RE 21 520/07.98

Replaces: 81 520

engineering mannesmann Rexroth

2-way cartridge valves – directional function for water emulsions and water, Types LCW; LFW

Nominal sizes 16 to 63

Series 1X

Maximum operating pressure 420 bar

Maximum flow 20000 L/min

H4673/95 + H4674/95

Type E-LCW 16 C20D1X/… and type E-LFW 16 D 1X/420…

Contents

Features

- Electro-hydraulic and hydraulically actuated directional poppet valves
- Leak-free closure
- Corrosion resistant (HFA, water)
- Cavity and porting pattern to DIN ISO 7368
- Interchangable with the 2-way cartridge valves for mineral oil to catalogue sheet RE 21 010
- Switching time adjustment, optional
- Valve poppet with damping nose
- Stroke adjustment, optional
- Porting pattern for the pilot valves to DIN 24 340 form A, ISO 4401 and CETOP–RP 121 H

The combination of a 2-way cartridge valve with a control cover and/or pilot valve, makes it possible to easily achieve various functions.

For the symbols of the most common combinations, see page 5.

- Further information:

  Pilot valves

  3/2-way poppet valve see RE 22 048

Function, section, symbol

The basis element for a flexible cartridge directional valve system, for low viscosity mediums, is the poppet valve based 2-way cartridge valve as shown on this page.

The 2-way cartridge valves with connections A and B are built into a control block using a standardised cavity to DIN ISO 7368.

Particulary economic solutions can be achieved by matching the nominal size to the differing flow requirements of an actuator.

Function

2-way cartridge basically comprises of 2 assemblies:

– The cartridge (2) performs the valve function (opens/closes).

– The control cover (1) fixes the cartridge in the cavity and fulfils at the same time secondary functions, e.g. distribution of the pilot medium or stroke limitation.

The cartridge assembly (2) comprises of the bushes (3) and (4), a spool with a damping nose (5), a compression spring (6) as well as the seal (7) that separates the control chamber from actuator "B". The bush (4) and spool (5) are made from stainless steel.

2-way cartridge valves work pressure dependent. The opening and closing of ports A and B is achieved via pressure forces on the control surfaces A1, A2, A3 and the compression spring (6).

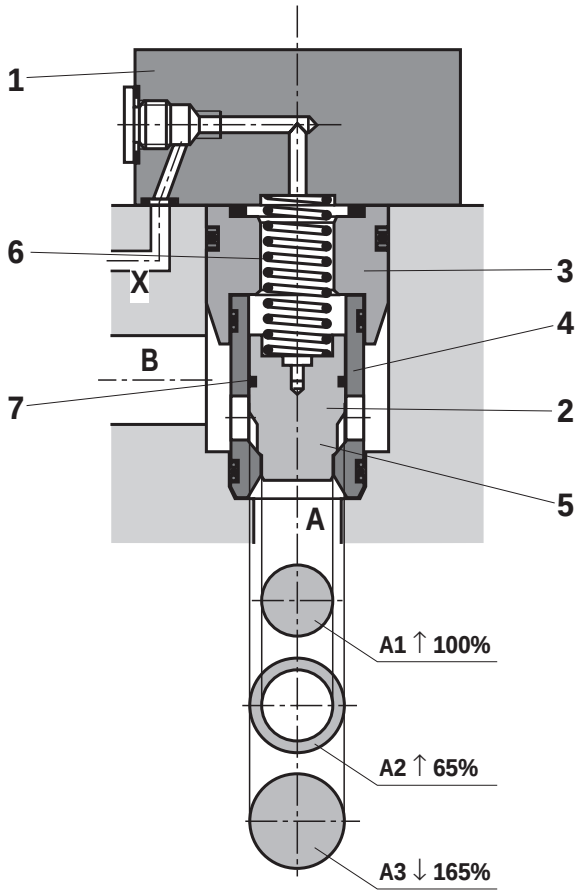
In the closed condition the seat diameter determines 2, open acting (normally closed), control surfaces that are applied with the operating pressure:

A1 (front side) for connection A (100%)

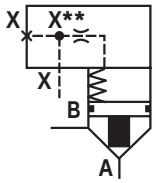
A2 (ring side) for connection B (65%)

The control surface A3 (165%) determines via the applied pilot pressure the switched position of the valve:
$p_x = 0 \rightarrow$ the valve is open;
$p_x \geq$ operating pressure $\rightarrow$ the valve is closed.

There has to be a minimum operating pressure of 5 to 6 bar, this is required to over-come the closing force of compression spring (6) acting on the spool (5) as well as the frictional forces of seal (7). The correct function of the cartridge valve cannot be guaranteed for operating pressures which lie below this minimum value.



Symbol



Type .-LFW . D../420FX..

Type .-LCW . C..D../..

Ordering details: cartridge valve (without control cover)

=	LCW		C		D	1X/		*

Oil in water emulsion = **E**
Water = **W**

Nominal size 16 = **16**
Nominal size 25 = **25**
Nominal size 32 = **32**
Nominal size 40 = **40**
Nominal size 50 = **50**
Nominal size 63 = **63**

Directional function = **C**

Without compression spring = **00**
With compression spring = **20**

Further details in clear text

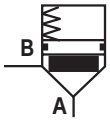
No code = NBR seals
V = FKM seals
(other seals on request)

⚠ Attention!
The compatibility of the seals and pressure fluid has to be taken into account!

1X = Series 10 to 19
(10 to 19: unchanged installation and connection dimensions)

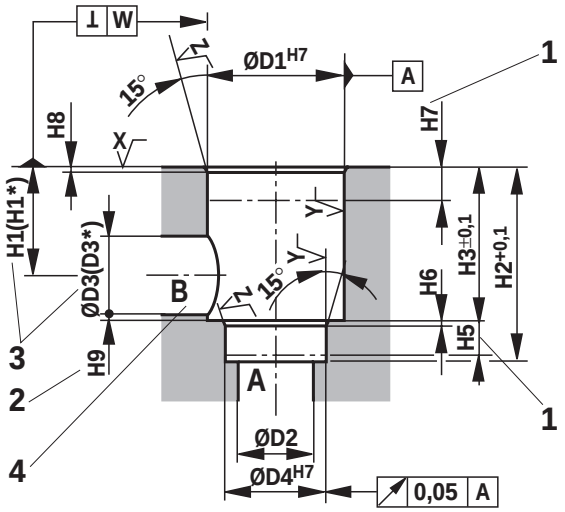
D = Valve poppet without damping nose

Symbol: cartridge valve (for versions see ordering details)



Area relationship
A1 : A2 = 14,3 : 1

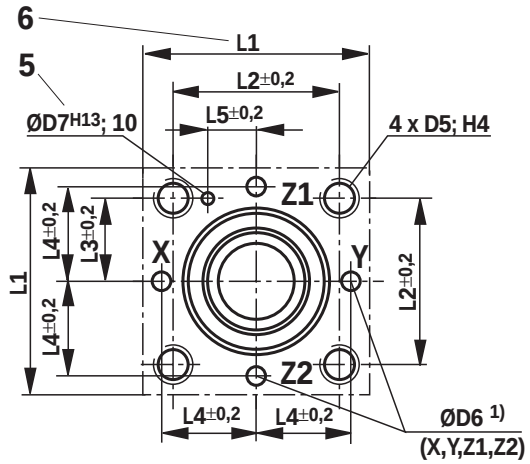
Cavity and porting pattern to DIN ISO 7368 (Dimensions in mm)



$\sqrt{X} = \sqrt{R_{max}\,4}$

$\sqrt{Y} = \sqrt{R_{max}\,8}$

$\sqrt{Z} = \sqrt{R_z\,10}$



NS	16	25	32	40	50	63
ØD1	32	45	60	75	90	120
ØD2	16	25	32	40	50	63
ØD3	16	25	32	40	50	63
(ØD3*)	25	32	40	50	63	80
ØD4	25	34	45	55	68	90
D5	M8	M12	M16	M20	M20	M30
ØD6 1)	4	6	8	10	10	12
ØD7	4	6	6	6	8	8
H1	34	44	52	64	72	95
(H1*)	29.5	40.5	48	59	65.5	86.5
H2	56	72	85	105	122	155
H3	43	58	70	87	100	130
H4	20	25	35	45	45	65
H5	11	12	13	15	17	20
H6	2	2.5	2.5	3	3	4
H7	20	30	30	30	35	40
H8	2	2.5	2.5	3	4	4
H9	0.5	1	1.5	2.5	2.5	3
L1	65/80	85	102	125	140	180
L2	46	58	70	85	100	125
L3	23	29	35	42.5	50	62.5
L4	25	33	41	50	58	75
L5	10.5	16	17	23	30	38
W	0.05	0.05	0.1	0.1	0.1	0.2

1) Max. dim.

1 Depth of fit

2 Reference dimension

3 The distance from the cover mounting surface to the centre of the drilling must be calculated for diameters for port B other than ØD3 or (ØD3*).

4 Port B can be located about the centre axis of port A. Care must, however, be taken to ensure that the fixing holes and pilot control drillings are not damaged.

5 Locating pin hole

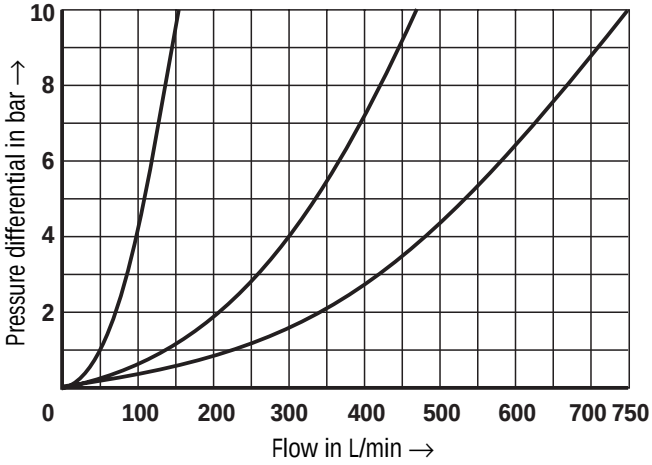
6 **Note regarding porting pattern NS 16:** length dim. L1 (holes on axis X–Y) is 80 mm for a control cover with a built-on directional valve.

Technical data (for applications outside these parameters, please consult us!)

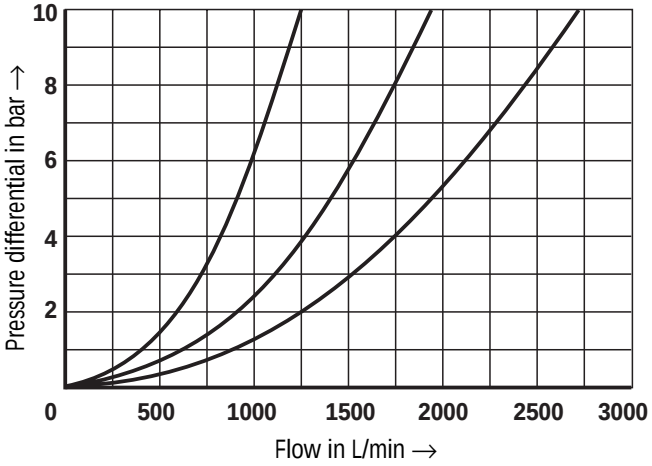
Pressure fluid	– Valve type W-LCW…		water					
	– Valve type E-LCW…		oil in water emulsion					
Pressure fluid temperature range		°C	5 to 55					
Viscosity range		mm^2/s	0.6 to 1.6					
Max. operating pressure, ports A, B, X, Z1, Z2		bar	420					
Max. operating pressure, port Y		bar	refers to the tank pressure of the built-on pilot valve					
Nominal size			**16**	**25**	**32**	**40**	**50**	**63**
Area A1		cm^2	1.29	2.75	4.9	7.55	11	20
Area A2		cm^2	1.54	2.15	3.1	5.05	8.6	14.2
Area A3		cm^2	2.83	4.9	8	12.6	19.6	34.2
Stroke		cm	0.9	1.2	1.5	1.8	2.0	2.4
Control volume		cm^3	2.5	5.9	12	22.7	39.2	82
Weight	– Cartridge valve	kg	0.25	0.5	1.1	1.8	3.8	7.0
	– Control cover	kg	1.2	2.3	4.0	7.4	10.5	21

Characteristic curves (measured at ν = 0.8 mm^2/s and ϑ = 40 °C)

Δp-q_V-characteristic curves – NS 16 to 32



Δp-q_V-charateristic curves – NS 40 to 63



Seal kits: cartridge valve type .-LCW…

NS	Material number	
	NBR seals	FKM seals
16	00850123	00850125
25	00853783	00853784
32	00862730	00862613

NS	Material number	
	NBR seals	FKM seals
40	00867187	00867188
50	00867190	00867191
63	00867192	00867193

Compression springs

NS	Dimensions	Material no.
16	10.7/1.3 x 42/9.5	00017868
25	15.8/2 x 60/9	00026154
32	20/2.5 x 69/9	00026382

NS	Dimensions	Material no.
40	28/3 x 69/9	00017952
50	30/3.6 x 142/12	00001168
63	43/5 x 111/6.5	000215007

Ordering details: control cover

–	LFW			1X	420									*

Oil-in-water emulsion = **E**

Water = **W**

Nominal size						Type
16	25	32	40	50	63	
X	X	X				**D**
X	X	X	X	X	X	**D**
X	X	X	X	X	X	**H**
X	X	X	X	X	X	**WE**
X	X	X	X	X	X	**GW**
X	X	X	X	X	X	**SC**
X	X	X	X	X	X	**E**
X	X	X	X	X	X	**EH**
X	X	X	X	X	X	**EW**

Series 10 to 19 = **1X**
(10 to 19: unchanged installation and connection dimensions)

Operating pressure 420 bar = **420**
(other operating presses on request)

Logic spool **without** damping nose = **No code**
Logic spool **with** damping nose = **D**
(only for cover with inductive limit switch)

	Orifices in ports			
	A	P	T	X
F				X
F				X
	X	X	X	
	X	X	X	
F				X
F				X
F				X
F				X

No code = cover **without** remote control connection
F = cover **with** remote control connection

QMG24 = electrical monitoring of the **closed** logic spool
(ordering details only required for covers with an inductive limit switch)

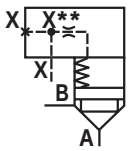
Further details in clear text

No code = NBR seals
V = FKM seals
(other seals on request)

⚠ Attention!
The compatibility of the seals and pressure fluid has to be taken into account!

Symbols (basic symbols)

.-LFW . **D…F**…
Control cover with remote control port
NS 16 to 63



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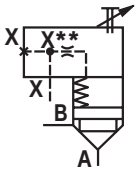
.-LFW . **H…F**…
Control cover with stroke limiter, with remote control port
NS 16 to 63



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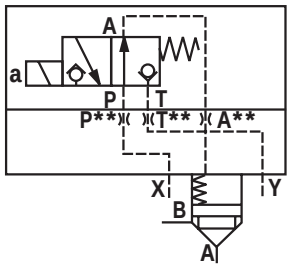
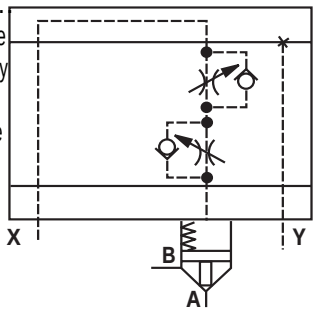
.-LFW . **WE**…
Control cover for mounting a directional poppet valve
NS 16 to 63



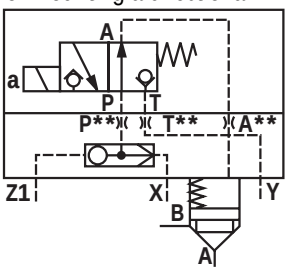
Page 10

.-LFW . **WE**..
Cartridge valve with separately adjustable switching time adjustment
NS 16 to 63



Page 11

.-LFW . **GW**…
Control cover for mounting a directional poppet valve with built-in shuttle valve
NS 16 to 63



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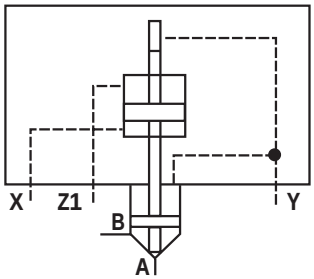
.-LFW . **SC**…
Cartridge valve with self-closing function
NS 16 to 63



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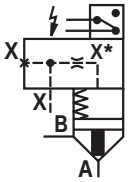
E-LFW . **E**…**DQMG24F**
Control cover with electrical monitoring of the closed position including the cartridge element
NS 16 to 63



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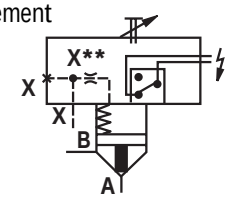
E-LFW . **EH**…**DQMG24F**
Control cover with electrical monitoring of closed position and stroke limiter including the cartridge element
NS 16 to 63



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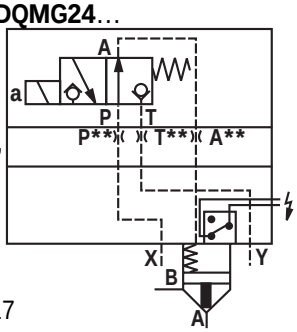
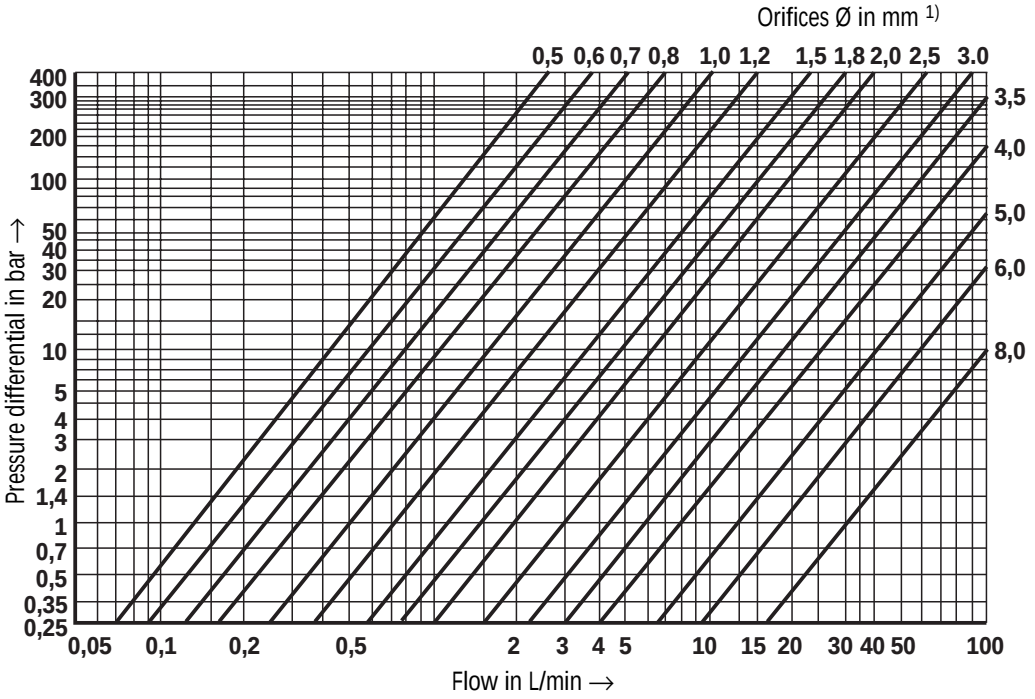
E-LFW . **EW…DQMG24**…
Control cover with electrical monitoring of closed position, for mounting a directional poppet valve
NS 16 to 63



Pages 16 and 17

Characteristic curves for orifices selection



1) Possible orifice Ø in relation to the thread dimensions

Thread	Orifice Ø in mm
M6 tapered	0.7 to 2.0
M8 x 1 tapered	1.5 to 2.0
G 3/8	2.5

Pipe thread "G" to ISO 228/1

Orifice material numbers

Standard orifice for NS	Thread / Orifice Ø in mm	M6 tapered	Material number M8 x 1 tapered	G 3/8
16	0.7	00698087	–	–
25	0.8	00621959	–	–
32	1.0	00695040	–	–
40	1.2	00695039	–	–
50	1.5	00810481	00642408	–
63	1.8	00810482	00642200	–
	2.0	00642712	00642755	–
	2.5	–	–	00812680

R-ring dimensions for ports X, Y, Z1, Z2

(within the scope of supply)

NS	Dimensions in mm	Material number	
		NBR seals	FKM seals
16	8.41 x 1.4 x 1.78	00025407	00025408
25	9.81 x 1.5 x 1.78	00017453	00017610
32	11.18 x 1.6 x 1.78	00017455	00017611
40, 50	12.81 x 2.4 x 2.62	00017457	00017617
63	18.72 x 2.62 x 2.62	00024445	00024446

Seal kits: control cover type .-LFW…

Type	Material number NS 16		NS 25		NS 32	
	NBR	FKM	NBR	FKM	NBR	FKM
...D...; ...D./...F; ...WE...	00313758	00313759	00313760	00313761	00313762	00313763
...H./...F...	00313951	00313952	00313953	00313954	00313800	00313801
...GW...	00313961	00313962	00313804	00313805	00313808	00313809
...SC...	00864395	00864397	00864398	00864399	00864400	00864401
...E./...F...	00313830	00313831	00313932	00313833	00313838	00313839
...EH./...F...; ...EW...	00313857	00313858	00313834	00313835	00313861	00313862

Type	Material number NS 40		NS 50		NS 63	
	NBR	FKM	NBR	FKM	NBR	FKM
...D./...F; ...WE...	00313863	00313864	00313863	00313864	00313865	00313866
...H./...F...	00313867	00313868	00313869	00313870	00313871	00313872
...GW...	00313873	00313874	00313875	00313876	00313877	00313878
...SC...	00867181	00867182	00867183	00867184	00867185	00867186
...E./...F...	00312005	00312006	00312007	00312008	00312597	–
...EH./...F...; ...EW...	00311547	00311548	00312095	00313150	00314423	–

Fixing screws: S.H.C.S. to DIN 912-10.9 (within the scope of supply)

NS	Control cover type	Qty.	Dimensions	Tightening torque M_A in Nm
16	...WE...; ...GW...	4	M8 x 45	37
	...SC...		M8 x 90	
	...EH...		M8 x 80	
	...EW...		M8 x 85	
	[1]		M8 x 40	
25	.....SC...	4	M12 x 120	130
	...EH...; ...EW...		M12 x 90	
	[1]		M12 x 50	
32	...EH...; ...EW...	4	M16 x 110	310
	H		M16 x 80	
	[1]		M16 x 60	

NS	Control cover type	Qty.	Dimensions	Tightening torque M_A in Nm
40	...H...	4	M20 x 90	630
	...SC...		M20 x 120	
	...E...		M20 x 140	
	...EH...; ...EW...		M20 x 140	
	[1]		M20 x 70	
50	...H...	4	M20 x 120	620
	...SC...		M20 x 160	
	...E...		M20 x 140	
	...EH...; ...EW...		M20 x 160	
	[1]		M20 x 80	
63	...H...	4	M30 x 140	2100
	...E...		M30 x 180	
	...EH...; ...EW...		M30 x 200	
	[1]		M30 x 100	

[1] Other available series control covers

Control cover with or without remote control connection: types …D./F…; …D… (Dimensions in mm)

–	LFW		D	1X/420				*

Oil-in-water emulsion = **E**

Water = **W**

Nom. size 16	25	32	40	50	63	Remote control connection	Orifice in port + Ø in 1/10 mm
x	x	x					
x	x	x	x	x	x	**F**	**X**** ◿

Further details in clear text

No code = NBR seals

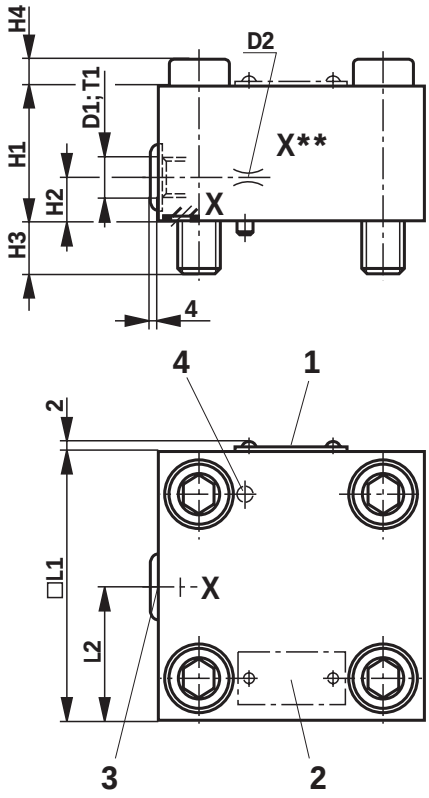
V = FKM seals

(other seals on request)

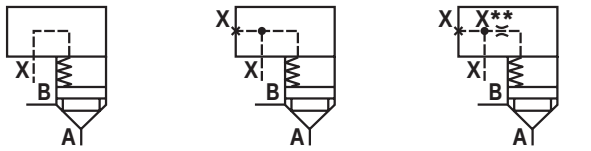
⚠ Attention!

The compatibility of the seals and pressure fluid has to be taken into account!

◿ Orifice possible, details only necessary when fitted



.-LFW . D… **.-LFW . D…F…** **.-LFW . D…FX****



NS	16	25	32	40	50	63
D1	G 1/8	G 1/4	G 1/4	G 1/2	G 1/2	G 3/4
D2 [1]	M6	M6	M6	M8x1	M8x1	G 3/8
H1	35	40	50	60	68	82
H2	12	16	16	30	32	40
H3	15	24	28	32	34	50
H4	8	12	16	–	–	–
□ L1	65	85	100	125	140	180
L2	32,5	42,5	50	72	80	90
T1	8	12	12	14	14	16

[1] For orifice ordering details, see pages 5 and 6.

1 Name plate for NS 16, 25, 32

2 Name plate for NS 40, 50, 63

3 Port X optionally as a threaded connection (only with version "F")

4 Locating pin

Control cover with stroke limiter and remote control connection: type …H… (Dimensions in mm)

÷ LFW		H	1X/420	F			*

Oil-in-water emulsion = E
Water = W

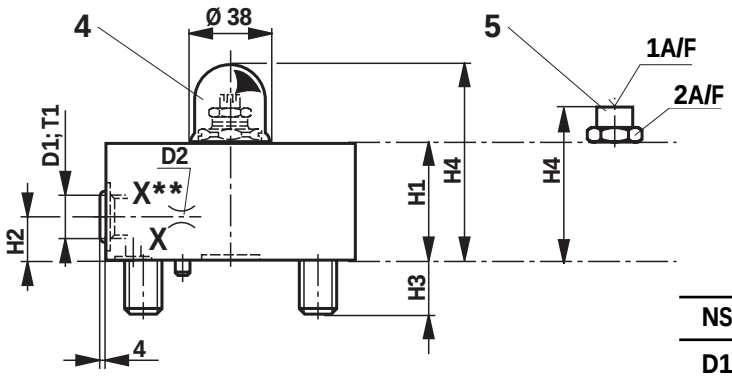
Nom. size						Adjust-ment	Remote control connection	Orifice in port + Ø in 1/10 mm
16	25	32	40	50	63			
x	x	x	x	x	x	**H**	**F**	**X****

Further details in clear text

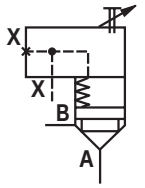
No code = NBR seals
V = FKM seals
(other seals on request)

⚠ Attention!
The compatibilty of the seals and pressure fluid has to be taken into account!

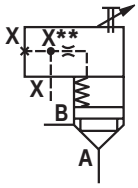
◿ Orifice possible, details only necessary when fitted

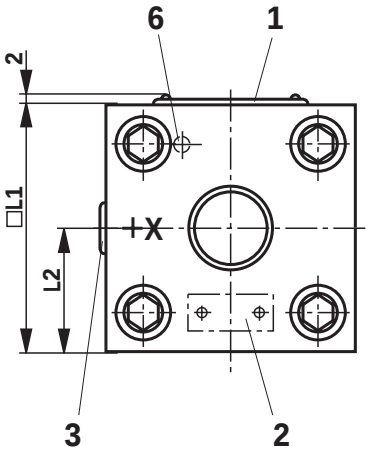


.-LFW . H…F…



.-LFW . H…FX**





NS	16	25	32	40	50	63
D1	G 1/8	G 1/4	G 1/4	G 1/2	G 1/2	G 3/4
D2 [1]	M6	M6	M6	M8x1	M8x1	G 3/8
H1	35	40	75	80	98	112
H2	12	16	16	32	32	40
H3	15	24	28	32	34	50
H4 [2]	75	80	100	115	135	155
□L1	65	85	100	125	140	180
L2	32.5	42.5	50	72	80	90
T1	8	12	12	14	14	16
1A/F	–	–	–	12	17	19
2A/F	–	–	–	36	46	55

[1] For orifice ordering details, see pages 5 and 6.

[2] Max. dimension

1 Name plate for NS 16, 25, 32
2 Name plate for NS 40, 50, 63
3 Port X optionally as a threaded connection (only with version "F")
4 Adjuster for NS 16, 25, 32
5 Adjuster for NS 40, 50, 63
6 Locating pin

Control cover for fitting a directional poppet valve: type …WE… (Dimensions in mm)

–	LFW		WE	1X/420				*

Oil-in-water emulsion = **E**
Water = **W**

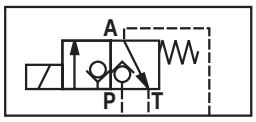
Further details in clear text

No code = NBR seals
V = FKM seals
(other seals on request)

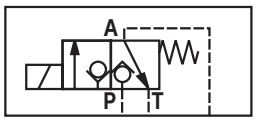
⚠ Attention!
The compatibility of the seals and pressure fluid has to be taken into account!

Nom. size						Type	Orifice in port + Ø in 1/10 mm		
16	25	32	40	50	63		A	P	T
x	x	x	x	x	x	**WE**	**A**◿	**P**◿	**T**◿

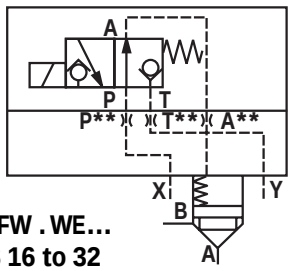
◿ Orifice possible, details only necessary when fitted



.-3SE 6 **C**5X/420…

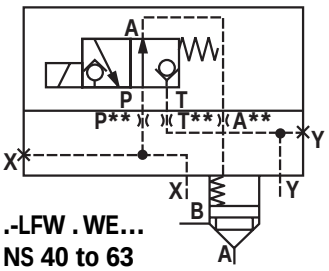


.-3SE 6 **C**5X/420…



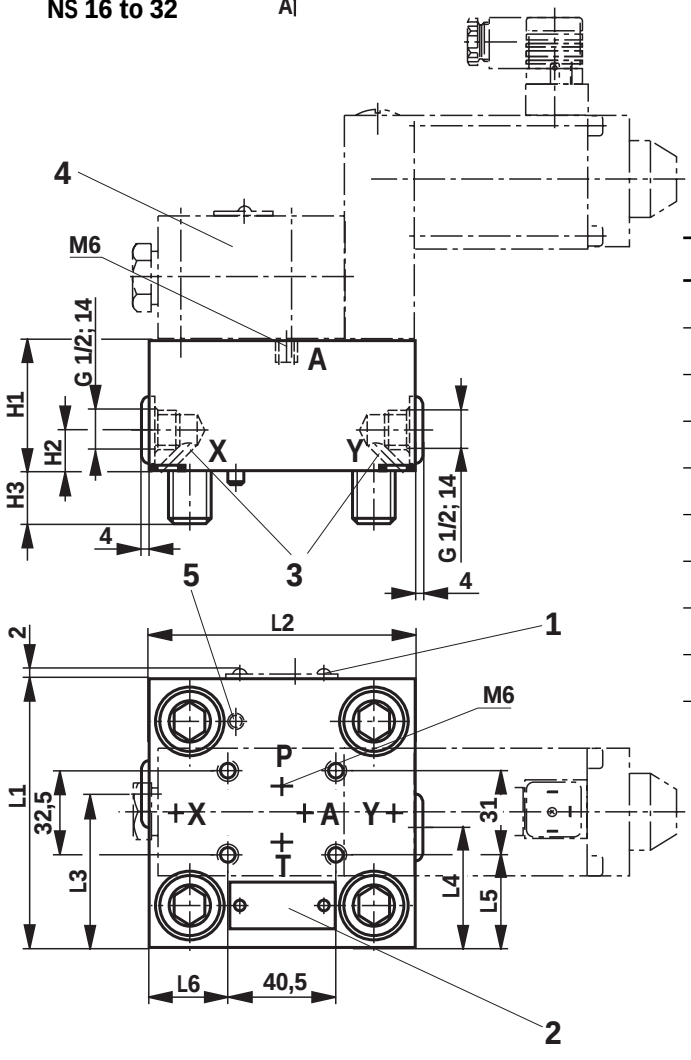
.-3SE 6 **U**5X/420…

.-LFW . WE…
NS 16 to 32



.-3SE 6 **U**5X/420…

.-LFW . WE…
NS 40 to 63



NS	16	25	32	40	50	63
H1	40	40	50	60	68	82
H2	–	–	–	30	32	40
H3	15	24	28	32	34	50
L1	65	85	100	125	140	180
L2	80	85	100	125	140	180
L3	–	–	–	72	80	101
L4	–	–	–	53	60	79
L5	17	27	34.5	47	54.5	74.5
L6	7	22.5	30	43.5	51	71

For orifice ordering details, see pages 5 and 6.

1 Name plate for NS 16, 25, 32

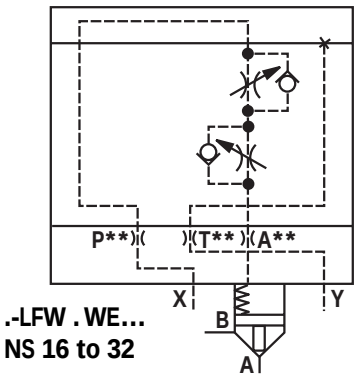
2 Name plate for NS 40, 50, 63

3 Ports X and Y optionally as a threaded connections for NS 40, 50, 63

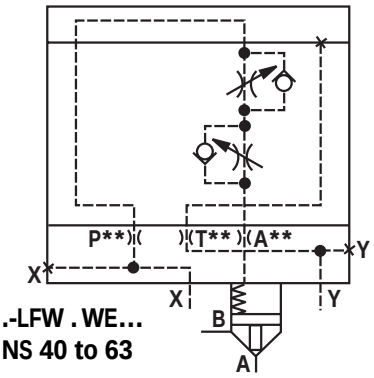
4 **The pilot valve** to catalogue sheet RE 22 048 **must be ordered separately.**
Valve fixing screws M5 DIN 912-10.9, tightening torque M_A = 8,9 Nm, are included within the scope of supply.

5 Locating pin

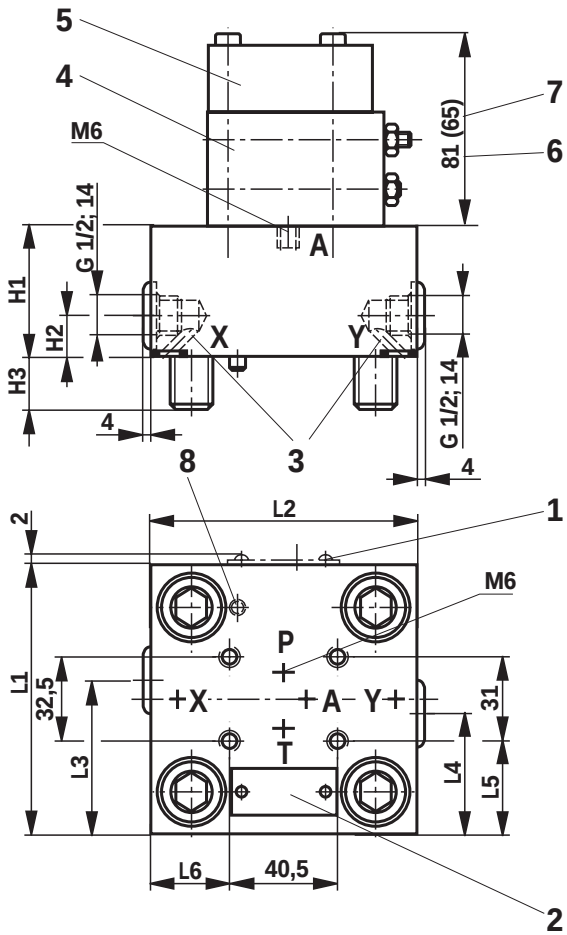
Sandwich plate with separately adjustable switching time adjustment for fitting onto a control cover type **.-LFW . WE…** (Dimensions in mm)



.-LFW . WE…
NS 16 to 32



.-LFW . WE…
NS 40 to 63



NS	16	25	32	40	50	63
H1	40	40	50	60	68	82
H2	–	–	–	30	32	40
H3	15	24	28	32	34	50
L1	65	85	100	125	140	180
L2	80	85	100	125	140	180
L3	–	–	–	72	80	101
L4	–	–	–	53	60	79
L5	17	27	34.5	47	54.5	74.5
L6	7	22.5	30	43.5	51	71

For orifice ordering details, see pages 5 and 6.

1 Name plate for NS 16, 25, 32

2 Name plate for NS 40, 50, 63

3 Ports X and Y optionally as a threaded connection for NS 40, 50, 63

4 Switching time plate – material no.
00539335 with NBR seals
00539383 with FKM seals

5 Blanking plate – material no.

	NBR seals	FKM seals
Version „E“	**00471650**	**00925773**
Version „W“	**00328865**	**00867091**

6 Version „E“
Valve fixing screws
M5 x 85 DIN 912-10.9, tightening torque M_A = 8.9 Nm, must be ordered separately.

7 Version „W“
Valve fixing screws
M5 x 70 DIN 912-10.9, tightening torque M_A = 8.9 Nm, must be ordered separately.

8 Locating pin

Control cover with shuttle valve for fitting a directional poppet valve: type …GW… (Dimensions in mm)

– LFW		GW	1X/420					*

Oil-in-water emulsion = **E**
Water = **W**

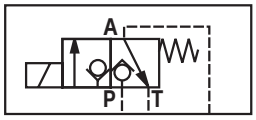
Further details in clear text

No code = NBR seals
V = FKM seals
(other seals on request)

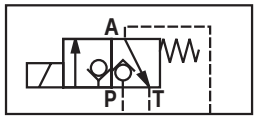
⚠ Attention!
The compatibility of the seals and pressure fluid has to be taken into account!

Nom. size						Type	Orifice in port + Ø in 1/10 mm		
16	25	32	40	50	63		A	P	T
x	x	x	x	x	x	GW	A** ◿	P** ◿	T** ◿

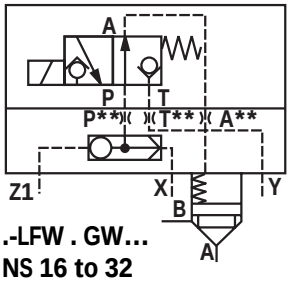
◿ Orifice possible, details only necessary when fitted



.-3SE 6 **C**5X/420…

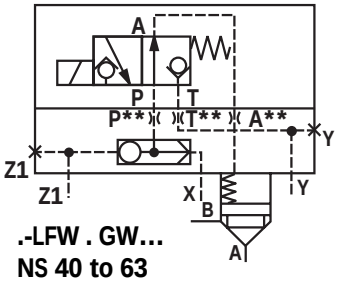


.-3SE 6 **C**5X/420…



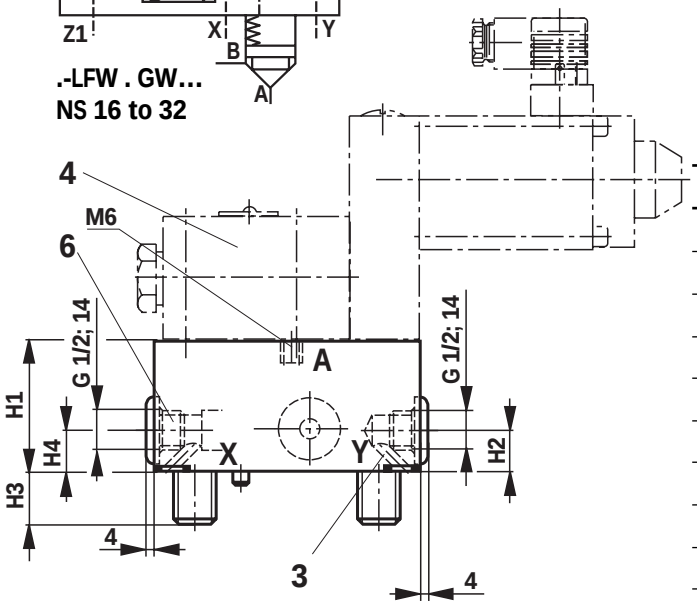
.-3SE 6 **U**5X/420…

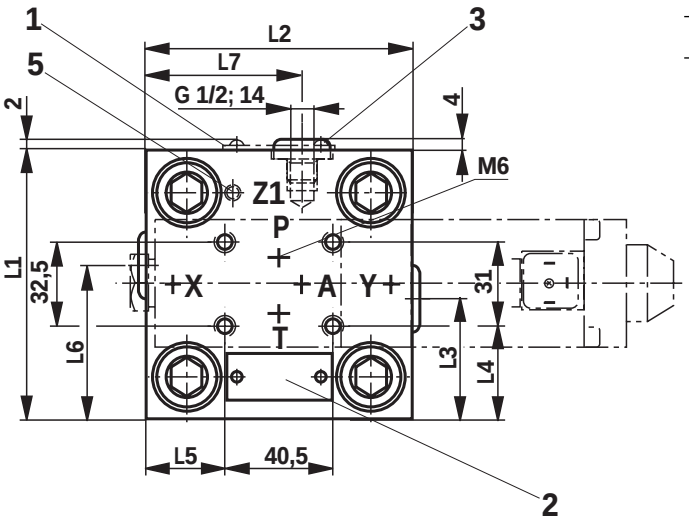
.-LFW . GW…
NS 16 to 32



.-3SE 6 **U**5X/420…

.-LFW . GW…
NS 40 to 63





NS	16	25	32	40	50	63
H1	40	40	50	60	68	82
H2	–	–	–	30	32	40
H3	15	24	28	32	34	50
H4	17	17	21,5	30	32	60
L1	65	85	100	125	140	180
L2	80	85	100	125	140	180
L3	–	–	–	53	60	79
L4	17	27	34.5	47	54.5	74.5
L5	7	22.5	30	43.5	51	71
L6	36.5	45.5	50	62.5	70	90
L7	–	–	–	72	80	101

For orifice ordering details, see pages 5 and 6.

1 Name plate for NS 16, 25, 32

2 Name plate for NS 40, 50, 63

3 Ports Y and Z1 optionally as a threaded connection for NS 40, 50, 63

4 **The pilot valve** to catalogue sheet RE 22 048 **must be ordered separately.**
Valve fixing screws M5 DIN 912-10.9, tightening torque M_A = 8.9 Nm, are included within the scope of supply.

5 Locating pin

6 Shuttle valve

Control cover with self-closing function: type …SC… (Dimensions in mm)

– LFW		SC	1X/420				*

Oil-in-water emulsion = **E**
Water = **W**

Nom. size						Remote connection	Orifice in port + Ø in 1/10 mm
16	**25**	**32**	**40**	**50**	**63**		
x	x	x	x	x	x	**F**	**X****

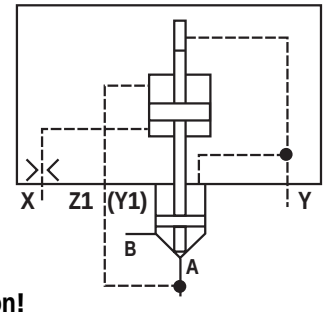
Further details in clear text

No code = NBR seals
V = FKM seals
(other seals on request)

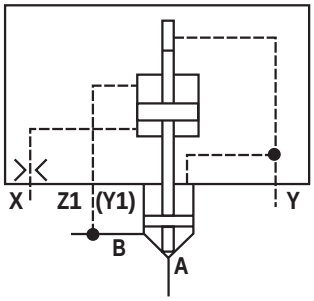
⚠ Attention!
The compatibility of the seals and pressure fluid has to be taken into account!

◿ Orifice possible, details necessary when fitted

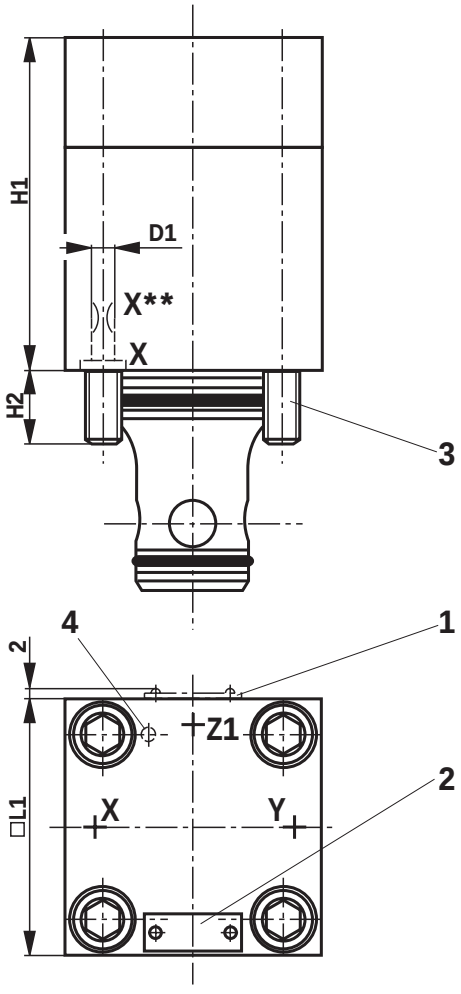
Port Z1 is connected with A



Port Z1 is connected with B



⚠ Attention!
The valve self-closes when the pilot pressure at "X" is withdrawn.
Port Z1 must be connected with either port A or B, dependent on which pressure source, or which actuator that is under load is to have the safety function.



NS	16	25	32 [1]	40	50	63 [1]
D1	–	M6	–	M6	M8 x 1	–
H1	87.5	99	–	125	190	–
H2	15	22	–	36	40	–
□ L1	65	85	–	125	140	–

[1] In preperation

For orifice ordering details, see pages 5 and 6.

1 Name plate for NS 16, 25, 32
2 Name plate for NS 40, 50, 63
3 For fixing screws, dimensions and tightening torque, see page 7.
4 Locating pin

Control cover with electrical monitoring of the closed position: type…E … (Dimensions in mm)

The control cover and 2-way cartridge are supplied as one unit!

Technical data and guidelines are valid for all control covers with elecrical monitoring (..E.., ..EH.., ..EWA..).

⚠ Attention!
The control covers are only suitable for use with oil-in-water emulsions!

The solid state limit switch with integrated amplifier switches after the switching position has been reached.

Advantages:

– No dynamic seals
– Direct monitoring of the valves switched position
– Long service life
– Exact external adjustment

Connections

24 V DC (residual ripple ≤ 10%)
Max. loading: 0.4 A (output in PNP)

Functions

NC contact: high resistance
NO contact: low resistance

Contact allocation (plug-in connector)

4 = NO (high → low resistance)
3 = 24 V+
2 = NC (low → high resistance)
1 = 0 V–

Temperature range: –10 °C to +80 °C
Protection to DIN 40 050 IP65

E – LFW		E	1X/420	D		F			*

Oil-in-water emulsion = **E**

Nom. size					
16	**25**	**32**	**40**	**50**	**63**
X	X	X	X	X	X

Logic spool **with** damping nose = **D**

Orifice in port: X**◿

◿ Orifice possible, details only necessary when fitted

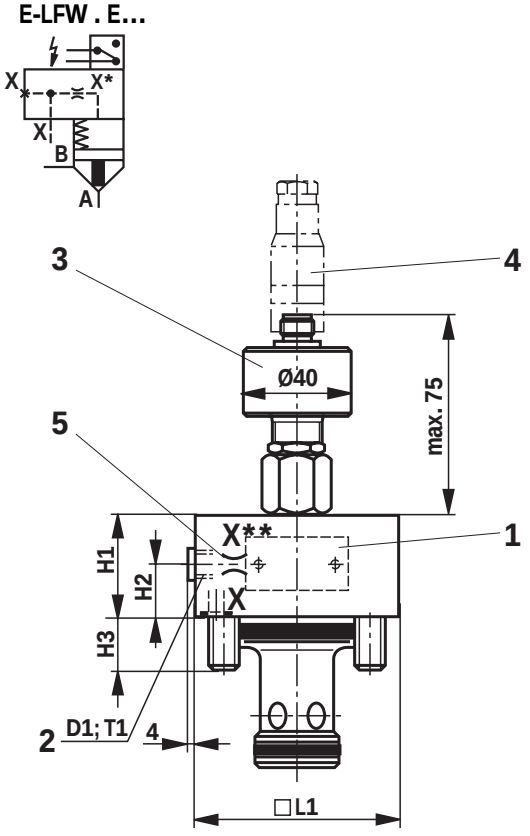
Further details in clear text

No code = NBR seals
V = FKM seals
(other seals on request)

⚠ Attention!
The compatibility of the seals and pressure fluid has to be taken into account!

QMG24 = electrical monitoring of the **closed** logic spool

E-LFW . E…



NS	16	25	32	40	50	63
D1	G 1/8	G 1/4	G 1/4	G 1/2	G 1/2	G 3/4
H1	35	40	50	120	130	150
H2	12	16	16	90	–	–
H3	15	24	28	32	34	50
□ L1	65	85	100	125	140	180
T1	8	12	12	14	14	16

For orifice ordering details, see pages 5 and 6.

1 Name plate
2 Port X optionally as a threaded connection
3 Limit switch type QMG24 (included in the type no., see page 17)
4 Plug-in connector K24 (separate order, see page 17)
5 M8 x 1 for NS 40 and 50, G 3/8 for NS 63

Control cover with electrical monitoring of the closed position and stroke limitation: type…EH…

(Dimensions in mm)

E – LFW		EH	1X/420	D		F			*

Oil-in-water emulsion = **E**

Nom. size					
16	**25**	**32**	**40**	**50**	**63**
X	X	X	X	X	X

Logic spool **with** damping nose = **D**

Orifice in port
X**

Further details in clear text

No code = NBR seals

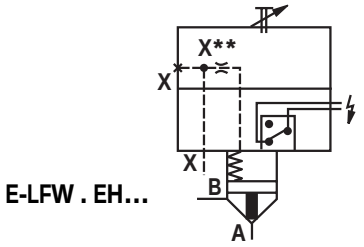
V = FKM seals

(other seals on request)

⚠ Attention!
The compatibility of the seals and pressure fluid has to be taken into account!

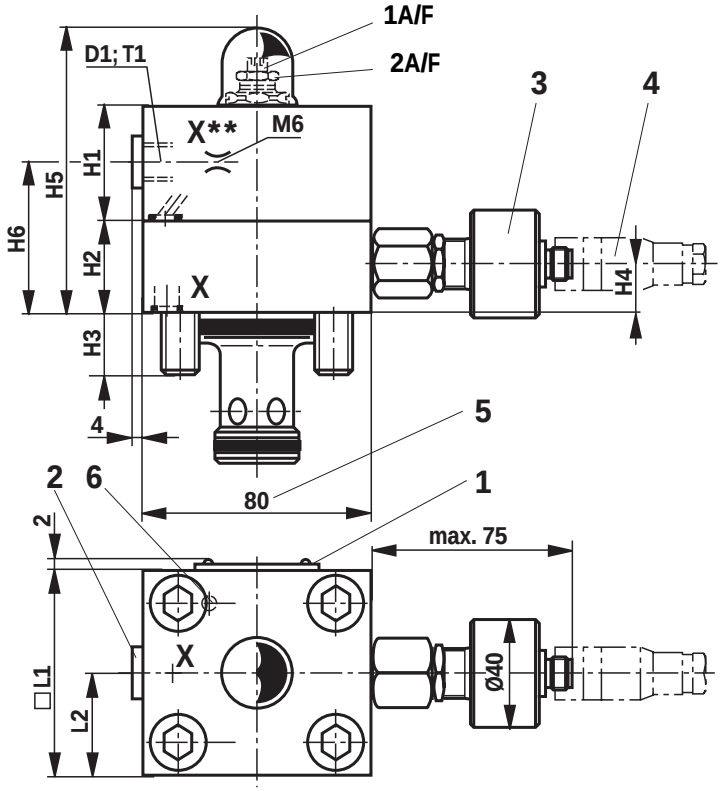
QMG24 = electrical monitoring of the **closed** logic spool

◿ Orifice possible, details only necessary when fitted

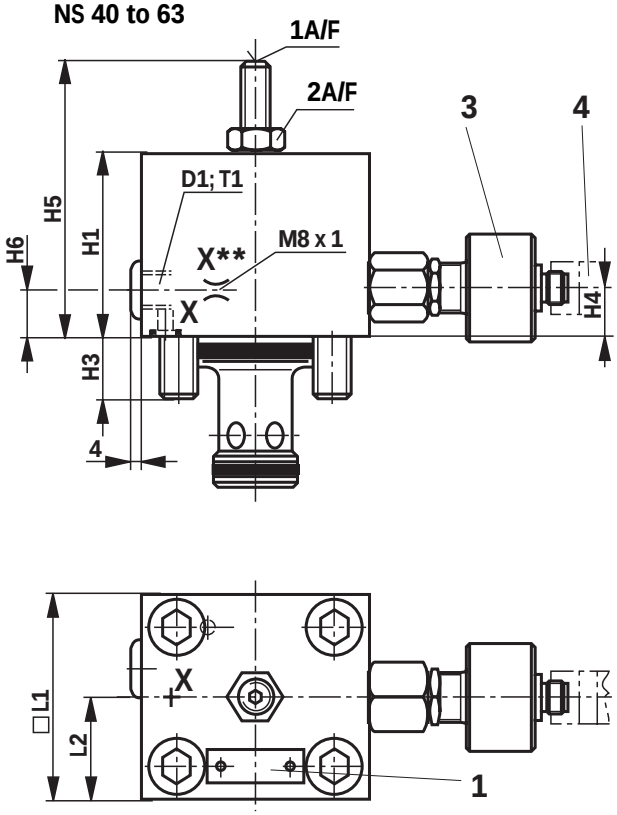


E-LFW . EH…

NS 16 to 32



NS 40 to 63



[1] Max. dim.

For orifice ordering details, see pages 5 and 6.

1 Name plate

2 Port X optionally as a threaded connection

3 Limit switch type QMG24 (included in the type no., see page 17)

4 Plug-in connector K24 (separate order, see page 17)

5 For NS 16 (only lower cover)

6 Locating pin

NS	16	25	32	40	50	63
D1	G 1/8	G 1/4	G 1/4	G 1/2	G 1/2	G 3/4
H1	35	40	50	130	158	192
H2	50	50	50	–	–	–
H3	15	24	28	32	34	50
H4	20	20	25	30	35	40
H5	115	120	144	165 [1]	195 [1]	235 [1]
H6	52	56	66	100	110	137
□ L1	65	85	100	125	140	180
L2	32.5	42.5	50	72	80	90
T1	8	12	12	14	14	16
1A/F	6	6	10	17	19	27
2A/F	21	21	27	46	55	65

Control cover with electrical monitoring of the closed position for fitting a directional poppet valve: type…EW…, NS 16 to 32

(Dimensions in mm)

E –	LFW		EW	1X/420	D		F			*

Oil-in-water emulsion = **E**

Nom. size		
16	**25**	**32**
X	X	X

Logic spool **with** damping nose = **D**

Orifice in port: **X**** ◿

Further details in clear text

No code = NBR seals

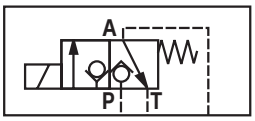
V = FKM seals

(other seals on request)

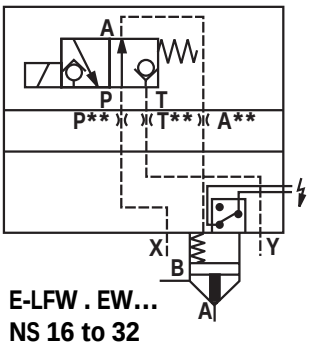
⚠ Attention!
The compatibility of the seals and pressure fluid has to be taken into account!

QMG24 = electrical monitoring of the **closed** logic spool

◿ Orifice possible, details only necessary when fitted



.-3SE 6 **C**5X/420…

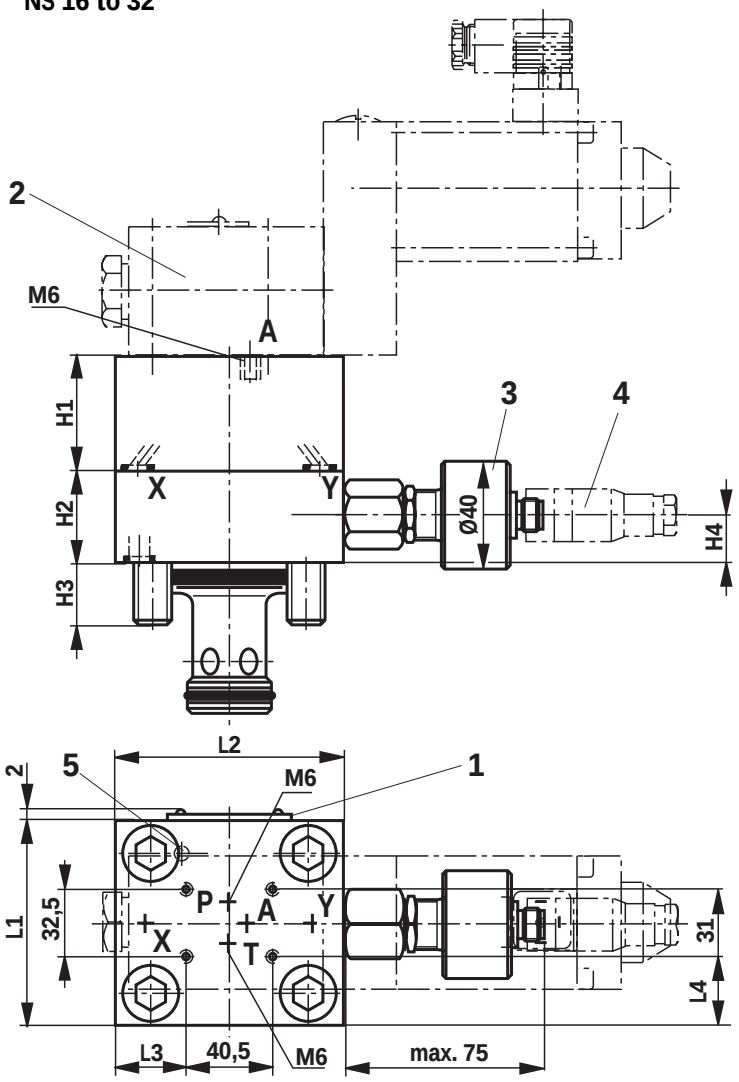


.-3SE 6 **U**5X/420…

E-LFW . EW…
NS 16 to 32

NS	16	25	32
H1	40	40	50
H2	50	50	50
H3	15	24	28
H4	20	20	25
L1	65	85	100
L2	80	85	100
L3	7	22.5	30
L4	17	27	34.5

For orifice ordering details, see pages 5 and 6.



1 Name plate

2 The pilot valve to catalogue sheet RE 22 048 must be ordered separately.
Valve fixing screws M5 DIN 912-10.9, tightening torque M_A = 8.9 Nm, are included within the scope of supply.

3 Limit switch type QMG24 (included in the type no., see page 17)

4 Plug-in connector K24 (separate order, see page 17)

5 Locating pin

Inductive limit switch type QMG24, electrical connections

The electrical connections are via a 4-pin plug-in connector with a M12 x 1 connection thread.

The plug-in connector has to be separately ordered (see below).

Operating voltage: 24 V DC + 20 % – 10 %
(residual ripple < 10%)

Current consumption: max. 40 mA

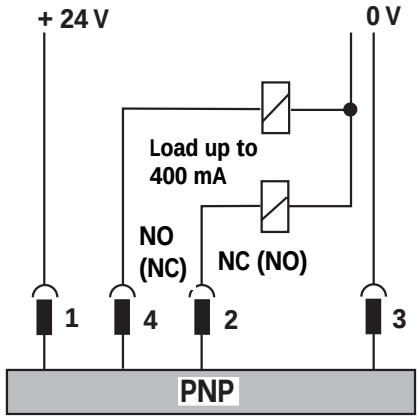
Loadability of the outputs: 400 mA (output to a PNP 24 V =)

Temperature range: –20° C to +80° C

Contact allocation:
1: +24V
2: NC (low – high resistance)
3: 0 V
4: NO (high – low resistance)

Plug contacts at the limit switch

The limit switch does not have a protective conductor connection!

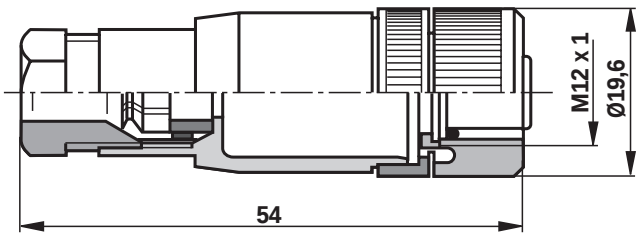


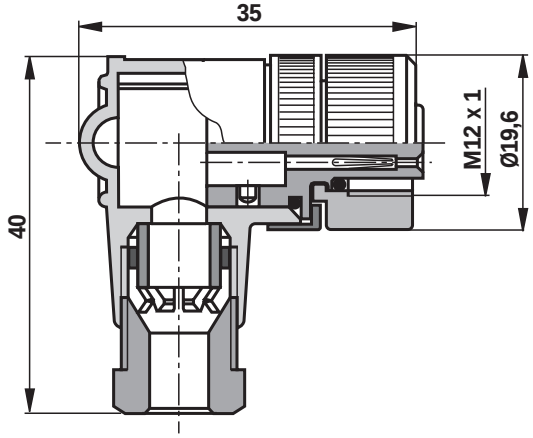
The type QMG24 inductive limit switch can be connected as NO or NC.

Plug-in connectors for the type QMG24 inductive limit switch, separate order (Dimensions in mm)

Plug-in connector to suit a K24 4-pin, M12 x 1 with screw connection, Pg 9 cable fitting.

Material no. 00031155



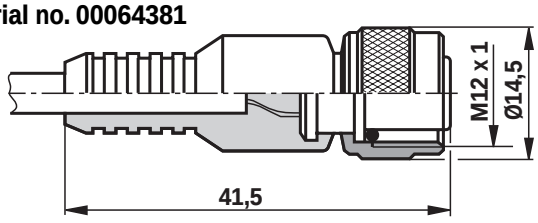


Plug-in connector to suit a K24-3m 4-pin, M12 x 1 with moulded on PVC cable, 3m long.

Cable cross-section: 4 x 0.34 mm^2

Core identification:
1: brown
2: white
3: blue
4: black

Material no. 00064381



Plug-in connetor to suit a K24 4-pin, M12 x 1 with screw connection Pg 9 cable fitting, angled.

Housing can be rotated through 4 x 90° about the contact insert.

Material no. 00082899

Notes

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