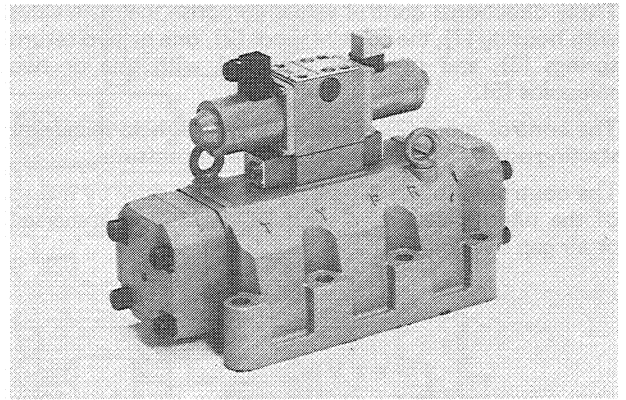


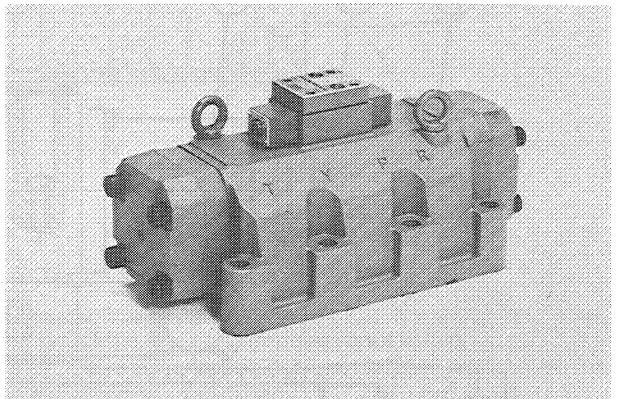
- indirect (WEH) and direct operated (WH) directional spool valves
- subplate mounting
- flange connections
- DC or AC oil immersed or air gap solenoids, optional
- with or without hand emergency
- individual or central electrical connection
- spring centering or spring return, or pressure centering or hydraulic return of the main control spool to starting position
- pilot choke adjustment
- stroke limiting and/or end position control of main control spool
- with and without limit switch at solenoid
- 17 standard symbols

K3417/4



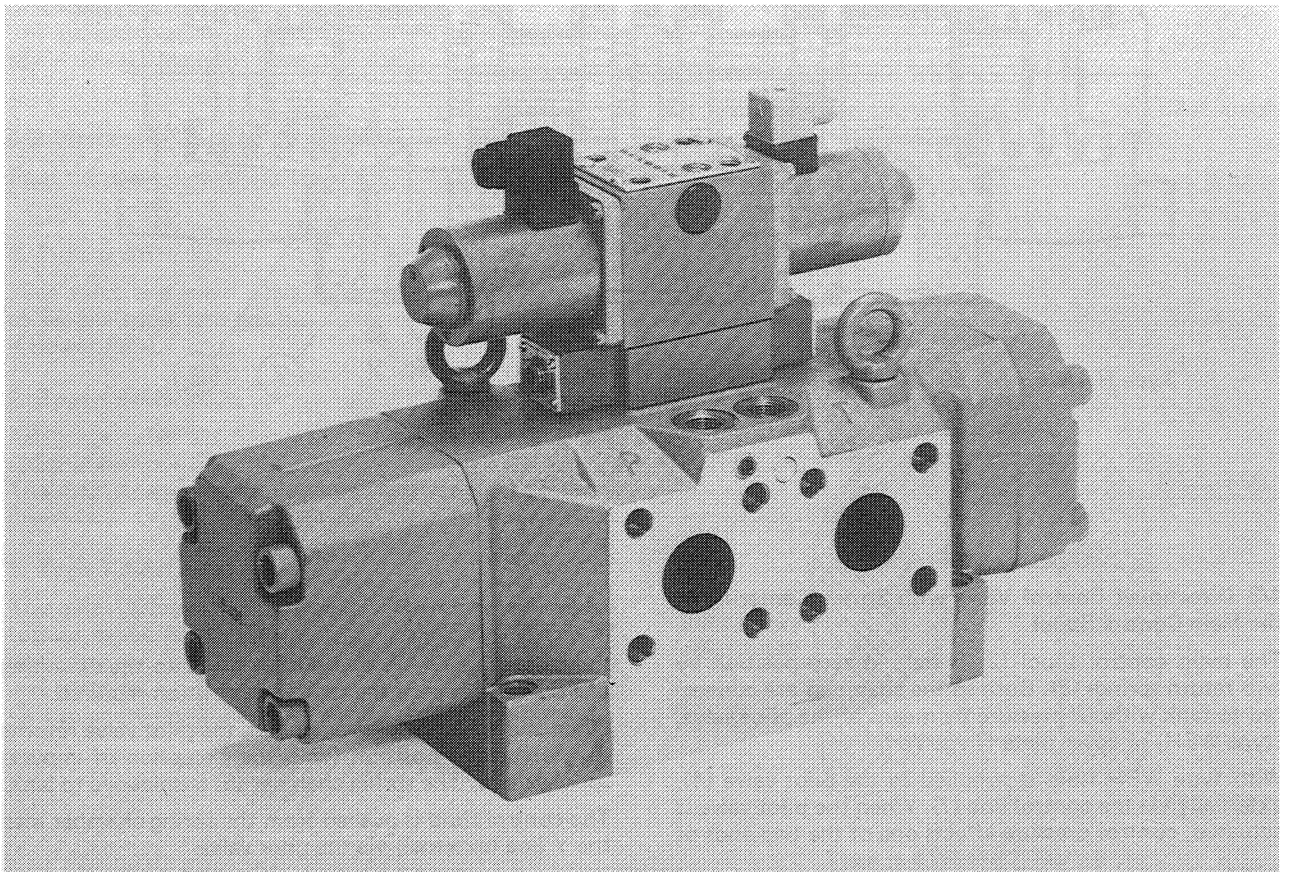
Type H-4 WEH 62..50/..S..

K3417/6



Type H-4 WH 62..50/..S..

K3417/1



Type H-4 WEH 62 H..50 F/..10...S..

Description of Function, Section

Directional Control Valves type WEH

Directional valves type WEH are directional spool valves with a solenoid operated pilot valve. They control starting, stopping and the direction of a flow.

These directional control valves comprise the main valve with housing (1), the control spool (2), one or two return springs (3), and the pilot valve (4) with one or two solenoids (5).

The control spool (2) of the main valve is held in zero or starting position by means of springs or pressure.

The control spool (2) is operated hydraulically by means of the pilot valve, fitted with DC or AC oil immersed or air gap solenoids (5).

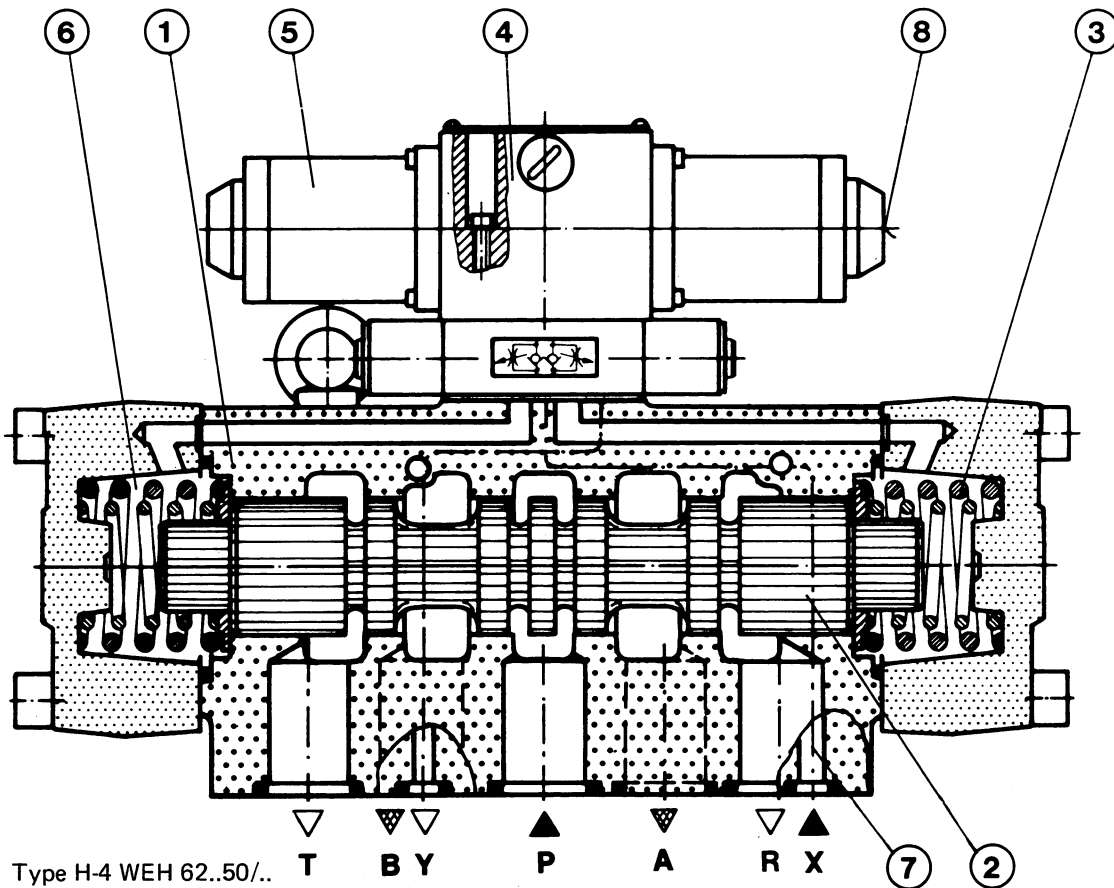
A hand emergency device (8) can be fitted, which allows the control spool to be moved without energising the solenoid.

The fluid can be supplied and drained internally or externally.

Directional Control Valves type WH

The function of this valve is basically identical to that of valve type WEH.

However the control spool (2) is operated directly by means of pressure via the cover plate.



4/3 Directional Control Valve with Spring Centering of the Main Control Spool

The main control spool (2) is held in zero position by two return springs (3). Both spring chambers are connected to tank without pressure by means of the pilot valve, (type WEH) or cover plate (Type WH).

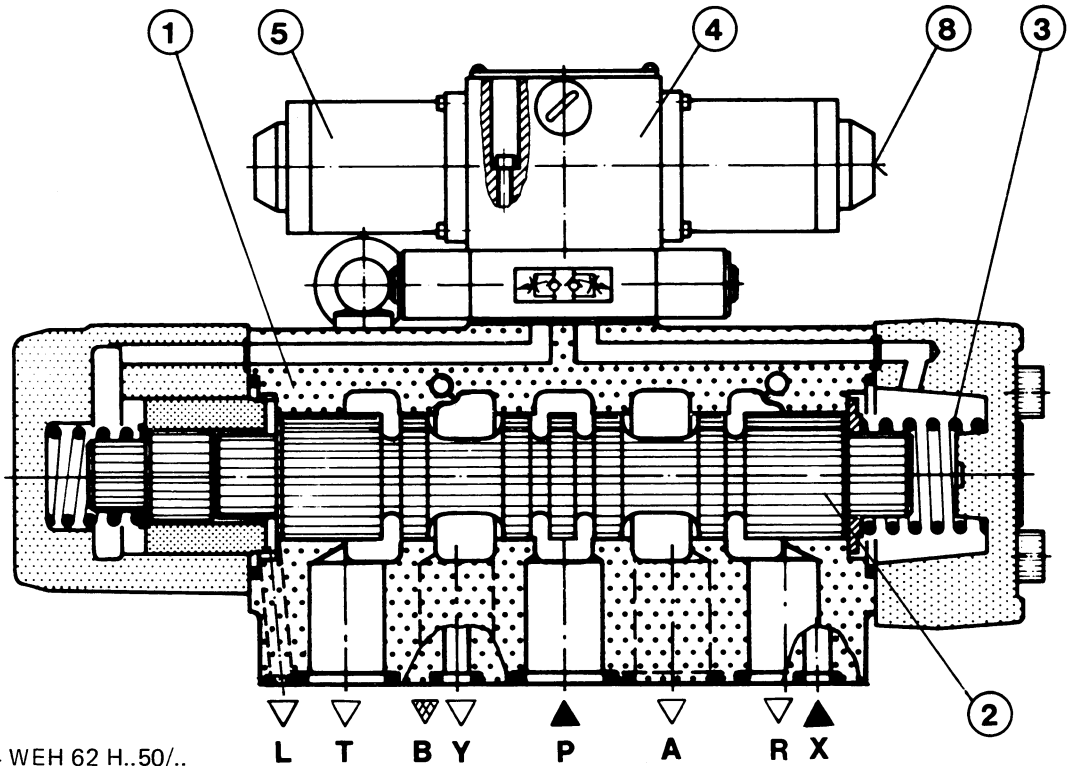
With type WEH fluid is supplied to the pilot valve (4), externally via the control line (7). When the pilot valve is actuated, control pressure affects one of the two ends of

the control spool (2) and pushes this into the switching position. This opens the switching position required.

When the solenoid is de-energised, the pilot valve returns to the starting position (with the exception of impulse spool valves). The spring chamber (6) is unloaded to tank.

The control fluid is pushed from the spring chamber into the Y line (external) via the pilot valve.

Description of Function, Section



Type H-4 WEH 62 H..50/..

4/3 Directional Control Valve with Pressure Centering of the Main Control Spool

Control pressure affects the two ends of the main control spool (2) and holds it in zero position. The spool position is fixed by a centering bush in the housing.

The main spool (2) is moved to switched position by unloading pressure from one spool end. The unloaded spool surface pushes the control oil into the Y line via the pilot valve (external).

4/2 Directional Control Valve, WEH

Four different designs are available.

1. Type 4 WEH.../...

Pilot valve and main valve each have one return spring to fix the spool end position (guaranteed switching even if power fails).

2. Type 4 WEH..H../..

The pilot valve has one return spring, which holds the spool in end position. The main control spool must be held in end position by pressure.

3. Type 4 WEH..H../O..

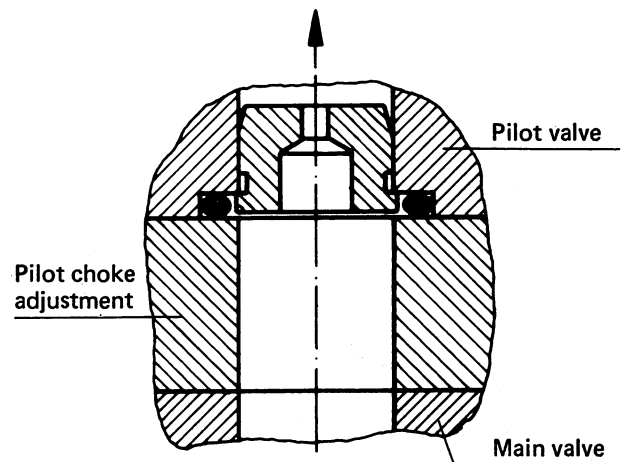
The pilot valve has 2 solenoids. There are no return springs in the pilot valve or in the main valve. The spool positions are fixed by means of solenoid energisation and pressure. One solenoid must therefore always remain energised.

4. Type 4 WEH..H../OF..

The pilot valve has two solenoids, the spool has detents in switching position (impulse spool valve). The main valve spool has no detents and moves into position when pressurised. With types 2, 3 and 4 the switching positions are guaranteed only when pilot pressure is available.

Throttle Insert

It is necessary to use a throttle insert if the pilot supply in the P line of the pilot valve is to be limited. It is fitted in the P line of the pilot valve.



Type H-4 WEH 62..50/...B..

Ordering Code

H - 4 W 62 50 /

Hydraulically operated = H
 Electro-hydraulically operated = EH

Spool centering by springs (*) = no desig.
 Hydr. spool centering (**) = H
 (spool return at main valve)

Symbols with crossover pos. (subplate mounting)	Spool Types (subplate mounting)	Symbols with crossover pos. (flange connections)	Spool Types (flange connections)
	= C = D = K = Z		= C = D = K = Z
	= (H)C = (H)D = (H)K = (H)Z		= (H)C = (H)D = (H)K = (H)Z
	= E = F = G = H = J = L = M = Q = R = S = T = U = V = W		= E = F = G = H = J = L = M = Q = R = S = T = U = V = W

see pages 6 and 7

Series 50 (50 - 59 ≅ installation and connection dimensions remain the same) = 50

Subplate mounting = no desig.
 Flange connections = F

Fixing of switching position (pilot valve) for 2 switching positions and 2 solenoids only.
 Only the pilot valve has a detent.
 In both cases, hydraulic spool return "H" should be stated (possible with WEH only).

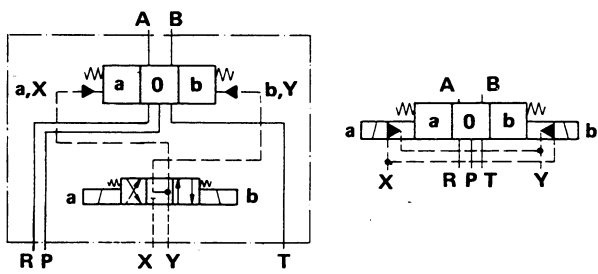
Without spring return = O
 Without spring return with detent = OF

Ordering example: (*) Spool return by springs Type H-4 WEH 62 C 50/...
 (**) Hydraulic spool return Type H-4 WEH 62 HC 50/...

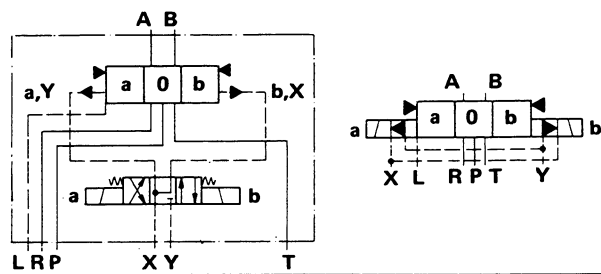
Symbols

Detailed and simplified symbols for 3 position valves

Valve type WEH with spring centered zero position

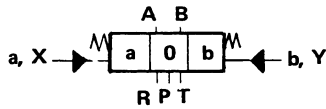


Valve type WEH with pressure centered zero position

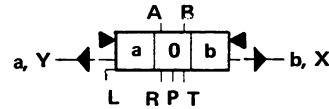


X = external, Y = external

Valve type WH with spring centered zero position



Valve type WH with pressure centered zero position



Valves for subplate mounting have 5 service ports: A, B, P, T, R
 Valves for flange connections have 4 service ports: A, B, P, T; port R omitted

Model code spring centered zero position (WEH)	Model code pressure centered zero position (WEH)	Model code spring centered zero position (WH)	Model code pressure centered zero position (WH)
H-4 WEH 62...E.../...	H-4 WEH 62...HE.../...	H-4 WH 62...E.../...	H-4 WH 62...HE.../...
H-4 WEH 62...F.../...	H-4 WEH 62...HF.../...	H-4 WH 62...F.../...	H-4 WH 62...HF.../...
H-4 WEH 62...G.../...	H-4 WEH 62...HG.../...	H-4 WH 62...G.../...	H-4 WH 62...HG.../...
H-4 WEH 62...H.../...	H-4 WEH 62...HH.../...	H-4 WH 62...H.../...	H-4 WH 62...HH.../...
H-4 WEH 62...J.../...	H-4 WEH 62...HJ.../...	H-4 WH 62...J.../...	H-4 WH 62...HJ.../...
H-4 WEH 62...L.../...	H-4 WEH 62...HL.../...	H-4 WH 62...L.../...	H-4 WH 62...HL.../...
H-4 WEH 62...M.../...	H-4 WEH 62...HM.../...	H-4 WH 62...M.../...	H-4 WH 62...HM.../...
H-4 WEH 62...Q.../...	H-4 WEH 62...HQ.../...	H-4 WH 62...Q.../...	H-4 WH 62...HQ.../...
H-4 WEH 62...R.../...	H-4 WEH 62...HR.../...	H-4 WH 62...R.../...	H-4 WH 62...HR.../...
H-4 WEH 62...S.../...	H-4 WEH 62...HS.../...	H-4 WH 62...S.../...	H-4 WH 62...HS.../...
H-4 WEH 62...T.../...	H-4 WEH 62...HT.../...	H-4 WH 62...T.../...	H-4 WH 62...HT.../...
H-4 WEH 62...U.../...	H-4 WEH 62...HU.../...	H-4 WH 62...U.../...	H-4 WH 62...HU.../...
H-4 WEH 62...V.../...	H-4 WEH 62...HV.../...	H-4 WH 62...V.../...	H-4 WH 62...HV.../...
H-4 WEH 62...W.../...	H-4 WEH 62...HW.../...	H-4 WH 62...W.../...	H-4 WH 62...HW.../...

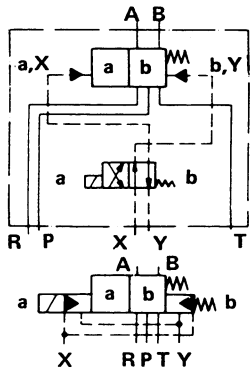
Designation letter	Symbol (subplate mounting)	Symbol (flange connections)	Designation letter	Symbol (subplate mounting)	Symbol (flange connections)
E			Q		*
F			R		
G			S		
H			T		
J			U		
L			V		*
M			W		*

The centre position is throttled to 14% of nominal flow with symbols Q and V, and to 3% with symbol W.

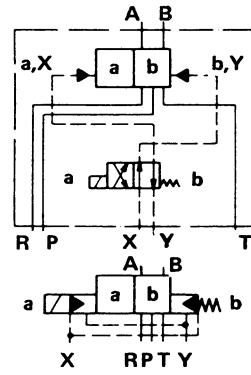
Symbols

Detailed and simplified symbols for 2 position valve (to DIN 24 300)

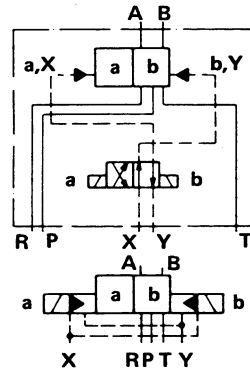
Type H-4 WEH 62 .../...



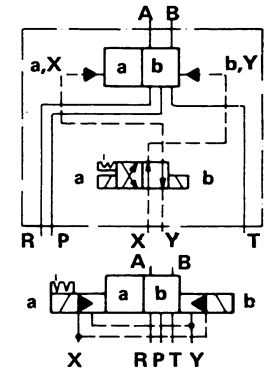
Type H-4 WEH 62 H.../...



Type H-4 WEH 62.H.../O...

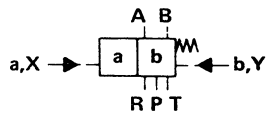


Type H-4 WEH 62.H.../OF...

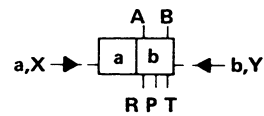


X = external; Y = external

Valve type WH, spring offset



Valve type WH, hydraulic return



Designation letter	Symbol (subplate mounting)	Symbol (flange connections)
C (HC)		
D (HD)		
K (HK)		
Z (HZ)		

Technical Data
hydraulic

Max. operating pressure, P,A,B (bar)		350					
Max. tank pressure T (R) (bar)		250					
Port Y	pilot drain Y = external (WEH) (bar)	solenoid type L ... 150	solenoid type A ... 60				
Min. pilot pressure	pilot supply X = external (bar)	12	3 pos. valve, spring centered				
		15	3 pos. valve, pressure centered				
		12	2 pos. valve, spring offset				
		12	2 pos. valve, hydraulic return				
Max. pilot pressure (bar)		250					
Hydraulic medium		HLP mineral oil to DIN 51 525 phosphate ester					
Fluid temperature range (°C)		- 30 ... + 70					
Viscosity range (mm ² /s)		2,8 ... 380					
Control Flow for Switching Sequence							
3 pos. valve, spring centered (cm ³)		115					
2 pos. valve, hydraulic return (cm ³)		330					
2 pos. valve, spring offset (cm ³)		115					
3 pos. valve, pressure centered							
from zero pos. to pos. "a" (solenoid "a" switched) (cm ³)		57,5					
from zero pos. to pos. "b" (solenoid "b" switched) (cm ³)		115					
from switching pos. "a" to zero position (cm ³)		54,3					
from switching pos. "b" to zero position (cm ³)		57,5					
* Total Switching Time of Valve from Zero Position to Switching Position (AC current)							
At pilot pressure (bar)		50	150	250			
3 pos. valve, spring centered (ms)		150	120	100			
2 pos. valve, hydraulic return (ms)		250	210	180			
2 pos. valve, spring offset (ms)		150	120	100			
3 pos. valve, pressure centered (ms)		"a" 120	"b" 150	"a" 100	"b" 120	"a" 90	"b" 100
* Total Switching Time of Valve from Switching Position to Zero Position							
3 pos. valve, spring centered (ms)		130					
2 pos. valve, hydraulic return (ms)		250	210	180			
2 pos. valve, spring offset (ms)		150	120	100			
3 pos. valve, pressure centered (ms)		"a" 120	"b" 150	"a" 100	"b" 100	"a" 90	"b" 90
Control flow for shortest switching time "Q _x " (l/min)		50					
Weight:	subplate mounting	WH		WEH			
	valve without pilot valve (kg)	ca. 107		-			
	valve with 1 solenoid (kg)	-		ca. 111,5			
	valve with 2 solenoids (kg)	-		ca. 110			
	flange connections						
	valve without pilot valve (kg)	ca. 90		-			
	valve with 1 solenoid (kg)	-		ca. 93			
	valve with 2 solenoids (kg)	-		ca. 94,5			

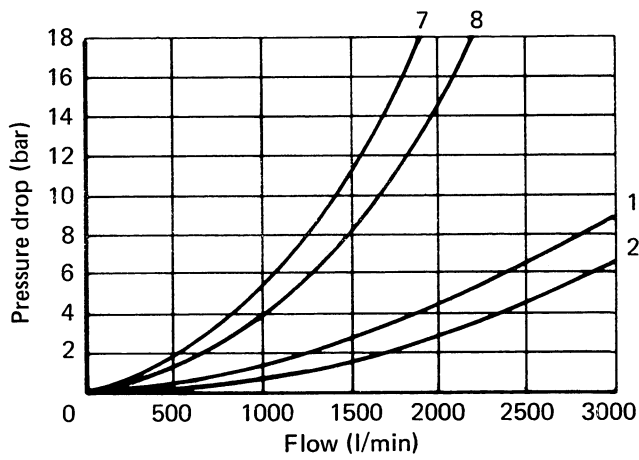
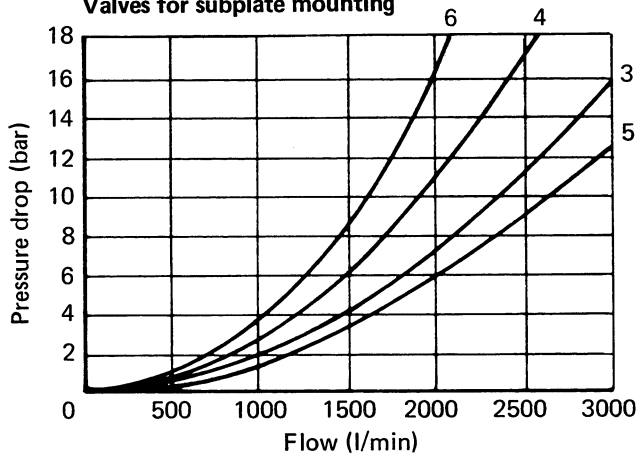
For application to other specifications, please consult us.

* Switching time = contact at pilot valve until control lands in main valve start to open

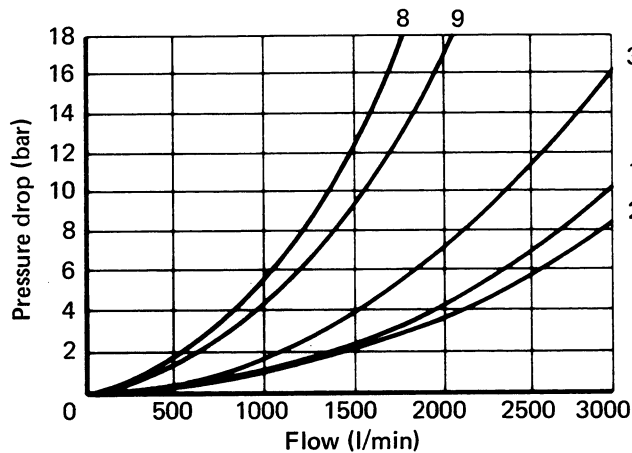
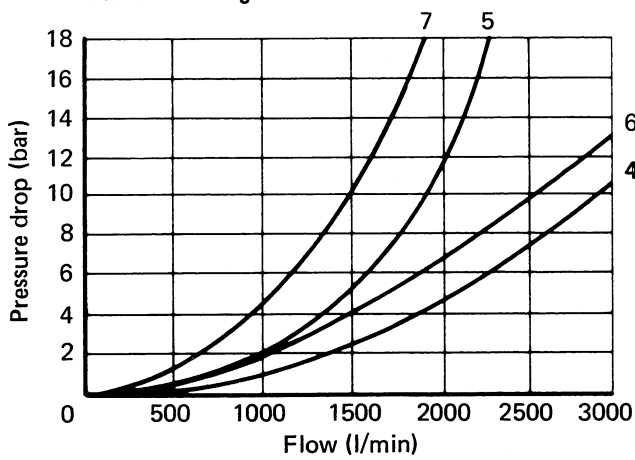
** With DC current, the switching times from zero position to switching position are increased by 30 ms.

Performance Curves (measured at $\nu = 41 \text{ mm}^2/\text{s}$ and $t = 50 \text{ }^\circ\text{C}$)

Valves for subplate mounting



Valves for flange connections



Symbol	Switching position					
	P - A	P - B	A - T	B - T	P - T	B - A
C	1	2	2	2	—	—
D	1	2	2	2	—	—
K	1	2	2	2	—	—
Z	1	2	2	2	—	—
E	1	2	2	2	—	—
F	1	2	2	2	—	—
G + T	3	3	3	3	4	—
H	1	2	2	2	—	—
J	1	2	2	2	—	—
L	1	2	2	2	—	—
M	1	2	2	2	—	—
Q	1	2	2	2	—	—
R	5	5	5	—	—	6
S	5	5	5	—	7	8
U	1	2	2	2	—	—
V	1	2	2	2	—	—
W	1	2	2	2	—	—

Symbol	Switching position					
	P - A	P - B	A - T	B - T	P - T	B - A
C	1	1	2	3	—	—
D	1	1	2	3	—	—
K	1	1	2	3	—	—
Z	1	1	2	3	—	—
E	1	1	2	3	—	—
F	1	1	2	3	—	—
G + T	4	4	4	5	5	—
H	1	1	2	3	—	—
J	1	1	2	3	—	—
L	1	1	2	3	—	—
M	1	1	2	3	—	—
Q	1	1	2	3	—	—
R	6	6	6	—	—	7
S	6	6	6	—	8	9
U	1	1	2	3	—	—
V	1	1	2	3	—	—
W	1	1	2	3	—	—

G2

Performance Limitations

Because of silting, the switching function of the valves is dependent on the filtration. In order to obtain the maximum flow values shown, a full flow filtration of 25 micron is recommended. The forces acting within the valves also influence the flow performance. On the 4 way valves, the flow data shown therefore apply for normal applica-

tion with 2 flow directions (e.g. from P to A and simultaneously return flow from B to T). (See table). If only one direction of flow is required, as for example when a 4 way valve with port A or B plugged is used as a 3 way valve, then in critical cases the maximum flow can be considerably lower.

The performance limitation was measured with solenoids at operating temperature and 10% low tension voltage
NB:

At minimum control pressure of 15 bar, the performance limit for all spool types of the 4/3 way valve with hydraulic centering of the main valve is as shown in the column marked (*) in the table opposite. Higher pilot pressure is necessary for applications in excess of the performance limit stated.

When operating pressure $p = 350$ bar and flow $Q = 3000$ l/min, control pressure of 25 bar is therefore required.

The maximum flow for these valves is therefore dependent only on the Δp value for the unit.

- 1) The flow rates specified can be reached if there is a minimum pilot pressure of 11 bar.
- 2) The flow rates specified are maximum rates, which can be controlled by release of the operating pressure from the return spring.

3 position valve, spring centered					
Flow (l/min) for symbols	at pressure (bar) or				
	70	140	210	280	350
(*) E,J,L,M,Q,R, U,V,W	3000	2600	2130	1850	1650
F,G,H,S,T	3000	2200	1800	1570	1370
2) 2 position valve, spring offset 2 position valve, hydr. return					
C,D,K,Z	3000	2600	2130	1850	1650
HC,HD,HK,HZ	3000	3000	3000	3000	3000
2 position valve, spring offset					
1) Flow (l/min) for symbols	70	140	210	280	350
C, D, K, Z	3000	3000	3000	3000	3000

Pilot Valve (WEH only)

A 4 way directional control valve size 10 (connection dimensions to DIN 24 340) is used as a pilot valve. The valve spool is held in zero position by springs, and in switching position by solenoid force or detent. Operation of the control spool is by means of oil immersed or air gap DC or AC solenoids.

Hand emergency allows operation of the spool without solenoid energisation.




The air gap solenoid is of simple design and is fully encapsulated and tropicalised.

The oil immersed solenoid has a long working life, and is fully encapsulated and tropicalised. The armature runs in oil, thus giving low wear, good heat dissipation and cushioned stop.

The AC solenoid has short switching times. Simple operation and no special contact protection are its main features.

The DC solenoid is extremely reliable, gives smooth operation and is suitable for high switching frequencies. It is not affected by voltage fluctuations in either direction.

For the various models of the main valve, the following models and spool types of the pilot valve are used.

Main valve	Pilot Valve
3 position valve, spring centered	3 position valve, spring centered spool type J = 
3 position valve pressure centered	3 position valve, spring centered spool type M = 
2 position valve Spool types: C,D,K, and Z HC,HD,HK and HZ	2 position valve, spring offset without spring return with detent spool type D = 

Electrical Data

Voltages	DC		AC	
	Dry	Wet	Dry	Wet
Solenoid type				
Data sheet	RD 23 330	RD 23 310	RD 23 332	RD 23 312
Voltages available (V)	12, 24, 42, 60, 96, 110, 180, 195, 220		42, 110, 127, 220 with 50 Hz 110, 120, 220 with 60 Hz	
Power requirement (W)	43	35	—	—
Holding current (VA)	—	—	64	130
In-rush current (VA)	—	—	430	530
Duty cycle	DB			
Ambient temperature (°C)	... + 50			
Max. coil temperature (°C)	... + 150			
Insulation to DIN 40 050	IP 65			

For applications to other specifications, please consult us.

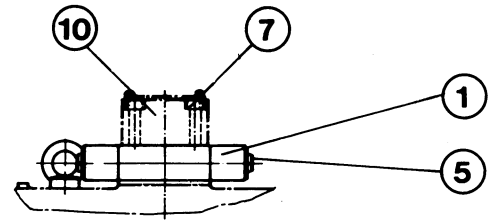
Sandwich plate for pilot choke adjustment type Z 2 FS 10

Pilot Choke Adjustment

The pilot choke adjustment, designed as a sandwich plate, can be fitted between the pilot valve and the main valve. This is a double throttle check valve (1).

The pilot supply or drain is throttled, depending on the mounting position of the pilot choke adjustment.

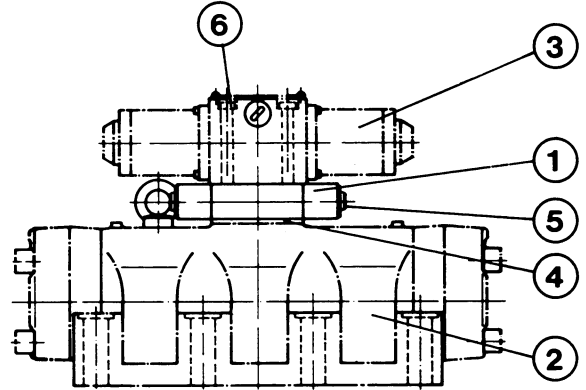
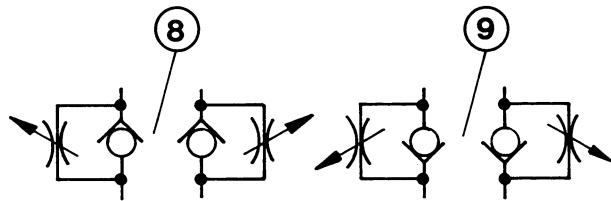
Clockwise rotation of the adjustment screw increases the switching time of the valve, anti-clockwise rotation decreases the switching time.



Type H-4 WH 62...50/...S or S2

Conversion from Meter-In to Meter-Out Control

Remove pilot valve, the plate for the seal rings remains; then turn the pilot choke adjustment round the horizontal axis and replace; replace pilot valve.

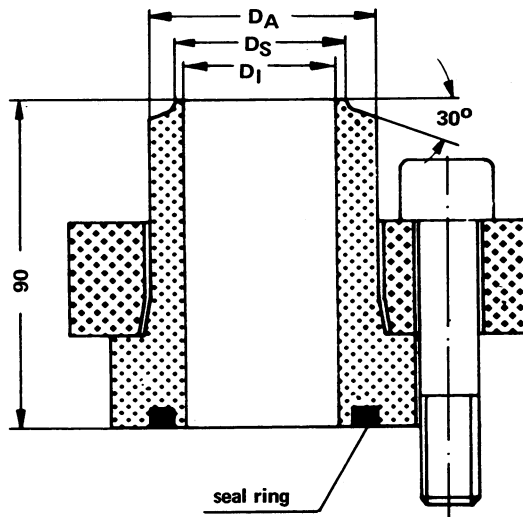


Type H-4 WEH 62...50/...S or S2

- | | | |
|--|------------------------------------|---------------------|
| 1 Sandwich plate for pilot choke adjustment type Z 2 FS 10 | 5 Adjustment screw A/F 8 | 8 Meter-out control |
| 2 Main valve | 6 S.H.C.S. M6 x 85
DIN 912-10.9 | 9 Meter-in control |
| 3 Pilot valve | 7 S.H.C.S. M6 x 60
DIN 912-10.9 | 10 Cover |
| 4 Plate for seal rings | | |

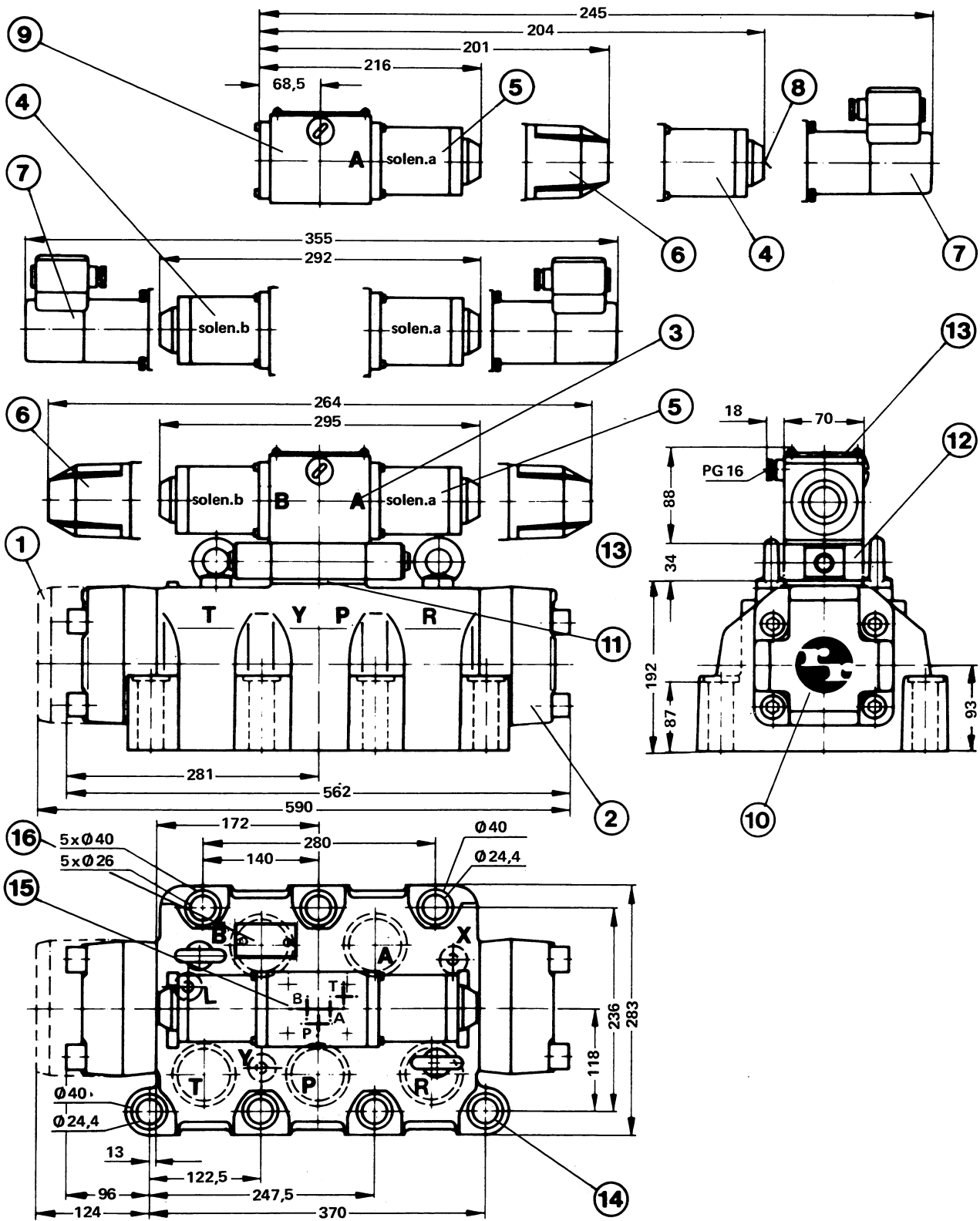
Connection Flange (for valve with flange connections only)

(dimensions in mm)



Pressure rating	Size	D _A	D _S	D _I	Fixing screws	Seal ring	Part no. seal material	
							Perbunan	Viton
160 bar	62	76,1	66	63,5	4 off S.H.C.S. M20 x 100 DIN 912-8.8 tightening torque 410 Nm	59,7 x 5,33	303 903	303 943
320 bar	62	76,1	58	56,1			303 923	303 963

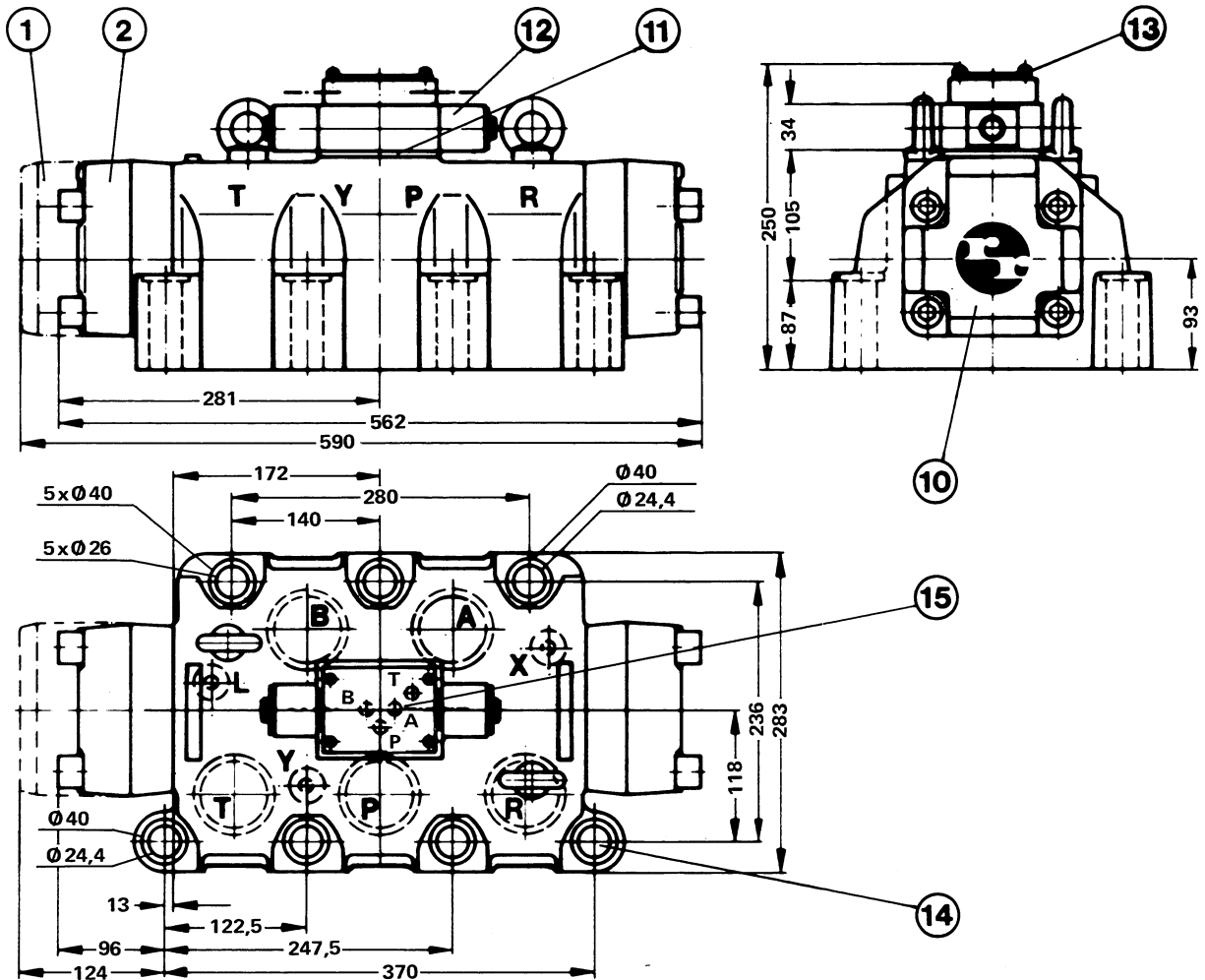
G2



- | | | |
|---|---|---|
| 1 3 position valve with pressure centered zero position | 4 DC or AC oil immersed solenoid | 13 Nameplate for pilot valve |
| 2 3 position valve with spring centered zero position | 5 DC air gap solenoid | 14 7 valve fixing screws
M24 x 110 (for steel)
M24 x 120 (for cast iron)
DIN 912-10.9
tightening torque: 981 Nm |
| 3 2 position valve with hydr. return | 6 AC air gap solenoid | 15 Position of pilot valve ports |
| 4 2 position valve, spring offset | 7 DC air gap solenoid with built-in limit switch | 16 Nameplate for complete valve |
| 5 Valve with 2 switching positions and 2 solenoids | 8 Hand emergency | |
| 6 Valve with 3 switching positions and 2 solenoids | 9 Valve with 2 switching positions and 1 solenoid | |
| | 10 Main valve | |
| | 11 Plate for o-rings | |
| | 12 Pilot choke adjustment | |

Unit Dimensions: Valve Type WH, Subplate Mounting

(dimensions in mm)



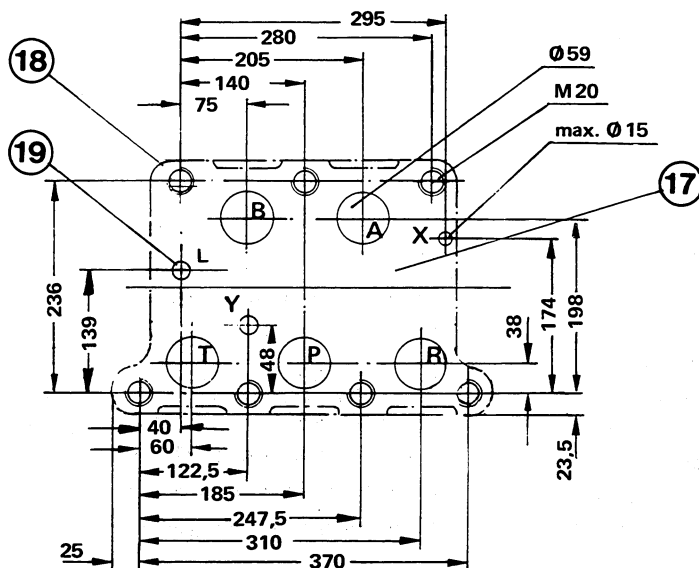
- 1 3 position valve with pressure centered zero position
- 2 3 position valve with spring centered zero position
2 position valve with hydraulic return
2 pos. valve spring offset

- 10 Main valve
- 11 Plate for o-rings
- 12 Pilot choke adjustment
- 13 Nameplate

- 14 7 valve fixing screws
M24 x 110 (for steel)
M24 x 120 (for cast iron)
DIN 912-10.9
tightening torque: 981 Nm
- 15 Position of pilot choke adjustment ports

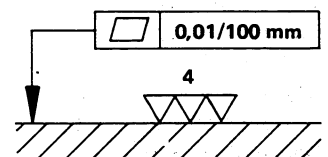
Main Valve Porting Pattern (Subplate Mounting)

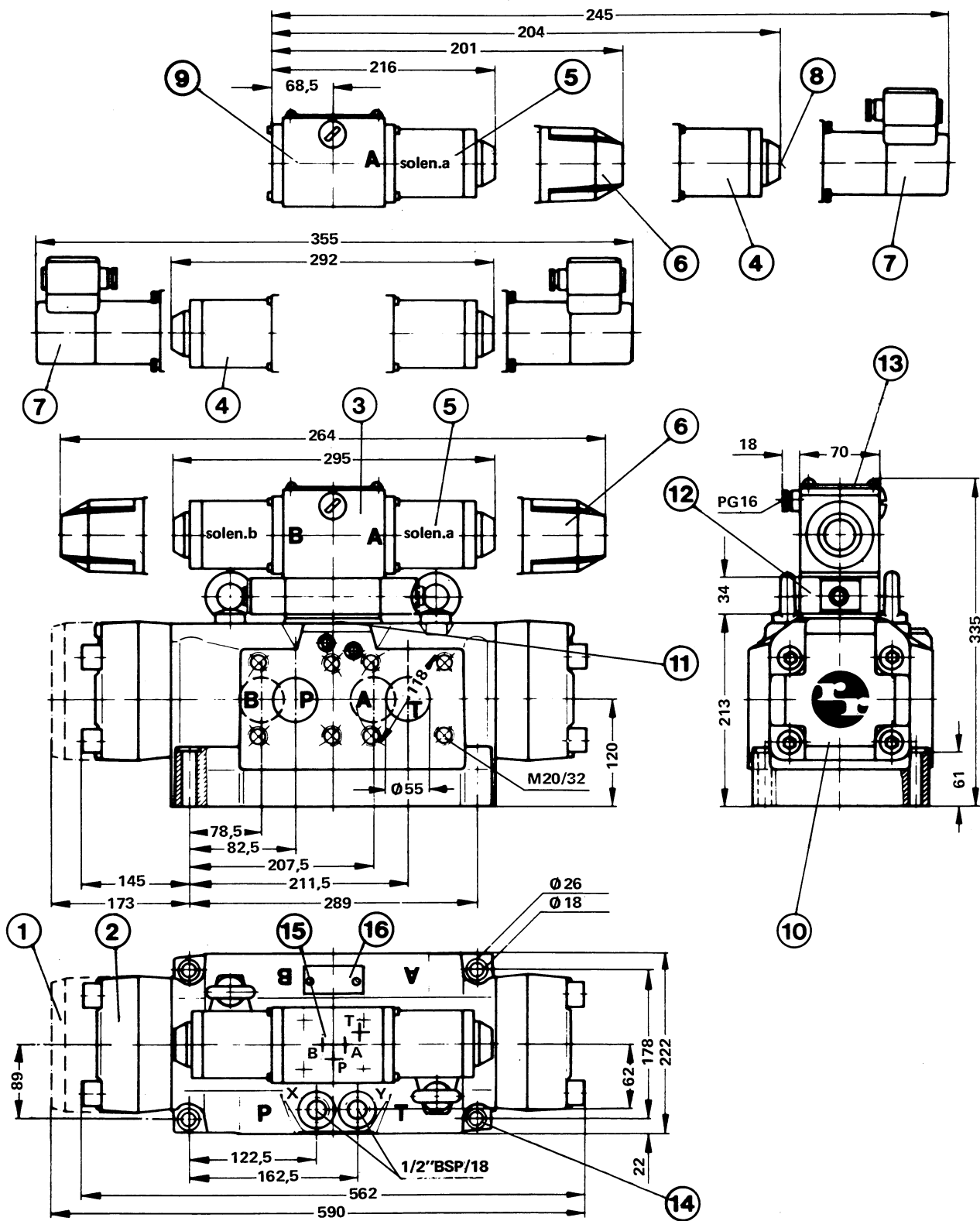
(dimensions in mm)



- 17 Main valve porting pattern
- 18 Machined valve mounting surface
- 19 Leakage port L on valves with pressure centered zero position only

Required surface quality of the mating piece when fitting valve without subplate

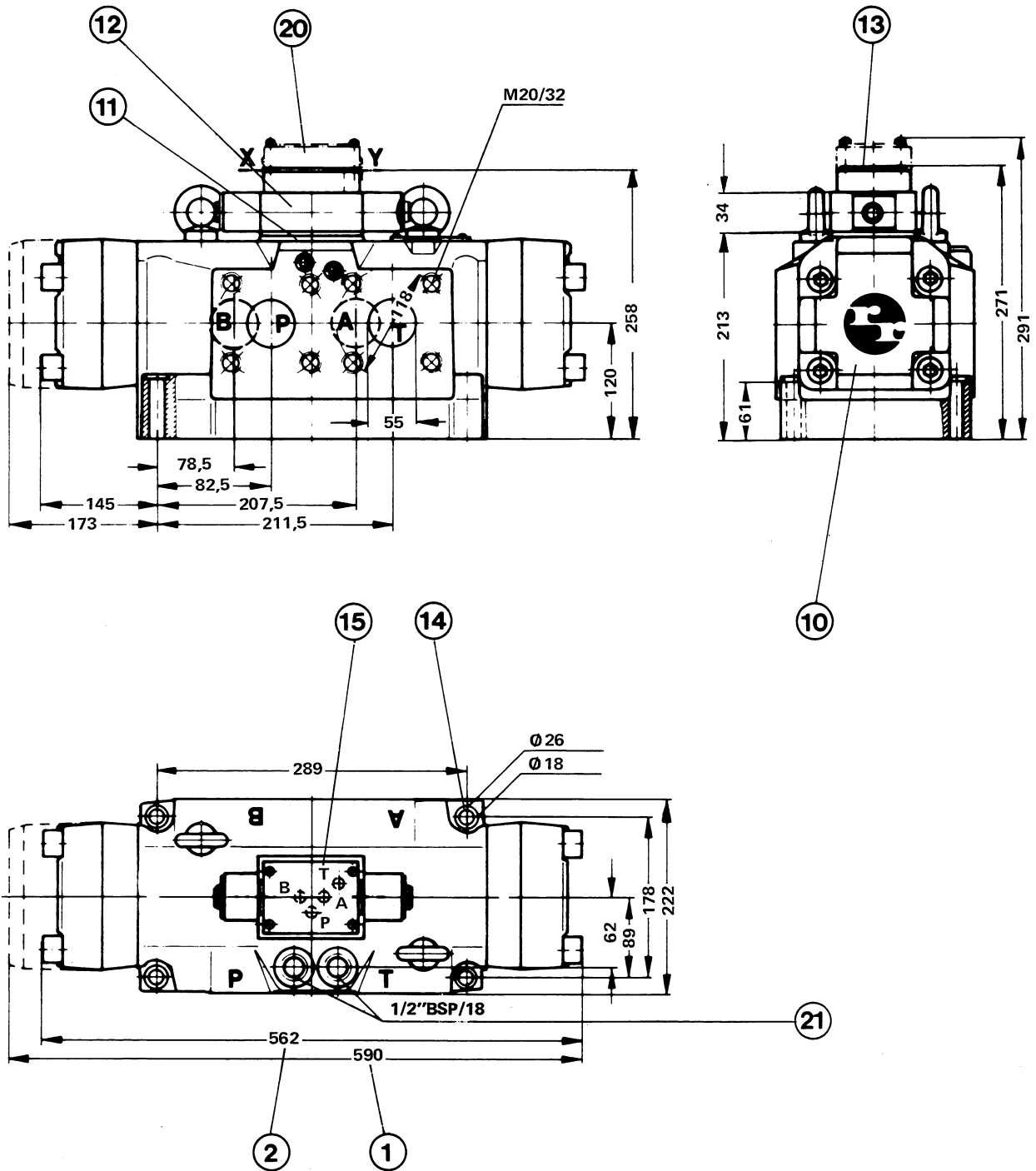




- 1 3 position valve with pressure centered zero position
- 2 3 position valve with spring centered zero position
- 2 position valve, hydraulic return
- 2 position valve, spring offset
- 3 Valve with 2 switching positions and 2 solenoids
- Valve with 3 switching positions and 2 solenoids

- 4 DC or AC oil immersed solenoid
- 5 DC air gap solenoid
- 6 AC air gap solenoid
- 7 DC air gap solenoid with built-in limit switch
- 8 Hand emergency
- 9 Valve with 2 switching positions and 1 solenoid
- 10 Main valve

- 11 Plate for o-rings
- 12 Pilot choke adjustment
- 13 Nameplate for pilot valve
- 14 Valve fixing screws
- M16 x 90 DIN 912-10.9 for steel
- M16 x 100 DIN 912-10.9 for cast iron
- tightening torque: 319 Nm
- 15 Position of pilot valve ports
- 16 Nameplate for complete valve



1 3 position valve with pressure centered zero position

2 3 position valve with spring centered zero position
2 position valve with hydraulic return
2 position valve; spring offset

10 Main valve

11 Plate for o-rings

12 Pilot choke adjustment

13 Nameplate

14 Valve fixing screws
M16 x 90 DIN 912-10.9 for steel
M16 x 100 DIN 912-10.9 for cast iron
tightening torque: 319 Nm

15 Position of pilot choke adjustment ports

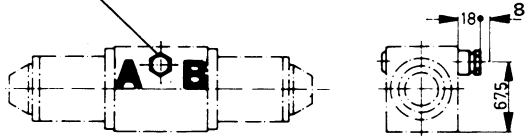
20 Model for pressure centered zero position
Cover with line ports X and Y

21 Port Y
oil drain on H-4 WH 62 H.. ; port X closed

Electrical Connection as Central Connection

no desig.

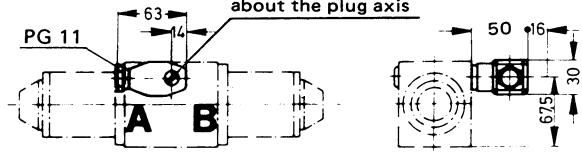
Central connection on tank port side of valve
Cable connection PG 16



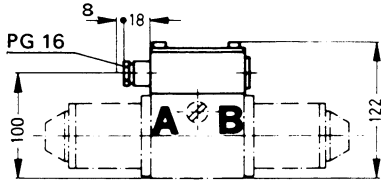
Z Central connection on tank port side of valve with plug-in connector

K Socket only

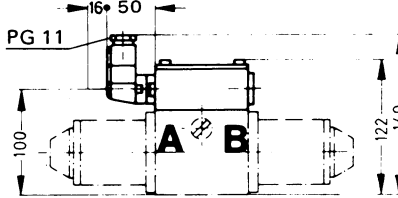
can be turned 30° about the plug axis



D Central connection on cover

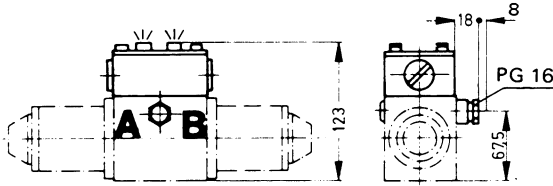


DZ Central connection on cover with plug-in connector



DK

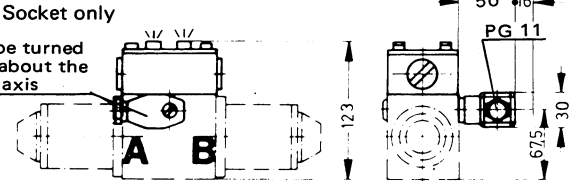
L Cover with control lights
Central connection on tank port side of valve



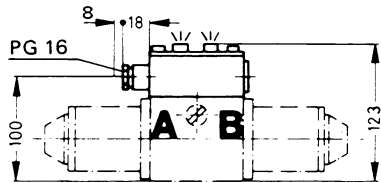
ZL Central connection on tank port side of valve with plug-in connector, cover with control lights

KL Socket only

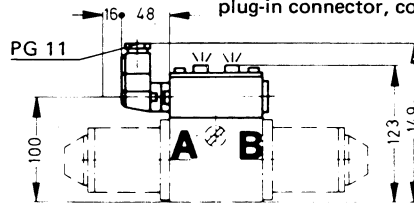
can be turned 30° about the plug axis



DL Central connection and control lights on cover



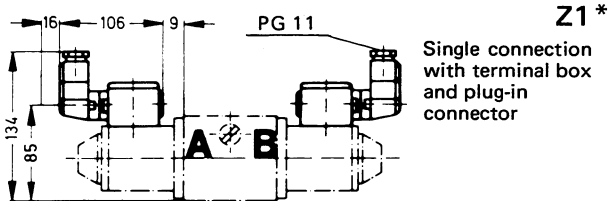
DZL Central connection on cover with plug-in connector
plug-in connector, cover with control lights



DKL

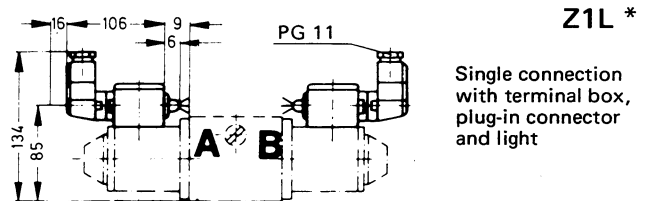
Socket with light

Electrical Connection as Individual Connection



Z1*

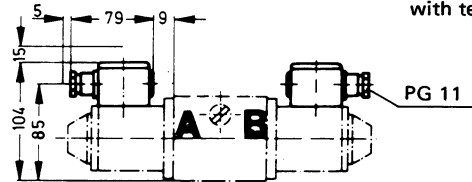
Single connection with terminal box and plug-in connector



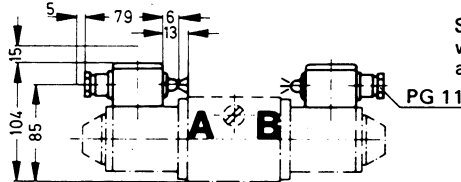
Z1L*

Single connection with terminal box, plug-in connector and light

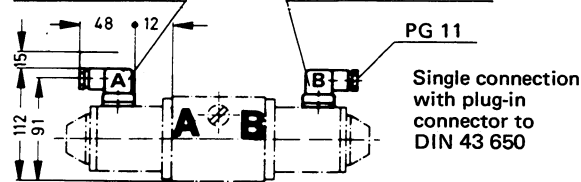
Z2* Single connection with terminal box



Z2L* Single connection with terminal box and light



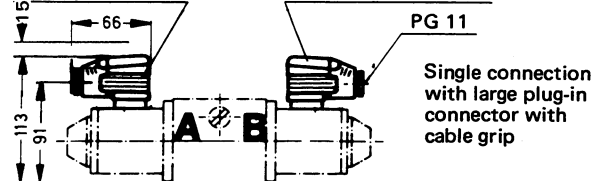
Z4 Colour of plug grey Colour of plug black



Single connection with plug-in connector to DIN 43 650

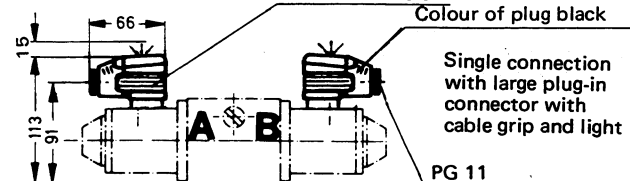
*** Available only with pilot valves with air gap solenoids**

Z5 Colour of plug grey Colour of plug black



Single connection with large plug-in connector with cable grip

Z5L Colour of plug grey Colour of plug black

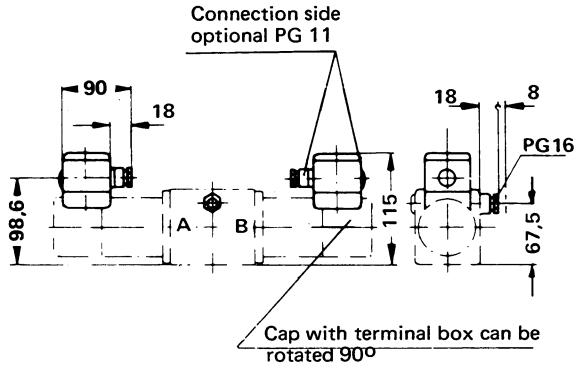


Single connection with large plug-in connector with cable grip and light

Electrical Connections (Solenoid with built-in limit switch)

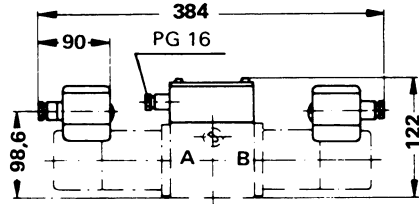
no desig. Central connection of solenoid with cable connector on tank port side of valve
Limit switch connection on solenoid

K Socket only

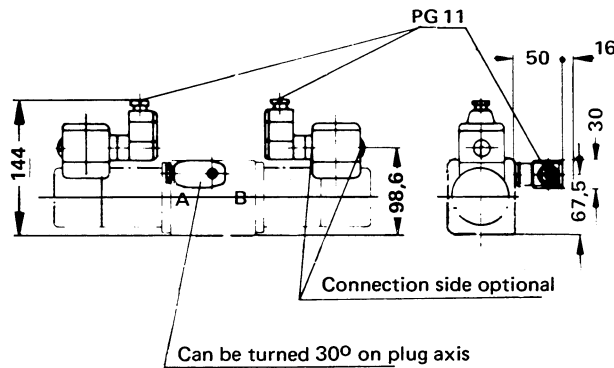


D Central connection on cover
Cable connection PG 16
Limit switch connection on solenoid

DK Socket only



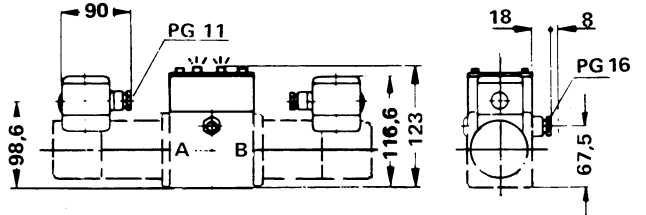
Z Central connection on tank port side with plug-in connector
Limit switch connection on solenoid



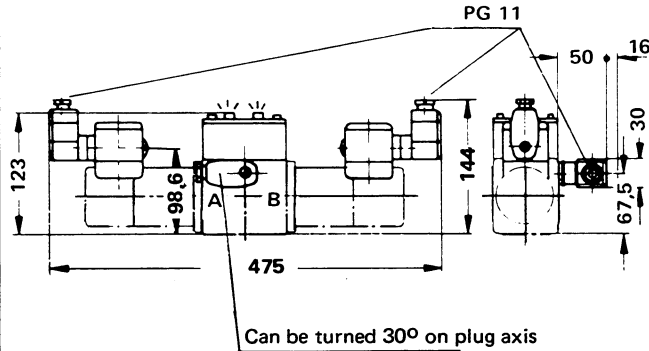
L Cover with control lights,
Cable connection PG 16
Limit switch connection on solenoid

Connection on tank port side

LK Socket only

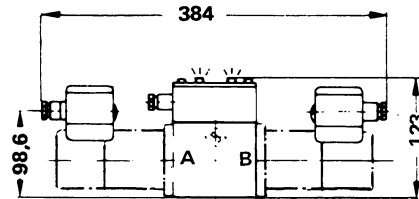


ZL Central connection on tank port side with plug-in connector
Cover with control lights
Limit switch connection on solenoid



DL Central connection on cover,
Cover with control lights,
Cable connection PG 16
Limit switch connection on solenoid

DKL Socket connection only



Terminal lay-out with central connection

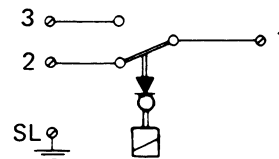
with 2 solenoids:
solenoid a at terminals 1 and 2
solenoid b at terminals 3 and 4
protective conductor at terminal SL

with 1 solenoid:
solenoid always at terminals 1 and 2
protective conductor at terminal SL

With plug connection, the socket can be turned 30° by means of a ring gear

In order to increase the service life of the control lights to 60V, we recommend protective wiring for the solenoid.

Terminal lay-out with limit switch

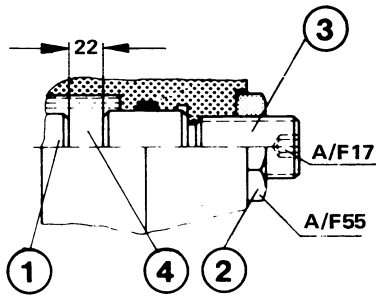


contact loading
250 V ~ 5 Amp.
30 V ~ 2 Amp.

Stroke Limiter, mounting possibilities

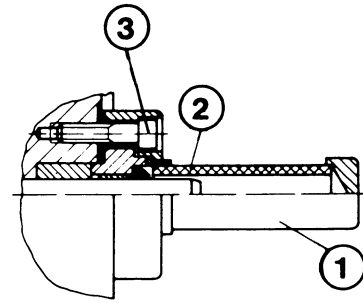
Adjustment range: 25 mm, 1 turn = 1.5 mm adjustment stroke

The stroke limiter limits the stroke of the main spool (1). By loosening the lock nut (2) and clockwise rotation of the adjustment spindle (3) the spool stroke is decreased. The control chamber (4) must not be under pressure.

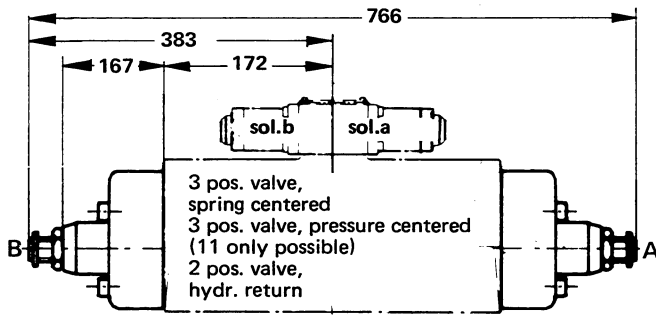


Spool Position Indicator, mounting possibilities

By loosening the fixing screws (3) the sleeve (1) with visual indicator can be adjusted through 360°. The control chamber must not be under pressure.

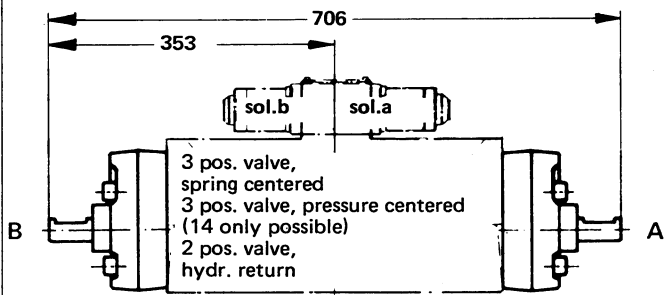


Note: With pressure centering only combination 11 or 14 is possible



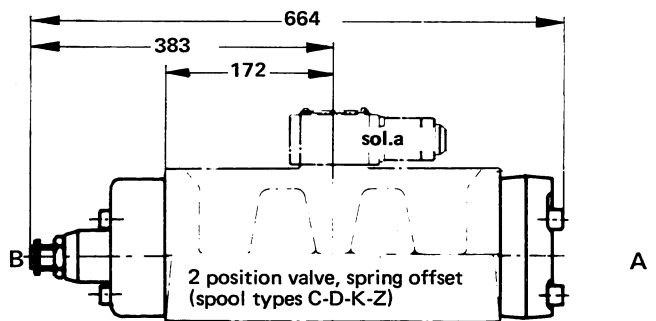
stroke limiter on A and B sides of main valve = additional feature 10

stroke limiter on A side = 11
stroke limiter on B side = 12

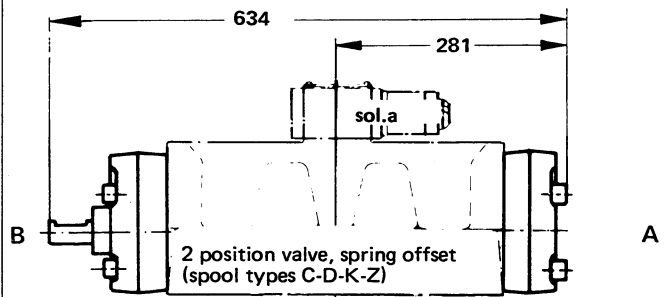


spool position indicator on A and B side = additional feature 13

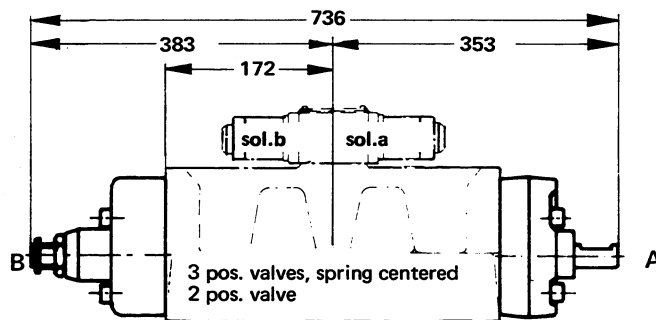
spool position indicator on A side = 14
spool position indicator on B side = 15



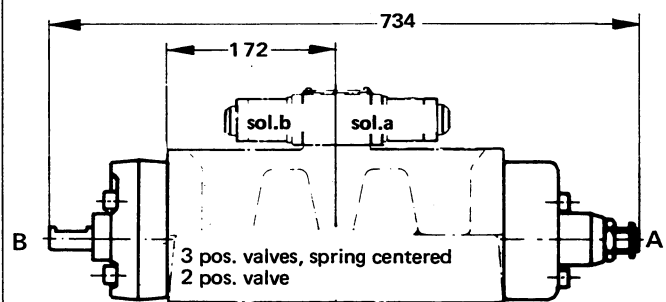
stroke limiter on B side of main valve = addition feature 12



spool position indicator on B side of main valve = additional feature 15



stroke limiter on B side of main valve and spool position indicator on A side additional feature 17



stroke limiter on A side of main valve and spool position indicator on B side additional feature 16

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