2.4 Flow control valve type SF, SD and SK

Flow control valves are a type of flow valve. They generate a set constant flow rate, largely independently of the load.

The flow control valve type SD, SF and SK can be freely adjusted with different mechanical actuations. The flow control valve type SD, SF and SK is available as a 2-way and 3-way flow control valve. For type SD, the adjustment is made using the adjusting knob; for type SF using the adjusting screw; and for type SK using the roller actuation. The flow control valve type SD, SF and SK is available as a single valve for pipe connection or as a manifold mounting valve.

Pressure-limiting valves and randomly switchable idle circulation valves are additional options. The flow control valve type SD, SF and SK controls the operating speed of the hydraulic consumers.

Features and benefits:

- Various actuation types
- Can also be combined with bypass check valves
- Precise setting

Intended applications:

- Construction machinery
- Machine tools
- General hydraulic systems

Nomenclature:	**2-way flow control valve** **3-way flow control valve**
Design:	**Individual valves for pipe mounting** **Manifold mounting**
Adjustment:	**Mechanical** ▪ **Adjusting knob** ▪ **Roller actuation** ▪ **Setting screw**
p_{max}:	**315 bar**
Q_{max}:	**130 l/min**

Design and order coding example

SF 3 - 3	/15	- S	- G24	- 120

Pressure setting [bar] of the pressure limiting valve (S)

Solenoid voltage G 12, G 24, WG 110 and WG 230

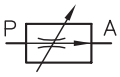
Mounting and add. valve
- Pipe connection (no coding)
- Manifold mounting (P)
- Valve with bypass check valve (R, PR)
- Check valve bridge circuit (B)
- Pressure-limiting valve (S)
- Pressure-limiting and circulation valve (S-WN1F, S-WN1D)

volumetric flow Flow steps via orifices Q_{max} : 3, 6, 15, 36, 50, 60, 70, 90, 130 lpm

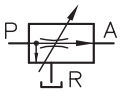
Basic type, design, size
- Type SF, with lock nut, fixed adjustment
- Type SD, with adjusting knob actuation
- Type SK, with roller actuation (open version)
- Type SKR, with roller actuation (closed version, not for manifold mounting)
- Version as 2-way (-2) and 3-way (3) flow control valves
- Size 3 to 5

Function

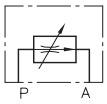
2-way, pipe connection



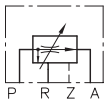
3-way



2-way, manifold mounting valve



3-way



Actuation:

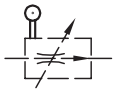
SF ...

Set screw SW 10
adjustment travel 5 mm

SD ...

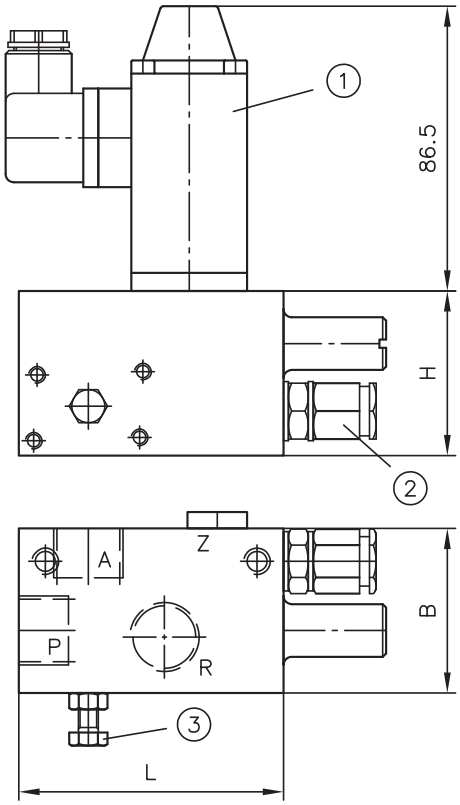
Adjusting knob,
adjustment travel
3.8 turns

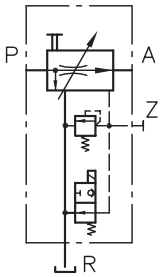
SK ... SKR ...



Roller actuation
Unshielded version (SK), Shielded version (SKR)
Actuation travel 15,5 ... 17 mm,
Actuation force 30 ... 70 N

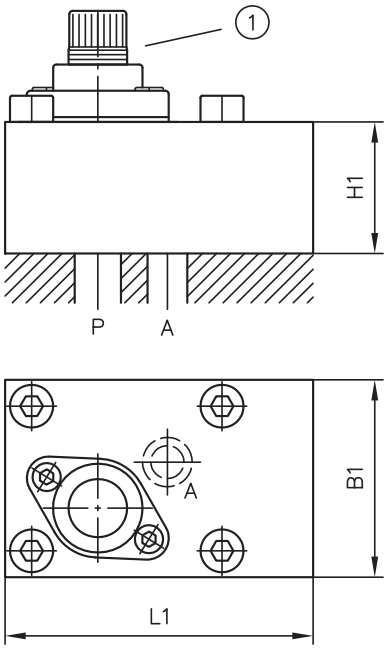
Version for pipe connection





1 Idle circulation valve
2 Pressure-limiting valve
3 Setting screw

Manifold mounting valve



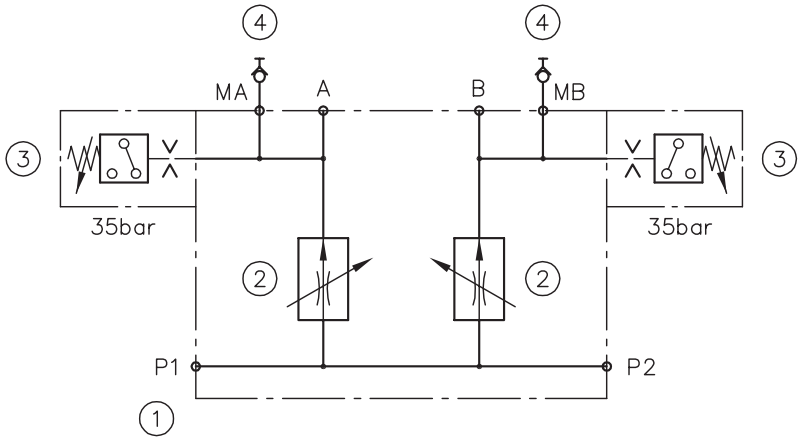
1 Adjusting knob

		Q_{max} [lpm][1]	Ports[2]	Dimensions [mm]						m [kg][3]
2-way	**3-way**			**H**	**H1**	**L**	**L1**	**B**	**B1**	
S. 2-3		0,3 ... 60	G 1/2	50	40	80	93	50	60	1,4 ... 2,1
	S. 3-3			50	40	80	93	50	60	1,4 ... 2,1
S. 2-4		0.3 ... 90	G 3/4	60	50	85	100	60	70	2
	S. 3-4			60	50	85	100	60	70	2,0 ... 2,6
S. 2-5		1,0 ... 130	G 1	70	50	100	106	70	80	3,1
	S. 3-5			70	50	100	106	70	80	2,8 ... 3,7

1) Different Q_{max} available, see Design and order coding example: "Orifice steps"
2) For pipe connection versions
3) Depending on actuations

Circuit example:

Position	Number	Designation
4	2	SMK 20-G 1/4-PC
3	2	DG 364-35
2	2	SD 2-3/6P
1	1	20,201 H 00



Associated technical data sheets:

- Flow control valve type SD, SF and SK: D 6233

Similar products:

- Drop-rate braking valves type SB, SQ: Page 210
- Prop. flow control valves type SE, SEH: Page 212

Male connectors:

- Line connector type MSD and others: D 7163

2.4 Flow control valve (lowering brake valve) type SB, SQ, SJ and DSJ

Flow control valves are a type of flow valve. They generate a set constant flow rate, largely independently of the load.

The flow control valve type SB and SQ is available as a screw-in cartridge, a housing version with pipe connection or as a banjo screw version. Type SB has a slightly inclined characteristic curve for oscillation damping. Type SQ is largely independent of the load.

The freely movable sliding metering orifice enables greater flow in the opposite flow direction. No bypass check valve is therefore required. The flow control valve type SB and SQ is used to control the lowering speed of single-acting consumers.

Features and benefits:

- Oscillation damping and load-independent
- Compact screw-in valve

Intended applications:

- General hydraulic systems
- Industrial trucks
- Lifting equipment

Nomenclature:	2-way flow control valve (drop rate braking valve)
Design:	Screw-in type with housing for in-line installation
Adjustment:	Fixed (pre-set) Tool adjustable from outside
p_{max}:	315 bar
Q_{max}:	400 lpm

Design and order coding example

SB 2 | 1 | C | - 30

Response flow [l/min] Desired factory set response flow within the respective range

Design Adjustable or non adjustable version

- Screw-in version (C)
- Version with housing for pipe mounting (E, F, G)

Additional versions

- With metric of UNF-thread
- With thread adaptor
- As banjo bolt and/or with swiveling screw fitting

Adjustment range Adjustable response flow

Basic type, size Type SB, SQ and SJ, size
Type DSJ, flow control function in both directions for double-acting consumers

Function

SB, SQ

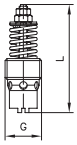
SJ

DSJ

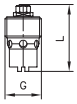
General parameters and dimensions

Screw-in valve ...C

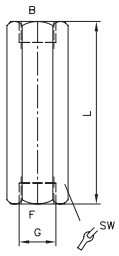
SB, SQ



SJ



With housing...G



	Coding for adjustment range of the set response flow from ... to ... [lpm] below						Ports	Dimensions [mm]			m [g]
	1	3	5	7	9	90	G (Series)	L	L1 max	SW = a/f	
SB 0	1...1.6	1.6...2.5	2.5...4	4...6.3	6.3...10	10...15	G 1/4 (A)	39	78	19	13
SJ 0[1]								24	-	-	35
SB 1	2.5...4	4...6.3	6.3...10	10...16	16...25	25...35	G 3/8 (A)	43	82	22	23
SQ 1											
SB 2	16...21	21...28	28...37	37...50	50...67[2]	-	G 1/2 (A)	49	96	27	40
SQ 2											
SB 3	37...50	50...67	67...90	90...120	120...150[2]	-	G 3/4 (A)	61	106	32	80
SQ 3											
SB 4	80...100	100...125	125...160	160...200	200...250	-	G 1 (A)	78	145	41	150
SB 5	170...200	200...236	236...280	280...335	335...400	-	G 1 1/4 (A)	94	160	50	300
DSJ 1	1.0...21.0						G 3/8 (A)	39	78	19	30

1) Type SJ 0 without coding: adjust. range 0.25 ... 1.2 l/min
2) Not for type SQ..

Associated technical data sheets:

- Flow control valve (lowering brake valve) type SB and SQ: D 6920
- Flow control valve type SJ: D 7395
- Flow control valve type CSJ: D 7736
- Flow control valve type DSJ: D 7825

2.4 Proportional flow control valve type SE and SEH

Proportional flow control valves are a type of flow valve. They generate a constant flow rate independent of the load which can be controlled in an electro-proportional and remote way.

The flow control valve type SE has a directly actuated metering orifice, which has an advantage of approximately Qmin equal to zero in terms of the controllability. The flow control valve type SEH has a piloted metering orifice which is shown to be beneficial in dynamic systems with short reaction times. The flow control valve type SE and SEH is available as a single valve for pipe connection or as a manifold mounting valve.

Pressure-limiting valves and randomly switchable idle circulation valves are additional options. The flow control valve type SE and SEH controls the operating speed of hydraulic consumers.

Features and benefits:

- Electrical control of consumer operating speeds
- Automation of operating cycles

Intended applications:

- Construction machines
- Machine tools
- General hydraulic systems
- Mining machinery

Nomen-clature:	2-way flow control valve 3-way flow control valve
Design:	Individual valve for pipe mounting or Screw-in valve
Adjustment:	Electro-proportional
p_{max}:	315 bar
Q_{max}:	120 lpm

Design and order coding example

SE 2-3 /30F - P - G24

Solenoid voltage Prop. solenoid
- 12 V DC, 24 V DC
- Controls via prop. amplifier or PLVC

Design and port size
- Pipe connection
- Manifold mounting (P)

Flow [lpm] Nom. flow of the metering orifice
- Deenergized open
- Deenergized closed (coding F

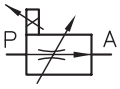
Orifice steps Q_{max} : 3, 6, 10, 15, 22, 30, 36, 50, 70, 90, 120 lpm

Basic type, size Type SE, with non-piloted metering orifice, size 3, 4
Type SEH, with piloted metering orifice, size 2 to 5
- Available as 2- and 3-way flow control valve

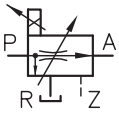
Function

SE, SEH

2-way
Pipe connection

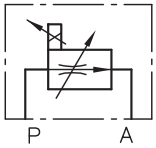


3-way
Pipe connection

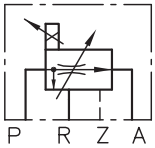


1)

2-way
Manifold mounting valve



3-way
Manifold mounting valve



1) No Z port with type SEH 3-2

Additional functions for flow control valves:

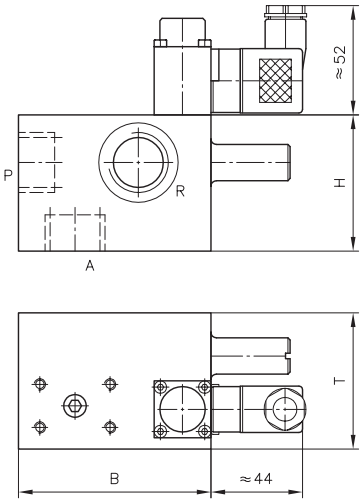
2-way flow control valve

- Version with bypass check valve
- Version with check valve in bridge circuit for free selection of the flow direction

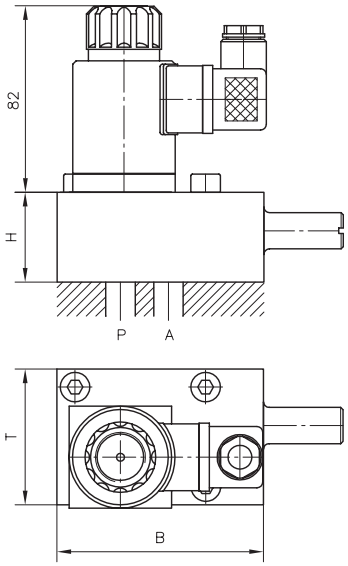
3-way flow control valve

- Version with pressure-limiting valve
- Version with pressure-limiting valve and circulation valve (for pipe connection versions only)
- Version with compulsory closed position of the pressure compensator when not actuated type ...FO
- Version with automatic circulation type ...B 0.6

SEH
Version for pipe connection



SE
Manifold mounting valve

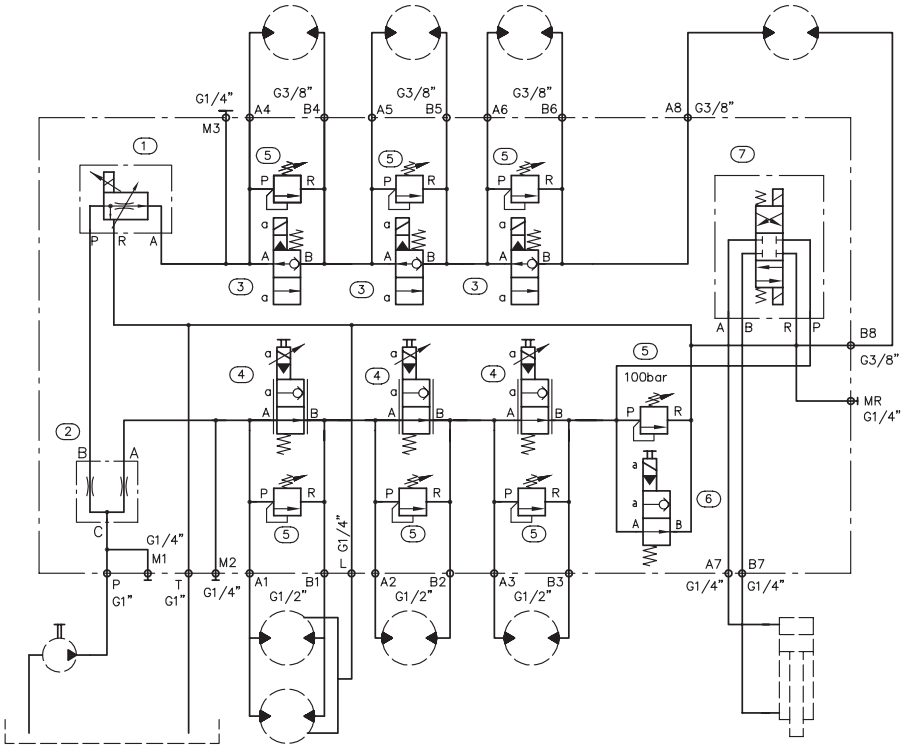


Basic type and size			Q_{max} [lpm][1]	p_{max} [bar]	Ports[2]	Dimensions [mm]			m_{max} [kg]
2-way	3-way					H	B	T	
SE 2-3	SE 3-3	Directly actuated	0,3 ... 50	315	G 1/2	110 ... 120	80 ... 91	50 ... 60	2,2
SE 2-4	SE 3-4		0.6 ... 90	315	G 3/4	120 ... 130	85 ...100	60 ... 70	2,2
SEH 2-2	SEH 3-2	Hydraulically piloted	0.1 ... 36	315	G 3/8	115	55 ... 70	39	1,6 ... 3,3
SEH 2-3[3]	SEH 3-3		0,3 ... 50	315	G 1/2	92,5	80 ... 93	50 ... 60	1,6 ... 3,3
-	SEH 3-4		0,6 ... 90	315	G 3/4	102,5	95 ... 100	60 ... 70	1,6 ... 3,3
-	SEH 3-5		1,0 ... 120	315	G 1	112,5	100	70	1,6 ... 3,3

1) Different Q_{max} available, see Design and order coding example: "Orifice steps"
2) For pipe connection versions
3) For manifold mounting versions only

Circuit example

① **SEHD 3-3/30 FP-X 24**
② **TQ 4 P-A 5/2**
③ **EM 31 V-X24**
④ **EMP 31 S-X 24**
⑤ **MVH 6 C**
⑥ **EM 31 S-X24**
⑦ **SWPN 2-G-X24**



Associated technical data sheets:

- Proportional flow control valve type SE and SEH: D 7557/1

Similar products:

- Flow control valves type SD and others: Page 206

Suitable accessories:

- Proportional amplifier type EV1M3: Page 272
- Proportional amplifier type EV2S: Page 274
- Proportional amplifier type EV1D: Page 272

2.4 Flow divider type TQ

Flow dividers are a type of metering valve. They divide or add together a total flow rate either evenly or using a fixed ratio. The consumer pressures have no effect.
The flow divider type TQ is, due to its simple design, an economical solution for simple dividing tasks, e.g. if two hydraulic consumers with varying loads supplied from one pump are to be moved simultaneously without interaction.
Intended applications include mobile hydraulics and industrial hydraulics.

Features and benefits:
- Excellent dividing accuracy

Intended applications:
- Steering systems
- Synchronous cylinders

Nomen-clature:	Flow dividers
Design:	Individual valve for pipe mounting Manifold mounting
Adjustment:	Non-adjustable
p_{max}:	350 bar
Q_{max}:	200 lpm (nom. total flow)

Design and order coding example

TQ 32	- A	- 2,3 - 3

Coding Flow indicator

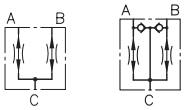
Design
- A – equal division ratio
- R - with bypass check valve

Basic type, size
- Pipe connection (no coding)
- Manifold mounting (P)

Type TQ, size 2 to 5

Function

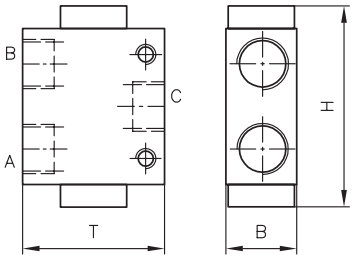
TQ
Pipe connection



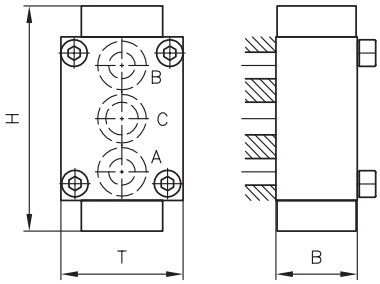
TQ.P
Manifold mounting valve

General parameters and dimensions

TQ...
Pipe mounting



TQ .P
Manifold mounting



	Q_{max} [lpm]	p_{max} [bar]	Ports[1)]			Dimensions[mm]			m [kg]
			A	B	C	H	B	T	
TQ 2..	7.5 ... 70	350	G 1/4, G 3/8	G 1/4, G 3/8	G 3/8	79	30	50	0.6
TQ 3..	7.5 ... 70	350	G 3/8, G 1/2	G 3/8, G 1/2	G 1/2	85	30	60	0.6 ... 0.7
TQ 3P	7.5 ... 70	350	-	-	-	79	30	50	0.7
TQ 4	80 ... 120	350	G 1/2	G 1/2	G 3/4	110	40	60	1.5
TQ 4P	80 ... 120	350	-	-	-	110	40	60	1.6
TQ 5	140 ... 200	350	G 3/4	G 3/4	G 1	134	50	80	3.0
TQ 5P	140 ... 200	350	-	-	-	134	50	80	3.1

1) For pipe mounting versions only

Associated technical data sheets:
- Flow divider, type TQ: D 7381

2.4 Restrictors and restrictor check valve type EB, BE, BC

Restrictors are a type of flow valve. They are used as a local flow resistance that suddenly reduces the line cross-section. The reduction in the cross-section is very short. As a result, the flow rate is only dependent on the pressure difference and not on the viscosity.
The restrictor check valve type BE and BC combines the function of a flow valve with a check valve. The valve is available as a perforated restrictor or as a slotted restrictor. It limits the flow during the switching of directional valves. E.g. it prevents excessively quick accumulator emptying.
The orifice insert type EB is primarily used in valves for manifold mounting. As such an additional intermediate plate is not necessary.

Features and benefits:
- Max. 700 bar
- Simple design and installation

Intended applications:
- General hydraulics
- Winch controls
- Hydraulic pilot systems

Nomen-clature:	Restrictor Restrictor check valve
Design:	Plug-in valve Insert valves Combination with housing for pipe connection
p_{max}:	700 bar
Q_{max}:	120 l/min

Design and order coding example

BC1 **- 0,8** **G**

Design with housing For pipe connection, type BC, BE (E; F, G)

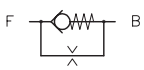
Orifice Hole or slot type orifice, diameter in mm

Basic type, size Type BC, size 1 to 3
Type BE, size 1 to 4
Type EB, size 0 to 4, Orifice insert

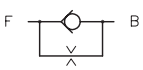
Additional versions
- Type BC and BE with metric thread

Function

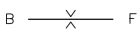
BC
Screw-in valve



BE

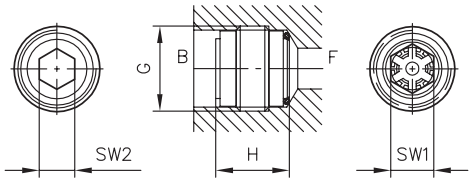


EB
Orifice insert

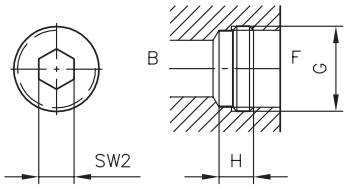


General parameters and dimensions

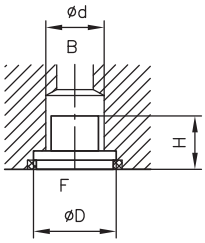
BC..
Screw-in valve



BE ..



EB..
Orifice insert



	Q_{max} [l/min]	p_{max} [bar]	Ports	Dimensions				m [g]
				H [mm]	G / D	SW = a/f 1/Æd	SW = a/f 2	
BC 1	20	700	G 1/4 A	13	G 1/4 A	SW 8	SW 4	6
BC 2	35	700	G 3/8 A	15	G 3/8 A	SW 9	SW 5	10
BC 3	60	500	G 1/2 A	18	G 1/2 A	SW 12	SW 8	24
BE 0	12	500	G 1/8 A	5	G 1/8 A	SW 4	-	2
BE 1	25	500	G 1/4 A	6	G 1/4 A	SW 5	-	4
BE 2	40	500	G 3/8 A	7	G 3/8 A	SW 8	-	6
BE 3	80	450	G 1/2 A	7.5	G 1/2 A	SW 10	-	10
BE 4	120	400	G 3/4 A	9	G 3/4 A	SW 12	-	18
EB 0	6	500	-	1.8	9	5.6	-	2
EB 1	10	700	-	1.8	11	7.5	-	4
EB 2	40	700	-	9	18	12.8	-	6
EB 3	100	500	-	11.5	22	16	-	10
EB 4	120	500	-	10	28	25	-	18

Associated technical data sheets:
- Restrictor check valve type BC: D 6969 B
- Restrictor check valves type BE: D 7555 B
- Orifice type EB: D 6465

Similar products:
- Insert check valves type RK, RB, RC, RE, ER: Page 232
- Restrictor check valves type RD, ED, RDF: Page 222

2.4 Throttle valve type Q, QR, QV and FG

Throttle valves are a type of flow valve. They affect the flow rate for single and double-acting consumers.

The throttle valve type Q and the restrictor check valve type QR and QV are, as slotted throttles, insensitive to micro contamination. The precision throttle valve FG is a thread type throttle. It adjusts the switching time of directional valves, prevents switching surges and dampens oscillations. The restrictor check valve type QR, QV, FG1 and FG2 combines the function of a flow valve with a check valve. It regulates in one flow direction and permits free flow in the other direction.

The valve type Q, QR, QV and FG can be integrated into control blocks or into the pipework as a banjo screw version.

Features and benefits:

- Different installation options
- Simple design

Intended applications:

- General hydraulic systems

Nomen-clature:	**Throttle** **Restrictor check valves**
Design:	**Cartridge** **Individual valve for pipe mounting** ▪ **Corner housing** ▪ **Banjo bolt** ▪ **Swivel fitting**
Adjustment:	**Tool adjustable**
p_{max}:	**400 bar**
Q_{max}:	**120 lpm**

Design and order coding example

QR 20 FG 1	- H 6	K

Version with housing

- Without labelling as a screw-in valve
- Available as a banjo bolt and/or with swivel fitting

Basic type, size, function

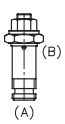
- Throttles type Q, type QR, type QV and precision throttles type FG, subdivided into 5 sizes
- Throttle direction and free flow direction function
- Slot-type throttles, available with or without built-in check valve

Diagram of devices:

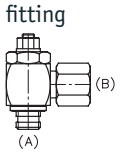
FG

Throttle screw

Banjo bolt



Swivel fitting

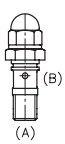


Q

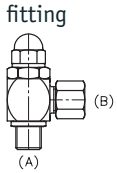
Throttle screw

Throttle screw

Banjo bolt

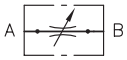


Swivel fitting



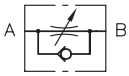
Function

FG, Q



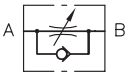
CQ

FG 1, QR



CQR

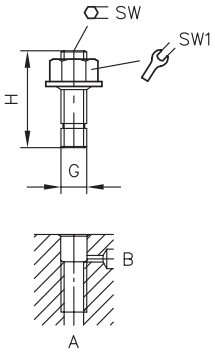
FG2, QV



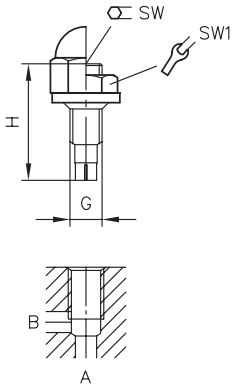
CQV

General parameters and dimensions

FG..



Q..



	Q_{max} [lpm][1)]	p_{max} [bar]	Dimensions				m [g]
			H [mm]	G	SW = a/f	SW =a/f 1	
FG, FG1, FG2	0,15	300	30	M 8	SW 4	SW 13	15
Q20, QR20, QV20	12	400	32	M 8 x 1	SW 4	SW 13	15
Q30, QR30, QV30	25	400	36	M 10 x 1	SW 5	SW 17	25
Q40, QR40, QV40	50	400	41	M 12 x 1.5	SW 6	SW 19	40
Q50, QR50, QV50	90	400	46	M 14 x 1.5	SW 8	SW 22	55
Q 60, QR60, QV60	120	315	58	M 16 x 1.5	SW 10	SW 24	100

1) The values apply to a fully opened valve (observe red marking) and a back pressure of approx. 50 bar (in a throttled direction)

Associated technical data sheets:

- Throttle valve and throttle check valve type Q, QR and QV: D 7730
- Throttle valve and throttle check valve type FG: D 7275

Similar products:

- Throttle valves type CQ, CQR, CQV: Page 224
- Throttle and restrictor check valves type ED, RD, RDF: Page 222
- Restrictor check valves and orifice inserts type EB, BE, BC: Page 218

2.4 Throttle valve type ED, restrictor check valve type RD and RDF

Throttle valves are a type of flow valve. They affect the flow rate for single and double-acting consumers.

The restrictor check valve type RD and RDF combines the function of a flow valve with a check valve. It regulates in one flow direction and permits free flow in the other direction.

Types ED and RD are adjustable.

The valve type ED, RD and RDF can be integrated directly in the line.

Features and benefits:

- Sensitively adjustable
- Wear-resistant

Intended applications:

- General hydraulic systems

Nomen-clature:	Throttle Restrictor check valves
Design:	Individual valve for pipe mounting Screw-in valve
Adjustment:	Manually adjustable (handle, adjusting knob) Fixed
p_{max}:	500 bar
Q_{max}:	130 lpm

Design and order coding example

RD 11 RDF 21	/1,0	- K

Adjustability

- Type ED and RD only
- Without labelling = manually (wing bolt/lock nut)
- K = tool adjustable (setting spindle/lock nut)

Fixed throttles — **Diameter in mm, type RDF**

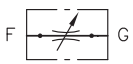
- 0.4 - 0.6 (in increments of 0.1)
- 0.8 - 2.0 (in increments of 0.2)
- 2.5 - 5.5 (in increments of 0.5)

Basic type, size

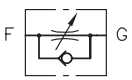
- Type ED, type RD, type RDF, size 1 to 5
- Slot-type throttles, available with or without built-in check valve

Function

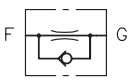
ED



RD

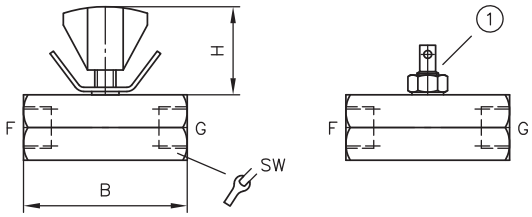


RDF

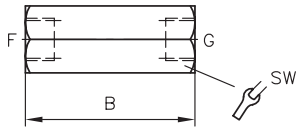


General parameters and dimensions

ED.. and RD..



RDF..



1 Tool adjustable

1)	Q_{max} [lpm] 2)	p_{max} [bar]	Ports	Dimensions [mm]			m [g]
				H	B	SW = a/f	
ED 11..	12	500	G 1/4	23.5	52	SW 24	180
RD 11..				23.5			
RDF 11/..				-			
ED 21..	30	500	G 3/8	24	52	SW 27	215
RD 21..				24			
RDF 21/..				-			
ED 31..	60	500	G 1/2	32.5	62	SW 32	340
RD 31..				32.5			
RDF 31/..				-			
ED 41..	80	500	G 3/4	41	72	SW 41	655
RD 41..				41			
RDF 41/..				-			
ED 51..	130	500	G 1	46.5	82	SW 46	835
RD 51..				46.5			
RDF 51/..				-			

1) The throttle diameter with type RDF canbe only altered by replacing the orifice. Depending on size, diameters between 0.6 and 4 mm are available.
2) These figures correspond to completely opened throttle and represent a back pressure of approx. 50 bar (throttled direction of flow)

Associated technical data sheets:

- Throttle and restrictor check valves type ED, RD, RDF: D 7540, D 2570

Similar products:

- Throttle valves type Q, QR, QV, FG: Page 220
- Throttle valves type CQ, CQR, CQV: Page 224
- Restrictor check valves type EB, BE, BC: Page 218

2.4 Throttle valve and restrictor check valve type CQ, CQR and CQV

Throttle valves are a type of flow valve. They affect the flow rate for single and double-acting consumers.

The throttle valve type CQ and the restrictor check valve type CQR and CQV are, as slotted throttles, insensitive to micro contamination. The restrictor check valve type CQR and CQV combines the function of a flow valve with a check valve. It regulates in one flow direction and permits free flow in the other direction. The double spindle sealing enables leakage-free adjustment, even under pressure.

The valve type CQ, CQR and CQV can be screwed-in and can be integrated into control blocks. The necessary mounting holes are straightforward to make.

Features and benefits:

- Leak-free adjustment under pressure
- Operating pressure up to 700 bar

Intended applications:

- Speed regulation in hydraulic lifting devices

Nomen-clature:	Throttle Restrictor check valves
Design:	Screw-in valve
Adjustment:	Tool adjustable Manually
p_{max}:	700 bar
Q_{max}:	50 l/min

Design and order coding example

CQV 2 - D - 1/4

Single connection blocks
- For pipe connection (1/4, 3/8)
- Manifold mounting (in combination with type CQ and CQV only)

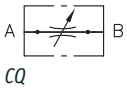
Adjustability in operation
- Without labelling = Fixed
- D = Turn knob (with lock nut)
- D3 = Turn knob, diameter 35 mm (without lock nut)

Basic type, size

Type CQ, type CQR, type CQV, size 2
Slot-type throttles, available with or without built-in check valve
- Version with precision control range (size 22)
- Version with strong precision control range (size 23; only with turn knob D3)
- Version with pressure compensator (flow control function)

Function

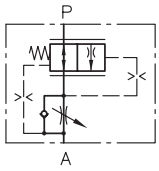
CQ 2, CQ 22, CQ 23



CQR 2, CQR 22, CQR 23

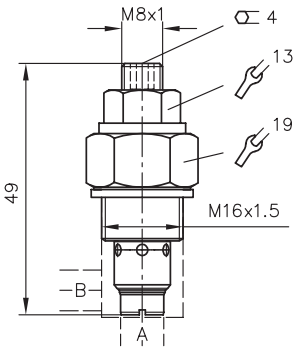
CQV 2, CQV 22, CQV 23

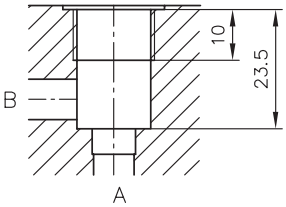
CQ 2 - P - DW



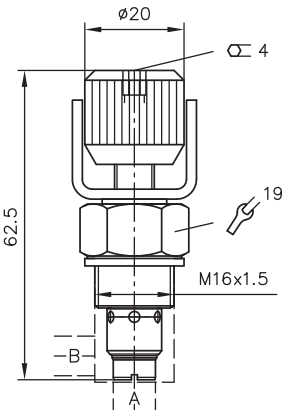
General parameters and dimensions

CQ 2., CQR 2., CQV 2.

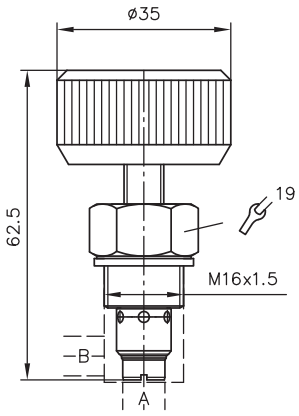




D



D3



	Q_{max} [lpm]	p_{max} [bar]
CQ 2, CQ 22, CQ 23	50 / 30 / 10	700
CQR 2, CQR 22, CQR 23		
CQV 2, CQV 22, CQV 23		

Associated technical data sheets:

- Throttle valve and throttle check valve type CQ, CQR and CQV: D 7713

Similar products:

- Throttle and restrictor check valves type ED, RD, RDF: Page 222
- Throttle valves type Q, QR, QV, FG: Page 220

2.4 Throttle valve and shut-off valve type AV, AVT and CAV

Throttle and shut-off valves are a type of metering valve. With the aid of these valves a pressure drop can be established between the inlet and outlet side. In this way the velocity of cylinders in accumulator circuits and the flow rate in control circuits can be regulated or a consumer line completely shut-off (e.g. to protect a pressure gauge).
The throttle and shut-off valve type AV and AVT produces a throttle effect by means of an annular gap. The valve type CAV, as a slotted throttle, is insensitive to micro contamination.
The valve type AV is available as a screw-in valve or valve for pipe connection. The type AVT is mounted in a T-housing and commercially available pipe screw connections permit direct pipe connection. The valve type CAV can be screwed-in and can be integrated into manifolds. The necessary mounting holes are straightforward to make.

Features and benefits:
- Various configurations
- Sensitive adjustment and complete shut off possible

Intended applications:
- General hydraulic systems

Nomen-clature:	Throttle and shut-off valve with/without by-pass check valve
Design:	Individual valve for pipe mounting Screw-in valve
Adjustment:	Tool adjustable (fixed) Manual (adjustable)
p_{max}:	630 bar
Q_{max}:	100 l/min

Design and order coding example

AV 3AVT 10 CAV 1V - K - 1/4

Thread size Version with connection block for pipe connection (type CAV)

Means of adjustment Fixed
Manually (adjustable)

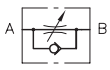
Basic type, size Type AV, size 2, 3
Type AVT, size 6... 12
Type CAV, size 1, 2

Function

AV, AV.E, AVT, CAV

CAV..R

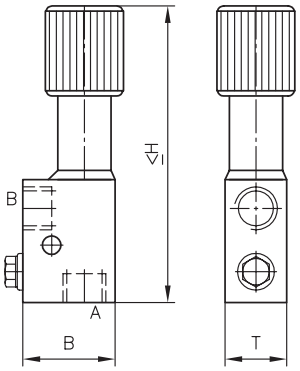
CAV..V, AV..R, AV..RE



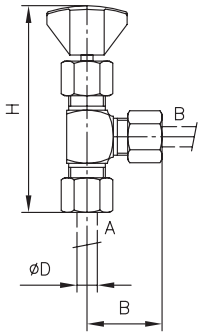
CQV

General parameters and dimensions

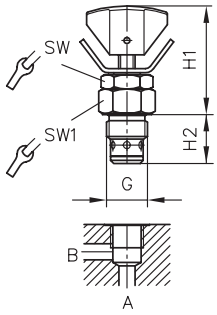
AV..
Valve for pipe connection



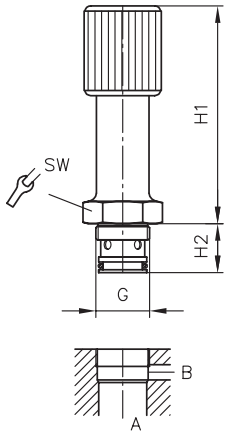
AVT..



CAV..
Screw-in valve



AV..E



	Q_{max} [lpm][1)]	p_{max} [bar]	Port size	Dimensions [mm]							m [kg]
			G	H	H1	H2	B	T	SW = a/f	SW = a/f 1	
AV 2	40	500	G 1/2 (BSPP)	145	-	-	45	30	-	-	0.6
AV 3	100	400	G 3/4 (BSPP)	198	-	-	60	40	-	-	1.7
AV 2E	40	500	M 28 x 1.5	-	115	25	-	-	SW 36	-	0.6
AV 3E	100	400	M 40 x 1.5	-	143	38	-	-	SW 46	-	1.0
AVT 6	12	630	6 mm	91	-	-	31	-	-	-	0.14
AVT 8	25	630	8 mm	94	-	-	32	-	-	-	0.18
AV 10	30	630	10 mm	94	-	-	34	-	-	-	0.23
AVT 12	50	630	12 mm	114	-	-	38	-	-	-	0.32
CAV 1	30	500	M 16 x 1.5	-	42	19	-	-	SW 17	SW 22	0.05
CAV 2	50	500	M 20 x 1.5	-	51	21	-	-	SW 22	SW 24	0.07

1) The values apply to a back pressure of approx. 10 bar (in a throttled direction)

Associated technical data sheets:
- Shut-off valve type AVT and AVM: D 7690
- Throttle valve and shut-off valve type AV: D 4583
- Throttle valve and shut-off valve CAV: D 7711

Similar products:
- Throttle and restrictor check valves type ED, RD, RDF: Page 222
- Throttle valves type Q, QR, QV, FG: Page 220