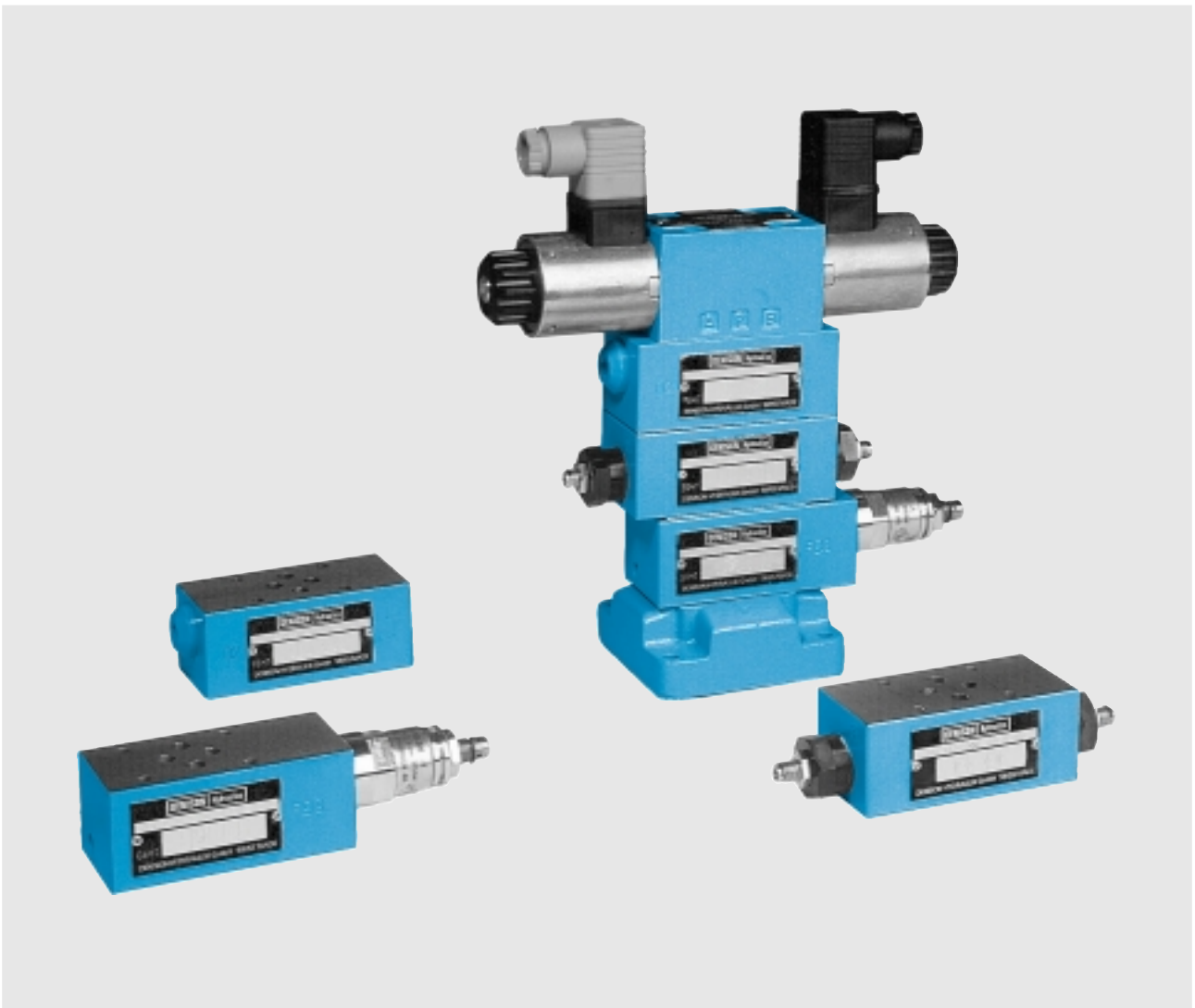


# DENISON HYDRAULICS

## Stack Valves

Cetop 03



Publ. 8-EN 5650-D (dig.)

**DENISON** Hydraulics

## DESCRIPTION, CIRCUIT

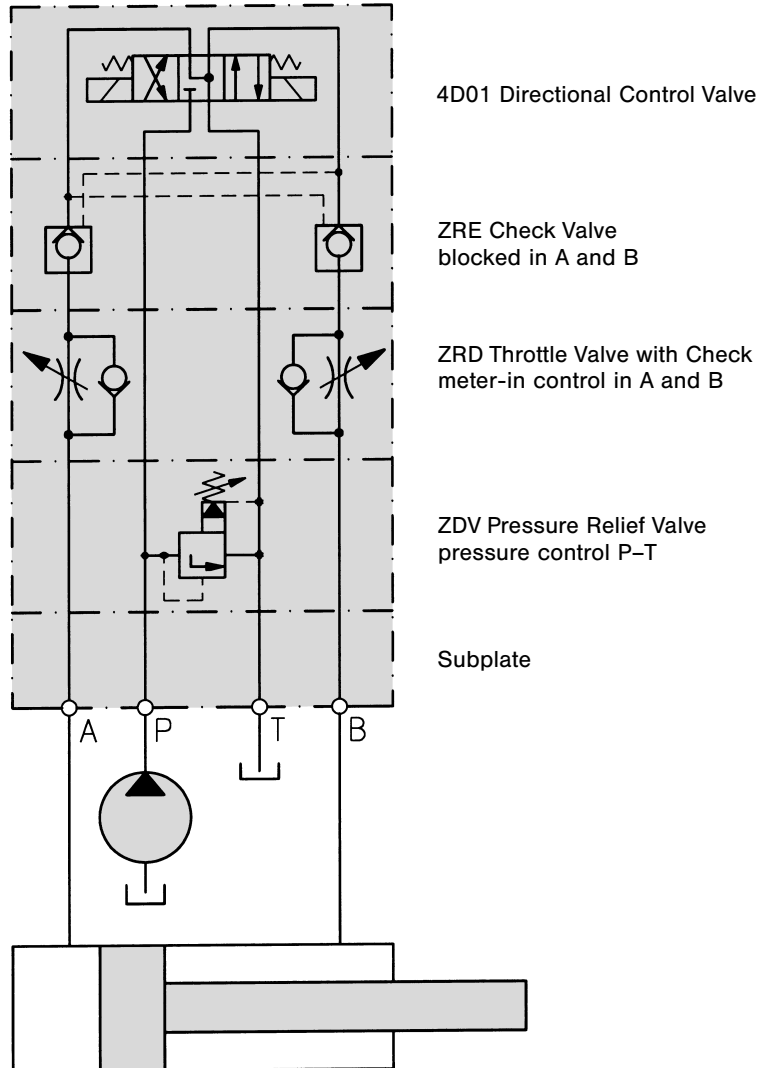
### DESCRIPTION

The Stack Valves described in this bulletin can be used as vertical and horizontal stack systems.

As pressure relief, pressure reducing valves, throttle valves with check, as check and counterbalance valves they are standardized according to CETOP, ISO and DIN in mounting configuration and meet industrial requirements for compact control systems.

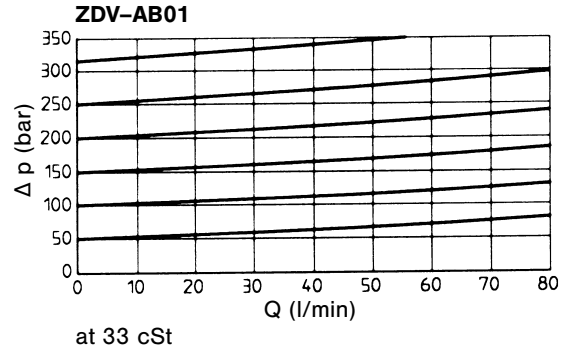
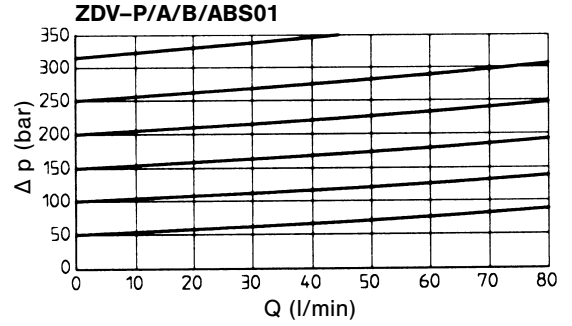
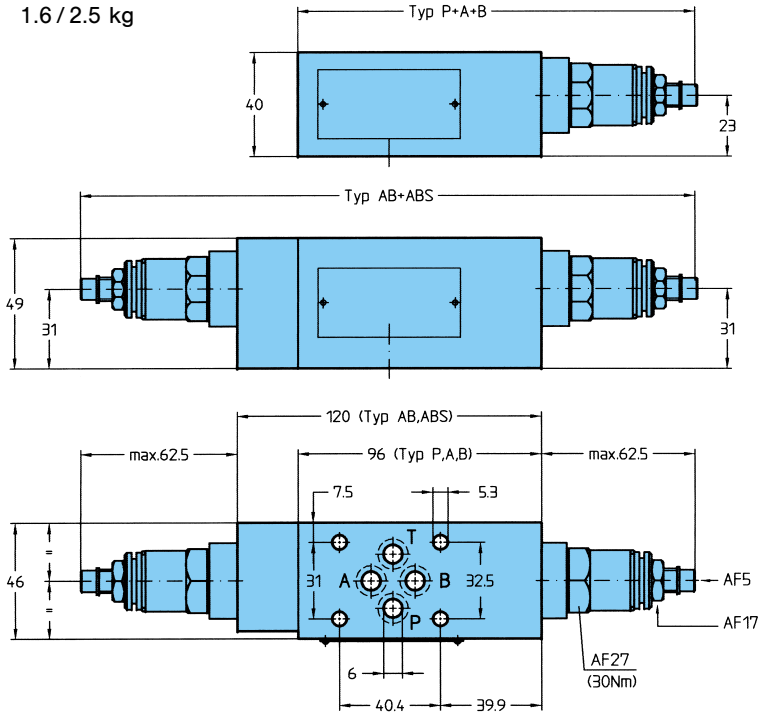
Stack valves size 03 have the same mounting configuration as the directional control valve 4D01 and can be arranged as shown on the following pages.

### CIRCUIT EXAMPLE



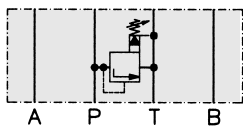
# PRESSURE RELIEF VALVE – SERIES ZDV

1.6 / 2.5 kg



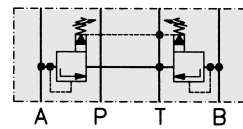
- Operating pressure range
  - ZDV-P/A/B/AB 7... 70/350 bar
  - ZDV-ABS 7... 70/315 bar
- Max. flow 80 l/min
- Viscosity range 10... 500 cSt
- Fluid temperature range -18... +60 °C

### Pressure control P-T



Series	Order No.
ZDV-P01-1-S0-D1	098-91201-0
ZDV-P01-5-S0-D1	098-91202-0

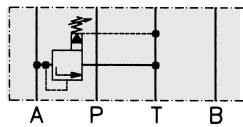
### Pressure control A-T & B-T



Series	Order No.
ZDV-AB01-1-S0-D1	098-91207-0
ZDV-AB01-5-S0-D1	098-91208-0

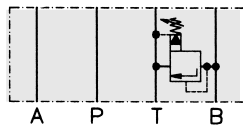
1 = 7... 70 bar  
5 = 7... 350 bar

### Pressure control A-T



Series	Order No.
ZDV-A01-1-S0-D1	098-91203-0
ZDV-A01-5-S0-D1	098-91204-0

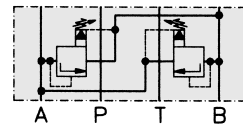
### Pressure control B-T



Series	Order No.
ZDV-B01-1-S0-D1	098-91205-0
ZDV-B01-5-S0-D1	098-91206-0

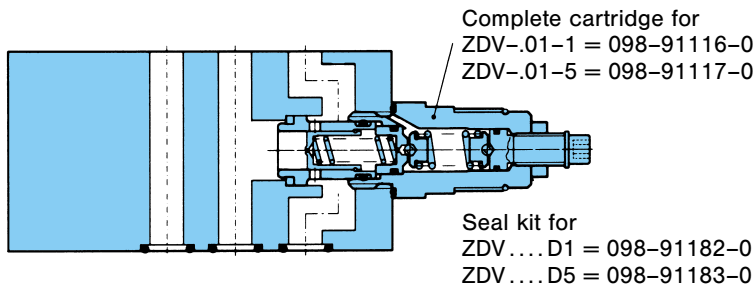
1 = 7... 70 bar  
5 = 7... 350 bar

### Pressure control A-B & B-A



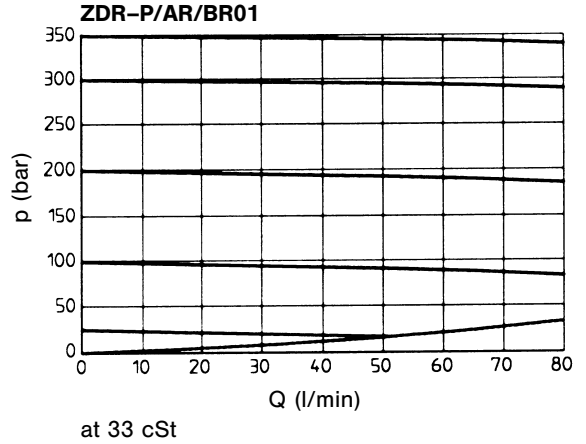
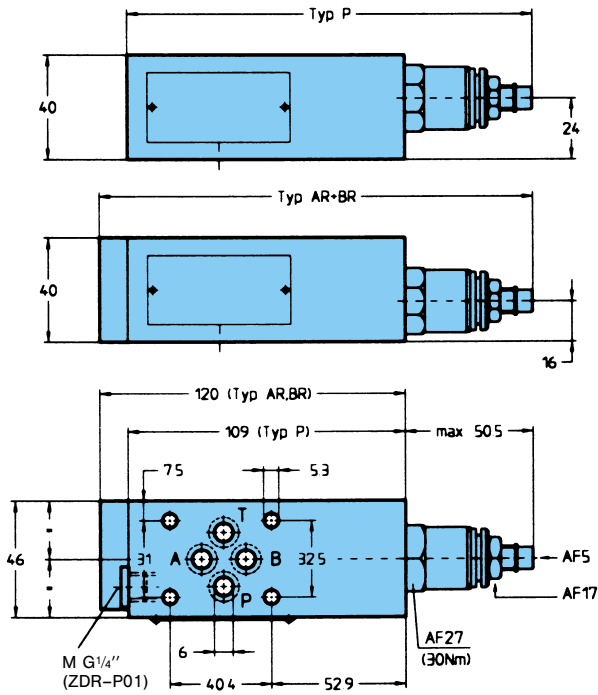
Series	Order No.
ZDV-ABS01-1-S0-D1	098-91209-0
ZDV-ABS01-5-S0-D1	098-91210-0

1 = 7... 70 bar  
5 = 7... 315 bar



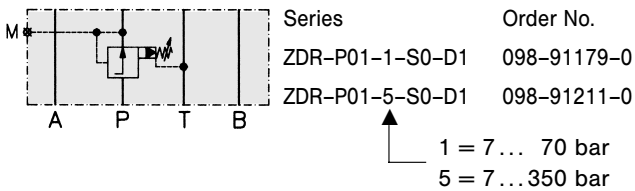
# PRESSURE REDUCING VALVE – SERIES ZDR

1.6 / 1.8 kg

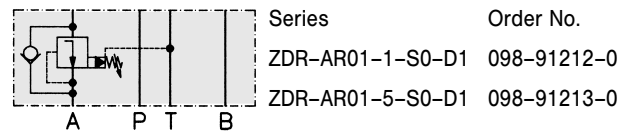


- Operating pressure range
  - ZDR-P 7 ... 70/350 bar
  - ZDR-AR/BR 7 ... 70/315 bar
- Max. flow 80 l/min
- Viscosity range 10 ... 500 cSt
- Fluid temperature range -18 ... +60 °C
- Pilot oil (P, A, B – T) max. 0.3 l/min

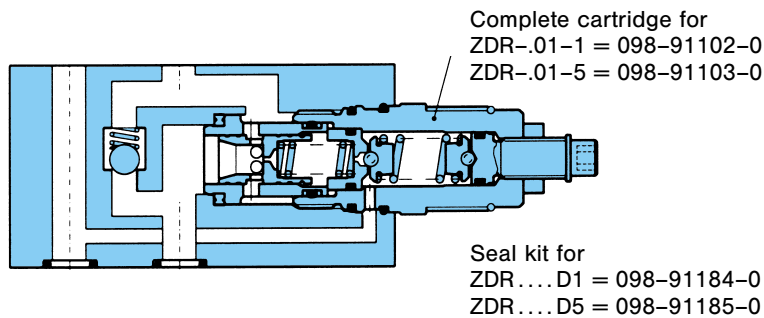
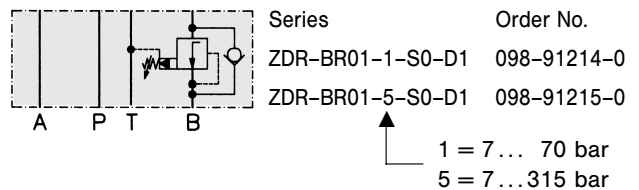
Pressure reducing in P  
with pressure gauge port M



Pressure reducing in A  
with check valve

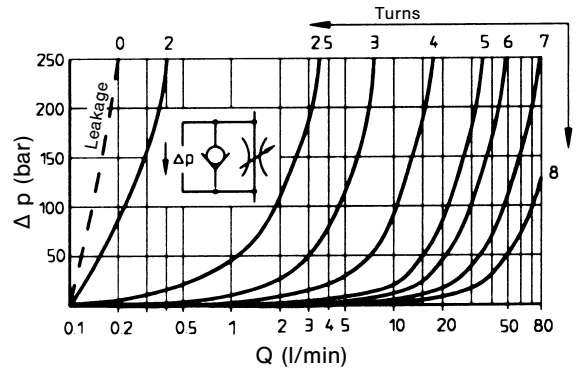
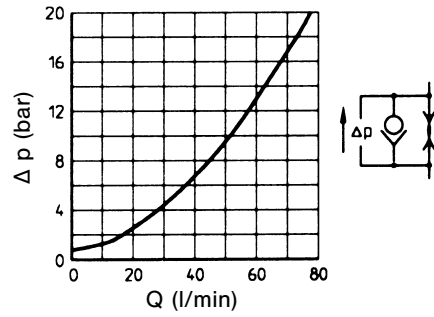
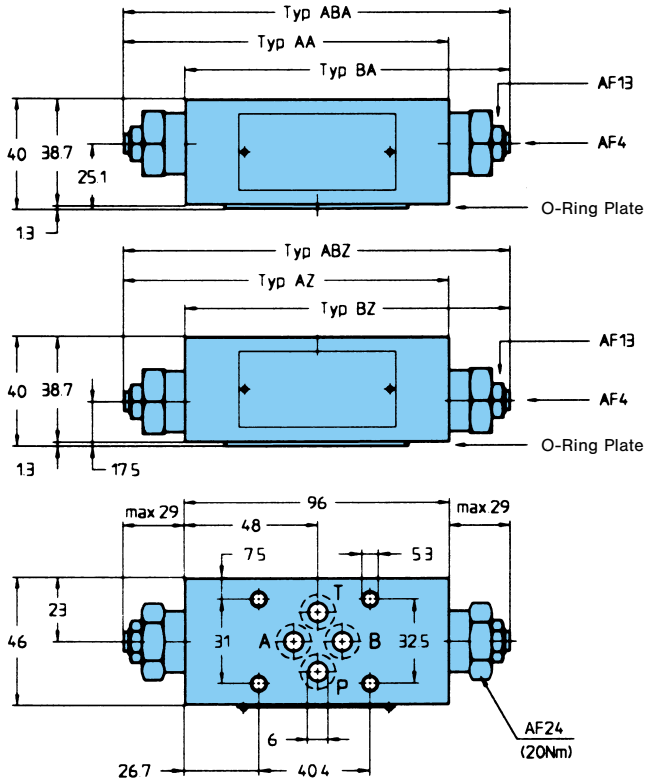


Pressure reducing in B  
with check valve



# THROTTLE VALVE WITH CHECK – SERIES ZRD

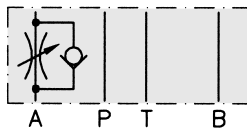
1.2 / 1.3 kg



at 33 cSt

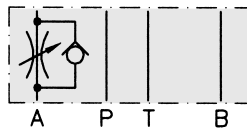
- Max. operating pressure 350 bar
- Max. flow 80 l/min
- Viscosity range 10...500 cSt
- Fluid temperature range -18...+60 °C

Meter-in control in A



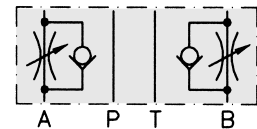
Series ZRD-AZ01-S0-D1  
Order No. 098-91056-0

Meter-out control in A



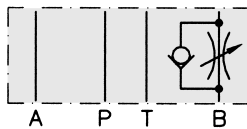
Series ZRD-AA01-S0-D1  
Order No. 098-91012-0

Meter-in control in A and B



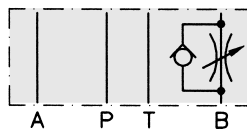
Series ZRD-ABZ01-S0-D1  
Order No. 098-91058-0

Meter-in control in B



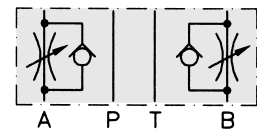
Series ZRD-BZ01-S0-D1  
Order No. 098-91057-0

Meter-out control in B

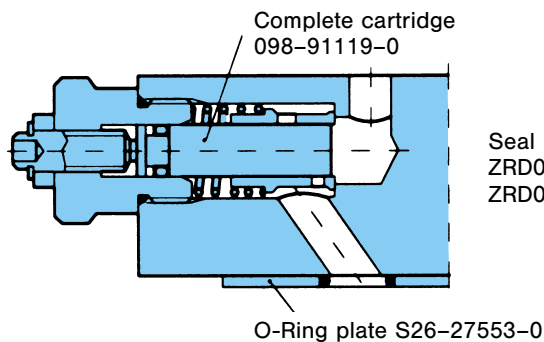


Series ZRD-BA01-S0-D1  
Order No. 098-91013-0

Meter-out control in A and B



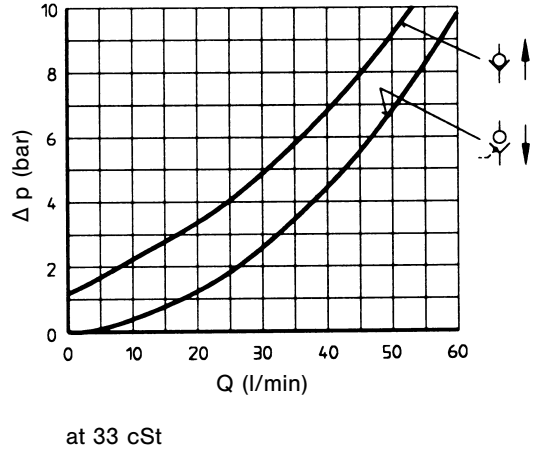
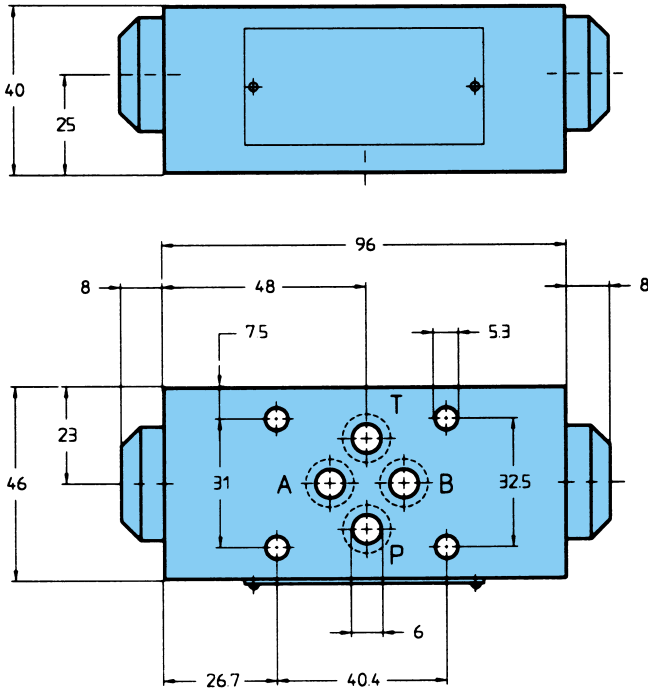
Series ZRD-ABA01-S0-D1  
Order No. 098-91014-0



Seal kit for:  
ZRD01...D1 = 098-91096-0  
ZRD01...D5 = 098-91097-0

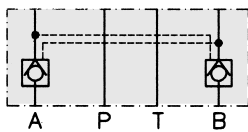
## CHECK VALVE PILOT OPERATED – SERIES ZRE

1.2 kg



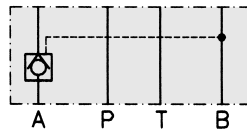
- Max. operating pressure 350 bar
- Max. flow 60 l/min
- Opening ratio 1 : 6 (pilot cone / main cone)
- Cracking pressure 1.2 bar (check valve)
- Viscosity range 10...500 cSt
- Fluid temperature range -18...+60 °C

blocked in A and B



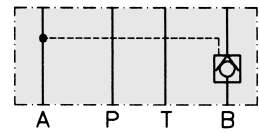
Series ZRE-AB01-D1  
Order No. 098-91020-0

blocked in A

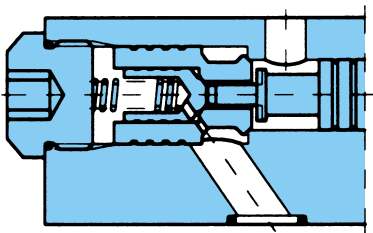


Series ZRE-A01-D1  
Order No. 098-91018-0

blocked in B



Series ZRE-B01-D1  
Order No. 098-91019-0



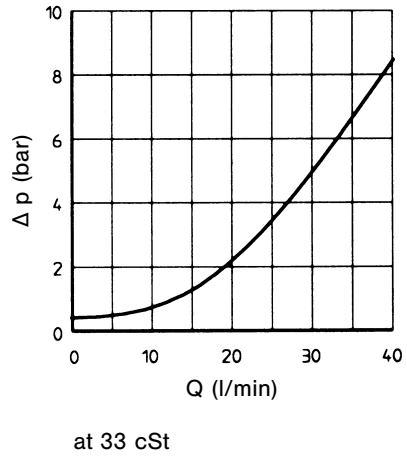
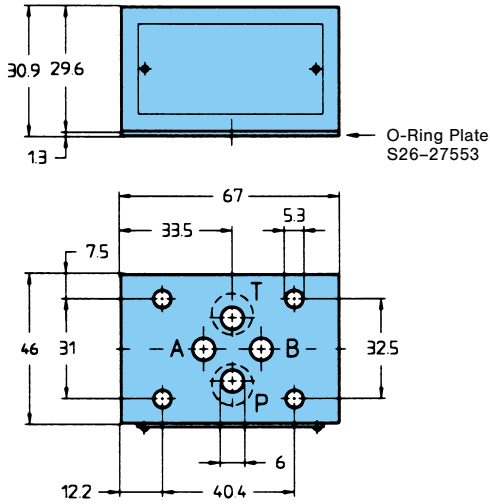
Seal kit for:  
ZRE...D1 = 098-91088-0  
ZRE...D5 = 098-91089-0

**Note:** When service of this valve is necessary, it should be replaced as a complete unit, as the internal components form a matching set (not applicable to seal kit).

## CHECK VALVE DIRECT OPERATED – SERIES ZRV, ERV

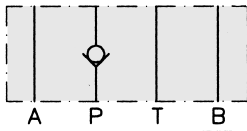
### SERIES ZRV

0.7 kg



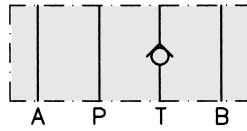
- Max. operating pressure 350 bar
- Max. flow 40 l/min
- Cracking pressure 0.5 bar
- Viscosity range 10...500 cSt
- Fluid temperature range -18...+60 °C

blocked in P



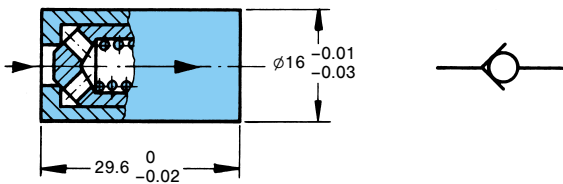
Series ZRV-P01  
Order No. 098-90025-0

blocked in T



Series ZRV-T01  
Order No. 098-90026-0

### SERIES ERV (CARTRIDGE)

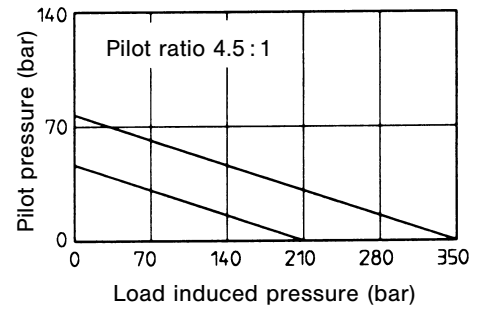
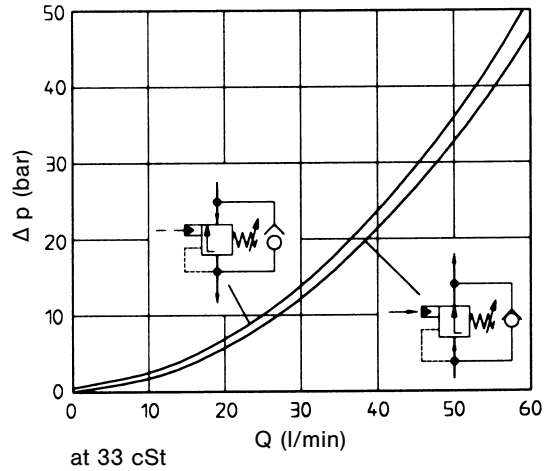
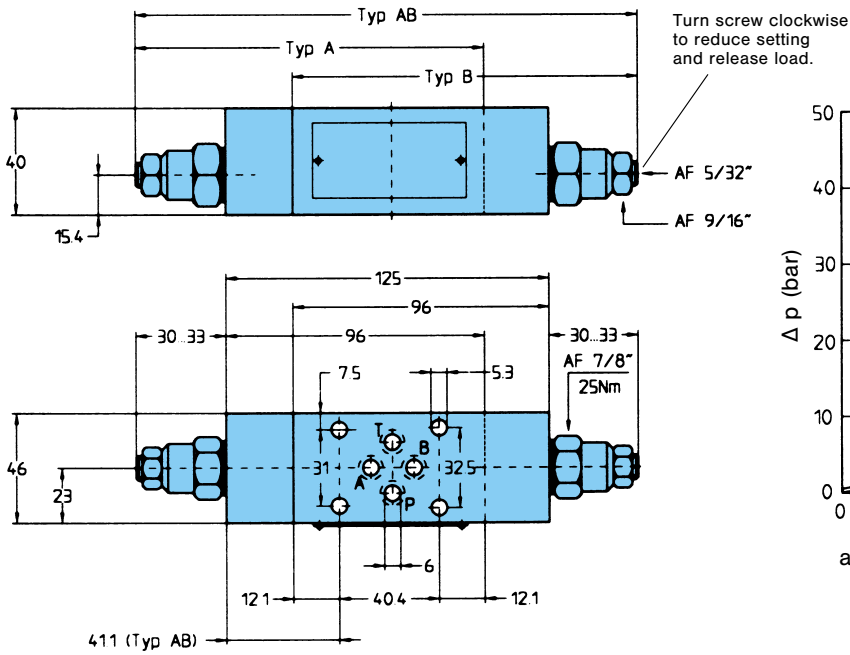


- Cracking pressure = 0.5 bar

Series ERV 01  
Order No. 098-90910-0

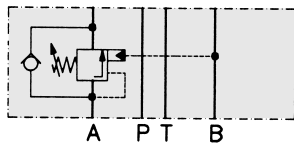
# COUNTERBALANCE VALVE – SERIES ZNS

1.3 / 1.6 kg

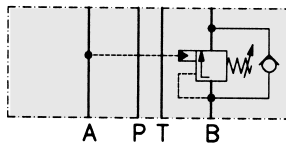


- Min. operating pressure 70/140 bar
- Max. operating pressure 175/350 bar
- Max. flow 60 l/min
- Cracking pressure 0.3 bar
- Viscosity range 10...500 cSt
- Fluid temperature range -18...+60 °C

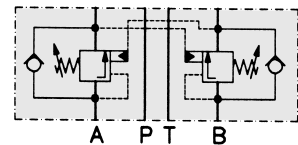
Counterbalance in A



Counterbalance in B



Counterbalance in A and B

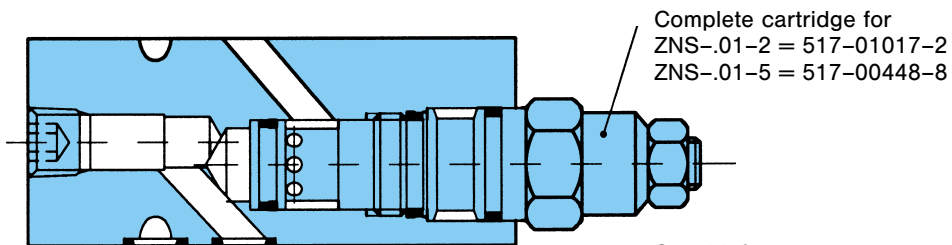


Series/Order No. ZNS-A01-2-S0-D1/098-91126-0  
ZNS-A01-5-S0-D1/098-91127-0

ZNS-B01-2-S0-D1/098-91128-0  
ZNS-B01-5-S0-D1/098-91129-0

ZNS-AB01-2-S0-D1/098-91130-0  
ZNS-AB01-5-S0-D1/098-91131-0

2 = 70...175 bar  
5 = 140...350 bar



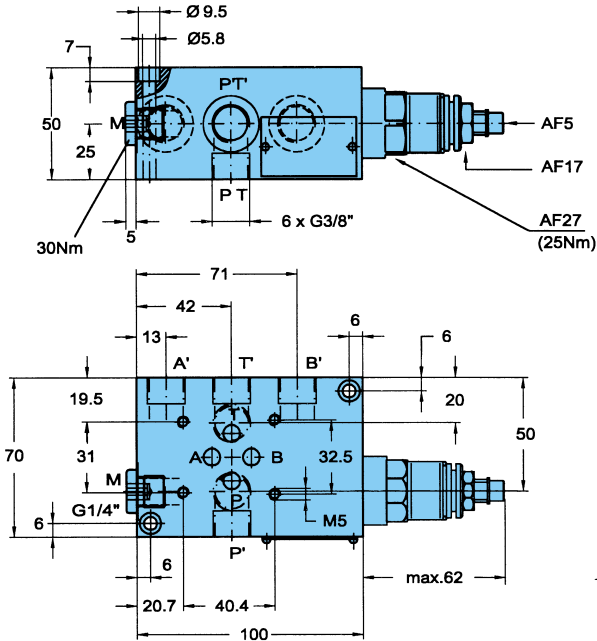
Seal kit for:  
ZNS...D1 = 098-91153-0  
ZNS...D5 = 098-91154-0



## SUBPLATE WITH PRESSURE RELIEF VALVE – SERIES GPDV

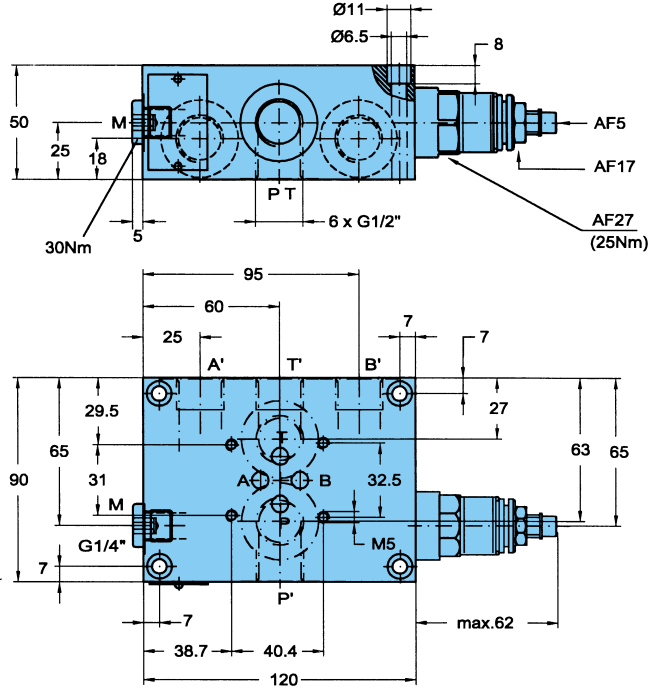
**Ports G 3/8"**

2.4 kg

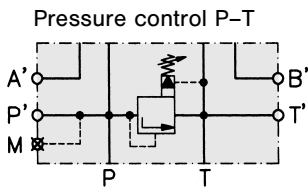
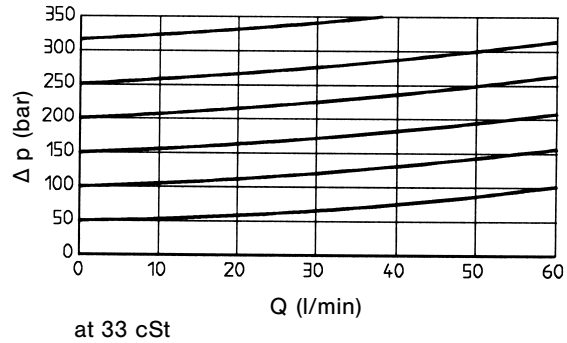


**Ports G 1/2"**

3.5 kg



- Operating pressure range 7...70/315 bar
- Max. flow 80 l/min
- Viscosity range 10...500 cSt
- Fluid temperature range -18...+60 °C



Series

GPDV01-11-S0-D1  
 GPDV01-15-S0-D1  
 GPDV01-21-S0-C1  
 GPDV01-25-S0-C1

Order No.

098-91355-0  
 098-91356-0  
 098-91110-0  
 098-91111-0

Cartridges

098-91116-0  
 098-91117-0  
 098-91116-0  
 098-91117-0

Seal kits

098-91151-0

1 = G 3/8"      1 = 7... 70 bar  
 2 = G 1/2"      5 = 7...350 bar

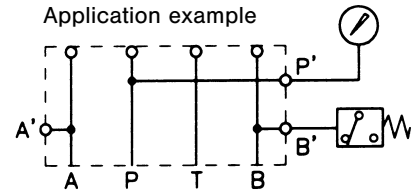
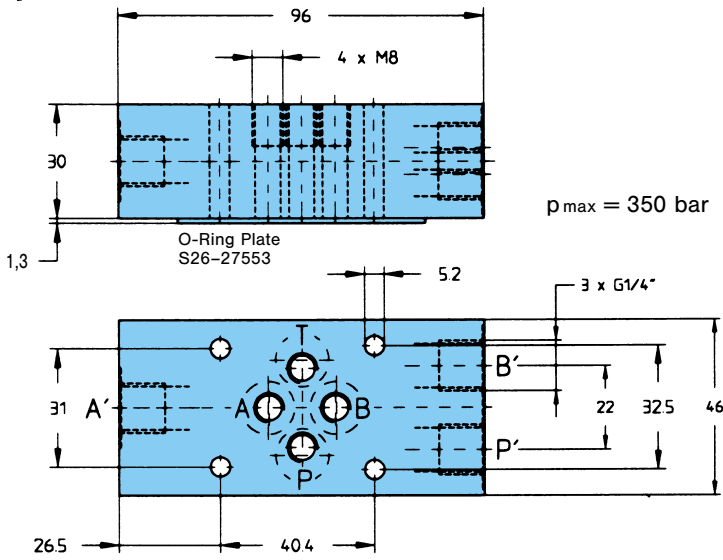
Plugs for closing the ports have to be ordered separately.

Size	Order No.
G 3/8"	700-70341-8
G 1/2"	700-70283-8

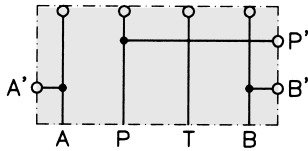
## DISTRIBUTOR PLATE & COVER PLATE

### DISTRIBUTOR PLATE – SERIES ZAP

0.9 kg



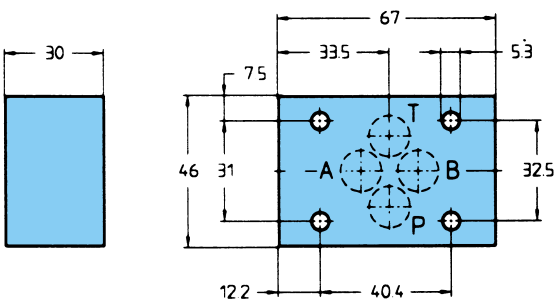
Plug for P', A', B'	Order No.
M8 x 8	700-71870-8
G1/4"	S26-52300-0



Series        ZAP-PAB-01  
Order No.    098-90873-0

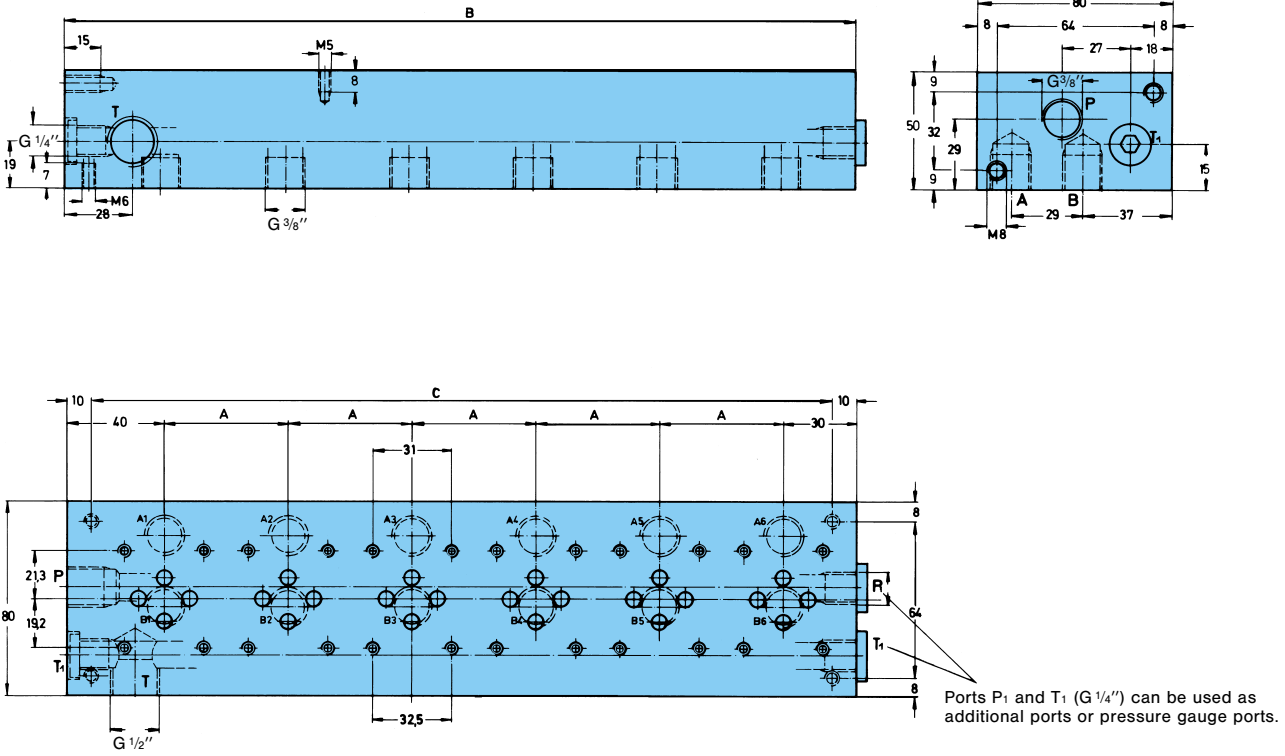
### COVER PLATE – SERIES BA

0.7 kg



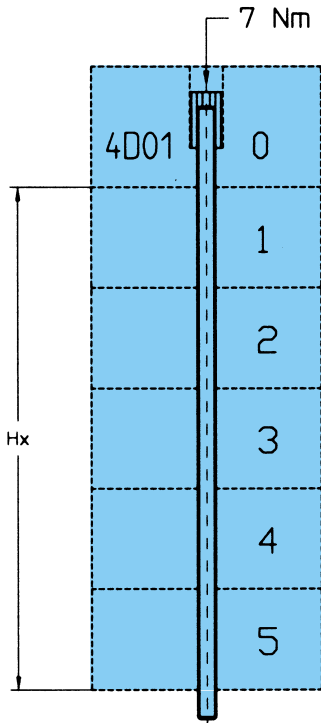
Series        BA-01  
Order No.    098-90950-0

## MULTIPLE SUBPLATE – SERIES GPU



Qty. of Valves	Series	Order No.	Dimensions			Weight (kg)
			A	B	C	
2	GPU 01-2	099-90874-0	51	121	101	2.8
3	GPU 01-3	099-90875-0	51	172	152	4.0
4	GPU 01-4	099-90876-0	51	223	203	5.2
5	GPU 01-5	099-90867-0	51	274	254	6.4
6	GPU 01-6	099-90866-0	51	325	305	7.6

## MOUNTING KITS



	Combinations	Hx	Order No.	
H = 31 mm ZRV/ZAP = A	1 x A	31	4 x 361-07283-8 <sup>1</sup>	
	1 x B	40	4 x 361-07303-8 <sup>1</sup>	
	1 x C	49	4 x 361-07323-8 <sup>1</sup>	
	2 x A	62	4 x 361-07343-8 <sup>1</sup>	
	(1 x A) + (1 x B)	71	4 x 036-84970-0 <sup>2</sup>	
	(1 x A) + (1 x C)	80	4 x 033-63694-0 <sup>2</sup>	
	2 x B	80	4 x 033-63694-0 <sup>2</sup>	
	(1 x B) + (1 x C)	89	4 x 033-82372-0 <sup>2</sup>	
	(2 x A) + (1 x B)	102	4 x 036-84971-0 <sup>2</sup>	
	(2 x A) + (1 x C)	111	4 x 033-63695-0 <sup>2</sup>	
	(1 x A) + (2 x B)	111	4 x 033-63695-0 <sup>2</sup>	
	H = 40 mm ZDR/ZRE/ZRD/ZNS = B ZDV-P/A/B	(1 x A) + (1 x B) + (1 x C)	120	4 x 033-82374-0 <sup>2</sup>
		3 x B	120	4 x 033-82374-0 <sup>2</sup>
		(2 x B) + (1 x C)	129	4 x 033-82375-0 <sup>2</sup>
		H = 49 mm ZDV-AB/ABS = C	(2 x A) + (2 x B)	142
	(2 x A) + (1 x B) + (1 x C)		151	4 x 033-82376-0 <sup>2</sup>
	(1 x A) + (3 x B)		151	4 x 033-82376-0 <sup>2</sup>
	(1 x A) + (2 x B) + (1 x C)		160	4 x 036-84276-0 <sup>2</sup>
	4 x B		160	4 x 036-84276-0 <sup>2</sup>
	(3 x B) + (1 x C)		169	4 x 033-63697-0 <sup>2</sup>
(2 x A) + (3 x B)	182		4 x 036-84972-0 <sup>2</sup>	
(1 x A) + (4 x B)	191		4 x 036-36952-0 <sup>2</sup>	
(2 x A) + (2 x B) + (1 x C)	191	4 x 036-36952-0 <sup>2</sup>		
(1 x A) + (3 x B) + (1 x C)	199	4 x 036-84277-0 <sup>2</sup>		
5 x B	200	4 x 036-84277-0 <sup>2</sup>		

<sup>1</sup> Screws

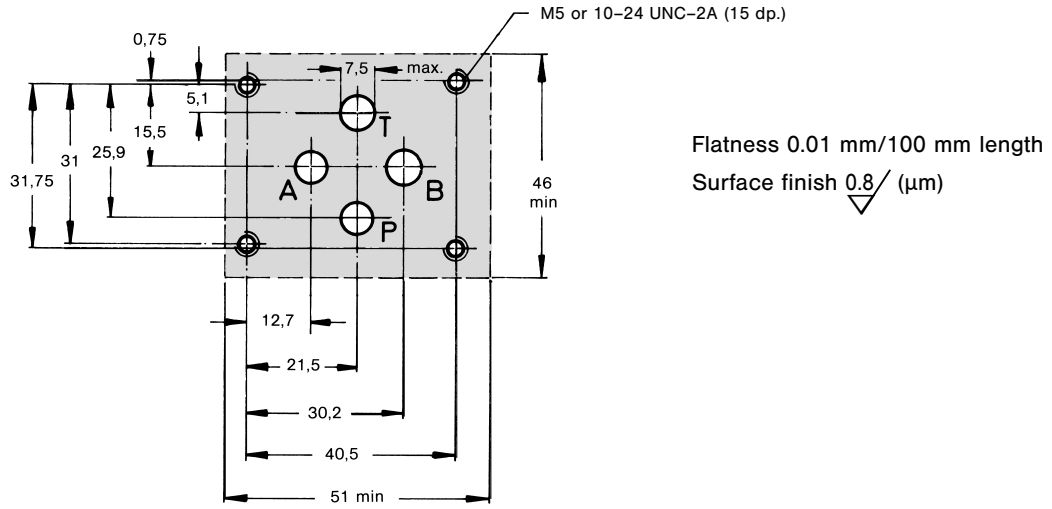
<sup>2</sup> Tie rods

Strength class 10.9 (DIN)

(please order 4 nuts 036-84483-0 additionally)

## BLOCK MOUNTING CONFIGURATION

Mounting configuration according to CETOP, ISO and DIN



**Note:**

Information for directional control valves 4D01 (CETOP 03) and single subplates see publication 4-EN 3060.