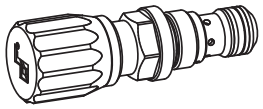
2-way flow control valve
Screw-in cartridge
Fixed orifice, adjustable pressure compensator

M18x1,5
ISO 7789

- **Q_{max} = 17 l/min**
- **$Q_{N\ max}$ = 12,5 l/min**
- **p_{max} = 315 bar**



DESCRIPTION

2-way screw-in cartridge-type flow control valve with M18x1,5 thread, for pressure cavity acc. to ISO 7789. The valve is available in two different setting versions: Spanner setting „S“ and turning knob „D“. In its standard form, this control valve can be supplied with five nominal volume flow ranges. The two part cartridge body is made of steel. The surface of the valve is zinc-coated plated for rust protection.

FUNCTION

The 2-way flow control valve is designed to keep the speed of a consumer constant irrespective of the load. The fixed measuring orifice which is integrated into the pressure compensating piston determines the volume flow. If there is a pressure change, the pressure compensating spool is displaced and changes the outlet diameter in order to keep the pressure difference on the measuring orifice constant. By varying the spring bias acting on the compensator spool the flow rate can be changed. Minimum adjustable flow within 40…70 % of $Q_{nominal}$. Flow regulation is effective above Δp 10 bar approx. Backward flow depends on load.

APPLICATION

For use in all hydraulic systems where the supply volume flow needs to be kept constant even when the load fluctuates. Installation of the screw-in cartridge in control blocks as well as in the Wandfluh sandwich plates (vertical stacked systems) and flange valves of the NG3-Mini size. (Please note the separate data sheets in register 2.5). Cavity tools are available for machining the cavities in steel and aluminium (hire or purchase). Please refer to the data sheets in register 2.13.

CONTENTS

TYPE CODE

QA ☐ PM18 - ☐ # ☐

Flow control valve 2-way

Setting versions: Screw S
Turning knob D
Cover A (see data sheet 2.0-50)

Screw-in cartridge M18x1,5

Standard nominal pressure range:
Q_N = 0,4…0,6 l/min 0,63
Q_N = 0,8…1,25 l/min 1,25
Q_N = 1,3…2,1 l/min 2
Q_N = 2,5…5,0 l/min 5
Q_N = 5,0…12,5 l/min 12,5

Design-Index (Subject to change)

GENERAL SPECIFICATIONS

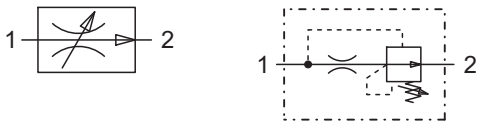
Denomination	Flow control valve 2-way
Construction	Screw-in cartridge for cavity acc. to ISO 7789
Mounting	Screw-in thread M18x1,5
Ambient temperature	-20…50 °C
Mounting position	any
Fastening torque	M_D = 30 Nm
Weight:	m = 0,09 kg (screw)
	m = 0,1 kg (knob)
Volume flow direction:	1 → 2 adjustable flow
	2 → 1 free flow

HYDRAULIC SPECIFICATIONS

Fluid	Mineral oil, other fluid on request
	ISO 4406:1999, class 18/16/13
Contamination efficiency	(Required filtration grade ß 6...10 ≥ 75)
	refer to data sheet 1.0-50/2
Viscosity range	12 mm²/s…320 mm²/s
Fluid temperature	-20...+70 °C
Peak pressure	p_{max} = 315 bar
Minimum pressure for controlled flow	Δp_{min} = 10 bar
Nominal volume flow rates:	Q_N = 0,63 l/min, Q_N = 1,25 l/min, Q_N = 2 l/min, Q_N = 5 l/min, Q_N = 12,5 l/min
Min. volume flow	Q_{min} = 0,4 l/min
Max. volume flow	Q_{max} = 17 l/min
Hysteresis	depending on nom. volume flow 3…8 %

SYMBOLS

simplified detailed



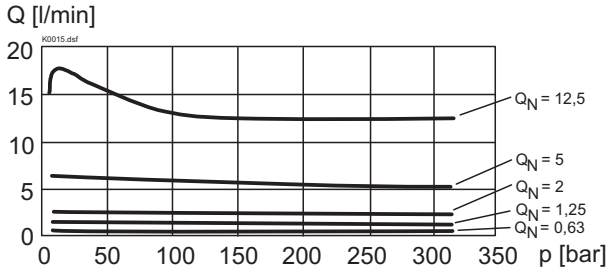
MECHANICAL ACTUATION

Mechanical types of operation in 2 different versions:

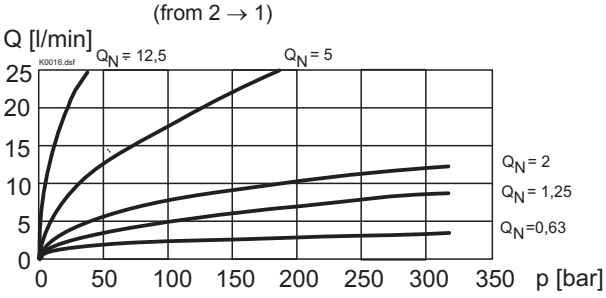
S	= Screw adjustment with fork wrench and Allen key
D	= Control knob adjustment, fixed
Control stroke S_b	= 5 mm
Control angle α_b	= 1800° / 5 turns

CHARACTERISTICS Oil viscosity υ = 30 mm²/s

Q = f (p) Pressure drop-flow characteristics

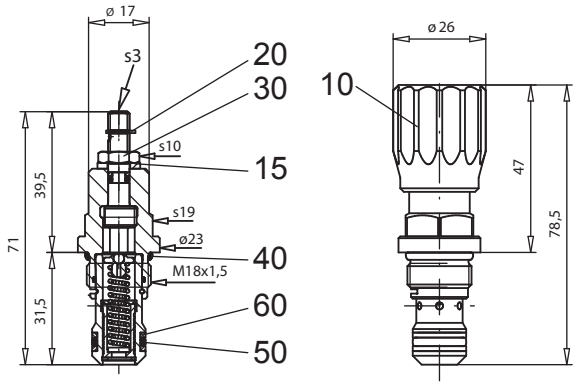


Δp = f (Q) Pressure drop characteristics for return flow (from 2 → 1)

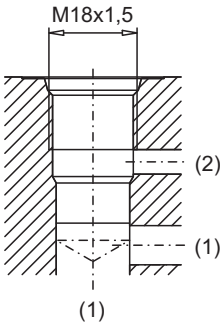


DIMENSIONS / SECTIONAL DRAWING

Screw adjustment „S“ Knob adjustment „D“



Cavity drawing according to ISO 7789–18–01–0–98



For detailed cavity drawing and cavity tools see data sheet 2.13-1002.

PARTS LIST

Position	Article	Description
10	114.2299	Knob
15	234.1060	Disc
20	193.1040	Safety plate RD4 DIN 6799
30	153.1302	Hexagonal nut 0,5D M6x3,2
40	160.2156	O-ring ID 15,60x1,78
50	160.2111	O-ring ID 11,11x1,78
60	049.3156	Back-up ring RD 12,1x15x1,4

ACCESSORIES

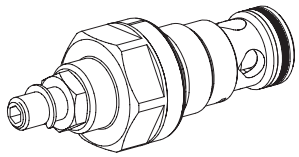
Cartridge built-in in flange- or sandwich body
Flange body / sandwich plate register 2.5

Technical explanation see data sheet 1.0-100

2-way flow control valve
Screw-in cartridge
- **Integrated non-return valve function**
- **Fixed orifice, adjustable pressure compensator**
- **Q_{max} = 50 l/min**
- **$Q_{N\ max}$ = 40 l/min**
- **p_{max} = 350 bar**

M22x1,5

ISO 7789



DESCRIPTION

2-way flow control valve with non-return function as a screw-in cartridge with a thread M22x1,5 for cavity according to ISO 7789. In its standard form, this flow control valve can be supplied with nine nominal volume flow ranges. For a flow at low pressure drop in the oposite direction, a check function has been integrated. The two part cartridge body is made of steel. The surface of the valve is zinc-coated for rust protection.

FUNCTION

The 2-way flow control valve is designed to keep the speed of a consumer constant, irrespective of the load. The fixed measuring orifice which is integrated into the pressure compensating spool, determines the volume flow. If there is a pressure change, the compensating spool is displaced and changes the outlet diameter in order to keep the pressure difference over the mesuring orifice constant. The volume flow is adjustable with the adjustment spindle within a range of 60…100 % of Q_N by changing the spring force acting on the compensating spool.

APPLICATION

For use in all hydraulic systems where the supply volume flow has to be kept constant even when the load fluctuates. Installation of the screw-in cartridge in control blocks as well as in the Wandfluh sandwich plates (vertical stacked systems) and flange valves of the NG4-Mini and NG6 size. (Please note the separate data sheets in register 2.5). Cavity tools are available for machining the cavities in steel and aluminium (hire or purchase). Please refer to the data sheets in register 2.13.

CONTENTS

TYPE CODE

QR S PM22 - [ ] # [ ]

2-way flow control valve with non-return function

Screw setting versions

Screw-in cartridge M22x1,5

Standard nominal volume flow ranges Q_N:

0,6…1,0 l/min	1
1,0…1,6 l/min	1,6
1,6…2,5 l/min	2,5
2,5…4,0 l/min	4
4,0…6,3 l/min	6,3
6,3…10 l/min	10
10…16 l/min	16
16…25 l/min	25
25…40 l/min	40

Design-Index (Subject to change)

GENERAL SPECIFICATIONS

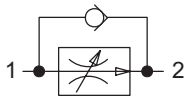
Description	2-way flow control valve
Construction	Screw-in cartridge for cavity acc. to ISO 7789
Mounting	Screw-in thread M22x1,5
Ambient temperature	-20…50 °C
Mounting position	any
Fastening torque	M_D = 50 Nm
Weight	m = 0,1 kg
Volume flow direction:	1 → 2 adjusted volume flow
	2 → 1 free flow through by-pass check

HYDRAULIC SPECIFICATIONS

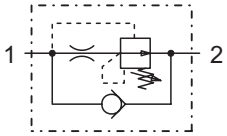
Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, class 18/16/13
	(Required filtration grade ß 6...10 ≥ 75)
	refer to data sheet 1.0-50/2
Viscosity range	12 mm²/s…320 mm²/s
Fluid temperature	-20...+70° C
Peak pressure	p_{max} = 350 bar
Beginning of regulation	approx. 9 bar for 60 % of Q_N
	approx. 25 bar for 100 % Q_N
Influence of load pressure	< 10 % of adjusted volume flow
Nominal volume flow rates	see type code
Max. volume flow	Q_{max} = 50 l/min
Hysteresis	< 5 % of Q_N, minimum 0,2 l/min

SYMBOLS

simplified



detailed

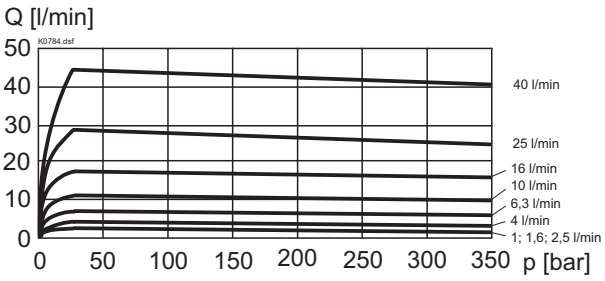


CONTROL

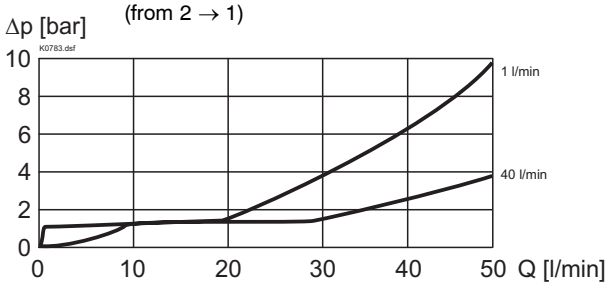
Screw setting	Hexagonal socket wrench s4
Control angle α_b	1440°(4 turns)

CHARACTERISTICS Oil viscosity υ = 30 mm²/s

Q = f (p) Volume flow pressure characteristics

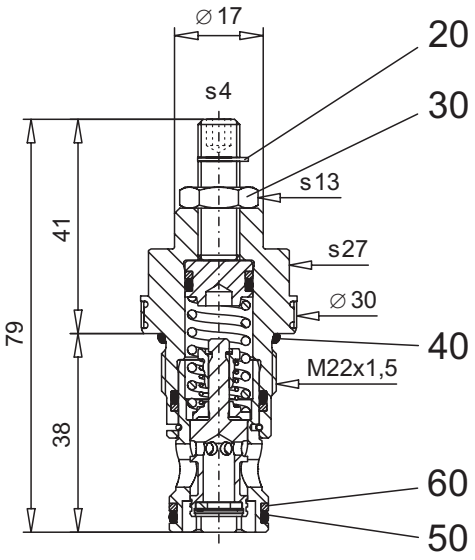


Δp = f (Q) Pressure drop characteristics for return flow (from 2 → 1)

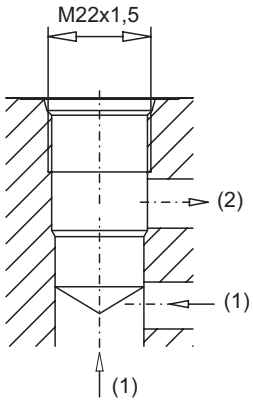


DIMENSIONS / **SECTIONAL DRAWINGS**

Screw setting versions „S“



Cavity drawing according to ISO 7789–22–01–0–98



For detailed cavity drawing and cavity tools see data sheet 2.13-1008.

PARTS LIST

Position	Article	Description
20	193.1050	Retainer for shaft RD5 DIN 6799
30	153.1403	Hexagonal nut 0,5D M8
40	160.2188	O-ring ID 18,77x1,78
50	160.2156	O-ring ID 15,60x1,78
60	049.3196	Back-up ring RD 16,1x19x1,4

ACCESSORIES

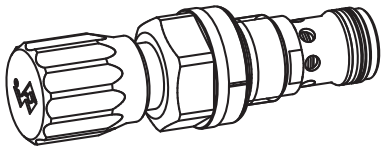
Cartridge built-in in flange- or sandwich body
Flange body / sandwich plate register 2.5

Technical explanation see data sheet 1.0-100E

2-way flow control valve
Adjustable orifice, fixed pressure compensator
Screw-in cartridge

- Q_{max} = 48 l/min
- $Q_{N\ max}$ = 40 l/min
- p_{max} = 350 bar

M22x1,5
ISO 7789



DESCRIPTION

2-way screw-in cartridge-type flow control valve with M22x1,5 thread, for pressure cavity acc. to ISO 7789. The valve is available in 2 different setting versions: Spanner setting „S“ and turning knob „D“. In its standard form, this control valve can be supplied with five nominal volume flow ranges. The two part cartridge body is made of steel. The surface of the valve is zinc-plated for rust protection.

FUNCTION

The 2-way flow control valve is designed to keep the speed of a consumer constant irrespective of the load. The adjustable measuring orifice determines the volume flow. If there is a pressure change, the pressure compensating spool is displaced and changes the outlet diameter in order to keep the pressure difference on the measuring orifice constant.

APPLICATION

For use in all hydraulic systems where the supply volume flow needs to be kept constant even when the load fluctuates. Installation of the screw-in cartridge in control blocks as well as in the Wandfluh sandwich plates (vertical stakked systems) and flange valves of the NG3-Mini size. (Please note the separate data sheets in register 2.5). Cavity tools are available for machining cavities (hire or purchase). Please refer to the data sheets in register 2.13.

CONTENT

TYPE CODE

QZ ☐ PM22 - ☐ # ☐

- Flow control valve 2-way
- Setting versions: Screw S; Turning knob D; Cover A (see data sheet 2.0-50)
- Screw-in cartridge M22x1,5
- Standard nominal flow rates: Q_N = 2,5 l/min 2,5; Q_N = 6,3 l/min 6,3; Q_N = 16 l/min 16; Q_N = 25 l/min 25; Q_N = 40 l/min 40
- Design-Index (Subject to change)

GENERAL SPECIFICATIONS

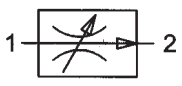
Denomination	Flow control valve 2-way
Construction	Screw-in cartridge for cavity acc. to ISO 7789
Mounting	Screw-in thread M22x1,5
Ambient temperature	-20…50° C
Mounting position	any
Fastening torque	M_D = 50 Nm
Weight:	m = 0,18 kg (screw) m = 0,19 kg (knob)
Volume flow direction:	1 → 2 adjustable flow

HYDRAULIC SPECIFICATIONS

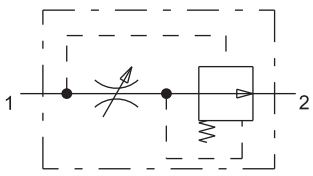
Fluid	Mineral oil, other fluid on request ISO 4406:1999, class 18/16/13
Contamination efficiency	(Required filtration grade ß 6...10 ≥ 75) refer to data sheet 1.0-50/2
Viscosity range	12 mm²/s…320 mm²/s
Fluid temperature	-20...+70° C
Peak pressure	p_{max} = 350 bar
Nominal volume flow rates:	Q_N = 2,5 l/min, 6,3 l/min, 16 l/min, Q_N = 25 l/min, 40 l/min
Min. volume flow	Q_{min} = 0,1 l/min (ν = 30 mm²/s)
Max. volume flow	Q_{max} = 48 l/min
Control accuracy	≤ 1 %

SYMBOLS

simplified



detailed



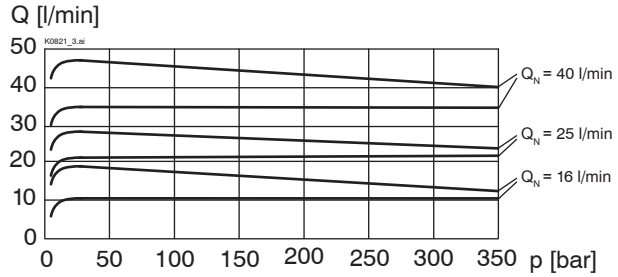
MECHANICAL ACTUATION

Mechanical types of operation in 2 different versions:

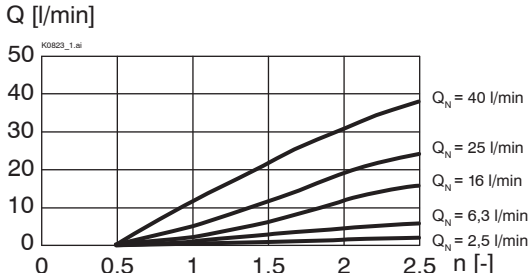
S	= Screw adjustment with fork wrench and Allen key
D	= Control knob adjustment, fixed
Control stroke S_b	= 2,5 mm
Control angle α_b	= 900° / 2,5 turns

CHARACTERISTICS Oil viscosity ν = 30 mm²/s

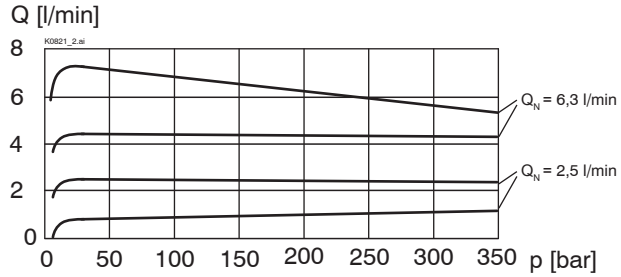
Q = f (p) Volume flow pressure characteristic



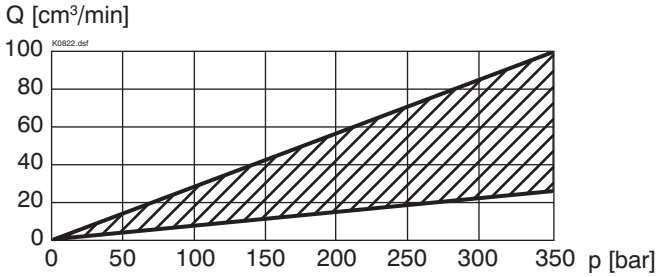
Q = f (n) Volume flow adjustment characteristic (p = 350 bar)



Q = f (p) Volume flow pressure characteristic

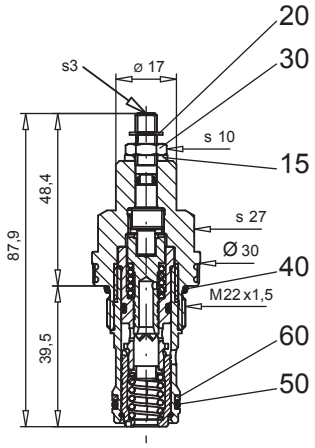


Q_L = f (p) Leakage volume flow characteristic

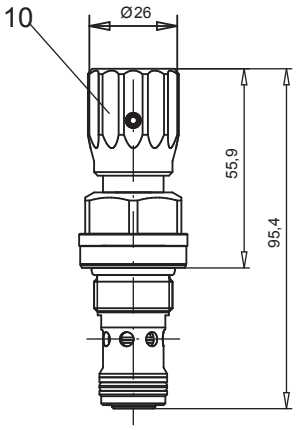


DIMENSIONS

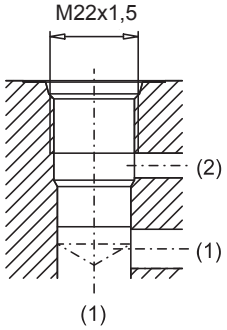
Screw adjustment „S“



Knob adjustment „D“



Cavity drawing
ISO 7789–22–01–0–98



For cavity details and cavity tools, see data sheet 2.13-1008.

PARTS LIST

Position	Article	Description
10	114.2299	Knob
15	234.1060	Plate
20	193.1040	Safety plate RD4 DIN 6799
30	153.1302	Hexagonal nut 0,5D M6x3,2
40	160.2188	O-ring ID 18,77x1,78
50	160.2156	O-ring ID 15,60x1,78
60	049.3196	Back-up ring RD 16,1x19x1,4

ACCESSOIRES

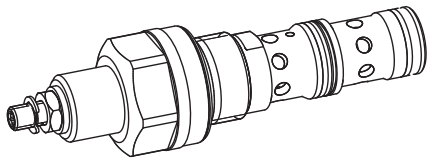
Cartridge built-in flange- or sandwich plates
Flange/Sandwich valves Register 2.5

Technical explanation see data sheet 1.0-100E

3-way flow control valve
With a fixed pressure compensator and adjustable orifice
Screw-in cartridge construction

- Q_{max} = 42 l/min
- $Q_{N\ max}$ = 40 l/min
- p_{max} = 350 bar

M22x1,5
ISO 7789



DESCRIPTION

3-way flow control valve as screw-in cartridge with thread M22x1.5 for cavity in accordance with ISO 7789. The valve can be supplied in 2 different setting versions: Spanner setting «S» and rotary knob setting «D». Available as standard are 3 nominal flow steps.The two-part cartridge body is made of steel. External parts are zinc coated and as a result rust protected.

FUNCTION

The 3-way flow control valve is designed to keep the oil flow to any actuator constant irrespective of the load. Surplus volume flow will be diverted to the tank line thus saving energy and preventing an overheating of the hydraulic system. By turning the knob of the variable restrictor, the volume flow can be adjusted. In case of pressure fluctuations, the through flow cross-section in the pressure balance spool changes in such a manner, that the pressure difference in the measuring orifice is kept constant.

APPLICATION

For use in all hydraulic systems where the supply volume flow needs to be kept constant even when the load fluctuates. Installation of the screw-in cartridge in control blocks as well as in the Wandfluh sandwich plates (vertical stakked systems) and flange valves. (Please note the separate data sheets in register 2.5) Cavity tools are available for machining cavities (hire or purchase). Please refer to the data sheets in register 2.13.

INHALT

TYPE CODE

QD ☐ PM22 - ☐ # ☐

Flow control valve 3-way		
Setting versions: Screw	S	
Turning knob	D	
Cover	A	(see data sheet 2.0-50)
Screw-in cartridge M22x1,5		
Standard nominal flow rates	Q_N = 12 l/min	12
	Q_N = 25 l/min	25
	Q_N = 40 l/min	40
Design-Index (Subject to change)		

GENERAL SPECIFICATIONS

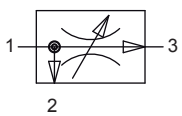
Denomination	3-way flow control valve
Construction	Screw-in cartridge for cavity acc. to ISO 7789
Type of fastening	Screw-in thread M22 x1,5
Ambient temperature	-20…50 °C
Installation position	any
Tightening torque	M_D = 50 Nm
Weight	m = 0,22 kg (screw) m = 0,23 kg (knob)
Volume flow direction	1 → 3 adjustable flow

HYDRAULIC SPECIFICATIONS

Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, class 18/16/13 Required filtration grade (ß 6...10 ≥ 75) (refer to data sheet 1.0-50/2)
Viscosity range	12 mm²/s…320 mm²/s
Fluid temperature	-20…+70 °C
Peak pressure	p_{max} = 350 bar
Nominal volume flow rates	Q_N = 12 l/min, 25 l/min, 40 l/min
Min. volume flow	Q_{min} = 0,1 l/min (at ν = 30 mm²/s)
Max. volume flow	Q_{max} = 42 l/min
Max. feed flow	50 l/min
Control accuracy	≤ 1%

SYMBOLS

simplified



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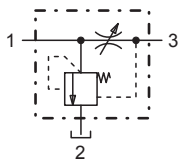


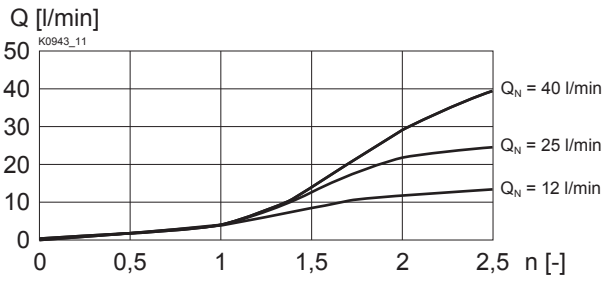
MECHANICAL ACTUATION

Mechanical types of operation in 2 different versions:

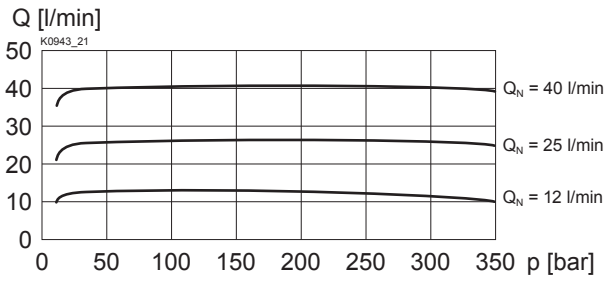
S	= Screw adjustment with fork wrench and Allen key
D	= Control knob adjustment, fixed
Control stroke S_b	= 2,5 mm
Control angle α_b	= 900°(2,5 turns)

CHARACTERISTICS Oil viscosity ν = 30 mm²/s

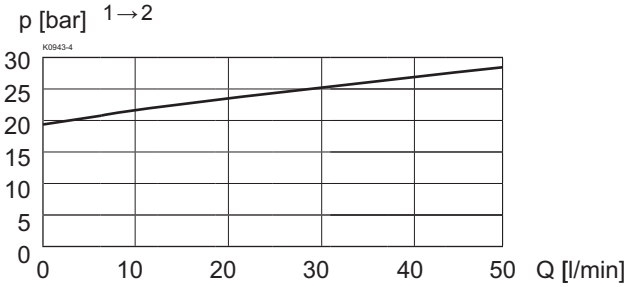
Q = f (n) Volume flow adjustment characteristic (at p = 350 bar)



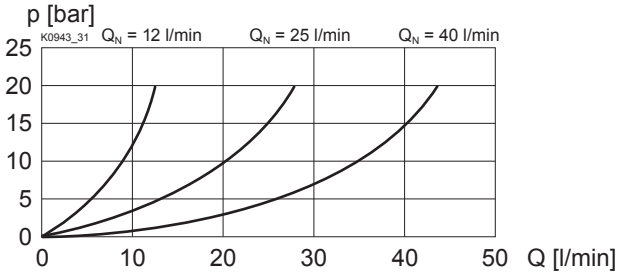
Q = f (p) Volume flow pressure characteristic



Δp = f (Q) Pressure drop volume flow characteristic

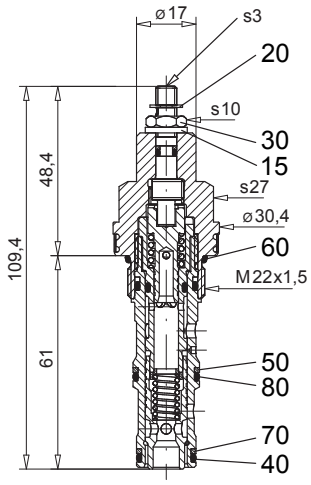


Δp = f (Q) Pressure drop-volume flow characteristic 1→3

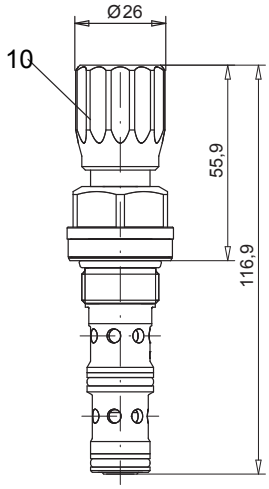


DIMENSIONS / SECTIONAL DRAWINGS

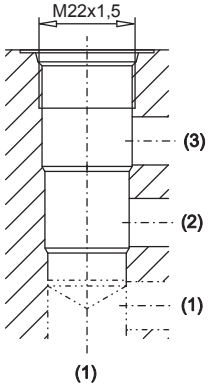
Screw adjustment «S»



Knob adjustment «D»



Cavity drawing
ISO 7789–22–04–0–98



For cavity details and cavity tools, see data sheet 2.13-1004

PARTS LIST

Position	Article	Description
10	114.2299	Knob
15	234.1060	Plate
20	193.1040	Safety plate RD4 DIN 6799
30	153.1302	Hexagonal nut 0,5D M6x3,2
40	160.2140	O-ring ID 14,00x1,78
50	160.2156	O-ring ID 15,60x1,78
60	160.2188	O-ring ID 18,77x1,78
70	049.3176	Back-up RD 14,1x17x1,4
80	049.3196	Back-up RD 16,1x19x1,4

ACCESSORIES

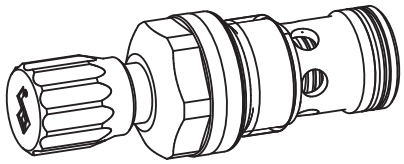
Cartridge built-in flange- or sandwich plates
Flange body / sandwich plate register 2.5

Technical explanation see data sheet 1.0-100E

2-way flow control valve
Adjustable orifice, fixed pressure compensator
Screw-in cartridge

- Q_{max} = **80 l/min**
- $Q_{N\ max}$ = **70 l/min**
- p_{max} = **350 bar**

M33x2
ISO 7789



DESCRIPTION

2-way screw-in cartridge-type flow control valve with M33x2 thread, for pressure cavity acc. to ISO 7789. The valve is available in 2 different setting versions: Spanner setting „S“ and turning knob „D“. In its standard form, this control valve can be supplied with two nominal volume flow ranges. The two part cartridge body is made of steel. The surface of the valve is zinc-coated or rust protection.

FUNCTION

The 2-way flow control valve is designed to keep the speed of a consumer constant irrespective of the load. The adjustable measuring orifice determines the volume flow. If there is a pressure change, the pressure compensating spool is displaced and changes the outlet diameter in order to keep the pressure difference on the measuring orifice constant.

APPLICATION

For use in all hydraulic systems where the supply volume flow needs to be kept constant even when the load fluctuates. Installation of the screw-in cartridge in control blocks as well as in the Wandfluh sandwich plates (vertical stakked systems) and flange valves. (Please note the separate data sheets in register 2.5). Cavity tools are available for machining cavities (hire or purchase). Please refer to the data sheets in register 2.13.

CONTENT

TYPE CODE

QZ ☐ PM33 - ☐ # ☐

Flow control valve 2-way		
Setting versions: Screw	S	
Turning knob	D	
Cover	A	(see data sheet 2.0-50)
Screw-in cartridge M33x2		
Standard nominal flow rates:	Q_N = 32 l/min	32
	Q_N = 70 l/min	70
Design-Index (Subject to change)		

GENERAL SPECIFICATIONS

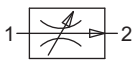
Denomination	Flow control valve 2-way
Construction	Screw-in cartridge for cavity acc. to ISO 7789
Mounting	Screw-in thread M33x2
Ambient temperature	-20…50° C
Mounting position	any
Fastening torque	M_D = 80 Nm
Weight:	m = 0,39 kg (screw)
	m = 0,40 kg (knob)
Volume flow direction:	1 → 2 adjustable flow

HYDRAULIC SPECIFICATIONS

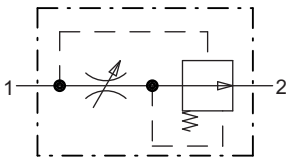
Fluid	Mineral oil, other fluid on request
	ISO 4406:1999, class 18/16/13
Contamination efficiency	(Required filtration grade ß 6...10 ≥ 75)
	refer to data sheet 1.0-50/2
Viscosity range	12 mm²/s…320 mm²/s
Fluid temperature	-20...+70° C
Peak pressure	p_{max} = 350 bar
Nominal volume flow rates:	Q_N = 32 l/min, 70 l/min,
Min. volume flow	Q_{min} = 0,2 l/min (ν = 30 mm²/s)
Max. volume flow	Q_{max} = 85 l/min
Control accuracy	≤ 1 %

SYMBOLS

simplified



detailed



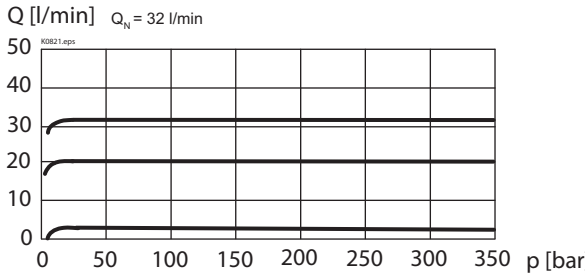
MECHANICAL ACTUATION

Mechanical types of operation in 3 different versions:

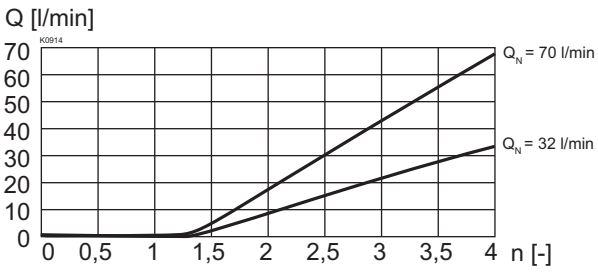
S	= Screw adjustment with fork wrench and Allen key
D	= Control knob adjustment, fixed
Control stroke S_b	= 4 mm
Control angle α_b	= 1440° (4 turns)

CHARACTERISTICS Oil viscosity ν = 30 mm²/s

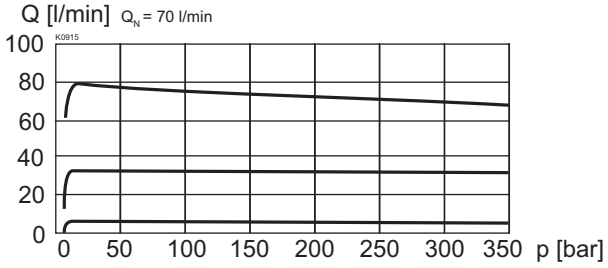
Q = f (p) Volume flow pressure characteristic



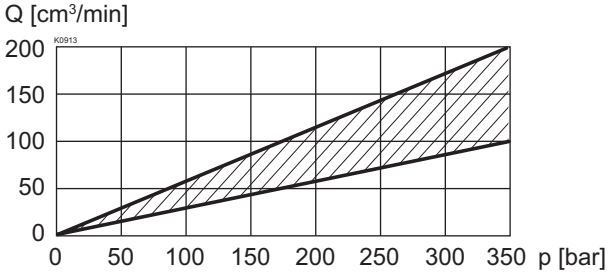
Q = f (n) Volume flow adjustment characteristic (p = 350 bar)



Q = f (p) Volume flow pressure characteristic

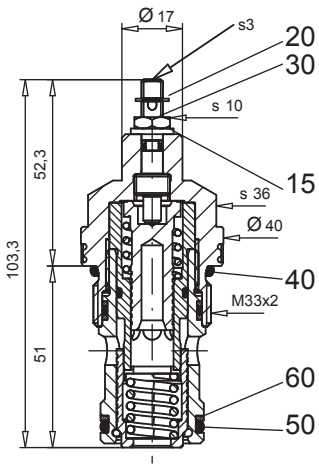


Q_L = f (p) Leakage volume flow characteristic

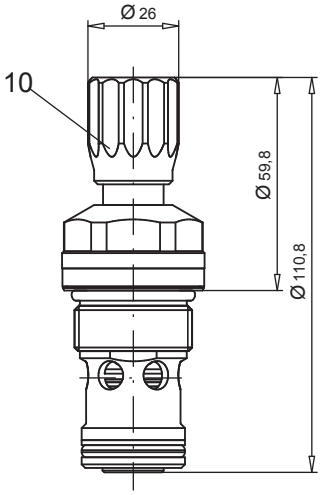


DIMENSIONS

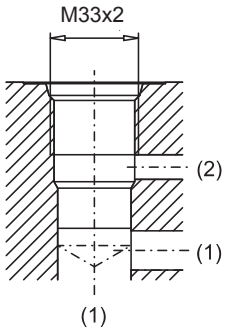
Screw adjustment „S“



Knob adjustment „D“



Cavity drawing acc. to
ISO 7789–33–01–0–98



For cavity details and
cavity tools, see data sheet
2.13-1005.

PARTS LIST

Position	Article	Description
10	114.2299	Knob
15	234.1060	Plate
20	193.1040	Safety plate RD4 DIN 6799
30	153.1302	Hexagonal nut 0,5D M6x3,2
40	160.2298	O-ring ID 29,82x2,62
50	160.2238	O-ring ID 23,81x2,62
60	049.3297	Back-up ring RD 24,5x29x1,4

ACCESSOIRES

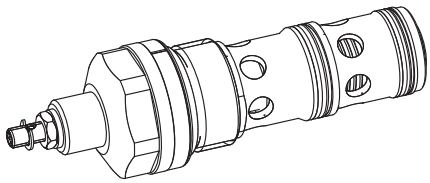
Cartridge built-in flange- or sandwich plates
Flange/Sandwich valves Register 2.5

Technical explanation see data sheet 1.0-100E

3-way flow control valve
With fixed pressure compensator and adjustable orifice,
Screw-in cartridge construction

- Q_{max} = 120 l/min
- $Q_{N\ max}$ = 100 l/min
- p_{max} = 350 bar

M33x2
ISO 7789



DESCRIPTION

3-way flow control valve as screw-in cartridge with thread M33x2 for cavity in accordance with ISO 7789. The valve can be supplied in 2 different setting versions: Key setting «S» and turning knob setting «D». Key adjustment «S» is also available with cover, see data sheet 2.0.50. Available as standard are 2 nominal flow steps.
The two-part cartridge body is made of steel. External parts are zinc coated and as a result rust protected. The colourlessly anodised aluminium rotary knob gives this quality product a clean design.

FUNCTION

The 3-way flow control valve is designed to keep the oil flow to any actuator constant irrespective of the load. Surplus volume flow will be diverted to the tank line thus saving energy and preventing an overheating of the hydraulic system. By turning the knob of the variable restrictor the volume flow can be adjusted. In case of pressure fluctuations, the through flow cross-section in the pressure balance spool changes in such a manner, that the pressure difference in the measuring orifice is kept constant.

APPLICATION

For use in all hydraulic systems where the supply volume flow needs to be kept constant even when the load fluctuates. Installation of the screw-in cartridge in control blocks as well as in the Wandfluh sandwich plates (vertical stakked systems) and flange valves. (Please note the separate data sheets in register 2.5). Cavity tools are available for machining cavities (hire or purchase). Please refer to the data sheets in register 2.13.

CONTENT

TYPE CODE

QD ☐ PM33 - ☐ # ☐

Flow control valve 3-way		
Setting versions: Screw	S	
Turning knob	D	
Cover	A	(see data sheet 2.0-50)
Screw-in cartridge M33x2		
Standard nominal flow rates:	Q_N = 50 l/min	50
	Q_N = 100 l/min	100
Design-Inedx (Subject to change)		

GENERAL SPECIFICATIONS

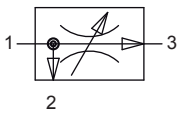
Denomination	3-way flow control valve
Construction	Screw-in cartridge for cavity acc. to ISO 7789
Mounting	Screw-in thread M33x2
Ambient temperature	-20…50 °C
Mounting position	any
Fastening torque	M_D = 80 Nm
Weight	m = 0,48 kg (screw) m = 0,49 kg (knob)
Volume flow direction	1 → 3 adjustable flow

HYDRAULIC SPECIFICATIONS

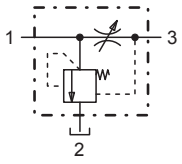
Fluid	Mineral oil, other fluid on request ISO 4406:1999, class 18/16/13
Contamination efficiency	Required filtration grade (ß 6...10 ≥ 75) refer to data sheet 1.0-50/2
Viscosity range	12 mm²/s…320 mm²/s
Fluid temperature	-20…+70 °C
Peak pressure	p_{max} = 350 bar
Nominal volume flow rates:	Q_N = 50 l/min, 100 l/min
Min. volume flow	Q_{min} = 0,2 l/min (at ν = 30 mm²/s)
Max. volume flow	Q_{max} = 120 l/min
Max. feed flow	140 l/min
Control accuracy	≤ 1%

SYMBOLS

simplified



detailed



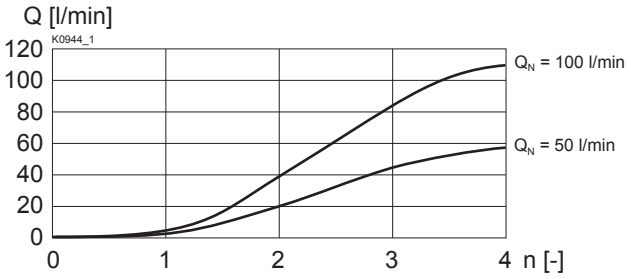
MECHANICAL ACTUATION

Mechanical types of operation in 2 different versions:

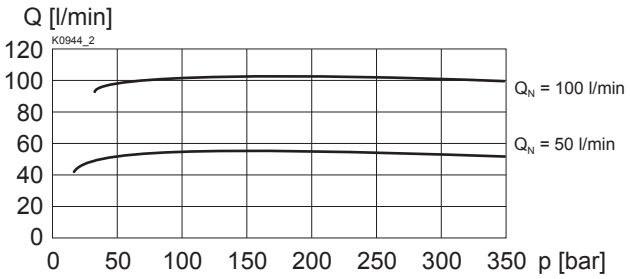
S	= Screw adjustment with fork wrench and Allen key
D	= Control knob adjustment, fixed
Control stroke S_b	= 4 mm
Control angle α_b	= 1440° (4 turns)

CHARACTERISTICS Oil viscosity ν = 30 mm²/s

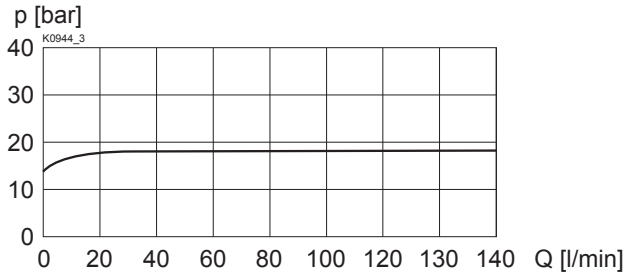
Q = f (n) Volume flow adjustment characteristics (at p = 350 bar)



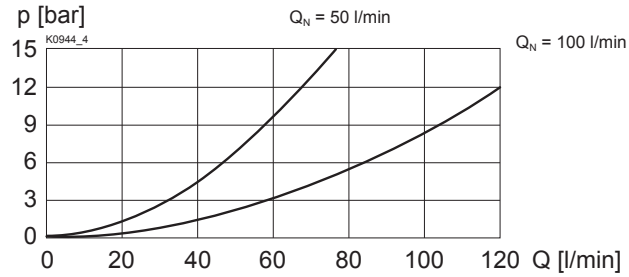
Q = f (p) Volume flow pressure characteristic



Δp = f (Q) Pressure drop volume flow characteristic 1→2

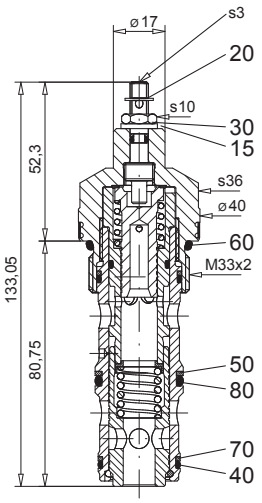


Δp = f (Q) Pressure drop volume flow characteristic 1→3

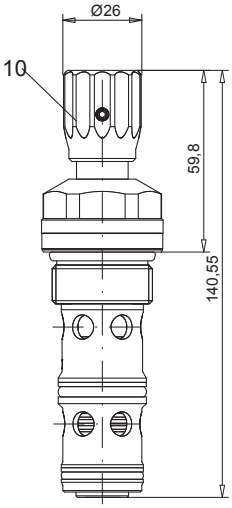


DIMENSIONS / SECTIONAL DRAWING

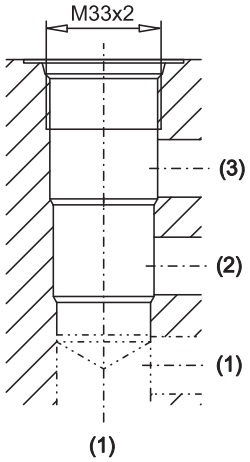
Screw adjustment «S»



Knob adjustment «D»



Cavity drawing acc. to ISO 7789–33–04–0–98



For cavity details and cavity tools, see data sheet 2.13-1040

PARTS LIST

Position	Artikcle	Description
10	114.2299	Knob
15	234.1060	Plate
20	193.1040	Safety plate RD4 DIN 6799
30	153.1302	Hexagonal nut 0,5D M6x3,2
40	160.2236	O-ring ID 23,52x1,78
50	160.2238	O-ring ID 23,81x2,62
60	160.2298	O-ring ID 29,82x2,62
70	049.3276	Back-up ring RD 24,1x27x1,4
80	049.3297	Back-up ring RD 24,5x29x1,4

ACCESSORIES

Cartridge built-in flange- or sandwich plates
Flange body / sandwich plate register 2.5

Technical explanation see data sheet 1.0-100E