HYDAC INTERNATIONAL

Valves in sandwich plate design Nominal size 25

DESCRIPTION

HYDAC valves in sandwich plate design in nominal size 25 enables a modular design of the hydraulic control via stacked valve assembly.
We offer them as pressure reducing valves to control pressure, as needle valves to control volume and as check valves, pilot-to-open and non-pilot-to-open.

TMounting elements dependent on the modular design of your hydraulic control and are thus not included in delivery.

FEATURES

- Available with pressure, flow and check function
- Modular design of hydraulic control
- Interface to ISO 4401-08-08-0-05 (Cetop 8)

up to 500 l/min
up to 350 bar

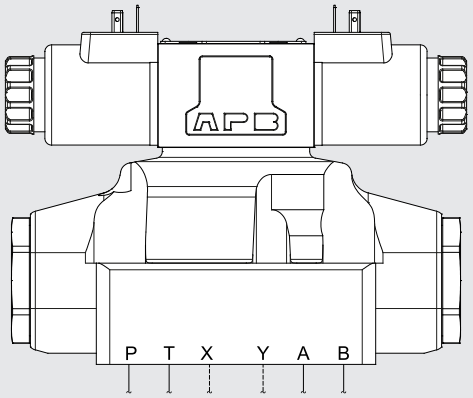
TECHNICAL DATA *

General specifications			
Ambient temperature	[°C]	-20 to +60	
Installation position		No orientation restrictions	
Material		Casing:	Cast iron
		Name plate:	Aluminium
Surface coating		Valve casing:	Phosphate plated
Hydraulic specifications			
Operating pressure	[bar]	350	
Operating fluid		Hydraulic oil to DIN 51524 Part 1, 2 and 3	
Temperature range of operating fluid	[°C]	-20 to +70	
Viscosity	[mm²/s]	15 to 400	
Permitted contamination level of operating fluid		Class 20/18/15 according to ISO 4406	
Sealing material		NBR (standard), FKM	

* see “Conditions and Instructions for Valves” in brochure 53.000

CONTENTS

Directional valve



PRESSURE REDUCING VALVE
IN SANDWICH PLATE DESIGN
ZW – DM25

SUPPLEMENTARY TECHNICAL DATA

General specifications		
Weight	[kg]	11.1
Hydraulic specifications		
Nominal flow	[l/min]	125 (pressure range 07/070) 500

MODEL CODE

ZW–DM 25 – 70 – PA – 070 V – N

Type
Pressure reducing valve in sandwich plate design, pilot-operated

Nominal size
25

Series
70 = specified by manufacturer

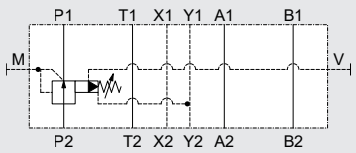
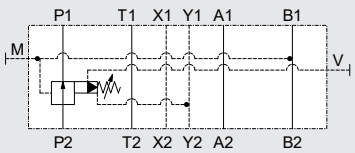
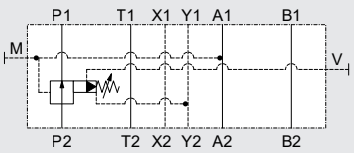
Spool symbol
PA = pressure control in port A
PB = pressure control in port B
PT = pressure control in port P

Pressure ranges
07/070 = 7 to 70 bar
070 = 15 to 70 bar
140 = 35 to 140 bar
250 = 70 to 250 bar

Adjustment types
V = adjustable using tool

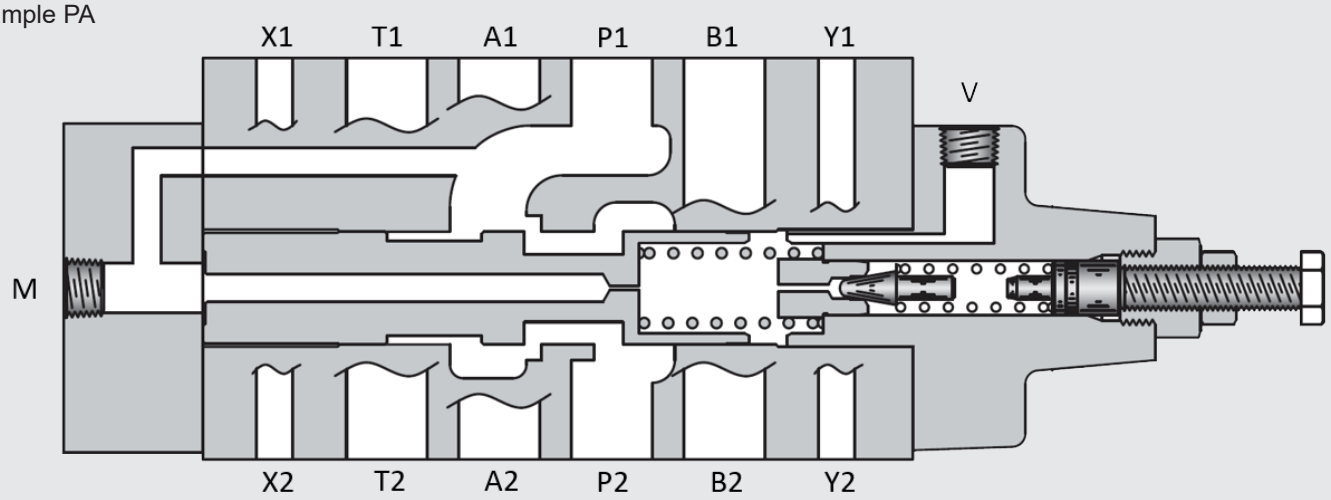
Sealing material
N = NBR (standard)
V = FKM

SPOOL TYPES / SYMBOLS

PT	PB	PA
		

SECTION VIEW

Example PA



FUNCTION

The pilot-operated pressure reducing valve in spool valve design in nominal size 25 is used to reduce the inlet pressure at P2 to a smaller outlet pressure P1. The pressure tapping for the reduced pressure is designed differently depending on the symbol:

- reduced pressure in port A → PA
- reduced pressure in port B → PB
- reduced pressure in port T → PT

The outlet pressure P1 can be tapped at measuring port (M).

The remote control port V is used for pressure relief and thus to close the valve or to apply pressure and thus to control an external pressure level.

Port Y is to be used and to be drained without pressure. Pressures at port Y are additive to the pressure setting.

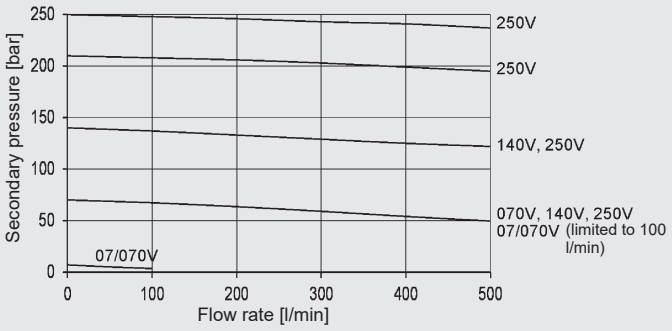
Hint

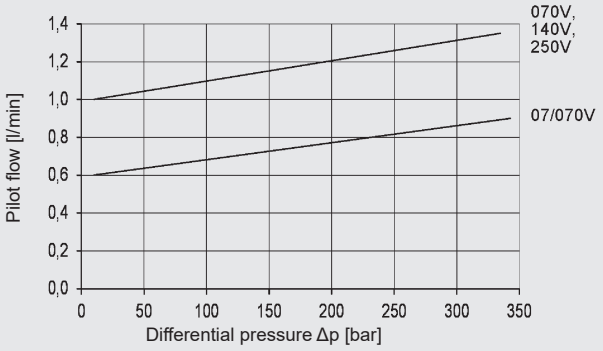
In designs PA and PB, the pressure losses of the subsequent components must be considered when selecting the inlet pressure.

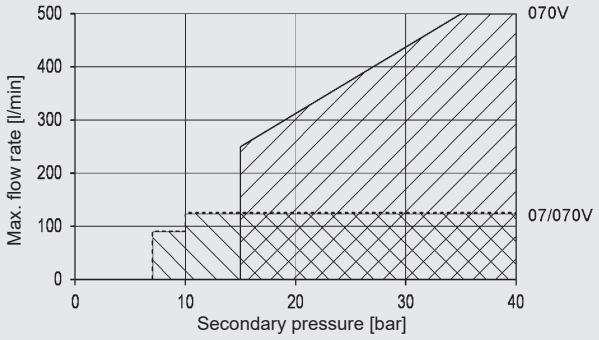
The housings have O-ring seals at the ports on the plate side.

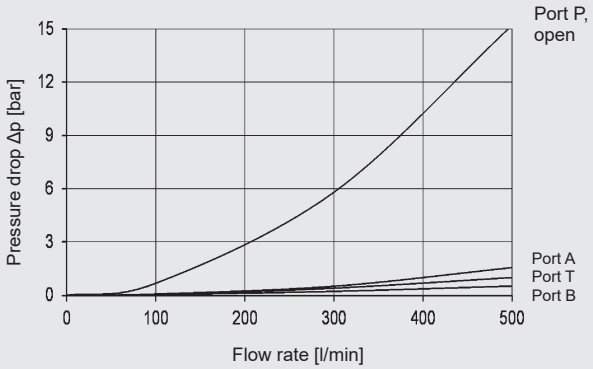
PERFORMANCE

Measured at v = 35 mm²/s and T_{oil} = 45 °C



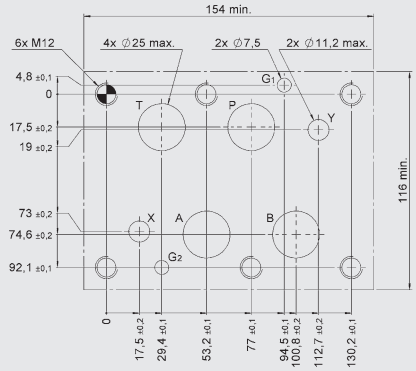


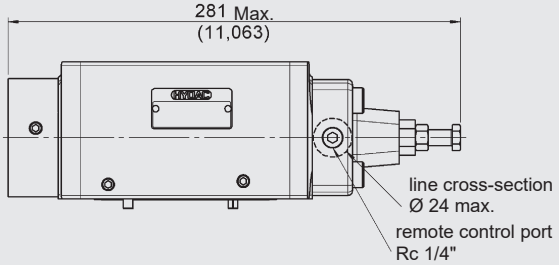


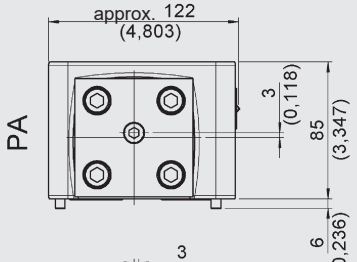


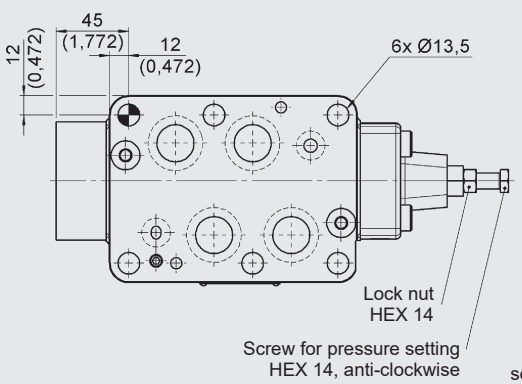
DIMENSIONS

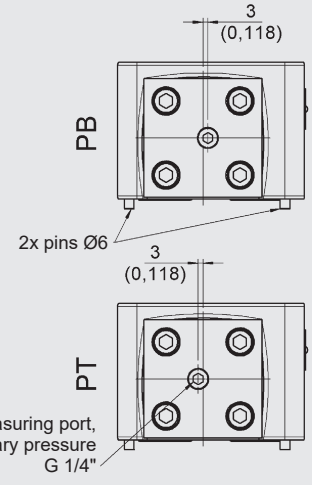
Interface according to ISO 4401-08-08-0-05 (Cetop 8)











NEEDLE VALVE
IN SANDWICH PLATE DESIGN
ZW – SDR25

SUPPLEMENTARY TECHNICAL DATA

General specifications		
Weight	[kg]	12.0 12.2 (symbols AAB and ZAB)
Hydraulic specifications		
Cracking pressure	[bar]	0.49
Nominal flow	[l/min]	500

MODEL CODE

ZW–SDR 25 – 70 – AA – N

Type
Needle valve in sandwich plate design, pilot-operated

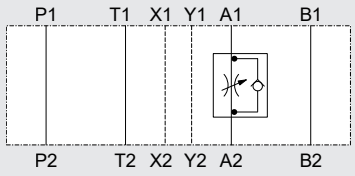
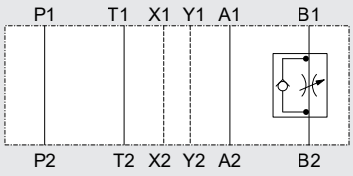
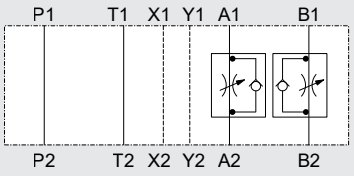
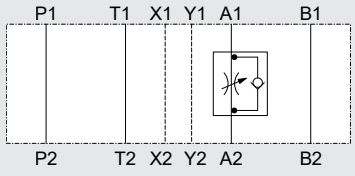
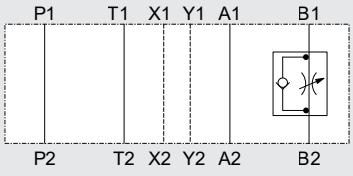
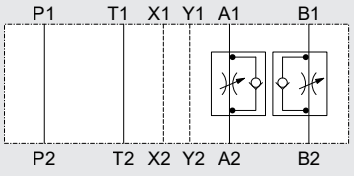
Nominal size
25

Series
70 = specified by manufacturer

Spool symbol
AA = meter-out in port A
AB = meter-out in port B
AAB = meter-out in port A and B
ZA = meter-in in port A
ZB = meter-in in port B
ZAB = meter-in in ports A and B

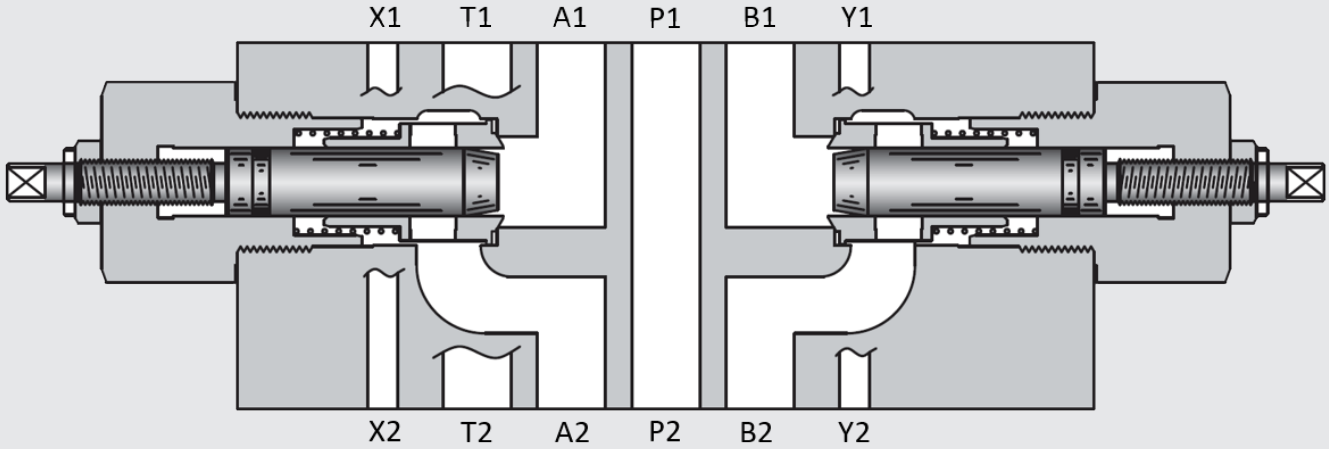
Sealing material
N = NBR (standard)
V = FKM

SPOOL TYPES / SYMBOLS

AA	AB	AAB
		
ZA	**ZB**	**ZAB**
		

SECTION VIEW

Example ZAB



FUNCTION

The needle valve in nominal size 25 is used to control a flow rate in flow direction.
In the reverse direction there is free flow through the valve if the cracking pressure is exceeded. The valve opens when the inlet pressure at the check valve is higher than the outlet pressure including the pressure spring force.

The throttling of the flow rate depends on the version:

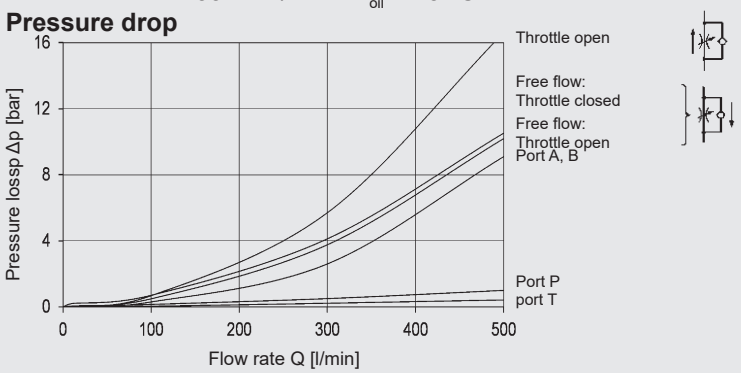
- flow from consumer to directional valve in port A → AA
- flow from consumer to directional valve in port B → AB
- flow from consumer to directional valve in port A and B → AAB
- flow from directional valve to consumer in port A → ZA
- flow from directional valve to consumer in port B → ZB
- flow from directional valve to consumer in port A and B → ZAB

Hint
The casings have O-ring seals at the ports on the plate side.

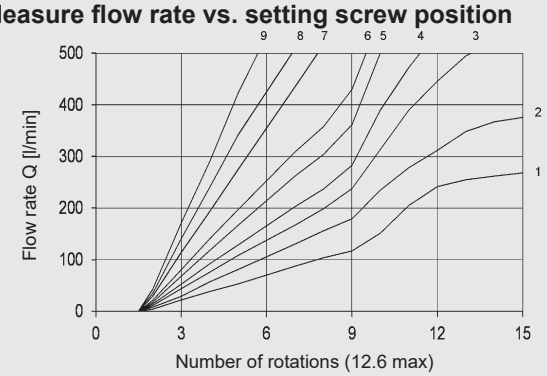
PERFORMANCE

Measured at v = 35 mm²/s and T_{oil} = 45 °C

Pressure drop



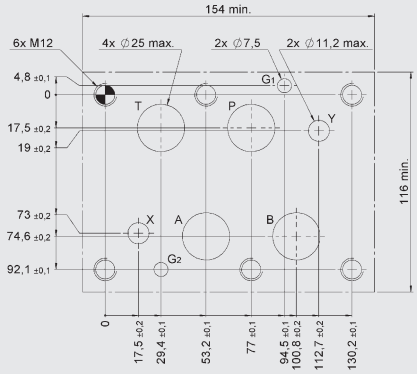
Measure flow rate vs. setting screw position



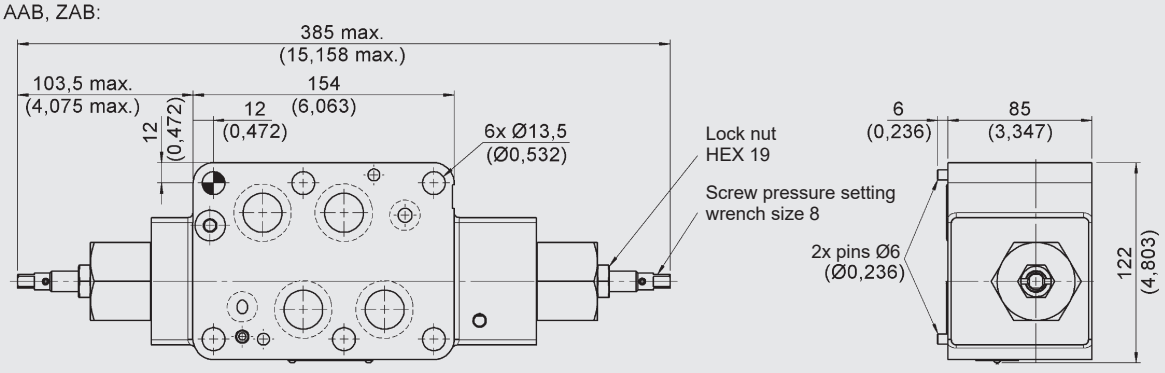
Curve	Measure flow rate vs. screw position
1	Δp = 5 bar
2	Δp = 10 bar
3	Δp = 20 bar
4	Δp = 30 bar
5	Δp = 50 bar
6	Δp = 70 bar
7	Δp = 140 bar
8	Δp = 210 bar
9	Δp = 330 bar

DIMENSIONS

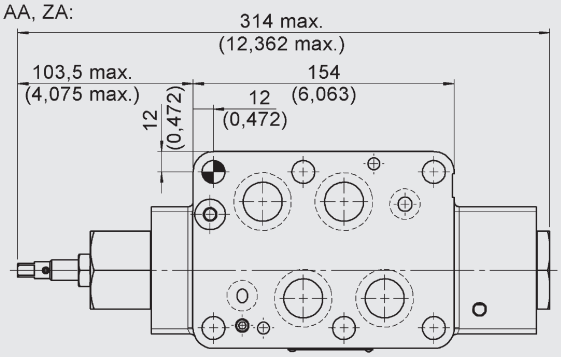
Interface according to ISO 4401-08-08-0-05 (Cetop 8)



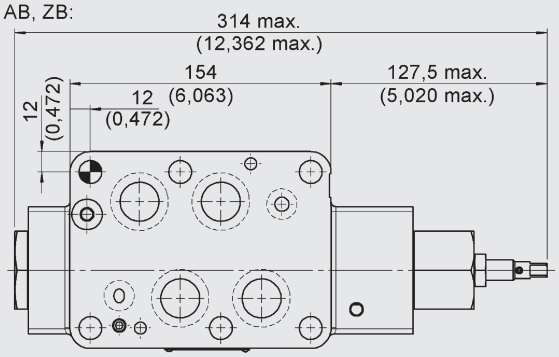
AAB, ZAB:



AA, ZA:



AB, ZB:



CHECK VALVE PILOT-TO-OPEN IN SANDWICH PLATE DESIGN
ZW – RP25

SUPPLEMENTARY TECHNICAL DATA

General specifications		
Weight	[kg]	11.6
Hydraulic specifications		
Nominal flow	[l/min]	500
Pilot ratio		9.5 : 1

MODEL CODE

ZW–RP 25 – 70 – AA – 2 – N

Type
Check valve, pilot-to-open in sandwich plate design

Nominal size
25

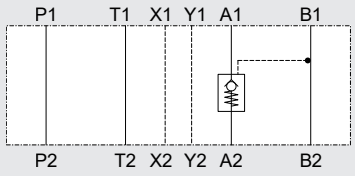
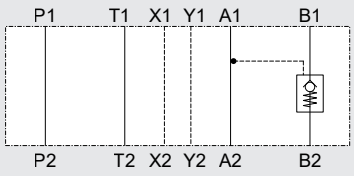
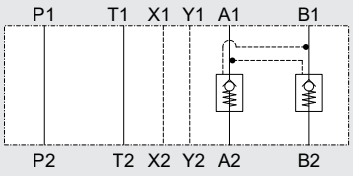
Series
70 = specified by manufacturer

Piston symbol
AA = check function in port A
AB = check function in port B
AAB = check function in ports A and B

Cracking pressure
2 = 2 bar
4 = 4 bar

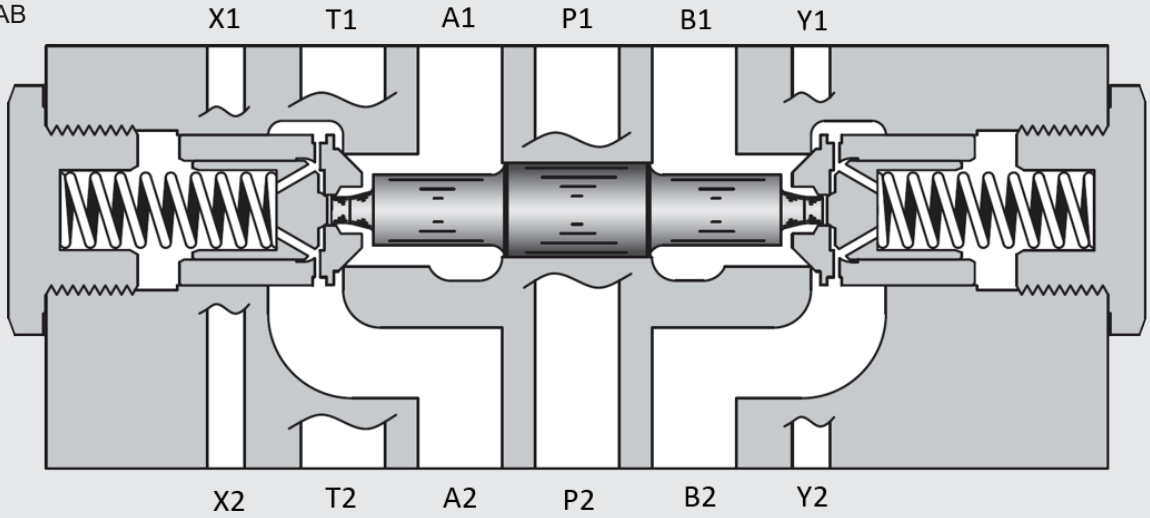
Sealing material
N = NBR (standard)
V = FKM

SPOOL TYPES / SYMBOLS

AA	AB	AAB
		

SECTION VIEW

Example AAB



FUNCTION

The check valve, pilot-to-open in sandwich plate design in nominal size 25 is a direct-acting, spring-loaded poppet valve. It releases flow from the directional valve to the consumer and blocks flow from the consumer to the directional valve. To achieve this, the valve poppet is pressed into the seat and blocks the flow. If sufficiently high pilot pressure is built up in the relevant pilot port, the valve is unblocked and flow flows from the consumer to the directional valve. The required pilot pressure is based on the pressure difference between the ports to be unblocked.

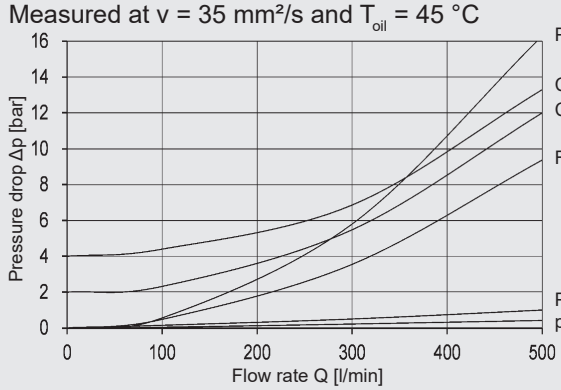
Hint

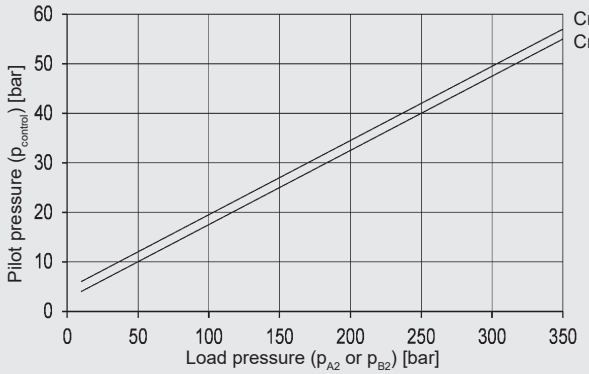
The casings have O-ring seals at the ports on the plate side.

A pressure in the port of the directional valve influences the required control pressure.

PERFORMANCE

Measured at v = 35 mm²/s and T_{oil} = 45 °C





Use the following formula to calculate the min. required pilot pressure in port B:

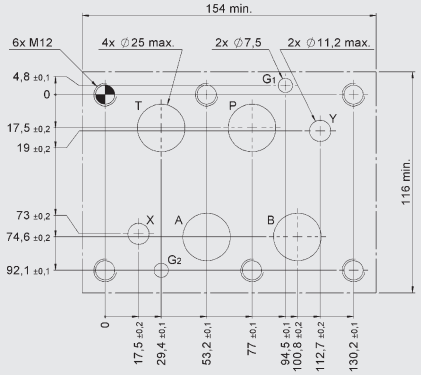
$$p_{control} = \frac{p_{A2} - p_{A1}}{\varphi} + p_{A1}$$

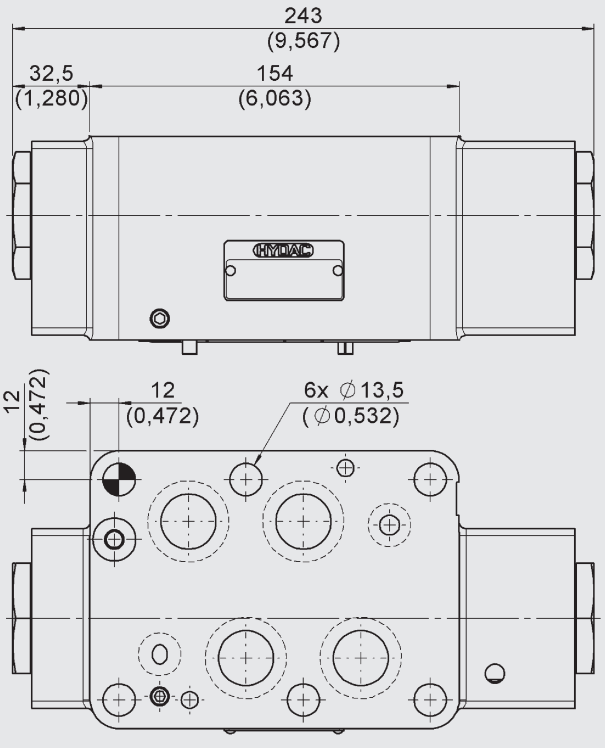
Use the following formula to calculate the min. required pilot pressure in port A:

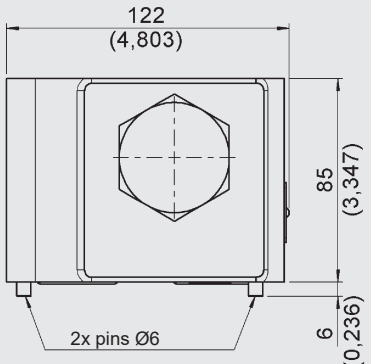
$$p_{control} = \frac{p_{B2} - p_{B1}}{\varphi} + p_{B1}$$

DIMENSIONS

Interface according to ISO 4401-08-08-0-05 (Cetop 8)







ACCESSORIES

	Designation	Part no.
Seal kits (6-part set)	29.82 x 2.62 -NBR -90 Sh (4 pieces) 20.24 x 2.62 -NBR -90 Sh (2 pieces)	3524659
	29.82 x 2.62 -FKM -90 Sh (4 pieces) 20.24 x 2.62 -FKM -90 Sh (2 pieces)	3524660

Note
The information in this brochure relates to the operating conditions and applications described.
For applications or operating conditions not described, please contact the relevant technical department.
Subject to technical modifications.

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