



QTM2

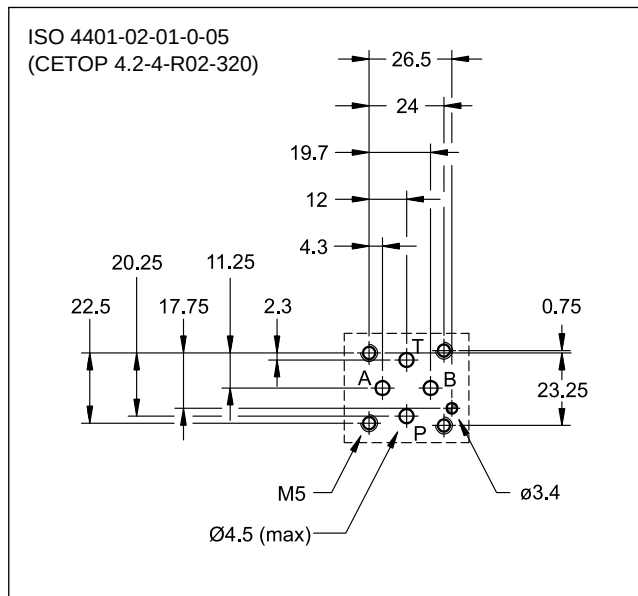
FLOW RESTRICTOR VALVE

SERIES 10

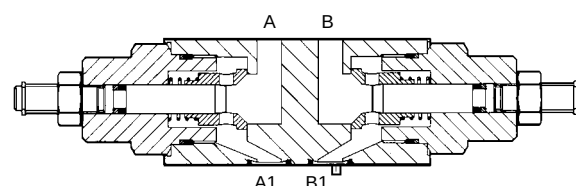
MODULAR VERSION ISO 4401-02

p max **320** bar
Q max **30** l/min

MOUNTING SURFACE



OPERATING PRINCIPLE

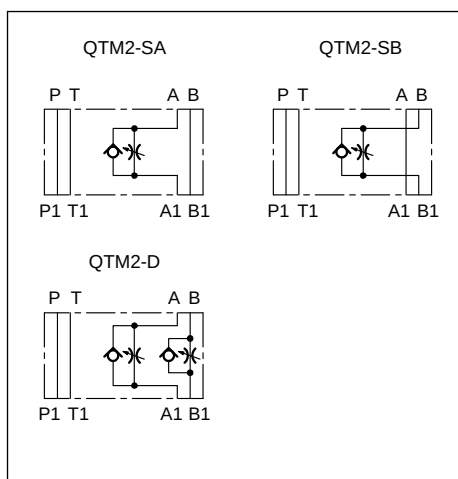


- The QTM2 valve is a flow restrictor valve with built in check valve for reverse free flow, made as a modular version with mounting surface according to the ISO 4401 standards.
- It can be assembled with all ISO 4401-02 modular valves without use of pipes, using suitable tie-rods or bolts.
- It is supplied with countersunk hex adjustment screw and locking nut. Rotate anticlockwise to increase the flow rate.

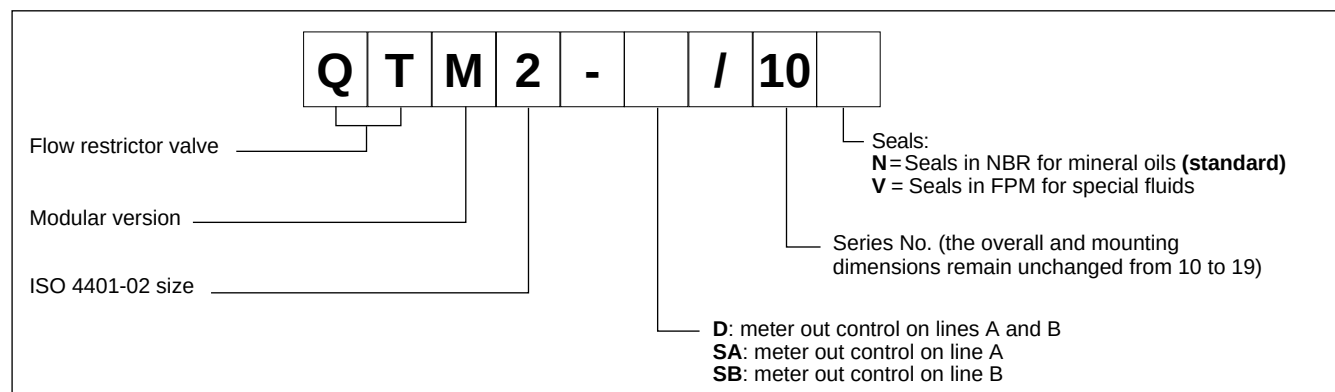
PERFORMANCES (measured with mineral oil of viscosity 36cSt at 50°C)

Maximum operating pressure	bar	320
Maximum flow rate	l/min	30
Ambient temperature range	°C	-20 / +60
Check valve opening pressure	bar	0,4
Fluid temperature range	°C	-20 / +80
Fluid viscosity range	cSt	10 ÷ 400
Fluid contamination degree	According to ISO 4406:1999 class 20/18/15	
Recommended viscosity	cSt	25
Mass	kg	0,8

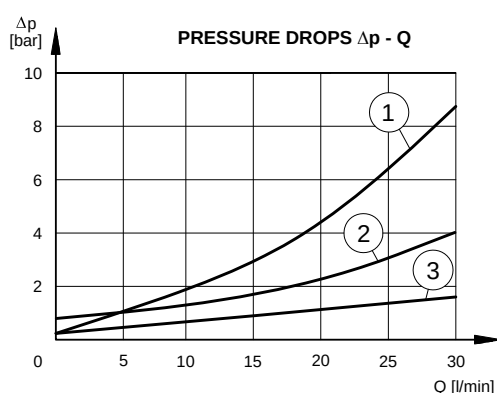
HYDRAULIC SYMBOLS



1 - IDENTIFICATION CODE



2 - CHARACTERISTIC CURVES (values obtained with viscosity of 36 cSt at 50°C)



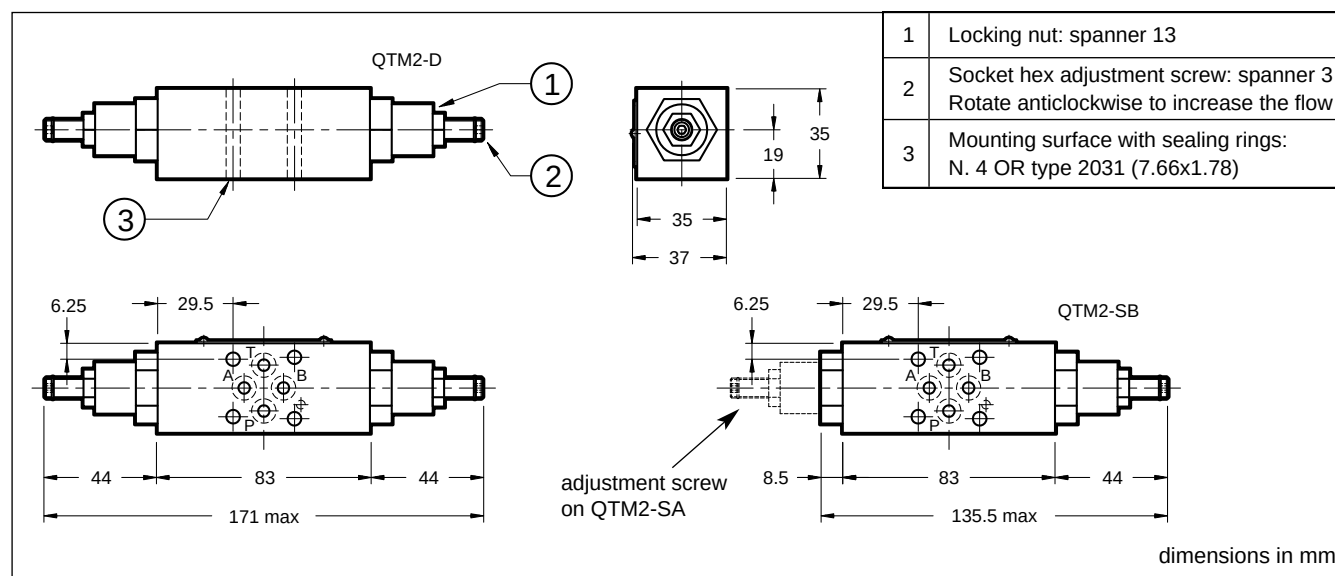
Typical Δp - Q curves obtained with QTM2-D valve, with throttling axis at full retraction.

- 1) pressure drops $A_1 - A$ ($B_1 - B$)
- 2) pressure drops $A - A_1$ ($B - B_1$)
- 3) pressure drops through the free ports

3 - HYDRAULIC FLUIDS

Use mineral oil-based hydraulic fluids HL or HM type, according to ISO 6743-4. For these fluids, use NBR seals (code N). For fluids HFDR type (phosphate esters) use FPM seals (code V). For the use of other kinds of fluid such as HFA, HFB, HFC, please consult our technical department. Using fluids at temperatures higher than 80 °C causes a faster degradation of the fluid and of the seals characteristics. The fluid must be preserved in its physical and chemical characteristics.

4 - OVERALL AND MOUNTING DIMENSIONS



QTM3

FLOW RESTRICTOR VALVE

SERIES 10

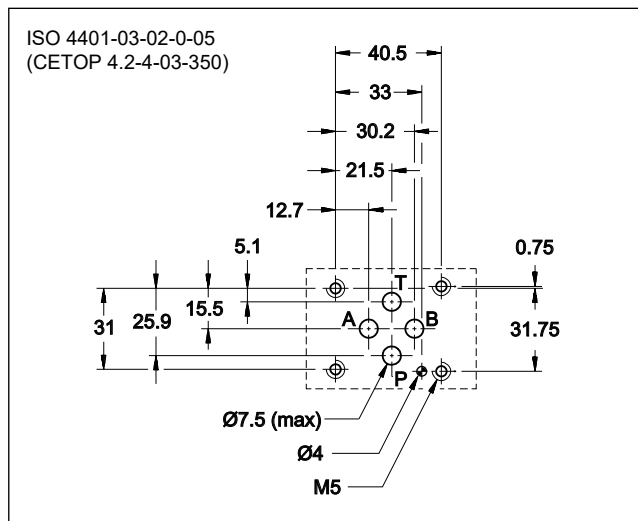


MODULAR VERSION ISO 4401-03

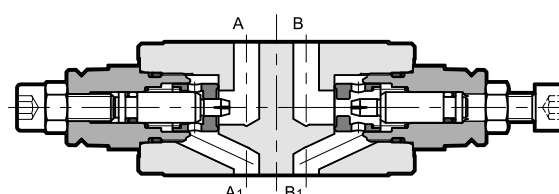
p max **350** bar

Q max (see table of performances)

MOUNTING INTERFACE



OPERATING PRINCIPLE

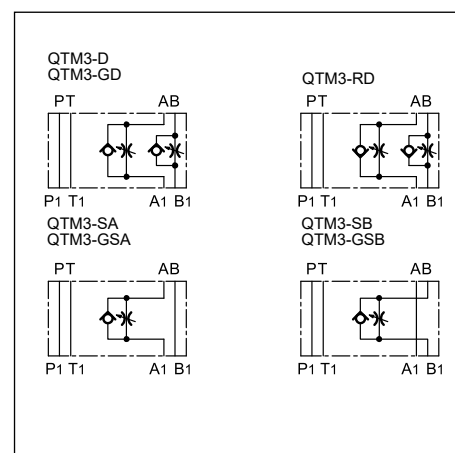


- This is a non-compensated flow control valve with a check valve for reverse free flow. It is made in modular version and with mounting surface according to the ISO 4401 standards; it can be assembled quickly without the use of pipes, but using only suitable tie-rods or bolts, thus forming compact modular groups.
- It is also available as a reversible valve (G* versions). The control takes place as meter-in or meter-out, depending on the way in which the valve is facing the OR subplate.
- The built-in check valve allows the reverse free flow (cracking pressure of 0.5 bar).
- It can be supplied with adjustment by hexagonal socket screw or by knob.

PERFORMANCES (measured with mineral oil of viscosity 36 cSt at 50°C)

Maximum operating pressure	bar	350
Check valve cracking pressure		0.5
Maximum flow rate in the controlled lines	l/min	50
Maximum flow rate in the free lines		75
Min. controlled flowrate with Δp 10 bar		≤ 0.060
Ambient temperature range	°C	-20 / +60
Fluid temperature range	°C	-20 / +80
Fluid viscosity range	cSt	10 ÷ 400
Fluid contamination degree	According to ISO 4406:1999 class 20/18/15	
Recommended viscosity	cSt	25
Mass	kg	1.3

HYDRAULIC SYMBOLS



1 - IDENTIFICATION CODE

Q	T	M	3	-		/	10		/		
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Flow restrictor valve with check valve for reverse free flow

Modular version

ISO 4401-03 size

Configurations:

D: meter-out control in lines A and B (**standard**)

RD: meter-in control in lines A and B

SA: meter-out control in line A

SB: meter-out control in line B

Configurations G* - reversible valve (**NOTE 1**)

GD: control in lines A and B

GSA: control in line A

GSB: control in line B

Option: **/W7** surface treatment. Available only for versions with S adjustment type. Omit if not required (**NOTE 2**)

Adjustment type:

S = with hexagonal socket screw (**standard**)

CK3 = with push, adjust, lock knob (see point 6)

Seals:

N = NBR seals for mineral oil (**standard**)

V = FPM seals for special fluids

Series No.
(the overall and mounting dimensions remain unchanged from 10 to 19)

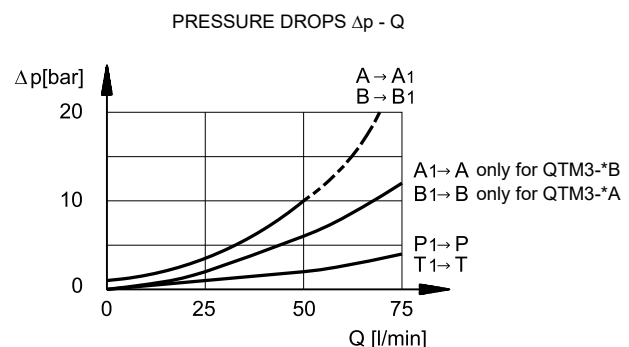
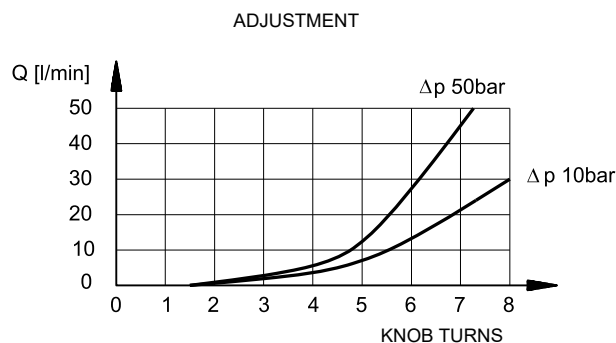
NOTE 1: The valve body does not provide the OR seats. The mounting interface is achieved by interposition of an OR subplate (included in the delivery). The control of flow (meter-in or meter-out) is depending on the way of assembly the valve on the subplate.

NOTE 2: The standard valve is supplied with surface treatment of phosphating black.

The zinc-nickel finishing on the valve body makes the valve suitable to ensure a salt spray resistance up to **240** hours. (test operated according to UNI EN ISO 9227 standards and test evaluation operated according to UNI EN ISO 10289 standards).

2 - CHARACTERISTIC CURVES

(values obtained with viscosity of 36 cSt at 50°C)



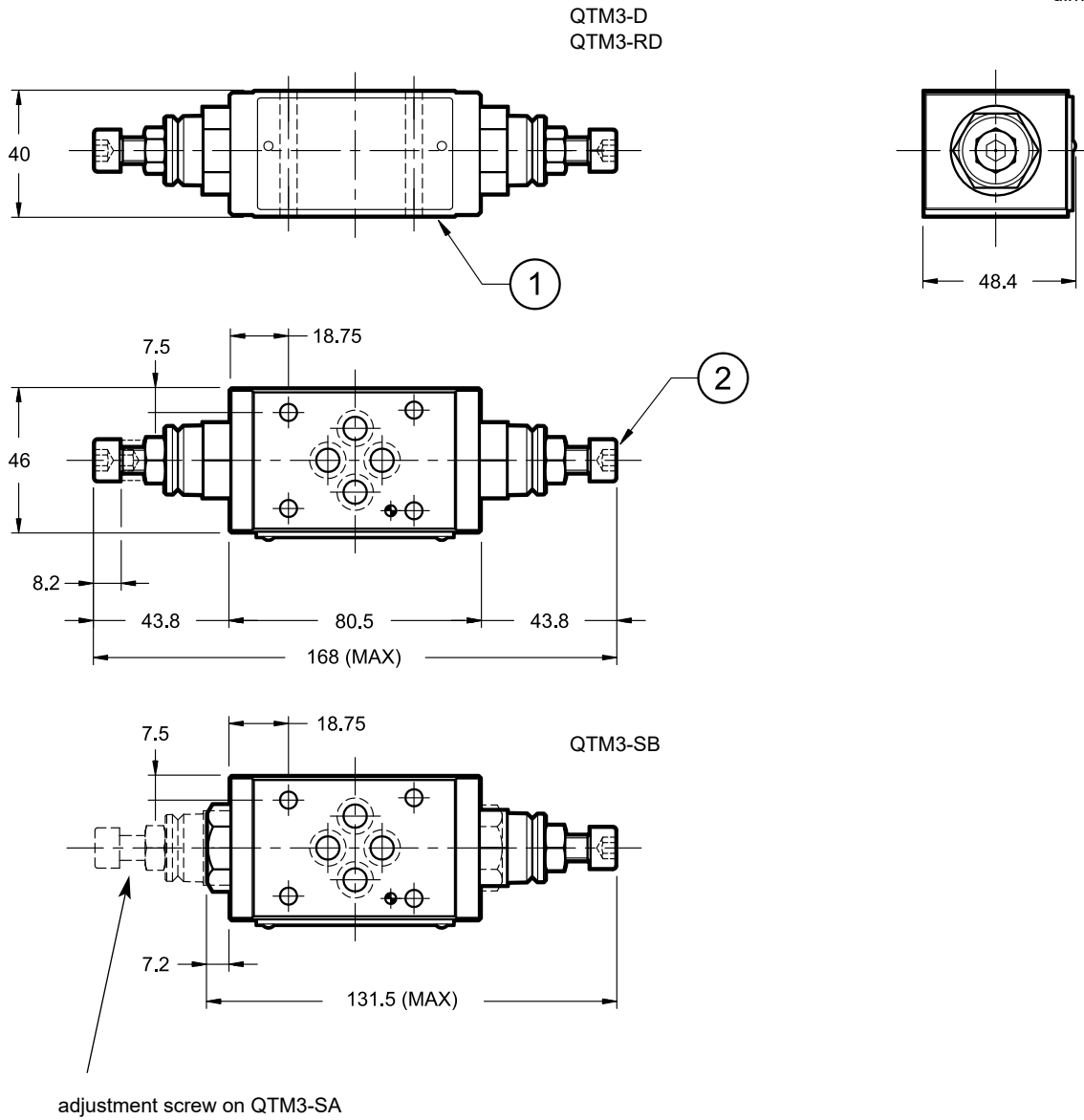
3 - HYDRAULIC FLUIDS

Use mineral oil-based hydraulic fluids HL or HM type, according to ISO 6743-4. For these fluids, use NBR seals. For fluids HFDR type (phosphate esters) use FPM seals (code V). For the use of other kinds of fluid such as HFA, HFB, HFC, please consult our technical department.

Using fluids at temperatures higher than 80 °C causes a faster degradation of the fluid and of the seals characteristics. The fluid must be preserved in its physical and chemical characteristics.

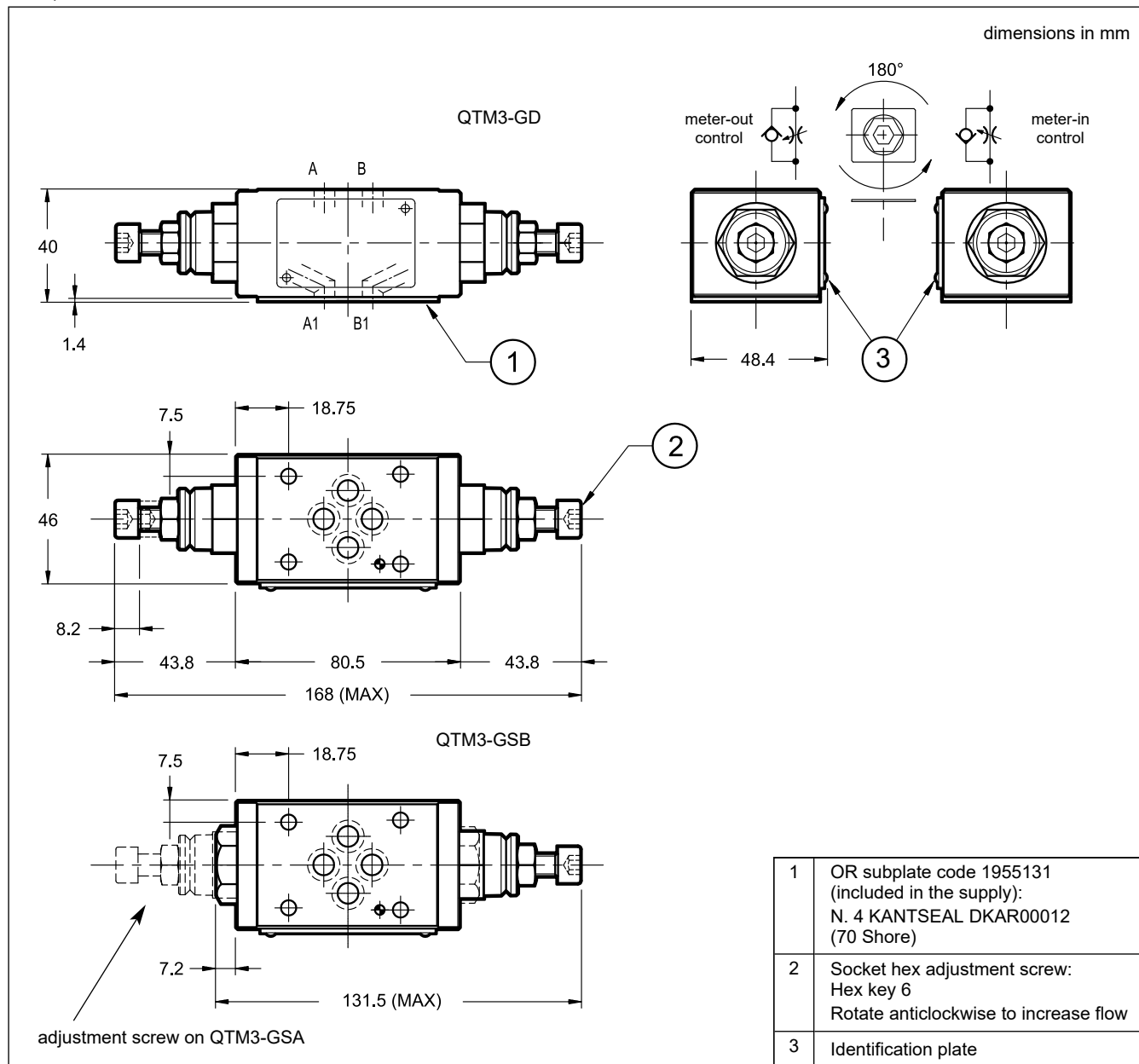
4 - QTM3 -D, -RD AND -S* - OVERALL AND MOUNTING DIMENSIONS

dimensions in mm



1	Mounting surface with sealing rings: N. 4 OR type 2037 (9.25x1.78) 90 Shore
2	Socket hex adjustment screw: Hex key 6 Rotate anticlockwise to increase flow

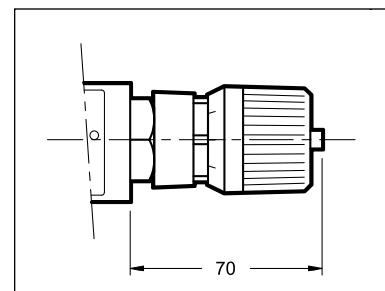
5 - QTM3-G* - OVERALL AND MOUNTING DIMENSIONS



6 - ADJUSTMENT KNOB

Valves can be supplied with adjustment knob, which is engaged by pushing and twisting at the same time. When released, the knob disengages to secure the adjustment from involuntary tampering.

Add **CK3** in the identification code to order this version (see point 1).



QTM5

FLOW RESTRICTOR VALVE

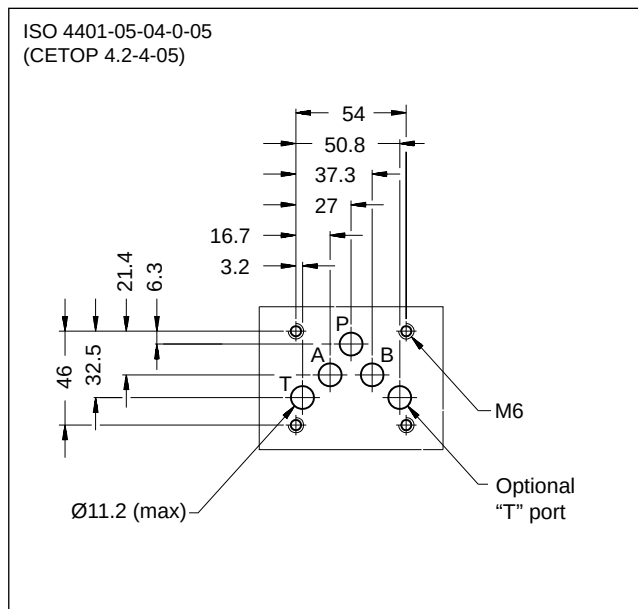
SERIES 10



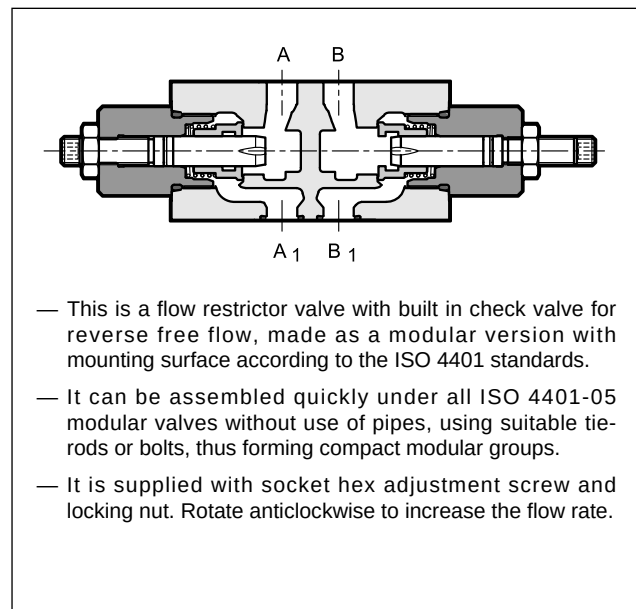
MODULAR VERSION ISO 4401-05

p max **350** bar
Q max **120** l/min

MOUNTING INTERFACE



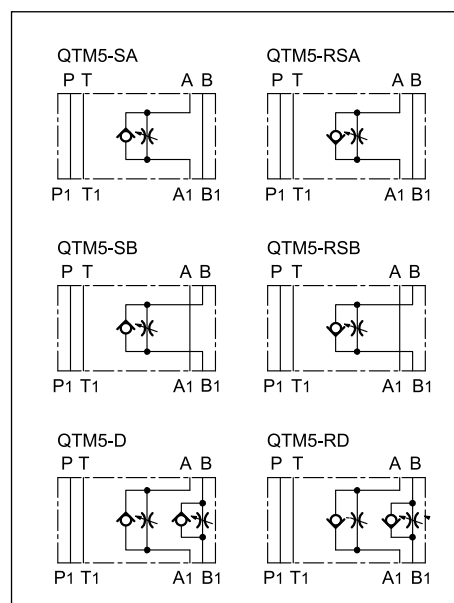
OPERATING PRINCIPLE



PERFORMANCES (measured with mineral oil of viscosity 36cSt at 50°C)

Maximum operating pressure	bar	350
Maximum flow rate	l/min	120
Cracking pressure	bar	0,5
Ambient temperature range	°C	-20 / +60
Fluid temperature range	°C	-20 / +80
Fluid viscosity range	cSt	10 ÷ 400
Recommended viscosity	cSt	25
Fluid contamination degree	According to ISO 4406:1999 class 20/18/15	
Mass: QTM5-SA, -SB, -RSA, -RSB QTM5-D, -RD	kg	2,3 2,5

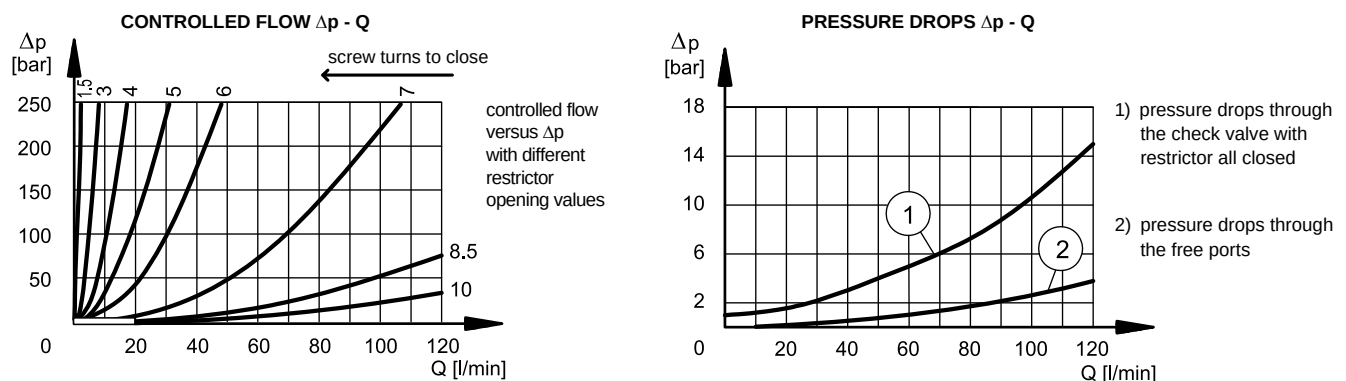
HYDRAULIC SYMBOLS



1 - IDENTIFICATION CODE

Q T M 5 - / 10 /									
Flow restrictor valve									
Modular version									
ISO 4401-05 size									
Versions for meter-out:					S = adjustment screw (standard) K1 = adjustment knob				
D = control on lines A and B					Seals:				
SA = control on line A					N = Seals in NBR for mineral oils (standard)				
SB = control on line B					V = Seals in FPM for special fluids				
Versions for meter-in:					Series No.				
RD = control on lines A and B					(the overall and mounting dimensions remain unchanged from 10 to 19)				
RSA = control on line A									
RSB = control on line B									

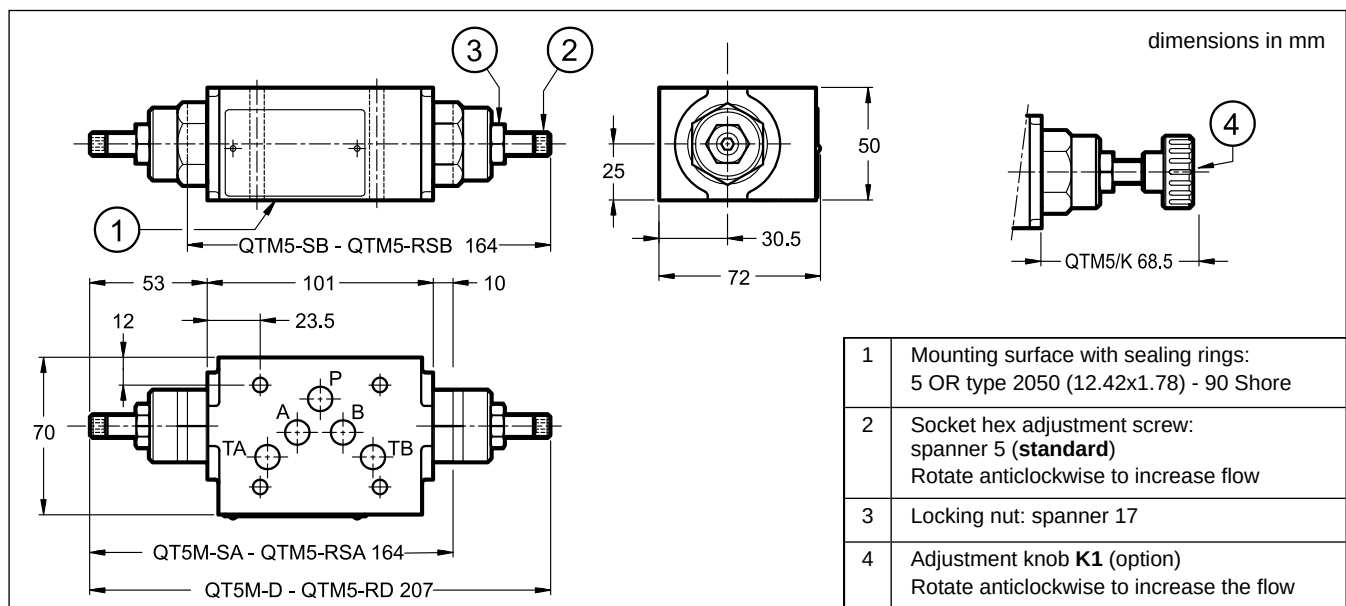
2 - CHARACTERISTIC CURVES (values obtained with viscosity of 36 cSt at 50°C)



3 - HYDRAULIC FLUIDS

Use mineral oil-based hydraulic fluids HL or HM type, according to ISO 6743-4. For these fluids, use NBR seals (code N). For fluids HFDR type (phosphate esters) use FPM seals (code V). For the use of other kinds of fluid such as HFA, HFB, HFC, please consult our technical department. Using fluids at temperatures higher than 80 °C causes a faster degradation of the fluid and of the seals characteristics. The fluid must be preserved in its physical and chemical characteristics.

4 - OVERALL AND MOUNTING DIMENSIONS





QTM7

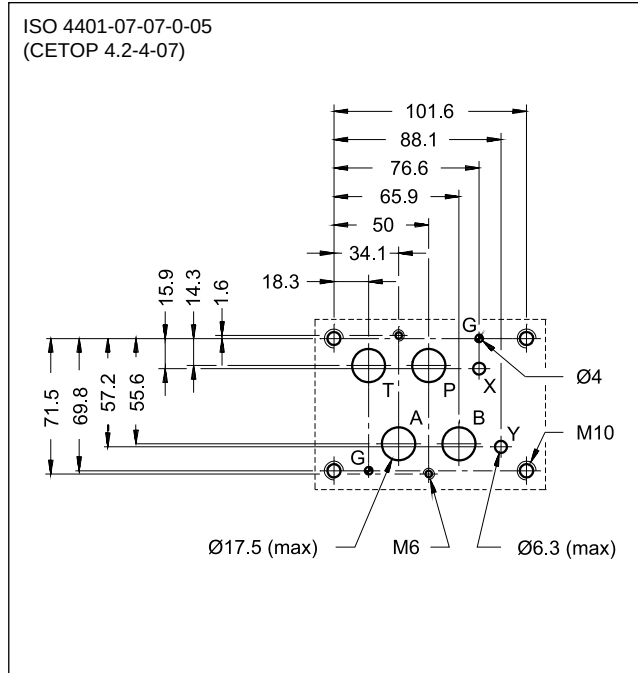
FLOW RESTRICTOR VALVE

SERIES 20

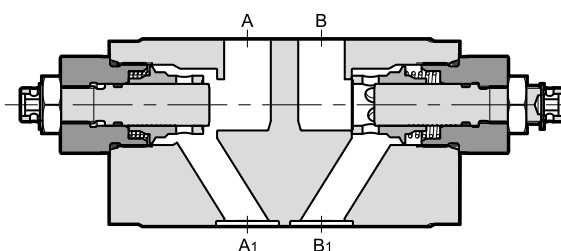
MODULAR VERSION ISO 4401-07

p max 350 bar
Q max 300 l/min

MOUNTING INTERFACE



OPERATING PRINCIPLE



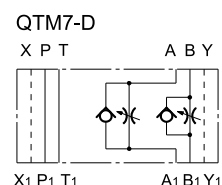
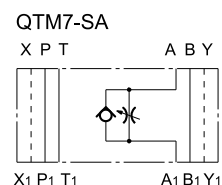
- This is a throttle check valve, in modular version. Mounting surface is according to ISO 4401-07 standards.
- It can be assembled quickly under all ISO 4401-07 modular valves without use of pipes, using suitable tie-rods or bolts, thus forming compact modular groups.
- It is available in two versions: for meter-out flow control in one (A port) or both actuator ports, independent.
- It is supplied with socket hex adjustment screw and locking nut. Rotate anticlockwise to increase the flow rate.

PERFORMANCES

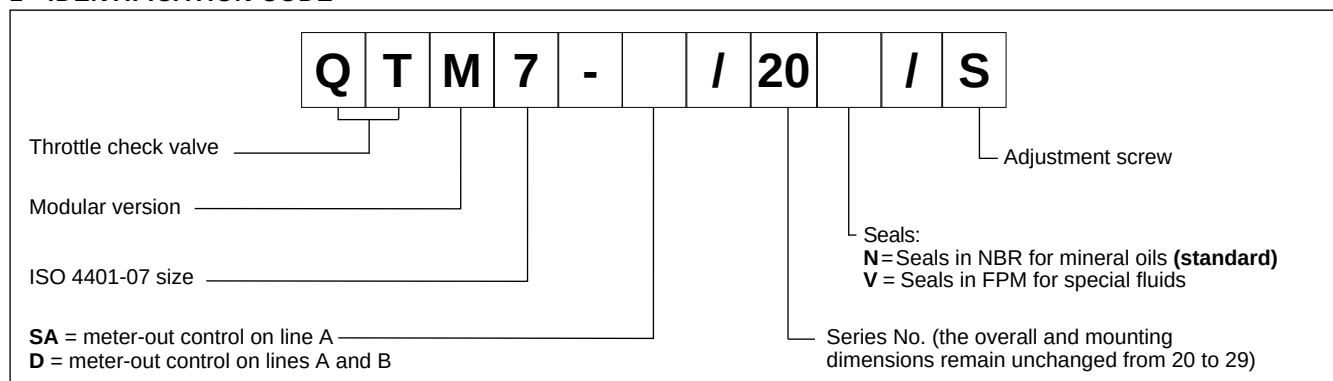
(measured with mineral oil of viscosity 36cSt at 50°C)

Maximum operating pressure	bar	350
Maximum flow rate	l/min	300
Check valve opening pressure	bar	0,7
Ambient temperature range	°C	-25 / +80
Fluid temperature range	°C	-25 / +80
Fluid viscosity range	cSt	10 ÷ 400
Fluid contamination degree	According to ISO 4406:1999 class 20/18/15	
Recommended viscosity	cSt	25
Mass: QTM7-SA QTM7-D	kg	6.9 7

HYDRAULIC SYMBOLS

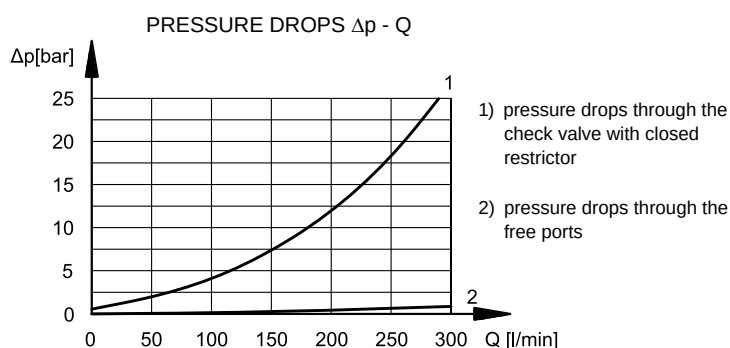
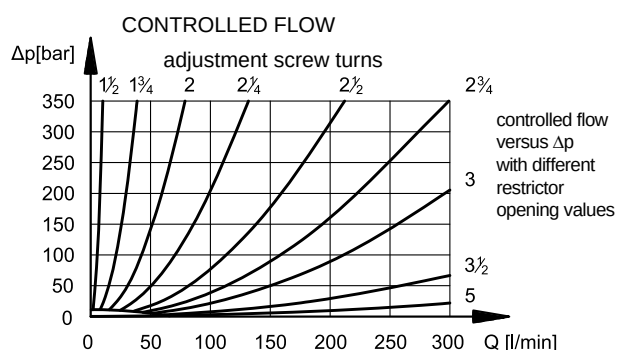


1 - IDENTIFICATION CODE



2 - CHARACTERISTIC CURVES

(values obtained with viscosity of 36 cSt at 50°C)



3 - HYDRAULIC FLUIDS

Use mineral oil-based hydraulic fluids HL or HM type, according to ISO 6743-4. For these fluids, use NBR seals (code N). For fluids HFDR type (phosphate esters) use FPM seals (code V). For the use of other kinds of fluid such as HFA, HFB, HFC, please consult our technical department. Using fluids at temperatures higher than 80 °C causes a faster degradation of the fluid and of the seals characteristics. The fluid must be preserved in its physical and chemical characteristics.

4 - OVERALL AND MOUNTING DIMENSIONS

