged surfaces, replace defective parts and renew sealing materials, oil the guide areas of moved parts and sealing range of the dynamically stressed o-rings (350, 351) with the special lubricant Gleitmo 591

Troubleshooting operating problems

for Initial-Pressure-Controller



15

Fault	Possible cause	Remedy
flowing medium in the outflow line of the primary pressure valve	defective soft sealing (062)	Renew soft sealing (062) or better renew all seals!
escaping medium at spring bonnet (030)	defective piston plate o-ring (350) or defective diaphragms (245)	Renew o-ring (350) or diaphragms (245), better replace all sealing materials!
escaping medium on adapter (362)	defective o-ring (329)	Renew O-ring (329), better renew all seals!
escaping medium at bottom plug (357)	defective piston o-ring (351)	Replace piston o-ring (351), better replace all sealing materials!
no medium passage through the primary pressure control valve	Primary pressure control valve installed against the direction of flow	Install primary pressure control valve in the direction of flow indicated (arrow)
pressure gauge on primary pressure control valve indicates no pressure even though there is pressure	pressure gauge boring blocked by residues of PTFE sealing or pressure gauge faulty	Remove sealing residues from the pressure gauge boring of the valve housing, install new pressure gauge sealing and eventually replace pressure gauge if out of order
Primary pressure P1 soaring strongly even though valve has been fully opened and can also not be reduced by adjusting the set-point value (turning the setting screw counter-clockwise)	dimensioning of primary pressure control valve too small	Insert primary pressure control valve with higher Kvs value
Primary pressure control valve works in a jerky manner, regular deviations are higher than usual, primary pressure control valve does not	sluggish movement of primary pressure control valve through media soiling and subsequently damaged surfaces in guide areas, dynamically stressed o-rings (350, 351) without sufficient lubricant	Perform maintenance work for primary pressure control valves (Technical Documentation); clean parts, smoothen damaged surfaces, replace defective parts and renew sealing materials, oil the guide areas of moved parts and sealing range of the dynamically stressed o-rings (350, 351) with the special lubricant Gleitmo 591



General

In their application as standard material in the food and drink industry, rust-free stainless steels are non-hazardous from the point of view of physiology and taste. In addition to the proper choice of material, the properties and condition of the product-contacting surface are of vital significance in the manufacture and transportation of foodstuffs. In addition to consistency against localized corrosion, the adhesion capacity of microorganisms, product residues and cover, the build-up of depositions and cleaning behavior also depend on the surface quality of the material. The mean roughness index R_a of the roughness profile of the surface is generally used as assessment criterion. It is stipulated on the basis of practical experience depending on the quality of the product, its exposure to microbiological hazards and the successful hygienic conditions during cleaning.

The smoothness of the surface cannot be captured through the roughness values alone such as R_a . A smooth surface is also distinguished through the wide gaps between the peaks and valleys of roughness and the rounded profile forms. Latest investigations have uncovered that such surfaces cause only minor interactions with specific products in such a way that the formation of deposits is rendered difficult or cleaning is enhanced.

Smooth surfaces are produced today already on standard basis through electrolytic polishing for high hygienic standards. As opposed to mechanical processing or chemical etching processes, this method entails the smoothing of surface profiles within micro range. Moreover, a crack-free and pore-free surface that is characterized by the initial austenitic crystal structure results from the stripping of the uppermost layers thus leaving optimal conditions for the cleaning.

The standardization of the surface roughness, facilitates the attainment of a transparent measurement parameter between manufacturers and suppliers. One more basis is created through additional specifications on the creation of the surface quality such as electropolishing and sanding, for the purpose of avoiding misunderstandings.

The following roughness measuring parameters are described in DIN 4768.

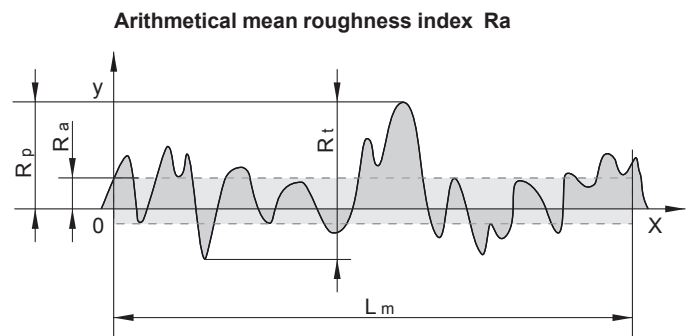
The standard describes the ascertainment of rough structures with electrical stylus instruments.

The mean roughness index R_a (μm)

is the arithmetical mean of the absolute amount of profile deviation within the sampling area of roughness l .

This means: The sum of the individual areas between the X-axis and the actual profile is equal to the area content of a specific rectangular area. (All individual areas are added up whether or not they are above or below the middle line). In the process, the height of the rectangular area is equivalent to the R_a values and the width equivalent to the sampling area.

The parameter R_a is regarded as the preferred size.



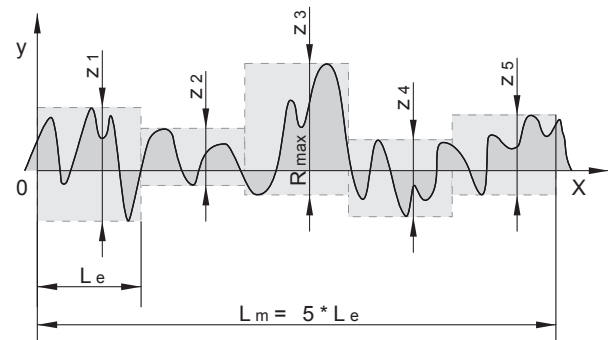
The averaged depth of coarseness R_z (μm)

is the arithmetical mean value derived from the individual depth of coarseness of five adjoining individual sections of measurement (DIN ISO EN -4287).

The maximum and minimum point respectively are taken as a basis of calculation at the individual sections of measurement.

Mean roughness R_z

$$R_z = 1/5 (Z_1 + Z_2 + Z_3 + Z_4 + Z_5)$$



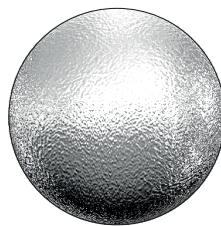
The maximum depth of coarseness R_z (μm)

is the highest of all individual depths of coarseness measured in all sections of measurement.

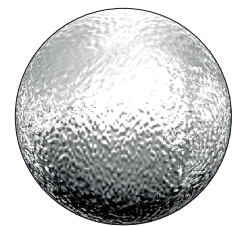
Other depths of roughness such as the mean width of groove R_{Sm} , depth of smoothing R_p or depth of roughness R_m do not play any role in the face of transparency in the foodstuff industry.



Below R_a 0.250 μm , bacteria and particles are capable of sticking to the surface through adhesion effect.



Optimized cleanability is attained at a surface roughness value between R_a 0.250 μm and R_a 1.125 μm .



Above R_a 1.125 μm , bacteria and particles can hide in the corrugations or niches.

Niezdgodka GmbH

Bargkoppelweg 73
22145 Hamburg

Phone: +49 (0) 40 679 469-0
Telefax: +49 (0) 40 679 469-59

www.niezdgodka.de
E-mail: ni@niezdgodka.de