

Non-piloted miniature pressure reducing valves type ADC, ADM, ADME, and AM

Cartridge valves - Versions with housing

Pressure p_{\max} = 400 bar
Flow Q_{\max} = 10 lpm

Type ADC 1 - 15 - 1/4



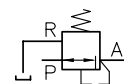
Type AM 1 - 20 - 1/4



Type AM 11. - 25



Type AM 1 - 20



1. General, usage

Pressure control valves belong to the group of pressure valves and their task is to keep the outlet pressure constant, despite a higher and changing inlet pressure (DIN ISO 1219-1).

They are used in hydraulic systems where a second oil circuit with a lower pressure level (secondary circuit) is to be branched from a circuit with a higher pressure level (primary circuit), without the higher pressure in the primary circuit being affected.

Pressure fluctuation in the main circuit caused by a system's various functions are kept away from the pre-control circuit, by reducing the pressure to a consistent level in the range of about 20...30 bar. The switching operation of all hydraulic devices being actuated in such a manner can be influenced by e.g. directional spool valves type HSR(F) acc. to D 7493 ++ or PSL(V) acc. to D 7700 ++.

Types ADM 1.. and ADME 1.. were especially designed to cope with larger flows.

The pressure reducing valves are available as cartridge valves, designs for direct pipe connection or for manifold mounting.

2. Types available, main data

Coding, Symbol Screw-in cartridge	Housing design		max. pressure (bar)		Flow $Q_{A \max}$ (lpm)	Sectional views and symbols (examples)
	for direct pipe connection	for manifold mounting	Outlet A (Recomm. value) ²⁾ $p_A \pm \text{approx. } 15\%$ (bar)	Inlet P p_E (bar)		
ADC 1 - 15	ADC 1 - 15 - 1/4	---	18	315	2	Type ADC 1 - 15
ADC 1 - 25	ADC 1 - 25 - 1/4	---	30			
ADC 1 K - 25 ¹⁾	ADC 1 K - 25 - 1/4 ¹⁾	---	25			
AM 1 - 20	AM 1 - 20 - 1/4	---	20	400	2	
AM 1 - 25	AM 1 - 25 - 1/4	---	25			
---	---	AM 11 F - 5	5	400	2	Type AM 1 - 20 - 1/4
---	---	AM 11 F - 10	10			
---	---	AM 11 F - 15	15			
---	---	AM 11 F - 20	20			
AM 1 E - 20	AM 1 E - 20 - 1/4	AM 11 E - 20	20	400	2	Type AM 11 E - 25
AM 1 E - 25	AM 1 E - 25 - 1/4	AM 11 E - 25	25			
AM 1 E - 30	AM 1 E - 30 - 1/4	AM 11 E - 30	30			
AM 1 E - 35	AM 1 E - 35 - 1/4	AM 11 E - 35	35			
AM 1 E - 40	AM 1 E - 40 - 1/4	---	40			
AM 1 D - 40	AM 1 D - 40 - 1/4	---	40	400	2	
AM 1 D - 45	AM 1 D - 45 - 1/4	---	45			
AM 1 D - 50	AM 1 D - 50 - 1/4	---	50			
AM 1 D - 55	AM 1 D - 55 - 1/4	---	55			
AM 1 D - 60	AM 1 D - 60 - 1/4	---	60			
AM 1 C - 60	---	AM 11 C - 60	60	400	2	
AM 1 C - 70	---	AM 11 C - 70	70			
AM 1 C - 80	---	AM 11 C - 80	80			
AM 1 C - 90	---	AM 11 C - 90	90			
AM 1 C - 100	---	AM 11 C - 100	100			
---	ADM 1 - 15	---	15	315	8	
---	ADM 1 - 20	---	25			
---	ADM 1 - 30	---	28			
---	ADM 1 - 40	---	40			
---	ADM 1 - 50	---	50			
---	ADM 1 - 70	---	70			
ADME 1 - 15	ADM 1 K - 15 ¹⁾	---	15	315	8	
ADME 1 - 20	---	---	20			
ADME 1 - 30	---	---	30			
ADME 1 - 50	---	---	50			
ADME 1 - 70	---	---	70			

¹⁾ Adjustable version (adjustment by means of tools, see section 4).

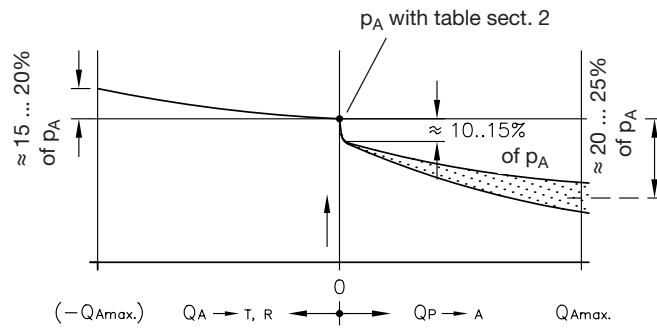
The specified pressure p_A represents the max. pressure setting, p_{\min} approx. 5 bar

²⁾ For notes regarding the pressure adjustment, see section 3

3. Other characteristic data

Designation	Directly controlled pressure control valve with overdrive compensation							
Type	Spool valve							
Material	Screw-in cartridge: Screw nitrided Hole diamond-honed Regulator piston made of stainless steel (type ADC 1.., AM 1(11)..) bearing steel (type ADM..), case-hardened and polished. Bore and piston polish-deburred Control edges feature optimum resistance to wear caused by the erosion and cavitation effect of the fluid in flux. Housing: Zinc galvanized; This together with the nitrous hardened components ensures a good corrosion protection of the surface.							
Connection	Cartridge valve: Mounting hole, see unit dimensions section 4.1 Housing version: Direct pipe connection design (G 1/4 ISO 228/1 (BSPP) and DIN 3852 E) Manifold mounting design (hole pattern, see section 4.2)							
Installation position	Any							
Flow direction	Operating direction P→A Free return A→P only permissible to limited extent, see Δp -Q-characteristic Over drive A→T(R) see p_A - Q_A curve below							
Port P and A R	see table, pos. 2 max. 20 bar							
Leakage oil	Type ADC 1(K) - .. = approx. 0.5 lpm at $p_E \approx 300$ bar Type AM 1(E, D, C) - .. ADM(E) 1- .. AM 11... = approx. 0.1 lpm at $p_E \approx 300$ bar (depends largely on thread tolerance)							
Mass (weight) approx. g	Type	ADC 1 - ..	ADC 1K - 25	AM 1 - ..	AM 1E - .. AM 1D - .. AM 1C - ..	AM 11...	ADM 1 - ..	ADME 1 - ..
	Screw-in cartridge	30	45	30	70	---	---	50
	Housing design	320	340	340	380	200	350	---
Pressure fluid	Hydraulic fluid (DIN 51524 table 1 to 3); ISO VG 10 to 68 (DIN 51519) Viscosity range: min. 4; max. 800 mm ² /sec; Optimal operation range: 10...200 mm ² /sec Also suitable are biodegradable pressure fluids of the type HEPG (Polyalkylenglycol) and HEES (synth. Ester) at operation temperatures up to +70°C.							
Temperature	Ambient: -40...+80°C Fluid: -25...+80°C, pay attention to the viscosity range! Start temperature down to -40°C are allowable (Pay attention to the viscosity range during start!), as long as the operation temperature during consequent running is at least 20K (Kelvin) higher. Biodegradable pressure fluids: Pay attention to manufacturer's information. With regard to the compatibility with sealing materials do not exceed +70°C.							

$p_A - Q_A$ curve
(tendency)



Overdrive

Overdrive compensation occurs when the consumer is forced back against p_A by an external force. In this case, the valve acts like a pressure limiting valve from $A \rightarrow T(R)$.

Free return $A \rightarrow P$

A free return flow $A \rightarrow P$ is only possible, if the valve was previously unloaded, i.e. in the open idle position $P \rightarrow A$ (return flow must not exceed $1/3$ of $Q_{A \max}$). A bypass check valve is required, when a return flow $A \rightarrow P$ is desired with minimized hindrance.

Pressure adjustment
via washers

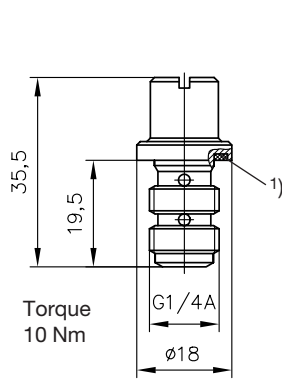
Type	AM 1 E - 20...40 AM 1 D - 40...60 AM 11 E(F) - ...	AM 1 C - ... AM 11 - ...	ADM 1 - 20...30 ADME 1 - 20...30 ADME 1 - 50...70
Washer (HAWE-No.)	7625 525 (per washer 0.75 mm approx. $\Delta p = 5$ bar)	7625 549 (per washer 0.4 mm approx. $\Delta p = 5$ bar)	7434 006 a 0.5 mm 7434 006 b 1.0 mm 7434 006 c 2.0 mm (dep. on demand)

4. Dimensions of units

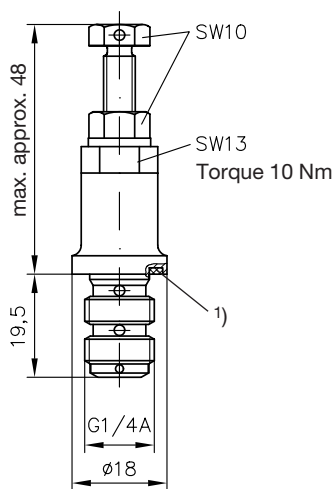
All dimensions are in mm, subject to change without notice!

4.1 Screw-in cartridge

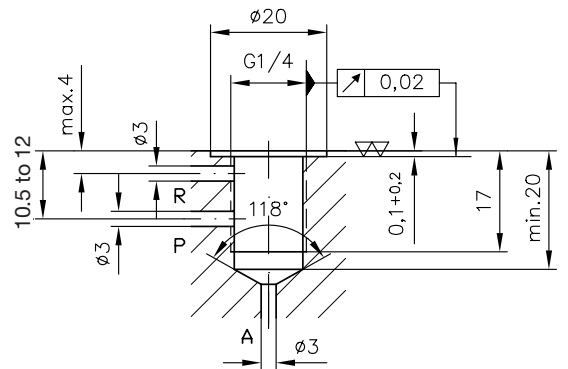
Type ADC 1 - ..



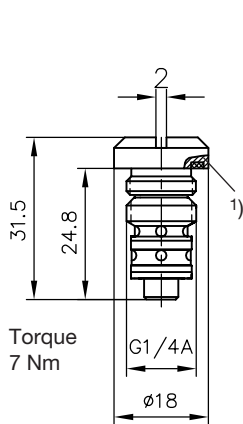
Type ADC 1K - 25



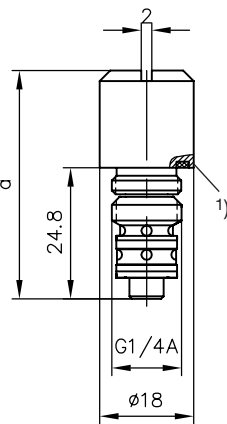
Mounting hole for type ADC 1 - .. and ADC 1K - 25



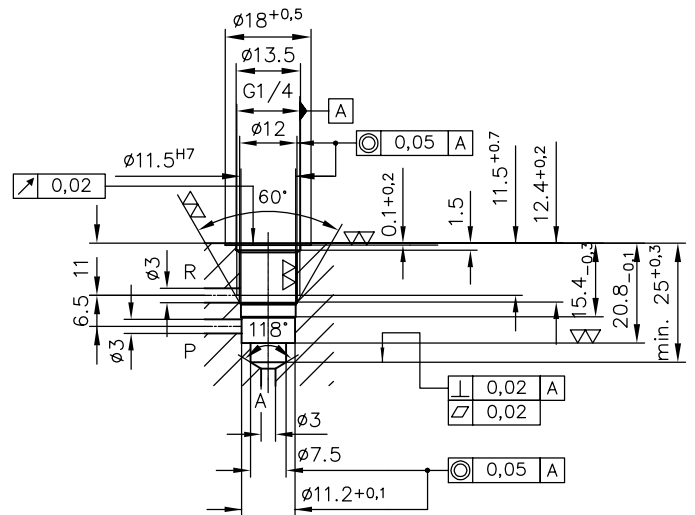
Type AM 1 - 20(25)



Type AM 1E(D, C) - ..



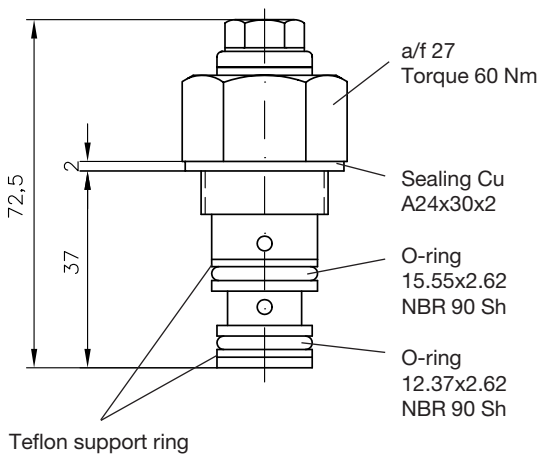
Mounting hole for type AM 1 - 20(25), AM 1E(D, C) - ..



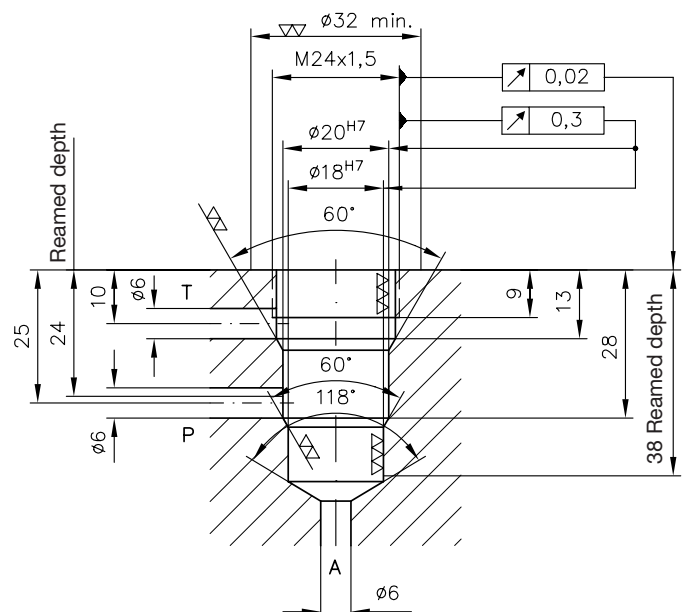
1) ERMETO EOLASTIC-seal
(coding: ED R 1/4")

	a (mm)
AM 1 E(D)	43.5
AM 1 C	57.4

Type ADME 1 - ..

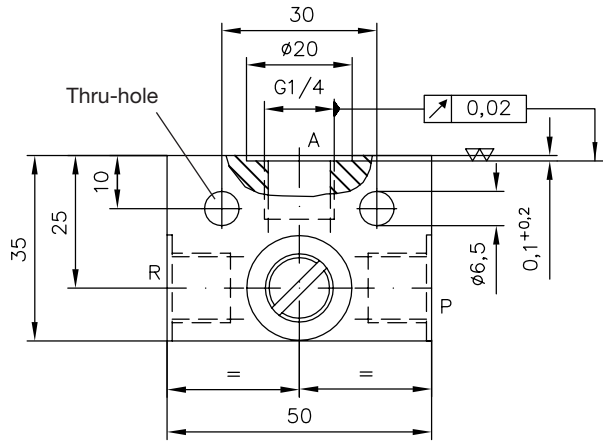
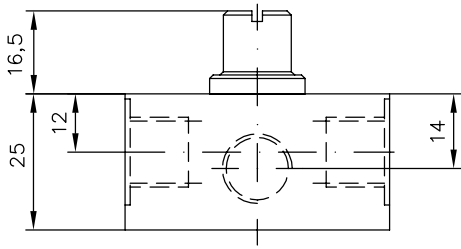


Mounting hole for type ADME 1 - ..



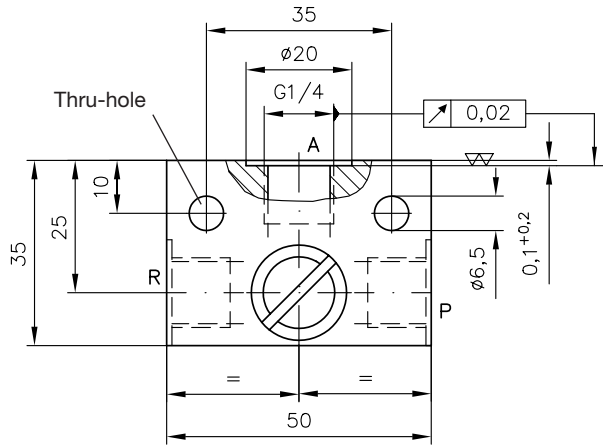
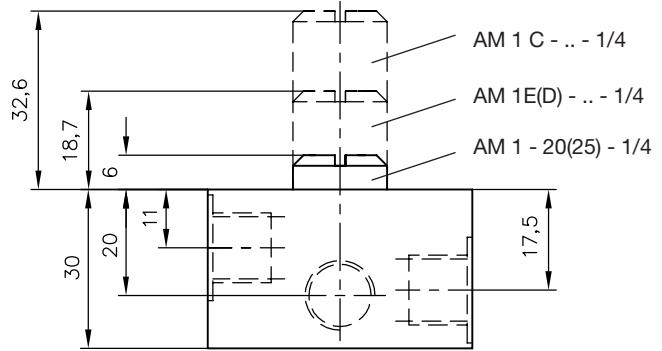
4.2 Housing design

Type ADC 1 - ... - 1/4



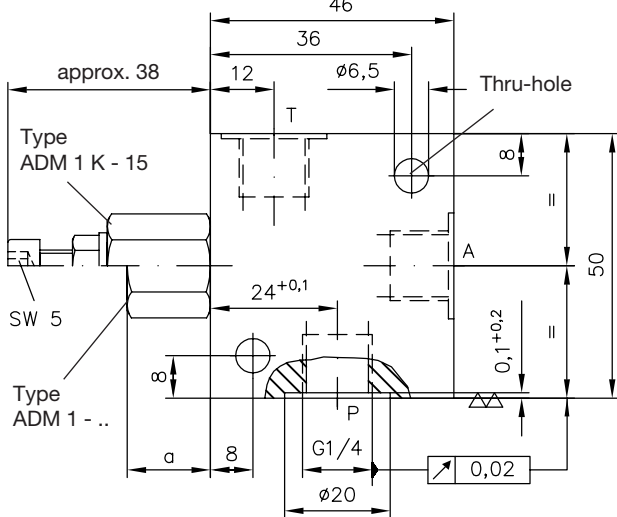
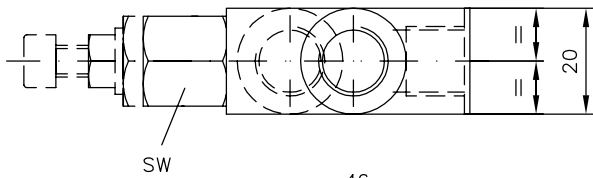
Ports A, P, and R = G 1/4 ISO 228/1 (BSPP)

Type AM 1 - 20(25) - 1/4
AM 1 E(D, C) - ... - 1/4

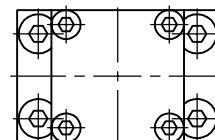
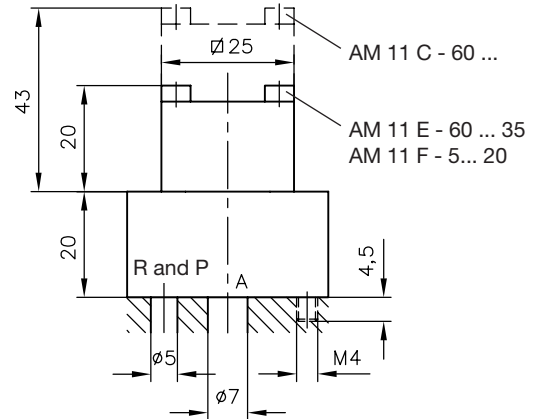
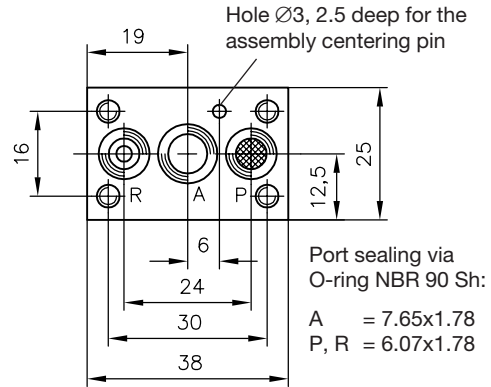


Ports A, P, and R = G 1/4 ISO 228/1 (BSPP)

Type ADM 1 - ... and ADM 1 K - 15



Type AM 11 ...



Type	a	a/f	Ports A, P, and T	Torque
ADM 1 - 15	15	17	G 1/4 ISO 228/1 (BSPP)	20 Nm
ADM 1 - 20				
ADM 1 - 30				
ADM 1 - 40	21	19	G 1/4 ISO 228/1 (BSPP)	20 Nm
ADM 1 - 50				
ADM 1 - 70				