

WATER- AND SPECIAL FLUID HYDRAULICS

Systemsolutions for industry

HP Pneumatics

Water- and Special- Fluid Hydraulics

Equipment for Road Safety Training Centres

Fire Fighting Systems for Transformers

Live Line Washing Systems for Insulators

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E2 FEB22



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HP Pneumatic (Drucklufttechnik)

VDEW empfohlene Druckluftsysteme und Komponenten bis 350 bar

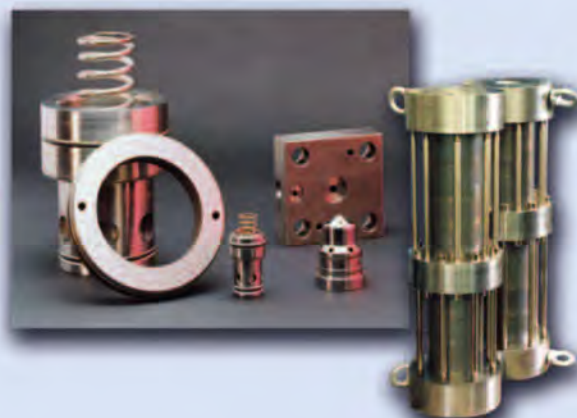
HP Pneumatic

Electrical Industry (VDEW) recommended systems and components up to 350 bar



Wasser- und Sonderhydraulik

Edelstahl-Cartridgeventile und Vorsteuerungen bis 350 bar (800 bar), Nennweiten 2 bis 250 mm Entzunderungsventile, Druck- und Wegeventile, Sprühventile zur partiellen Walzenkühlung.



Water- and Special-Fluid Hydraulics

Stainless steel cartridges and pilot valves up to 350 bar (optional 800 bar), size 2 to 250 mm (08-10 inch).

Descaling valves, directional, check, flow and pressure control functions, spray valves for roll coolant systems.



Technik für Fahrsicherheitszentren

Innovative Technik zur Simulation kritischer Situationen im Straßenverkehr: Schleuderplatten, Fahrbahnbewässerungen, Wasserhindernissysteme

Equipment for Road Safety Training Centers

To simulate critical traffic situations.
Vehicle skidding devices, water film systems, water obstacles

Feuerlöschsysteme für Transformatoren

Fremdenergie-unabhängige Wassersprühsysteme

Fire Fighting Systems for Transformers

Water spraying systems for operation independent from an external power supply



Isolatorenreinigungssysteme

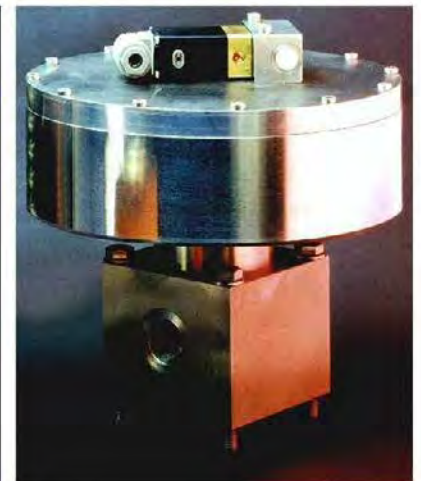
Stationäre Wassersprühsysteme zur Reinigung unter Spannung

Insulator Cleaning Systems

Water spraying systems for stationary live electrical line cleaning

WATER AND SPECIAL HYDRAULICS

System Solutions for Industry



HP Pneumatic

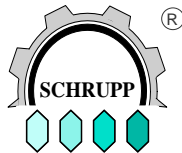
Water- and Special- fluid Hydraulics

Equipment for Road Safety Training Centres

Fire Fighting Systems for Transformers

Insulator Cleaning Systems

o



WATER – AND SPECIAL- FLUID HYDRAULICS

System Solutions for Industry

CARTRIDGE PROGRAM

Hard seat cartridges DN16 to 32, 350bar, pressure and throttle functions for clean water applications

Soft seat cartridges DN10 to 250, 350bar, directional and shut-off functions for clean and descaling water applications

Soft seat cartridges DN10 to 40, 800bar, directional functions for clean water applications

Individual designs for special fluids and gases possible

Dimensions acc. to ISO/DIN

Material stainless steel

Cartridge covers



PILOTVALVES

2 and 3 directional pilot valves solenoid, pneumatically or manually operated, pressure pilot valves. DN4 to DN25, up to PN350, special designs up to 800bar.

SPECIAL VALVES

Individual designed valves

Sea water resistant for Off Shore and Sub Sea applications

Pulsation Technology

Special cartridge valves with additional functions

Leak free valves for oil hydraulic applications



COMPLETE VALVES

Directional, pressure and throttling functions for water, emulsions, oil and special fluids.



SPRAY VALVES

For roller cooling systems at steel or aluminium rolling mills

Size 6 to 25mm.

Valves, pilots, complete spray barns and accessoires

DESCALING TECHNOLOGY

Complete Valves for descaling applications up to 350bar and DN250mm, including 2 and 3 directional pilot valves, solenoid, pneumatically oilhydraulically or manually operated.

Multistage breakdown orifices and accessories.

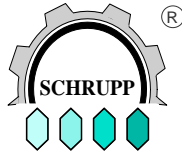


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Since 1934 valves and components for fluids and gases have been manufactured under the trade name SCHRUPP for the international market.

HL Hydraulik GmbH now owns all rights to the Schrupp[®] program. Continuous development allows improvements to this program to follow the requirements of the market.

The valves are designed for use with water, water and oil emulsions, oil and gases. Their robust construction and compact design provide long life, ease of maintenance, and high performance. The sealed poppet design provides drop tight, leak free shut off.

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2/2, 3/2 Directional Valves ND65, 80, 100mm NP40

E2.8 SPRAY VALVES

We reserve the right to make technical modifications without prior notification

CARTRIDGE PROGRAM



Stainless Steel Cartridge valves according to DIN24342

The valves are designed for use with water, water and oil emulsions, oil and gases. Their robust construction and compact design provide long life, ease of maintenance, and high performance.

These slip in cartridge type valves can be combined in many different ways to satisfy the requirements of a wide variety of applications. The sealed poppet design provides drop tight, leak free shut off.

Product range:

Cartridges for directional functions

Soft seated ND10 to 100 for water, oil and pneumatic applications up to 350bar

Soft seated ND10 to 250 for water, descaling water and oil up to 350bar

Soft seated ND10 to 40 for water, oil and pneumatic applications up to 800bar

Hard seated ND 16 to 32 water and oil up to 350bar

Cartridges for pressure relief functions

Hard seated ND 16 to 32 for water and oil up to 350bar

Cartridges for pressure reducing functions

Hard seated ND 16 to 32 for water and oil up to 350bar

CARTRIDGE PROGRAM

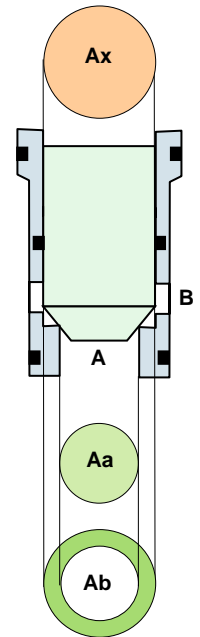
Functional description

These valves are designed for use with special fluids:

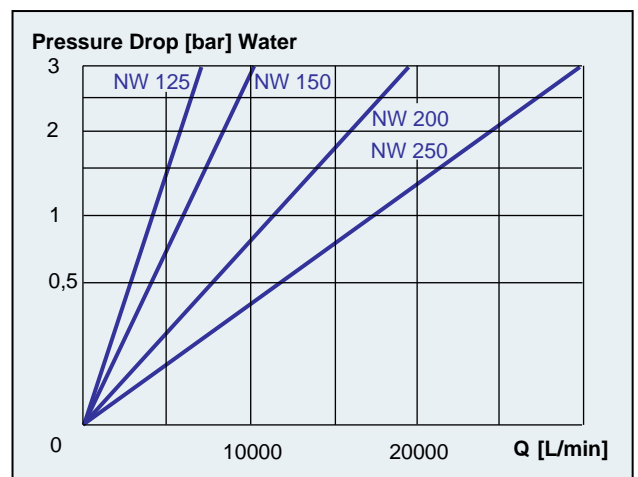
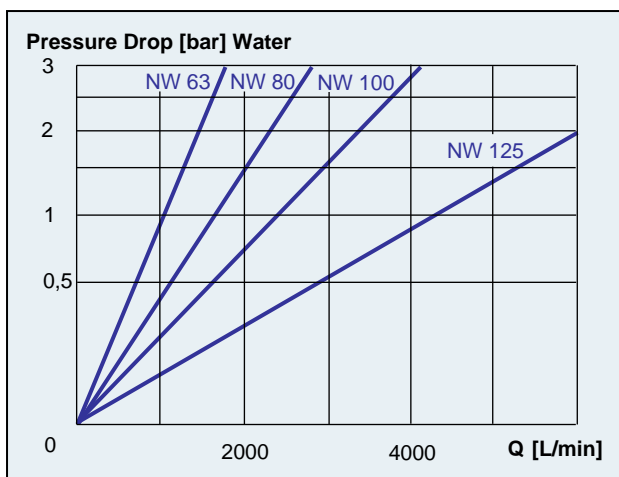
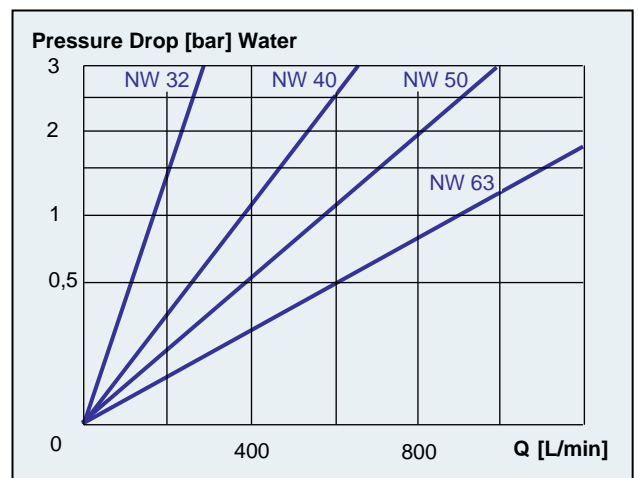
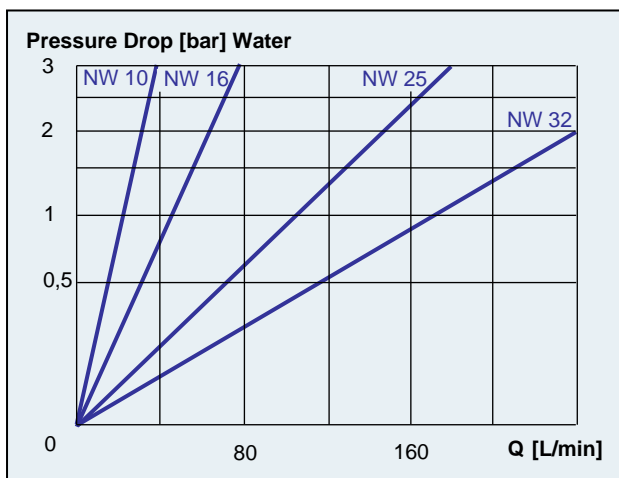
- No metal to metal contact at the sliding surfaces.
 - the use of non-lubricating mediums is possible.
- All pressurized areas are separated by soft seals
 - for thin fluids and gases under high pressure.
- Special geometry and non-corroding material
 - for water and descaling applications.

An important dimension for the function of cartridge valves is the surface ratio of the seat area A_a and the annulus area A_b to the pilot area P_x . By using a surface ratio of 1:1 the valve can be operated only in one direction. By using a surface ratio of 1:1.6 or 1:2 the valve can be operated in both directions, but cannot be used for pressure functions because of the pressure ratio which creates pre-opening of the pilot valve.

Soft-seated valves are suitable for use in shut-off and directional functions. These valves are absolutely leak-free even for long-term operation in gas or high-pressure circuits.
Hard seated valves are suitable for use in pressure control functions. Because of their robust seats they can be used also in high pressure water hydraulic circuits.



Diagrams



CARTRIDGE PROGRAM

Cartridge Valve Type 1

For directional, pressure and flow-control applications

Dimensions according to DIN 24342

Material: stainless steel

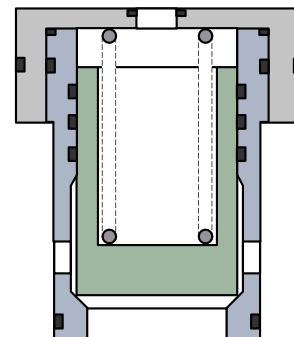
Hard seated

Area ratio 1:1 / 45°

Example / Order code

EO - 025 - 00 - 0.0 - 1D / 0

└─ Nominal size 016, 025, 032



Cartridge Valve Type 2

For pressure-control applications

Dimensions according to DIN 24342

Material: stainless steel

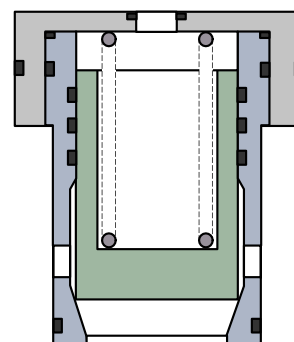
Hard seated

Area ratio 1:1 / 15°

Example / Order code

EO - 025 - 00 - 0.0 - 2D / 0

└─ Nominal. size 016, 025, 032



Cartridge Valve Type 3

For directional and shut off applications

Dimensions according to DIN 24342

Material: stainless steel

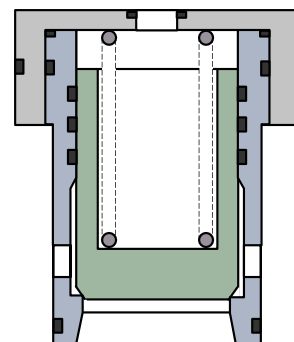
Hard seated

Area ratio 1:1.6 / 45°

Example / Order code

EO - 025 - 00 - 0.0 - 3D / 0

└─ Nominal. size 016, 025, 032



Cartridge Valve Type 4

For pressure reducing, check and flow control functions

Dimensions according to DIN 24342

Material: stainless steel

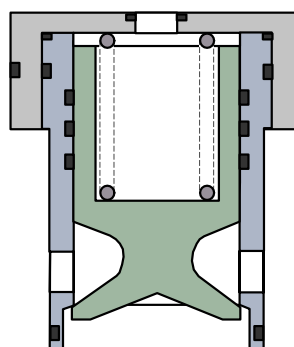
Hard seated

Area ratio 1:1

Example / Order code

EO - 025 - 00 - 0.0 - 4D / 0

└─ Nominal. size 016, 025, 032



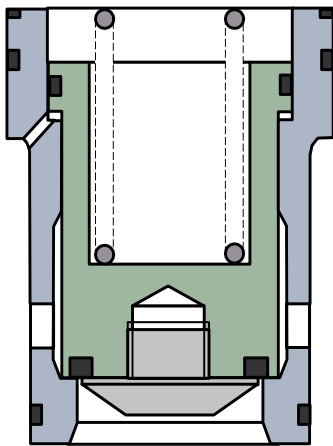
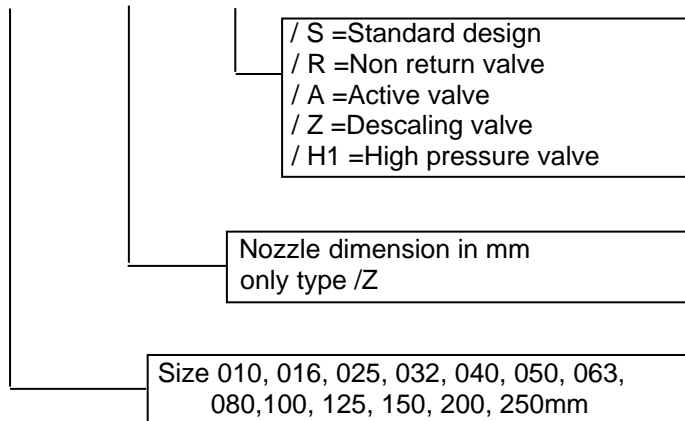
CARTRIDGE PROGRAM

Cartridge Valve Type 6

For directional and shut off applications
Dimensions according to DIN 24342
Material: stainless steel, soft seated, metal support
area ratio 1:2, Type /Z 1:1.6

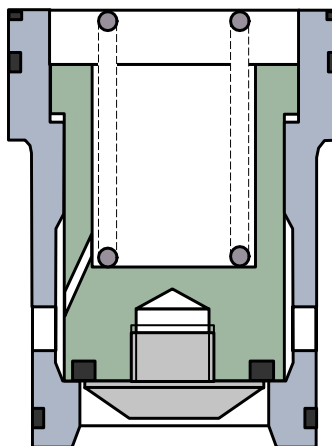
Example / Order code

EO – 125 – 00 – 5.5 – 6D / Z



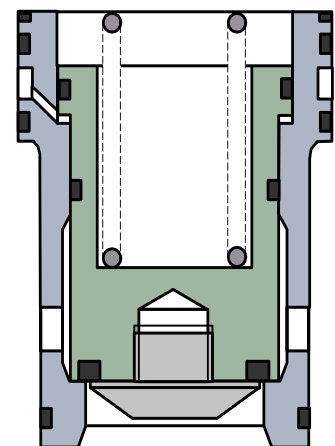
**Standard design
Type 6D / S**

350bar - ND 010 to 100
for water, oil and gas.
For descaling applications up
to size ND 250



**Non return valve
Type 6D / R**

Up to 350bar - ND 010, 016,
025 for water, descaling water,
oil and gas.



**Active valve
Type 6D / A**

Up to 350 bar - ND 16 to 100
for water, oil and gas

OPTIONS:

Seawater resistant versions, expanded temperature range (200°C),
expanded pressure range to 420bar (10% reduced flow rate)

CARTRIDGE PROGRAM

High pressure valve Type 6D / H1

These valves are designed for static pressures up to 1000bar.
Pressurized opening and closing is possible with the following pressure differences:

Continuous operation water 600bar, frequently operation water 800bar.
Continuous operation oil, compressed air 800bar

Media: water, emulsions, oil and compressed air.

Because of the stronger wall thickness the flow rate is reduced.

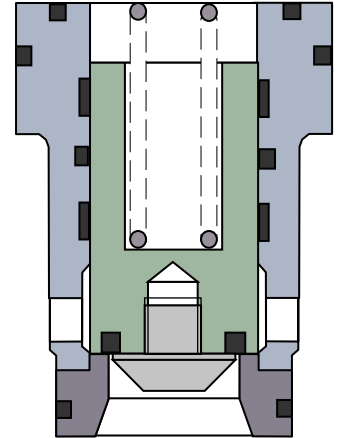
For calculation please use the following flow curves:

ND 16 = flow curve ND 10

ND 25 = flow curve ND 16

ND 32 = flow curve ND 25

ND 40 = flow curve ND 32



Options on request: larger sizes, sea water resistant versions, extended temperature versions (200°C)

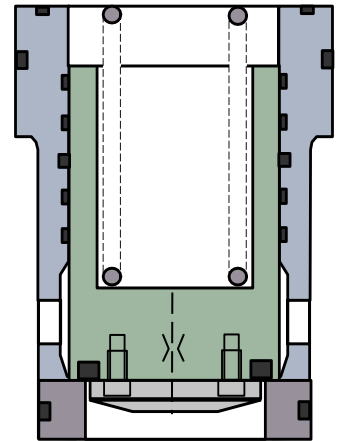
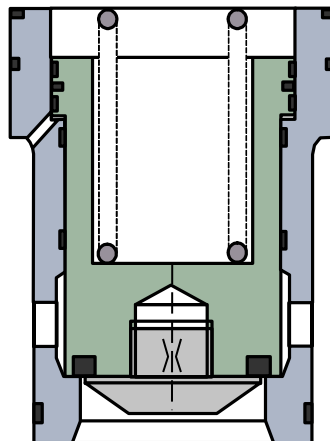
Descaling valve Type 6D / Z

Up to 350bar - ND 063 to 250

ND 63 – 100mm area ratio 1:2

ND125 – 250mm area ratio 1:1.6

for water, descaling water and oil



Manual operated Valve Type 7D

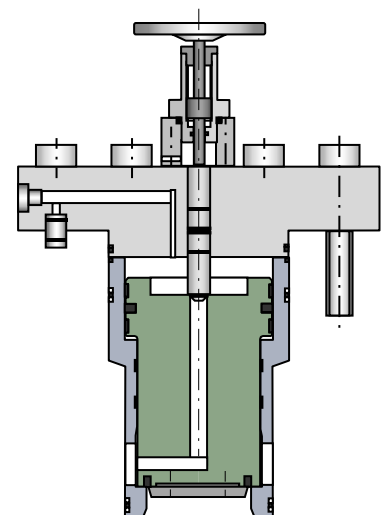
Up to 350bar - ND 063 to 150

for Water and Oil

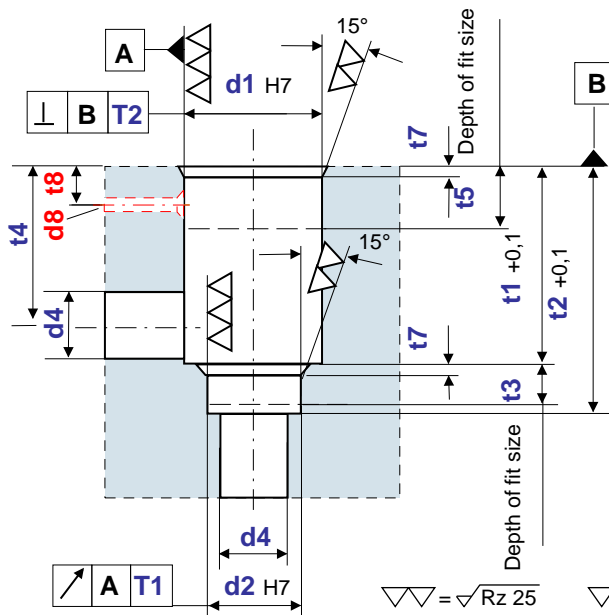
These valves are designed for shut off functions. The servo system reduces the necessary manual power so that the valve can be operated under high pressure.

The manual spindle locks the piston in closed position even under pressure.

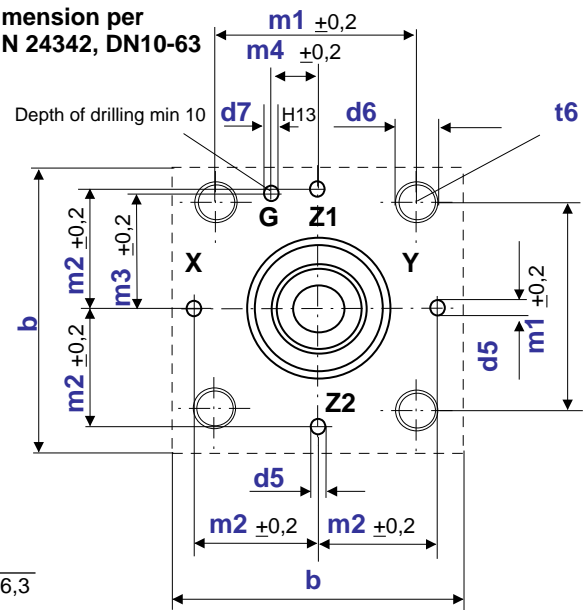
For more information please see catalogue DE2.4.13



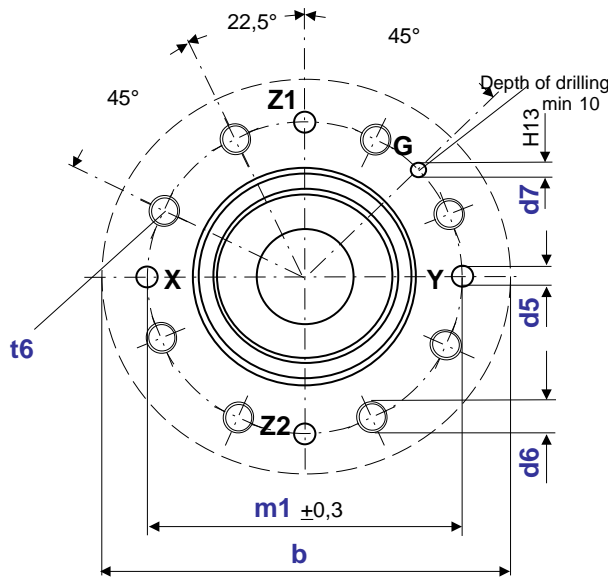
CARTRIDGE PROGRAM



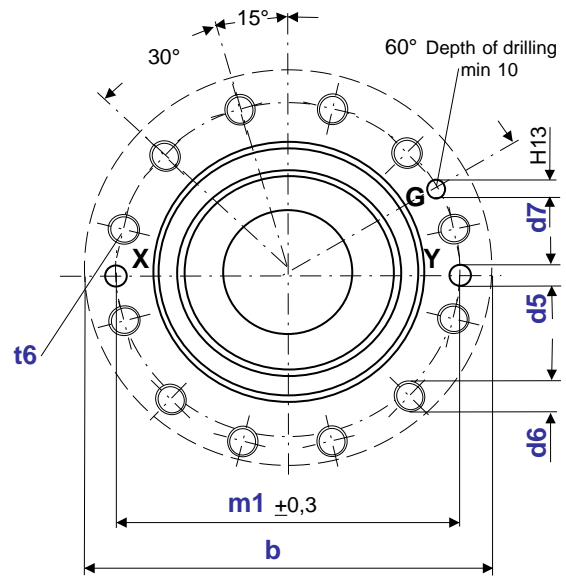
Dimension per
DIN 24342, DN10-63



Dimensions per DIN 24342, DN80-100



Dimensions per DIN 24342, DN125-250



DN	b	d1	d2	d4	d5	d6	d7	d8	m1	m2	m3	m4	t1	t2	t3	t4	t5	t6	t7	t8	T1	T2
10	52	20	16	10	3	M5	3	-	40	19	17	12	26	35	8	20	13	10	1,5	-	0,03	0,05
16	65	32	25	16	4	M8	4	4	46	25	23	10,5	43	56	11	34	24	20	2	13	0,03	0,05
25	85	45	34	25	6	M12	6	5	58	33	29	16	58	72	12	44	30	25	2,5	15	0,03	0,05
32	102	60	45	32	8	M16	6	5	70	41	35	17	70	85	13	52	34	35	2,5	21	0,03	0,1
40	125	75	55	40	10	M20	6	6	85	50	42,5	23	87	105	15	64	42	35	3	27	0,05	0,1
50	140	90	68	50	10	M20	8	8	100	58	50	30	100	122	17	72	46	40	4	30	0,05	0,1
63	180	120	90	63	12	M30	8	8	125	75	62,5	38	130	155	20	95	62	55	4	35	0,05	0,2
80	250	145	110	80	16	M24	10	10	200	-	-	-	175	205	25	130	88	45	5	55	0,05	0,2
100	300	180	135	100	20	M30	10	10	245	-	-	-	210	245	29	155	110	55	5	-	0,05	0,2
125	360	220	180	125	20	M33	10	-	290	-	-	-	264	305	41	188	50	70	5	-	0,05	0,2
150	400	255	210	150	20	M36	10	-	330	-	-	-	310	355	41	225	55	70	5	-	0,05	0,2
200	530	355	275	200	20	M48	10	-	435	-	-	-	410	455	41	300	55	95	5	-	0,05	0,2
250	625	430	306	250	20	M48	10	-	530	-	-	-	510	555	41	375	60	95	5	-	0,05	0,2

Details of the cavities for cartridge valve 6D/A (active) please see our separate datasheets

CARTRIDGE COVERS

These stainless steel cartridge covers are used for complete valve assemblies with Schrupp cartridge valves according to DIN 24342 and Schrupp pilot valves.

In addition to the standard types shown it is possible to produce special versions for individual applications:

Special covers for descaling valves

Cover with integrated functions such as position indicators, pilot combinations, special dimensions.

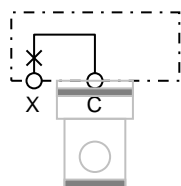
Covers for compressed air pilot valve ND6

Covers for filter

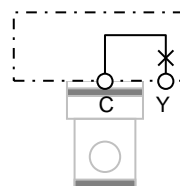
Covers with stroke limiter

Hydraulic piloting and non-return function

Type HX



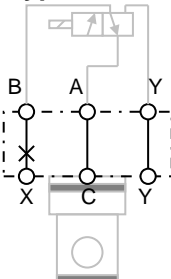
Type HY



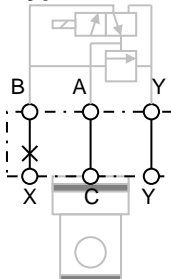
10	16	25	32	40	50	63	Size
25	35	35	35	40	45	50	Height
M5 x30	M8 x40	M12 x40	M16 x45	M20 x55	M20 x60	M30 x70	Fixing screws

Pressure and directional functions

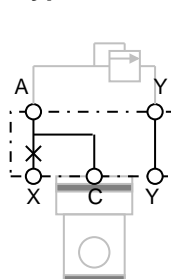
Type WX



Type WX



Type DX



16	25	32	Size
35	35	35	Height
M8 x40	M12 x40	M16 x45	Fixing screws

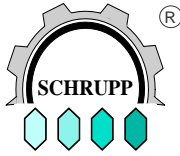
Example / Ordering Code

WX - 025 - 0.5

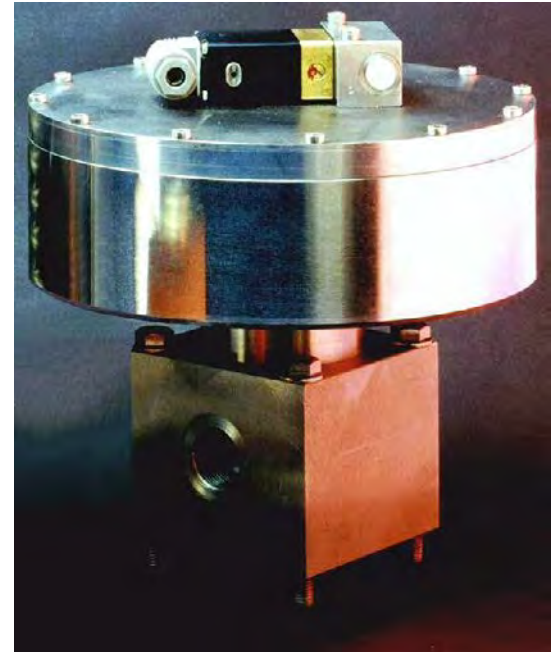
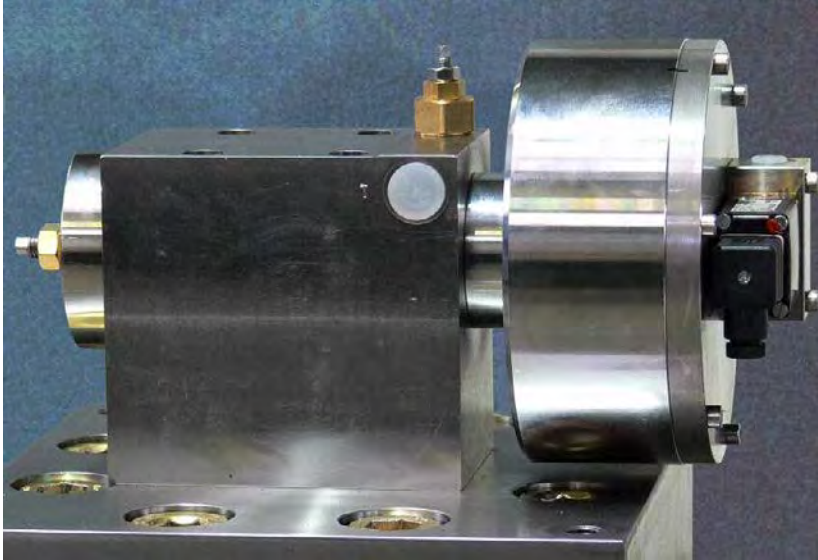
Orifice 0.5, 0.6, 0.7, 0.8, 0.9, 1.0, 1.1, 1.2

Sizes 010, 025, 032, 040, 050, 063 for HX and HY
016, 025, 032 for WX and DX

Cover type WX, DX, HX, HY



PILOT VALVES



Valves for water hydraulic and descaling applications

These pilot valves can be used to operate cartridge valves from size 10 to 250mm. The robust construction and compact design provide direct operation in circuits. Available as pressure and directional control valves up to 350bar.

2/2 and 3/2 way directional control valves ND 2 to 32mm

Pressure relief and reducing valves ND 2mm

Please also see our catalogues:

Cartridge program up to 350bar/pressure valves ND16 to 3/2 directional valves ND10 to 250

Complete Valves

Descaling Valves

High Pressure Valves up to 800bar

PILOT VALVES

2/2, 3/2 Directional Valves Type WEV 06

These robust and smooth operating valves can be used with compressed air, oil, water and emulsions. All ports can be pressurised. The valves type 500100, 500106 and 500008 are equipped with soft seats for a leak-free function. The piston is spring biased in the closed position and allows a fail safe operation so that the valve can be used for accumulator safety valves also.

Variations:

- solenoid operated
- manually operated
- hydraulically operated
- Limit switches

Type WEV 06 - 500100

NP 250bar ND6mm

compressed air,
gases Group 2 on request



Type WEV 06 - 500138

NP 250bar ND6mm

Water, oil and emulsions



Type WEV 06 - 500106

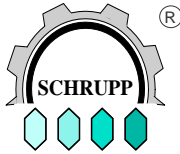
NP 350bar ND6mm

compressed air,
gases Group 2 on request

Type WEV 06 - 500008

NP 500bar ND6mm

Water, oil and emulsions



PILOT VALVES

3/2 Directional Valves Type 500008

can be used with oil, water and emulsions up to pressures of 500bar. This robust and smooth operating valve can be used also in descaling or dirty water applications. It can be used for flow in any direction.

All ports can be pressurised with 500bar. The valve is equipped with soft seats for a leak-free function. The piston is spring biased in the closed position and allows a fail safe operation so that the valve can be used for accumulator safety valves.



Variations:

- solenoid operated
- gas or fluid operated
- manual operated

Technical Data

Operating Pressure	0-500 bar
Size	DN6
Operating Temperature	-20 bis +80 °C
Ambient Temperature	max 70 °C
Medium	Wasser, Öl Emulsion
Recommended Filtration	
0 to 350bar	25 micron
350 to 500bar	10 micron
Max. Power consumption	42 W
ED	100%
Protection Class	IP 65
Voltage Tolerance	+5 bis -10%
Opening and closing time	100-300 ms
Material	Stainles Steel, PTFE, PEEK, Viton

Ordering Code

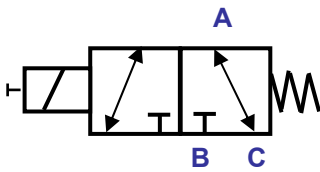
Valve: **WEV06P-250-500008-01-024G** 24V DC
 120W 110V/50Hz (60Hz)
 240W 220V/50Hz (60Hz)
 max. operating pressure in bar

*other voltages on request

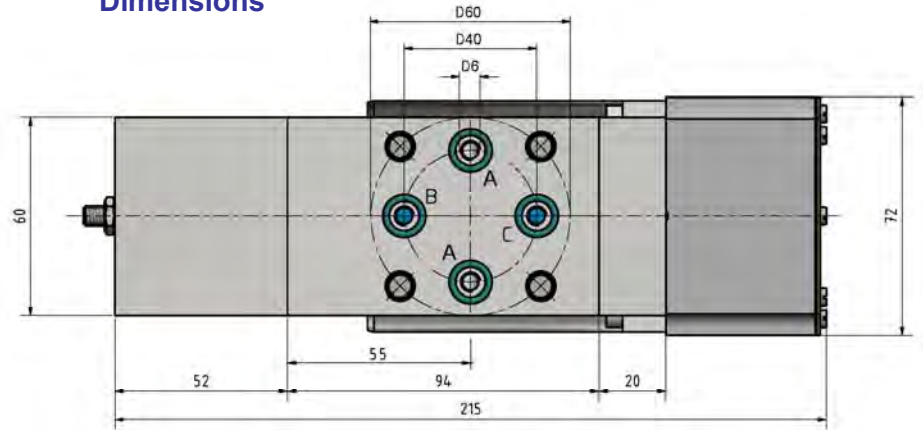
Seal Kit: **WEV06VTS-500008-01-92**

PILOT VALVES

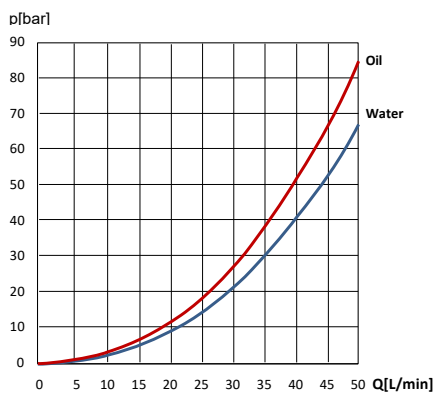
Symbol



Dimensions

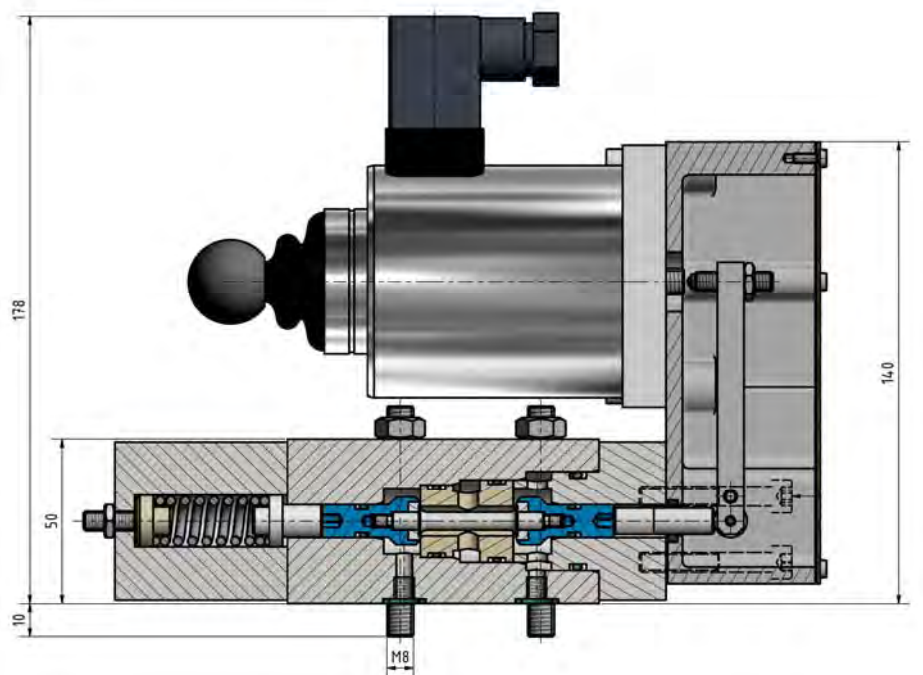


Flow Characteristics



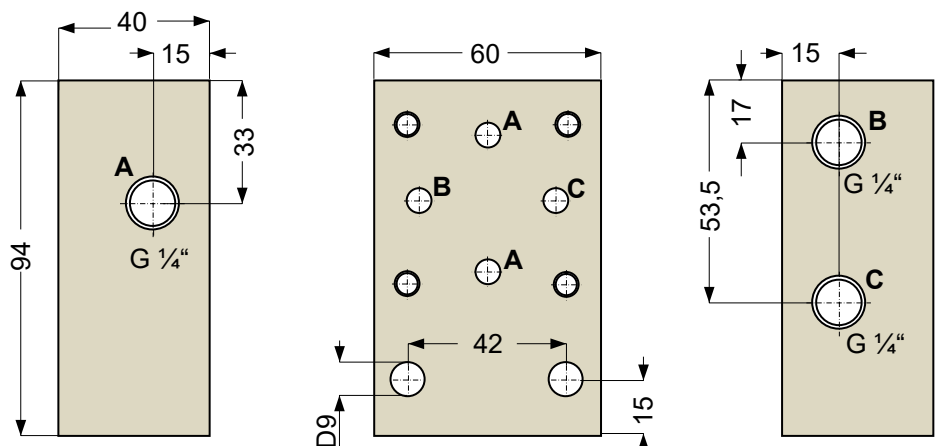
Higher operating pressures will require an orifice nozzle.

Ports A, B and C are equipped with M6 threads deep 8mm.



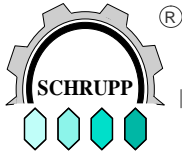
Subplate for WEV06P

Dimensions



Ordering Code

Subplate: 850252



PILOT VALVES

2/2, 3/2 Directional Valve Type 500138

can be used with oil, water and emulsions up to pressures of 250bar. This robust and smooth operating valve can be used also in descaling or dirty water applications. It can be used for flow in any direction.

All ports can be pressurised with 250bar. The valve is equipped with hardened seats. The piston is spring biased in the closed position and allows a fail safe operation so that the valve can be used for accumulator safety valves.



Variations:

- solenoid operated
- gas or fluid operated
- manual operated

Technical Data

Operating Pressure	0-250 bar
Size	DN6
Operating Temperature	-20 bis+80 °C
Ambient Temperature	max 70°C
Medium	Wasser, Öl, Emulsion
Recommended Filtration	
0-65bar	25 micron
65-250bar	10 micron
150-250bar water service only	
occasionally operated	
Max. Power consumption	42 W
ED	100%
Protection Class	IP 65
Voltage Tolerance	+5bis -10% VDE580
Opening and closing time	100 - 200 ms
Material	Stainless Steel, Brass, Delrin, Viton

Ordering Code

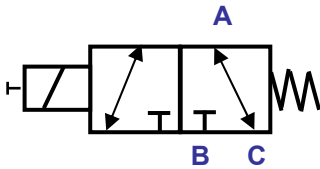
Valve: **WEV06P-250-500138-01-024G** 24V DC
 120W 110V/50Hz (60Hz)
 240W 220V/50Hz (60Hz)
 max. operating pressure in bar

*other voltages on request

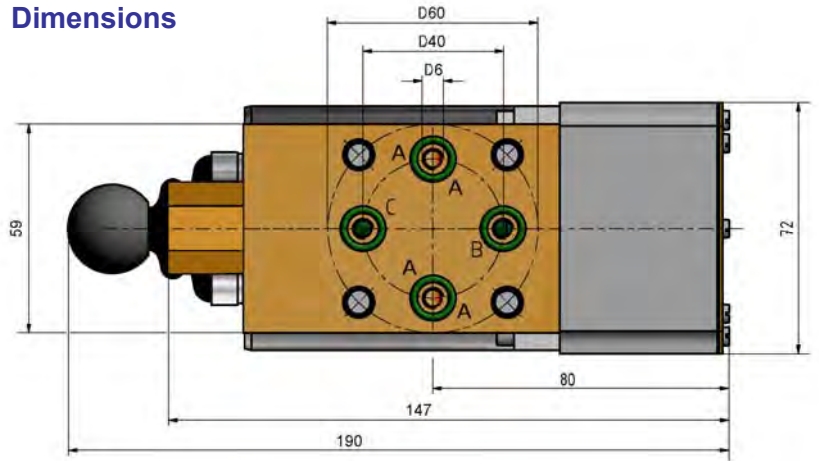
Seal Kit: **WEV06VTS-500038-01-92**

PILOT VALVES

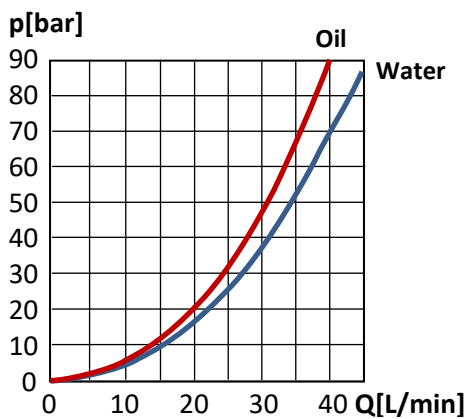
Symbol



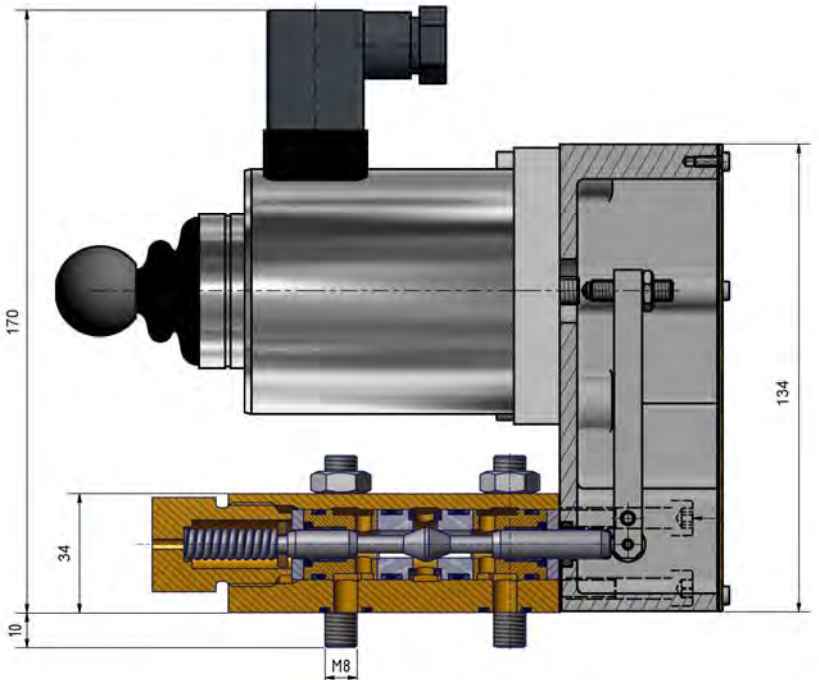
Dimensions



Flow Characteristics

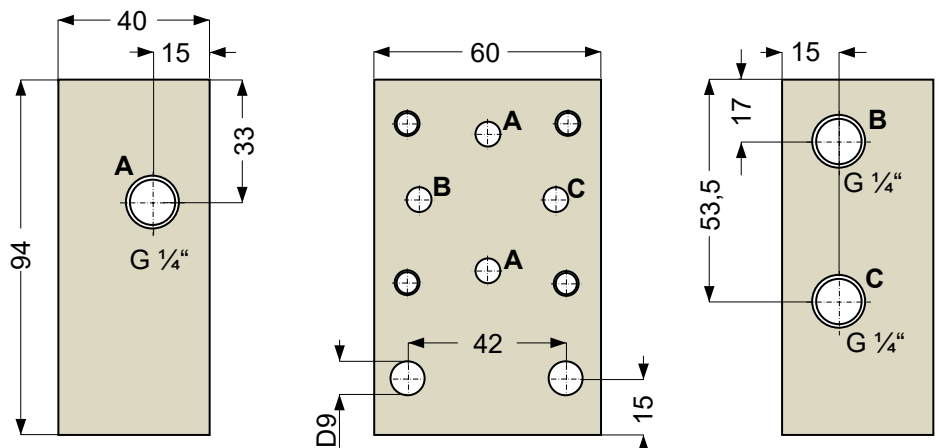


Higher operating pressures will require an orifice nozzle.



Subplate for WEV06P

Dimensions



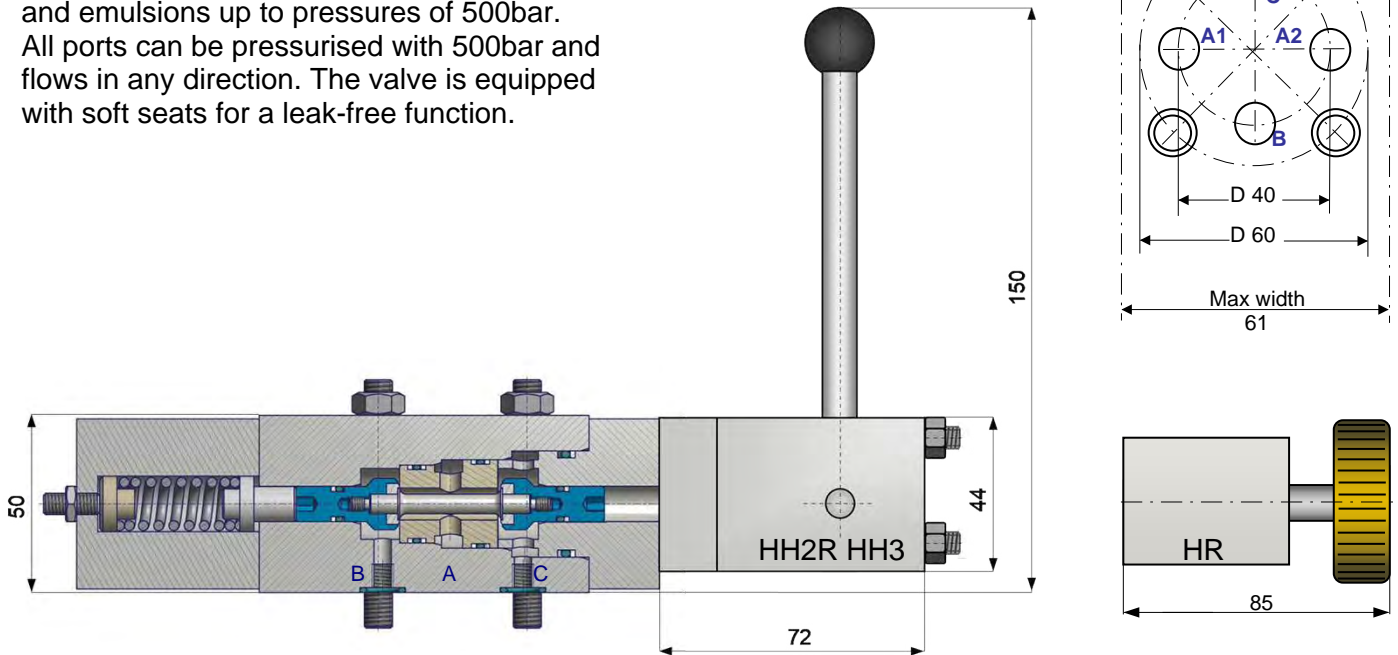
Ordering Code

Subplate: 850252

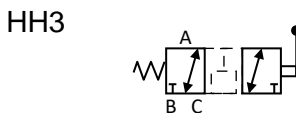
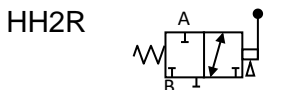
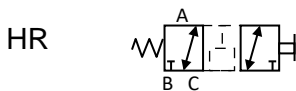
PILOT VALVES

Manual Operated Valves Type 500008 / 500106

can be used with compressed air, oil, water and emulsions up to pressures of 500bar. All ports can be pressurised with 500bar and flows in any direction. The valve is equipped with soft seats for a leak-free function.



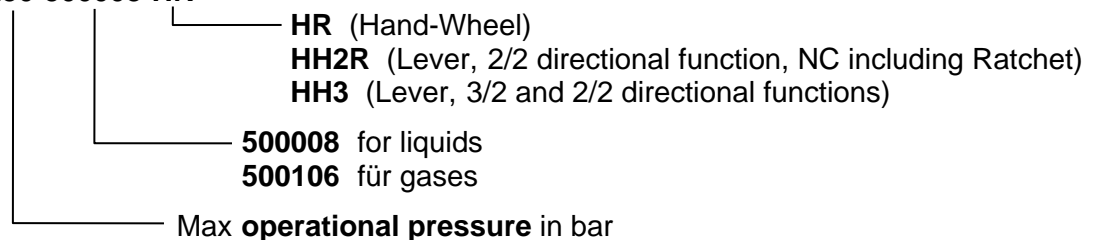
Technical Data



Operating Pressure	0-500 bar
Nominal Size	DN6
Operating Temperature	-20 bis +80 °C
Ambient Temperature	max 70 °C
Medium	Gases, Water, Oil
Recommended Filtration	
0 to 350bar	25 my
350bar to 500bar	10 my
Material	Stainless Steel, Brass, Delrin, Viton

Ordering Code

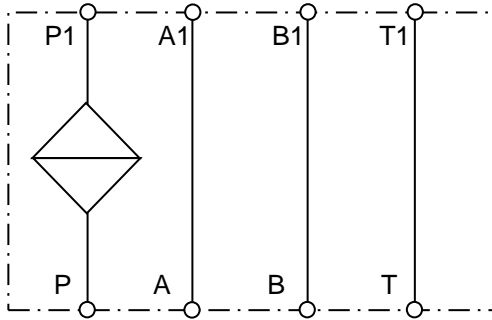
Valve: WEV06P-250-500008-HR



Others on request

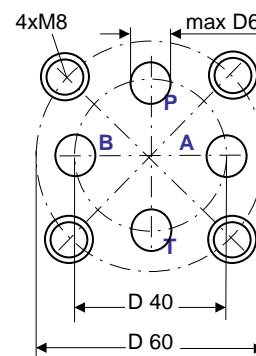
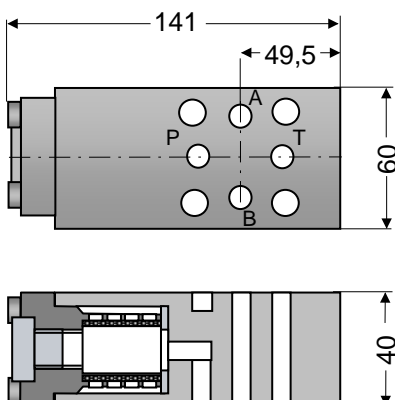
PILOT VALVES

Filter Sandwich Plates Type 851014



Are used to protect type 500000 and 500002 pilot valves against contamination of dirt particles in compressed air, water or oil medium up to an operating pressure of 350bar. The spiral wound metal filter elements can be cleaned easily and have a filtration rate of 80 micr. These sandwich filters are used in systems with long distances between the central filter system and the pilot valves so that corrosion and dirt particles from the piping cannot penetrate into the pilot systems. The central filter system should have a filtration rate of 80micr or better.

Material	Stainless Steel, PTFE, PEEK, Viton	
Technical Data	Operating pressure	0-350 bar
	Nominal size	DN4
	Operating temperature	-20 to +80 °C
	Ambient temperature	max 45 °C
	Medium	Air, Water, Oil
	Filtration	80 micr
	Spiral wound metal filter-element, cleanable	
Order No.	Sandwichfilter complete	851014
	Spare filter-element	157346



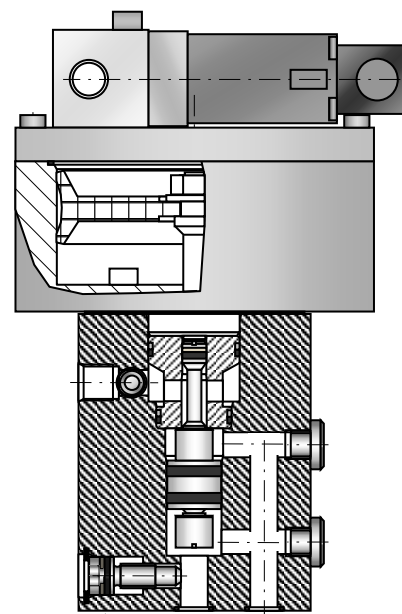
PILOT VALVES

3/2 Directional Pilot Valves

Type 851037

Schrupp pilot valves are soft seated with metal support especially designed to withstand the high pressures and levels of contamination found in typical steel mill descaling systems. The integrated throttle valves allow an adjustment of the opening and closing speed of the main valve. The valves are designed for fail safe operation, which means that the main valve will close automatically even if the electric or pneumatic power is off

(i.e accumulator shut off valves).



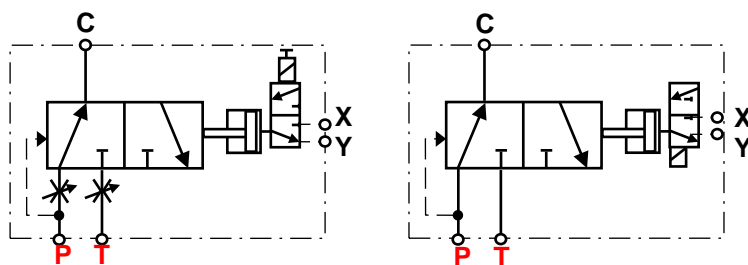
Technical Data:

ND	10 mm
Hydraulically oper, pressure	15-350bar
Pneumatic Pressure	2-10bar
Filtration	50-100 mic
Power Consumption	8W
Tolerance Voltage	10%
Protection Class	IP65

Diagram

Version with integrated opening and closing speed adjustment

Version without speed adjustment



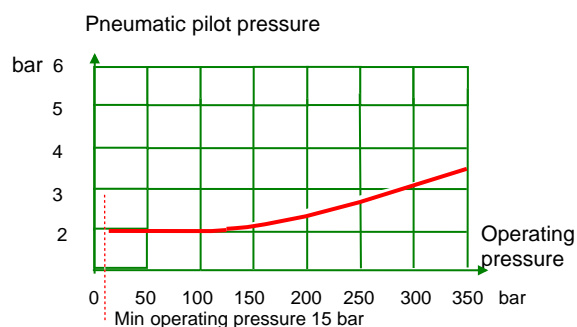
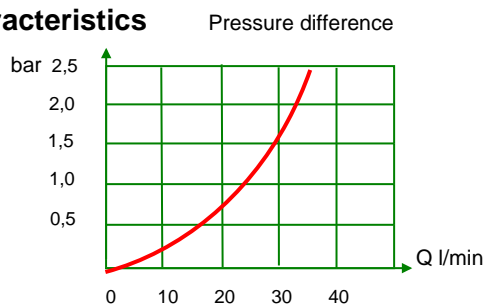
Ordering Code

Version with speed adjustment

24V GL	851037 24V
110-120V 50/60Hz	851037 120V
220-240V 50/60Hz	851037 240V

Special designs:
F.e. manual override, position indicator,
different pilot pressure range,
special materials

Characteristics



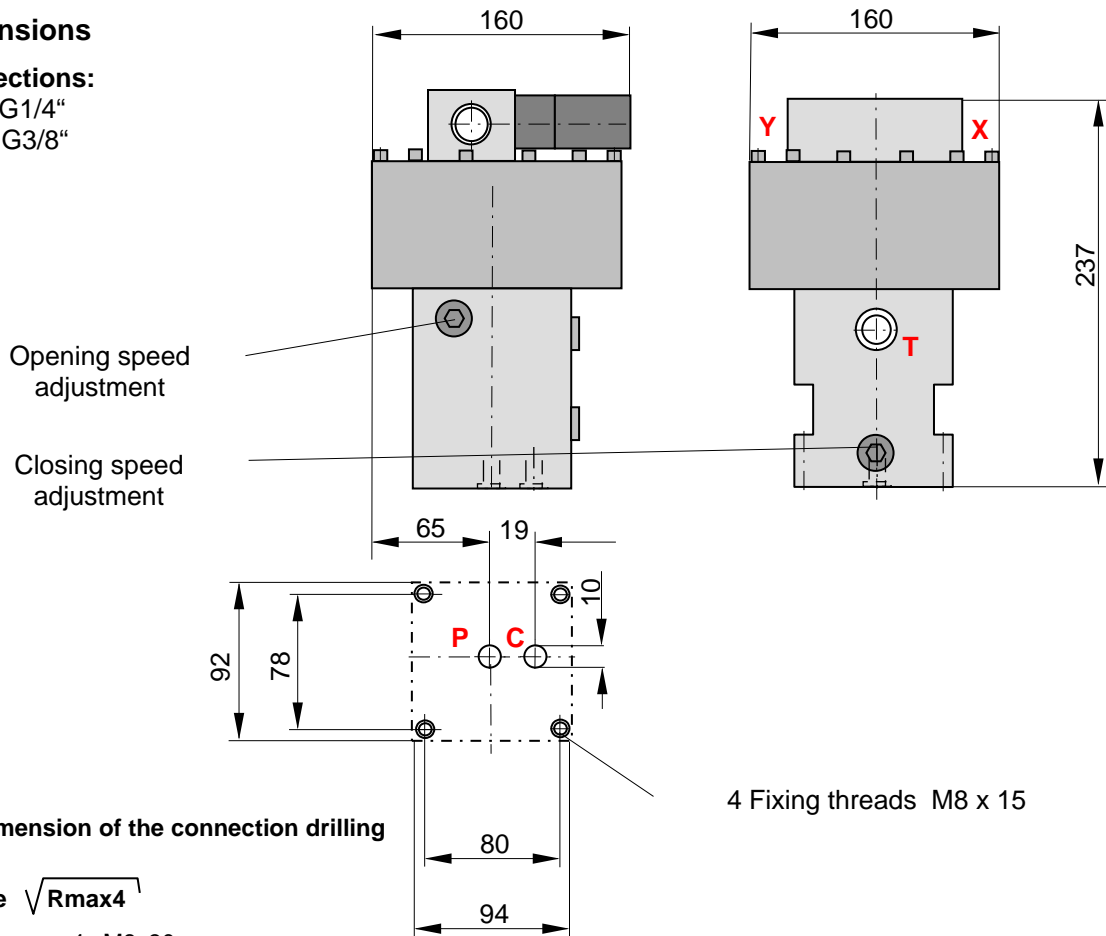
PILOT VALVES

Dimensions

Connections:

X, Y = G1/4"

T = G3/8"



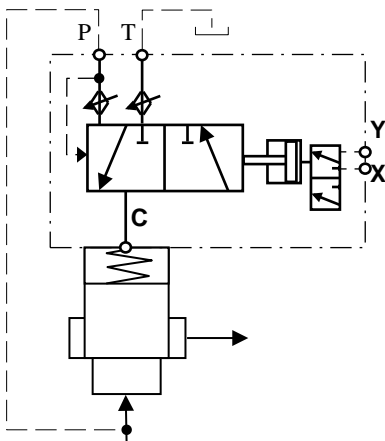
Max dimension of the connection drilling 10mm.

Surface $\sqrt{R_{max4}}$

Fixing screws 4x M8x30mm.

The fixing threads have to have a depth of 15mm min.

Altern. thread and screws 5/16" – 18 UNC



Example

Typical application for an ND10 pilot valve in combination with a large cartridge valve.

The valve is spring loaded and closed without electrical or pneumatic power.

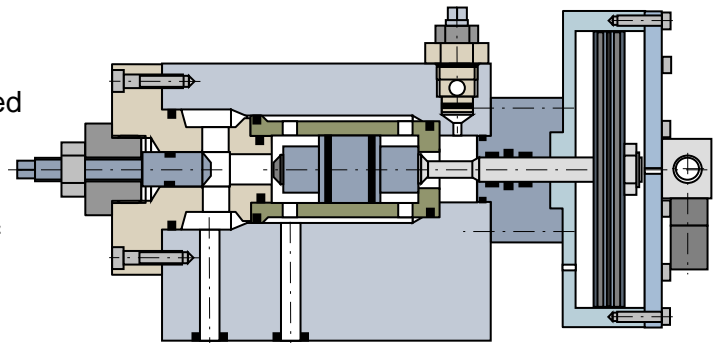
The pilot valve can be used for cartridges ND50 to ND100mm

PILOT VALVES

3/2 Way Pilot Valve

Series 850885

Schrupp pilot valves are soft seated with metal support especially designed to withstand the high pressures and levels of contamination found in typical steel mill descaling systems. The integrated throttle valves allow an adjustment of the opening and closing speed of the main valve. The valves are designed for fail safe operation, which means that the main valve will close automatically even if the electric or pneumatic power is off



(i.e accumulator shut off valves).

Technical Data

ND	16 mm
Hydraulically oper, pressure	7-350bar
Pneumatic Pressure	3-10bar
Filtration	50-100 mic
Power Consumption	8W
Tolerance Voltage	10%
Protection Class	IP65

Ordering Code

Version with speed adjustment

24V GL	850885 24V
110-120V 50/60Hz	850885 120V
220-240V 50/60Hz	850885 240V

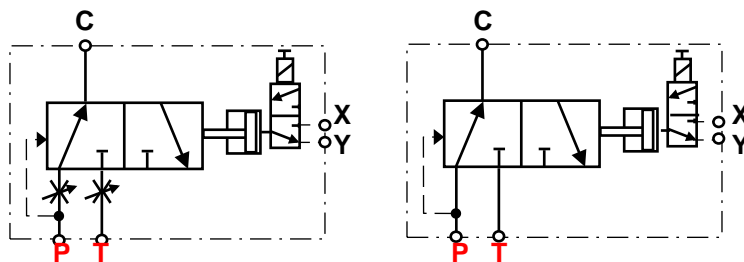
Version without speed adjustment

24V GL	850885-01 24V
110-120V 50/60Hz	850885-01 120V
220-240V 50/60Hz	850885-01 240V

Diagram

Version with integrated opening and closing speed adjustment

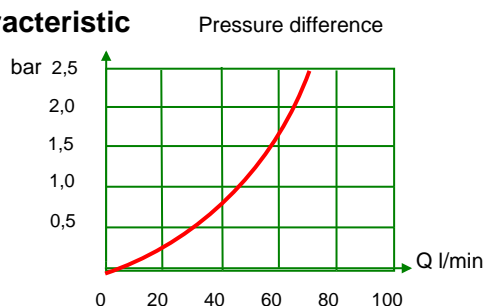
Version without speed adjustment



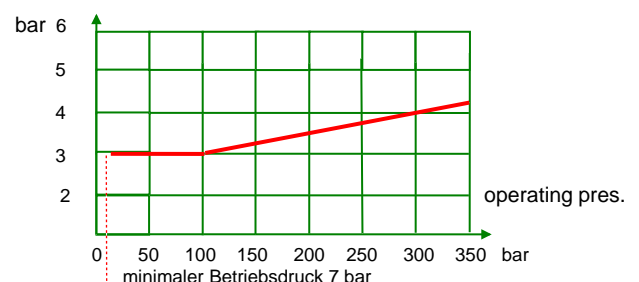
Special designs:

F.e. manual override, position indicator, different pilot pressure range, special materials

Characteristic



Pneumatic pilot pressure

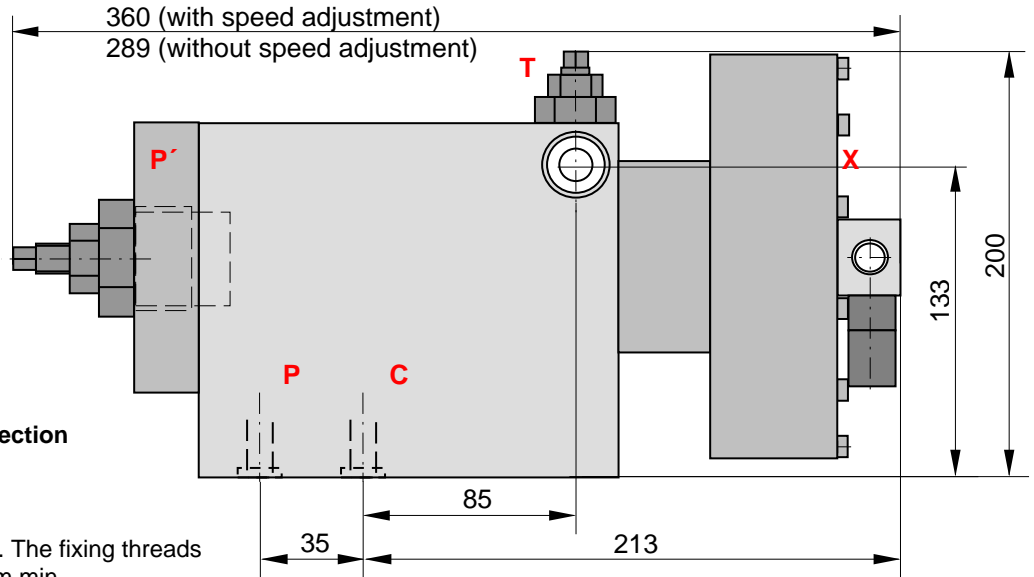


PILOT VALVES

Dimensions

Connections:

X, Y = G1/4"
 T = G1/2"
 P' = G1" (only for version without speed adjustment)

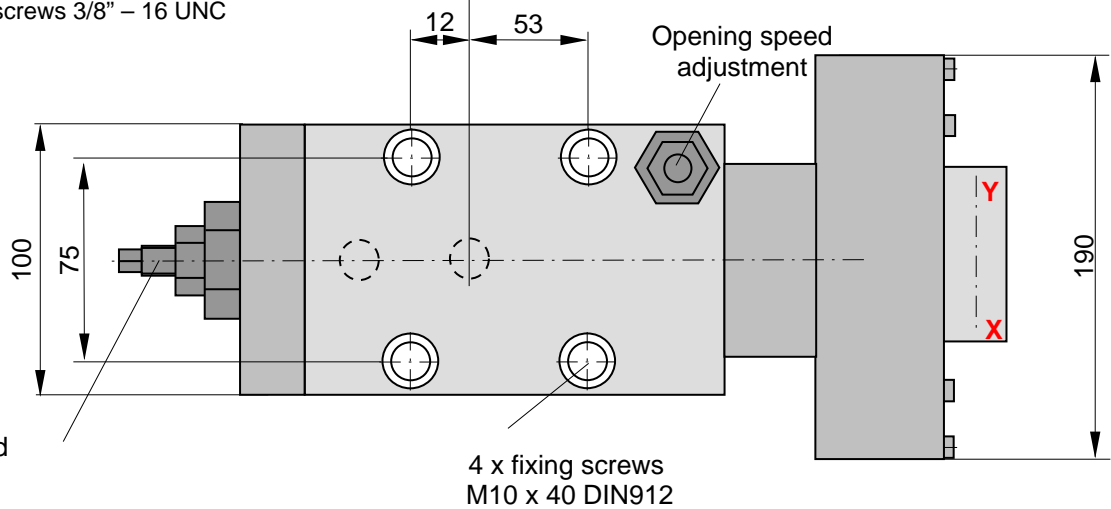


Max dimension of the connection drilling 25mm.

Surface $\sqrt{R_{max4}}$

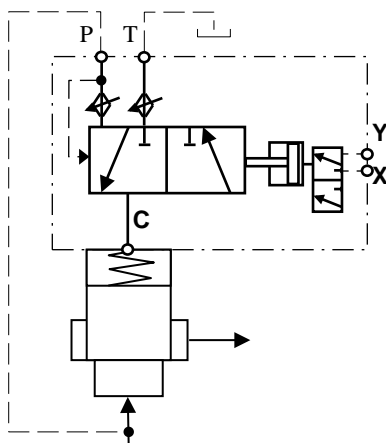
Fixing screws 4x M10x40mm. The fixing threads have to have a depth of 15mm min.

Altern. thread and screws 3/8" – 16 UNC



Closing speed adjustment

4 x fixing screws M10 x 40 DIN912



Example

Typical application for a P6P valve in combination with a large cartridge valve.

The valve is spring loaded and closed without electrical or pneumatic power.

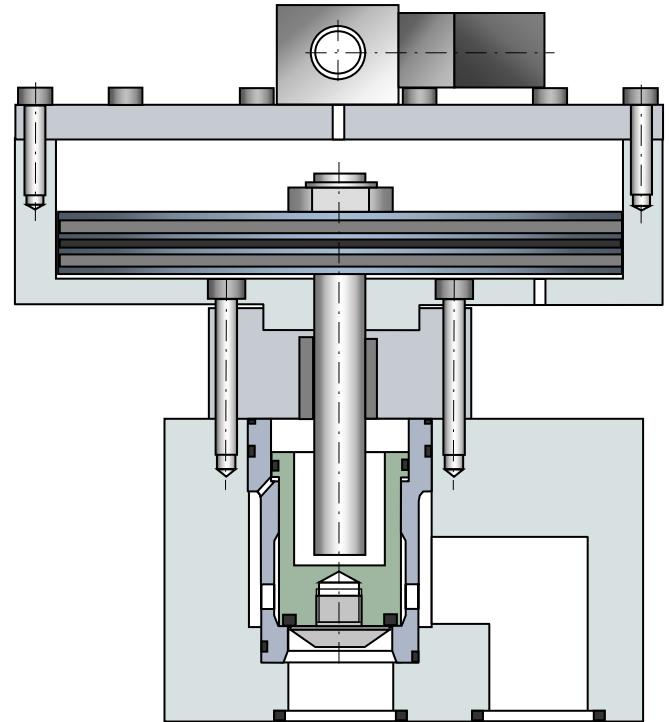
The pilot valve can be used for cartridges ND65 to ND250mm

PILOT VALVES

2/2 Directional Pilot Valve

Type P2P

Pilot valves Type 2 are used for control of Schrupp water hydraulic valves, especially in those systems with contaminated media such as descaling systems. These robustly designed valves are frequently used without pilot filtration and can also be used as 2/2 way directional control valves.



Technical Data

Size	10,16, 25 mm
Hydraulic pressure	350bar
Pneumatic pressure	2-10bar
Recommended filtration	50 mic
Electrical power consumption	8W
Voltage tolerance	10%
Electrical protection	IP65

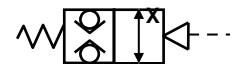
Ordering Code

P2P 16 - 6 - 1 - F - 024G

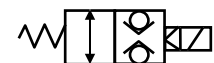
P2P = for subplate mounting
P2R = with threaded connections (on request)
16 = Size 10,16, 25 (mm)
6 = Soft Seat (Standard)
3 = Hard Seat
1 = normal open
2 = normal close
0 = without Pilot
F = Fluid
G = Gas
024 G = 24v DC
220 W = 220v/50Hz
 - **S V** Ratio if special

Diagrams

Without pilot valve



Normally open



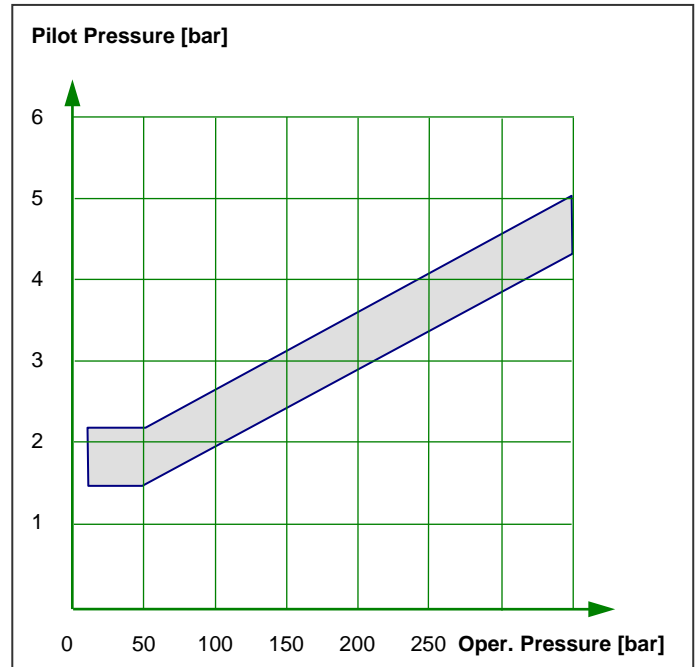
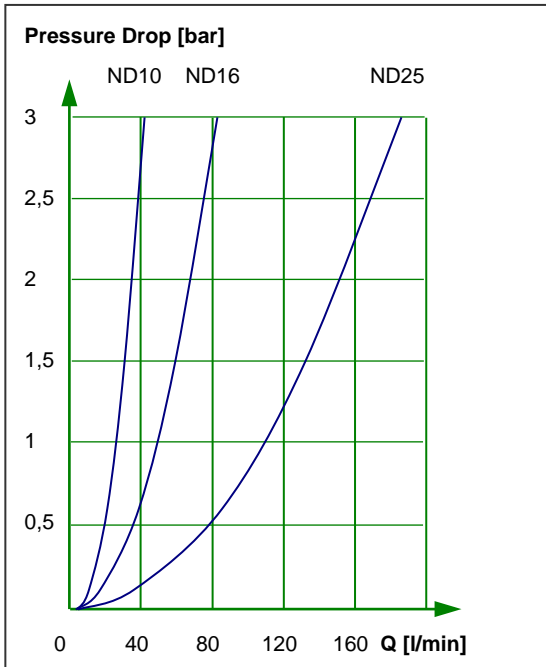
Normally closed



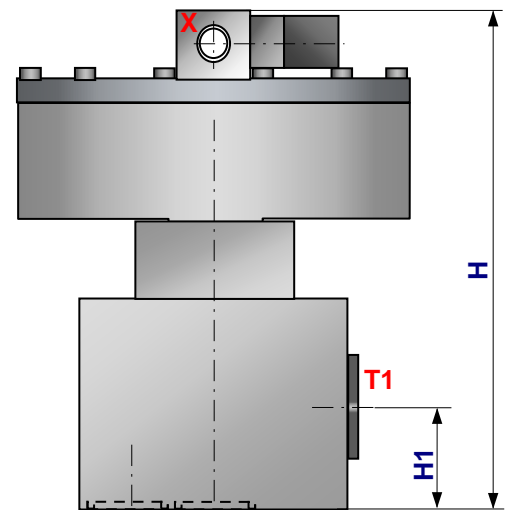
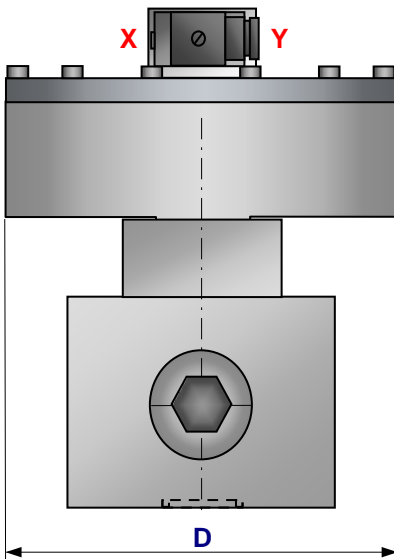
Others on request

PILOT VALVES

Characteristics



Dimensions



Connections:

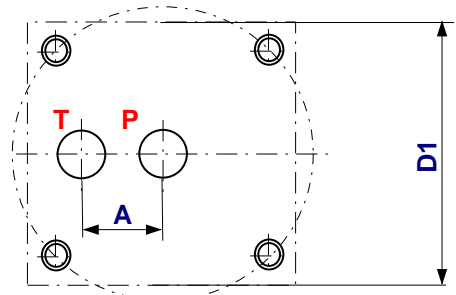
X Pilot Pressure = G1/4"

Y Vent = G1/4"

T,P main connections

T1 Alternative connection

NW	D	D1	H	H1	A	T, P	T1	Fixing Bolts	
								thread	Thread depth
25	275	140	268	(51)	38,5	D25	(G3/4")	M12	20
16	211	112	176	29	28	D16	G3/8"	M10	20
10	130	74	139	22,5	22	D10	G1/8	M8	12

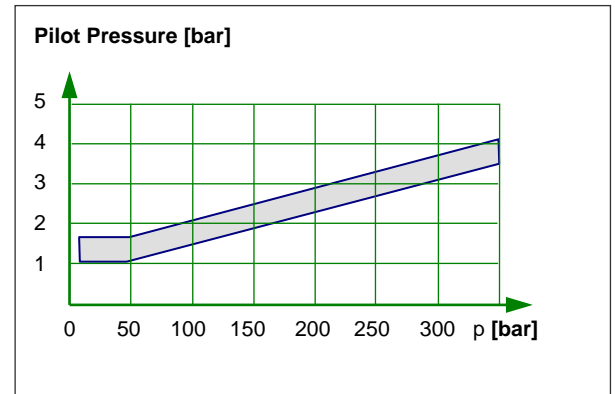
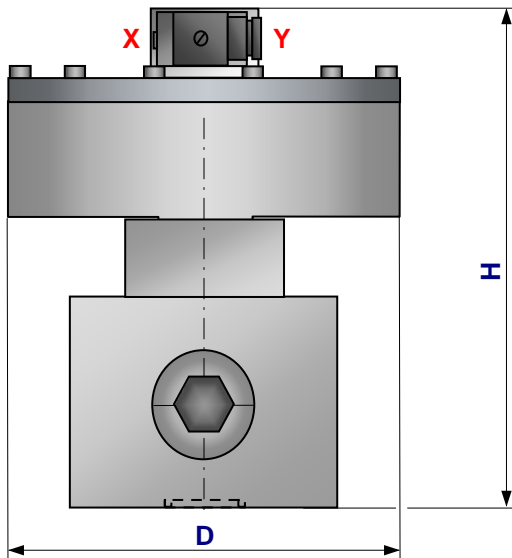


PILOT VALVES

2/2 Directional Pilot Valve

Type P2P

Special application with larger pilot cylinder



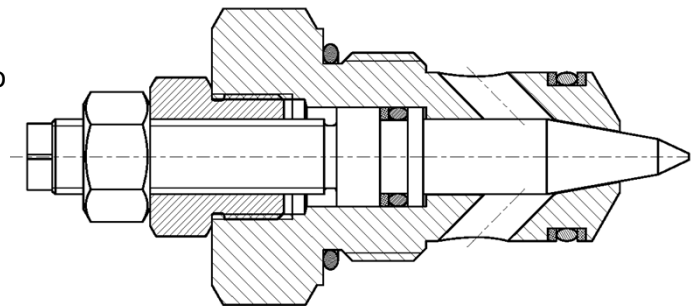
NW	D	H	Other dimensions and characteristics identical to standard version Ordering Code - SV
16	235	216	
10	160	156	

Throttle Valves

are used in combination with pilot valves type P2P for the adjustment of the opening and closing speed and can be integrated into the cartridge cover or into an separate sandwich plate.

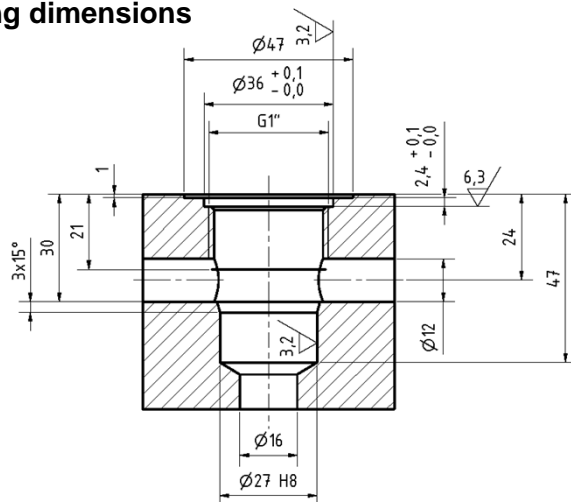
Ordering Code:

DN 10 PN350 **654261**
DN 16 PN350 **654192**

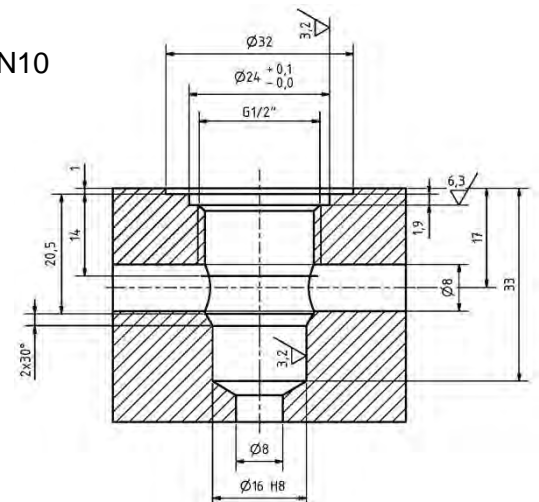


Drilling dimensions

DN16



DN10



PILOT VALVES

Pressure Valves

Valves DBP, DBZ are used to pilot cartridge valves in pressure control functions. Because of their robust design they are also used for direct operations.

Technical Data:

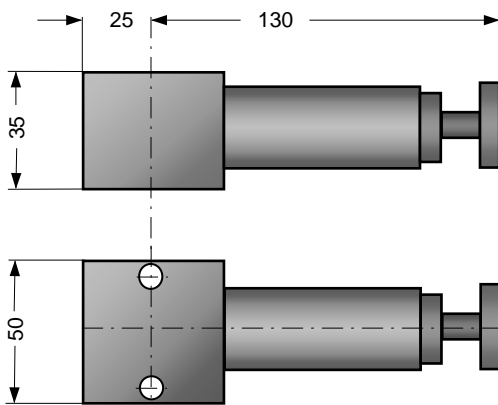
Size	2 mm
Pressure max		350bar / 400 bar
Filtration min		10 mic
Installation possible)		vertical (others

Example / ordering code

DBP2 - S

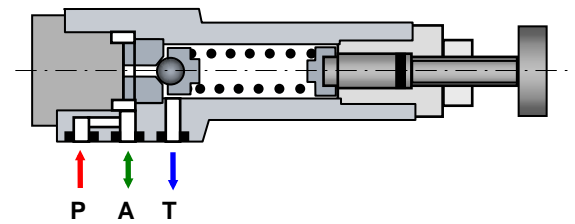
PDBP2= Relief valve sub plate for mounting NW 2
PDBZ2 = Sandwich type relief vale

Dimensions

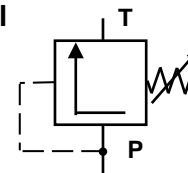


Type PDBP/PDBZ

Type

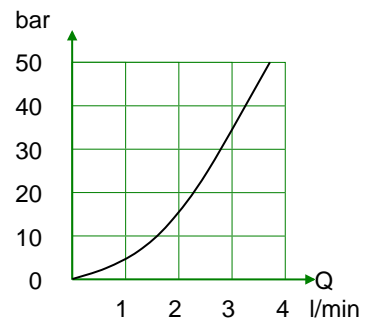


Symbol

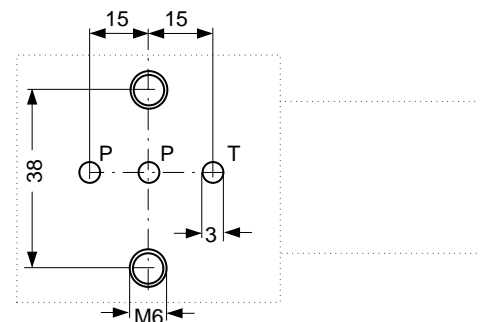


Diagram

Pressure difference, medium water



Connections



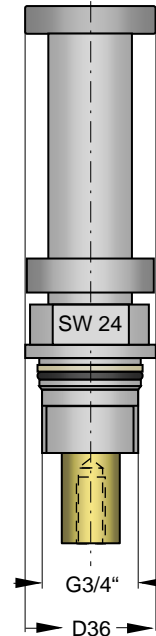
PILOT VALVES

Position indicator optical

to indicate the position of the piston of a cartridge type valve. The robust design is based on permanent magnets and does not need any dynamic seals, so that a safe operation even with contaminated water is possible.

Technical data:

- Operating pressure: 350 bar / 400 bar
- Rec.filtration 300 micron or better
- Media: Water, oil, gases
- Installation: vertical (others possible)
- Length: varies with cartridge valve dimension

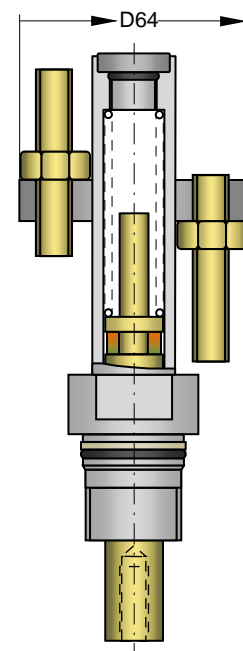


Position indicator with adjustable switches

up to 4 individual adjustable switches indicates the actual position of the piston of a cartridge type valve. The robust design is based on permanent magnets and does not need any dynamic seals, so that a safe operation even with contaminated water is possible.

Technical data:

- Operating pressure: 350 bar / 400 bar
- Rec.filtration 300micron or better
- Media: Water, oil, gases
- Installation: vertical (others possible)
- Length: varies with cartidge valve
- Electrical switches 24v, 10W NO.
- Others on request



COMPLETE VALVES

Cartridge type valves can be combined in many different ways. This selection gives an overview of the most popular valves. Special designs on request.

Pos	Type	Medium	Pilot	Press. max	Size	Symbol	Page
KV 12	Directional valve	Water, Air, Oil	Electro-hydraulic operated x,y internal or external ND6 Type WEV06	350bar	25 mm 40,50 mm		2 3,4
KV 2	Directional valve	Water, Air, Oil	Electro-hydraulic ND6 Type WEV06	350bar	10-40mm		5
KV 3	Directional Valve	Water, Air, Oil	Electro-hydraulic ND6 Type WEV06	350bar	16-32mm		6
KV 4	Directional Valve with mainstream filter	Water, Air, Oil	Electro-hydraulic ND6 Type WEV06	350bar	16mm		7
KV 7	Pressure relief valve	Water	Pressure relief NDG2 Type DBP2	350bar	16-32mm		10
KV 8	Pressure reducing valve	Water	Pressure relief NDG2 Type DBP2	350bar	16-32mm		11
KV 9	Medium operated valves, non-return valves, stroke limiter,	Water, Air, Oil	Medium operated	350bar	10-40mm		12
KV 13	Throttle Valves	Water Emulsion Oil	Manual operated with servo-hydraulic assistance	350bar	25-200mm		13
KV 10	Directional valve	Water, Air, Oil	Electro-pneumatic-hydraulic	800bar	10-25mm		14
KV 11	Directional valve	Water, Air, Oil	Electro-hydraulic	800bar	10-40mm		15

Valve Type KV6 and KV7 according to produkt data sheet E2.4.8 and D2.4.9 are not available anymore

COMPLETE VALVES

Type 2/2 Directional Valve 850233

This robust soft seated valves can be used for the directional control of gases and fluids.

Replacement for V2003

Technical Data:

Nominal Pressure: 3 - 350bar

Nominal Size: 25mm

Media: Water Emulsion, Oil, compressed Air, others on request

Pilot pressure has to be equal or higher than the operating pressure. Pilot pressure max 400bar

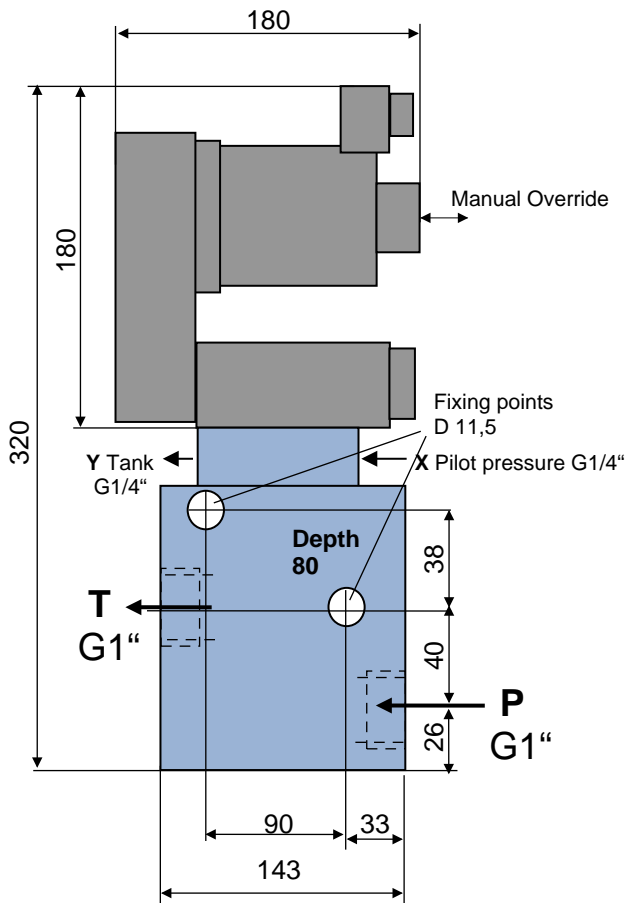
Pressure at port y-for internal operation at port T, has to be min 5bar below the operating pressure at P.

Material: Stainless Steel, Viton, Teflon

Soft seated with metal support

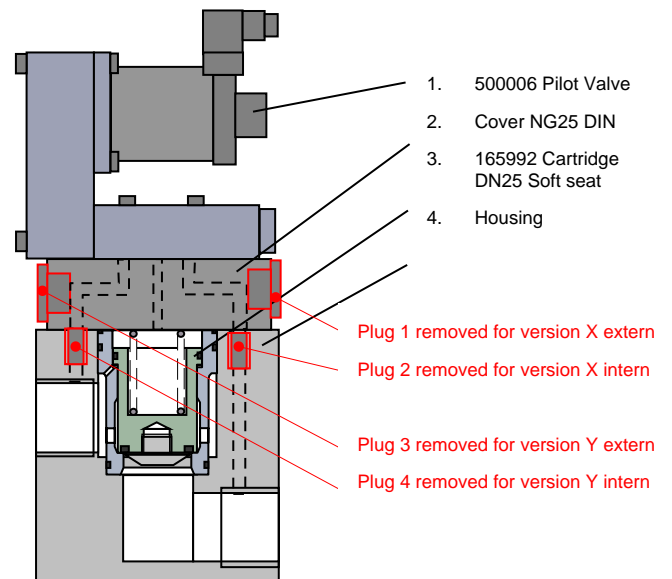
Ambient temperature: 0-50°C

Protection Class: IP65



Ordering Code

850233	x-internal / y-internal	024GL	KV12
	x-external / y-internal	220 WS	
	x-internal / y-external	110 WS	
	x-external / y-external	048 GL	



COMPLETE VALVES

Type 2/2 Directional Valve 850269

This robust soft seated valve can be used for the directional control of gases and fluids.

Replacement for V2006

Technical Data:

Nominal Pressure: 3 - 350bar

Nominal Size: 50mm

Media: Water Emulsion, Oil, compressed Air, others on request

Pilot pressure has to be equal or higher than the operating pressure. Pilot pressure max 400bar

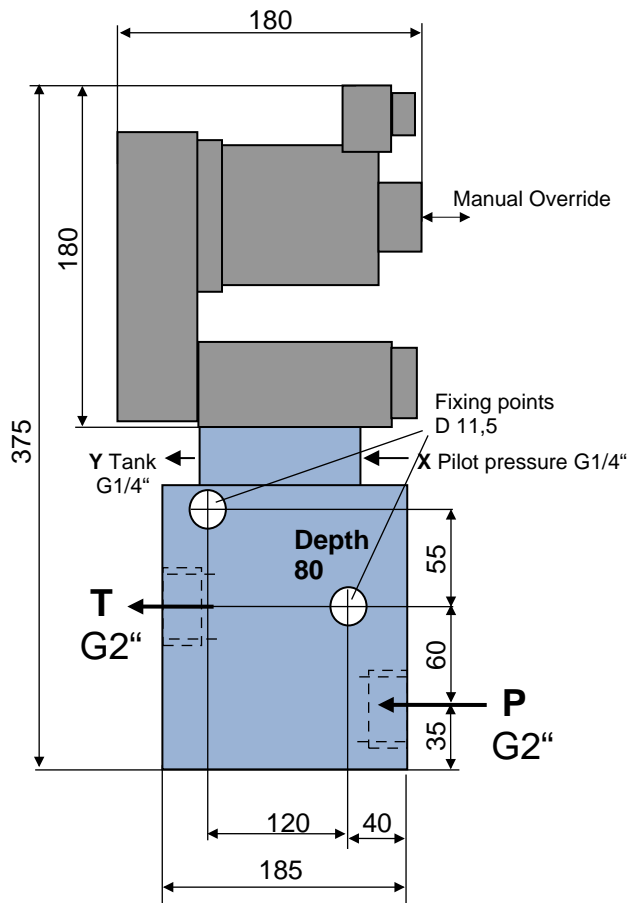
Pressure at port y-for internal operation at port T, has to be min 5bar below the operating pressure at P.

Material: Stainless Steel, Viton, Teflon

Soft seated with metal support

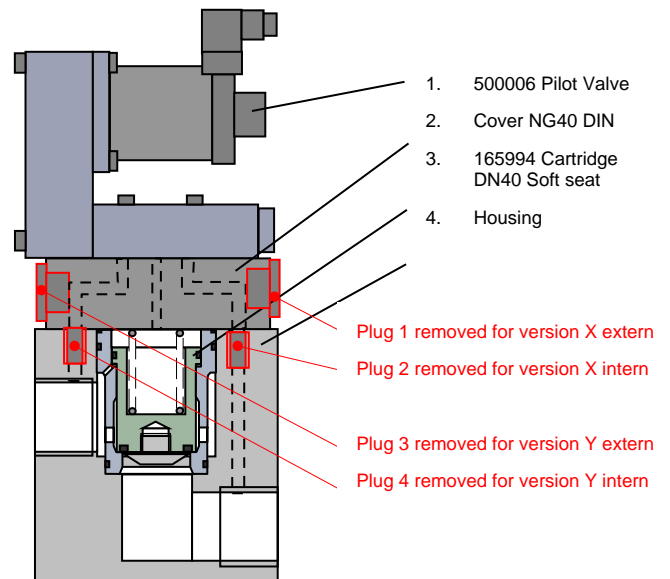
Ambient temperature: 0-50°C

Protection Class: IP65



Ordering Code

850269	x-internal / y-internal	024GL	KV12
	x-external / y-internal	220 WS	
	x-internal / y-external	110 WS	
	x-external / y-external	048 GL	



COMPLETE VALVES

Type 2/2 Directional Valve 850312

This robust soft seated valve can be used for the directional control of gases and fluids.

Replacement for V2005

Technical Data:

Nominal Pressure: 3 - 350bar

Nominal Size: 40mm

Media: Water Emulsion, Oil, compressed Air, others on request

Pilot pressure has to be equal or higher than the operating pressure. Pilot pressure max 400bar

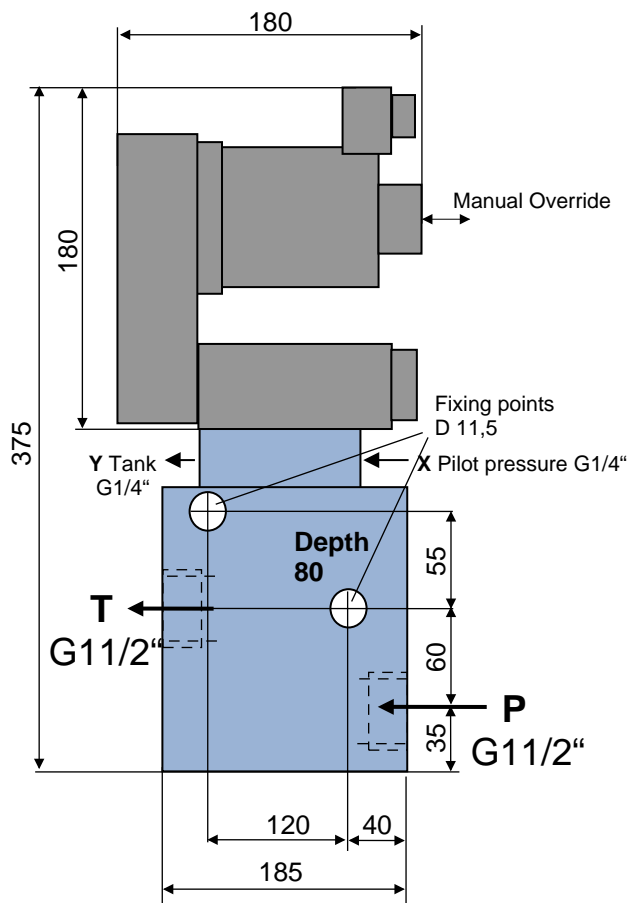
Pressure at port y-for internal operation at port T, has to be min 5bar below the operating pressure at P.

Material: Stainless Steel, Viton, Teflon

Soft seated with metal support

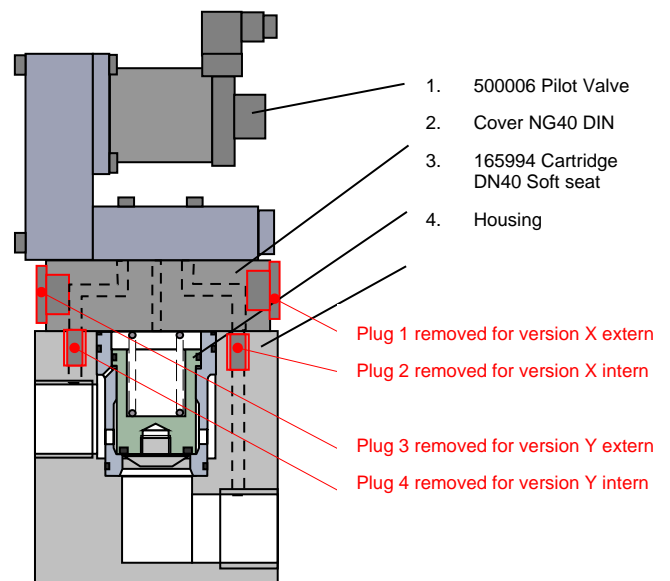
Ambient temperature: 0-50°C

Protection Class: IP65



Ordering Code

850312	x-internal / y-internal	024GL	KV12
	x-external / y-internal	220 WS	
	x-internal / y-external	110 WS	
	x-external / y-external	048 GL	



COMPLETE VALVES

Type **2/2 Way Directional Valve**

Medium	Water, Air, Oil	Material	SS, brass
Oper. Press.	350bar	Sizes*	10, 16, 25, 32, 40 mm
Filtration	25mic	Voltage*	24V, 48V, 98V, 196V dc
Sealing	Soft seat, metal supported	Additional rectifier	110V/50Hz, 220V/50Hz ac

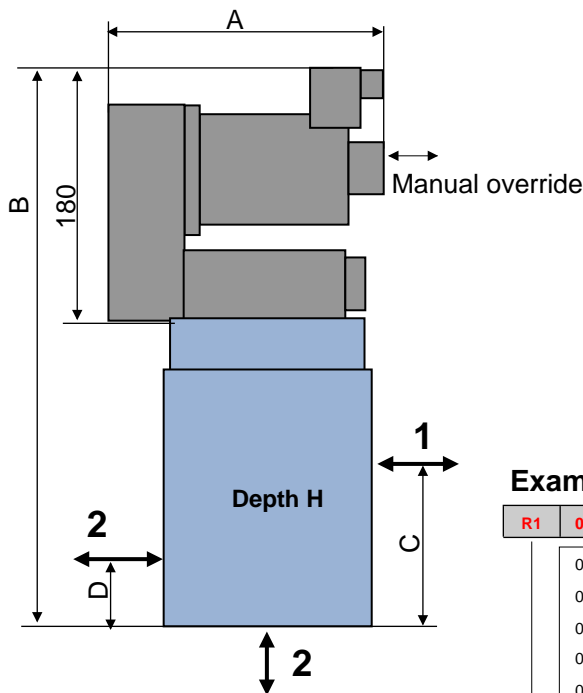
Not applicable for descaling water (please see our catalogue Descaling Valves, Pilot Valves)

*Other voltages on request.

Symbol



Dimensions



ND	Connections			A	B	C	D	H
10		G1/2"		180	280	55	26	60
16	G1/2"	G3/4"	SAE 3/4" Standard	180	320	71	32	65
25	G3/4"	G1"	SAE 1" Standard	180	345	86	36	85
32	G1"	G1 1/4"	SAE 1 1/4" Standard	180	370	103	39	102
40		G1 1/2"	SAE 1 1/2" Standard	180	400	116	47	125

Example / Ordering Code

R1	016		17	024G	B	KV2
----	-----	--	----	------	---	-----

010 = Size 10
016 = Size 16
025 = Size 25
032 = Size 32
040 = Size 40

R10 = ND10 thread-connections G1/2"
R12 = ND10 flanges SAE 1/2"
R1 = ND16 thread-connections G1/2"
R2 = ND16 thread-connections G3/4"
R3 = ND16 flanges SAE 3/4"
R4 = ND25 thread-connections G3/4"
R5 = ND25 thread-connections G1"
R6 = ND25 flanges SAE 1
R7 = ND32 thread-connections G1"
R8 = ND32 thread-connections G1 1/4"
R9 = ND32 flanges SAE 1 1/4"
R13 = ND32 thread-connect. G1 1/2"
R14 = ND32 flanges SAE 1 1/2"

B = Square ac connector small
D = Square dc connector large
F = Square conn. for ac and dc with ign.light

024G = 24V dc
098G = 98V dc
196G = 196V dc
110W = 110V ac
220W = 220V ac

17 = Normally closed (NC)
18 = Normally open (NO)

COMPLETE VALVES

Type **2/2 Way Directional Valve**

Medium	Water, Air, Oil	Material	SS, brass
Oper. Press.	350bar	Sizes*	16, 25, 32mm
Filtration	80mic	Voltage*	24V, 48V, 98V, 196V dc
Sealing	Soft seat, metal supported	Additional rectifier	110V/50Hz, 220V/50Hz ac

* Other voltages and sizes on request.

Symbol

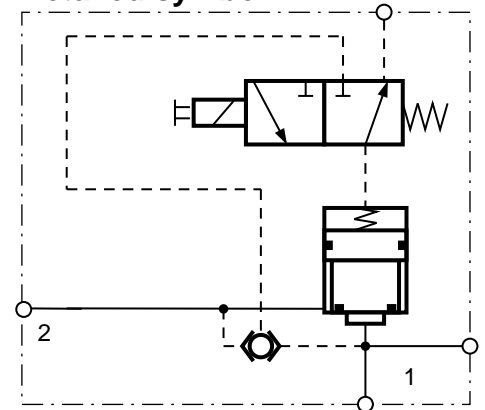


Description

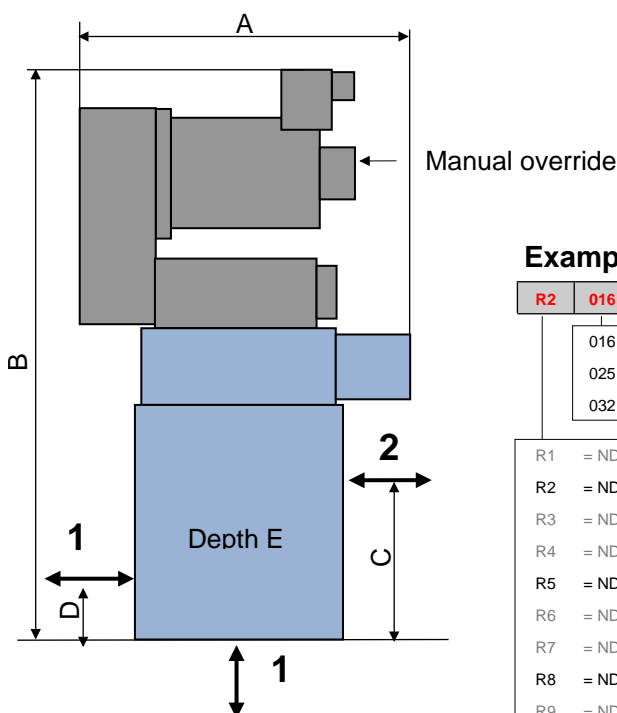
This valve can be used where air has to be sluiced from a high into a low-pressure reservoir. A pilot pressure input from the inlet and outlet side makes sure that the valve stays closed in case of failure even when the pressure in high-pressure port 1 is lower than in port 2.

The robust and compact design allows use of the valve in various fields of applications.

Detailed symbol



Dimensions



ND	Connections			A	B	C	D	E
16	G1/2"	G3/4"	SAE 3/4" Standard	180	325	71	32	68
25	G3/4"	G1"	SAE 1" Standard	180	350	86	36	85
32	G1"	G1 1/4"	SAE 1 1/4" Standard	180	375	103	43	102

Example / Ordering Code

R2	016		17	024G	B	KV3
----	-----	--	----	------	---	-----

016 = Size 16
025 = Size 25
032 = Size 32

R1 = ND16 thread-connections G1/2"
R2 = ND16 thread-connections G3/4"
R3 = ND16 flanges SAE 3/4"
R4 = ND25 thread-connections G3/4"
R5 = ND25 thread-connections G1"
R6 = ND25 flanges SAE 1
R7 = ND32 thread-connections G1"
R8 = ND32 thread-connections G1 1/4"
R9 = ND32 flanges SAE 1 1/4"

B = Square ac connector small
D = Square dc connector large
F = Square conn. for ac and dc with ign.light

024G = 24V dc
098G = 98V dc
196G = 196V dc
110W = 110V ac
220W = 220V ac

17 = normally closed (NC)
18 = normally open (NO)

COMPLETE VALVES

Type **2/2 Way Directional Valve**

Medium	Water, Air, Oil	Material	SS, brass
Oper. Press.	350bar	Sizes	16, 25, 32mm
Filtration	80mic integrated	Voltage*	24V, 48V, 98V, 196V dc
Sealing	Soft seat, metal supported	Additional rectifier	110V/50Hz, 220V/50Hz ac

* Other voltages on request.

Symbol

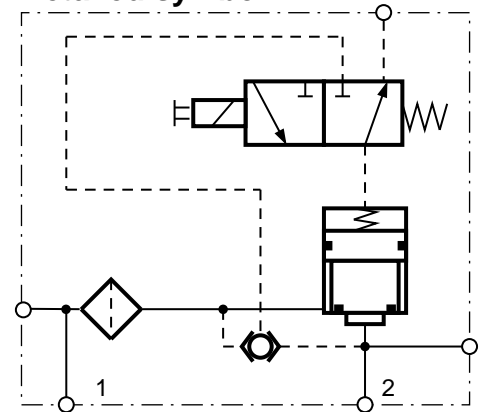


Description

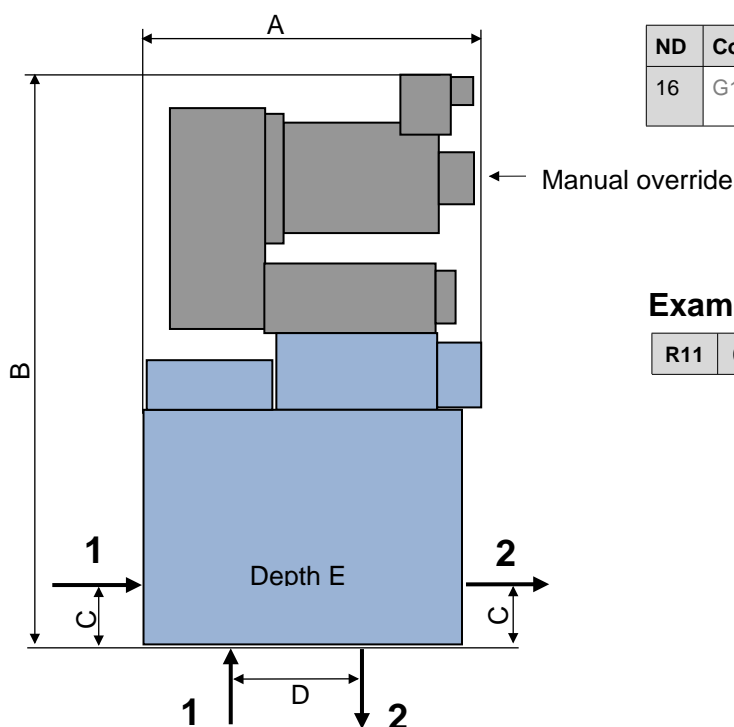
This valve can be used where air has to be sluiced from a high into a low-pressure reservoir. A pilot pressure input from the inlet and outlet side makes sure that the valve stays closed in case of failure even when the pressure in high-pressure port 1 is lower than in port 2. An 80micron filter is integrated to protect main and pilot valve.

The robust and compact design allows use of the valve in various fields of applications.

Detailed symbol



Dimensions



ND	Connections	A	B	C	D	E
16	G1/2" G3/4" SAE 3/4" Standard	200	325	32	70	70

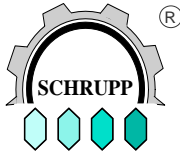
Example / Ordering Code

R11	016	17	024G	B	KV4
-----	-----	----	------	---	-----

B = Square ac connector small
D = Square dc connector large
F = Square conn. for ac and dc with ign.light

024G	= 24V DC
098G	= 98V DC
196G	= 196V DC
110W	= 110V AC
220W	= 220V AC

17	= Normally Closed (NC)
18	= Normally open (NO)



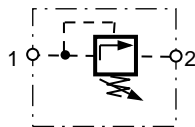
COMPLETE VALVES

Type Pressure Relief Valve

Medium	Water	Material	SS, brass
Oper. Press.	350bar	Sizes*	16, 25, 32mm
Filtration	25mic		
Sealing	Hard seated		

*Other sizes on request.

Symbol

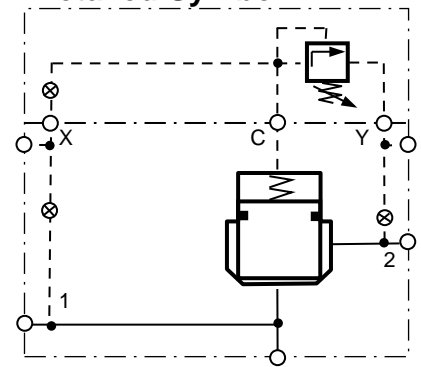


Description

This valve can be used to protect a system against overpressure. Also it is possible to remotely operate the valve by an external pressure.

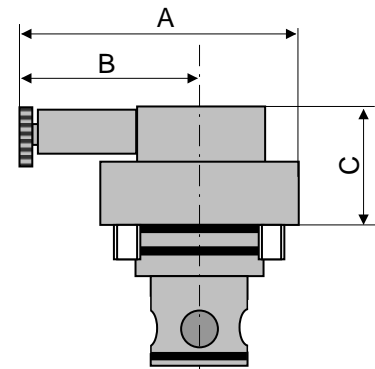
The robust and compact design allows use of the valve in various fields of applications.

Detailed Symbol



Dimensions

ND	Connections 1,2			A	B	C	D	E	F	G	H
16	G1/2"	G3/4"	SAE 3/4" Standard	160	128	70	32	71	175	170	65
25	G3/4"	G1"	SAE 1" Standard	170	128	70	36	86	200	180	85
32	G1"	G1 1/4"	SAE 1 1/4" Standard	180	128	70	43	103	225	187	102

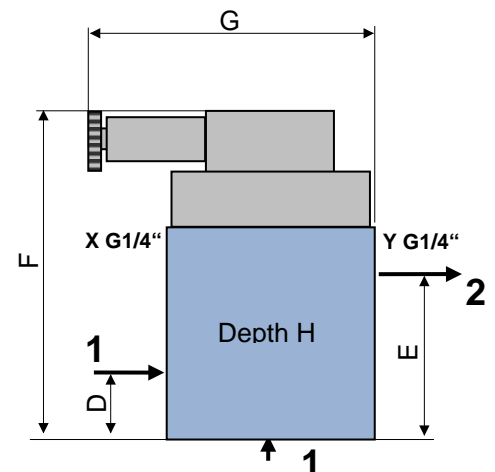


Example / Ordering Code

EO	016	DX	05	2	D	23	FS	0000	0	H KV7
----	-----	----	----	---	---	----	----	------	---	-------

- 016 = Size 16
- 025 = Size 25
- 032 = Size 32

- EO = for manifold mounting
- R1 = ND16 thread-connections G1/2"
- R2 = ND16 thread-connections G3/4"
- R3 = ND16 flanges SAE 3/4"
- R4 = ND25 thread-connections G3/4"
- R5 = ND25 thread-connections G1"
- R6 = ND25 flanges SAE 1
- R7 = ND32 thread-connections G1"
- R8 = ND32 thread-connections G1 1/4"
- R9 = ND32 flanges SAE 1 1/4"



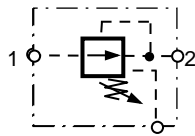
COMPLETE VALVES

Type Pressure Reducing Valve

Medium	Water	Material	SS, brass
Oper. Press.	350bar	Sizes*	16, 25, 32mm
Filtration	25mic		
Sealing	Hard seated		

*Other sizes on request.

Symbol

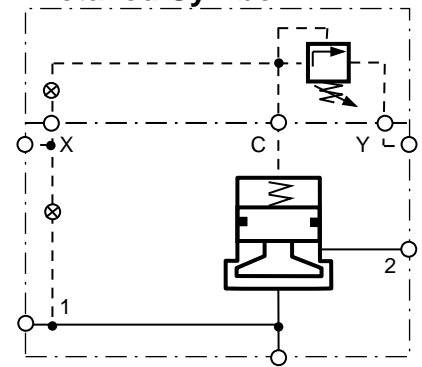


Description

This valve can be used to reduce a pressure from a high-pressure circuit to a constant lower pressure, without any pressure influence from the feeding pressure system. Also it is possible to remotely operate the valve by an external pressure.

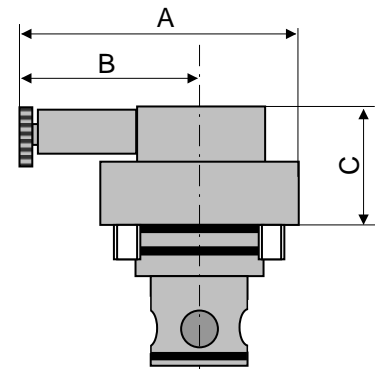
The robust and compact design allows use of the valve in various fields of applications.

Detailed Symbol



Dimensions

ND	Connections 1,2			A	B	C	D	E	F	G	H
16	G1/2"	G3/4"	SAE 3/4" Standard	160	128	70	32	71	175	170	65
25	G3/4"	G1"	SAE 1" Standard	170	128	70	36	86	200	180	85
32	G1"	G1 1/4"	SAE 1 1/4" Standard	180	128	70	43	103	225	187	102

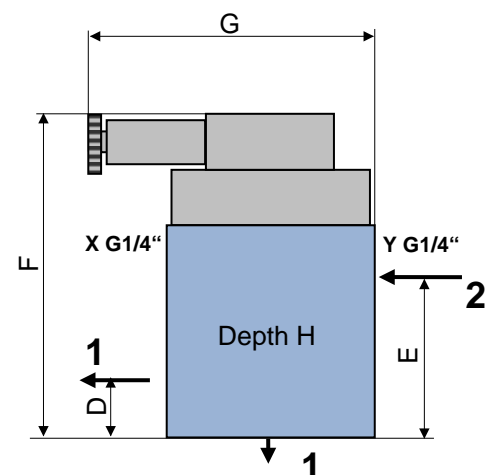


Example / Ordering Code

EO	016	DX	05	2	D	24	FS	0000	0	H KV8
----	-----	----	----	---	---	----	----	------	---	-------

- 016 = Size 16
- 025 = Size 25
- 032 = Size 32

- EO = for manifold mounting
- R1 = ND16 thread-connections G1/2"
- R2 = ND16 thread-connections G3/4"
- R3 = ND16 flanges SAE 3/4"
- R4 = ND25 thread-connections G3/4"
- R5 = ND25 thread-connections G1"
- R6 = ND25 flanges SAE 1
- R7 = ND32 thread-connections G1"
- R8 = ND32 thread-connections G1 1/4"
- R9 = ND32 flanges SAE 1 1/4"



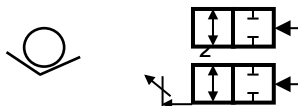
COMPLETE VALVES

Typ Non Return and hydraulically operated Valves, Stroke Limiters

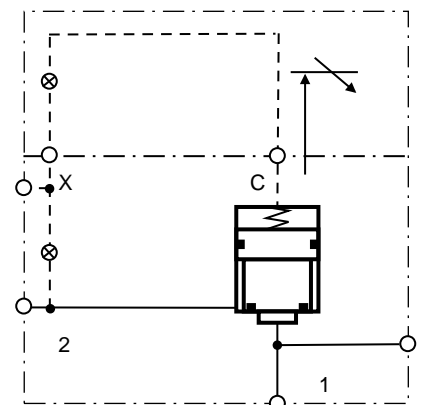
Medium	Water, Airl, Oil	Material	SS, brass
Ope. pressure	350bar	Sizes*	10, 16, 25, 32, 40 mm
Filtration	25mic		
Sealing	Soft seat, metal supported		

*Other sizes on request.

Symbol



Detailed Symbol



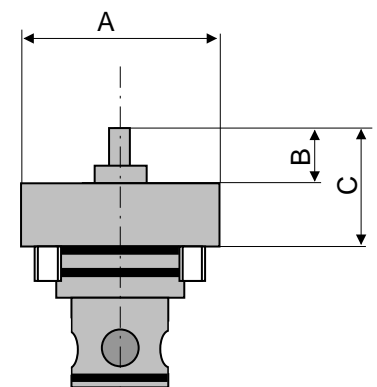
Description

These valves are used for directional control and shut off functions. Additional stroke limiters allow also a throttling of the flow.

The robust and compact design allows use of the valve in various fields of applications.

Dimensions

ND	Connections			A	C	B	D	E	F	G	H
10		G1/2"		52	50	25	26	55	125	70	52
16	G1/2"	G3/4"	SAE 3/4" Standard	65	75	40	32	71	180	85	65
25	G3/4"	G1"	SAE 1" Standard	85	92	57	36	86	222	105	85
32	G1"	G1 1/4"	SAE 1 1/4" Standard	102	114	79	39	103	269	120	102
40		G1 1/2"	SAE 1 1/2" Standard	125	120	80	47	116	300	145	125



Example / Ordering Code

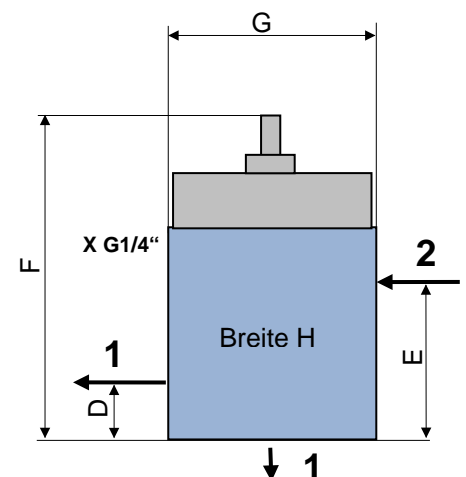
EO	016	SX	08	6	D	11	F0	0000	0	0 KV9
----	-----	----	----	---	---	----	----	------	---	-------

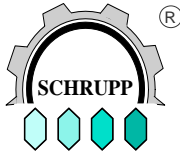
010 = Size 10
to
040 = Size 40

02 = Cover without limiter
11 = Cover with stroke limiter

EO = Manifold mounting
R1 = ND16 thread-connections G1/2"
R2 = ND16 thread-connections G3/4"
R3 = ND16 flanges SAE 3/4"
R4 = ND25 thread-connections G3/4"
R5 = ND25 thread-connections G1"
R6 = ND25 flanges SAE 1
R7 = ND32 thread-connections G1"
R8 = ND32 thread-connections G1 1/4"
R9 = ND32 flanges SAE 1 1/4"

HX = no stroke limiter
SX = stroke limiter



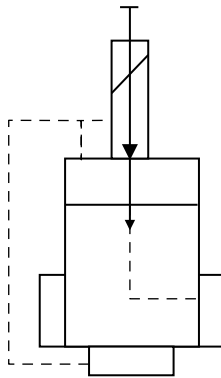


COMPLETE VALVES

Servo Cartridges

Servo assisted throttle and shut off Valves

This robust and leak-free closing valve with patented servo assistance allows an easy operation with very low manual force even after a long period of non-use. For accumulator shut off functions the valve can be operated in combination together with an electrically operated pilot valve. Without electrical power the valve will close automatically (fail safe). It is always possible to close it manually or in case of maintaining the system to secure it in closed position even if the pilot valve will be energized.



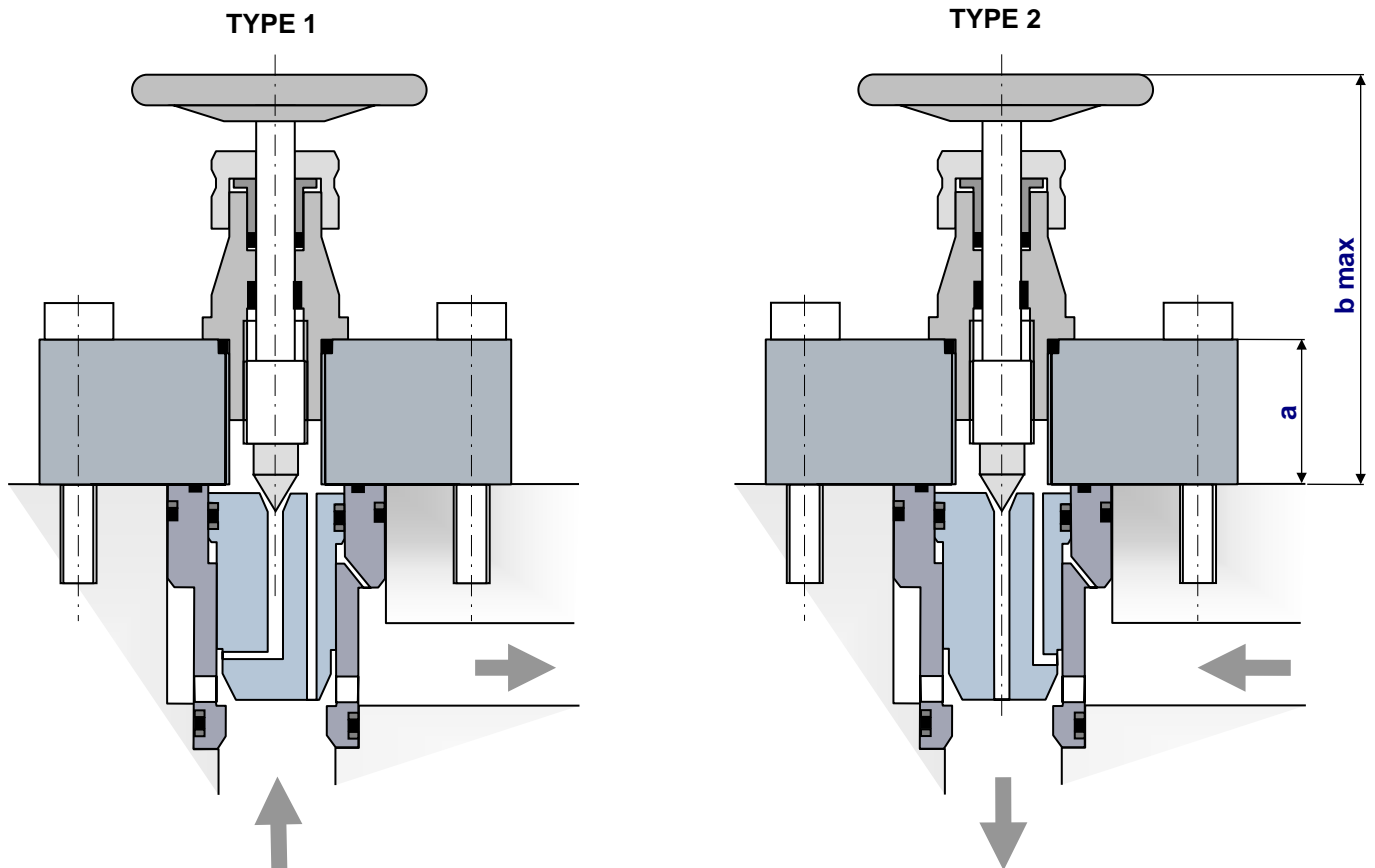
Technical Data:

Operating Pressure: up to 350bar
Sizes: 25 – 200mm
Media: Water, Oil
Material: Stainless Steel, Buna, Viton, Teflon
Temperature: 0-50°C

COMPLETE VALVES

Servo Cartridges

Servo assisted throttle and shut off Valves



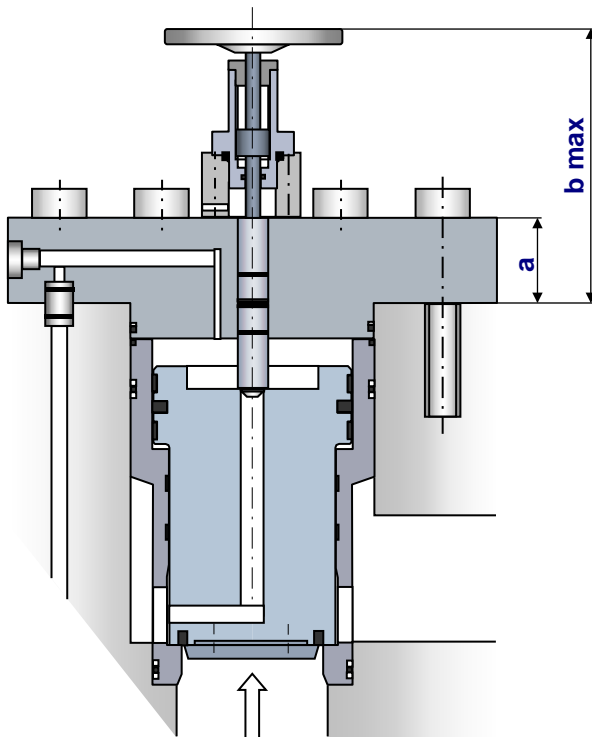
DN	a	b max	PART NO.
25 TYPE 1	27	114	850193
25 TYPE 2	27	114	850193-01
32 TYPE 1	40	126	851281
32 TYPE 2	40	126	851281-01
40 TYPE 1	40	126	851276
40 TYPE 2	40	126	851276-01

COMPLETE VALVES

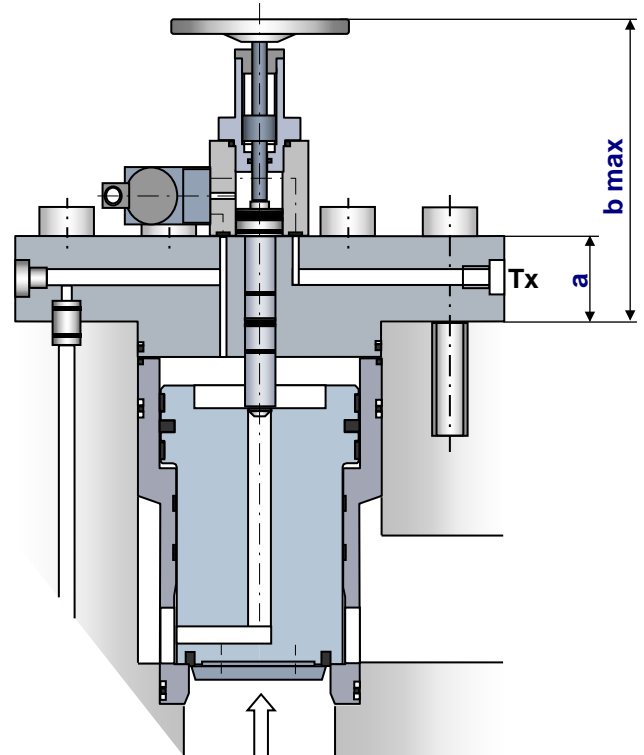
Servo Cartridges

Servo assisted throttle and shut off Valves

TYPE 1
manually operated



TYPE 2:
solenoid and electrically operated



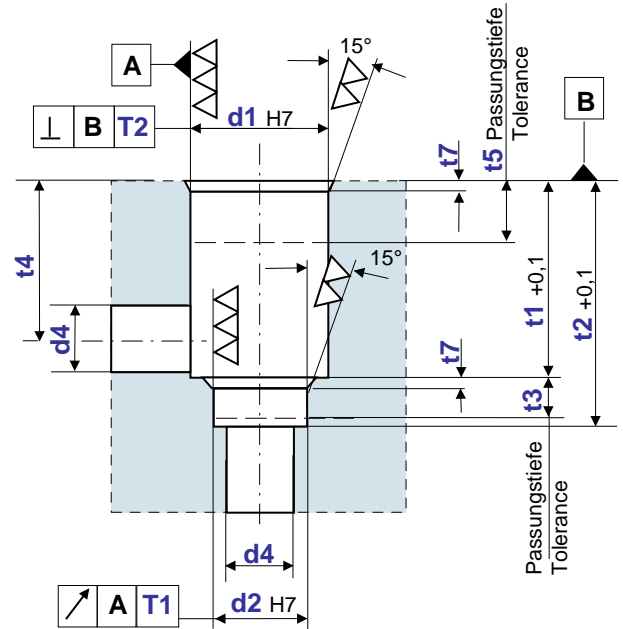
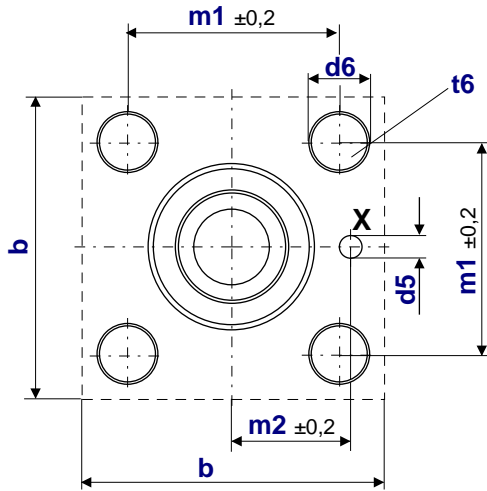
DN	a	b max	Tx	PART NO.
50 TYPE 1	45	249	-	851270
50 TYPE 2	45	288	G 1/2"	851270-01
63 TYPE 1	50	254	-	851223
63 TYPE 2	50	293	G 1/2"	851223-01
80 TYPE 1	80	284	-	851216
80 TYPE 2	80	323	G 1/2"	851216-01
100 TYPE 1	80	284	-	851233
100 TYPE 2	80	323	G 1/2"	851233-01
125 TYPE 1	100	388	-	851243
125 TYPE 2	100	427	G 1/2"	851243-01
150 TYPE 1	120	408	-	851247
150 TYPE 2	120	447	G 1/2"	851247-01
200 TYPE 1	150	512	-	851261
200 TYPE 2	150	551	G 1/2"	851261-01

COMPLETE VALVES

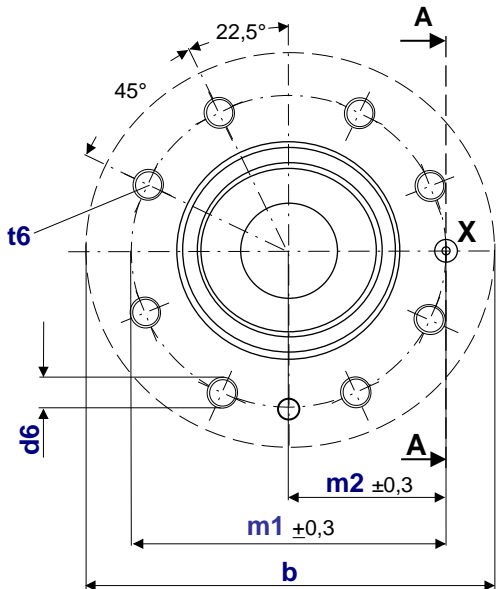
Servo Cartridges

Servo assisted throttle and shut off Valves

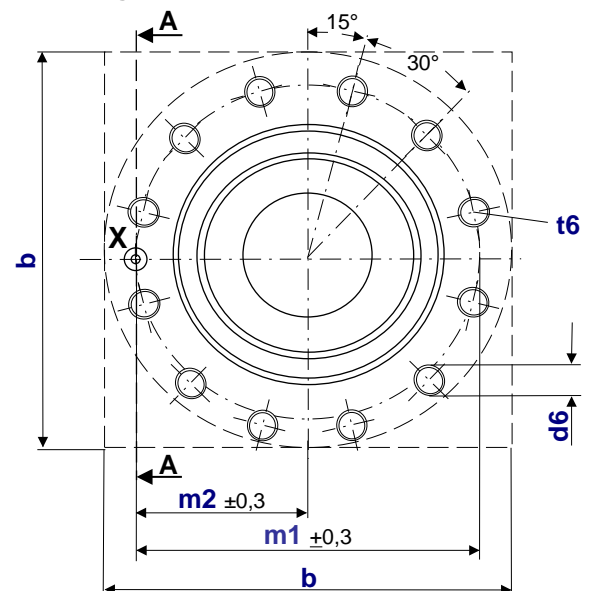
Abmessungen / Dimensions DIN 24342, DN25-50



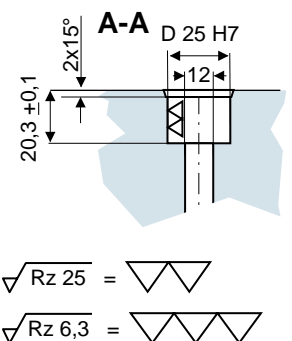
Abmessungen / Dimensions DIN 24342, DN63-100



Abmessungen / Dimensions DIN 24342, DN125-200



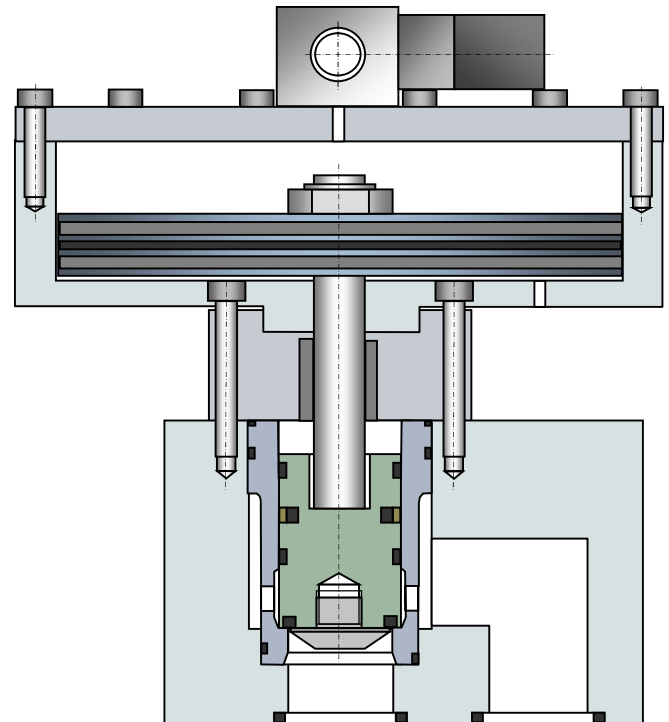
DN	b	d1	d2	d4	d5	d6	m1	m2	t1	t2	t3	t4	t5	t6	t7	T1	T2
25	85	45	34	25	-	M12	58	-	58	72	12	44	30	13	2,5	0,03	0,05
32	102	60	45	32	-	M16	70	-	70	85	13	52	34	25	2,5	0,03	0,1
40	125	75	55	40	-	M20	85	-	87	105	15	64	42	30	3	0,05	0,1
50	140	90	68	50	8	M20	100	58	115	137	17	87	61	30	4	0,05	0,1
63	225	120	90	63	-	M24	175	87,5	150	175	20	115	82	35	4	0,05	0,2
80	250	145	110	80	-	M24	200	100	195	225	25	150	108	35	5	0,05	0,2
100	300	180	135	100	-	M30	245	125	230	265	29	175	130	40	5	0,05	0,2
125	360	220	180	125	-	M36	290	145	284	325	41	208	70	50	5	0,05	0,2
150	400	255	210	150	-	M36	330	165	330	375	41	245	75	50	5	0,05	0,2
200	530	355	275	200	-	M48	435	217,5	430	475	41	320	75	70	5	0,05	0,2



COMPLETE VALVES

2/2 Way Directional Valve 800bar with electro-pneumatic Pilot valve

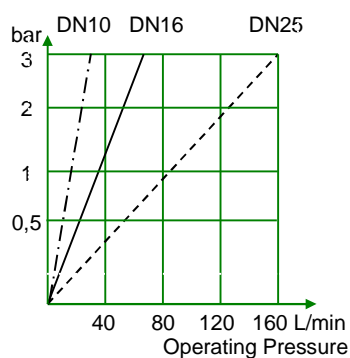
These electro-pneumatically piloted valves are designed for use in the harsh environments found in the steel and aluminum industries. Housing and the leak free soft seat cartridge are manufactured from stainless steel. Housings are also available with flange connections or for manifold mounting.



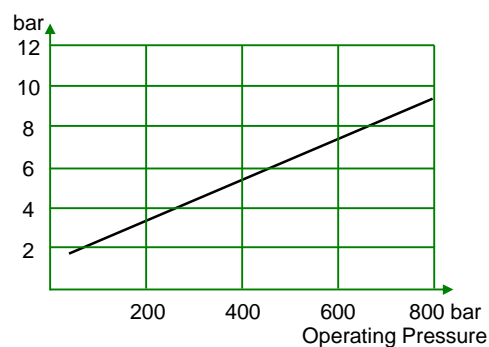
Technical Data:

Nominal Dimensions	10,16,25mm
Operating Pressure	800bar
Pneumatic Pilot Pressure	2-10bar
Filtration Rate min	50micron
Electrical Power Consumption	8W
Voltage Tolerance	10%
Electrical Protection	IP65

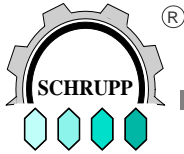
Pressure Drop Water



Pilot Pressure Air



Design details on request



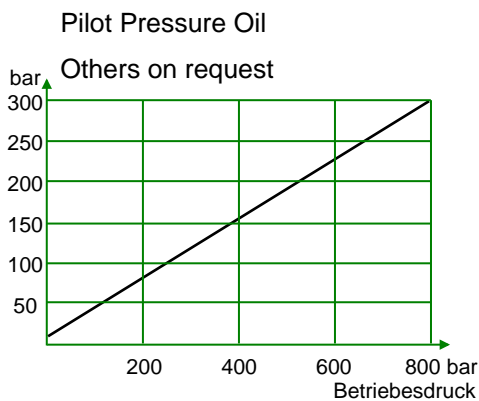
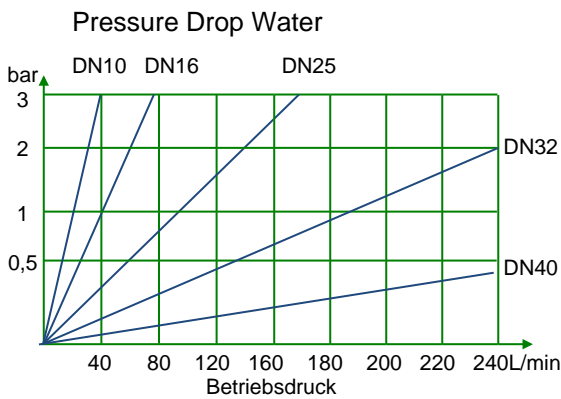
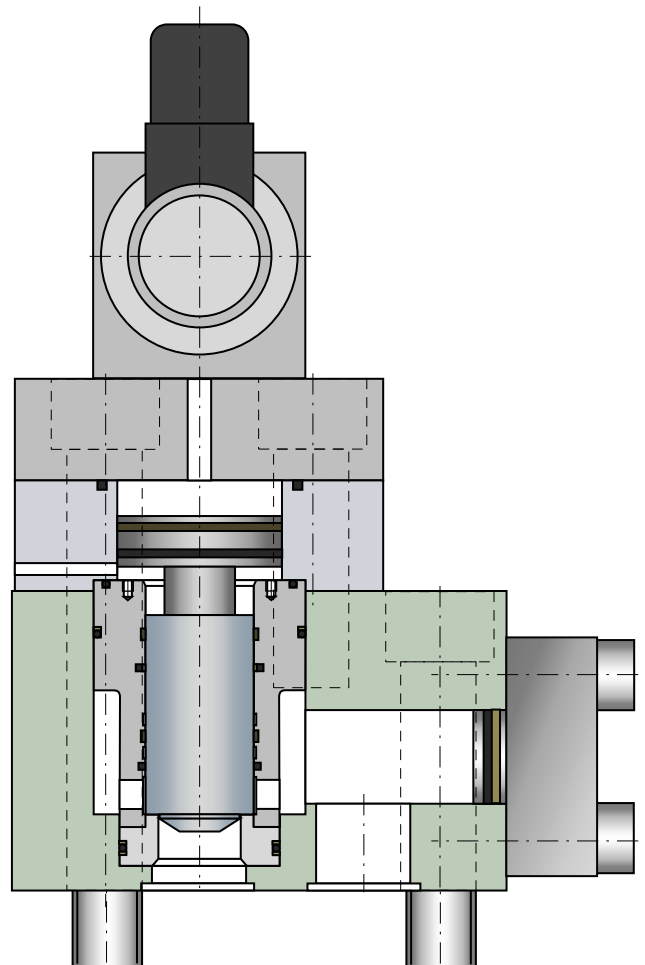
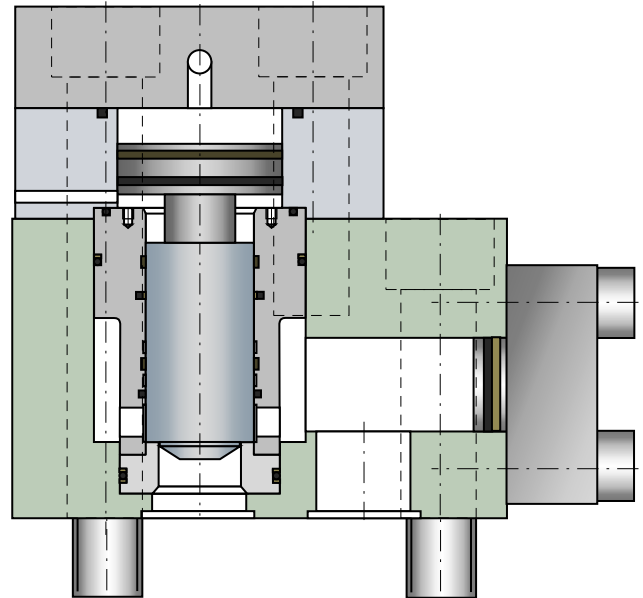
COMPLETE VALVES

2/2 Way Valve 800bar with solenoid operated pilot

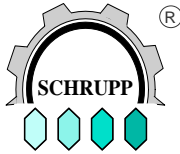
These electro-hydraulically piloted valves are designed for use in the harsh environments found in the steel and aluminum industries or at offshore applications. Housing and the leak free soft seat cartridge are manufactured from stainless steel. Housings are also available with flange connections or for manifold mounting.

Technical Data:

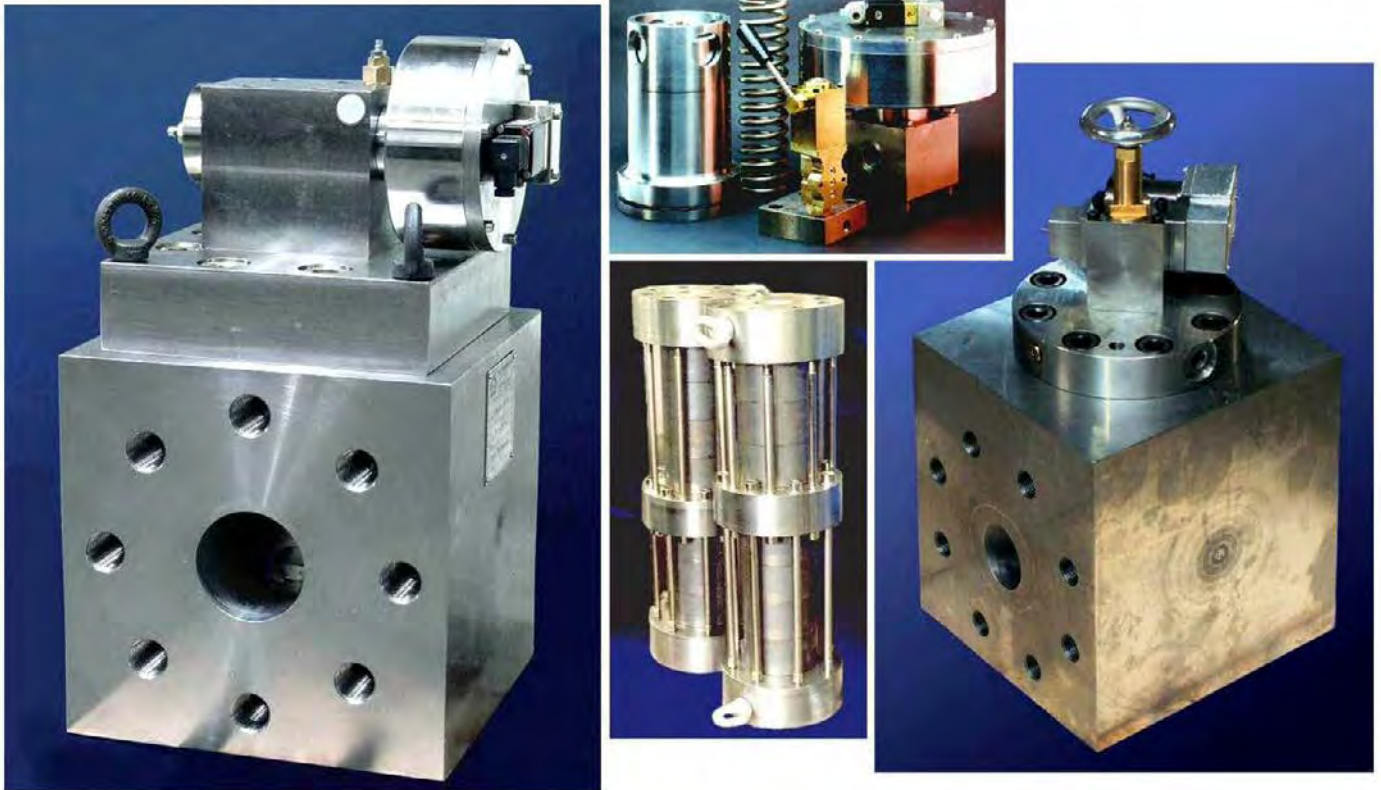
Nominal Dimensions	10,16,25mm
Operating Pressure	800bar
Pneumatic Pilot Pressure	2-10bar
Filtration Rate min	50micron



Design details on request



ENTZUNDERUNGSTECHNIK DESCALING TECHNOLOGY



Entzunderungssysteme werden in Stahlwerken benötigt, um nach jedem Walzvorgang die Zunderschicht von der Materialoberfläche zu entfernen. Ohne ein effektives Entzunderungssystem können die heutigen Qualitätsanforderungen an Stahlprodukte nicht mehr erfüllt werden. HL Hydraulik GmbH fertigt und vertreibt unter dem Handelsnamen Schrupp die hierzu erforderlichen Ventile sowie mehrstufige Bypass Düsen.

Das Produktprogramm umfasst

- Absperrventile
- Rückschlagventile
- Magnetbetätigte Ventile
- Ventilkombinationen
- Düsenpakete
- 2- und 3- Wege Vorsteuerungen

Die Ventile sind einsetzbar bis zu Drücken von 350bar (Sonderanwendungen bis 800bar) und Volumenströmen bis 30.000 l/min

Descaling systems are used in steel rolling mills to remove the scale after each rolling procedure. Without a modern descaling system it is not possible to produce a high quality steel product. HL Hydraulik GmbH manufactures all kinds of valves and multistage break down orifices under the trade name Schrupp for this application.

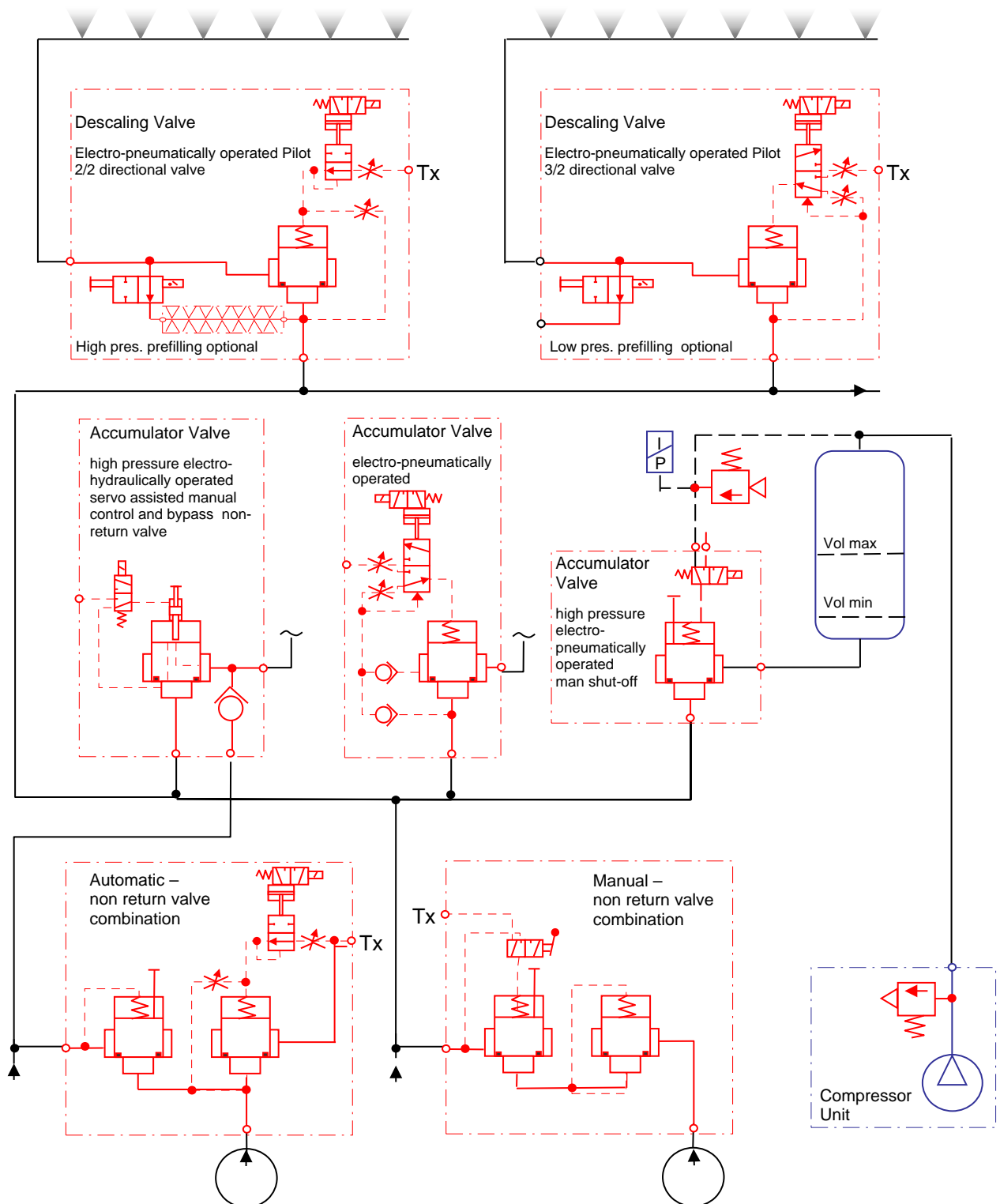
The product range includes:

- On Off valves (Descaling Valves)
- Non Return Valves (Check Valves)
- Automatic Valves (Accumulator Safety Shut Off Valves)
- Valve Combinations
- Multistage Break Down Orifices
- 2 and 3 Way Pilot Valves

The valves are suitable for pressures up to 350bar (special applications up to 800bar) and flow rates up to 30.000 l/min

ENTZUNDERUNGSTECHNIK DESCALING TECHNOLOGY

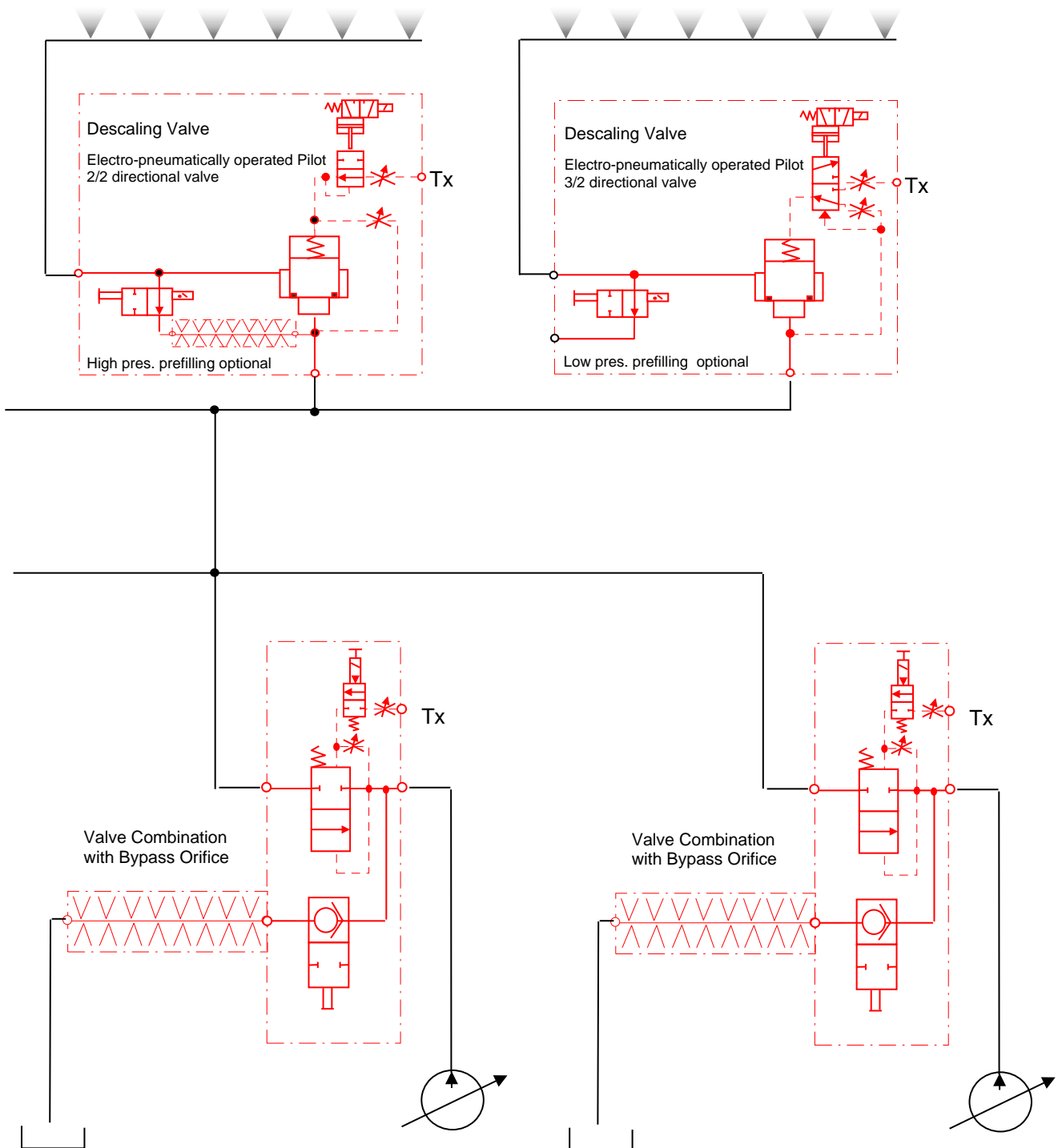
**Systeme mit Konstantpumpen (Kolben Pumpen)
Systems for pumps with continuous flow rates (plunger pumps)**



Beispiele für eine typische Anwendungen. Rot dargestellte Komponenten stellen HL Hydraulik GmbH Produkte dar, blau dargestellte Komponenten können ebenso angeboten werden.
Examples of typical applications. Red items are products of HL-Hydraulik GmbH blue Items can also be quoted.

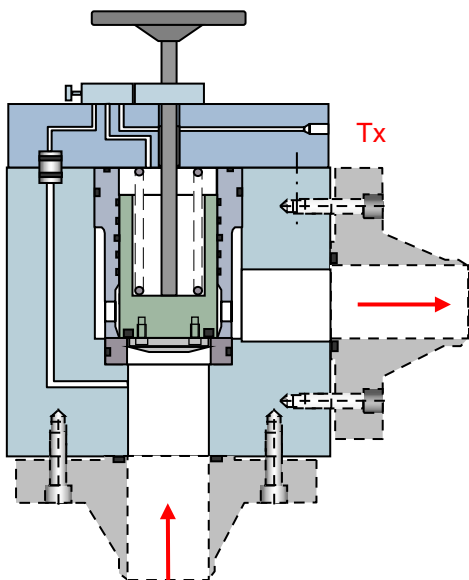
ENTZUNDERUNGSTECHNIK DESCALING TECHNOLOGY

**Systeme mit Pumpen mit veränderlichen Volumenströmen (Zentrifugal Pumpen)
 Systems for pumps with variable flow rates (centrifugal pumps)**



Beispiel für eine typische Anwendung. Rot dargestellte Komponenten stellen HL Hydraulik GmbH Produkte dar.
 Example of a typical application. Red items are products of HL Hydraulik GmbH.

ENTZUNDERUNGSTECHNIK DESCALING TECHNOLOGY



Handabsperrentil

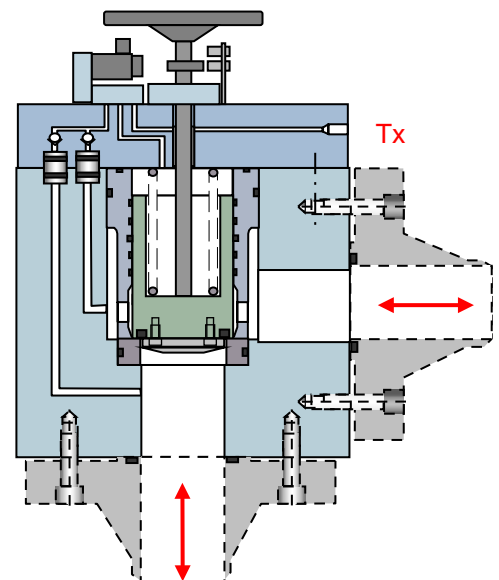
Einfach aufgebautes Ventil zur Absperrung von Rohrleitungen für eine Strömungsrichtung. Betätigung erfolgt durch 3/2 Wege hand- oder elektrisch betätigtes Ventil. Verriegelung erfolgt durch mechanische Spindel. Anders als bei handelsüblichen Spindelventilen sind die Bedienkräfte gering.

- Optionen:
- Rückschlagventile für Ventile mit beidseitiger Durchströmung
 - elektrisch betätigtes Ventil
 - Endschalter

Manual Shut Off Valve

robust design for flows in one (both) direction. The valve will be operated hydraulically by a manually or electrically operated 3/2 directional valve and can be locked by a spindle. The operating force is much lower than for a standard spindle operated valve.

- Options:
- Check valves for flows in both directions
 - electrically operated pilot valve
 - limit switches



Rückschlagventil

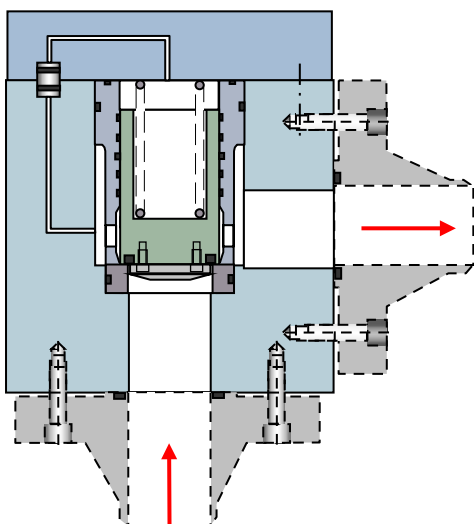
Einfach aufgebautes Ventil zur einseitigen Absperrung von Rohrleitungen.

- Option: - Spindel zur Verriegelung in geschlossener Position.

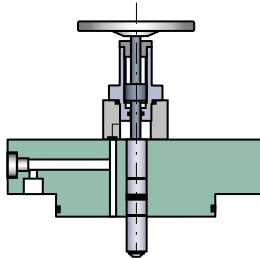
Non Return Valve

Robust design to allow flows only in one direction

- Option: - locking spindle for closed position.



ENTZUNDERUNGSTECHNIK DESCALING TECHNOLOGY

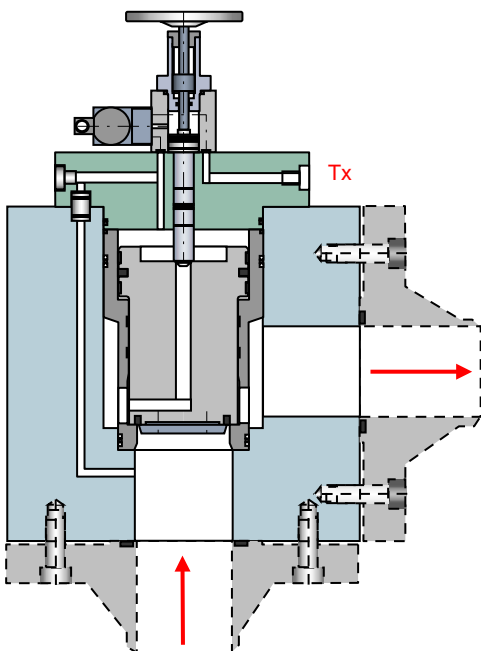


Absperrventil mit Servounterstützung

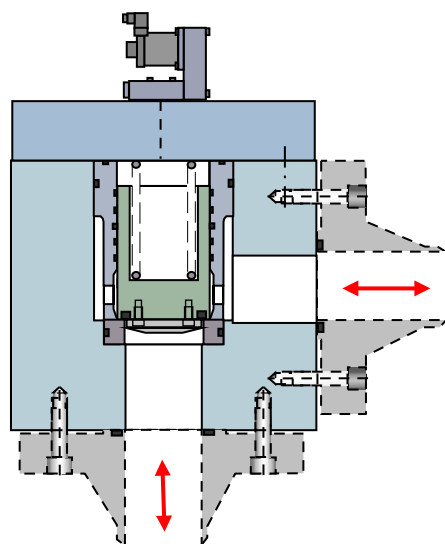
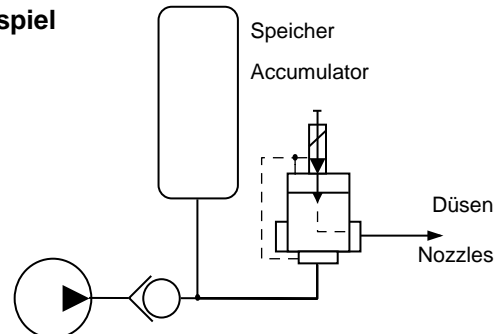
Diese robusten dichtschießenden Ventile mit patentierter servo-hydraulischer Verstellung ermöglichen eine zuverlässige Betätigung selbst nach langen Stillstandszeiten mit geringstem Kraftaufwand. In Kombination mit einem elektrischen Vorsteuerventil ist es für den Einsatz als Speicherschnellschlussventil bestens geeignet. Das Ventil schließt bei Stromausfall automatisch (fail safe) und kann jederzeit ebenso manuell geschlossen werden. Bei Wartungsarbeiten am System kann die manuelle Betätigung als Sicherheitsverriegelung genutzt werden, so dass das Ventil selbst bei Betätigung der elektrischen Vorsteuerung nicht geöffnet werden kann.

Shut- Off Valve with Servo Assistance

This robust and leak-free shut off valve with patented servo assistance allows an easy operation with very low manual force even after long periods of non-use. For accumulator shut off functions the valve can be operated in combination with an electrically operated pilot valve. Without electrical power the valve will close automatically (fail safe). It is always possible to close it manually or in case of maintaining the system to secure it in the closed position even if the pilot valve will be energized.



**Anwendungsbeispiel
Example**



Absperrventil mit elektro- hochdruckpneumatischer Vorsteuerung - fail safe

Dieses preiswerte, robuste und dichtschießende Ventil wird für Anwendungen mit hoher Schalthäufigkeit wie zum Beispiel als Speicherabsperr- und Automatikventil eingesetzt. Da der pneumatische Vorsteuerdruck mindestens so hoch sein muss wie der Betriebsdruck wird das Vorsteuerventil in vielen Fällen direkt mit dem Windkessel der Entzunderungsanlage verbunden.

Shut - Off Valve with Electro- High Pressure Pneumatic Pilot - fail safe

This robust and leak-free closing, low cost valve, is designed for the continuous use as an accumulator or automatic valve. The pneumatic pilot pressure has to be min the same as the hydraulic pressure, so that oftentimes the pilot valve is connected to the pressure vessel of the descaling system.

ENTZUNDERUNGSTECHNIK DESCALING TECHNOLOGY

Absperrventil mit elektro-pneumatischem 2/2 Wege Vorsteuerventil

Diese robusten dicht schließenden Ventile werden für den Einsatz in verschmutzten Wässern und mit hoher Schalthäufigkeit, zum Beispiel als Entzunderungs- oder Automatikventil eingesetzt. Durch die im Hauptkolben eingesetzte Düse wird eine Selbstreinigung erzielt

Der pneumatische Versorgungsdruck beträgt 4-10bar, andere Ausführungen möglich.

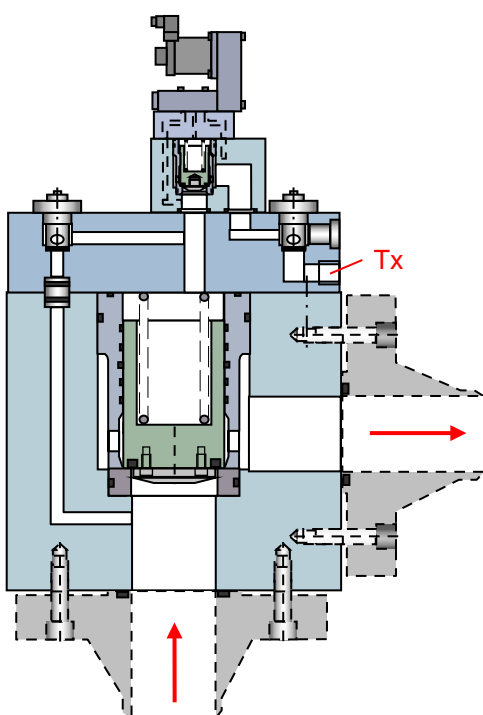
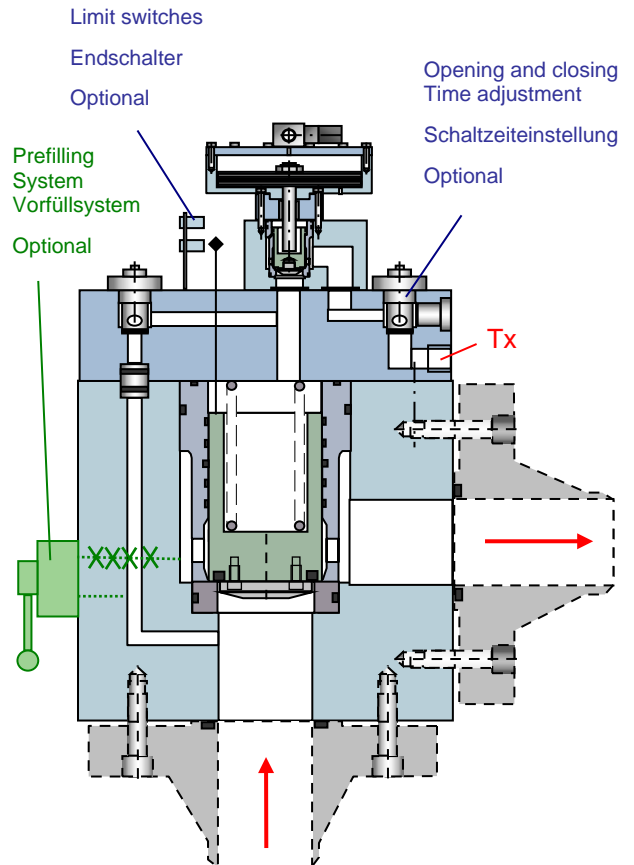
Option: -Endschalter
-Schaltzeiteinstellung
-Vorfüllsystem manuell oder elektrisch betätigt.

Shut - Off Valve with Electro- Pneumatic 2/2 Directional Pilot Valve

This robust and leak-free closing valve is designed for use in systems with low water quality and continuous service i.e as descaling-, automatic valve. A nozzle at the main piston effects a continuous cleaning.

The pneumatically operated pilot power is 4-10 bar, other pressures on request.

Option: - Limit switches
- opening and closing speed control
- manual or electrically operated prefilling system



Absperrventil mit elektro-hydr. Vorsteuerung

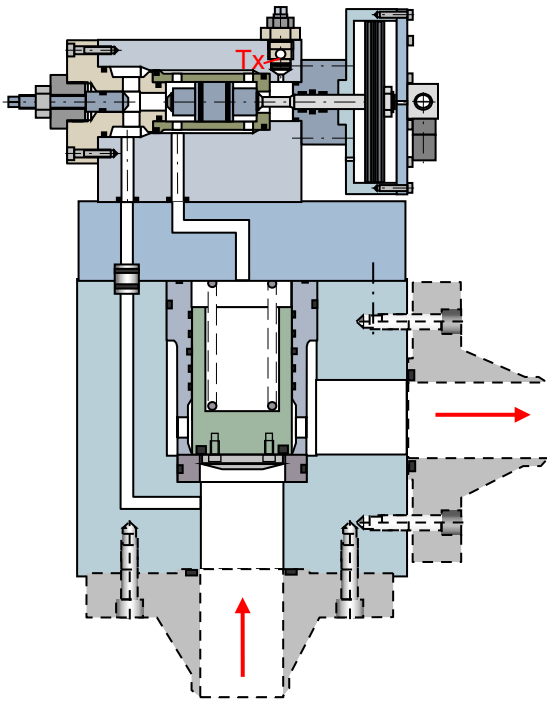
Dieses robuste dichtschließende Ventil wird für Anwendungen mit hoher Schalthäufigkeit wie zum Beispiel als Entzunderungs- oder Automatikventil eingesetzt. Statt des wasserhydraulischen Vorsteuerventils kann auch ein ölhydraulisches Vorsteuerventil eingesetzt werden und dieses mit einer externen Druckölversorgung betrieben werden. Der Vorsteuerdruck hierbei muß mindestens dem Betriebsdruck entsprechen.

Option: -Endschalter
-Schaltzeiteinstellung
-Vorfüllsystem manuell oder elektrisch betätigt.

Shut - Off Valve with electro-hydraulically Pilot

This robust and leak-free closing valve is designed for continuous use as descaling- and automatic valve. Instead of a water hydraulic pilot an oil hydraulic pilot can be used which will be serviced by an external hydraulic pumping unit. The pilot pressure has to be equal or higher than the operating pressure.

Option: - Limit switches
- opening and closing speed control
- manual or electrically operated prefilling system

ENTZUNDERUNGSTECHNIK DESCALING TECHNOLOGY

Absperrventil mit elektro-pneumatischer 3/2 Wege Vorsteuerung – fail safe

Dieses robuste dichtschießende Ventil wird für Anwendungen mit hoher Schalthäufigkeit wie zum Beispiel als Speicherabsperr- oder Automatikventil eingesetzt. Die Vorsteuerung ermöglicht eine deutliche Reduzierung der Leckagemenge am Ausgang Tx und eine komfortablere Einstellung der Schaltzeiten. Der pneumatische Versorgungsdruck beträgt 4-10bar, andere Ausführungen möglich.

- Option: -Endschalter
 -Schaltzeiteinstellung
 -Vorfüllsystem manuell oder elektrisch betätigt.

Shut - Off Valve with 3/2 directional Electro-Pneumatic Pilot – fail safe

This robust and leak-free closing valve is designed for continuous use as an accumulator shut-off or automatic valve. The design allows for the reduction of leakage flow at port Tx to a minimum and a more comfortable adjustment of the opening and closing times.

- Option: - Limit switches
 - opening and closing speed control
 - manual or electrically operated prefilling system

Absperrventil mit elektro-hydraulischer 3/2 Wege Vorsteuerung – fail safe

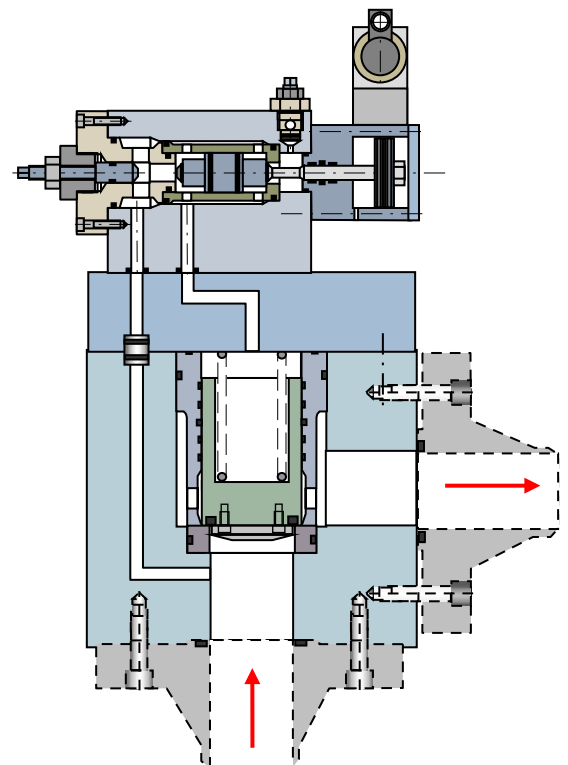
Dieses robuste dichtschießende Ventil wird für Anwendungen mit hoher Schalthäufigkeit wie zum Beispiel als Speicherabsperr- oder Automatikventil eingesetzt. Die Vorsteuerung ermöglicht eine deutliche Reduzierung der Leckagemenge am Ausgang Tx und eine komfortablere Einstellung der Schaltzeiten. Die Ansteuerung erfolgt mit gefiltertem Eigenmedium.

- Option: -Endschalter
 -Schaltzeiteinstellung
 -Vorfüllsystem manuell oder elektrisch betätigt.
 - Separater Filter für Vorsteuerung

Shut - Off Valve with 3/2 directional Electro-hydraulic Pilot – fail safe

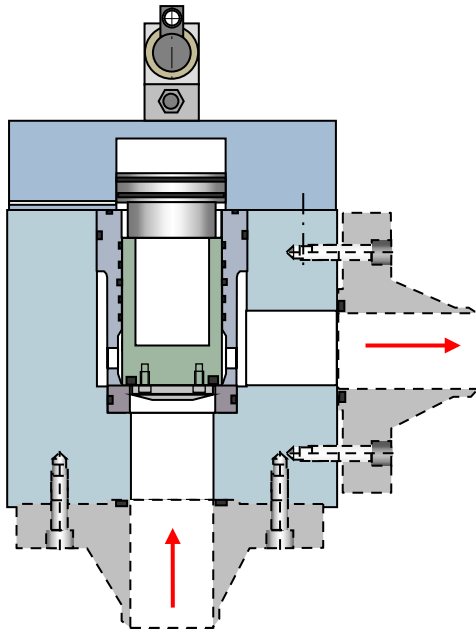
This robust and leak-free closing valve is designed for continuous use as an accumulator shut-off or automatic valve. The design allows for the reduction of leakage flow at port Tx to a minimum and a more comfortable adjustment of the opening and closing times.

- Option: - Limit switches
 - opening and closing speed control
 - manual or electrically operated prefilling system
 - separate pilot filter



ENTZUNDERUNGSTECHNIK DESCALING TECHNOLOGY

Absperrventil mit ölhydraulischer 3/2 Wege Vorsteuerung



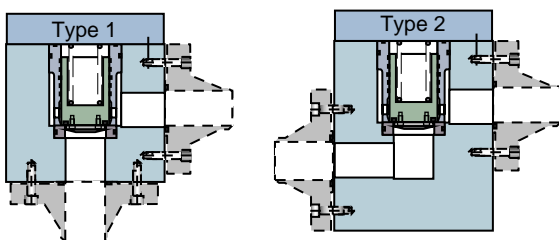
Dieses robuste dichtschießende Ventil wird für Anwendungen mit hoher Schalthäufigkeit wie zum Beispiel als Automatikventil eingesetzt. Das ölhydraulische Vorsteuersystem ermöglicht sehr kurze Schaltzeiten und einen Entfall von Vorsteuerfiltern. Die Einstellung der Schaltzeiten erfolgt auf der ölhydraulischen Seite. Zwei separate Dichtungssysteme und eine Entlüftungsbohrung verhindert die Vermischung von Steuer und Betriebsmedium und lässt Undichtigkeiten sofort erkennen.

Option: -Endschalter
-Schaltzeiteinstellung
-Vorfüllsystem manuell oder elektrisch betätigt.

Shut - Off Valve with 3/2 directional oil-hydraulic Pilot

This robust and leak-free closing valve is designed for continuous use as an automatic valve. The oil-hydraulic pilot system allows very short opening and closing times and does not need additional pilot filters. Opening and closing times can be adjusted at the oil hydraulic side. To eliminate the risk of a penetration of oil into the water media, the system is equipped with two separate seals and a vent. A leakage at the oil or water side can be indicated immediately.

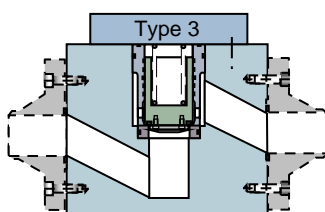
Option: - Limit switches
- opening and closing speed control
- manual or electrically operated prefilling system



Ventilgehäuse

Unabhängig von der Funktion können die standardisierten Einbaukomponenten in verschiedenen individuell hergestellten Gehäusen untergebracht werden. Abmessungen, Material sowie Flanschgeometrie können auf den jeweiligen Bedarfsfall abgestimmt werden.

Gehäuse Typ 1 stellt die preisgünstigste und kompakteste Bauform dar. Typ 2 und 3 bieten gegenüberliegende Abgänge.



Valve Housings

The standardised components can be integrated into individual housings. Housing dimensions, material and flange type are according to customer's specification.

Housing Type 1 is the most compact and economical, versions Type 2 and 3 are inline versions.

ENTZUNDERUNGSTECHNIK DESCALING TECHNOLOGY

Ventilkombinationen

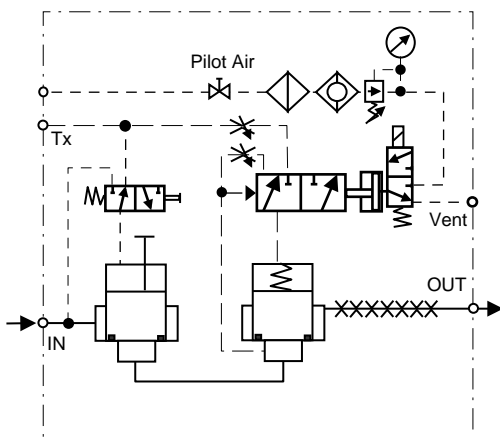
Unabhängig von der Funktion und Nennweite können die standardisierten Einbaukomponenten in Kombinationsblöcken untergebracht werden.

- Vorteile:
- Kompakte Bauweise
- Geringere Kosten bei der Montage und Wartung vor Ort
- Entfall zusätzlicher Verrohrungen und Montagerahmen

Valve Combinations

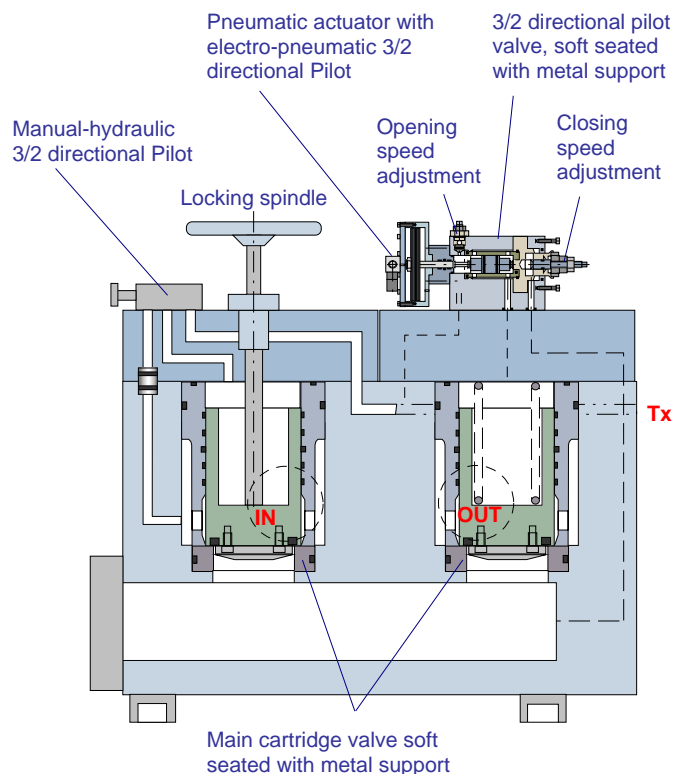
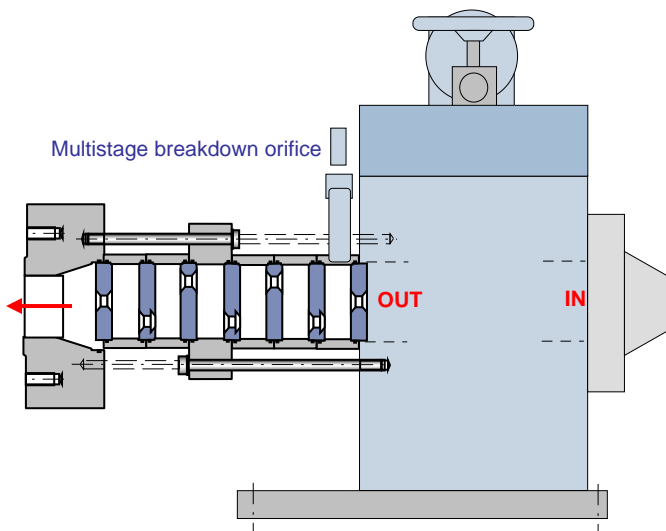
The standardized components can be integrated into combination manifolds. It is possible to combine different valve sizes and functions.

- Benefits:
- Compact design.
- Less installation and maintenance costs.
- Reduction of intermediate piping



Beispiel eines elektrisch betätigten Pumpen Bypassventils mit mehrstufiger Entlastungsdüse und Handabsperrenteil mit Verriegelungsspindel.

Example of an electrically controlled pump-bypass-valve with multistage breakdown orifice and manual shut-off valve with locking spindle.



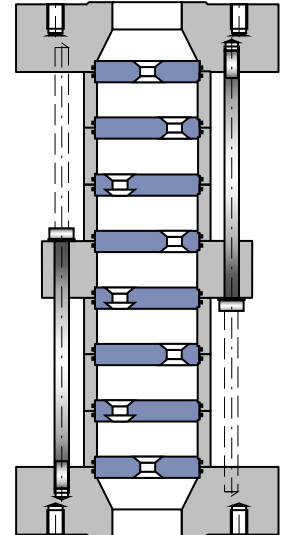
ENTZUNDERUNGSTECHNIK DESCALING TECHNOLOGY

Mehrstufige Düsen / Multistage Breakdown Orifice

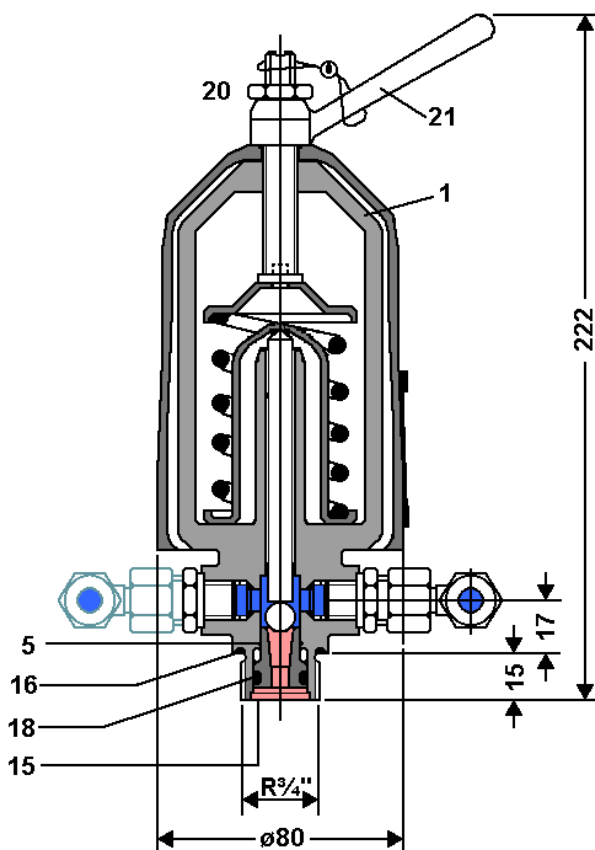
Betriebsdruck / Operating pressure up to 360/720bar
 Druckdifferenz / Pressure difference max 360bar
 Durchflußmenge / Flow rate up to 5000l/min
 Druckdifferenz pro Stufe 4 bis 12 stufig max 30bar
 Pressure difference for each stage max 30 bar 4 to 12 stages
 Flansche / Flanges DIN or ANSI

Material

Gehäuse, Flansche: 1.4104
 Drosselplatte: Messing (2.0405/Ms58),
 Alt. Edelstahl gehärtet, auf Wunsch TIC beschichtet
 Housing, Flanges: Stainless Steel (1.4104)
 Orifice plates: Brass (2.0405/Ms58)
 Alt. Stainless Steel, hardened, TIC coating possible



■ = Primary Pressure
■ = Relieved Pressure



Speichersicherheitsventil

Federbelastetes Druckluftsicherheitsventil zur Absicherung von Behältern.
 Konformität gemäß Druckgeräterichtlinie 97/23/EC Gase Gruppe 2, Kategorie IV. Baumusterprüfung nach Modul B (TÜV).

Gutes Ansprechverhalten und Reproduzierbarkeit auch unter extremen Bedingungen
 Kleine Bauweise
 Nennweite 6mm
 Betriebsdruck 55 - 350bar
 Durchsatz[l/min] = 32,2 x p[bar]
 Betriebstemperatur 0-70°C
 Masse 1,3kg

Accumulator Safety Valve

Spring loaded pneumatic safety relief valve for pressure vessels according to 97/23/EC for gases group 2, Category IV, with TÜV cert module B.

Low hysteresis and good operational control even under adverse conditions.
 Compact design
 Size 6mm
 Operating pressure 55-350bar
 Flow rate compressed air [l/min] = 32,2 x p(bar)
 Ambient Temperature 0-70 °C
 Weight 1.3KG

ENTZUNDERUNGSTECHNIK DESCALING TECHNOLOGY

This catalogue gives only an overview of the various possibilities for our cartridge type valve technology. With this modular program an individual solution can be designed for each different application. The standard elements like Cartridge Valves and Pilots are already used worldwide in many systems. Valve housings and covers are custom made according to the individual standards and customers requests.

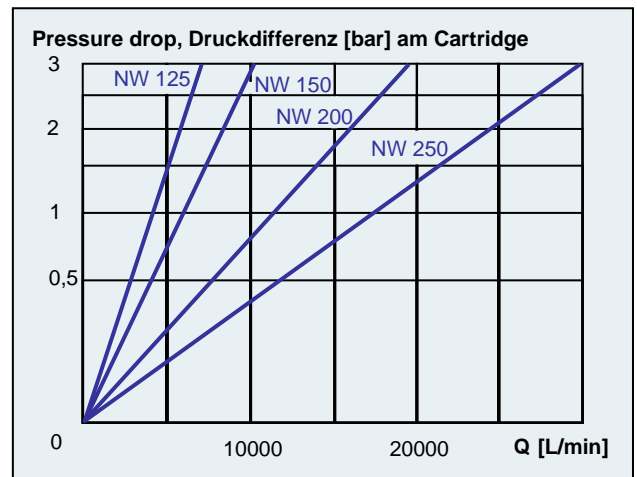
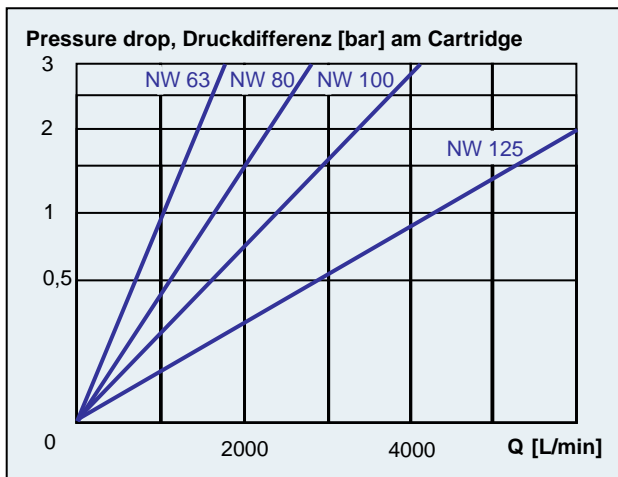
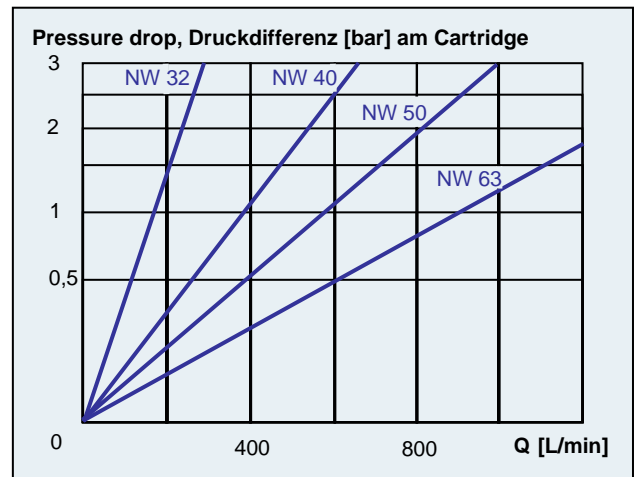
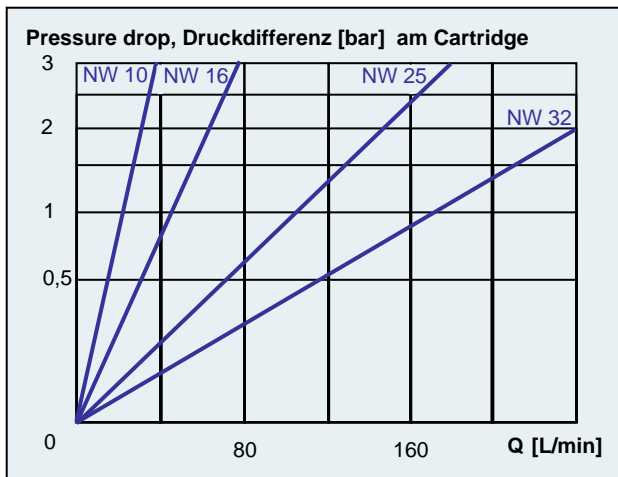
Dieser Katalog kann lediglich einen Überblick über die zahlreichen Kombinationsmöglichkeiten unserer Cartridgeventil geben. Das modular aufgebaute Programm ist bereits in vielen Systemen weltweit im Einsatz. Standardisierte Cartridges und Vorsteuerungen zusammen mit individuell nach Erfordernissen gefertigten Ventilgehäusen erlauben maß- geschneiderte Lösungen für Ihre Anwendungen.

Technical Information, technische Informationen:

Cartridge Valves DIN Type, Stainless Steel, soft seated with metal support.

Cartridge Ventile mit Einbaumaßen nach DIN, Edelstahl, weichdichtend mit metallischer Abstützung.

Flow characteristics, Kennlinien



Benefits, Vorteile

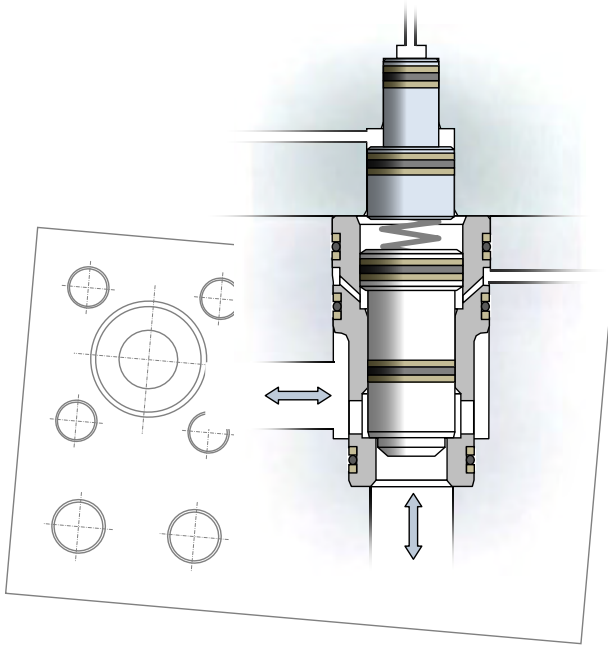
Low maintenance costs because valves and seals can be changed individually without machining. Valve housings can stay in the system during maintenance or repair. Minimal requirement of stock material because of the modular program.

Geringe Wartungskosten, da Ventile und Dichtungen ohne zusätzliche mechanische Bearbeitung separat austauschbar sind. Die Ventilgehäuse können während der Wartung eingebaut bleiben. Durch den baukastenartigen Aufbau sind nur eine geringe Anzahl an verschiedenen Ersatzteilen erforderlich.

Please find more technical details in our catalogue WATER- and SPECIAL HYDRAULICS

Weitere technische Einzelheiten finden Sie in unserem Katalog WASSER- und SONDERHYDRAULIK

SPECIAL VALVES



Customised Design

Individual development or design for single or serial applications.

Our main focus is on cartridges and pilot valves from 40 to 800bar with sizes of 2 to 250mm.

Depending on the design the valves can be used with water, seawater, oil media, special fluids and gases.

Off Shore and Sub Sea Valves

Valves are coated or can be produced from seawater resistant stainless steel material.

Pulsation Valves

Fast responding valves with separate pilot fluid supply and materials conforming to the application.

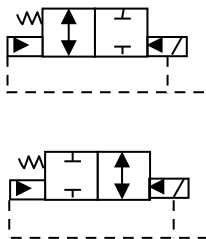
Replacement Valves for existing Systems

Valves to optimise the function of an existing system or to replace original valves which cannot be produced anymore.

New Application

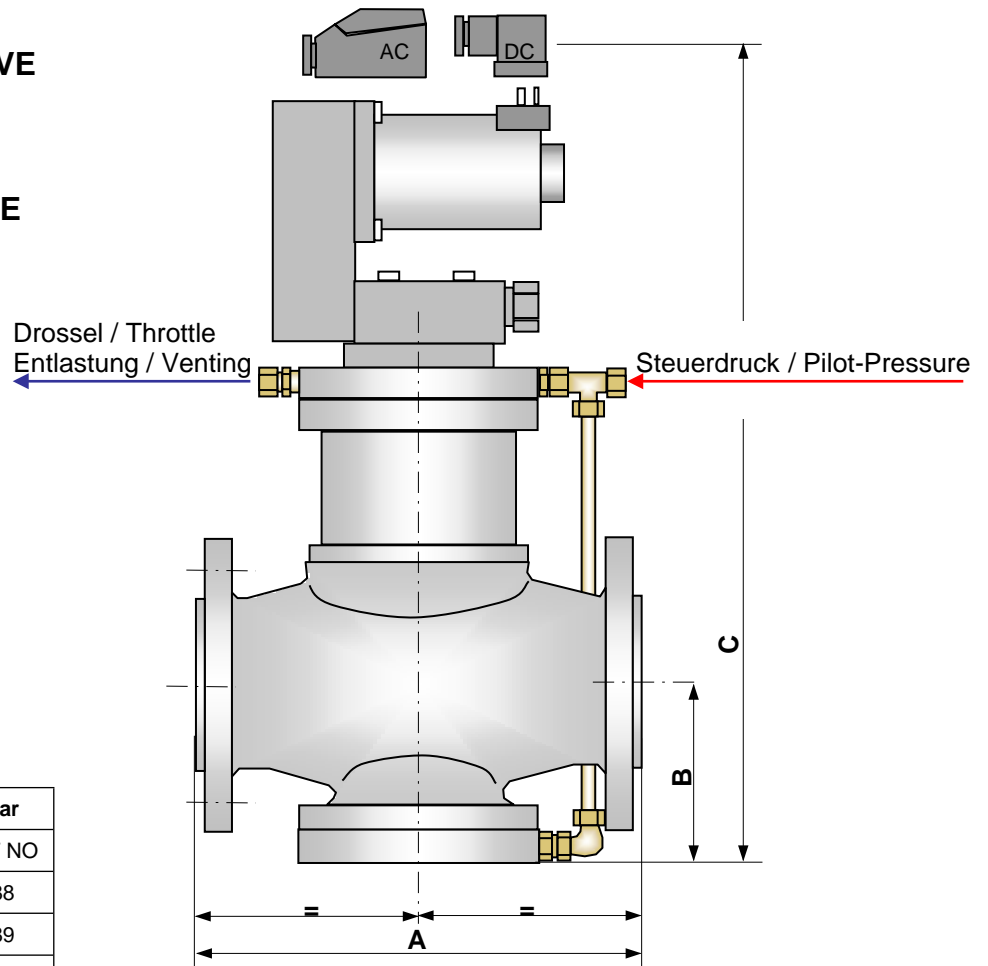
New valve development in close cooperation with the customer, optimised to the project.

2/2 WAY – DIRECTIONAL 2/2 WEGE - VENTILE



NEGATIVE

POSITIVE

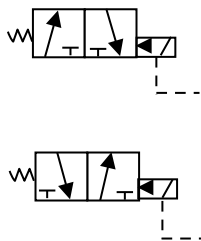


2/2 Directional valve DIN2635 PN40bar					
DN	A	B	C	MASS	PART NO
65	290	116	460	350 N	168488
80	310	128	490	400 N	168489
100	350	148	540	650 N	168490

Technische Daten / Technical Data

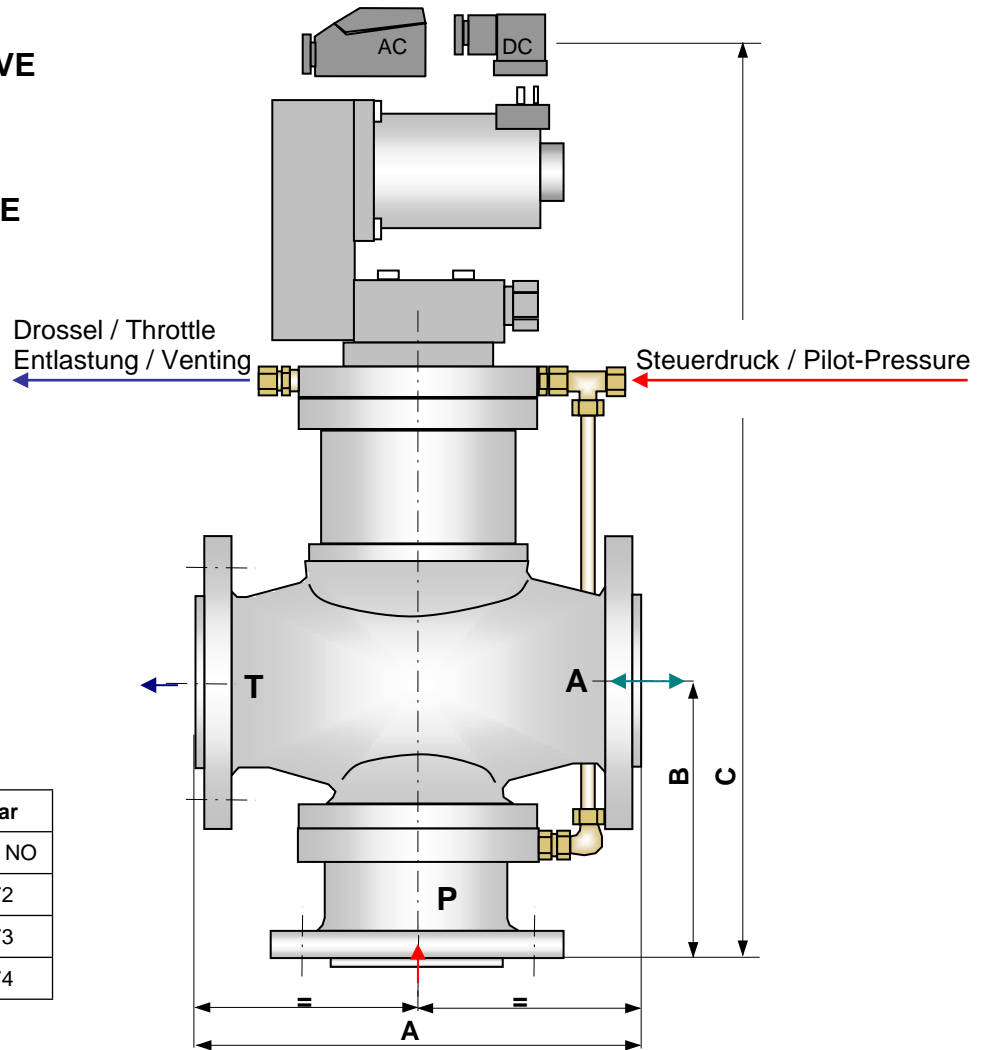
Medium	Öl, Wasser, Luft	Medium	Oil, water, compressed air
Betriebsdruck	2 – 40 bar	Operating pressure	2 – 40 bar
Nennweite	65 – 100 mm	Nominal size	65 – 100 mm
Betriebstemperatur	0 – 80°C	Operating temperature	32 – 176°F
Umgebungstemperatur	40°C max	Ambient temperature	104°F
Vorsteuerdruck	max 40bar / min. Betriebsdruck	Pilot pressure	Max 40bar / min operating pressure
Vorsteueranschlüsse	Rohr AD 8mm	Pilot connections	Pipe AD 8mm
Spannung	12 – 260V DC oder AC 100%ED	Voltage	12 – 260V DC or AC 100%ED
Schutzart	IP65	Protection class	IP 65
Stromaufnahme	46W max	Power consumption	46W max
Werkstoff Gehäuse Innenteile Dichtungen	GGG 40 Edelstahl, Messing, Rotguß Perbunan, Delrin	Material housing other parts seals	GGG 40 Stainless, Brass Buna N, Delrin

2/2 WAY – DIRECTIONAL 2/2 WEGE - VENTILE



NEGATIVE

POSITIVE



3/2 Directional valve DIN2635 PN40bar					
DN	A	B	C	MASS	PART NO
65	290	175	610	400 N	168472
80	310	202	640	500 N	168473
100	350	230	700	750 N	168474

Technische Daten / Technical Data

Medium	Öl, Wasser, Luft	Medium	Oil, water, compressed air
Betriebsdruck	2 – 40 bar	Operating pressure	2 – 40 bar
Nennweite	65 – 100 mm	Nominal size	65 – 100 mm
Betriebstemperatur	0 – 80°C	Operating temperature	32 – 176°F
Umgebungstemperatur	40°C max	Ambient temperature	104°F
Vorsteuerdruck	max 40bar / min. Betriebsdruck	Pilot pressure	Max 40bar / min operating pressure
Vorsteueranschlüsse	Rohr AD 8mm	Pilot connections	Pipe AD 8mm
Spannung	12 – 260V DC oder AC 100%ED	Voltage	12 – 260V DC or AC 100%ED
Schutzart	IP65	Protection class	IP 65
Stromaufnahme	46W max	Power consumption	46W max
Werkstoff Gehäuse Inneneile Dichtungen	GGG 40 Edelstahl, Messing, Rotguß Perbunan, Delrin	Material housing other parts seals	GGG 40 Stainless, Brass Buna N, Delrin

SPRÜHVENTILE SPRAY VALVES


Leckagefreies Sitzventil
Beständig gegen übliche Medien zur Walzenkühlung
Sprühdüse kann integriert werden
Zum direkten An- oder Einbau in Sprühbalken
Geringe Abmessungen
Kurze Schaltzeiten
Lange Lebensdauer

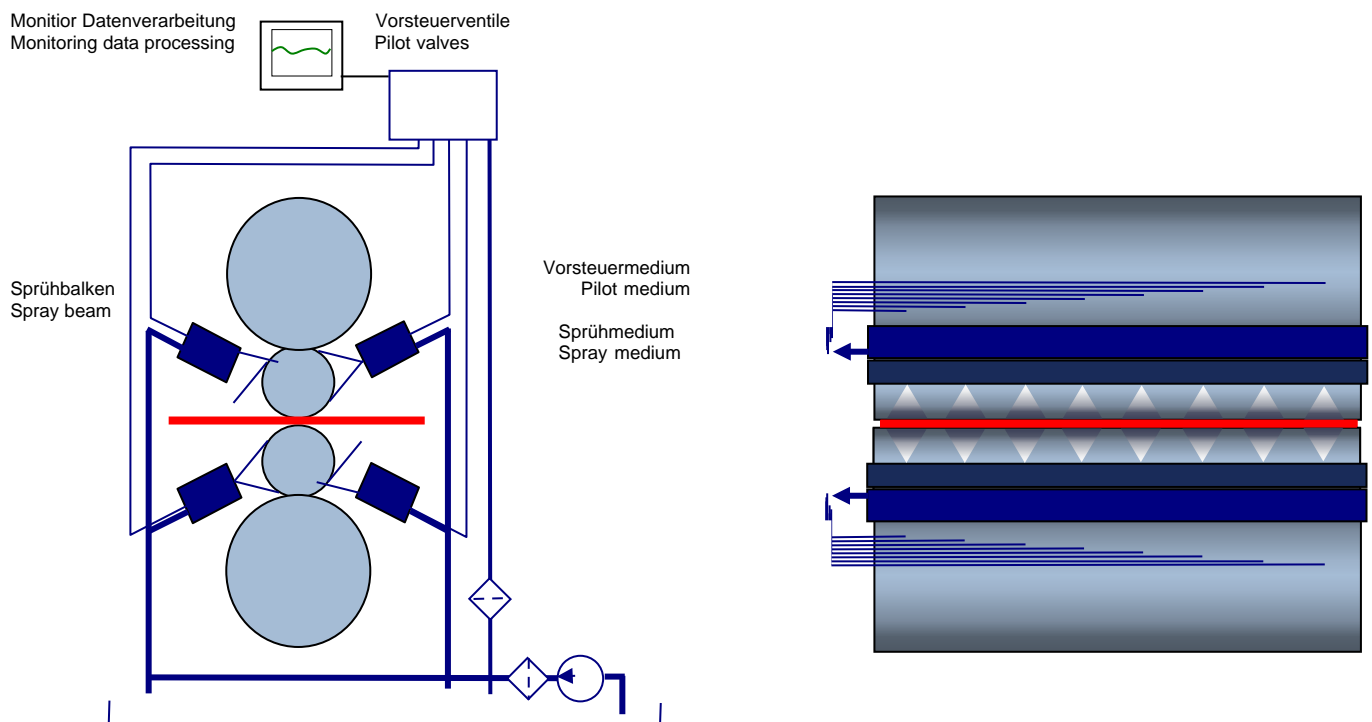
Non-leak valve with soft seat
Resistant to cooling media
Spray nozzle can be integrated
Assembly in or onto spray beams
Small size
Short actuating time
Long expected lifetime

SPRÜHVENTILE SPRAY VALVES

ANWENDUNG / APPLICATION

Moderne Walzverfahren zur Herstellung von Feinblech aus Aluminium oder Stahl erfordern eine schnell ansprechende partielle Walzenkühlung eng aneinander liegender Walzzonen. Schrupp Sprühventile lassen sich direkt in oder auf den Sprühbalken montieren. Die Sprühdüse kann in das Ventil integriert werden. Eine einfacher und robuster Konstruktion ermöglicht den Aufbau einer kompakten und schnell reagierenden Walzenkühlung.

Modern rolling processes for the production of aluminium or steel sheets require a quick acting valve to provide partial cooling of roller areas situated close to each other. Schrupp spray valves can be assembled in or onto the spray beam. The spray nozzle can be integrated into the valve. With their ease of maintenance and robust design the valves can be used in rapidly responding compact roller cooling systems.



Zu unserem Lieferprogramm gehören:

Sprühventile
 Sprühbalken
 Vorsteuer- und Ventilstände
 Verbindungstechnik

Our manufacturing program includes:

Spray Valves
 Spray Beams (Headers)
 Pilot Valves and Valve Stands
 Piping and connections

SPRÜHVENTILE SPRAY VALVES

EINBAUVENTILE / CARTRIDGE TYPE

FUNKTION / FUNCTION

Die Funktionsweise entspricht der eines normalen 2/2 Wegeventils. Wird der Kolben über die Steuerbohrung (Anschluss Px) entlastet, öffnet der an der Differenzfläche anstehende Betriebsdruck P den Kolben entgegen der Federkraft.

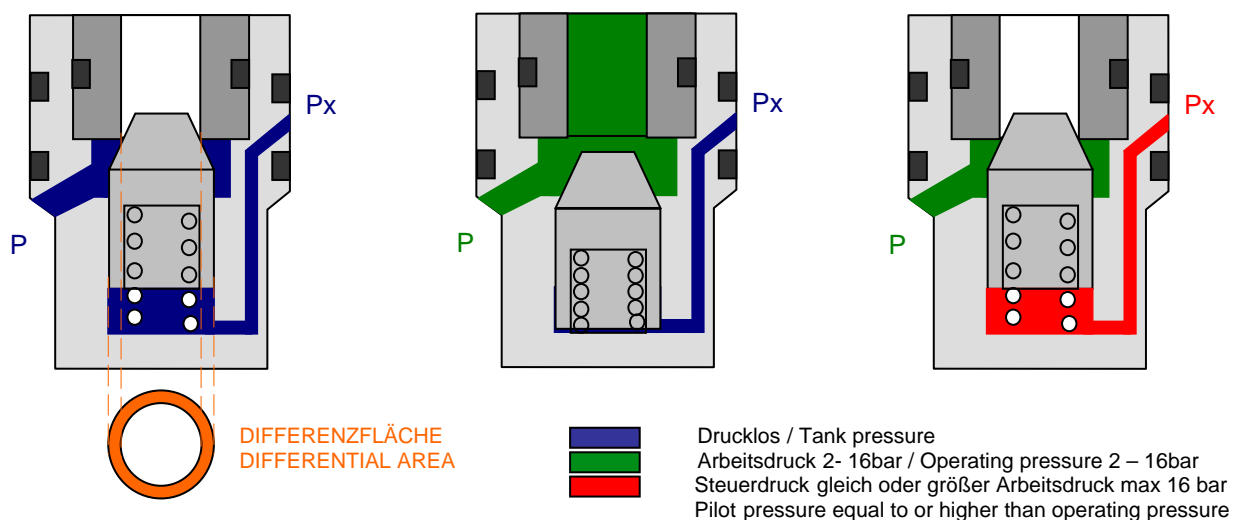
Steht an der Steuerbohrung ein Druck gleich oder größer dem Betriebsdruck an, schließt das Ventil.

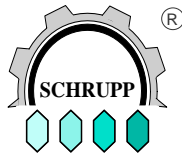
Die erforderlichen Pilotventile können außerhalb des Walzgerüsts installiert und mittels Rohren oder Schläuchen mit den Sprühventilen verbunden werden. Grundsätzlich können die Ventile mit Eigen- oder Fremdmedium vorgesteuert werden. Voraussetzung ist jedoch immer, dass der Vorsteuerdruck am Ventil gleich oder größer dem momentan anstehenden Betriebsdruck ist.

The function of the valve is identical to the function of a 2/2 way directional control valve. If the piston is unloaded via the control bore (port Px), the operating pressure P at the differential area opens the valve against the spring force.

A pressure at Px equal or higher than the operating pressure will close the valve.

The pilot valves can be located separately and outside of the roller stand and can be connected with pipes or hoses to the spray valves. The valves can be piloted by using the spraying media or compressed air or fluids. It is important, that the pilot pressure is always equal to or higher than the operating pressure.





SPRÜHVENTILE SPRAY VALVES

TECHNISCHE DATEN / TECHNICAL DATA

Nenndruck	Nominal pressure	16 bar
Betriebsdruck	Operating pressure	2-16 bar
Öffnungsdruck	Opening pressure	2 bar
Betriebstemperatur	Operating temperature	80°C max
Medium	Wasser, Emulsion, Walzöl	Water, emulsion, rolling oil
Nennweiten	Sizes	6, 8, 12, 16 mm

Werkstoffe

Gehäuse, Kolben, Deckel: Edelstahl

Sitz: Peek

Dichtungen: Viton oder Perbunan

Sonderausführungen mit anderen Nennweiten oder Abmessungen auf Anfrage
Please ask for other valves with different sizes and dimensions

Material

Housing , piston, covers: stainless steel

Seat: peek

Seals: viton or buna-N

Lebensdauer / Life expectancy

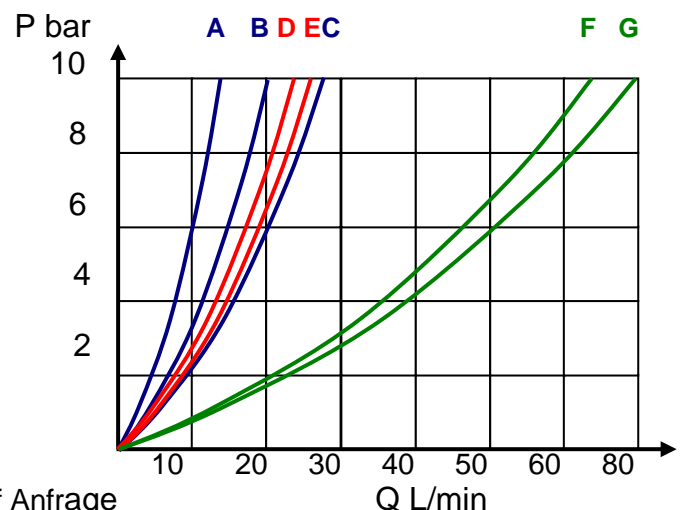
Die Lebenserwartung der Ventile ist stark abhängig von den verwendeten Betriebsmedien und deren Zustand. In Prüfstandsversuchen und in der Praxis konnten Lebenserwartungen mit gut gepflegten Medien von über 6Mio Schaltspielen erreicht werden. Der wartungsfreundliche Aufbau der Ventile ermöglicht es Verschleißteile wie Dichtungen und Sitze auszutauschen und damit die Lebenserwartung der Ventile zu verlängern.

The kind and condition of the operating media has strong influence on the expected lifetime of the valves. From test runs and also from customer`s experience we know that the lifespan of the valves can be more than 6 million cycles by using a high quality medium with good maintenance. The design allows an easy replacement of all critical parts like seats and seals, which helps to increase the life span of the valve.

Kennlinien für Ventile mit Düsen / Diagram for valve including nozzle

FU1-652.721	Valve ND 6	A
FU1-652.761	Valve ND 6	B
FU1-562.842	Valve ND 6	C
FU1-652.801	Valve ND 8	D
FU1-652.843	Valve ND 8	E
FU3- 656.962.30	Valve ND 16	F
FU3-656.964	Valve ND 16	G

Test Medium Wasser, water



Other flow curves on request / weitere Kennlinien auf Anfrage

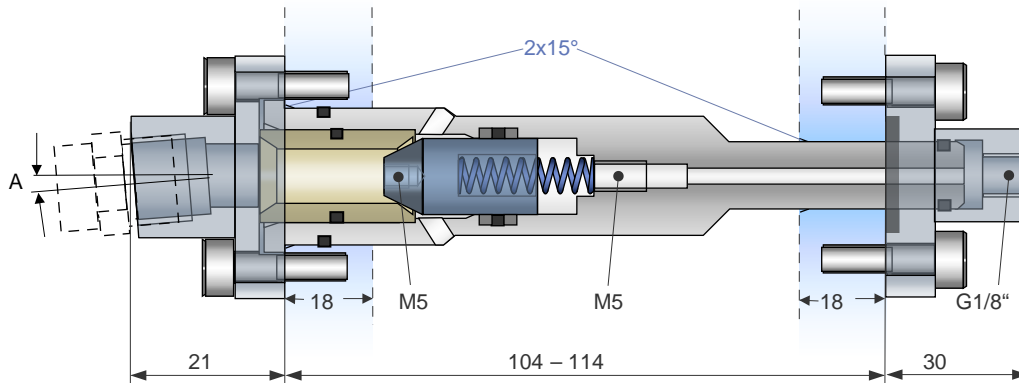
SPRÜHVENTILE SPRAY VALVES

SPRÜHVENTIL / SPRAY VALVE DN8 PN16

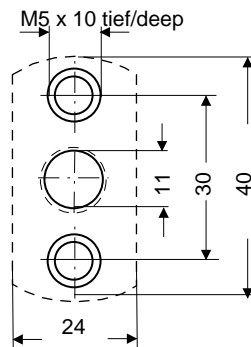
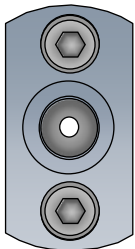
3 Deckel / Cover

1 Grundventil / Valve DN8 PN16

2 Adapter / Adaptor



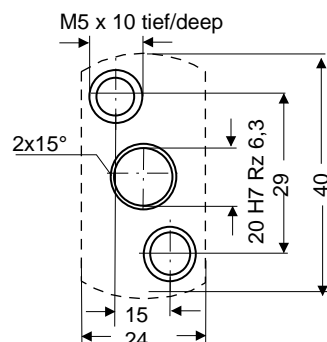
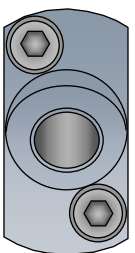
Adapter / Adaptor



Bestellbezeichnung / Ordering code

Pos	Bezeichnung Part name	Anschluß- gewinde Connection	Winkel Spray Angle A	Teilenr. Part no.
1	Grundventil / Valve DN8, PN16			850202
2	Adapter / Adaptor	G 1/8"	0	654630
3	Deckel / Cover	RP 1/4	0	654631
3.1	Deckel / Cover	RP 1/4	5°	654632
3.2	Deckel / Cover	RP 1/4	10°	850201
3.3	Deckel / Cover	RP 1/4	15°	645633
Demontagewerkzeug / Disassembling tool				654039

Deckel / Cover



Ein komplettes Sprühventil besteht jeweils aus: 1 Stk Grundventil, 1 Stk Deckel, 1 Stk Adapter. Schrauben und Dichtungen sind enthalten. Die Düse gehört nicht zum Lieferumfang. Vernickelte Deckel, Adapter sowie abweichende Ausführungen auf Anfrage.

A complete Spray Valve consists of: 1pce valve, 1pce cover, 1pce adaptor. Bolts and seals are included. Spray nozzles are not included. Please ask for special designs; for example nickel plated covers and adaptors.

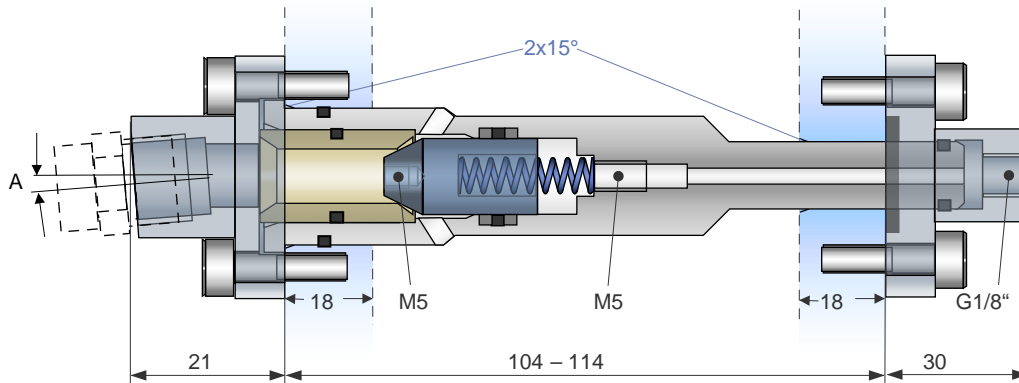
SPRÜHVENTILE SPRAY VALVES

SPRÜHVENTIL / SPRAY VALVE DN12 PN16

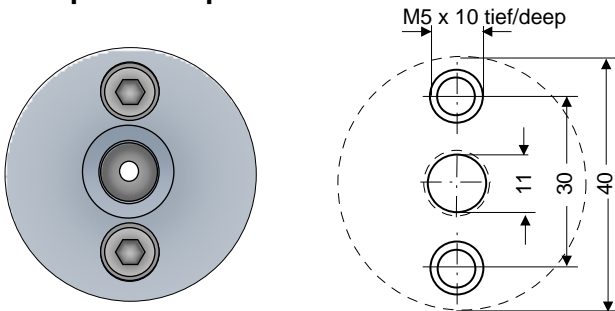
3 Deckel / Cover

1 Grundventil / Valve DN12 PN16

2 Adapter / Adaptor



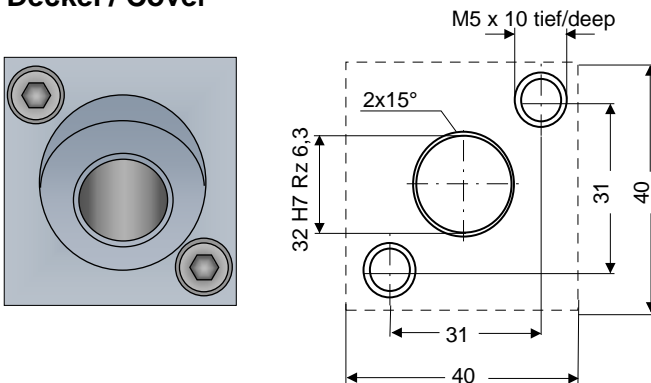
Adapter / Adaptor



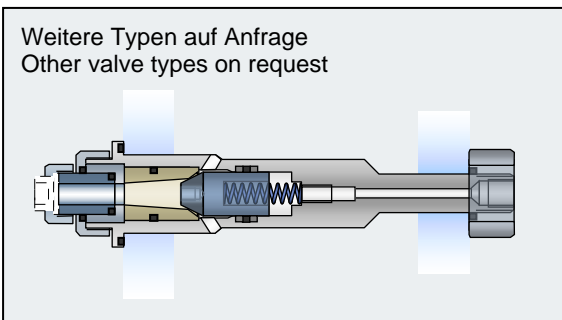
Bestellbezeichnung / Ordering code

Pos	Bezeichnung Part name	Anschluß- gewinde Connection	Winkel A	Teilenr. Part no.
1	Grundventil / Valve DN12, PN16			655043
2	Adapter / Adaptor	G 1/8"	0	655047
3	Deckel / Cover	RP 1/4	0	654653
3.1	Deckel / Cover	RP 1/4	5°	655046
3.2	Deckel / Cover	RP 1/4	10°	655045
3.3	Deckel / Cover	RP 1/4	15°	655044
3.4	Deckel / Cover	G 3/4"	0	850198
Demontagewerkzeug / Disassembling tool				654039

Deckel / Cover



Weitere Typen auf Anfrage
Other valve types on request



Ein komplettes Sprühventil besteht jeweils aus:

1 Stk Grundventil, 1 Stk Deckel, 1 Stk Adapter.
Schrauben und Dichtungen sind enthalten. Die
Düse gehört nicht zum Lieferumfang. Vernickelte
Deckel, Adapter sowie abweichende
Ausführungen auf Anfrage.

A complete Spray Valve consists of:

1pce valve, 1pce cover, 1pce adaptor. Bolts and
seals are included. Spray nozzles are not
included. Please ask for special designs; for
example nickel plated covers and adaptors.

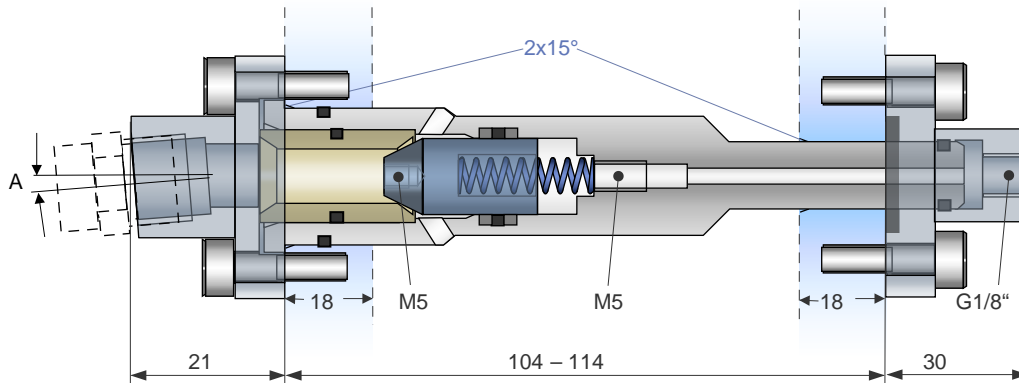
SPRÜHVENTILE SPRAY VALVES

SPRÜHVENTIL / SPRAY VALVE DN16 PN16

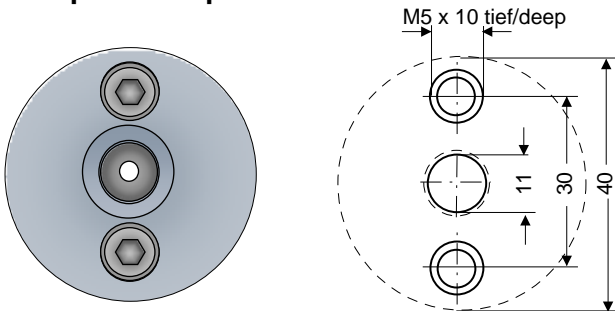
3 Deckel / Cover

1 Grundventil / Valve DN16 PN16

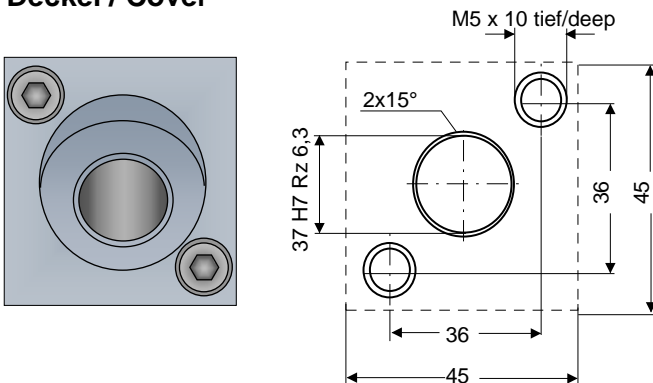
2 Adapter / Adaptor



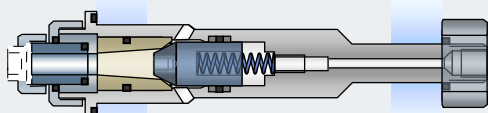
Adapter / Adaptor



Deckel / Cover



Weitere Typen auf Anfrage
Other valve types on request



Bestellbezeichnung / Ordering code

Pos	Bezeichnung Part name	Anschluß- gewinde	WinkelA	Teilenr. Part no.
1	Grundventil / Valve DN16, PN16			850339
2	Adapter / Adaptor	G 1/8"	0	850350
3	Deckel / Cover	RP 1/4	0	
3.1	Deckel / Cover	RP 1/4	5°	
3.2	Deckel / Cover	RP 1/4	10°	
3.3	Deckel / Cover	RP 1/4	15°	
3.4	Deckel / Cover	RP 1/2	10°	850850
3.5	Deckel / Cover	G 3/4"	0	850340
Demontagewerkzeug / Disassembling tool				654039

Ein komplettes Sprühventil besteht jeweils aus:

1 Stk Grundventil, 1 Stk Deckel, 1 Stk Adapter.
Schrauben und Dichtungen sind enthalten. Die
Düse gehört nicht zum Lieferumfang.
Vernickelte Deckel, Adapter sowie
abweichende Ausführungen auf Anfrage.

A complete Spray Valve consists of:

1pce valve, 1pce cover, 1pce adaptor. Bolts
and seals are included. Spray nozzles are not
included. Please ask for special designs; for
example nickel plated covers and adaptors.

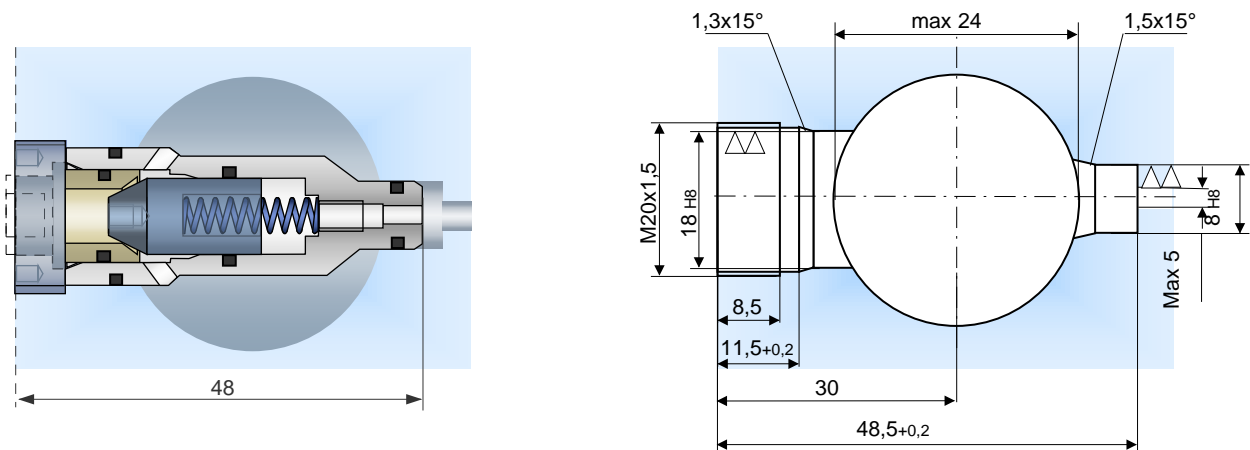
SPRÜHVENTILE SPRAY VALVES

SPRÜHVENTIL / SPRAY VALVE DN6 PN16

Ein komplettes Sprühventil besteht jeweils aus: 1 Stk Grundventil, 1 Stk Deckel. Schrauben und Dichtungen sind enthalten. Die Düse Typ FU1 gehört nicht zum Lieferumfang. Vernickelte Deckel sowie abweichende Ausführungen auf Anfrage.

A complete Spray Valve consists of: 1pce valve, 1pce cover. Bolts and seals are included. Spray nozzle type FU1 are not included. Please ask for special designs; for example nickel plated covers.

Bestellnr. für Ventil mit Deckel / Order no. for valve and cover: **501225**



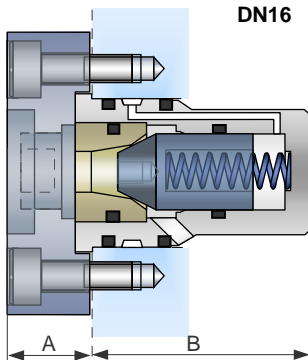
SPRÜHVENTIL / SPRAY VALVE DN8,12,16 PN16

Ein komplettes Sprühventil besteht jeweils aus: 1 Stk Grundventil, 1 Stk Deckel. Schrauben und Dichtungen sind enthalten. Die Düse Typ FU1 gehört nicht zum Lieferumfang. Vernickelte Deckel sowie abweichende Ausführungen auf Anfrage.

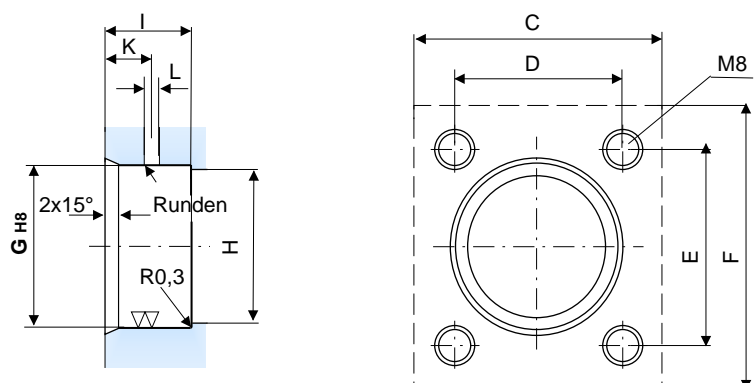
A complete Spray Valve consists of: 1pce valve, 1pce cover. Bolts and seals are included. Spray nozzles type FU1 are not included. Please ask for special designs for example nickel plated covers.

Bestellnr. für Ventil mit Deckel / Order no. for valve and cover:

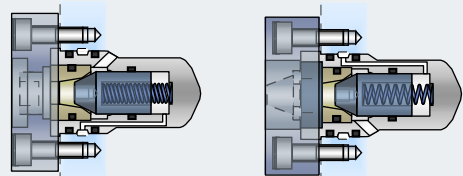
DN8 501400
DN12 501555
DN16 459761



Einbaumaße / Dimensions



Weitere Typen auf Anfrage
Other valve types on request



Partno.	Type	A	B	C	D	E	F	G	H	I	K	L
501400	DN8 PN16	20	47	49	36	36	49	37	32,5	18	11	6
501555	DN12 PN16	18	46	49	32	46	65	40	35,5	17,5	11	6
459761	DN16 PN16	18	60	49	34	50	65	45	42,5	19	11	6

SPRÜHVENTILE SPRAY VALVES

SONDERVENTILE / VALVES FOR SPECIAL APPLICATIONS

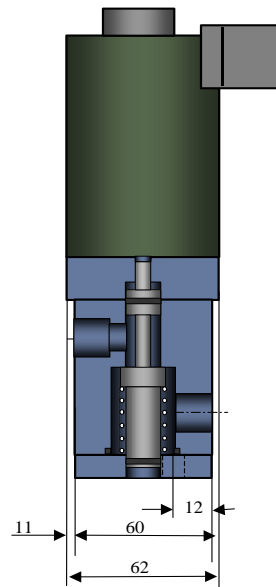
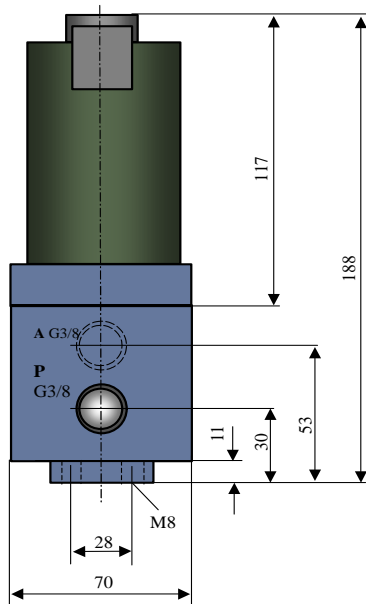
Sprühventil für Plattenaufbau / Spray valve for inline mounting

Diese Ventile werden in Bereichen eingesetzt, wo hohe Anforderung bezüglich Dichtigkeit und Druckfestigkeit bestehen. Die schmutzunempfindliche Weichdichtung mit metallischer Abstützung ist besonders geeignet für dünnflüssige Medien und Wasser.

Lieferbar ist das Ventil in den Nennweiten 10, 16, 25, 32, 40 für Druckbereiche von 5-25bar Sonderausführungen bis 350bar möglich.

The standard valve are available in nominal sizes 10, 16, 25, 32 and 40 for pressures from 5 – 25bar.

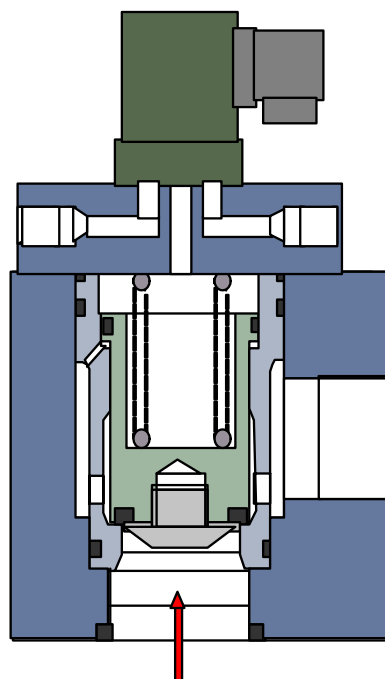
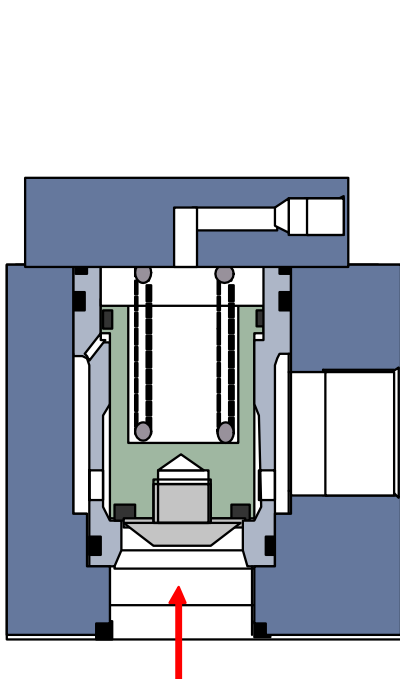
Special implementations are available with pressures to 350bar. These valves are installed into areas which require high pressure and limited space. The contamination tolerant soft-seat with metallic piston and housing is suitable for use with thin-fluid media and especially water.



Technische Daten

Spannung	48V DC
Nenndruck	16bar
Nennweite	12mm
Leistungsaufnahme	43W
Durchflußmenge	50L/min

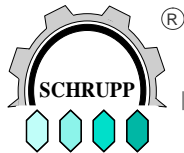
Ausführung
stromlos geschlossen



Technische Daten:

PN	5 - 25 bar
DN	10 - 40mm

Weiter Informationen auf Anfrage
Additional information on request



www.hl-hydraulik.de

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