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neumattstrasse 6
info@zuercher.ch

ch-4450 sissach
www.zuercher.ch

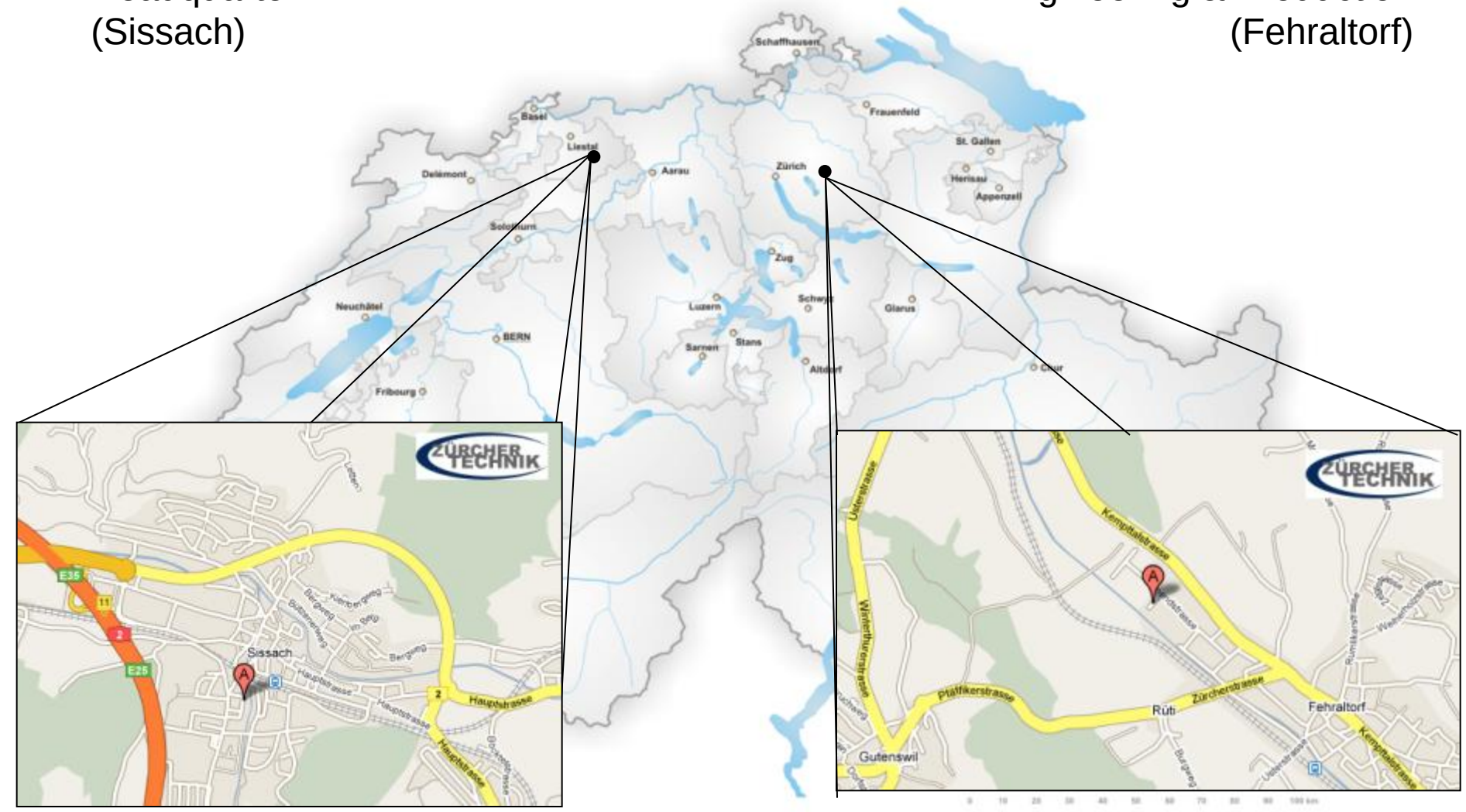
Company profile

- Company Foundation 1986
- 26 employees

Company profile

Headquarter
(Sissach)

Engineering & Production
(Fehraltorf)



Company profile

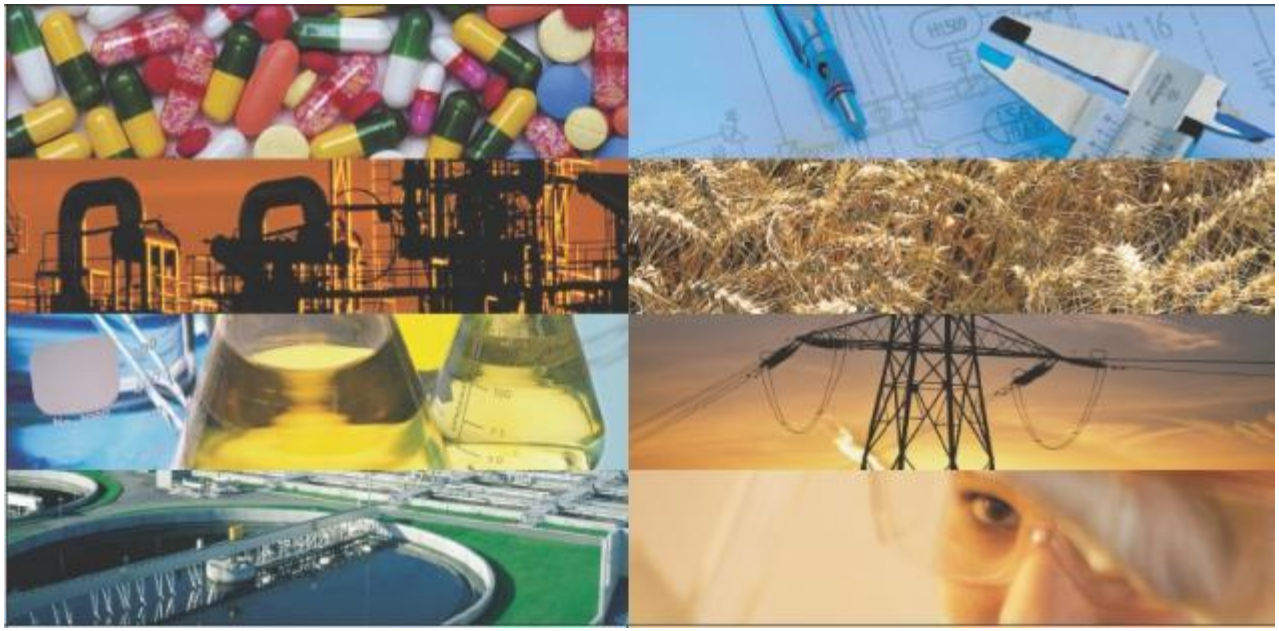
Markets

NOVARTIS

syngenta

MAN

Boehringer Ingelheim



DSM

Nestlé
Good Food, Good Life

Linde

ABB

Ciba

Roche

Degrémont Technologies
suez

BASF
The Chemical Company

Product range

INTERNATIONAL

own products

SWITZERLAND

reselling products

Pressure Regulators

Competitors

- Fisher (Emerson)

- Instrum AG

www.instrum-gmbh.de

- Cashco

- Anderson Greenwood (Tyco)

www.andersongreenwood.com

- Mankenberg

- Jordan

Markets / Customers (References)

Users:	- Gascompanies:	different application of industrial gases.
	- Natural gas:	fillingsystems for public transportation
	- Chemical industry:	Blanketing system
	- Pharmaceutical industry:	Blanketing systems, clean steam
	- Food industry:	Blanketing systems

Markets / Customers (References)

References:

Low Pressure Regulators (BR- and BS-Series)

Low Pressure Regulators (BR- and BS-Series)

Highlights

- Regulating range up to 4000 mbar / 60 psi
- Sizes DN15 to DN 100 (1/2" to 4")
- Pressure resistance up to 16 bar
- Back pressure resistance up to 4000 mbar/60 psi
- Withstands full vacuum
- Stainless steel regulators
- Nickel Alloy Regulators
- PVDF regulators
- Clean and sterile regulators
- Maintenance friendly
- ATEX Ex II 2GD

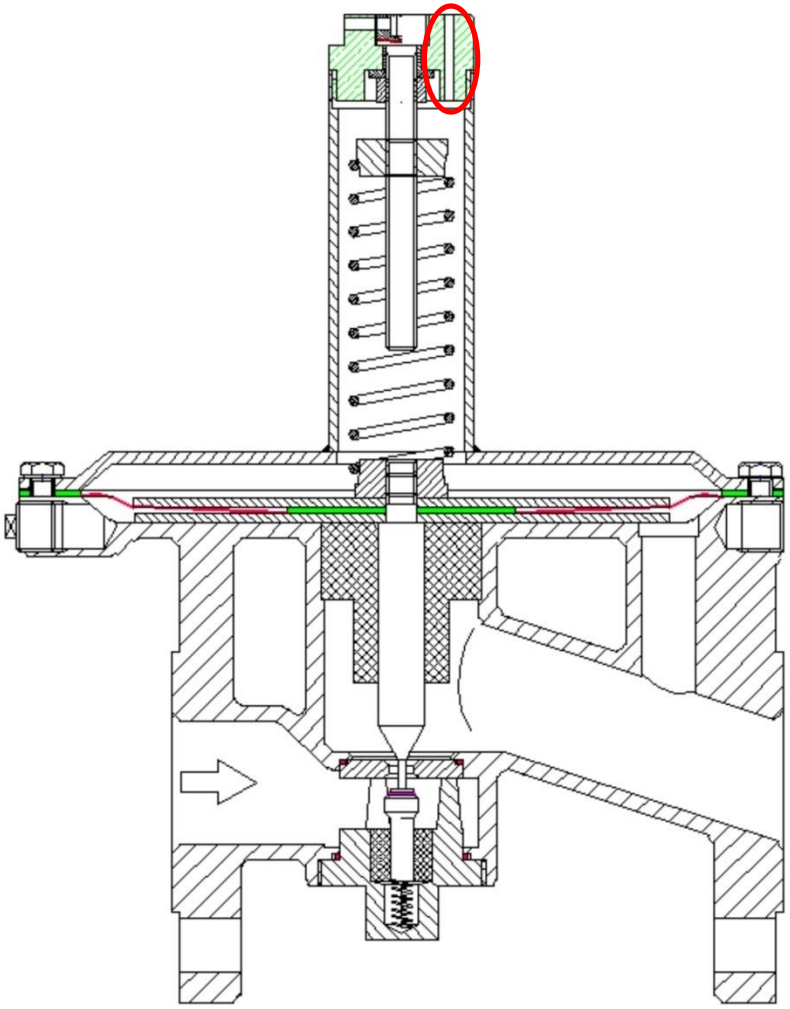
Low Pressure Regulators (BR- and BS-Series)

In general…

Our Pressure Regulators are all relative Regulators. That means they regulate against the atmosphere.

The indicated pressures are plus or minus the atmosphere pressure.

In the process engineering we do differentiate between the reducer and the back pressure or relief valve.



Adjustement possibilities…

There are the following possibilities to adjust the required pressure on our regulators:

Spring-loaded regulators

Dome-loaded regulators

and the combination of these two (pilot pressure regulator)

Reducing Regulator

The Reducer regulate the pressure on the outlet-side of the regulator.

A high inlet-pressure will be reduced by this valve on e deeper outlet-pressure.

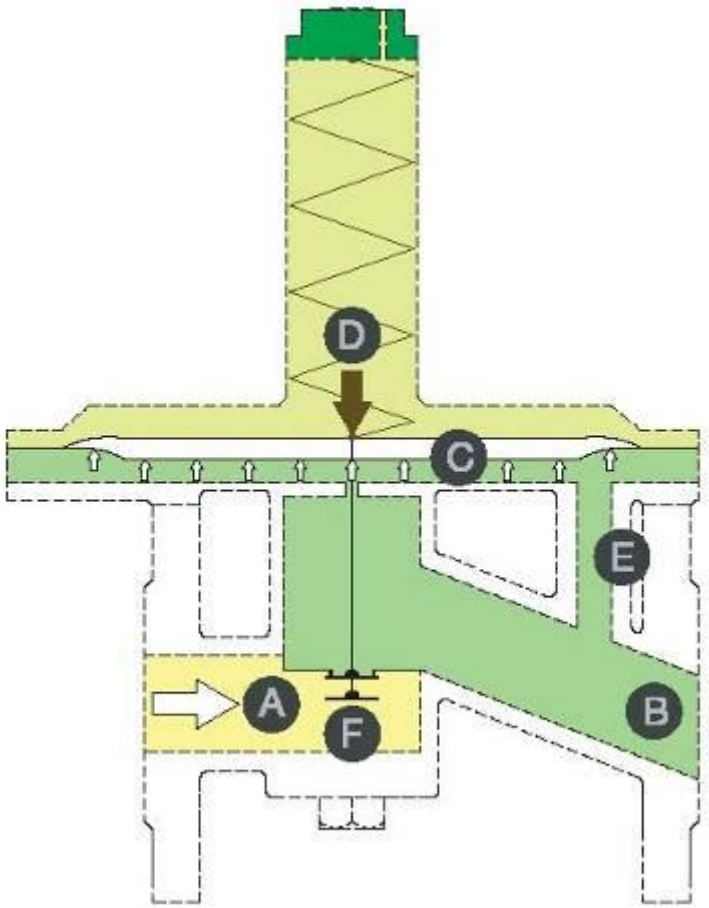
The reducer opens if the pressure falls below the adjusted pressure.

In rest position the reducing regulators are open.

Reducing regulator

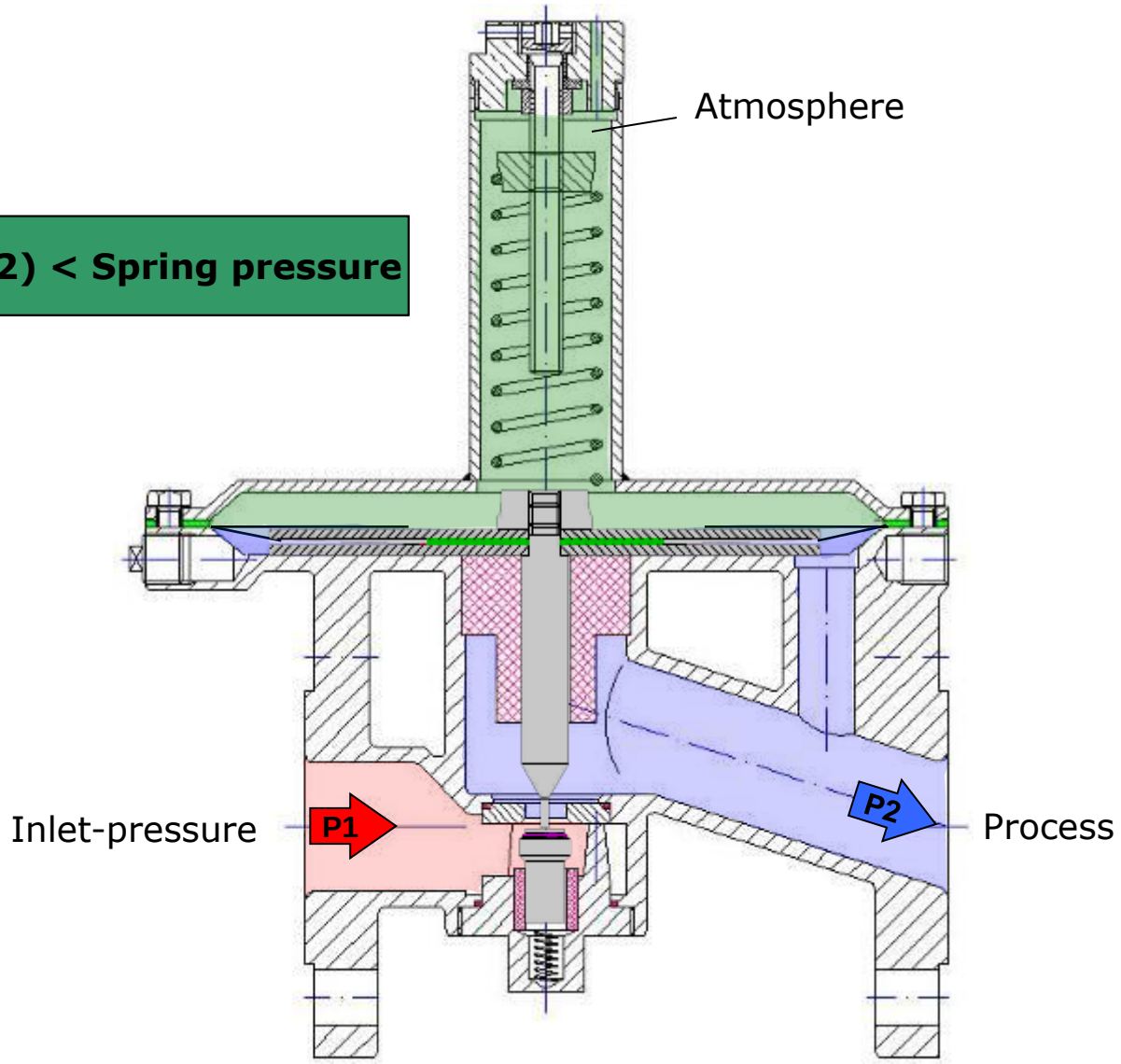
This Regulator keeps the process pressure “B” at a constant level.

When the pressure “A” rises, pressure is released through the open valve seat “F” to the process side of the valve and through the internal feedback bore “E” underneath the diaphragm. This will continue, until the diaphragm force “C” exceeds the spring force “D”, while the process pressure “B” rises. The diaphragm is lifted and the vale seat “F” closes. In the event that the process pressure “B” drops below the pre adjusted nominal pressure, the spring force “D” presses the diaphragm downwards, so that the valve seat “F” opens and admits gas until pressure equalization is reached again.



Reducing regulator

Pressure (P2) < Spring pressure



Relief Valve

The relief valve regulate the pressure on the inlet-side of the regulator.

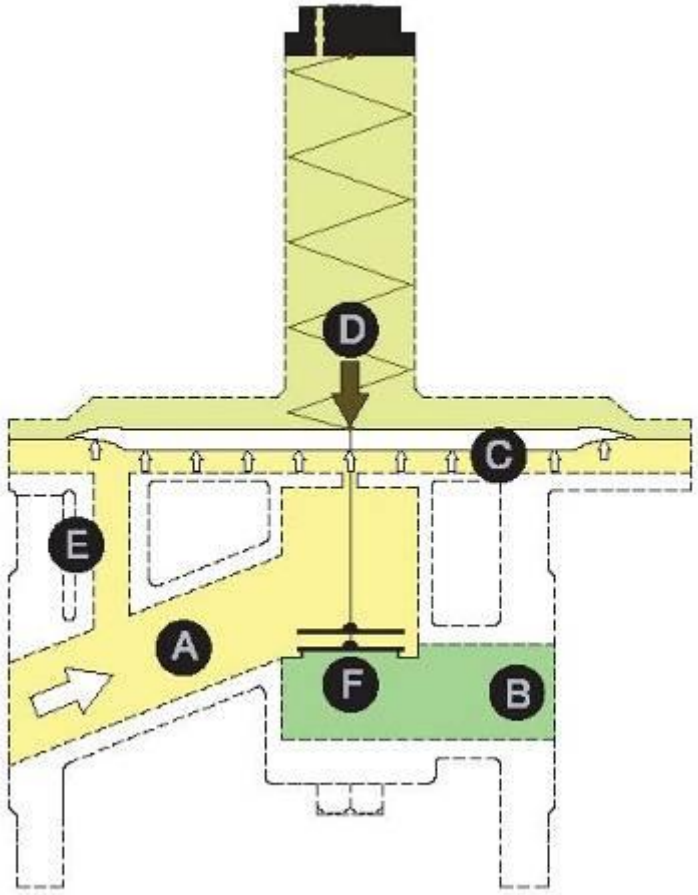
This regulator opens if the pressure oversteps the setpressure.

In rest position the relief valves are closed.

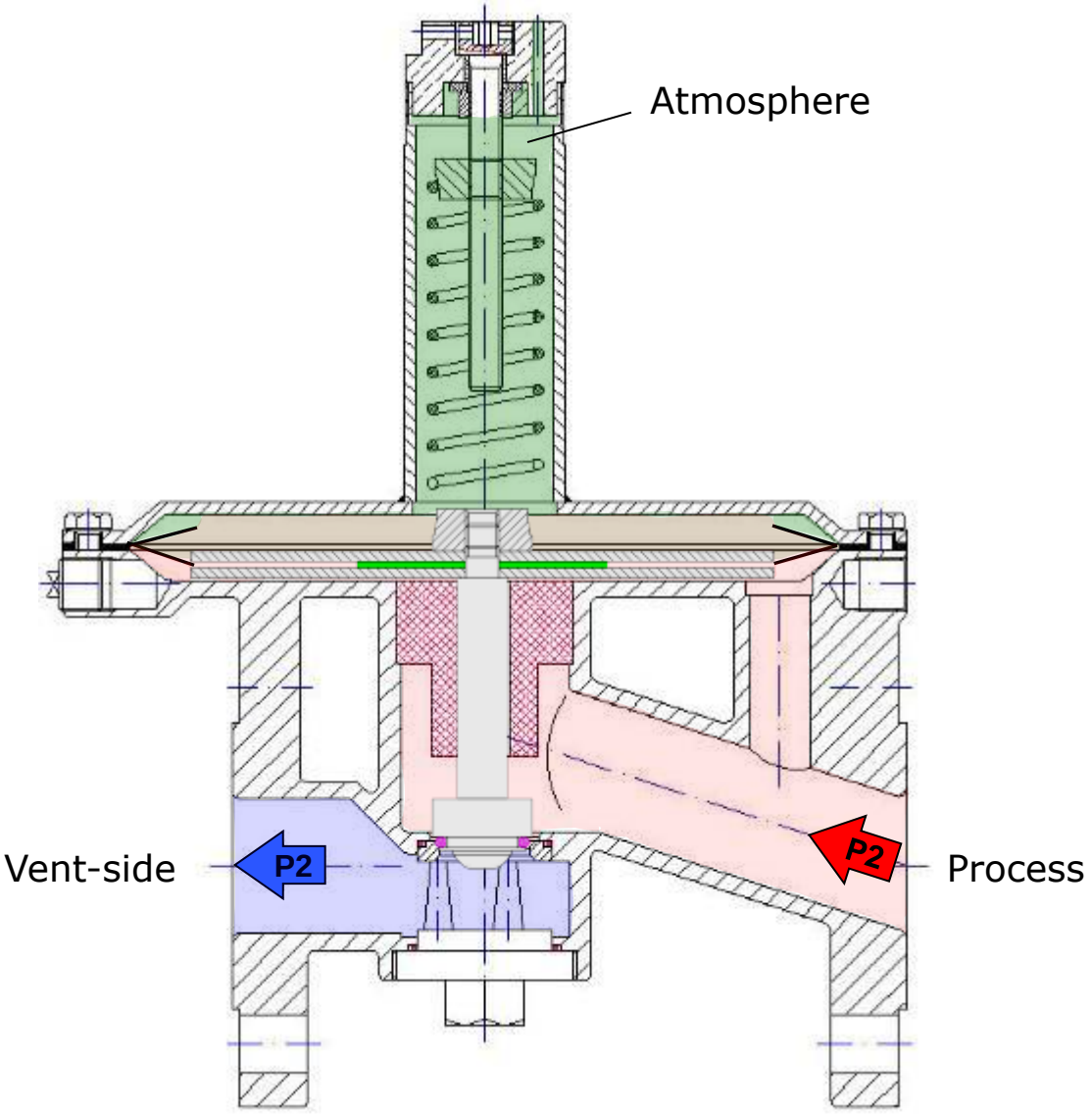
Relief Valve

This regulator keeps the process pressure “A” at a constant level.

When at rest, the regulator remains in a closed position. When
the process pressure “A” increases, pressure is released through the internal feedback bore “E” underneath the diaphragm. If the diaphragm force “C” exceeds the spring force “D” the valve seat “F” opens and the over pressure is discharged to the vent side “B”. If the process pressure “A” drops, the diaphragm force “C” is lower compared to the spring
force “D” and the valve seat “F” closes. The pressure in the vent line can be atmospheric or vacuum. With vacuum in the vent line the flow capacity of the regulator is increased.



Relief Valve



Low Pressure Regulators (BR- and BS-Series)

As variants to the functions mentioned so far pressure regulators are in the execution as

Pilot Pressure Regulator

and as execution

„Vacuum-Regulator“

Pilot Pressure Regulator

Pilot Pressure Regulator are spring-loaded regulators.

The spring housing will be leak-proof designed. So it will be possible to set an additional pilot-pressure to the spring housing.

This variant can be set as reducer and also as back pressure regulator or relief valve.

Attention!

Spring-loaded pressure regulators do not have any „fail-safe“ characteristic.
That means:

In case of a diaphragm-breaking, the reducer “burn out” and opens completely.

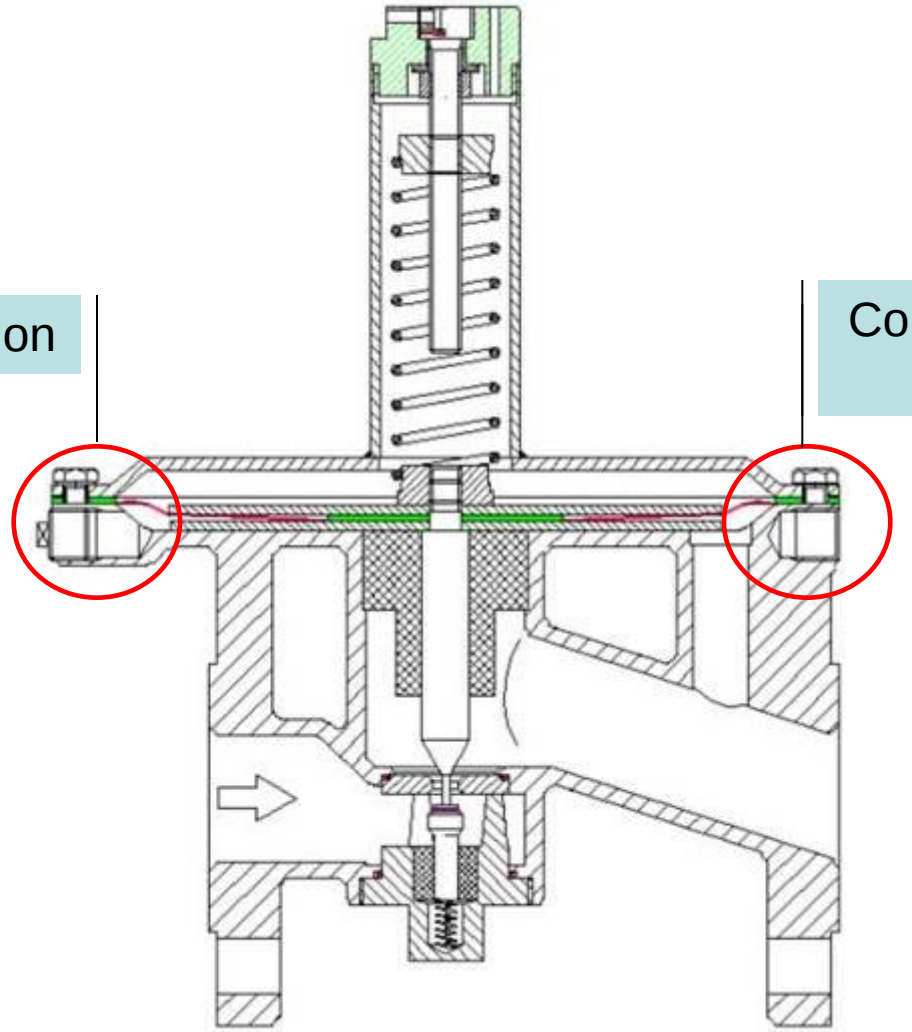
In case of a diaphragm-breaking, the relief valve stays closed.

Both of this types have no safety-function. They are both process valves and they are no safety features.

Connections possibilities

Manometer-Connection

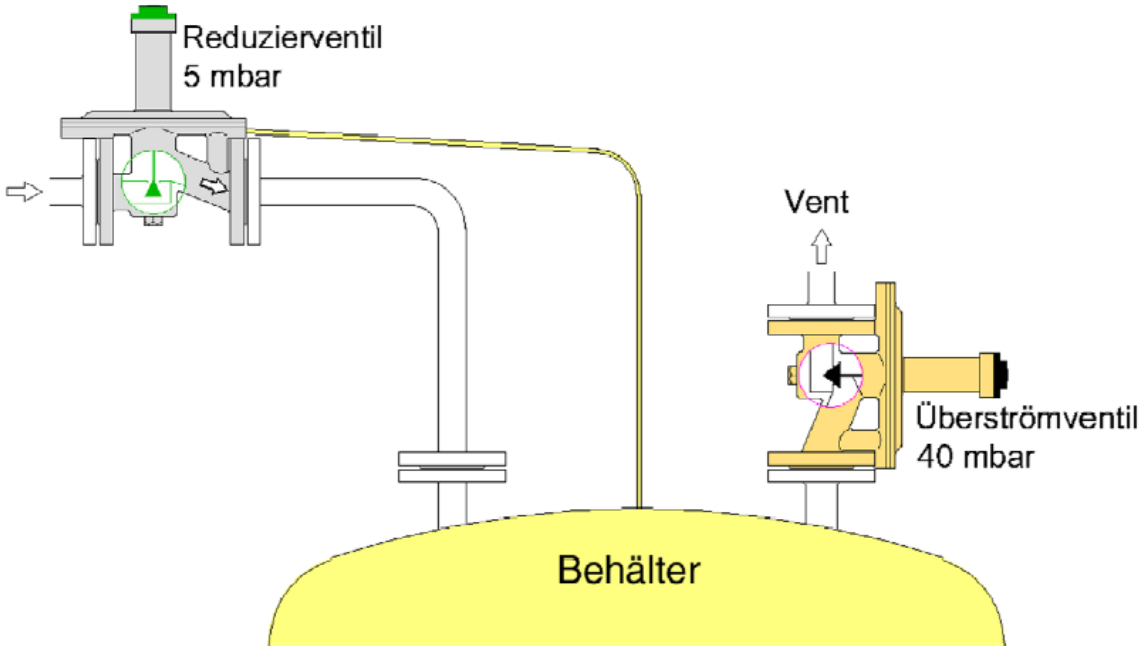
Connection for external feedback line



Connections (manometer und external feedback line)

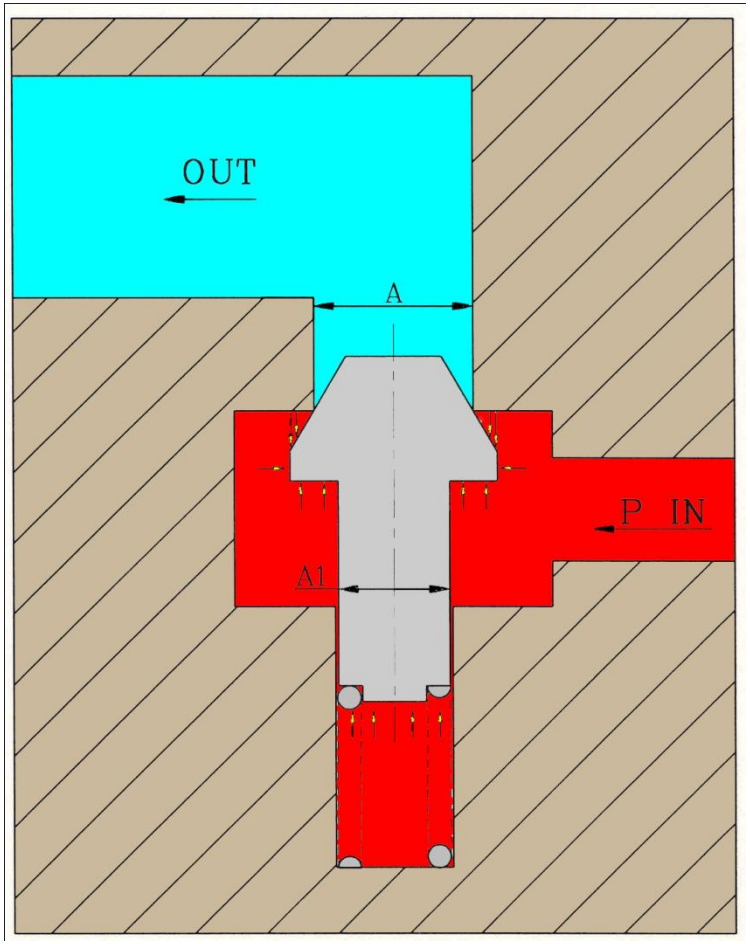
External feedback line

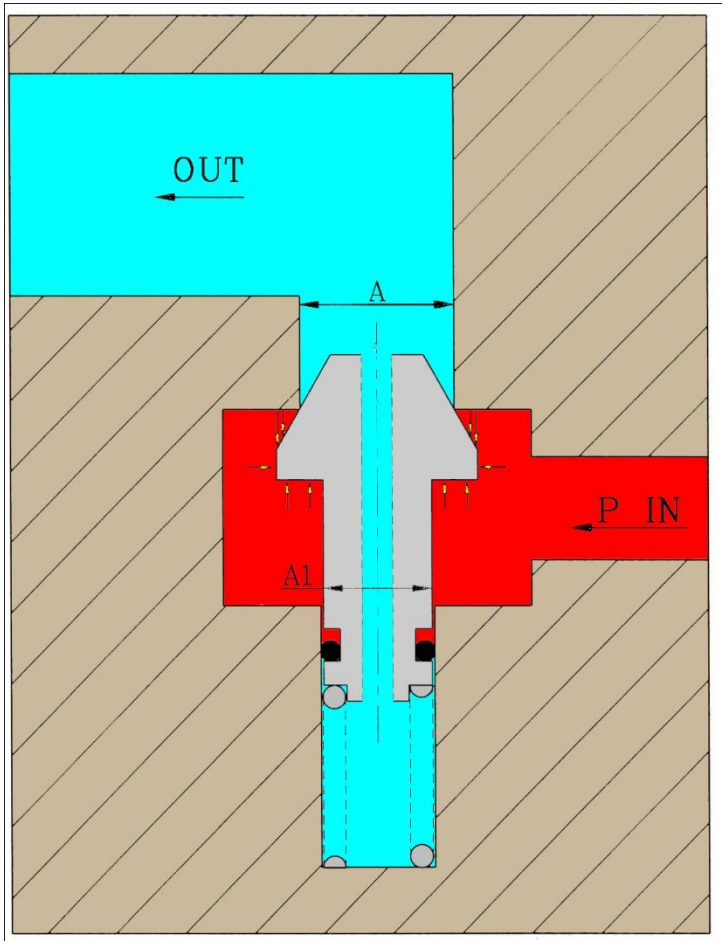
- low set pressure
- long distance between the regulator and the vessel



Low Pressure Regulators (BR- and BS-Series)

Unbalanced and balanced Seat





Unbalanced seat

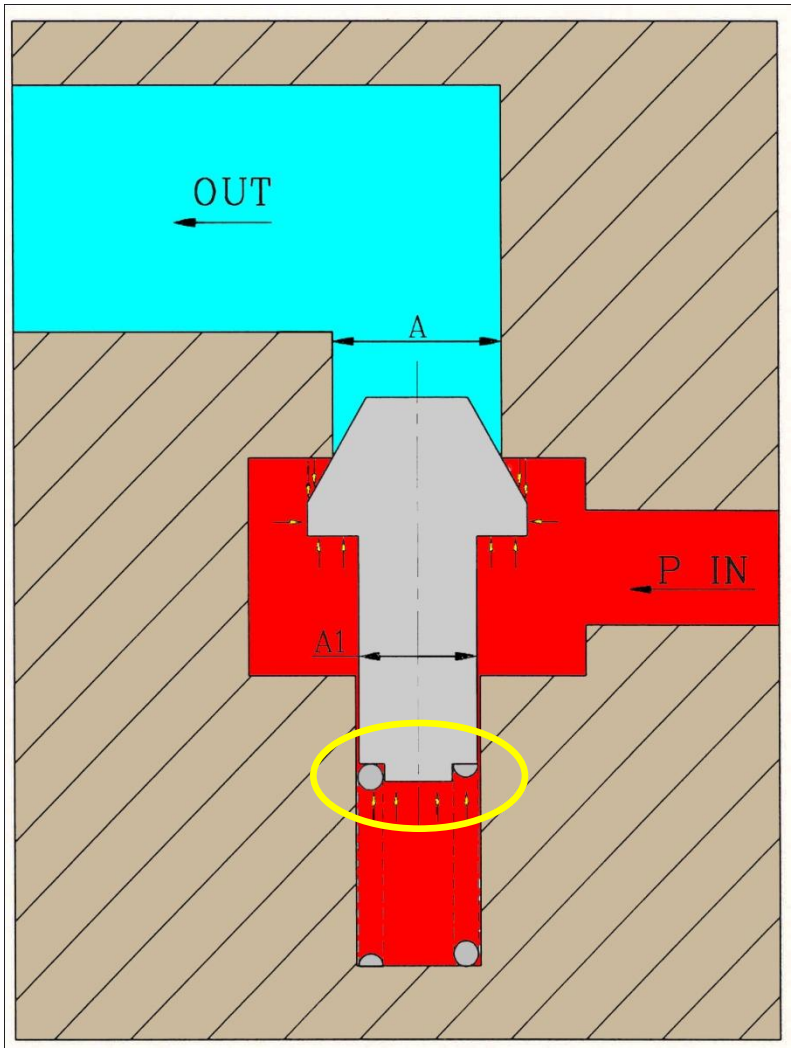
With the unbalanced seat the inlet pressure (P_{IN}) akt on the cone area A1 (yellow circle). The other areas on the cone head are neutralizing themself.

Example: BR25i, Sitz 10D

-6 mbar per bar inlet pressure difference:

Adjusted on P2 = 20 mbar
On inlet pressure P1 = 2 bar

Inlet pressure change upto 6 bar g
ΔP = 4 bar = 4 x -6 mbar = -24 mbar



Balanced seat

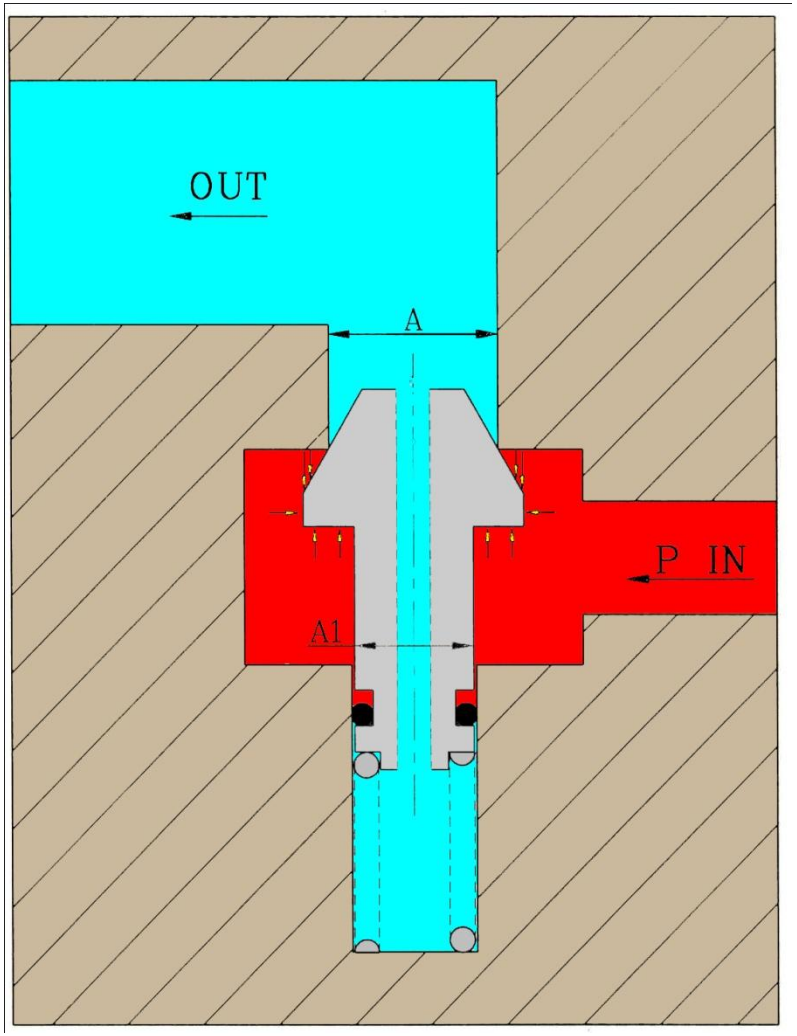
With the balanced seat the inlet pressure (P_{IN}) akt only on the cone head areas an they neutralizing themself.

Example: BR25i, Sitz 10E

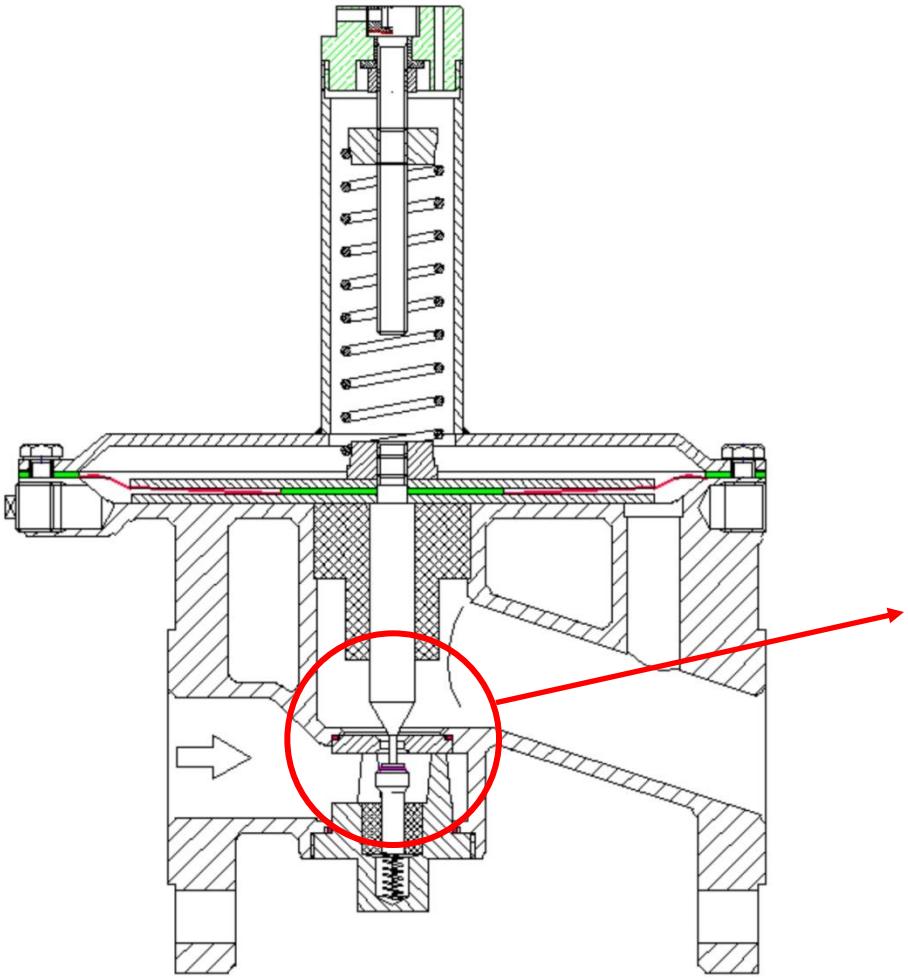
-0.2 mbar per bar inlet pressure difference:

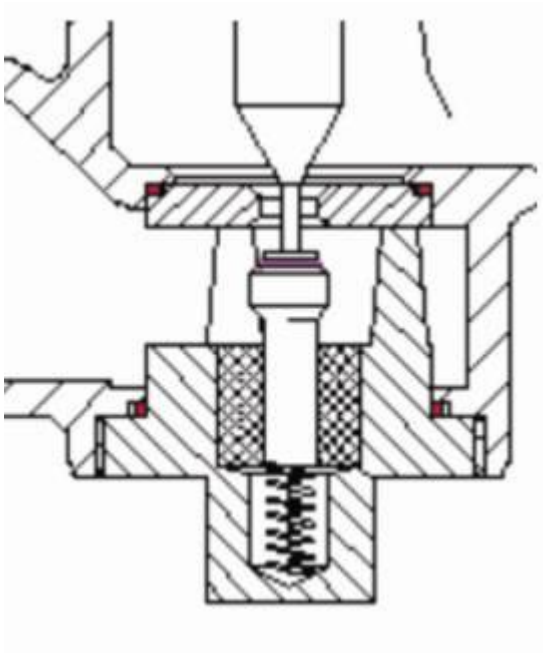
Adjusted on P2 = 20 mbar
On inlet pressure P1 = 2 bar

Inlet pressure change upto 6 bar g
ΔP = 4 bar = 4 x -0.2 mbar = -0.8 mbar



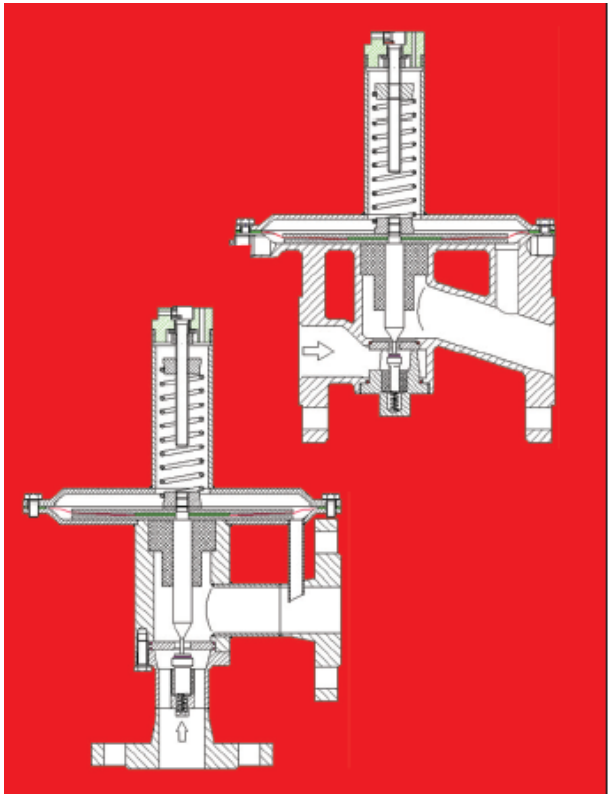
Decoupling






DN25PN16
DN25PN16
1.4408

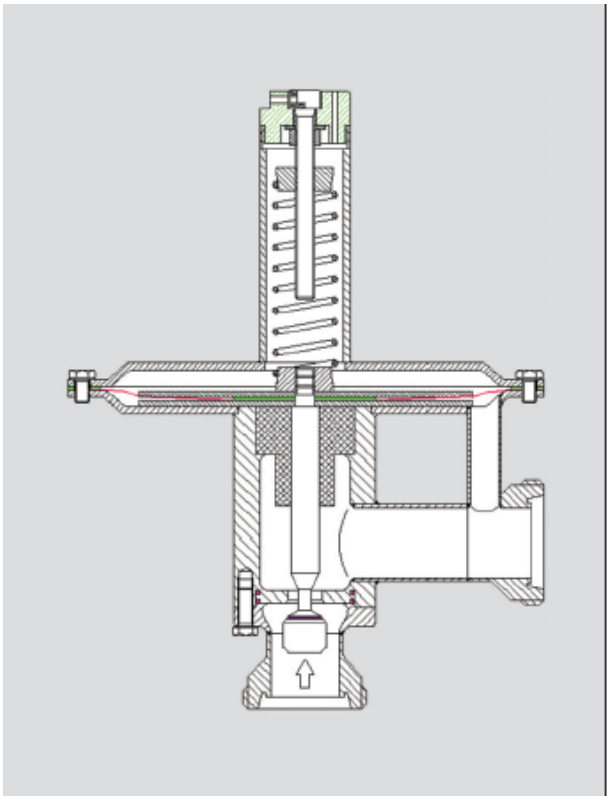
Designs



Standard Design

Application	For processes in the chemical-pharmaceutical industries, without substandard requirement.
Example of uses	Protection against explosion. Prevention of building an explosive mixture of gas by exchanging the atmospheric air with an inert gas.
Mounting form	Inline- and angle pattern
Surface	Without special treatment
Complete drain	No

Designs



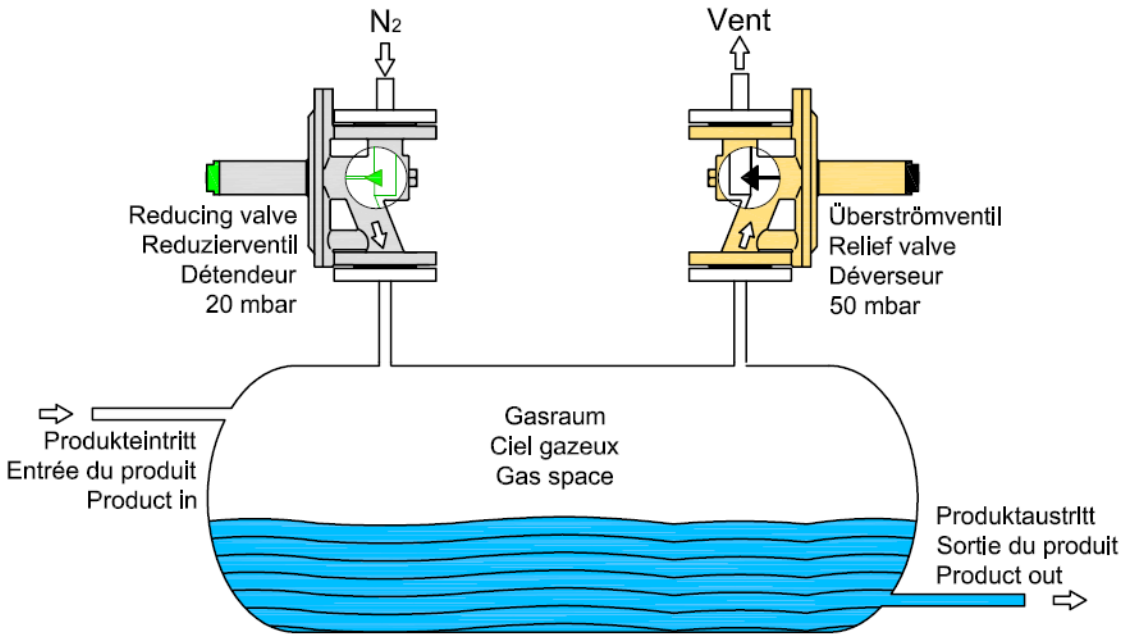
Clean Design

Application	For procedures in the pharmaceutical industries and food production with increased requirements concerning surface treatment, dead space and cleaning.
Example of uses	Protection against oxidation. The replacement of the atmospheric air by an inert gas prevents the building of an oxidizing ambiance.
Mounting form	Angle pattern
Internal space	Rounded edges, minimized dead space
Surface	Roughness for areas in contact with media < Ra 0.6 µm, internal and external electropolishing as option.
Complete drain	Yes

Low pressure regulator

When do you use these regulators?

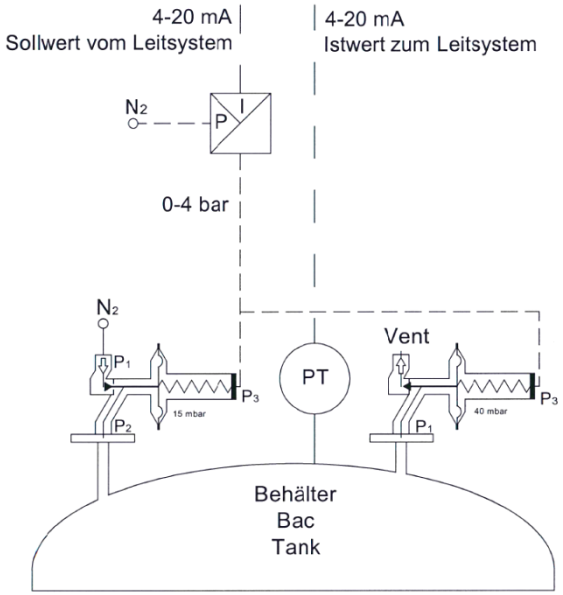
- Protection against explosion, oxidation and contamination.

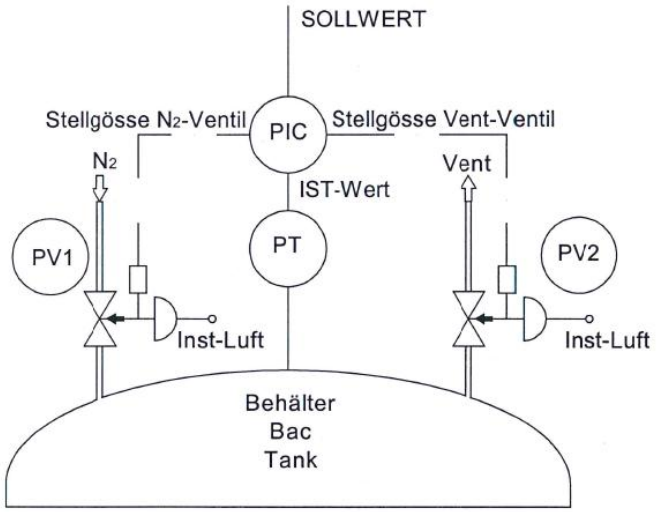


Low pressure regulator

Why should we install pressure regulators for blanketing instead a loop?

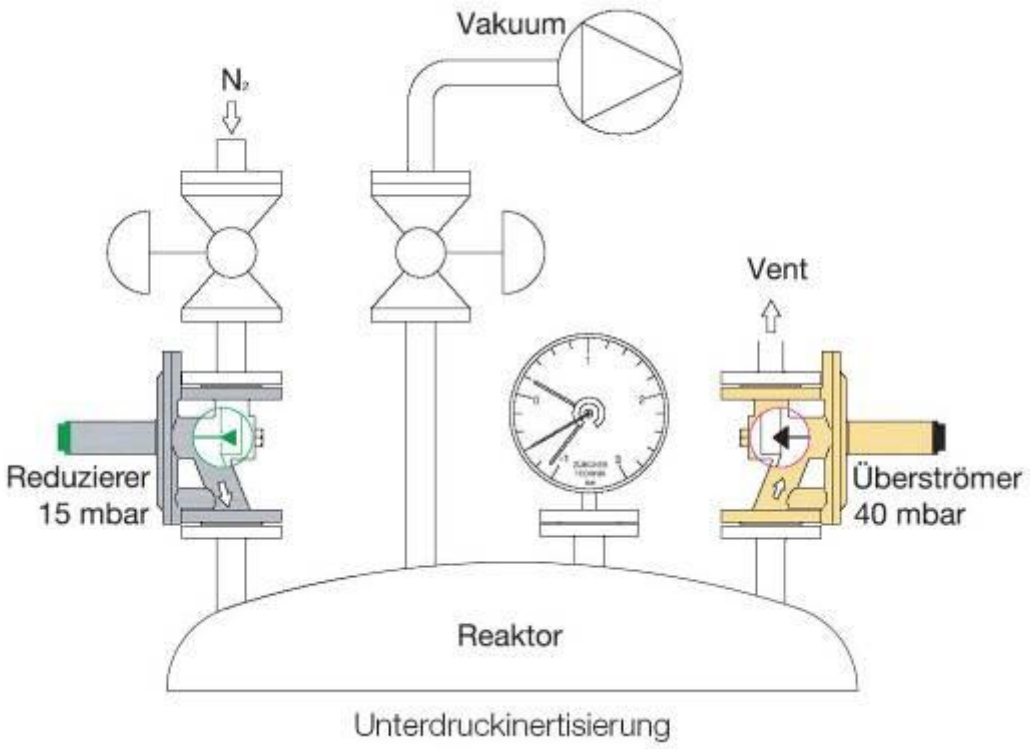
	Pressure Regulators	Loop
Loss of power	15 – 50 mbar	fail safe setting
Reaction	fast	slow
Corrosion resistance	high	high
Mounting	easy	complex
Costs	normal	high





Vacuum-pressure inertisation

The vacuum pump serves to suck off 80% of reactor atmosphere (residual pressure: 200 mbar abs.). Consequently, only 20% of the original oxygen molecules are still present inside the reactor. The missing volume is subsequently replaced by filling with nitrogen. This "thinning" of oxygen content of about 1 : 5 per inertisation cycle will be continued until the residual oxygen content inside
the reactor falls below the specified value. Instead of the described operation with vacuum, inertisation can be made even under overpressure in pressure-resistant reactors.



Unterdruckinertisierung

Animation

Ventilation

Two pressure regulators are required for optimum ventilation. One pressure reducing valve is needed for the nitrogen flow-in ("breathing-in”), and one relief valve is required for gas flow-out ("breathing-out”). The ventilation process takes place in a pressure range of 10 – 50 mbar in order to minimize the inert gas consumption. The aim of each ventilation process is to maintain the inert status inside the reactor throughout the fabrication process. The term "ventilation” may be replaced by such terms like "pressure superimposition”, "tank blanketing”, “padding” or others.

Technical Data

Eingangsdruck P1 in Bar Üd	0.5	1	2	4	6	10	Sitz Ø	Kv	DN
Hinterdruck in mbar Üd 10 mbar	8.5	12	20	29	49	86	4 mm	0.6	15
	19.5	28	45	59	85		6 mm	1	
	33	45	77	86			10 mm	2	
Hinterdruck in mbar Üd 50 mbar	8.5	12	20	29	49	86	4 mm	0.6	15
	19.5	28	45	59	85		6 mm	1	
	33	45	77	86			10 mm	2	
Hinterdruck in mbar Üd 100 mbar	8.5	12	20	29	49	86	4 mm	0.6	15
	19.5	28	45	59	85		6 mm	1	
	33	45	77	86			10 mm	2	

Eingangsdruck P1 in Bar Üd	0.5	1	2	4	6	10	Sitz Ø	Kv	DN
Hinterdruck in mbar Üd 10 mbar	172	228	380	630	855	1585	21 mm	12	80
	430	575	945	1590	1950		32 mm	28	
	665	885	1470	1960			42 mm	40	
Hinterdruck in mbar Üd 50 mbar	172	228	380	630	855	1585	21 mm	12	80
	430	575	945	1590	1950		32 mm	28	
	665	885	1470	1960			42 mm	40	
Hinterdruck in mbar Üd 100 mbar	172	228	380	630	855	1585	21 mm	12	80
	430	575	945	1590	1950		32 mm	28	
	665	885	1470	1960			42 mm	40	

Eingangsdruck P1 in Bar Üd	0.5	1	2
Hinterdruck in mbar Üd 10 mbar	8	13	22
	22	31	43
	46	65	110
	90	125	200
Hinterdruck in mbar Üd 50 mbar	8	13	22
	22	31	43
	46	65	110
	90	125	200
Hinterdruck in mbar Üd 100 mbar	8	13	22
	22	31	43
	46	65	110
	90	125	200

Eingangsdruck P1 in Bar Üd	0.5	1	2
Hinterdruck in mbar Üd 10 mbar	46	65	110
	94	125	208
	172	228	380
	430	600	850
Hinterdruck in mbar Üd 50 mbar	46	65	110
	94	125	208
	172	228	380
	430	600	850
Hinterdruck in mbar Üd 100 mbar	46	65	110
	94	125	208
	172	228	380
	430	600	850

Geschwindigkeit in der Rohrleitung: <

Abblasdruck P1 in mbar Üd / Ausgangsdruck P2 in mbar	10	20	50	100	200	400	Sitz Ø	Kv	DN
Atmosphärisch	10.5	14.5	21	30	46	55	14 mm	4	15
–2 mbar Vakuum	11	15	21.5	30	46	55			
–5 mbar Vakuum	12	16	22	31	47	56			
–10 mbar Vakuum	12.5	17	23	32	47	56			
Atmosphärisch	22	34	47	65	100	125	21 mm	9,5	25
–2 mbar Vakuum	24	35	48	66	101	125			
–5 mbar Vakuum	27	36	49	67	101	125			
–10 mbar Vakuum	34	40	50	68	102	126			
Atmosphärisch	105	140	210	300	460	560	42 mm	40	50
–2 mbar Vakuum	115	143	215	305	460	560			
–5 mbar Vakuum	128	147	220	310	465	560			
–10 mbar Vakuum	140	165	230	315	470	565			
Atmosphärisch	210	280	420	600	920	1120	67 mm	80	80
–2 mbar Vakuum	230	285	430	610	925	1120			
–5 mbar Vakuum	255	295	440	620	930	1125			
–10 mbar Vakuum	280	330	460	630	940	1130			
Atmosphärisch	390	530	785	1130	1720	2100	82 mm	150	100
–2 mbar Vakuum	425	555	800	1140	1730	2105			
–5 mbar Vakuum	475	595	825	1160	1740	2110			
–10 mbar Vakuum	530	630	865	1220	1765	2120			

Sizing (How to choose the right regulator)

Process data from client:

- Maximum and minimum inlet and outlet pressure
- The fluid
- Requested flow rate
- Temperature
- Materials
- Connections
- Angle or inline pattern
- Inside or outside mounting (rain cover)

Additional information:

- Requested certification
- Options (external feedback line)

Sizing (How to choose the right regulator)

Calculating Example:

P1:	6 barg
P2:	50 mbarg
Flow:	150 Nm3/h
Fluid:	Nitrogen (N2)
Temp.:	20°C

Kv-Value

Q:	**150**	Nm^3/h
density(ρ):	**1.25**	kg/m^3
P_1:	**7**	bar a
P_2:	**1.05**	bar a
ΔP:	**5.95**	bar
Temp:	**20**	°C

KV-Value:	**1.60**

calculate Kv (gases)

P2 ≥ P1 / 2

$$k_v = \frac{Q_N}{514} \cdot \sqrt{\frac{\rho_N \cdot T_1}{\Delta p \cdot p_2}}$$

P2 < P1 / 2

$$k_v = \frac{Q_N}{257 \cdot p_1} \cdot \sqrt{\rho_N \cdot T_1}$$

Sizing (How to choose the right regulator)

Function	Size	Seat (mm)	KV-Value	CV-Value
Reducer (BR-Series)	DN15 1/2"	4	0.6	0.7
		6	1	1.2
		10	2	2.3
	DN25 1"	4	0.7	0.8
		6	1.2	1.4
		10	3	3.4
		14	5	5.8
	DN50 2"	10	3	3.4
		14	5.5	6.3
		21	12	13.8
		32	26	30
	DN80 3"	21	12	13.8
		32	26	30
		42	40	46
	DN100 4"	32	26	30
		42	40	46
		67	80	92

KV-Value:	1.60

Flow capacity

Kv	3	
density(ρ):	1.25	kg/m^3
P_1:	7	bar a
P_2:	1.05	bar a
ΔP:	5.95	bar
Temp:	20	°C

Flow:	281.94 Nm^3/h

calculate Q (gases)

P2 ≥ P1 / 2

$$Q_N = 514 \cdot k_v \cdot \sqrt{\frac{\Delta p \cdot p_2}{\rho_N \cdot T_1}}$$

P2 < P1 / 2

$$Q_N = 257 \cdot k_v \cdot p_1 \cdot \frac{1}{\sqrt{\rho_N \cdot T_1}}$$

Sizing (How to choose the right regulator)

Flow capacity

Kv	3	
density(ρ):	1.25	kg/m^3
P_1:	7	bar a
P_2:	1.05	bar a
ΔP:	5.95	bar
Temp:	20	°C

Flow:	281.94 Nm^3/h

calculate Q (gases)

P2 ≥ P1 / 2

$$Q_N = 514 \cdot k_v \cdot \sqrt{\frac{\Delta p \cdot p_2}{\rho_N \cdot T_1}}$$

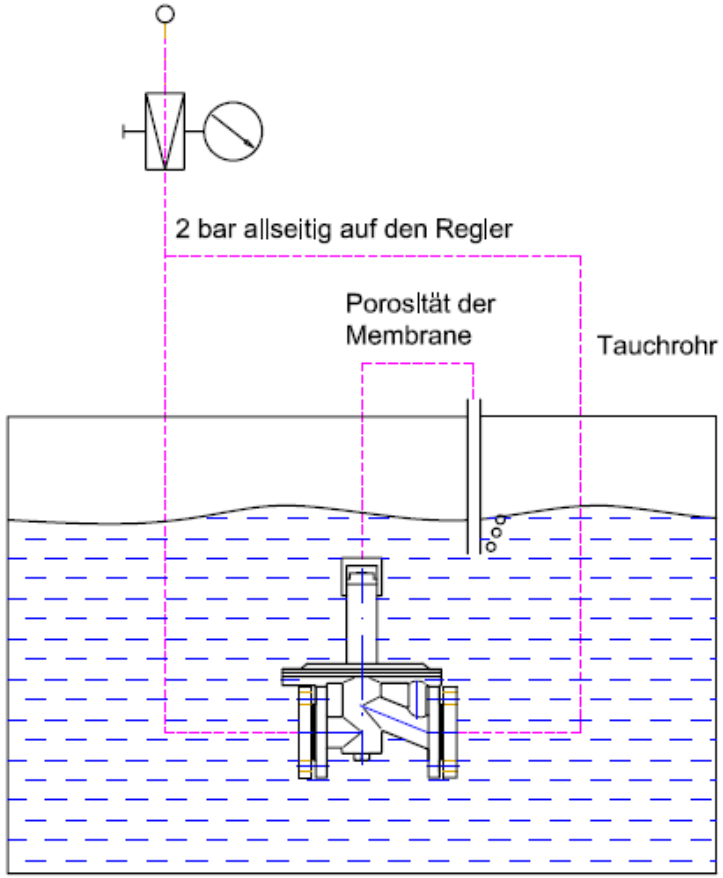
P2 < P1 / 2

$$Q_N = 257 \cdot k_v \cdot p_1 \cdot \frac{1}{\sqrt{\rho_N \cdot T_1}}$$

	Nm3/h						
p1 bar g	1	2	3	4	5	6	Sitz Ø
p2 mbarg 10 - 900	15	23	30	38	45	53	4
	30	45	60	74	89	104	6
	75	112	150	188	225	263	10
	129	194	259	324	388	450	14

Testing

Tightness test:



Adjustment

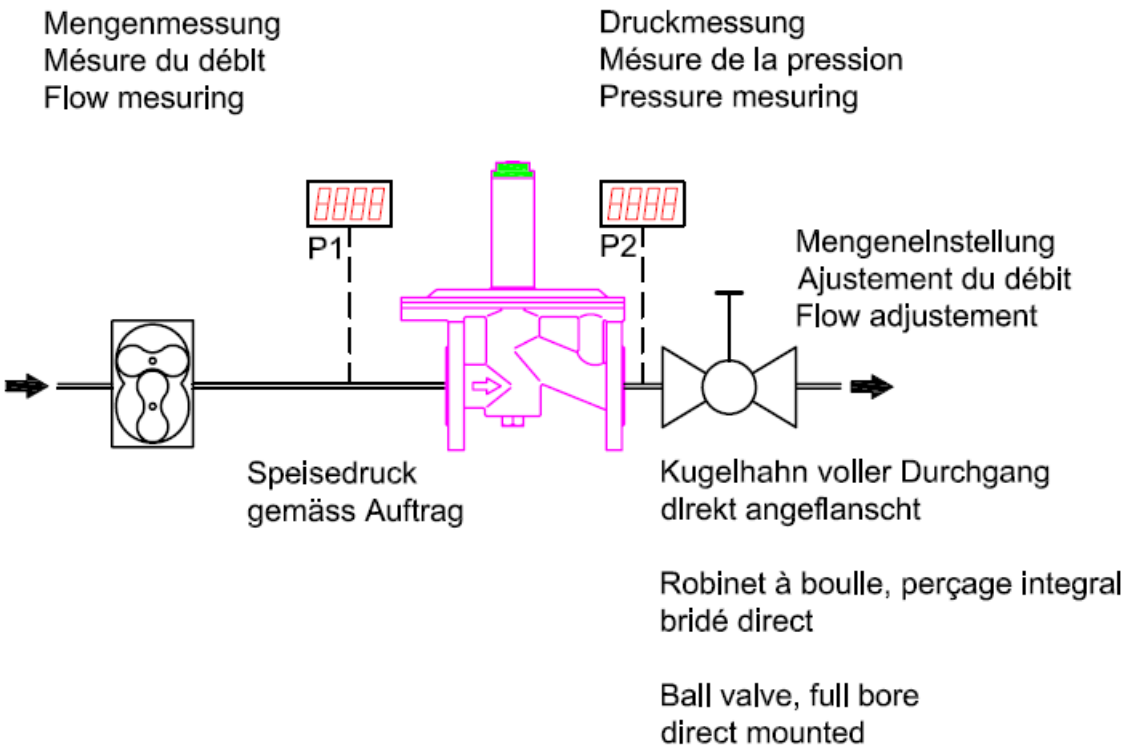
ADJUSTING of a positive working pressure:
Mount the regulator in a line, same position as in the plant.
Adjust a low flow with help of an outlet valve.

Flow:	DN15	0.5	Nm^3/h
	DN25	1	Nm^3/h
	DN40/50	2	Nm^3/h
	DN80/100	5	Nm^3/h

Turn the adjusting screw counter-clockwise (CCW):
The working pressure is encreasing.
Turn the adjusting screw clockwise (CW):
The working pressure is decreasing.

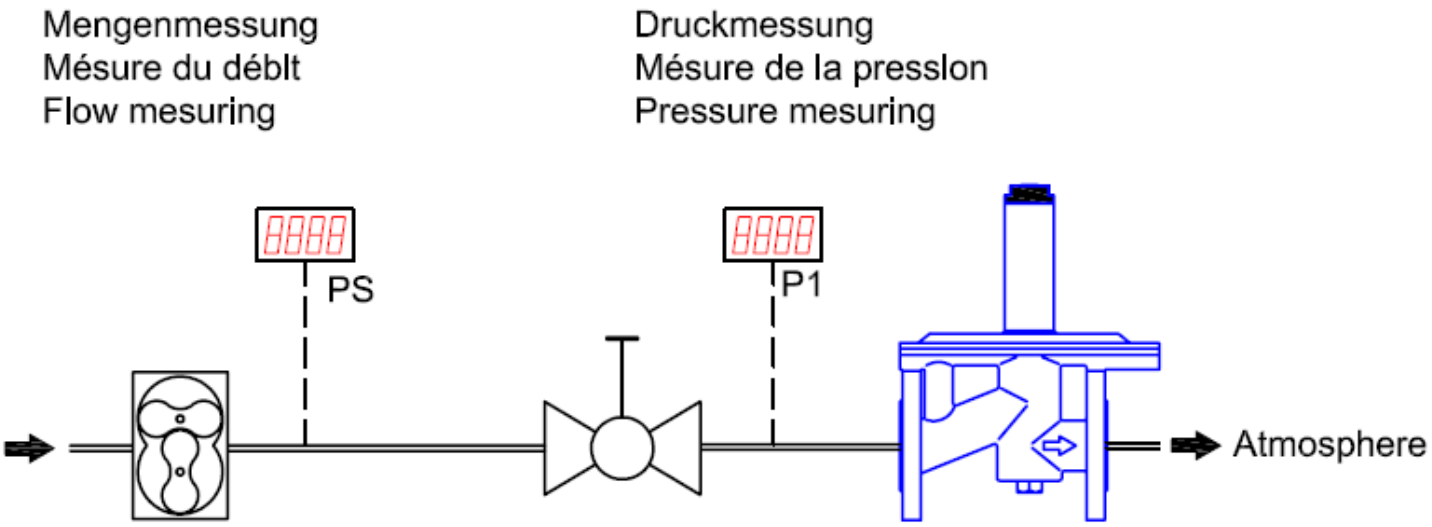
Adjustment

Reducing regulator

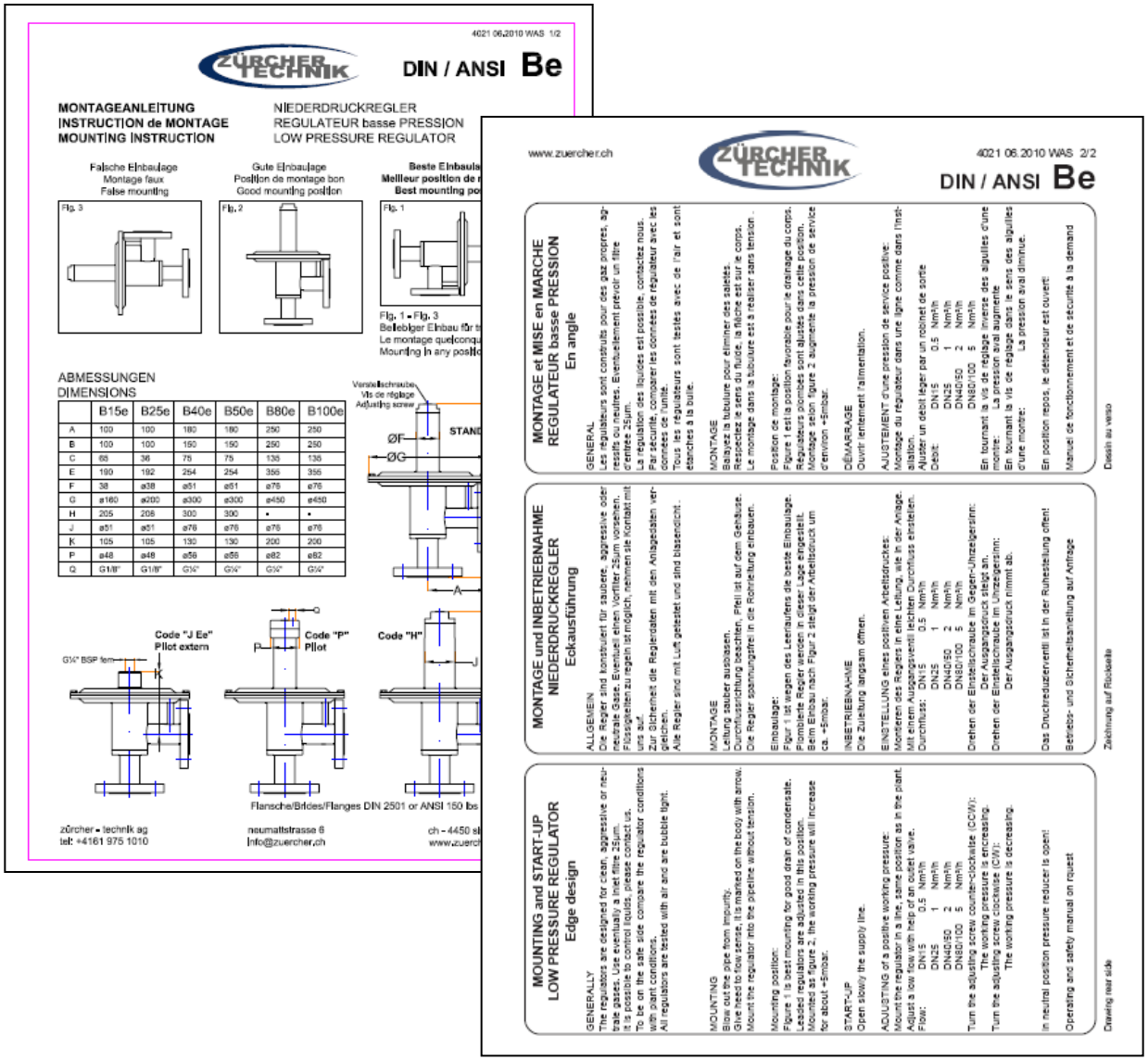


Adjustment

Relief regulator



Mounting and operation (Safety)



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ZÜRCHER TECHNIK

DIN / ANSI **Be**

MONTAGEANLEITUNG NIEDERDRUCKREGLER
INSTRUCTION de MONTAGE REGULATEUR basse PRESSION
MOUNTING INSTRUCTION LOW PRESSURE REGULATOR

Falsche Einbaulage
Montage faux
False mounting

Fig. 3

Gute Einbaulage
Position de montage bon
Good mounting position

Fig. 2

Beste Einbaula
Meilleur position de r
Best mounting po

Fig. 1

Fig. 1 - Fig. 3
Beliebiger Einbau für t
Le montage quelconqu
Mounting in any positio

ABMESSUNGEN
DIMENSIONS

	B15e	B25e	B40e	B50e	B80e	B100e
A	100	100	180	180	250	250
B	100	100	150	150	250	250
C	65	36	75	75	135	135
E	190	192	254	254	355	355
F	38	ø38	ø51	ø51	ø76	ø76
G	ø160	ø200	ø300	ø300	ø450	ø450
H	205	208	300	300	•	•
J	ø51	ø51	ø76	ø76	ø76	ø76
K	105	105	130	130	200	200
P	ø48	ø48	ø56	ø56	ø82	ø82
Q	G1/8"	G1/8"	G¼"	G¼"	G¾"	G¾"

Verstellschraube
Vis de réglage
Adjusting screw

ØF
ØG

STAND

A

Code "J Ee"
Pilot extern

G¼" BSP fem

K

Code "P"
Pilot

P

Code "H"

J

Flansche/Brides/Flanges DIN 2501 or ANSI 150 lbs

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ZÜRCHER TECHNIK

4021 06.2010 WAS 2/2

DIN / ANSI **Be**

MONTAGE et MISE en MARCHE RÉGULATEUR basse PRESSION En angle

GENERAL
Les régulateurs sont construits pour des gaz propres, agressifs ou neutres. Eventuellement prévoir un filtre d'entrée 25µm.
La régulation des liquides est possible, contactez nous.
Par sécurité, comparer les données de régulateur avec les données de l'unité.
Tous les régulateurs sont testés avec de l'air et sont étanches à la bulle.

MONTAGE
Balayez la tubulure pour éliminer des saletés.
Respectez le sens du fluide, la flèche est sur le corps.
Le montage dans la tubulure est à réaliser sans tension .

Position de montage:
Figure 1 est la position favorable pour le drainage du corps.
Régulateurs plombés sont ajustés dans cette position.
Montage selon figure 2 augmente la pression de service d'environ +5mbar.

DÉMARRAGE
Ouvrir lentement l'alimentation.

AJUSTEMENT d'une pression de service positive:
Montage du régulateur dans une ligne comme dans l'installation.
Ajuster un debit léger par un robinet de sortie
Débit: DN15 0.5 Nm³/h
DN25 1 Nm³/h
DN40/50 2 Nm³/h
DN80/100 5 Nm³/h
En tournant la vis de réglage inverse des aiguilles d'une montre: La pression aval augmente
En tournant la vis de réglage dans le sens des aiguilles d'une montre: La pression aval diminue.

En position repos, le détenteur est ouvert!

Manuel de fonctionnement et de sécurité à la demand

Dessin au verso

MONTAGE und INBETRIEBNAHME NIEDERDRUCKREGLER Eckausführung

ALLGEMEIN
Die Regler sind konstruiert für saubere, aggressive oder neutrale Gase. Eventuell einen Vorfilter 25µm vorsehen.
Flüssigkeiten zu regeln ist möglich, nehmen sie Kontakt mit uns auf.
Zur Sicherheit die Reglerdaten mit den Anlagedaten vergleichen.
Alle Regler sind mit Luft getestet und sind blasendicht.

MONTAGE
Leitung sauber ausblasen.
Durchflussrichtung beachten. Pfeil ist auf dem Gehäuse.
Die Regler spannungsfrei in die Rohrleitung einbauen.

Einbaulage:
Figur 1 ist wegen des Leerlaufens die beste Einbaulage.
Plombierte Regler werden in dieser Lage eingestellt.
Beim Einbau nach Figur 2 steigt der Abstelldruck um ca. +5mbar.

INBETRIEBNAHME
Die Zuleitung langsam öffnen.

EINSTELLUNG eines positiven Arbeitsdruckes:
Montieren des Reglers in eine Leitung, wie in der Anlage.
Mit einem Ausgangsventil leichten Durchfluss einstellen.
Durchfluss: DN15 0.5 Nm³/h
DN25 1 Nm³/h
DN40/50 2 Nm³/h
DN80/100 5 Nm³/h
Drehen der Einstellschraube im Gegen-Uhrzeigersinn: Der Ausgangsdruck steigt an.
Drehen der Einstellschraube im Uhrzeigersinn: Der Ausgangsdruck nimmt ab.

Das Druckreduzierventil ist in der Ruhestellung offen!

Betriebs- und Sicherheitsanleitung auf Anfrage

Zeichnung auf Rückseite

MOUNTING and START-UP LOW PRESSURE REGULATOR Edge design

GENERALLY
The regulators are designed for clean, aggressive or neutrale gases. Use eventually a inet filte 25µm.
It is possible to control liquids, please contact us.
To be on the safe side compare the regulator conditions with plant conditions.
All regulators are tested with air and are bubble tight.

MOUNTING
Blow out the pipe from impurity.
Give heed to flow sense, it is marked on the body with arrow.
Mount the regulator into the pipeline without tension.

Mounting position:
Figure 1 is best mounting for good drain of condensate.
Leaded regulators are adjusted in this position.
Mounted as figure 2, the working pressure will increase for about +5mbar.

START-UP
Open slowly the supply line.

ADJUSTING of a positive working pressure:
Mount the regulator in a line, same position as in the plant.
Adjust a low flow with help of an outlet valve.
Flow: DN15 0.5 Nm³/h
DN25 1 Nm³/h
DN40/50 2 Nm³/h
DN80/100 5 Nm³/h
Turn the adjusting screw counter-clockwise (CCW): The working pressure is encreasing.
Turn the adjusting screw clockwise (CW): The working pressure is decreasing.

In neutral position pressure reducer is open!

Operating and safety manual on quest

Drawing rear side

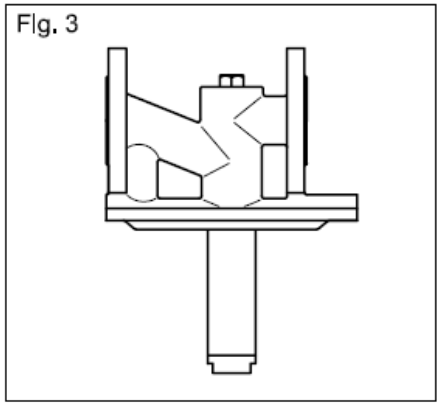
Mounting and operation (Safety)

MONTAGEANLEITUNG
INSTRUCTION de MONTAGE
MOUNTING INSTRUCTION

NIEDERDRUCKREGLER
REGULATEUR basse PRESSION
LOW PRESSURE REGULATOR

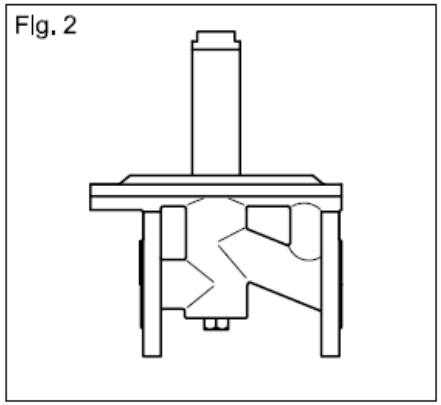
Falsche Einbaulage
Montage faux
False mounting

Flg. 3



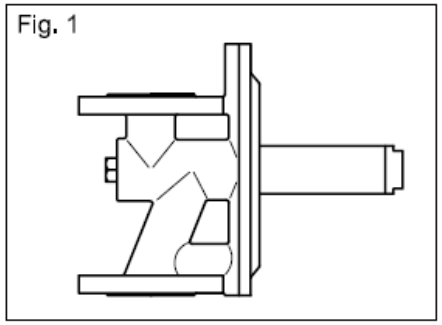
Gute Einbaulage
Position de montage bon
Good mounting position

Flg. 2



Beste Einbaulage
Meilleur position de montage
Best mounting position

Fig. 1



Flg. 1 - Flg. 3
Beliebiger Einbau für trockene Gase
Le montage quelconque pour gaz sec
Mounting in any position for dry gases

Mounting and operation (Safety)

MONTAGEANLEITUNG
INSTRUCTION de MONTAGE
MOUNTING INSTRUCTION

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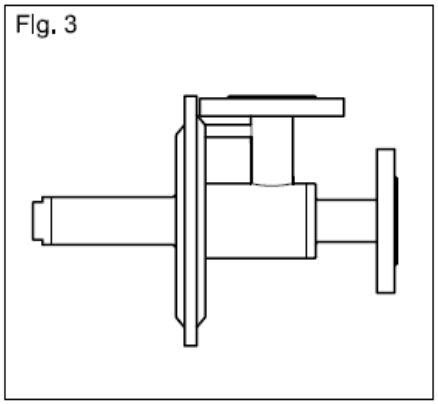

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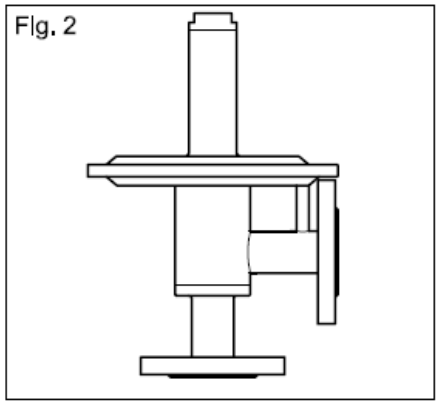
Good mounting position

Flg. 2



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Meilleur position de montage
Best mounting position

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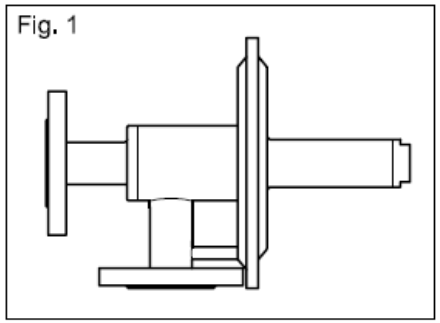

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All regulators are tested with air and are bubble tight.

MOUNTING
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Give heed to flow sense, it is marked on the body with arrow.
Mount the regulator into the pipeline without tension.

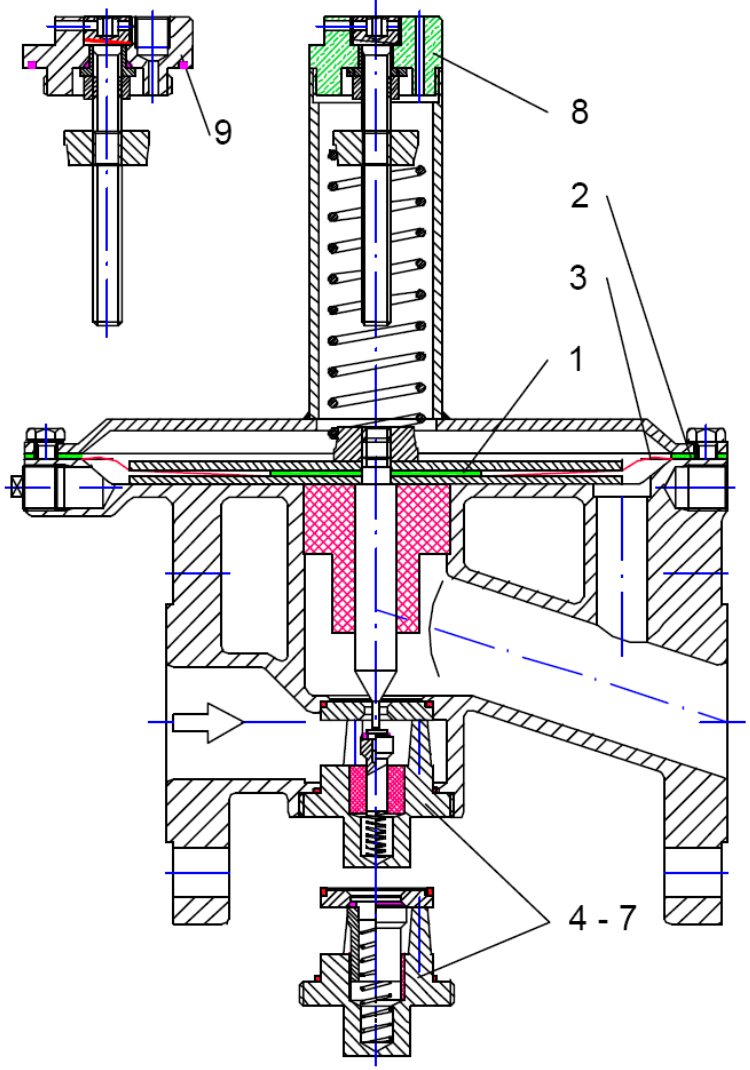
START-UP
Open slowly the supply line.

Trouble shooting:

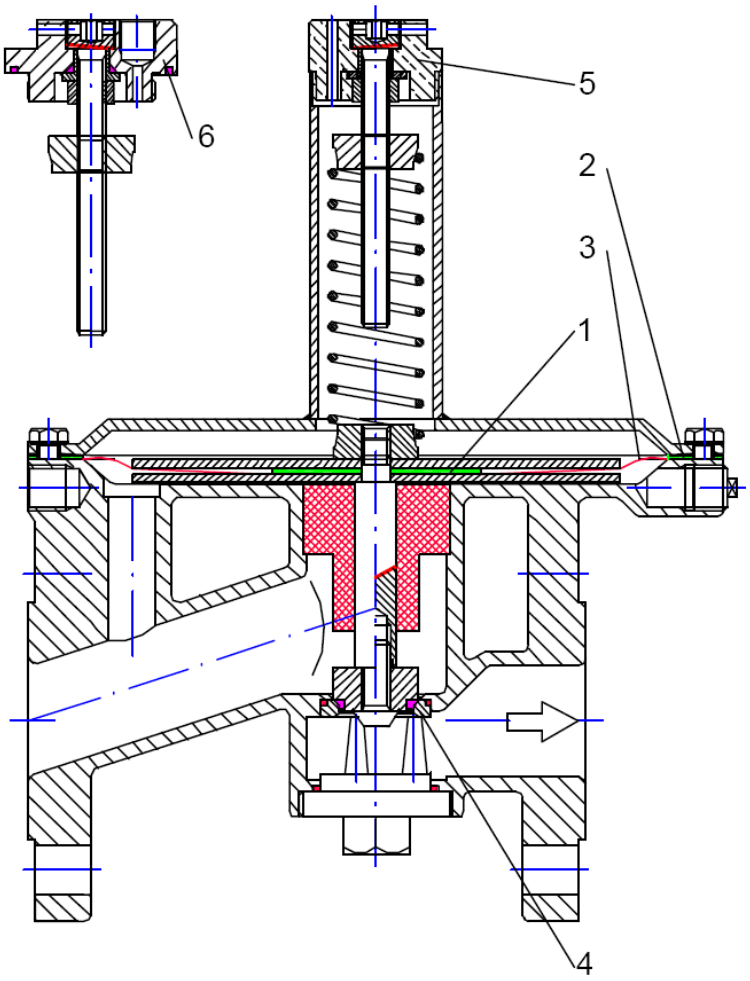
problem	cause	repair
Rise in outlet pressure	- damaged main valve or seat	- fit new regulator
	- dirty main valve or seat	- clean
	- broken valve spring	- replace spring
	- damaged o-ring	- replace o-ring
Inability to control	- broken main spring	- replace

Spare parts

Reducing valve



Relief valve

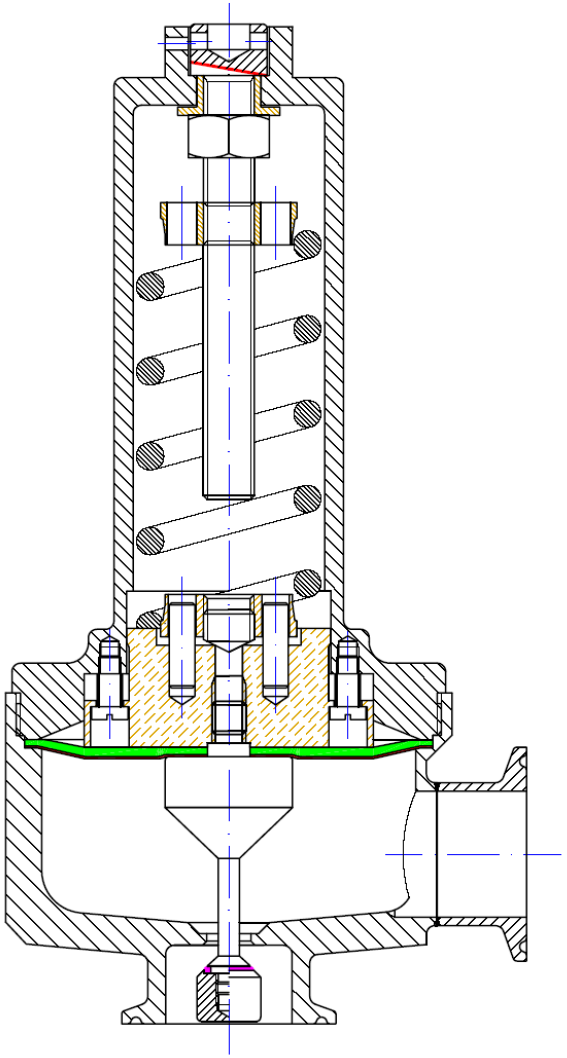


Medium Pressure Regulators (MR- und MS-Serie)

Medium Pressure Regulators (MR- und MS-Serie)

Highlights

- Regulating range
  up to 16 bar / 300 psi
- Withstands full vacuum
- Self draining
- Soft seat capability
  for ANSI Class VI shutoff
- No guiding surface in the fluid
- Stainless steel regulators
- Nickel alloy regulators
- PVDF regulators
- Sanitary regulators
- Cleaning-in-Place (CIP)
- Steaming-in-Place (SIP)



Medium Pressure Regulators (MR- und MS-Serie)

Codification Mediumpressure Regulators

1. Functions		2. Connections		3. Bodies		4. Accessories	
MR	Reducer	**A**	ANSI Flanges 150 lbs	**S**	316 L (1.4404)	**H**	Heating Jacket
MRC	Sanitary-Reducer	**D**	DIN Flanges PN16 / PN10	**H**	Nickel alloy	**P**	Adjusted and Sealed
... P	Pilot Pressure Design	**C1**	Clamp ISO 1127-1	**P**	PVDF	**M**	Pressure Gauge
		C2	Clamp DIN 32676	**X**	Special	**V**	Pressure Gauge Fitting
MS	Back Pressure Regulator	**C3**	Clamp OD / ASME			**X**	Special
MSC	Sanitary-Back Pressure Regulator	**C4**	Clamp SMS	**Trim Parts**			
... P	Pilot Pressure Design	**C5**	Food Union DIN 11851	**S**	316 L (1.4404)		
		G	BSP Thread fem	**H**	Nickel alloy		
		N	NPT Thread fem	**P**	PVDF		
		S	Flanges with slot DIN 2512	**X**	Special		
		X	Special				
Sizes		**Seats Ø**		**Seats O-Ring**			
25	DN 25 (1")	**(06,10,14)R**	Direct Action	**K**	FFKM (Kalrez® 6375)		
		(14,21)S	Relief Seat	**V**	FPM (Viton®)		
				C	FFKM FDA (Kalrez® 6221)		
				X	Special		
		Springs					
Patterns		**L**	0.04 to 0.25 bar / 0. to 0.15 psi	**Diaphragms**			
i	Inline Pattern	**A**	0.15 to 1 bar / 1.5 to 15 psi	**P**	PTFE		
e	Angle Pattern	**B**	0.4 to 3 bar / 6 to 40 psi	**V**	FPM		
		C	0.6 to 5 bar / 12 to 70 psi	**E**	EPDM white FDA		
		J	Dome Loaded	**X**	Special		
		X	Special				

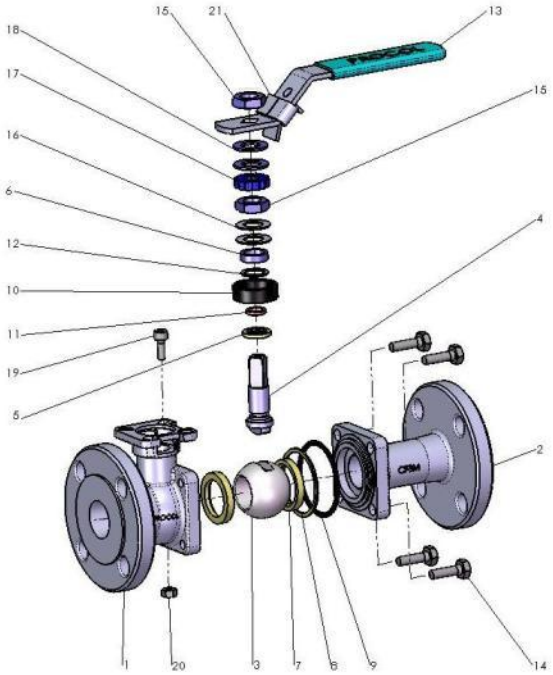
Examples:

1	2	3	4
MR25e	**D06RA**	**SSVV**	**P**

1 Reducer DN 25, angle pattern
2 DIN flanges PN 40, seat diameter 6 mm, direct action, spring range 0.15 to 1 bar
3 Body stainless steel, trim parts stainless steel, seat o-ring material FPM, diaphragm FPM
4 Adjusted and lead sealed

Ball valves

Type AF90D



Acceptance / Certificates

- ATEX Ex II 2 GDc IIB/IIC
- CE0036 acc. to PED 97/23/EC
- Fire safe acc. to BS EN ISO 10497:2004
- Seals acc. FDA 21CFR 177.1550
- DIN EN 12266-1:2003
- TA-Luft acc. to VDI 2440

basis DN15 – DN50

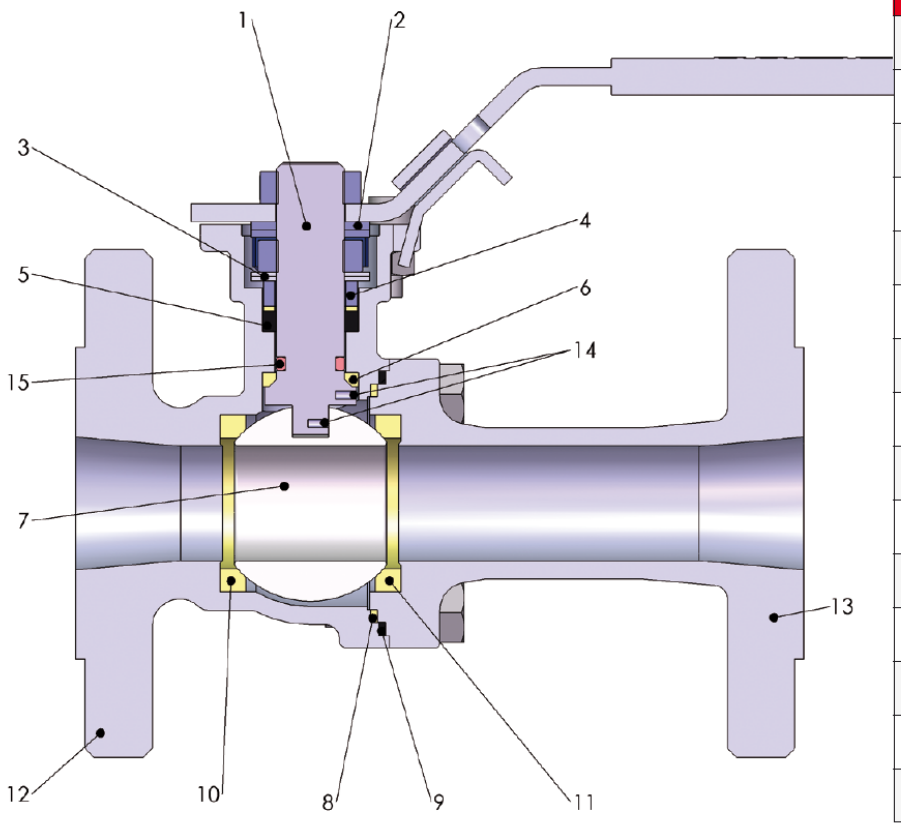
basis DN 65 – DN100

with stem extension

with actuator

with actuator + stem extension

Type AF90D



Pos.	Description	Material
1	Stem	1.4401
2	Distancer	1.4435
3	Belleville Washer	1.4301
4	Stem Seal Follower	1.4401
5	Stem Packing	Graphite/PTFE
6	Stem Washer	PTFE
7	Ball	1.4401
8	Body Seal Wetted Side	PTFE
9	Body Seal Outside	Graphite
10	Seat Ring	PTFE
11	Seat Ring *(pressure releasing)*	PTFE / FEP
12	Body	1.4408/CF8M/A216WCB
13	Flange	1.4408/CF8M/A216WCB
14	Antistatic Device	1.4401
15	O-Ring	NBR / FEP

Double sealing system

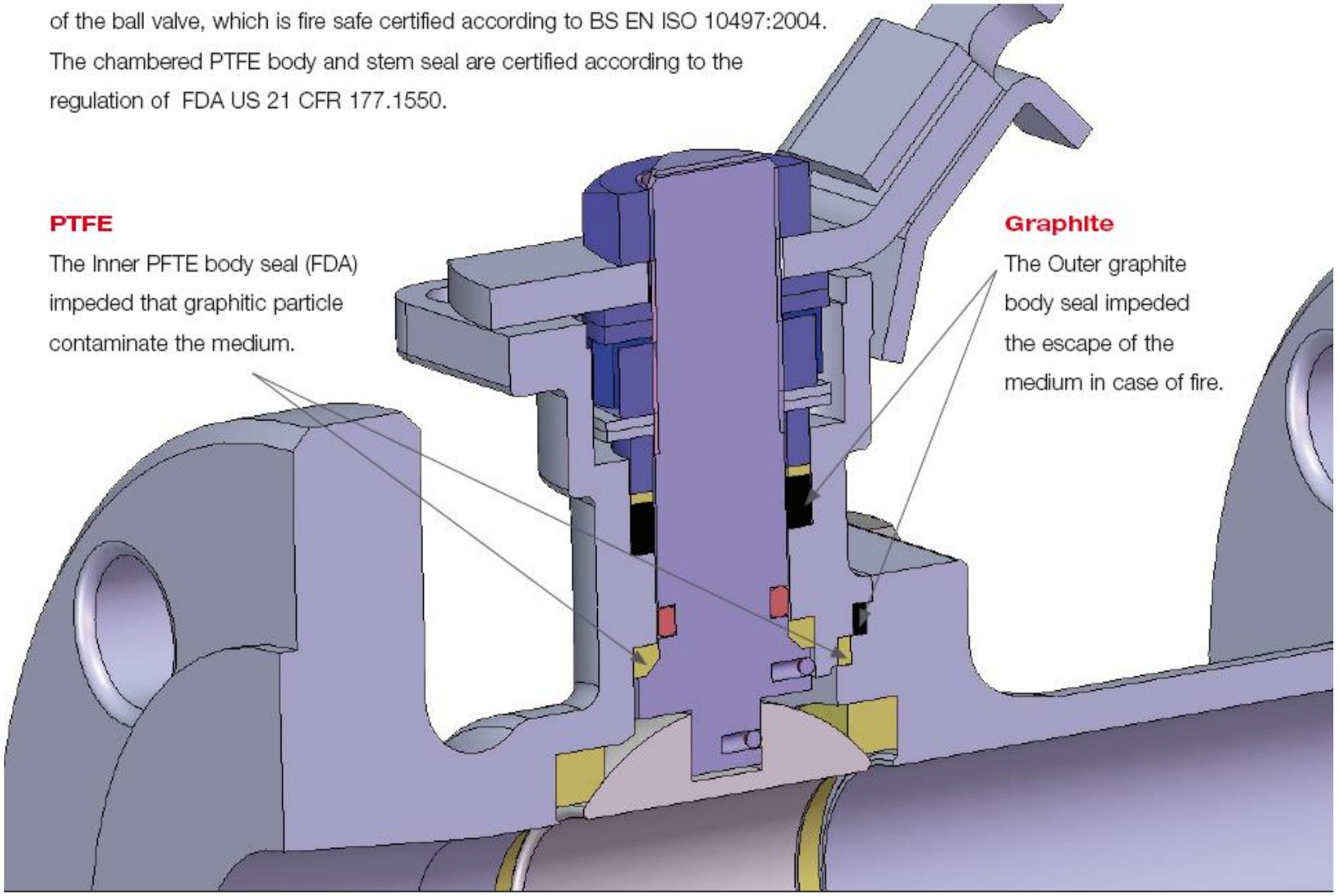
The outer graphite body seal and graphite stem packing grant the fire safe attribute of the ball valve, which is fire safe certified according to BS EN ISO 10497:2004. The chambered PTFE body and stem seal are certified according to the regulation of FDA US 21 CFR 177.1550.

PTFE

The Inner PFTE body seal (FDA) impeded that graphitic particle contaminate the medium.

Graphite

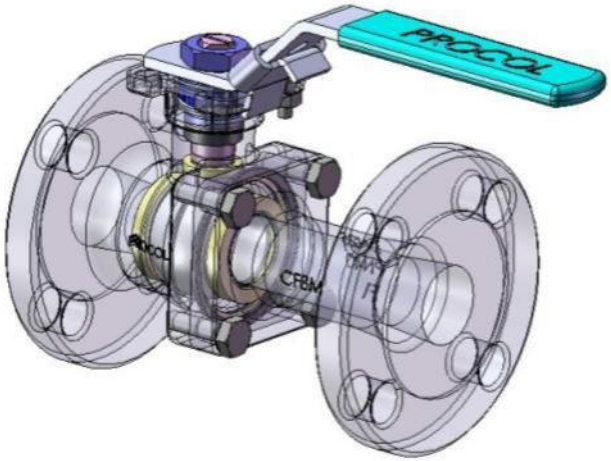
The Outer graphite body seal impeded the escape of the medium in case of fire.

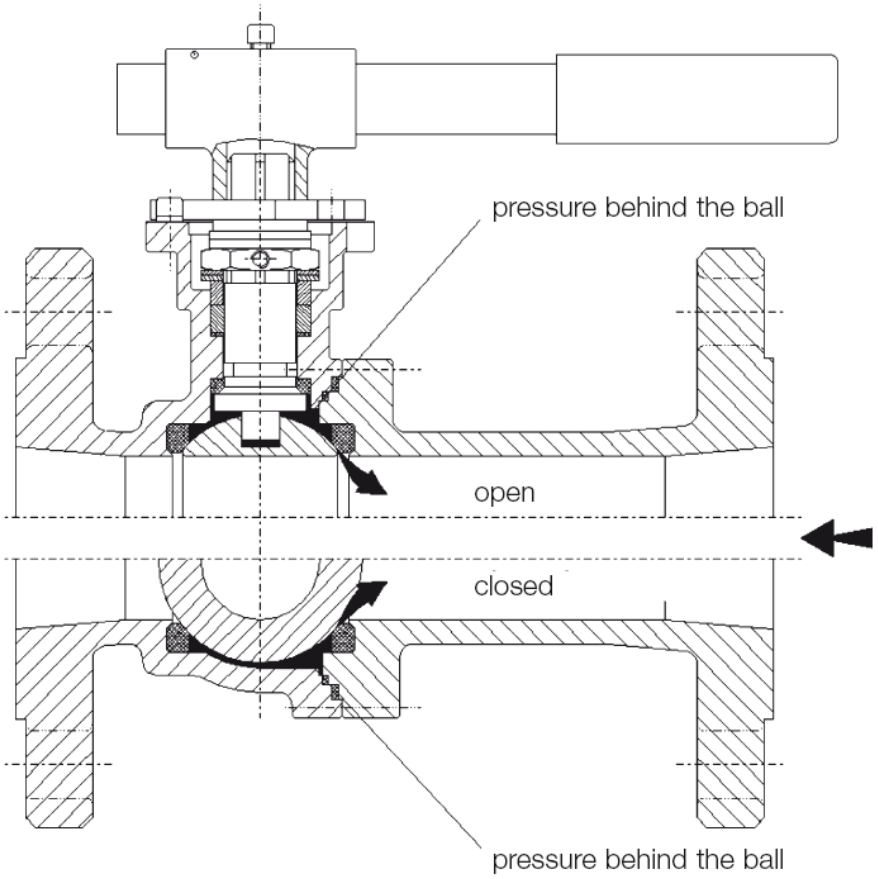


Pressure releasing system

Ball valves equipped with an automatically pressure releasing system prevent the uncontrolled pressure increase between ball and body.

- no damage of the ball seats
- no leckage
- no blockage





Ball Valves (forged)

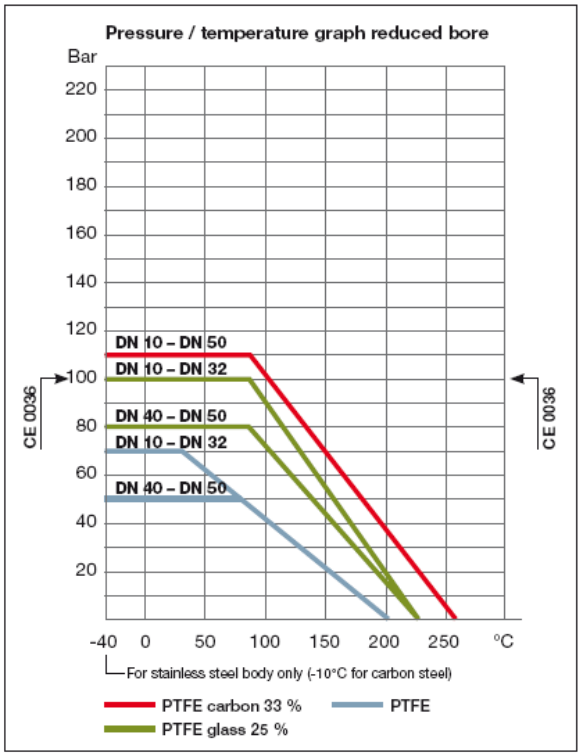
Ball Valves (forged)

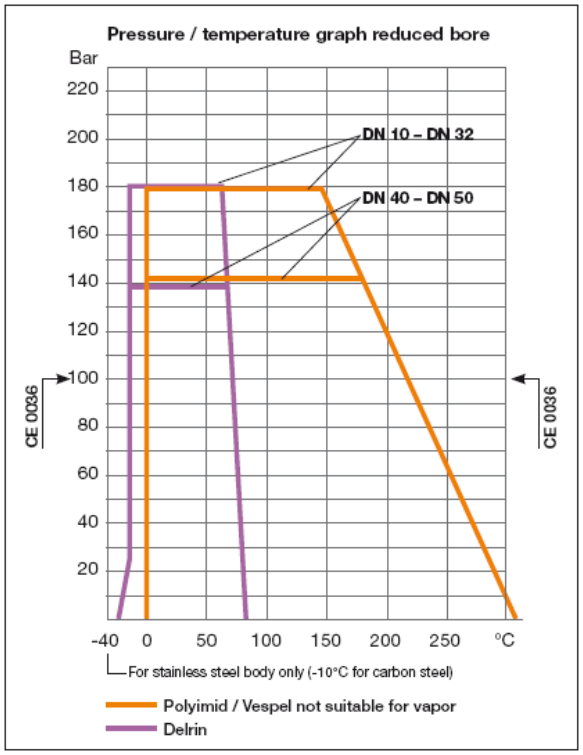
- DN 8 – DN 40 full port
- DN 15 – DN 50 reduced port
- PN 180 bar – 2600 psi
- Temperature max. 310°C
- Encapsulated body bolts
- Forged material, stainless steel 1.4404, carbon steel A105N
- ISO 5211 mounting pad for easy automation
- Solid ball
- Various seat materials
- Wide range of accessoires
- Swiss made

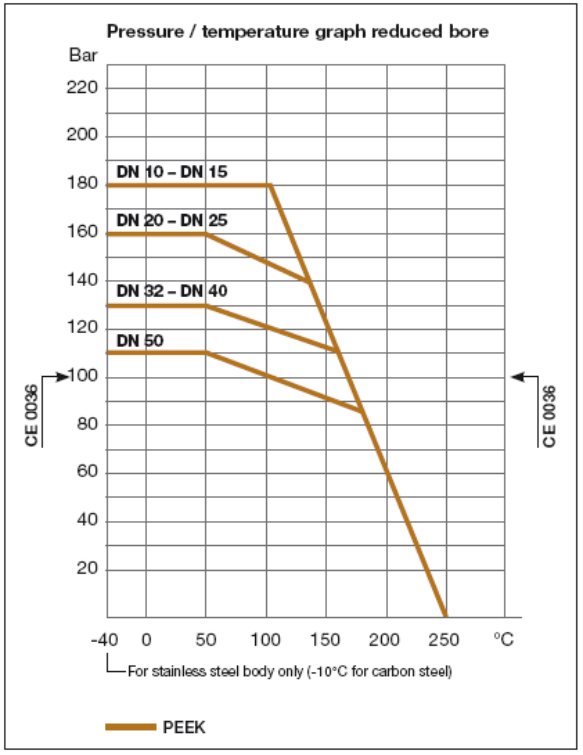
Certification

- Firesafe BS 6755/2-API 607
- PED 97/23/EG – CE 0036
- ATEX Ex II 2GD cII/B/IIc
- US FDA 21cFR

Seat materials







Thank you