

Throttle and restrictor check valves type CQ, CQR, and CQV

Cartridge-style for screwing into simple, tapped holes

Pressure p_{max} = 700 bar
 Flow Q_{max} = 50 lpm

- Further cartridge valves:
- Pressure valves type CMV and CSV D 7710 MV
 - Pressure controlled 2-way directional valve type CNE D 7710 NE
 - Check valves type CRK, CRB, and CRV D 7712
 - Flow control valves type CSJ D 7736
 - Pressure reducing valves type CDK D 7745
 - Pressure-dependent shut-off valve type CDSV D 7876

1. General

Throttles serve to limit the flow within control circuits. The throttle valves detailed here are slot-type throttles, with or without check valve enabling free flow in one and restricted flow in the other direction.

The twin sealing of the setting spindle ensures adjustment without any leakage. When combined with the individual connection block P-DW it becomes a flow control valve enabling load independent flow control at operating pressure up to 700 bar (max. pressure difference A-B 500 bar).



2. Available versions, main data

Order examples:

CQ 2
CQR 2
CQV 2 D - 1/4

Version with connection block for pipe mounting
 Ports A and B ISO 228/1 (BSPP)

- 1/4 = G 1/4
- 3/8 = G 3/8
- P-DW = Manifold mounting (only in combination with type CQ and CQV)

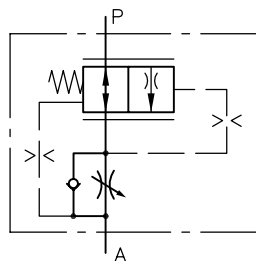
Adjustable during operation
 no coding = tool adjustable

- D** = turn-knob (with lock nut)
- D3** = turn-knob $\varnothing 35$ mm (without lock nut)

Symbol	Basic type and size Standard version	Version with fine metering range	Nomenclature
	CQ 2	CQ 22	Throttle Rather equal throttle characteristic for A→B and B→A
	CQR 2	CQR 22	Throttle check valve Throttling direction B→A
	CQV 2	CQV 22	Throttle check valve Throttling direction A→B

Symbol

Version
CQ...P-DW



Flow control valve function P → A
 Flow direction A → P corresponding to
 the installed valve type CQ.2

Only in combination with
 type CQ 2, CQ 22, CQV 2 and CQV 22

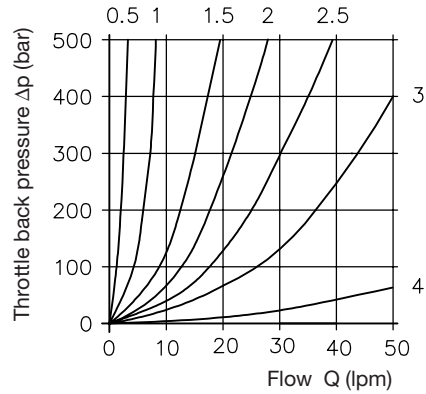
3. Additional parameters

Δp - Q curves

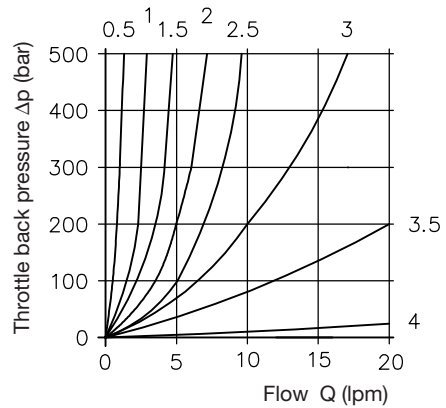
Throttled flow direction
Guideline figure per turn of the setting spindle, counted from blocked position

Oil viscosity during measurements approx. 50 mm²/s

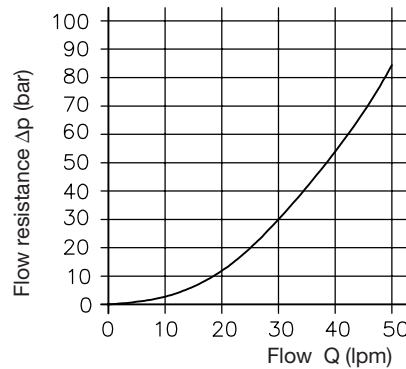
Type CQ.2



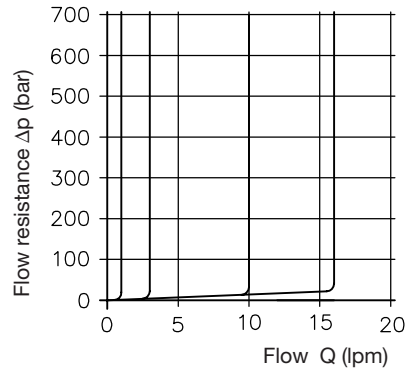
Type CQ.22



Free flow
A→B (type CQR)
B→A (type CQV)



CQ.2.-P-DW
(flow control valve function)



Turns	Flow (lpm) guideline	
	CQ.2	CQ.22
0.5	0.7	0.15
1.0	2.4	0.25
1.5	3.8	
2.0	5.2	0.5
2.5	7.0	
3.0	9.8	1.16
3.5	15.4	
4.0	29.5	12.5

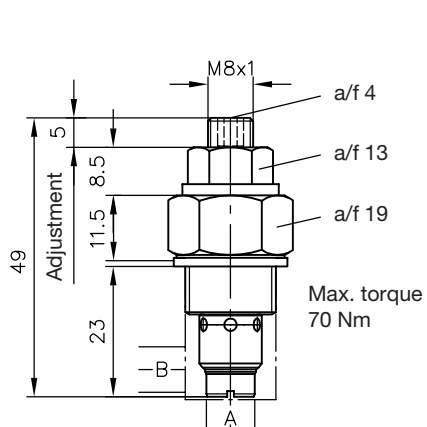
Nomenclature	Throttle and restrictor check valve
Design	Slot-type throttle
Installed position	Any
Surface	Housing nitrous hardened, sealing nut zinc galvanized
Flow	In throttled flow direction: dep. on setting, see Δp - Q curve The flow figures are viscosity dependent.
Pressure max.	700 bar
Pressure fluid	Hydraulic fluid acc. to DIN 51524 table 1 to 3; ISO VG 10 to 68 acc. to DIN 51519 Viscosity range: min. approx. 4; max. approx. 1500 mm ² /s (viscosity during start) Optimal operation range: approx. 10...500 mm ² /s Also suitable are biologically degradable pressure fluids of the type HEPG (Polyalkylenglycol) and HEES (synth. Ester) at operation temperatures up to approx. +70°C.
Temperature	Ambient: approx. -40...+80°C Oil: -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. Biological degradable pressure fluids: Pay attention to manufacturer's information. With regard to the compatibility with sealing materials do not exceed +70°C.
Mass (weight)	Single valve: CQ.2 = approx. 90 g Connection block: - 1/4, - 3/8 = approx. 320 g -P-DW = approx. 450 g

4. Dimensions

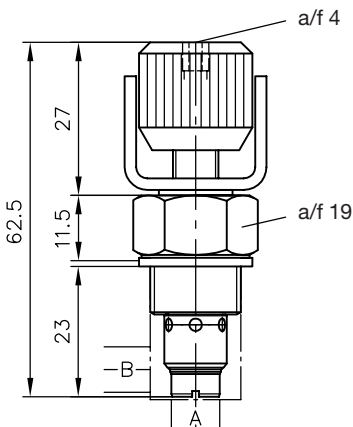
4.1 Single valve

All dimensions in mm, subject to change without notice!

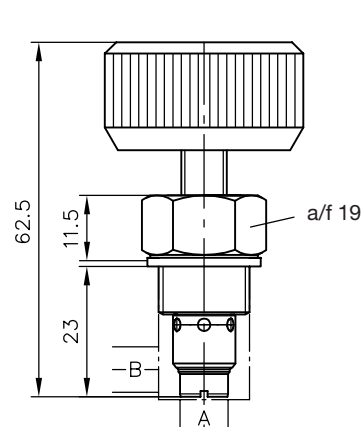
Tool adjustable version



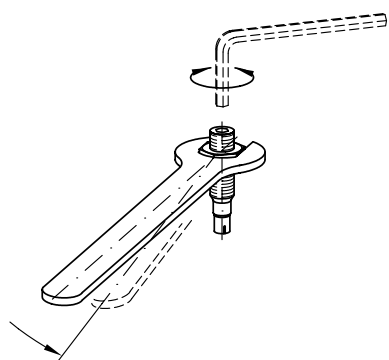
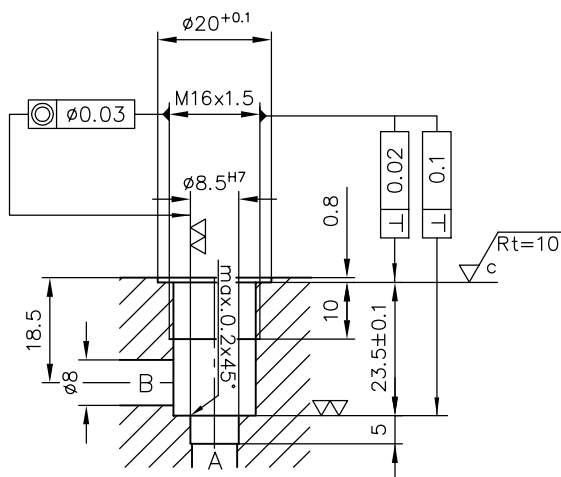
Coding **D**
Turn-knob (with lock nut)



Coding **D3**
Turn-knob (without lock nut)



Mounting hole



Screw-in and locking

Loosen the counter/sealing nut until the travel stop before screwing the valve body into the manifold

1. Screw-in the valve body
2. Tighten the counter/sealing nut with correct torque
(For torque, see dimensional drawing)

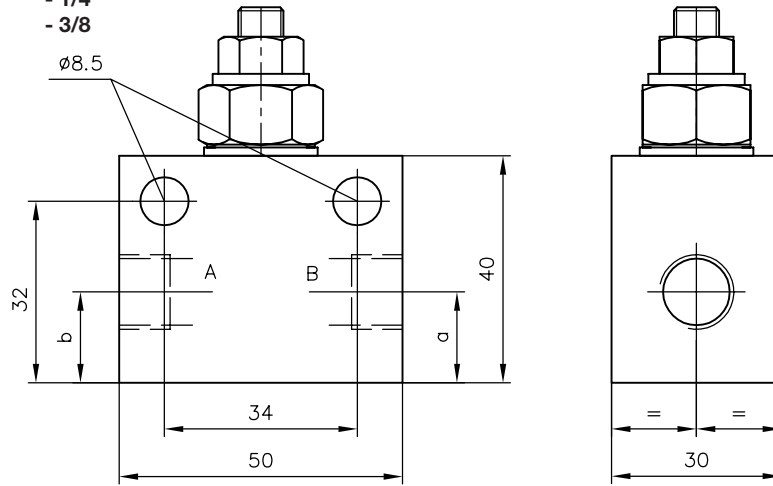
Adjustment

The lock nut is to be loosened a little bit prior to rotating the setting spindle with an Allen key

The twin sealing of the setting spindle ensures adjustment without any leakage.

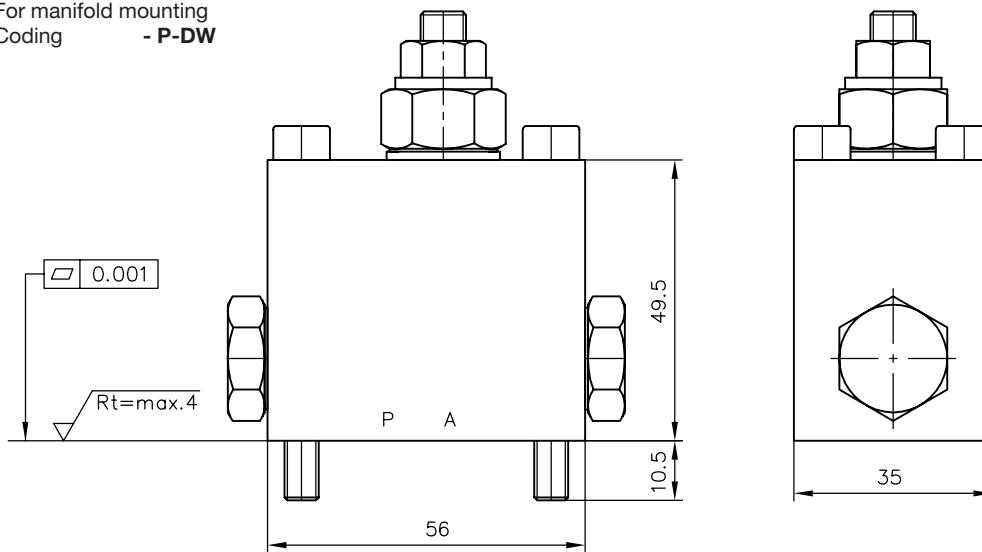
4.2 Version with connection block for pipe mounting

For pipe mounting
Coding - 1/4
 - 3/8



Coding	Ports A and B ISO 228/1 (BSPP)	a	b	Dwg.-No. for indiv. order
-1/4	G 1/4	18	15	7713 216
-3/8	G 3/8	16	16	7713 215

For manifold mounting
Coding - P-DW



Hole pattern

