



Directional spool valve type WMM 22 hand lever operated

Size 22

35 MPa

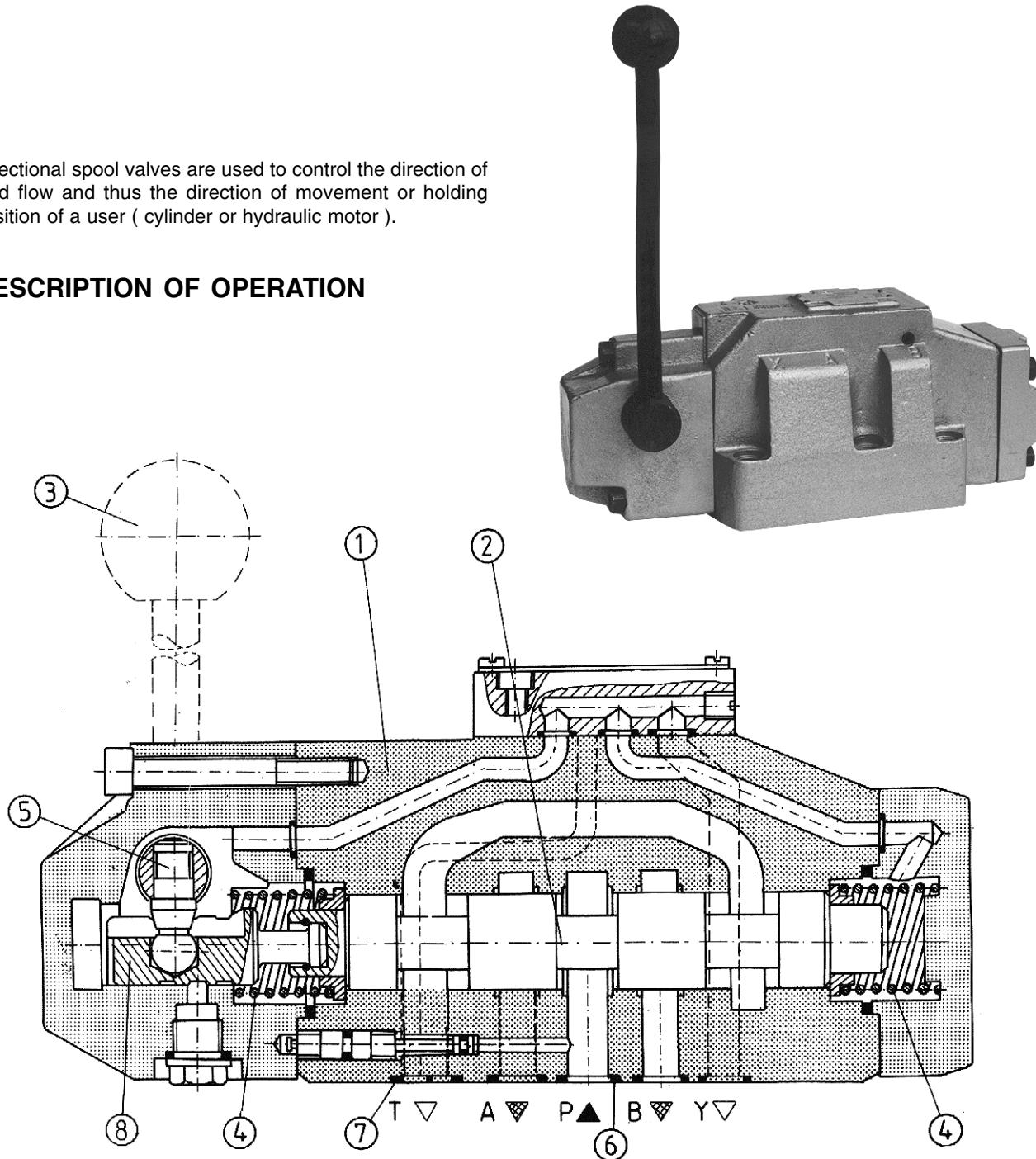
450 dm³/min

WK
450 214

04.2001r.

Directional spool valves are used to control the direction of fluid flow and thus the direction of movement or holding position of a user (cylinder or hydraulic motor).

DESCRIPTION OF OPERATION



Annular ports are made around the longitudinal bore in the housing 1. The annular ports cut through the longitudinal bore forming control lands in the housing. The moveable control spool 2 is placed in the main port. If the spool is shifted, it connects or separates the ports in the housing. Various control functions result directly from shape of the control spool. Movement of the control spool is caused by a change

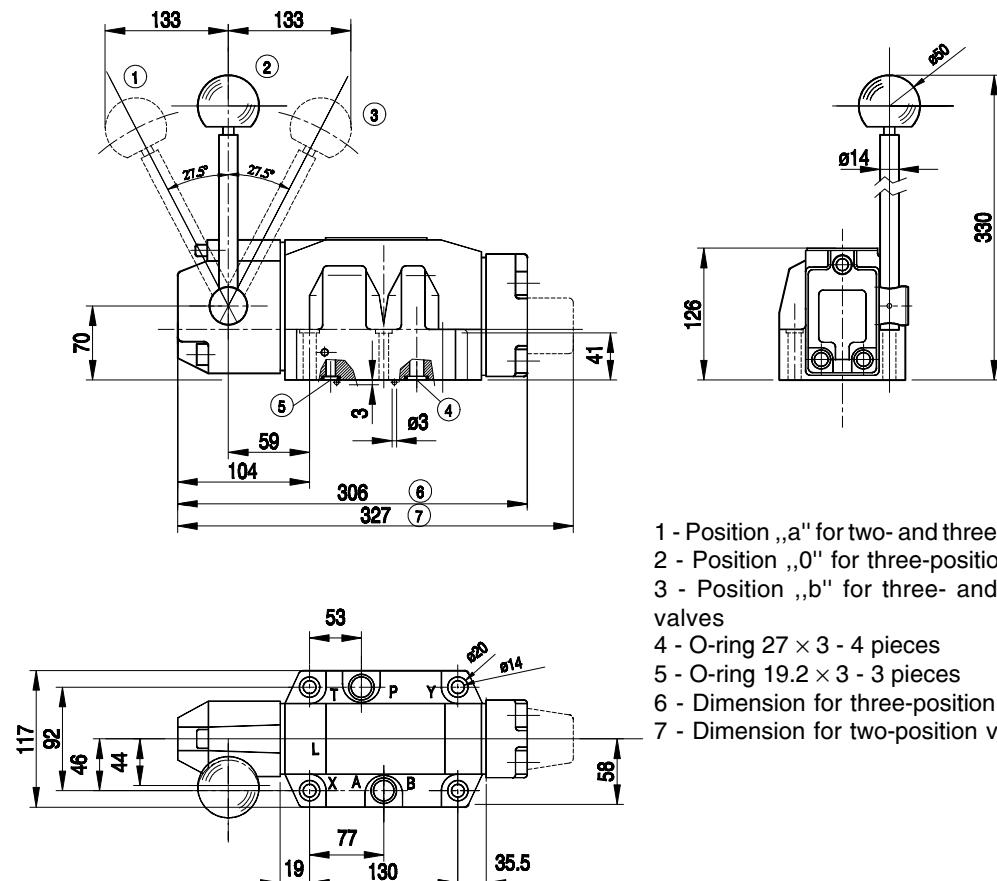
in position of the hand lever 3 with aid of the pins 5 and 8. The control spool together with the control elements are returned to their rest position by the centering spring 4 - in version with return springs.

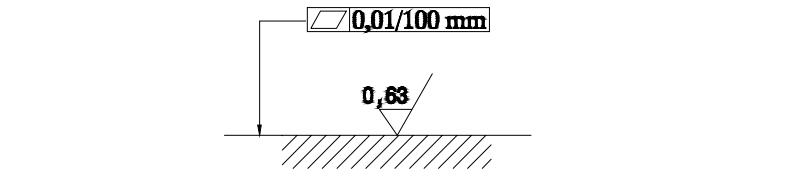
The sealing rings 6 and 7 are installed between the valve and a subplate to prevent leakage.

TECHNICAL DATA

Hydraulic fluid	Mineral oil, phosphate ester	
Required filtration	up to 16 µm	
Recommended filtration	up to 10 µm	
Nominal fluid viscosity	37 mm ² at temp. of 328 K	
Viscosity range	2.8 to 380 mm ² /s	
Optimum working temperature (fluid in a tank)	313 - 328 K	
Fluid temperature range	243 - 343 K	
Maximum admissible operating pressure	Ports P, A, B	Port T
	35 MPa	25 MPa
Flow section in position „0“	Spool type Q	Spool type V
	16 % of nominal section	16 % of nominal section
Operating force	With detent	With return springs
	approx. 85 N	max 110 N
Weight	13 kg	

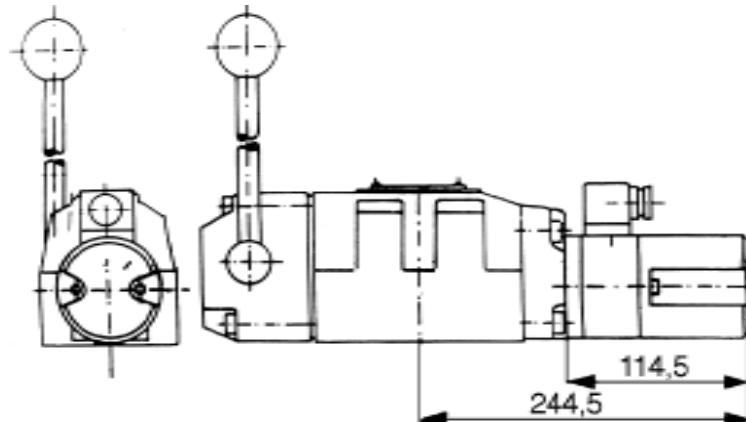
OVERALL AND MOUNTING DIMENSIONS



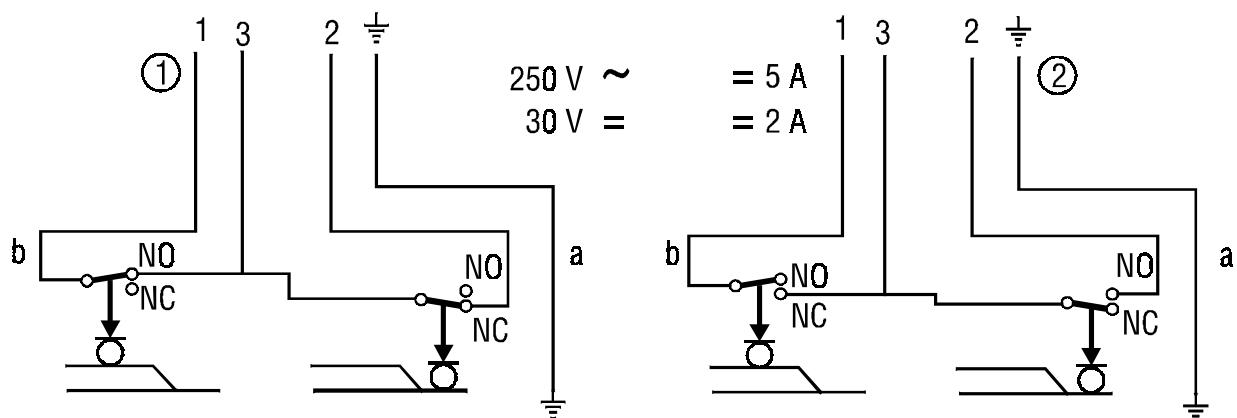


Admissible surface roughness and flatness deviation for a subplate face.

Limit switch



Limit switch - overall dimensions



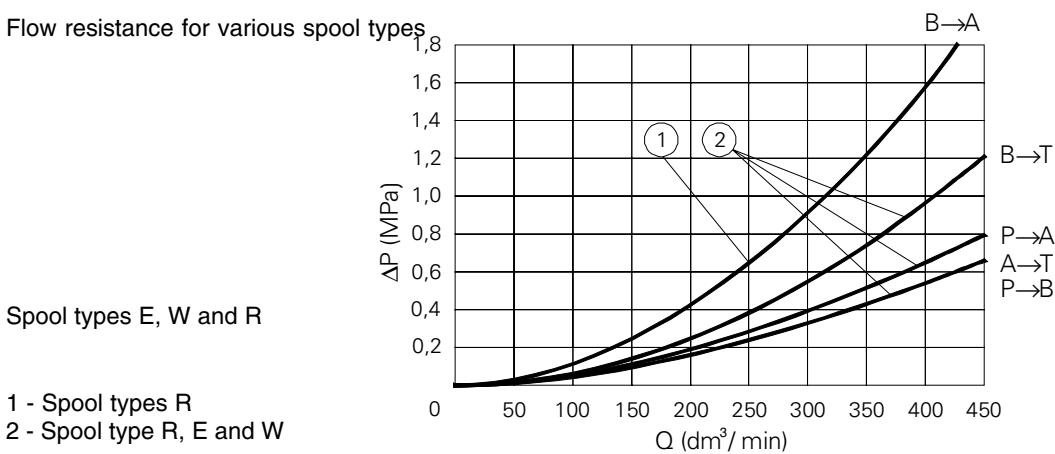
Electrical scheme for limit switch

1 - Scheme for limit switch normally closed 19

2 - Scheme for limit switch normally open 23

PERFORMANCE CURVES : measured at $v = 41 \text{ mm}^2/\text{s}$ and $T = 323 \text{ K}$

Flow resistance for various spool types



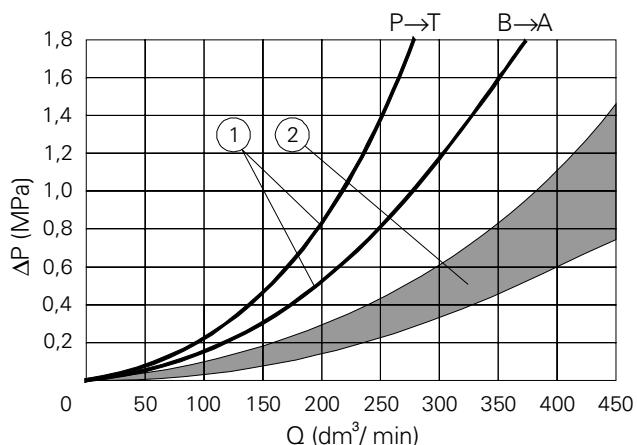
Spool types E, W and R

1 - Spool types R

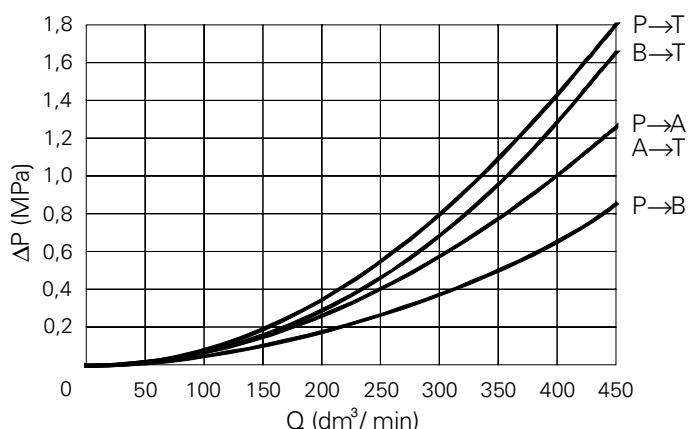
2 - Spool type R, E and W

Spool type S and others

- 1 - Spool type S
2 - Other spool types



Spool types G, T



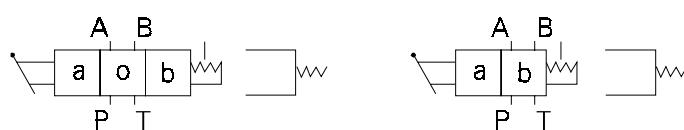
Flow limits

2 and 3-position valves, spring centered					
Spool types	Pressure (MPa)				
	7	14	21	28	35
E, J, L, M, Q, R, U, V, W	450	450	270	320	300
G, H, S, T, F, C, D, K, Z	265	190	155	135	120
2 and 3-position valves with detent					
All spool types	450	450	370	320	320

Note:

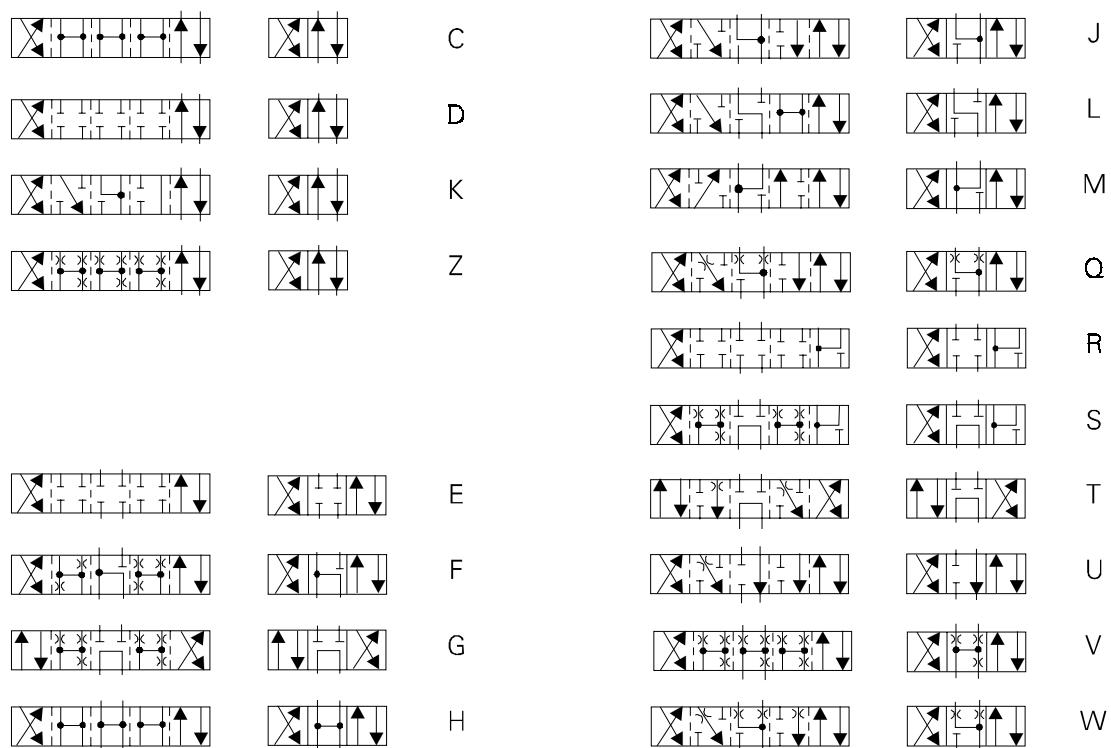
The flow limits refer to typical application of 4-way directional control valve i.e. with using two lines e.g. P to A and B to T at the same time. In case of using 4-way directional control valve with one flow line e.g. P to A (B plugged) or A to T (B plugged) actual flow limits are considerably lower.

SCHEMES



Hydraulic schemes for three - and two - position valves
hand lever operated

Control spool schemes



HOW TO ORDER

Orders coded in the way showed below should be forwarded to the manufacturer.

H-4WMM 22 / * *

Control spool type
See schemes above

Additional requirements in clear text (to be agreed with the manufacturer)

Series number:

30 = 30
(30 - 39) - Installation and connection dimensions unchanged

Sealing

For fluids on mineral oil base = with no designation
For fluids on phosphate ester base = V

Control spool positioning

Spring centering = with no designation
With detent = F

Accessories

Limit switch (normally closed) = 19
Limit switch (normally open) = 23
Without limit switch = no code

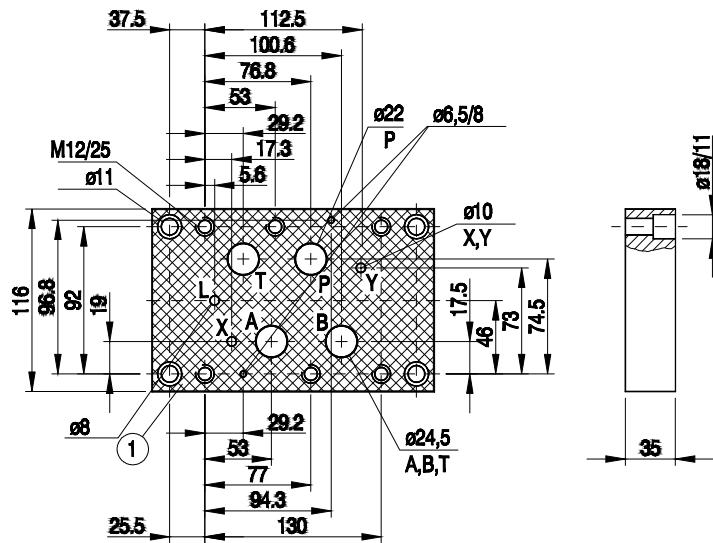
Applicable only to three-position valves

Coding example : H-4 WMM 22 E30/F

MOUNTING DIMENSIONS FOR SUBPLATE

Bolts mounting the valve to subplate

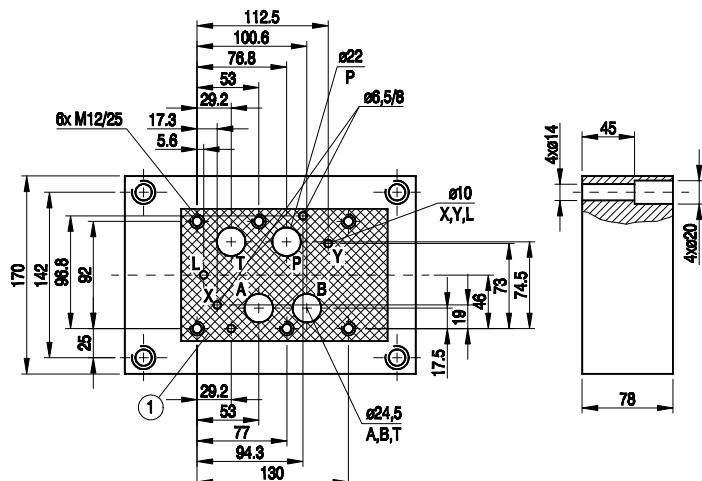
Quantity	Size	Standard	Mechanical properties	M (Nm)
6	M12 x 60	PN-74/M-82302 (DIN 912)	10.9	105



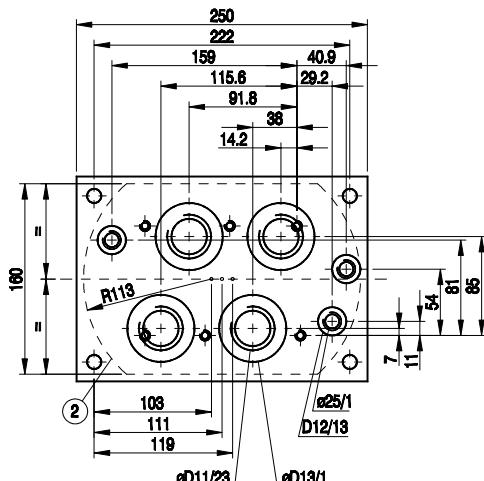
Subplate weight approx. 5 kg

- 1 - Mounting face
2 - Recess in subplate face

Subplate type	D11	D12
G 151/01	G1	G 1/4
G 151/02	M33 x 2	M14x1.5



- 1 - Mounting face
2 - Recess in subplate face



Subplate weight approx. 16 kg

Subplate type	D11	D12	D13
G 154/01	G1 1/4	G 1/4	56
G 154/02	M48 x 2	M42x1.5	56

Subplate type	D11	D12	D13
G 156/01	G1 1/2	G 1/2	61
G 156/02	M48 x 2	M14x1.5	61

Note : Subplate and mounting bolts must be ordered separately



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