

Company Presentation

Schroeder Valves GmbH & Co. KG



1

The specialist for Compensating Bypass Check Valves.

We offer intelligent solutions.

schroeder valves GmbH & Co. KG

The company H. Schroeder & Co. GmbH & Co. KG was founded in 1889 by Heinrich Schroeder. In the early years of H.Schroeder the main part of the business was the manufacturing of scythes handles made of metal. In 1950 a completed new focus was set, the development and production of pump protection fittings.

Right after the production started a well known German pump manufacturer was convinced by the new technology of the Schroeder Special Valves. The pump manufacturer stopped his own production and from now on every compensating bypass check valve was produced by H. Schroeder & Co. GmbH & Co. KG.

For this reason the Schroeder solution, which also includes multi port throttles besides the pump protection fittings has been developed, designed and assembled for more then 50 years in our company.

1

The specialist for Compensating Bypass Check Valves.

We offer intelligent solutions.

schroeder valves GmbH & Co. KG

- 1889 founded
- headquarter located in Gummersbach
- agents worldwide
- specialist in Compensating Bypass Check Valves for more than 50 years
- delivery worldwide
- certified with EN DIN ISO 9001 since 1995

2

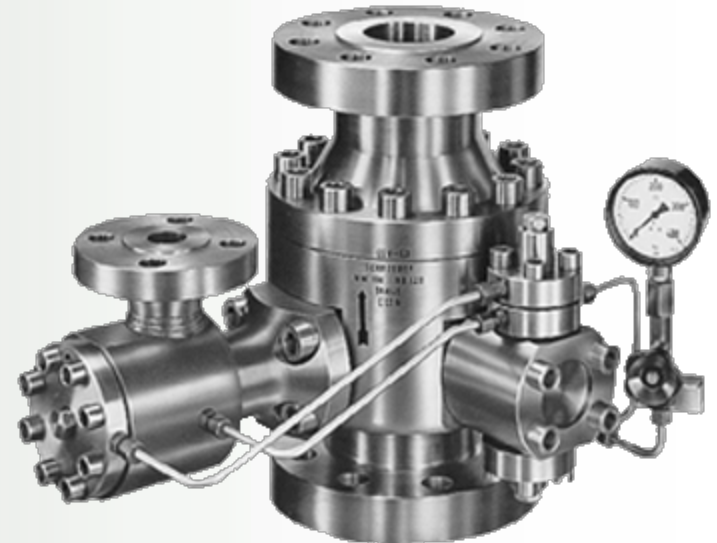
We offer intelligent solutions,
that will pay dividends for you.

Products



High Quality Pump Protection Valves

Made in Germany



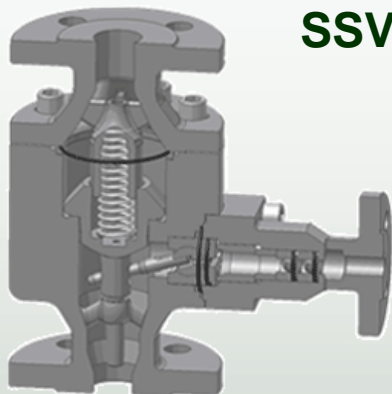
2

We offer intelligent solutions,
 that will pay dividends for you.

SSV 10 / 11 / 12

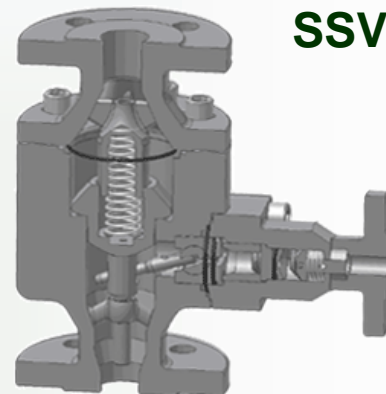
SSV 18 / 19 / 20

Products



SSV 10 / 11 / 12

- 1,5'' - 24''
- up to 250 bar
- **throttle**
- material: carbon – super duplex
- for all fluids
- optional with hand-op.branch or degassing branch (SMV 10 / 12)
- normal and speed-controlled pumps
- medium controlled
- modulating system



SSV 18 / 19 / 20

- 1,5'' - 24''
- up to 250 bar
- **non-return valve**
- material: carbon – super duplex
- for all fluids
- optional with hand-op.branch or degassing branch (SMV 10 / 12)
- normal and speed-controlled pumps
- medium controlled
- modulating system

2

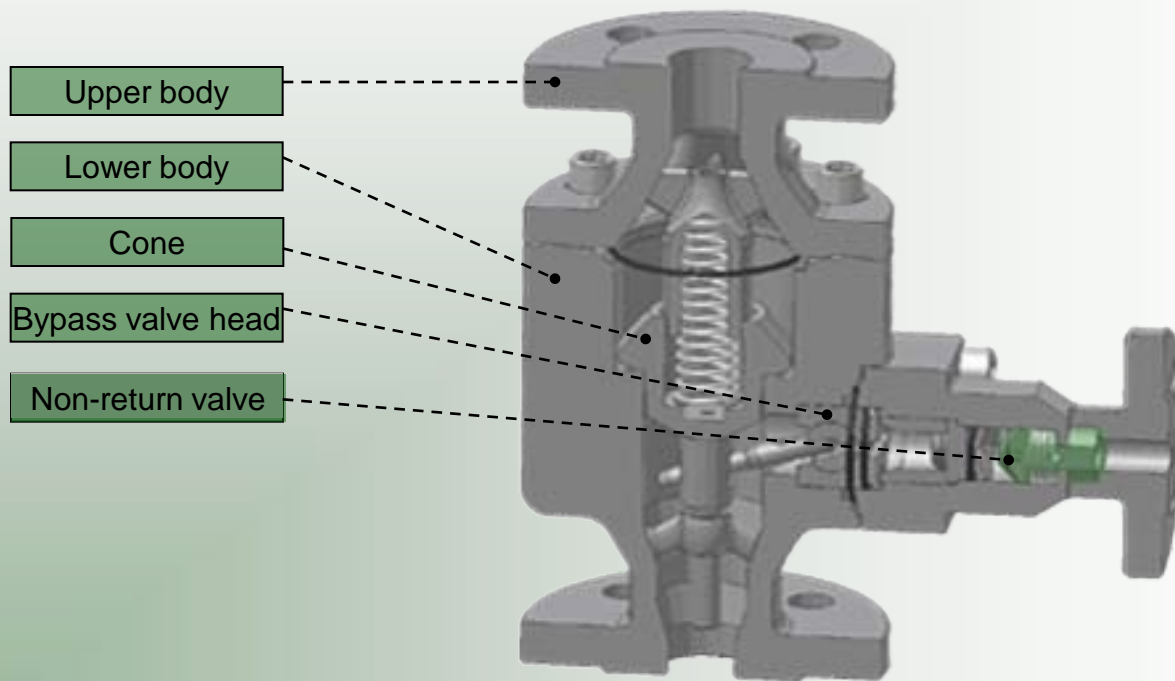
We offer intelligent solutions,
 that will pay dividends for you.

SSV 10 / 11 / 12

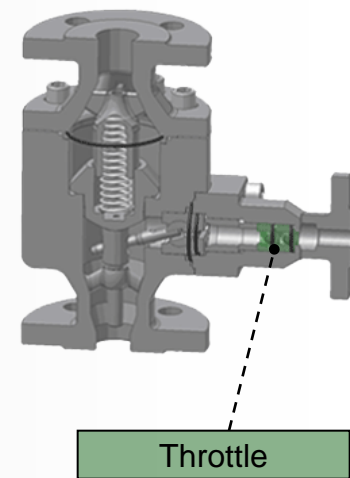
SSV 18 / 19 / 20

Products

SSV 18 / 19 / 20



SSV 10 / 11 / 12



2

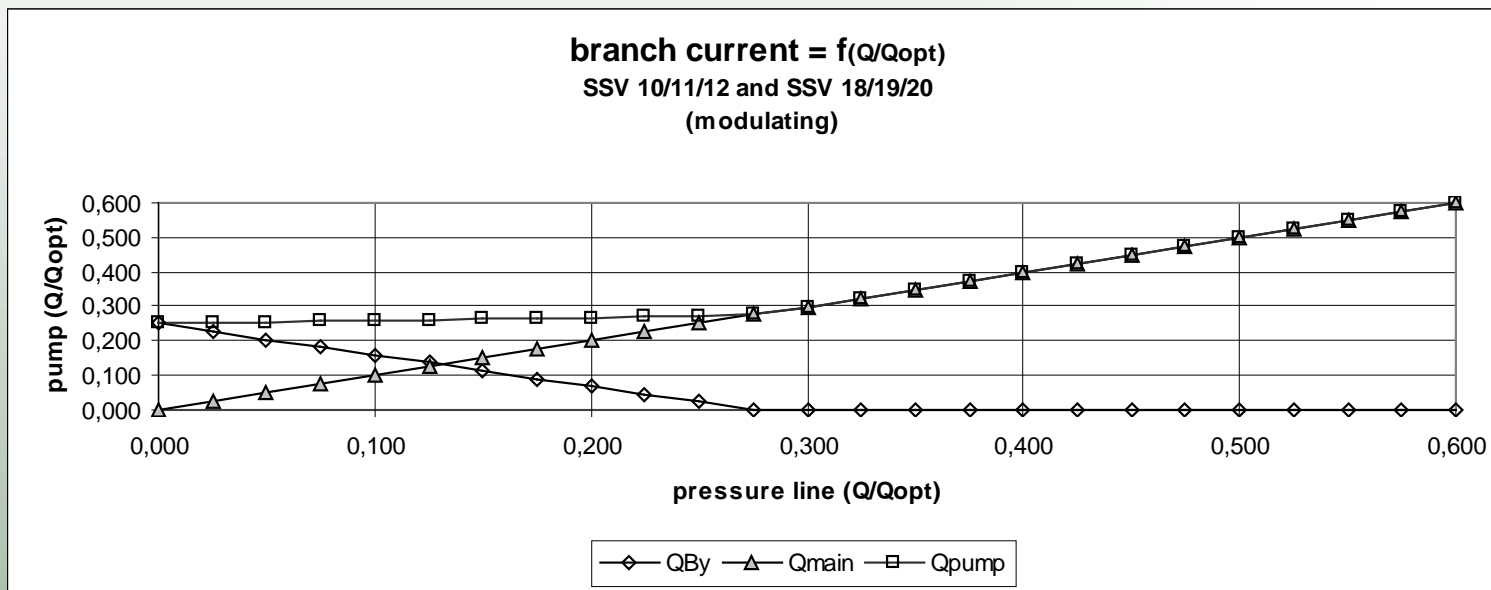
We offer intelligent solutions,
 that will pay dividends for you.

SSV 10 / 11 / 12

SSV 18 / 19 / 20

Products

Valve Properties



2

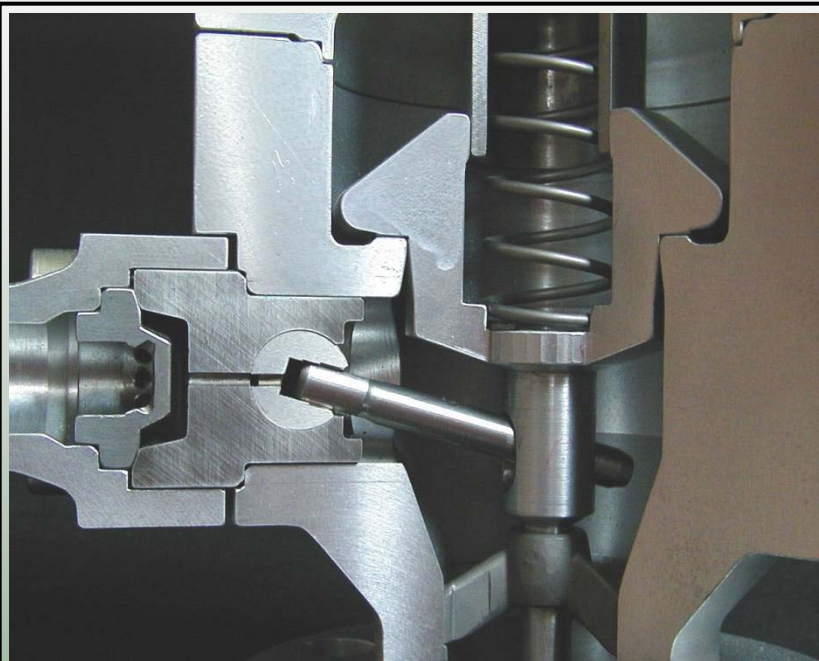
We offer intelligent solutions,
that will pay dividends for you.

SSV 10 / 11 / 12

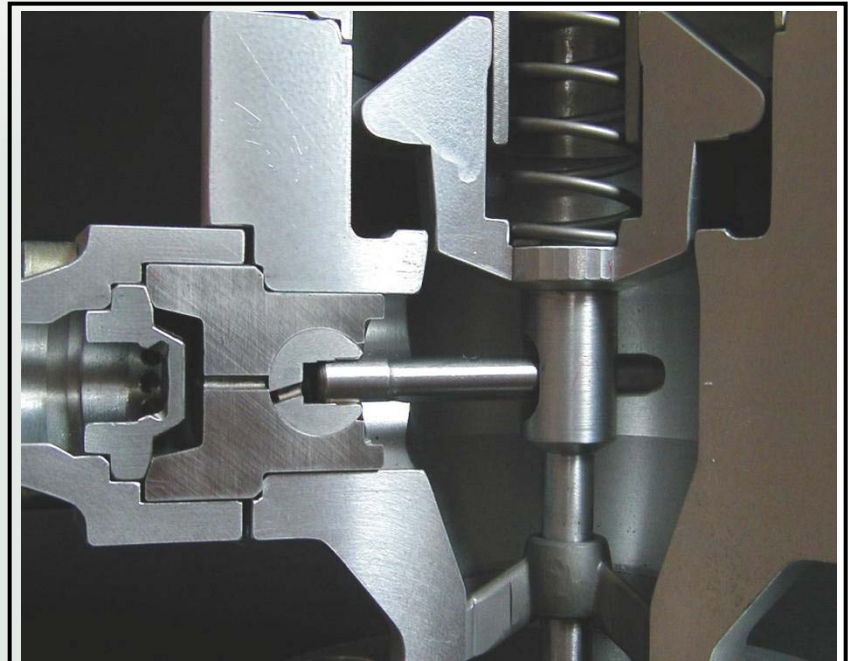
SSV 18 / 19 / 20

Products

Rotary slide valve principle SSV 10/ 11 / 12 and 18 19 / 20



Non-return cone in closed position and bypass in open position



Non-return cone in open position and bypass in closed position (locking point)

2

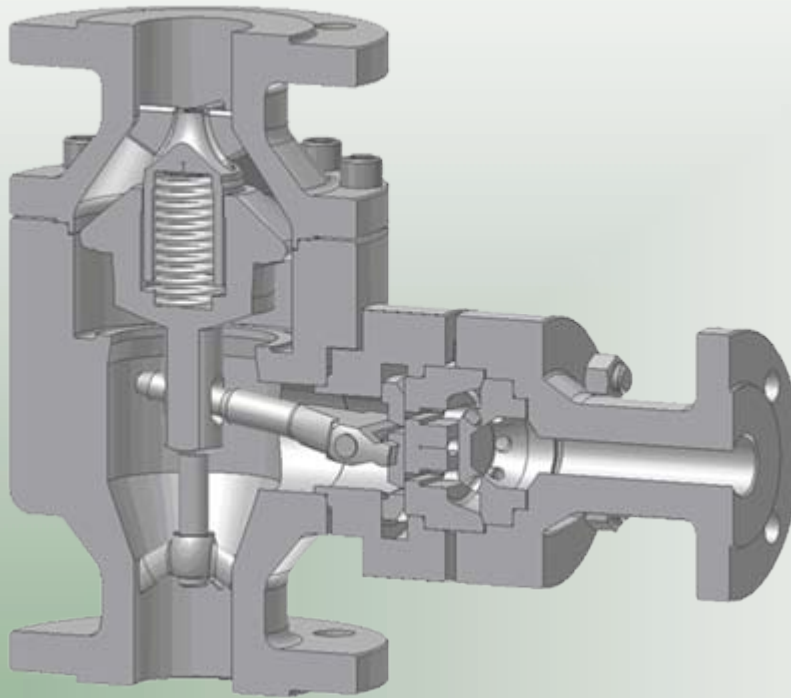
We offer intelligent solutions,
that will pay dividends for you.

with control disc and bearing plate

SSV 40 / 70

Products

SSV 40



- 1,5'' - 24''
- up to 70 bar
- bypass quantity up to 70 %
- optional with hand-op.branch or degassing branch
- with throttle and / or non-return valve
- material: carbon – super duplex
- for all fluids
- normal and speed-controlled pumps
- medium controlled
- modulating system

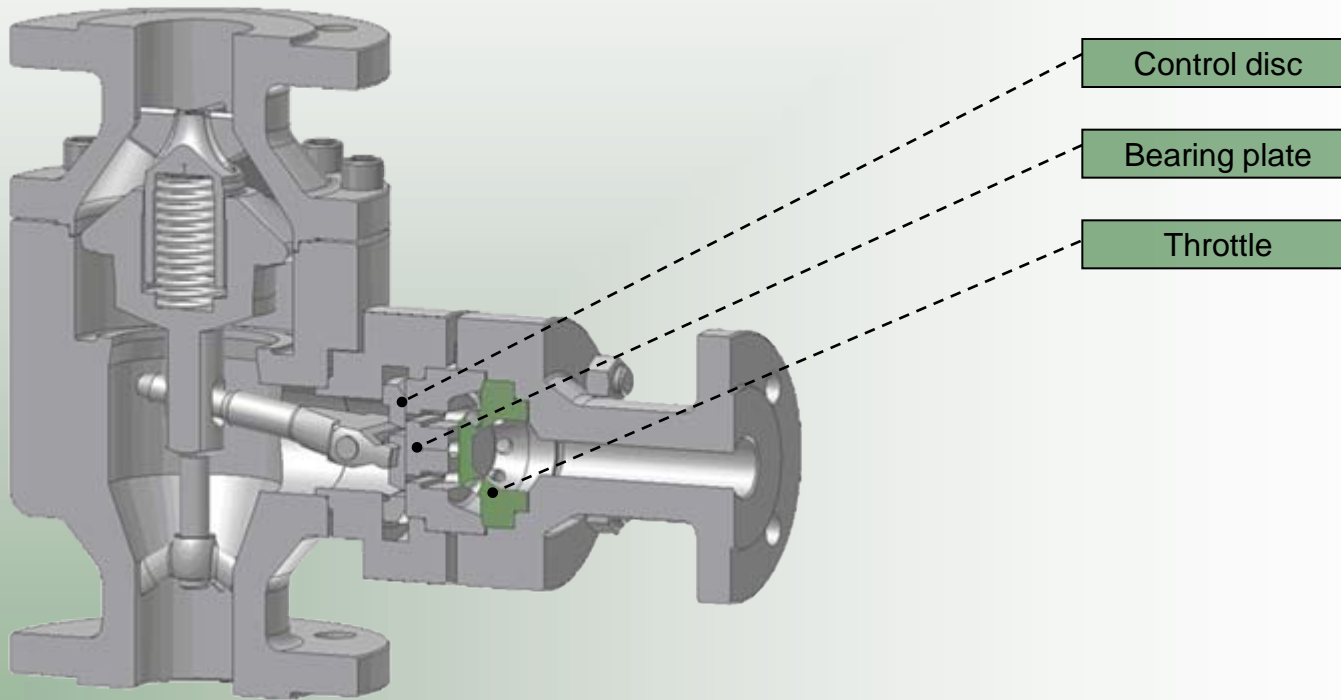
2

We offer intelligent solutions,
that will pay dividends for you.

with control disc and bearing plate
SSV 40 / 70

Products

SSV 40



2

We offer intelligent solutions,
that will pay dividends for you.

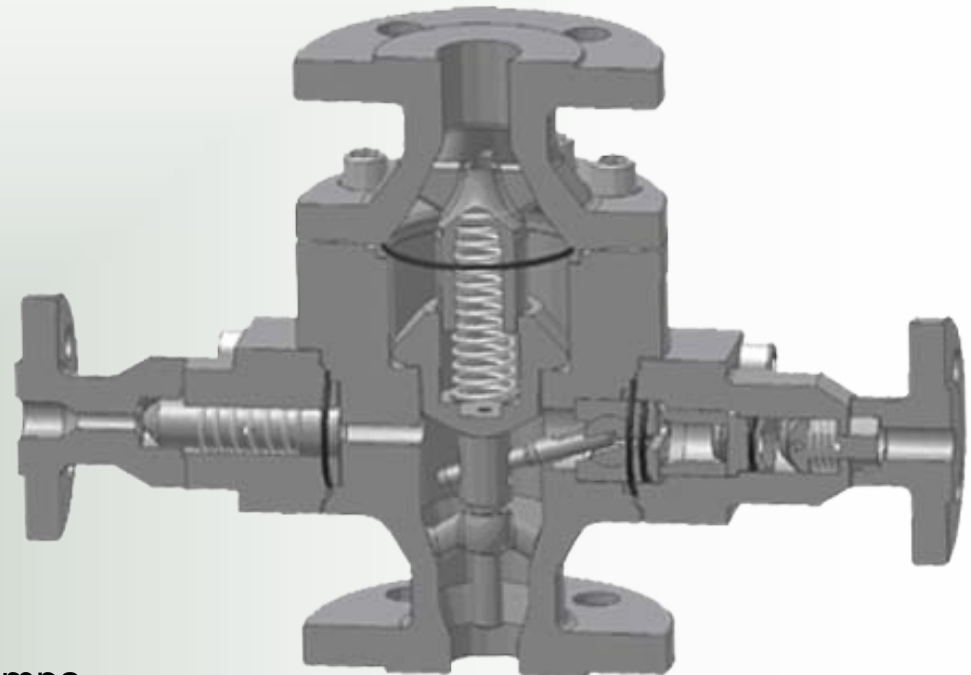
with degasification branch

SMV 18 / 20

Products

SMV 18 / 20

- 1,5'' - 24''
- up to 200 bar
- degassing branch
- optional with hand-op.branch
- with throttle and / or non-return valve
- medium controlled
- modulating system
- material: carbon – super duplex
- for liquid gas application
- normal and speed-controlled pumps



2

We offer intelligent solutions,
that will pay dividends for you.

with degasification branch

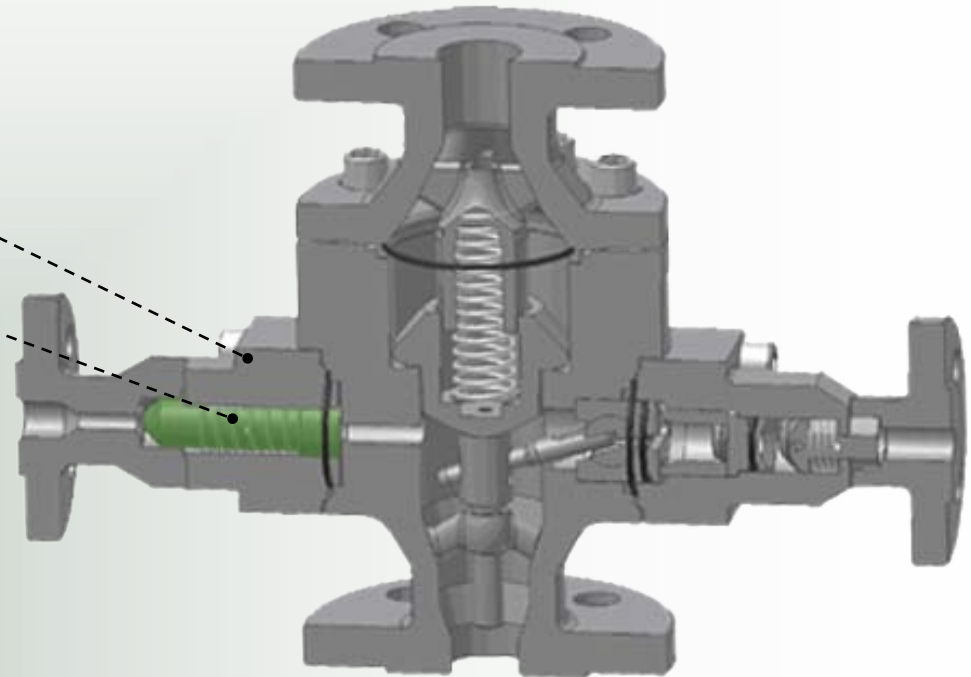
SMV 18 / 20

Products

SMV 18 / 20

Degasing branch

Degasing valve



Animation I

Animation II

2

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 that will pay dividends for you.

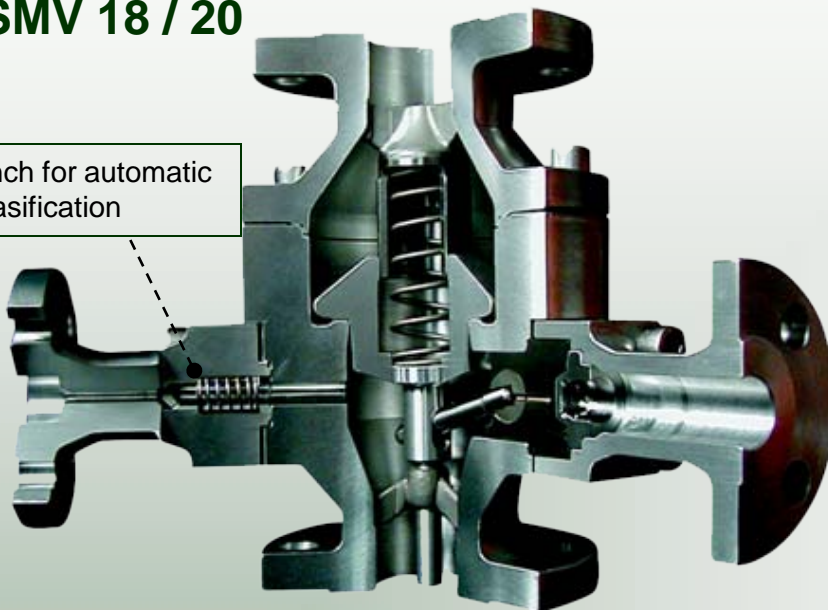
with degasification branch

SMV 18 / 20

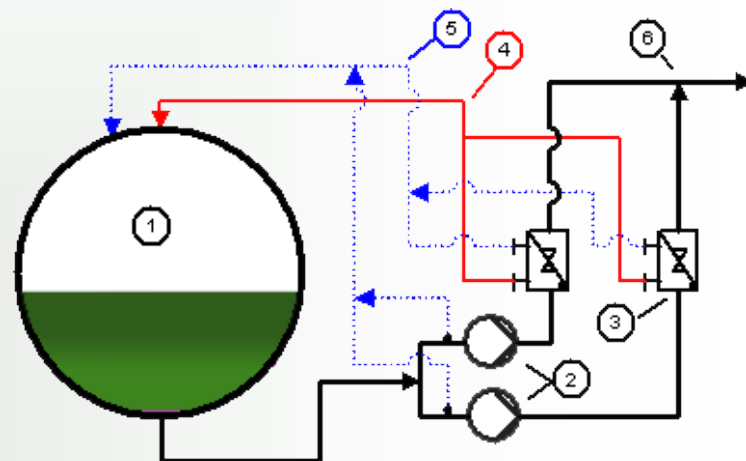
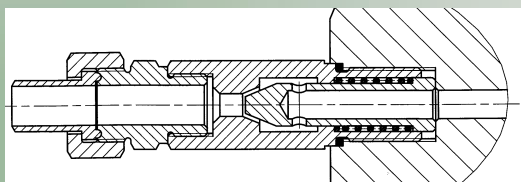
Products

SMV 18 / 20

Branch for automatic
 degasification



automatic degasification with weld-on screw joint



- 1 – Vessel for easy boiling fluids
- 2 – Pump 1 and 2
- 3 – Schroeder multifunctional valve SMV
- 4 – Minimum flow line
- 5 – Degasification line to the vessel
- 6 – Main delivery line to the user

2

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that will pay dividends for you.

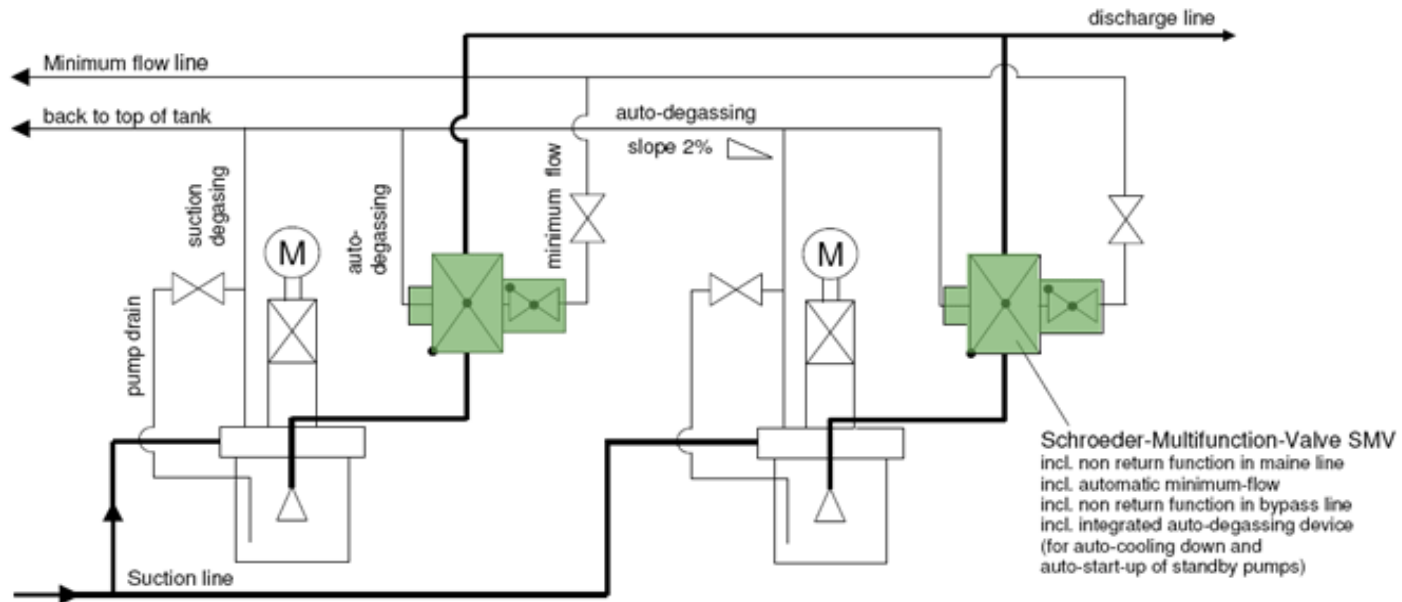
with degasification branch

SMV 18 / 20

Products

Liquidgas-Canpumps

standard type (without cofferdam safety) with installed Schroeder-Multifunction-Valve type SMV18
suitable for automatic minimum flow, auto-degassing and cooling down of pump, auto-start-up of stand-by-liquidgas-pumps



Remarks:

- a) pump drain connected to degassing line
- b) recommended: PSVs to system protection, blow-down-lines connected to degassing line, which is generally open

2

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 that will pay dividends for you.

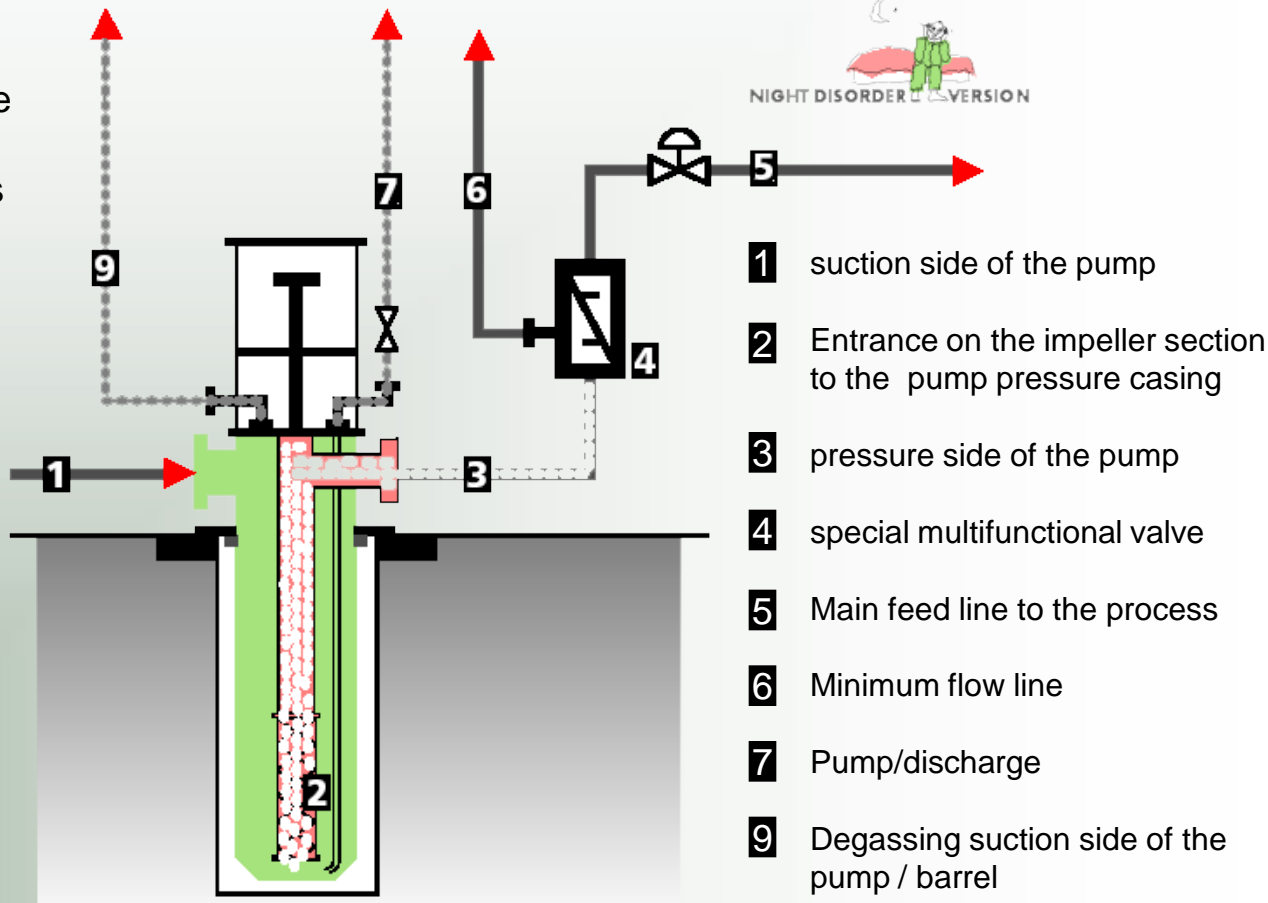
with degasification branch

SMV 18 / 20

Products

liquid gas barrel pump
 with multifunctional valve

Application for liquid gas pumps and cryogenic-service (NH₃, C₂H₄, C₂H₆ etc.)



2

We offer intelligent solutions,
 that will pay dividends for you.

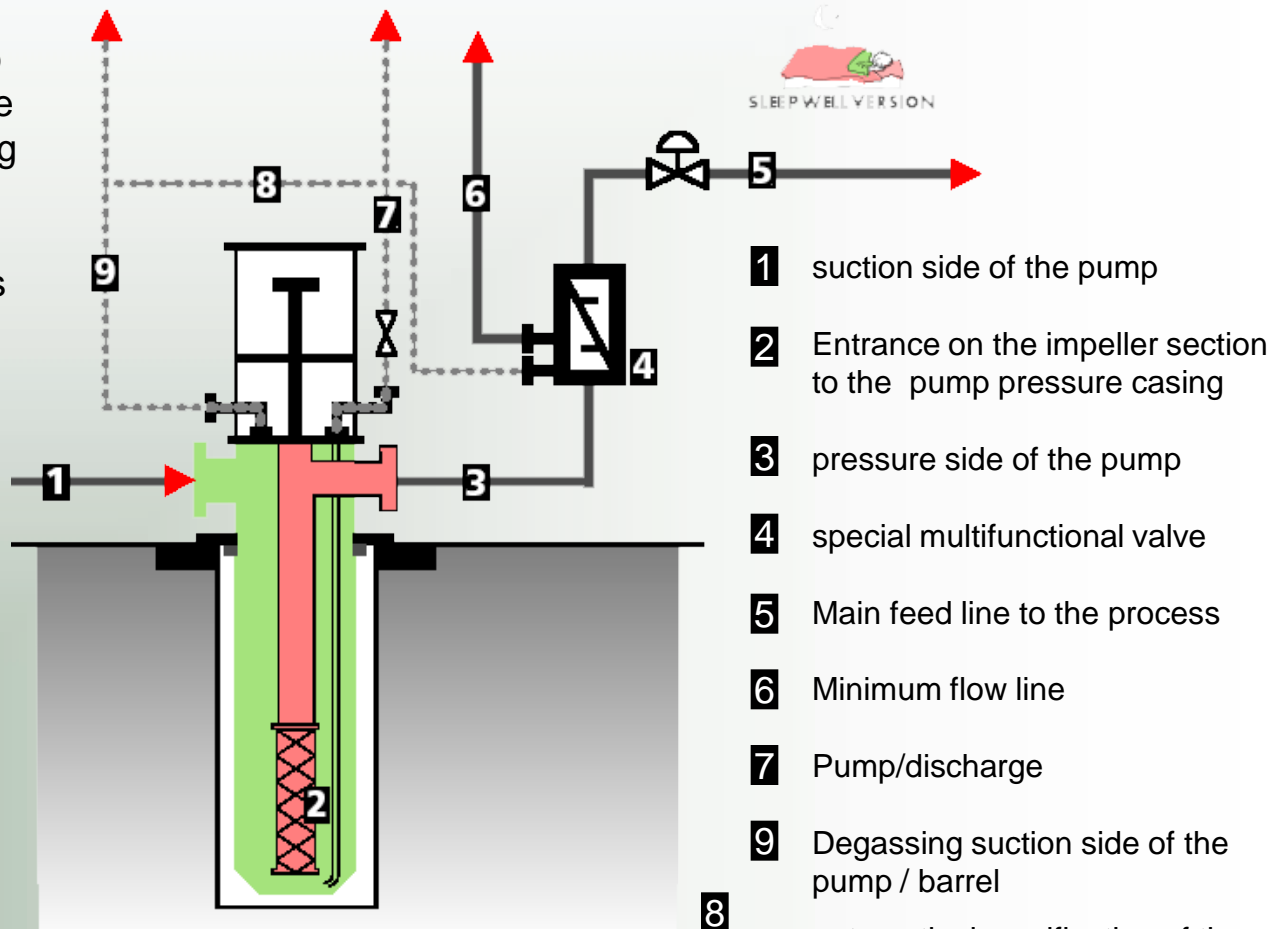
with degasification branch

SMV 18 / 20

Products

liquid gas barrel pump
 with multifunctional valve
 and automatic degassing
 branch

Application for liquid gas
 pumps and cryogenic-
 service (NH₃, C₂H₄,
 C₂H₆ etc.)



2

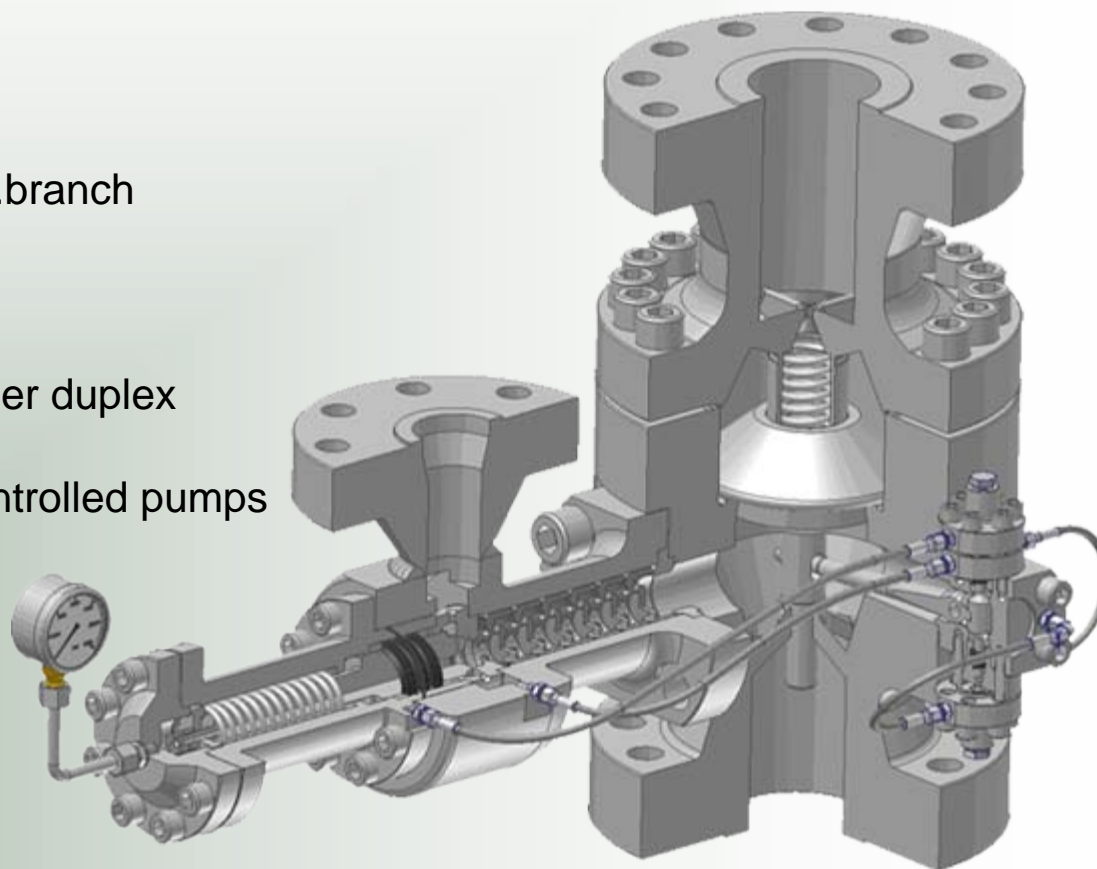
We offer intelligent solutions,
that will pay dividends for you.

Compact unit with on/off mode
SMA 63 / 64

Products

SMA 64

- 3" - 14"
- up to 450 bar
- optional with hand-op.branch
- with throttle way
- medium controlled
- on / off mode
- material: carbon - super duplex
- for all fluids
- normal and speed-controlled pumps



2

We offer intelligent solutions,
that will pay dividends for you.

Compact unit with on/off mode

SMA 63 / 64

Products

SMA 64

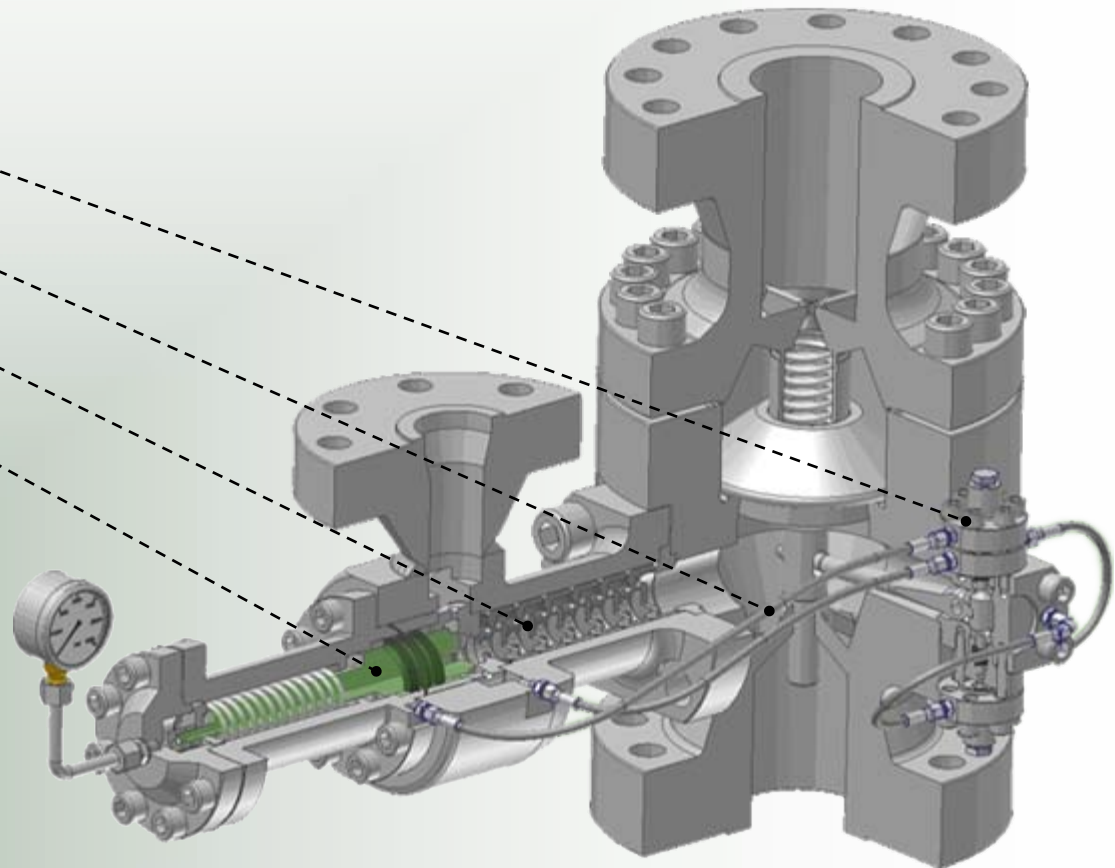
Control unit

Pressure pipes

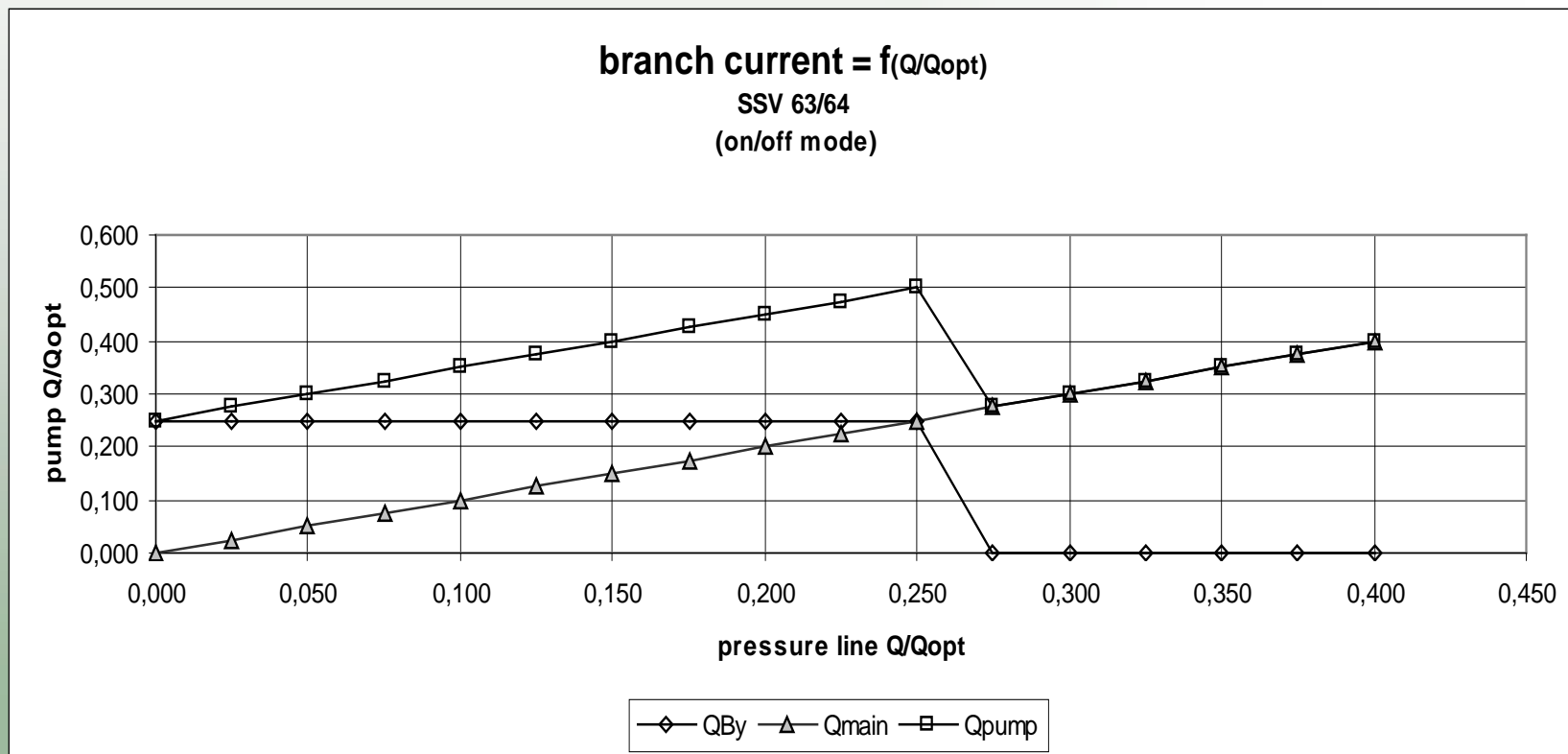
Throttles

Control piston

Animation



Valve Properties



2

We offer intelligent solutions,
that will pay dividends for you.

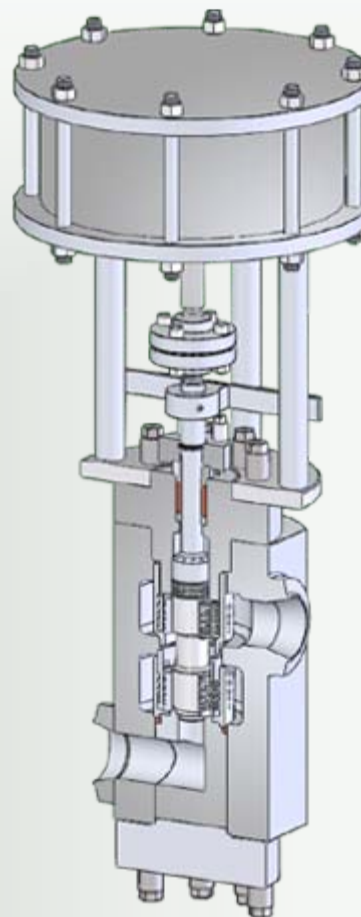
High pressure control valve

SR / SA

Products

SR / SA

- 1" - 14"
- up to 600 bar
- force controlled
- varying minimum flow
- material: carbon - super duplex
- for all fluids
- normal and speed-controlled pumps



2

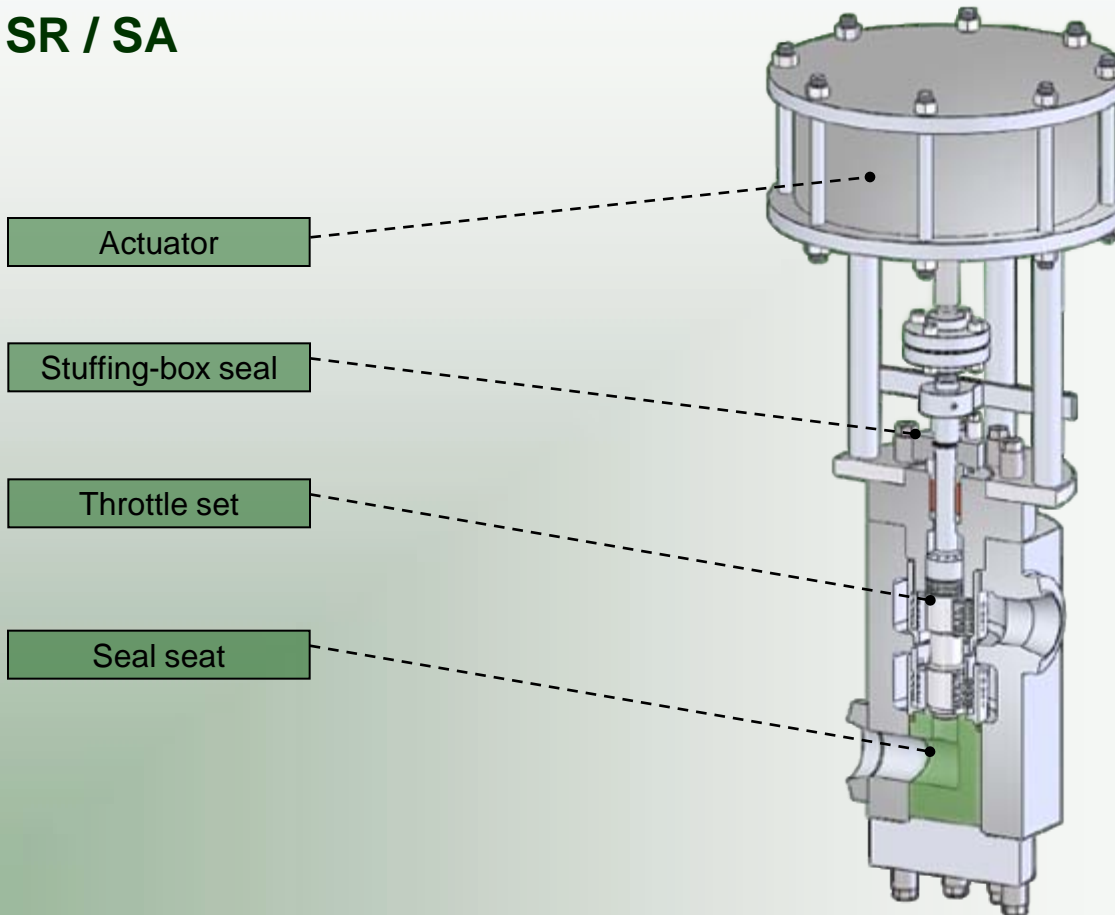
We offer intelligent solutions,
that will pay dividends for you.

High pressure control valve

SR / SA

Products

SR / SA



2

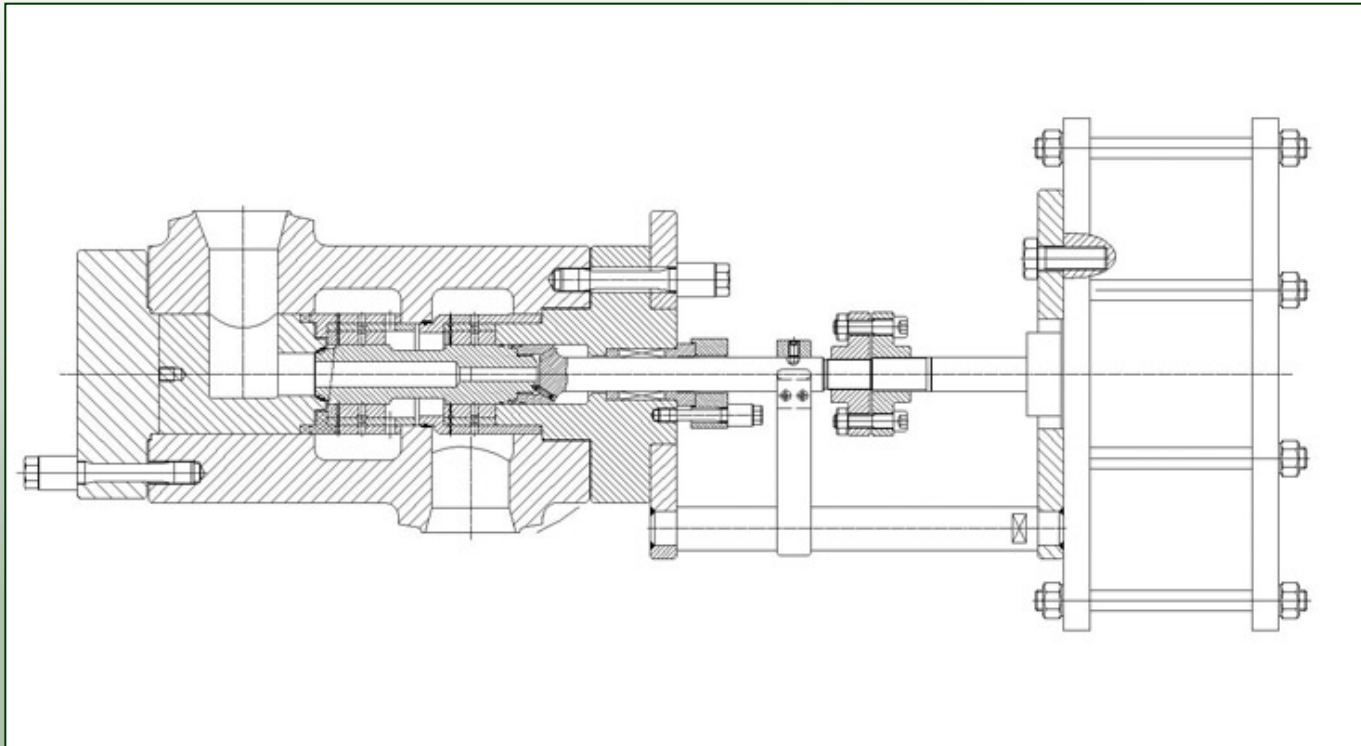
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High pressure control valve

SR / SA

Products

SRP12-125/640-200/200/0/0-1



2

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High pressure control valve

SR / SA

Products

SA / SR - Overview of the technical specifications

max. technical data:	600bar / 400°C	propulsion method:	<ul style="list-style-type: none"> - electrical - pneumatic - hydraulic - medium controlled
pressure difference:	$\Delta p \text{ max} \leq 600\text{bar}$	shaped casing:	- corner- or z-shape
nominal size:	DN 25 - DN 200 (> on request)	Casing material:	<ul style="list-style-type: none"> - ferritic steel - austenitic steel - duplex steel
contact termination:	weld-end or flange	inner part:	- Cr- steel
specifications :	<ul style="list-style-type: none"> - on / off - linear - square - constant percent 	range of application:	<ul style="list-style-type: none"> - power engineering - chemical plant engineering - pump protection

2

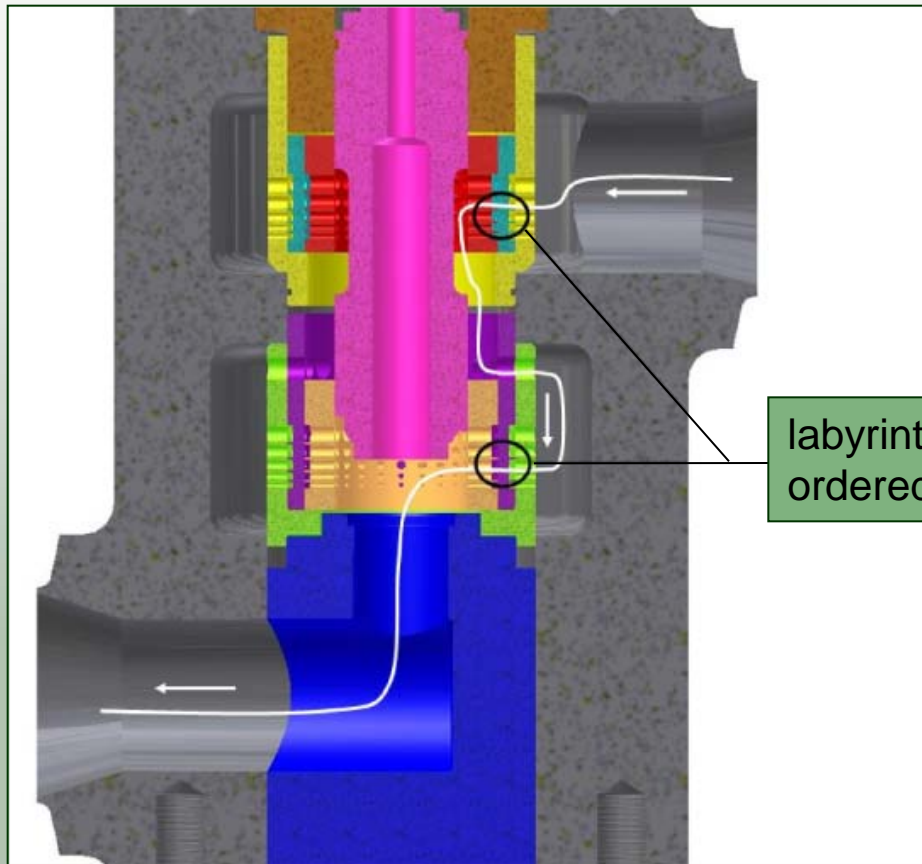
We offer intelligent solutions,
that will pay dividends for you.

High pressure control valve

SR / SA

Products

Throttle set with conduction of the flow



labyrinth by shifted
ordered drill.

2

We offer intelligent solutions,
that will pay dividends for you.

High pressure control valve

SR / SA

Products

Throttle set in 2 layer section



2

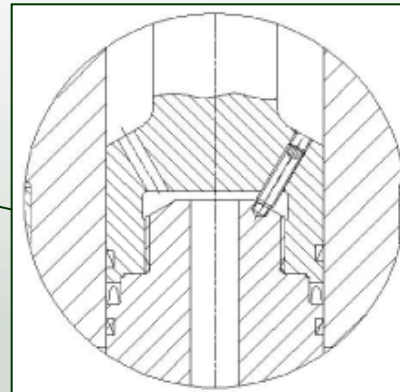
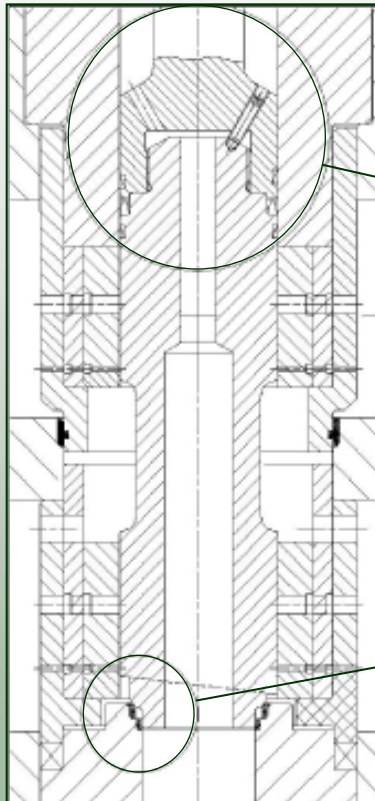
We offer intelligent solutions,
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High pressure control valve

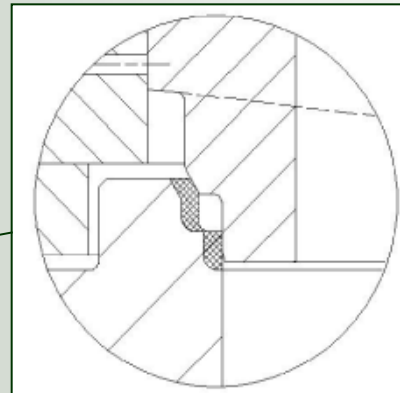
SR / SA

Products

Detailed view of the throttle set



Piston relief



Splitted seal seat

2

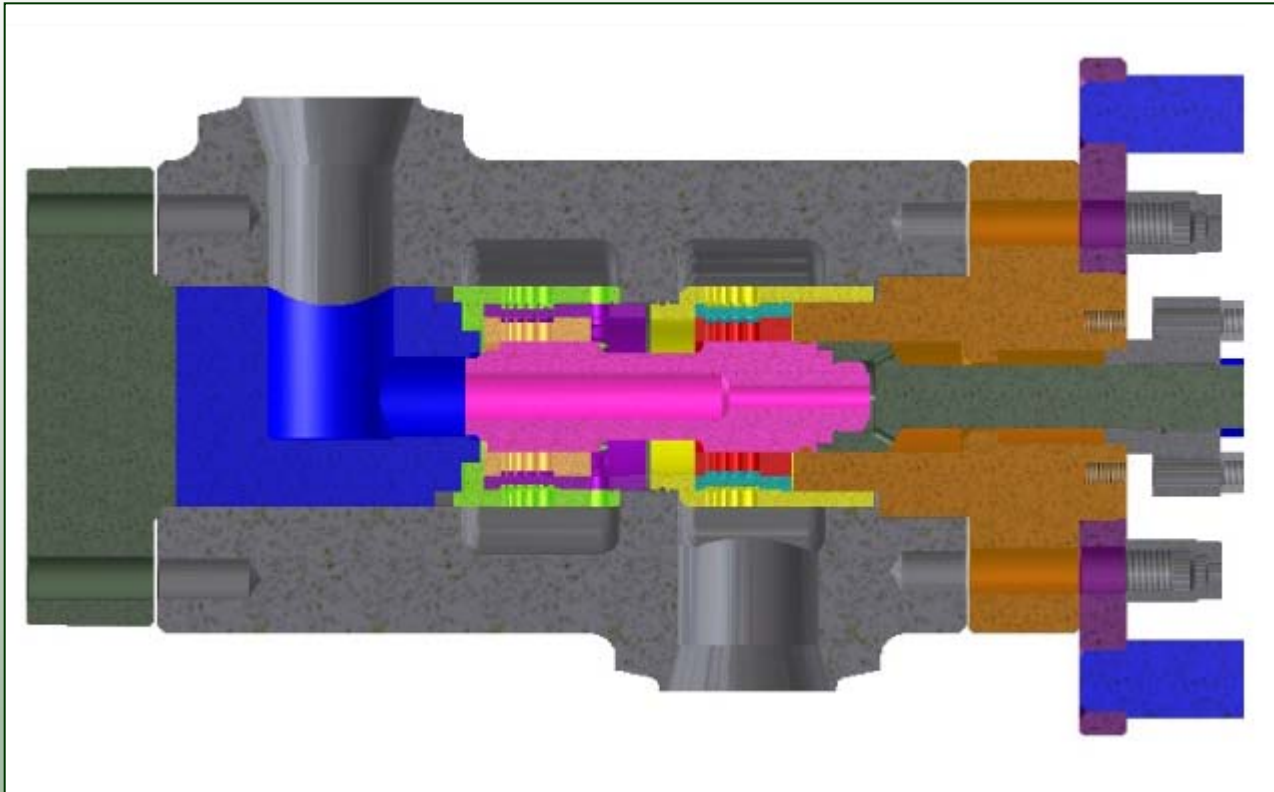
We offer intelligent solutions,
that will pay dividends for you.

High pressure control valve

SR / SA

Products

Detailed view of the throttle set



2

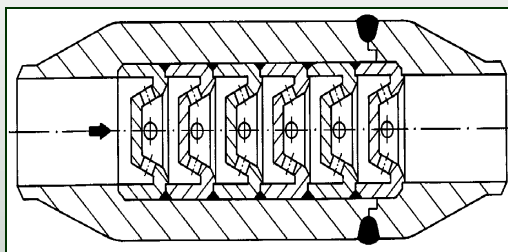
We offer intelligent solutions,
 that will pay dividends for you.

Multi-staged-throttles

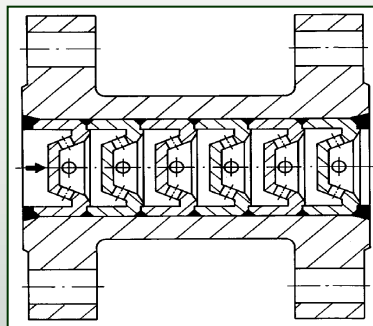
SSD

Products

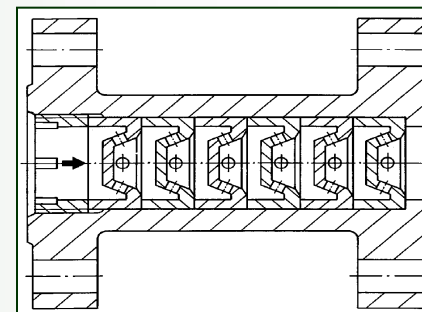
SSD 1



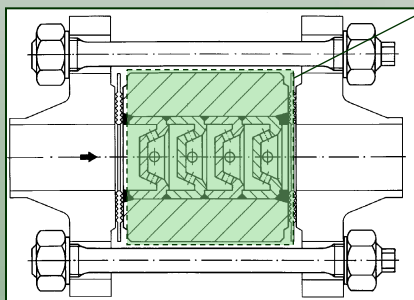
SSD 2



SSD 3

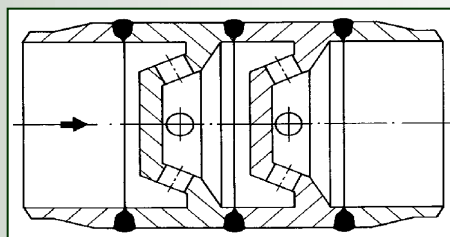


SSD 4

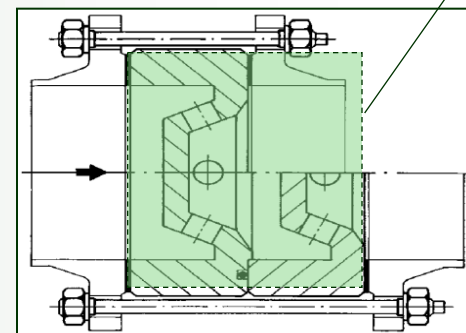


delivery contents

SSD 5



SSD 6



delivery contents

2

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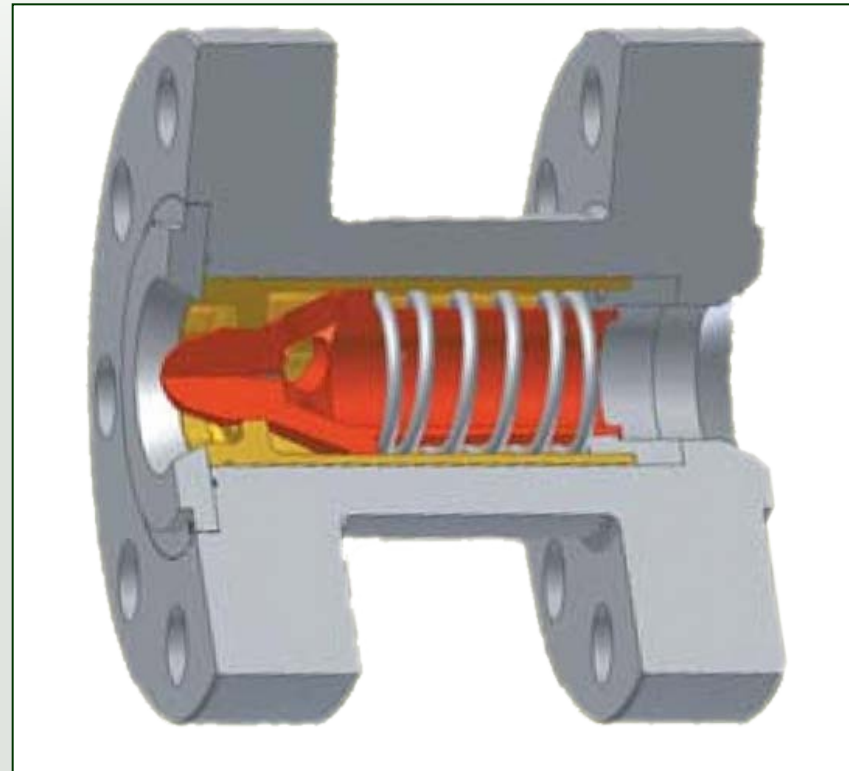
Bypass back pressure regulators

SDV

Products

SDV

- size depends on bypass
(1" - 12")
- up to 40 bar
- automatic pressure adjustment
- material: carbon – super duplex
- for all fluids



2

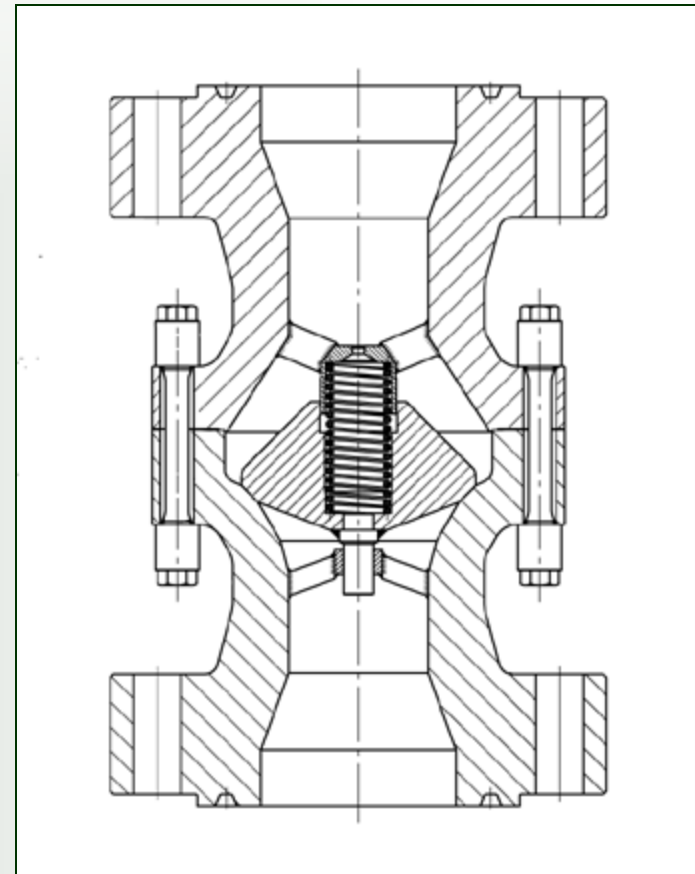
We offer intelligent solutions,
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Non return valve
SRV

Products

SRV

- 1" - 24"
- up to 1000 bar
- material: carbon – super duplex
- for all fluids
- optional with cone damping



3

We offer intelligent solutions,
that will pay dividends for you.

Application Area

- power stations, nuclear
- petrochemical, chemistry
- steel plants
- paper industries
- offshore-industry
- snow making machines
- fire extinguisher systems
- liquid gas applications
- fertilizer farms



4

We offer intelligent solutions,
that will pay dividends for you.

Advantages

Pump curves

Advantages

- automatic assurance of the minimum flow rate
- automatic closing of the bypass
- automatic degasification of stopped pumps
- no additional control valves, extra energy or other controls needed
- better energy balance
- integrated check valve in main and bypass stream



4

We offer intelligent solutions,
that will pay dividends for you.

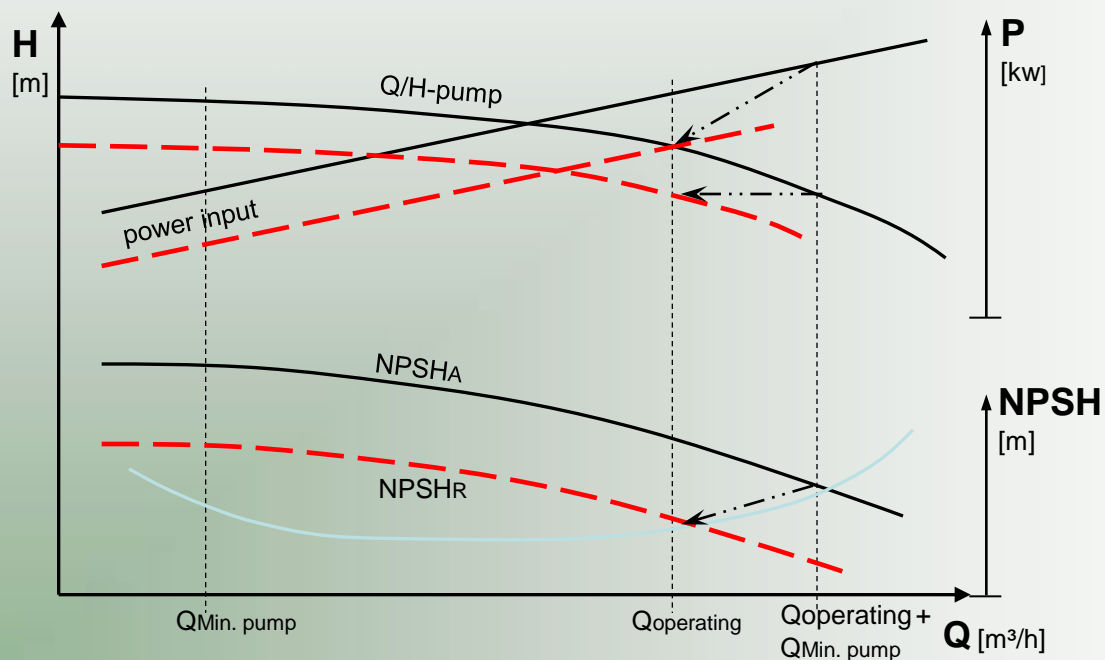
Advantages

Pump curves

Advantages

Advantages

- favourable NPSH-value of the plant (NPSHA) and the pump (NPSHR)
- lower discharge in point of operating by automatic close down of the minimum flow line



- favourable technical data for the pump (smaller frame size, no special valves for lower NPSH-values)

- lower driving power/ engine output

- favourable energy balance

reasonable plant construction

Animation

5

We offer intelligent solutions,
that will pay dividends for you.

References

- ABB / ABB Lummus
- Babcock
- BASF AG
- Bayernoil
- Clyde
- Deutsche Shell AG
- Du Pont
- Ebara
- Ensival
- Flowserve
- Hermetic
- Krupp-Uhde
- KSB
- Linde
- Sterling SIHI
- Technip
- RWE
- Kernkraftwerke
- Sulzer Pumpen
- EON
- Torishima
- Wacker-Chemie
- Weller Pumpen
- Evonik



According to EN 10204, the products may be accompanied by the following

- a certificate of compliance for internal components without a construction test according to 2.1
- a certificate of compliance for pressurized parts that have been subjected to a construction test and for which the execution of the pressure and functional test according to 2.2 has been confirmed
- an acceptance test certificate for pressurized parts that have been subjected to a construction test according to 3.1 or 3.2

6 We offer intelligent solutions, that will pay dividends for you. Documentation

acceptance test certificate

final inspection certificate

operating instructions

K. SCHROEDER & CO. GMBH		Abnahmeprotokoll		Arbeits-Nr.
Aut. Nachprüfprotokoll		Test Report / Certificate of Acceptance		31069 / 1-3
Besteller: Proso	Bestell-Nr.: 8321243	Arbeits-Nr.: 31069 / 1-3		
Anzahl: 3		Typ: SW 15-12 ANS000 (Art. Nr. 1-3)		
Anmerkungen: 3		Anmerkungen: 3		
Abprüfung nach Anlage / gemäß der Bauzeichnungen.				
Handführung: g3		Förderhöhe bei Qmax:		H _g = 115 m
min. Bypassmenge: Q _{min} = 141 m³/h		Medium:		NH3
Schaltpunkt: SPDP = 164,4 m³/h		Temperatur:		T = -46 °C
Durchflussmenge insgesamt: Q = 750 m³/h		Dichte:		820 kg/m³
Bypassmenge: Q _{max}				
	Mittelwert	1	2	3
	Mittelwert	80,0	79,5	87,5
	Mittelwert	3,2	3,1	3,8
	Mittelwert	149,0	152,2	151,2
Öffnungspunkt: OP				
	Mittelwert	135,0	133,0	136,0
	Mittelwert	187,2	184,4	185,6
Schließpunkt: SP				
	Mittelwert	139,0	135,0	139,0
	Mittelwert	182,8	187,2	182,8
Handführung: g3				
Durchflussmenge: Q				
	Mittelwert	0,47	0,58	0,61
Ergebnisse der Prüfung: Die Anforderungen sind erfüllt. The Requirements are fulfilled. Les conditions imposées sont satisfaites.				
Blanch, den 13.12.2004				
Der Werksbuchhalter/ The Factory Specialist / Le Responsable				

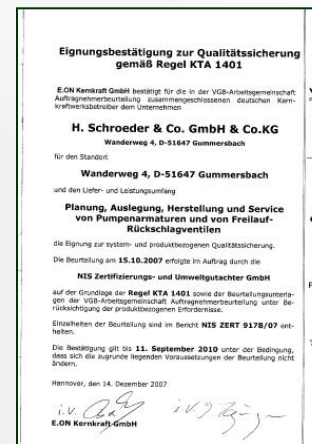
K. SCHROEDER & CO. GMBH		Bauprüfbescheinigung		Arbeits-Nr.
Aut. Nachprüfprotokoll		Test Certificate / Certificate of Approval		31812 / 1-6
Besteller: Badler Pumpa Ltd.	Bestell-Nr.: 118696	Arbeits-Nr.: 31812 / 1-6		
Anzahl: 6	Typ: 88V15-3 ANK 1800-351-85-1	Arbeits-Nr.: 31812 / 1-6		
Anmerkungen: 6	Anmerkungen: 6	Arbeits-Nr.: 31812 / 1-6		
Abprüfung nach Anlage / gemäß der Bauzeichnungen.				
Handführung: g3				
Durchflussmenge: Q				
	Mittelwert	12	14,601	791,689
	Mittelwert	10	14,601	368,621
	Mittelwert	2	14,601	368,621
	Mittelwert	12	14,601	791,689
Chemische Zusammensetzung - Ladef - Analyse chimique				
1	30665	2,00	1,000	1,000
2	30665	2,00	1,000	1,000
10	30665	2,00	1,000	1,000
12	791369	2,00	1,000	1,000
Druckprüfung: 15 - 20°C				
Druck	Prozess	678 bar		
Druck	Prozess	290 bar		
Druck	Prozess	9,8 bar		
Die Anforderungen sind erfüllt. The Requirements are fulfilled. Les conditions imposées sont satisfaites.				
Blanch, den 28.02.2006				
Der Werksbuchhalter/ The Factory Specialist / Le Responsable				

schroeder		Compensating Bypass Check Valve		Con. No.
with Non-Return Valve in the Bypass		Installation and Operating Instructions		OC-1532
Article-No. 5400293		Drawing No. 3K 150N 006		Quantity 2
Drawing No. 3K 150N 006		Drawing No. 15460		Quantity 2
Customer: Lufthansa Services, S.L.				
Product: 88V15-3 ANK 1800-351-85-1				
Order: 31812 / 1-6				
Drawing: 3K 150N 006				
Drawing: 15460				
				
<p>Valve type:</p> <ul style="list-style-type: none"> <input type="checkbox"/> 88V 18 Compensating Bypass Check Valve with standard bypass valve head <input checked="" type="checkbox"/> 88V 18 Compensating Bypass Check Valve with standard bypass valve head and additional branch (Div. (see para 8)) <input type="checkbox"/> 88V 20 Compensating Bypass Check Valve with integral bypass valve head for high minimum flow rates <input type="checkbox"/> 88V 20 Compensating Bypass Check Valve with integral bypass valve head for high minimum flow rates and additional branch (Div. (see para 8)) 				
Table of contents				
<ol style="list-style-type: none"> 1. General description/Applications/Mode of Operation Page 2 2. Guarantee Page 2 3. Safety Page 2 4. CE Conformity - design according to AD-regulation Page 3 5. Marking of the valves Page 4 6. Valve specifications Page 4 7. Start-Up Page 5 8. Protection during transport and storage Page 5 9. Installation instructions Page 6 10. Start-up Page 6 11. Maintenance and repair Page 7 12. Recommendations for checking of parts subject to normal wear Page 7 13. Recommendation for checking of parts subject to normal wear Page 7 14. Disassembly of the Bypass unit Page 9 15. Assembly of the Bypass unit Page 9 16. Disassembly of the Valve Page 9 17. Assembly of the Valve Page 10 18. Assembly of the Valve Page 10 				
Schroeder No. 15460-161-01				
Page 1 of 18 Pages!!!				

7

We offer intelligent solutions,
that will pay dividends for you.

Certificates



Schroeder Technical Layouter



**Protecting your Pump means
 safeguarding your core.**

Special requirements require special solutions

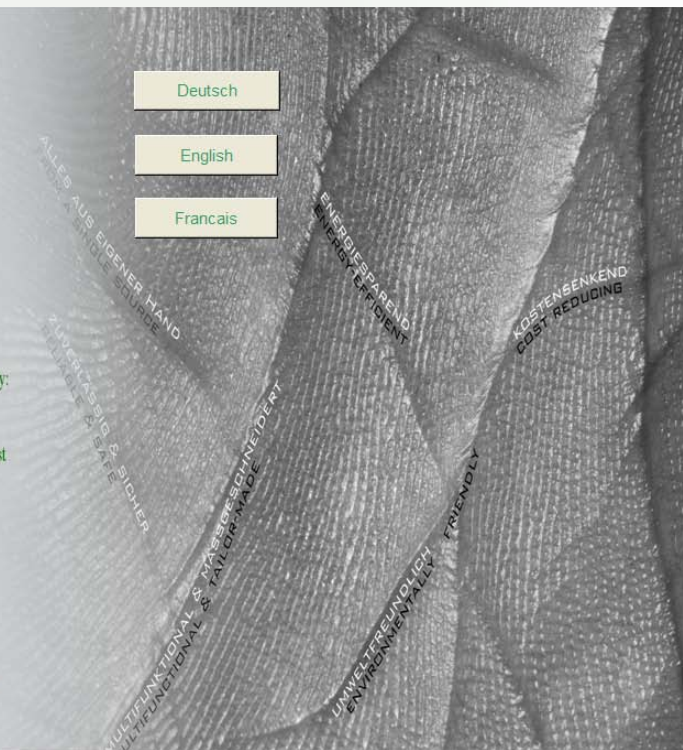
Schroeder pump protection fittings are produced individually:
 A result of finely tuned precision work.

Schroeder is one of the most experienced and worldwide best
 recognized suppliers of these special fittings.

Schroeder-pump protection fittings

- guarantee improved plant- and operating costs
- provide operational safety
- excel in their longevity
- protect centrifugal pumps from damages,
 which might occur during operation at low load conditions

- Deutsch
- English
- Francais

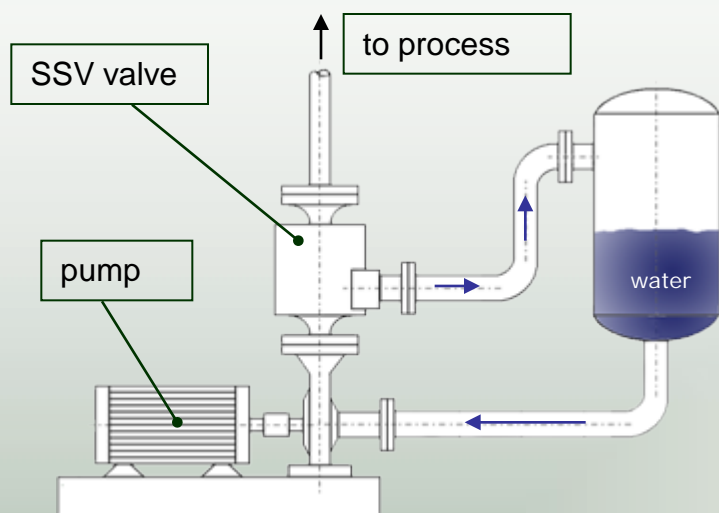


10

We offer intelligent solutions,
 that will pay dividends for you.

Comparison

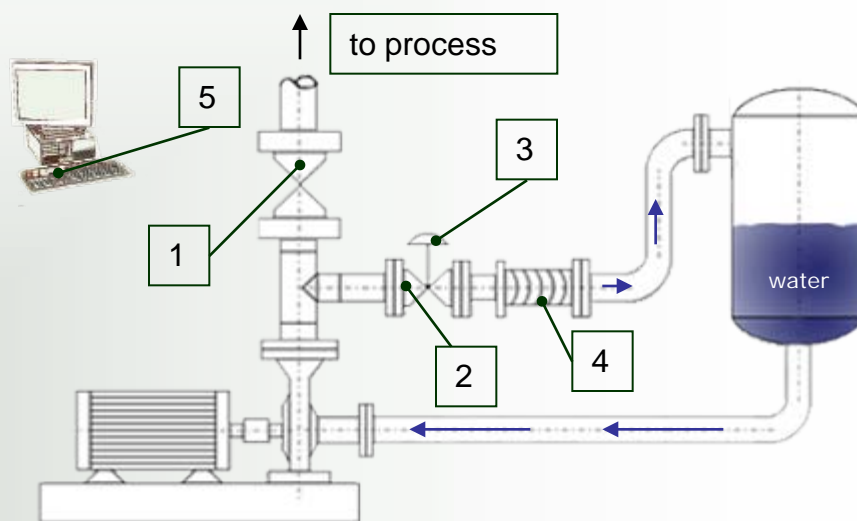
Schroeder valve



includes:

- check valve
- T-piping
- orifice
- no PLC required
- no auxiliary energy required

Control valve



requirements:

- 1 – check valve
- 2 – control valve
- 3 – actuator
- 4 – orifice
- 5 – PLC with auxiliary energy

10

We offer intelligent solutions,
 that will pay dividends for you.

main difference
 to the competitors **Comparison**

competitive comparison

Multistage throttles

Plate device / Bypass valve head

Pressure reduction

Less spare part costs

Function test of each valve



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We offer intelligent solutions,
that will pay dividends for you.

Summary

The task

- effective pump protection

The concept

- autarchic bypass flow
- controlled bypass flow

The solution

- automatic recirculation check valve
- control valve

The details

- 1,5" – 24"
- ANSI150 – ANSI2500

The advantages

- effective energy balance
- lower costs
- high lifespan



schroeder valves GmbH & Co. KG

Thank you very much
pimp your pump

