2 CETOP 02

STACKABLE VALVES FLOW CONTROL

AM2-FC-*

30 l/min - 32 MPa (320 bar)

1 DESCRIPTION

Stackable valve CETOP 2 with meter out control (referred to the hydraulic actuator). It is possible to control the lines A, B or AB simply turning the side screws.
On demand it is possible to have also the fine control option.

2 ORDERING CODE

(1)		(2)		(3)		(4)		(5)		(6)
AM2	-	FC	-		-		-		/	10

(1) AM2: stackable valve CETOP 02- Pressure 32 MPa (320 bar)

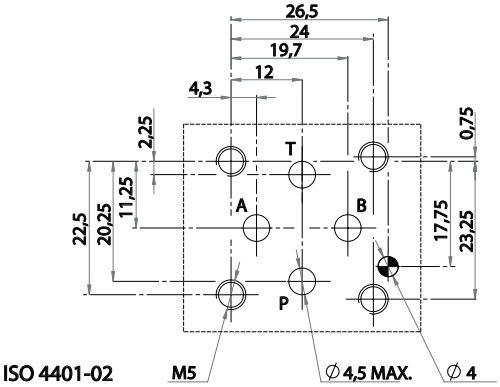
(2) FC: one-way flow control valves with meter-out control
(referred to the hydraulic actuator)

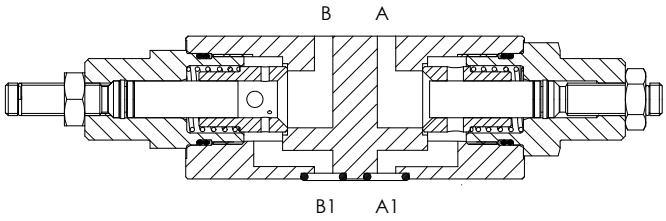
(3) Service lines where the controls operate:
AB : controls on A and B. Fluid flows unrestricted A -> A1, and flow is controlled from A1 -> A and B1 -> B
A : flow is controlled from A1 -> A; free on B, P and T
B : flow is controlled from B1 -> B; free on A, P and T

(4) Flow control characteristics for A1 -> A and B1 -> B and check valve opening pressure (Pm) for flow A -> A1 and B -> B1
no designation: standard control and Pm approx 0.04 MPa (0.4 bar)
W : fine and sensitive control
4 : Pm approx 0.4 MPa (4 bar)

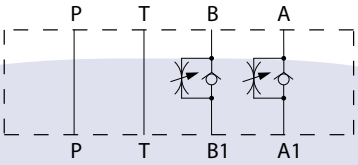
(5) Code reserved for special variants (materials, seals, surface treatments etc.).

(6) Design number (progressive) of the valves

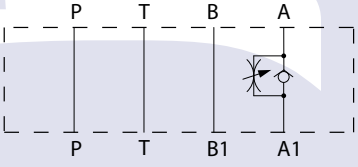




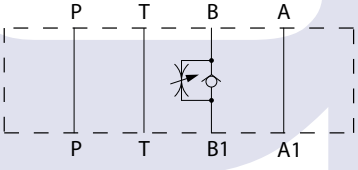
AM2-FC-AB



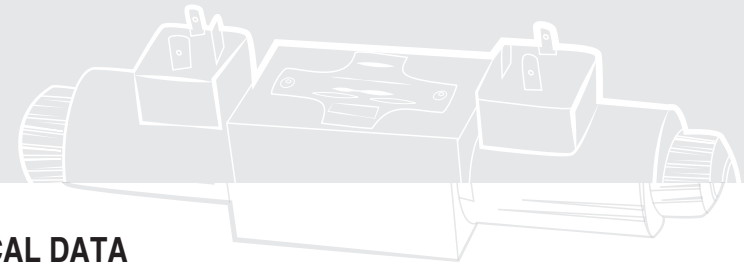
AM2-FC-A



AM2-FC-B



Fluid flows freely on P and T lines; on service lines A and/or B with controls, fluid flows from A -> A1 (and/or B ->B1) overcoming the force of spring acting on sleeve; fluid flows from A1 ->A (and/or B1 ->B) through orifices of sleeve which is pushed against its seat; the throtling axis, which is shifted by screwing it and locked by its nut, partially obstructs the control orifices, thus making the flow rate entirely dependent upon the available pressure drop.

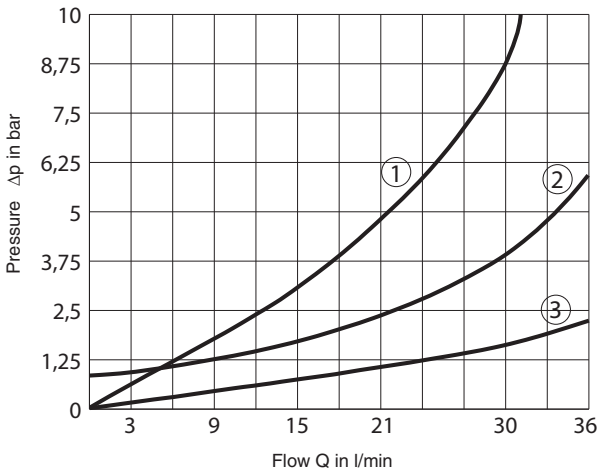


3 TECHNICAL DATA

Maximum nominal flow	32 l/min	Control of the flow:
Maximum rec. flow rate	30 l/min	The control is made by throttling from A1 -> A (and/or B1 ->B) through variable orifices. Depending on the various sleeve/axis combination, the control adjustement is:
maximum nominal pressure	32 MPa (320 bar)	no designation: standard, orifices area is reduced from 100% (*) to 0% with 6 complete turnsof the adjustement screw
Pressure drops	see 5	W (fine and sensitive): from 100% (*) to 0 with 8 complete turns - special variant
Installation and dimensions	see 7	(*)100 approx: Q=0,5dm³/s (30l/min) at Δp= 1MPa (10bar)
Mass	approx 0,8 kg	

4 TYPICAL DIAGRAMS

Typical Δp-Q curves for valves AM2-FC-AB in standard configuration, with mineral oil at 36 cSt and at 50°C with throttling axis at full retraction.

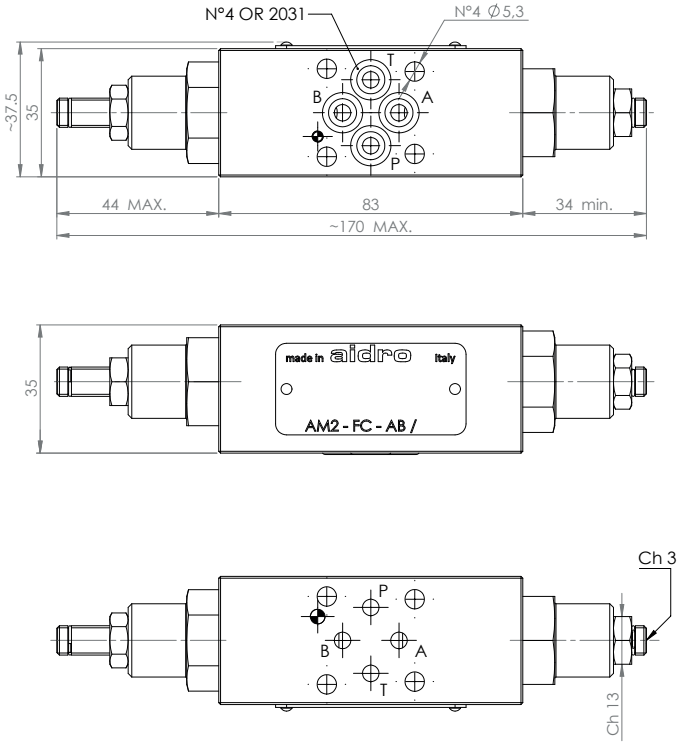


① A1 -> A
B1 -> B

② A -> A1
B -> B1

③ P <-> P
T <-> T

5 INSTALLATION DIMENSIONS (mm)



6 HYDRAULIC FLUIDS

Seals and materials used on standard valves AM2-* are fully compatible with hydraulic fluids of mineral oil base, upgraded with antifoaming and antioxidizing agents. The hydraulic fluid must be kept clean and filtered to ISO 4406 class 19/17/14, or better, and used in a recommended viscosity range from 10 cSt to 60 cSt.

All stackable valves AM2-FC-* conform with ISO and CETOP specifications for mounting surface dimensions (see also front page). Valves height 35 mm. Leakage between valve and mounting surface is prevented by the positive compression on their seats of 4 seals of OR type. All valves have on their "mounting" surface a ø 4 mm cylindrical hole and have on their "seals" surface a ø 3 mm cylindrical hole, conform with ISO and CETOP norms.

2 CETOP 02

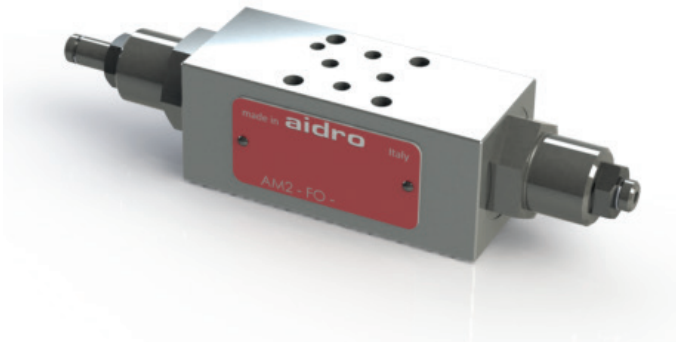
STACKABLE VALVES FLOW RESTRICTOR

AM2-FO-*

30 l/min - 32 MPa (320 bar)

1 DESCRIPTION

Stackable valve CETOP 2 with flow restrictor function. It is possible to control the lines A, B or AB simply turning the side screws.
On demand it is possible to have also the fine control option.



2 ORDERING CODE

(1)		(2)		(3)		(4)		(5)		(6)
AM2	-	FO	-		-		-		/	10

(1) AM2: stackable valve CETOP 02- Pressure 32 MPa (320bar)

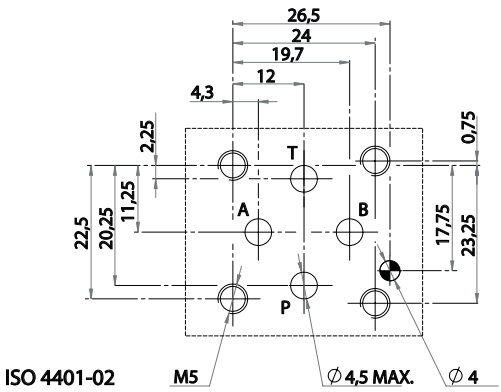
(2) FO: flow restrictor valves with two-way control

(3) Service lines where the controls operate:
AB: controls on A and B. Fluid flows restricted A <-> A and B <-> B
A : flow is restricted A <-> A; free on B, P and T
B : flow is restricted B <-> B; free on A, P and T

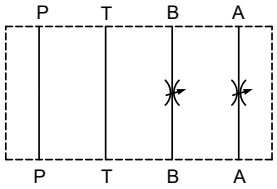
(4) Flow control characteristics
no designation : standard control
W: fine and sensitive control

(5) Code reserved for special variants (materials, seals, surface treatments etc.)

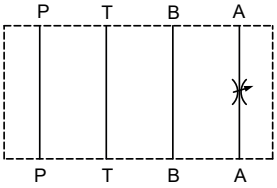
(6) Design number (progressive) of the valves



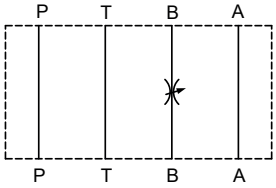
AM2-FO-AB

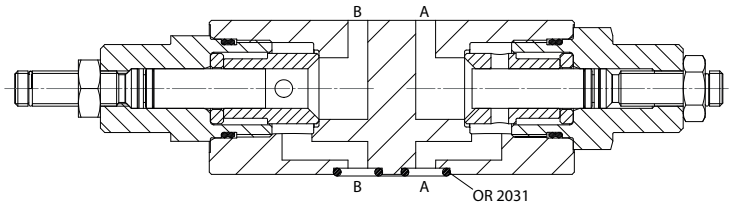


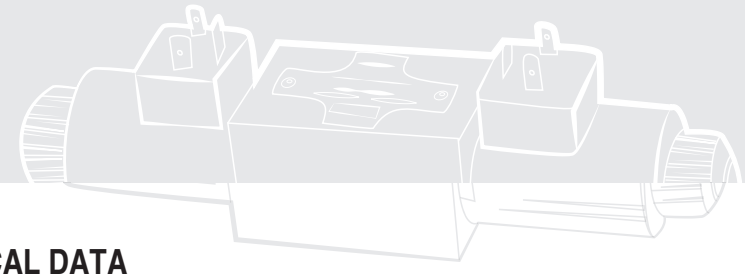
AM2-FO-A



AM2-FO-B







3 TECHNICAL DATA

Maximum nominal flow	32 l/min
Maximum rec. flow rate	0,5 dm^3/s (30 l/min)
maximum nominal pressure	32 MPa (320 bar)
Pressure drops	see 4
Installation and dimensions	see 6
Mass	approx 0,8 kg

Control of the flow:

The control is made by throttling through variable orifices obtained on sleeve and partially obstructed by throttling axis. Depending on the various sleeve/axis combination, the control adjustement is:

- (standard) : orifices area is reduced from 100% (*) to 0% with 6 complete turns of the adjustement screw.

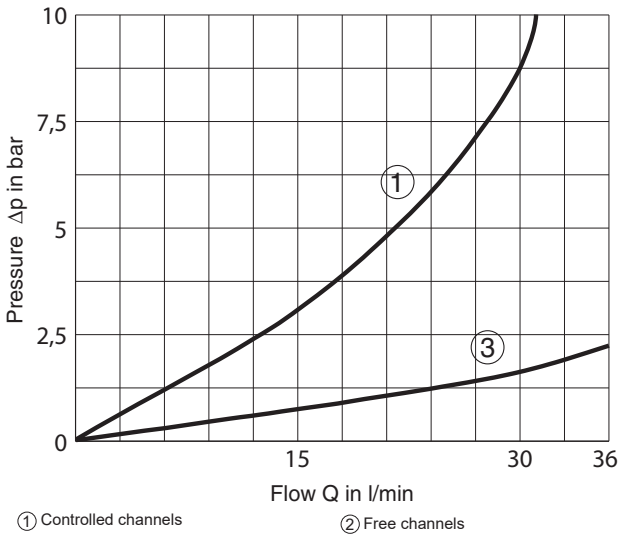
W (fine and sensitive): from 100% (*) to 0% with 8 complete turns - special variant

(*) 100% approx: Q=0.5 dm3/s (30 l/min) at Δp=1MPa (10 bar)

The axis is shifted to increase throttling by unlocking its nut and turning clock wise the adjustement screw. Suitable mechanical stops prevent dangerous manoevring.

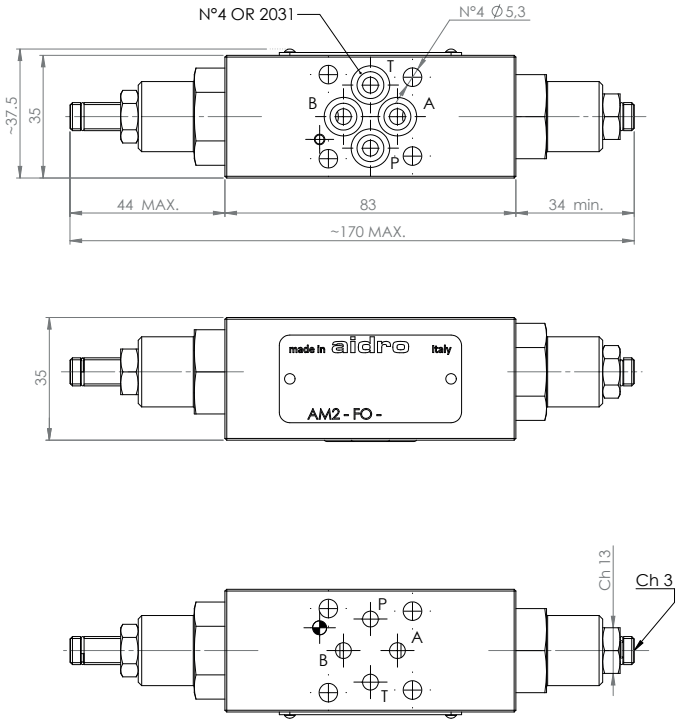
4 TYPICAL DIAGRAMS

Typical Δp-Q curves for valves AM2-FO-* in standard configuration, with mineral oil at 36 cSt and at 50° C with throttling axis at full retraction



① Controlled channels ② Free channels

5 INSTALLATION DIMENSIONS (mm)



6 HYDRAULIC FLUIDS

Seals and materials used on standard valves AM2-* are fully compatible with hydraulic fluids of mineral oil base, upgraded with antifoaming and antioxidizing agents. The hydraulic fluid must be kept clean and filtered to ISO 4406 class 19/17/14, or better, and used in a recommended viscosity range from 10 cSt to 60 cSt.

All stackable valves AM2-FO conform with ISO and CETOP specifications for mounting surface dimensions (see also front page). Valves height 35 mm. Leakage between valve and mounting surface is prevented by the positive compression on their seats of 4 seals of OR type. All valves have on their "mounting" surface a ø 4 mm cylindrical hole and are equipped on their "seals" surface by a ø 3 mm locating pin, to conform with the norms. In case of necessity, the pin can be easily removed.

2 CETOP 02

STACKABLE VALVES FLOW CONTROL

AM2-FX-*

30 l/min - 32 MPa (320 bar)

1 DESCRIPTION

Stackable valve CETOP 2 with meter in control (referred to the hydraulic actuator). It is possible to control the lines A, B or AB simply turning the side screws.
On demand it is possible to have also the fine control option.

2 ORDERING CODE

(1)		(2)		(3)		(4)		(5)		(6)
AM2	-	FX	-		-		-		/	10

(1) AM2: stackable valve CETOP 02- Pressure 32MPa (320bar)

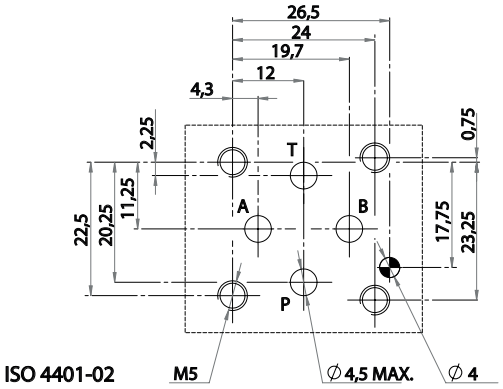
(2) FX: one-way flow control valves with meter-in control
(referred to the hydraulic actuator)

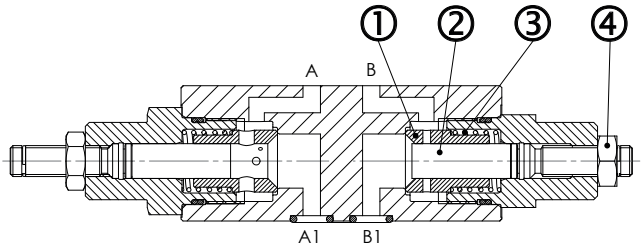
(3) Service lines where the controls operate:
AB: controls on A and B. Fluid flows unrestricted A1 -> A, and B1 -> B and flow is controlled from A -> A1 and B -> B1
A : flow is controlled from A -> A1; free on B, P and T
B : flow is controlled from B -> B1; free on A, P and T

(4) Flow control characteristics for A -> A1 and B -> B1 and check valve opening pressure (Pm) for flow A1-> A and B1 -> B
no designation : standard control and Pm approx 0.04 MPa (0.4 bar)
W: fine and sensitive control
4 : Pm approx 0.4 MPa (4 bar)

(5) Code reserved for special variants (materials, seals, surface treatments etc.).

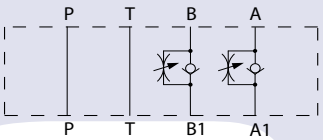
(6) Design number (progressive) of the valves



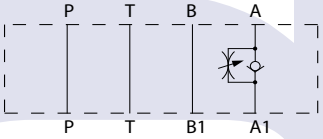


Fluid flows freely on P and T lines; on service lines A and/or B with controls, fluid flows from A-> A1 (and/or B -> B1) overcoming the force of spring acting on sleeve; fluid flows from A1 -> A (and/or B1-> B) through orifices of sleeve which is pushed against its seat; the throtling axis which is shifted by screwing it and locked by its nut , partially obstructs the control orifices, thus making the flow rate entirely dependent upon the available pressure drop.

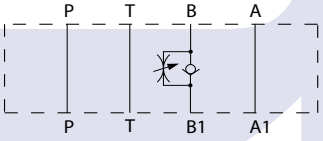
AM2-FX-AB

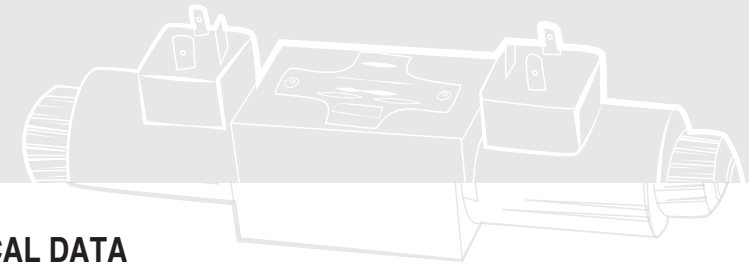


AM2-FX-A



AM2-FX-B





3 TECHNICAL DATA

Maximum nominal flow	32 l/min
Maximum rec. flow rate	30 l/min
maximum nominal pressure	32 MPa (320 bar)
Pressure drops	see 4
installation and dimensions	see 5
Mass	approx 0,8 kg

Control of the flow:

The control is made by throttling from A1 -> A (and/or B1 ->B) through variable orifices. Depending on the various sleeve/axis combination, the control adjustement is:

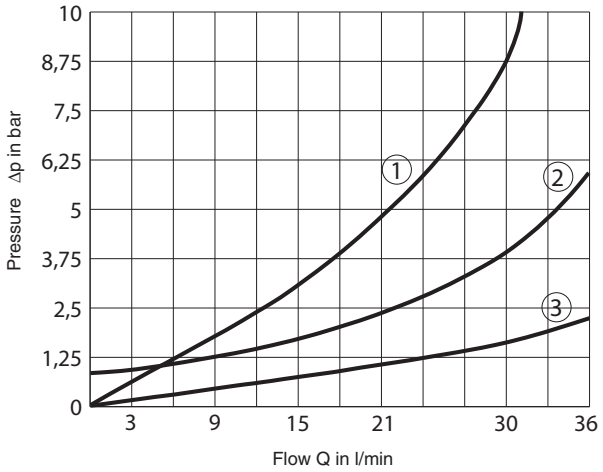
no designation: standard, orifices area is reduced from 100% (*) to 0% with 6 complete turns of the adjustement screw

W (fine and sensitive): from 100% (*) to 0% with 8 complete turns - special variant

(*)100 approx: Q=0,5dm³/s (30l/min) at Δp= 1MPa (10bar)

4 TYPICAL DIAGRAMS

Typical Δp-Q curves for valves AM2 -FX-AB in standard configuration, with mineral oil at 36 cSt and at 50°C with throttling axis at full retraction.

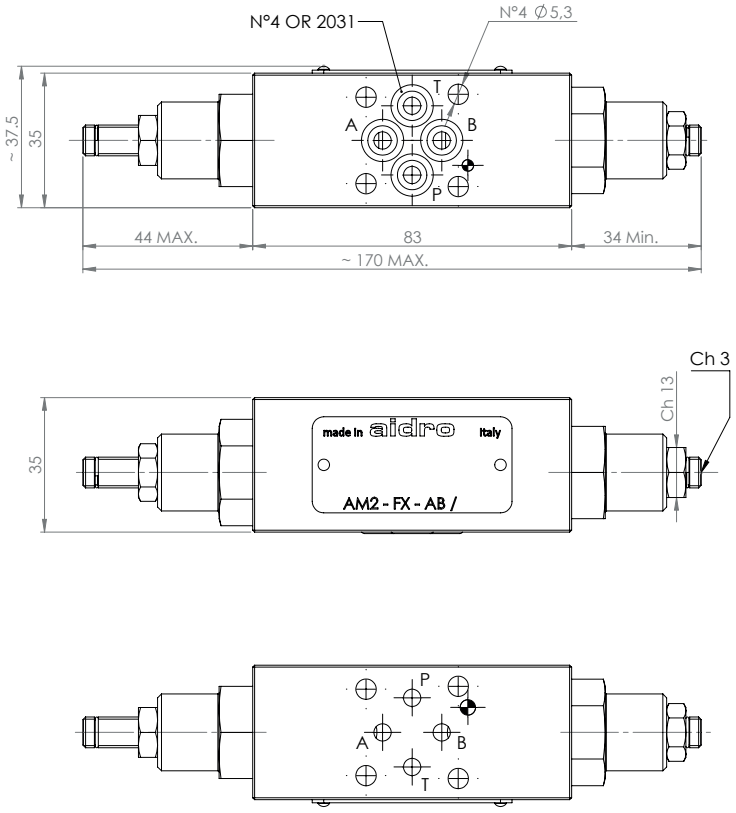


①A -> A1
B -> B1

②A1 -> A
B1 -> B

③P <-> P
T <-> T

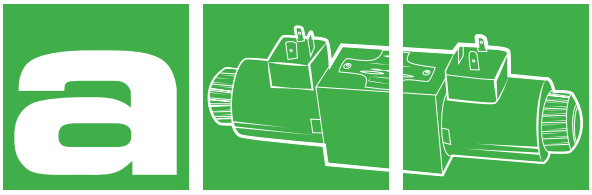
5 INSTALLATION DIMENSIONS (mm)



All stackable valves AM2-FX-* conform with ISO and CETOP specifications for mounting surface dimensions. Valves height 35 mm. Leakage between valve and mounting surface is prevented by the positive compression on their seats of 4 seals of OR type. All valves have on their "mounting" surface a ø 4 mm cylindrical hole and are equipped on their "seals" surface by a ø 3 mm locating pin conform with ISO and CETOP norms. In case of necessity, the pin can be easily removed.

6 HYDRAULIC FLUIDS

Seals and materials used on standard valves AM2-* are fully compatible with hydraulic fluids of mineral oil base, upgraded with antifoaming and antioxidizing agents. The hydraulic fluid must be kept clean and filtered to ISO 4406 class 19/17/14, or better, and used in a recommended viscosity range from 10 cSt to 60 cSt.



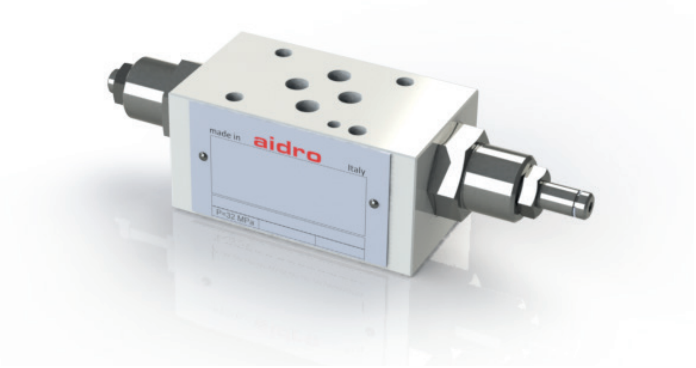
FLOW RESTRICTOR VALVES

AM3-FO-*

60 l/min - 32 MPa (320 bar)

1 DESCRIPTION

Stackable valve CETOP 3 with flow restrictor function. It is possible to control the lines A, B or AB simply turning the side screws.
On demand it is possible to have also the fine control option.



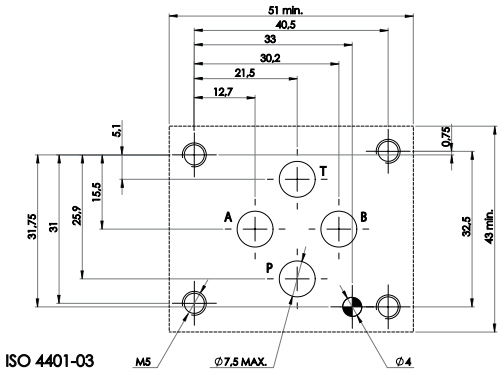
2 ORDERING CODE

(1)		(2)		(3)		(4)		(5)		(6)
AM3	-	FO	-		-		-		/	10

(1) AM3: stackable valve CETOP 03 - Pressure 32 MPa (320 bar)

(2) FO: flow restrictor valves with two-way control

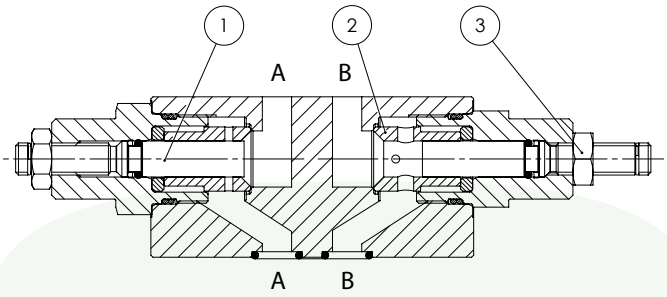
(3) Service lines where the controls operates:
AB: controls on A and B. Fluid flows restricted A <-> A, and B <-> B
A : flow is restricted A<-> A; free on B, P and T
B : flow is restricted B<-> B; free on A, P and T



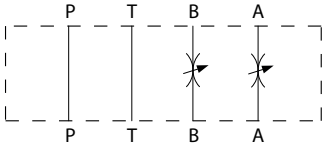
(4) Flow control characteristics
no designation: standard control
V: fine control

(5) Code reserved for option and variants

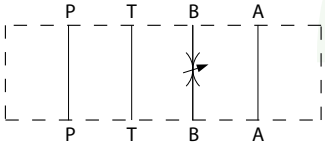
(7) Design number (progressive) of the valves



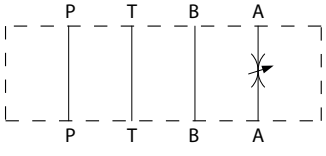
AM3-FO-AB

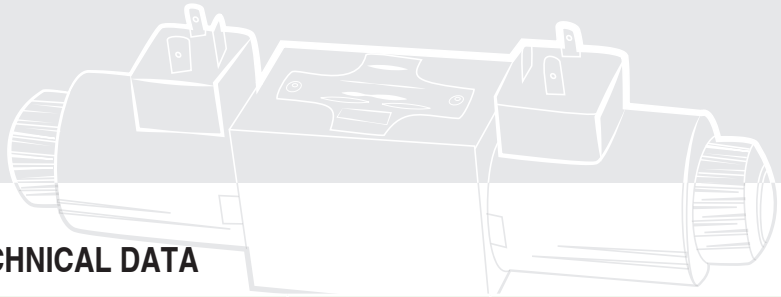


AM3-FO-B



AM3-FO-A



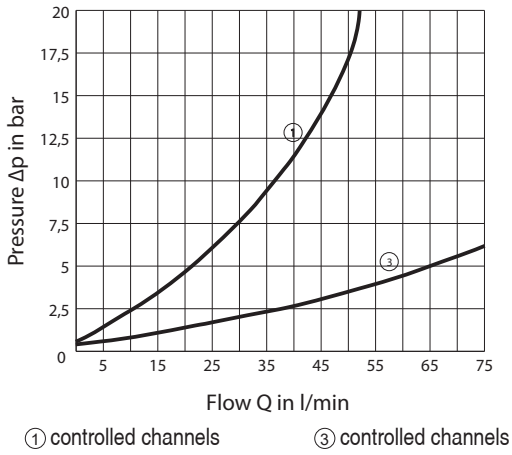


3 TECHNICAL DATA

Maximum nominal flow		Control of the flow:
Maximum rec. flow rate	60 l/min	The control is made by throttling from through variable orifices obtained on sleeve and partially obstructed by throttling axis.Depending on the various sleeve/axis combination,the control adjustement is: - (standard): orifices area is reduced from 100% (*) to 0% with 6 complete turns of the adjustement screw. - V (fine): from 100% (**) to 0% with 5 complete turns of the adjustement screw. (*) 100% approx Q=60 l/min at p=20 bar (**) 100% approx Q=30 l/min at p=20 bar The axis is shifted to increase throttling by unlocking its nut and turning clock wise the adjustement screw. Suitable mechanical stops prevent dangerous manoevring.
Maximum nominal pressure	32 MPa (320 bar)	
Pressure drops	see 4	
Installation and dimensions	see 5	
Mass	approx 1,2 kg	

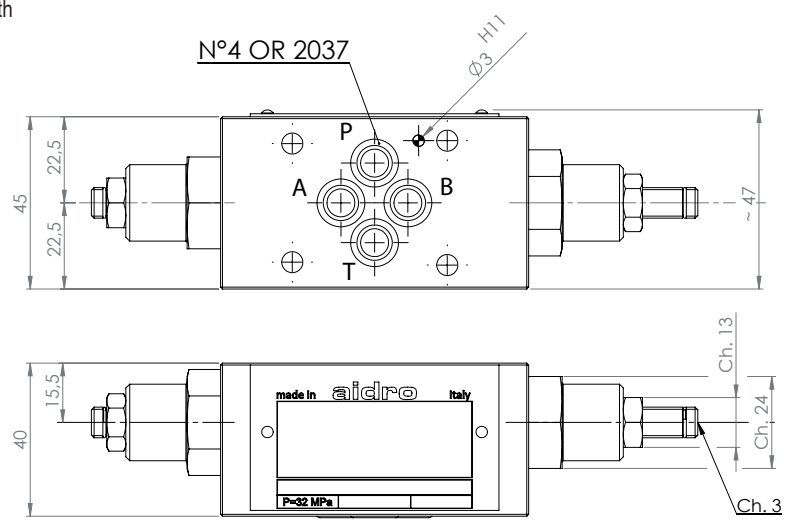
4 TYPICAL DIAGRAMS

Typical Δp-Q curves for valves AM3-FO-* in standard configuration, with mineral oil at 36 cSt and at 50°C with throttling axis at full retraction.



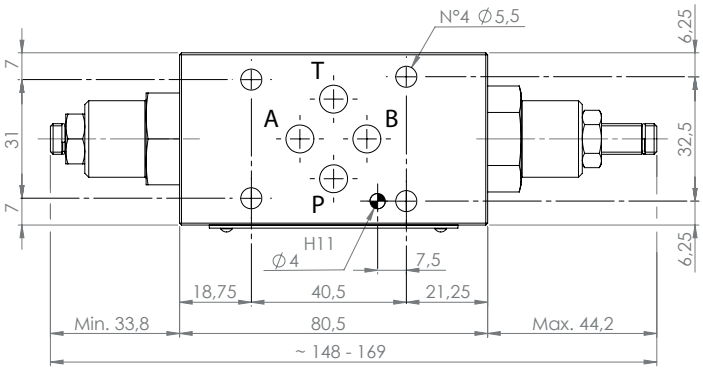
① controlled channels ③ controlled channels

5 INSTALLATION DIMENSIONS (mm)

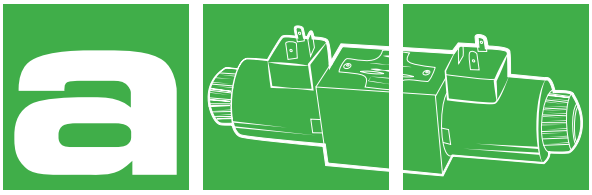


6 HYDRAULIC FLUIDS

Seals and materials used on standard valves AM3- * are fully compatible with hydraulic fluids of mineral oil base, upgraded with antifoaming and antioxidizing agents. The hydraulic fluid must be kept clean and filtered to ISO 4406 class 19/17/14, or better, and used in a recommended viscosity range from 10 cSt to 60 cSt.



All stackable valves AM3-FO-* conform with ISO and CETOP specifications for mounting surface dimensions. Valves height 40 mm.
Leakage between valve and mounting surface is prevented by the positive compression on their seats of 4 seals of OR type. All valves have on their "mounting" surface a ø 4 mm cylindrical hole and have on their "seals" surface a ø 3 mm cylindrical hole, conform with ISO and CETOP norms.



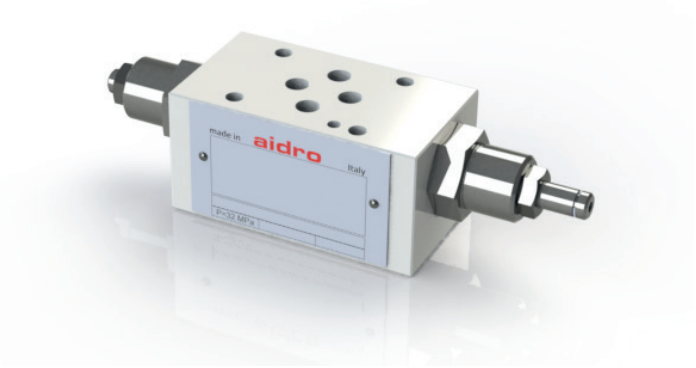
FLOW RESTRICTOR VALVES

AM3-FO-*

60 l/min - 32 MPa (320 bar)

1 DESCRIPTION

Stackable valve CETOP 3 with flow restrictor function. It is possible to control the lines A, B or AB simply turning the side screws.
On demand it is possible to have also the fine control option.



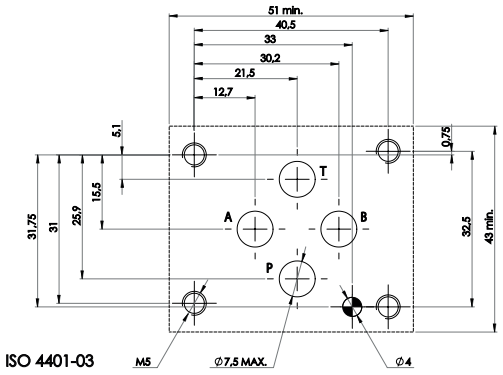
2 ORDERING CODE

(1)		(2)		(3)		(4)		(5)		(6)
AM3	-	FO	-		-		-		/	10

(1) AM3: stackable valve CETOP 03 - Pressure 32 MPa (320 bar)

(2) FO: flow restrictor valves with two-way control

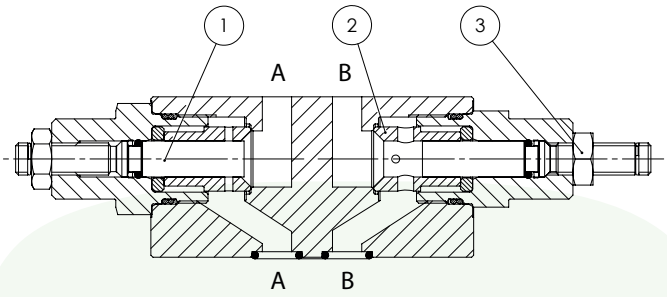
(3) Service lines where the controls operates:
AB: controls on A and B. Fluid flows restricted A <-> A, and B <-> B
A : flow is restricted A<-> A; free on B, P and T
B : flow is restricted B<-> B; free on A, P and T



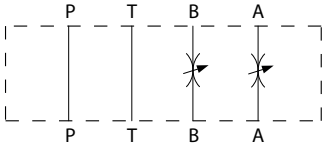
(4) Flow control characteristics
no designation: standard control
V: fine control

(5) Code reserved for option and variants

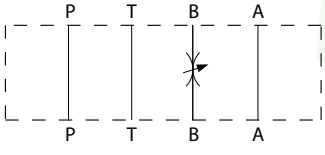
(7) Design number (progressive) of the valves



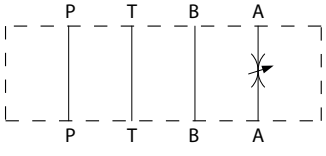
AM3-FO-AB

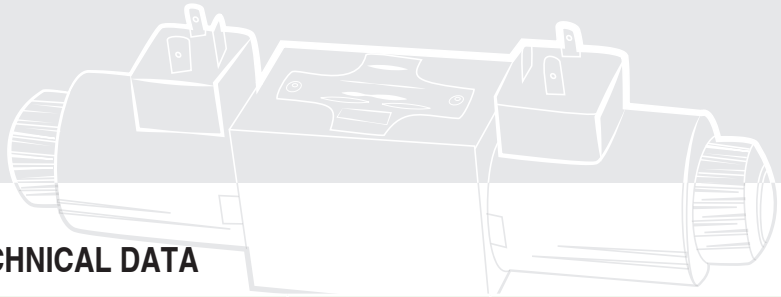


AM3-FO-B



AM3-FO-A



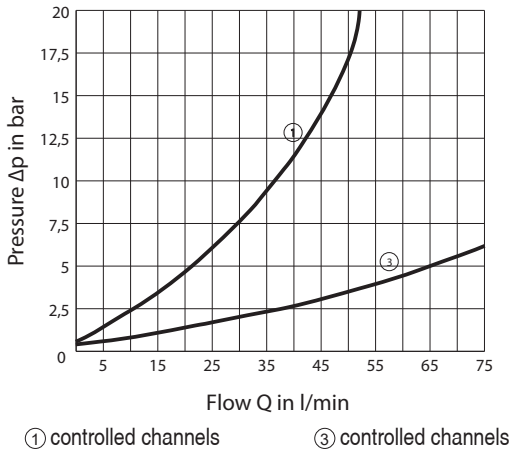


3 TECHNICAL DATA

Maximum nominal flow		Control of the flow:
Maximum rec. flow rate	60 l/min	The control is made by throttling from through variable orifices obtained on sleeve and partially obstructed by throttling axis.Depending on the various sleeve/axis combination,the control adjustement is: - (standard): orifices area is reduced from 100% (*) to 0% with 6 complete turns of the adjustement screw. - V (fine): from 100% (**) to 0% with 5 complete turns of the adjustement screw. (*) 100% approx Q=60 l/min at p=20 bar (**) 100% approx Q=30 l/min at p=20 bar The axis is shifted to increase throttling by unlocking its nut and turning clock wise the adjustement screw. Suitable mechanical stops prevent dangerous manoevring.
Maximum nominal pressure	32 MPa (320 bar)	
Pressure drops	see 4	
Installation and dimensions	see 5	
Mass	approx 1,2 kg	

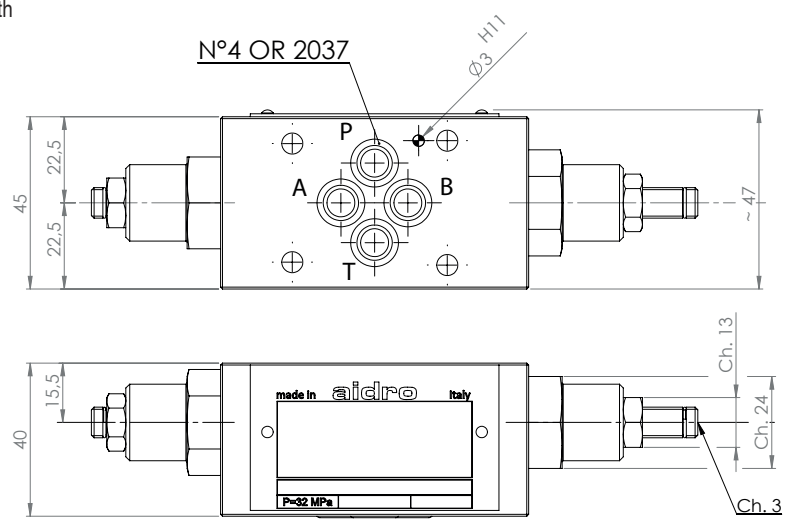
4 TYPICAL DIAGRAMS

Typical Δp-Q curves for valves AM3-FO-* in standard configuration, with mineral oil at 36 cSt and at 50°C with throttling axis at full retraction.



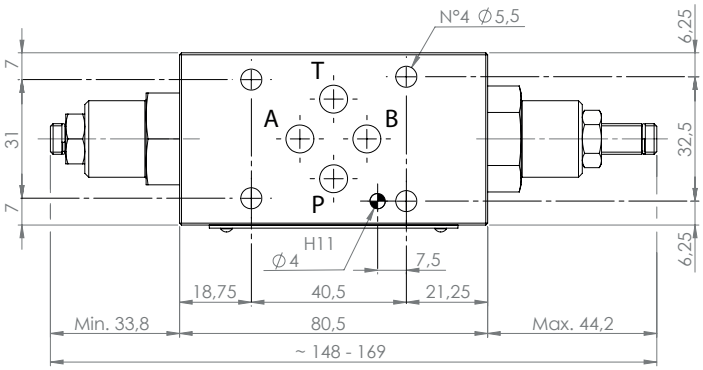
① controlled channels ③ controlled channels

5 INSTALLATION DIMENSIONS (mm)

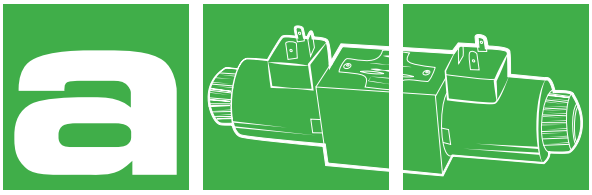


6 HYDRAULIC FLUIDS

Seals and materials used on standard valves AM3- * are fully compatible with hydraulic fluids of mineral oil base, upgraded with antifoaming and antioxidizing agents. The hydraulic fluid must be kept clean and filtered to ISO 4406 class 19/17/14, or better, and used in a recommended viscosity range from 10 cSt to 60 cSt.



All stackable valves AM3-FO-* conform with ISO and CETOP specifications for mounting surface dimensions. Valves height 40 mm.
Leakage between valve and mounting surface is prevented by the positive compression on their seats of 4 seals of OR type. All valves have on their "mounting" surface a ø 4 mm cylindrical hole and have on their "seals" surface a ø 3 mm cylindrical hole, conform with ISO and CETOP norms.



STACKABLE VALVE ADJUSTABLE FLOW CONTROL

AM3-FO-P/34

25 l/min - 32 MPa (320 bar)

1 DESCRIPTION

Stackable valve CETOP 3 with flow restrictor function. With this model It is possible to control the line P.
On demand it is possible to have also the fine control option.

2 ORDERING CODE

(1)		(2)		(3)		(4)		(5)		(6)
AM3	-	FO	-	P	-		-		/	34

(1) AM3: Stackable valve CETOP 03

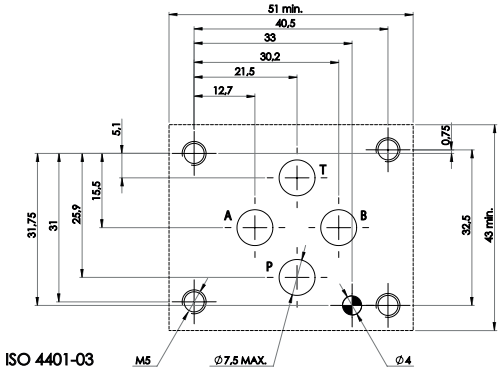
(2) FO: adjustable flow control valve

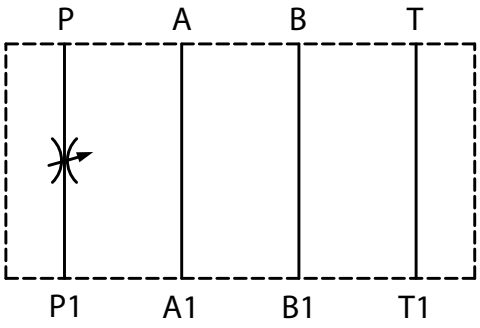
(3) P: Line where the control operates

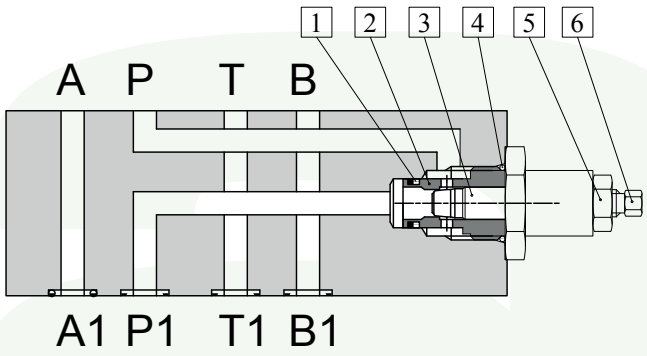
(4) Flow adjustment device :
no designation : hexagon screw
M: hand knob

(5) Code reserved for more options and variants

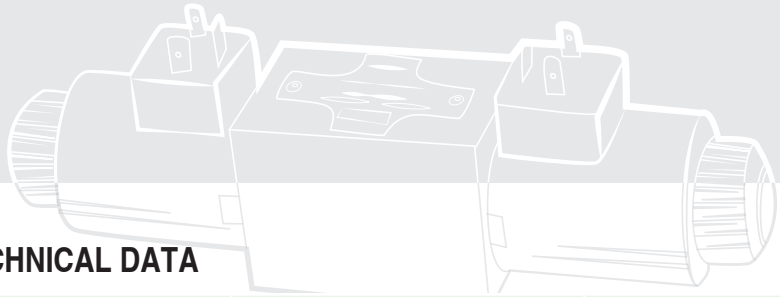
(6) Cavity for cartridge valves is 3/4" 16 UNF







Fluid flows freely on A, B and T lines. Fluid that flows on P line is regulated by a variable throttle valve, consisting in a needle 3 (which position is set by the adjustment screw 6) that changes the section of an annular passage.

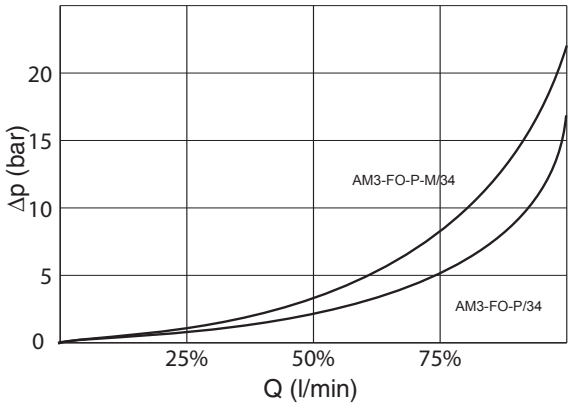


3 TECHNICAL DATA

Maximum rec. flow rate on P line	25 l/min	Adjustement of the regulated flow:
Maximum nominal pressure	32 MPa (320 bar)	To decrease flow in P line turn clockwise the adjustment screw 6 (or the hand knob), after having unlocked its retaining nut 5

4 TYPICAL DIAGRAMS

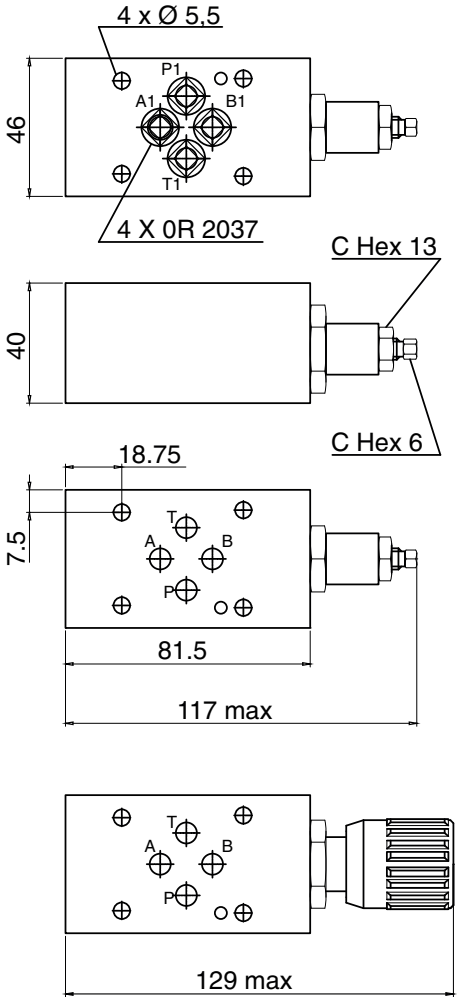
measured at = 36 cSt and 50°C



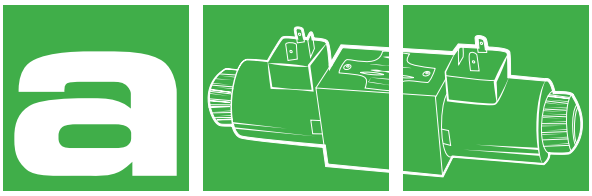
5 HYDRAULIC FLUIDS

Seals and materials used on standard valves AM3-* are fully compatible with hydraulic fluids of mineral oil base, upgraded with antifoaming and antioxidizing agents. The hydraulic fluid must be kept clean and filtered to ISO 4406 class 19/17/14, or better, and used in a recommended viscosity range from 10 cSt to 60 cSt.

6 INSTALLATION DIMENSIONS (mm)



All stackable valves AM3-* conform with ISO and CETOP specifications for mounting surface dimensions and for valves height (40 mm). Leakage between valve and mounting surface is prevented by the positive compression on their seats of 4 seals of OR type



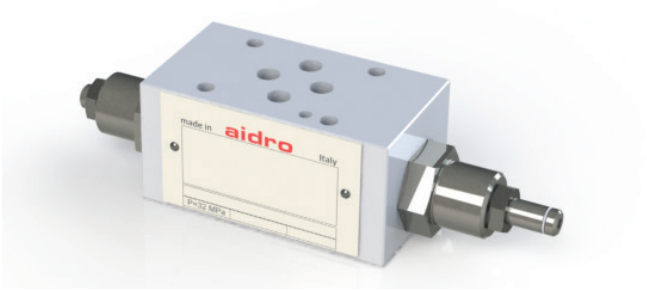
FLOW CONTROL VALVES

AM3-FX-*

60 l/min - 32 MPa (320 bar)

1 DESCRIPTION

Stackable valve CETOP 3 with meter in control (referred to the hydraulic actuator). It is possible to control the lines A, B or AB simply turning the side screws.
On demand it is possible to have also the fine control option.



2 ORDERING CODE

(1)		(2)		(3)		(4)		(5)		(6)
AM3	-	FX	-		-		-		/	10

(1) AM3: stackable valve CETOP 03 - Pressure 32 MPa (320 bar)

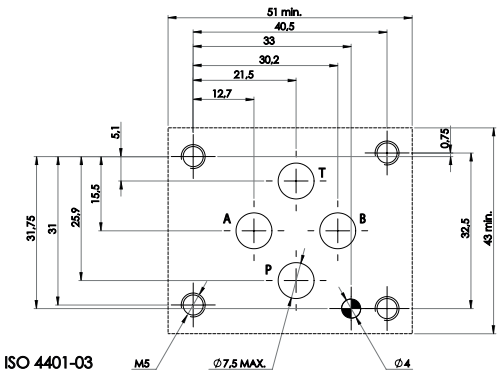
(2) FX:one way flow control valves with meter-out control
(referred to the hydraulic actuator)

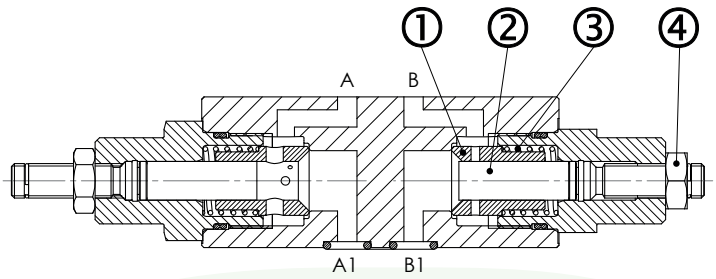
(3) Service lines where the controls operate:
AB: controls on A and B. Fluid flows unrestricted from
A1-> A and B1 -> B and flow is controlled from A -> A1 and B -> B1
A : flow is controlled from A-> A1, free on B
B : flow is controlled from B-> B1; free on A

(4) Flow control characteristics for A -> A1 and B -> B1 and check valve opening pressure (Pm) for flow A1 -> A and B1 -> B
no designation: standard control and Pm approx 0,04 MPa (0,4 bar)
V: fine control
4: Pm approx 0,4 MPa (4 bar)

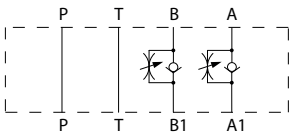
(5) Code reserved for option and variants

(6) Design number (progressive) of the valves

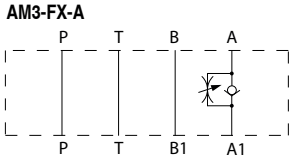




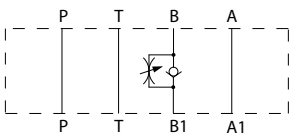
AM3-FX-AB



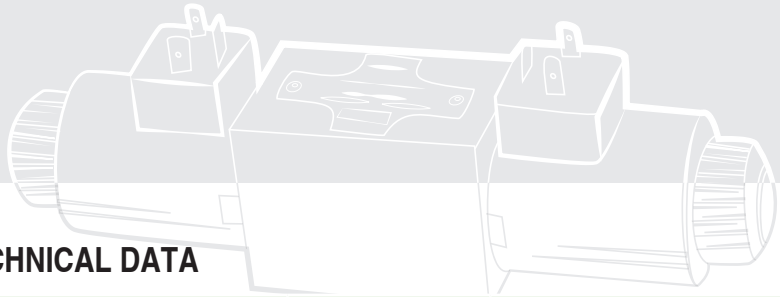
AM3-FX-A



AM3-FX-B



Fluids flows freely on P and T lines: on service lines A and/or B with controls, fluid flows from A -> A1 (and/or B-> B1) overcoming the force of spring 5 acting on sleeve 2; fluid flows from A1-> A (and/or B1->B) through orifices to sleeve 2 which is pushed against its seat; the throttling axis 4, which is shifted by screwing it and locked by its nut 3, partially obstructs the control orifices, thus making the flow rate entirely dependent upon the available pressure drop.

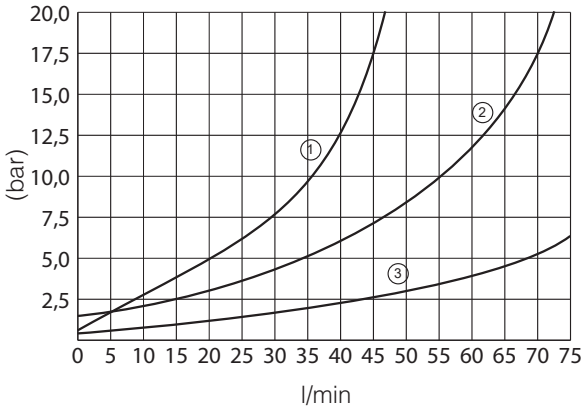


3 TECHNICAL DATA

Maximum nominal flow		Control of the flow:
Maximum rec. flow rate	60 l/min	The control is made by throttling from through variable orifices obtained on sleeve and partially obstructed by throttling axis.Depending on the various sleeve/axis combination,the control adjustement is: - (standard): orifices area is reduced from 100% (*) to 0% with 6 complete turns of the adjustement screw. - V (fine): from 100% (**) to 0% with 5 complete turns of the adjustement screw. (*) 100% approx Q=1 dm3/s (60 l/min) at p=2 MPa (20 bar) (**) 100% approx Q=0,5 dm3/s (30 l/min) at p=2 MPa (20 bar) The axis is shifted to increase throttling by unlocking its nut and turning clock wise the adjustement screw. Suitable mechanical stops prevent dangerous manoevring.
Maximum nominal pressure	32 MPa (320 bar)	
Pressure drops	see 4	
Installation and dimensions	see 5	
Mass	approx 1,2 kg	

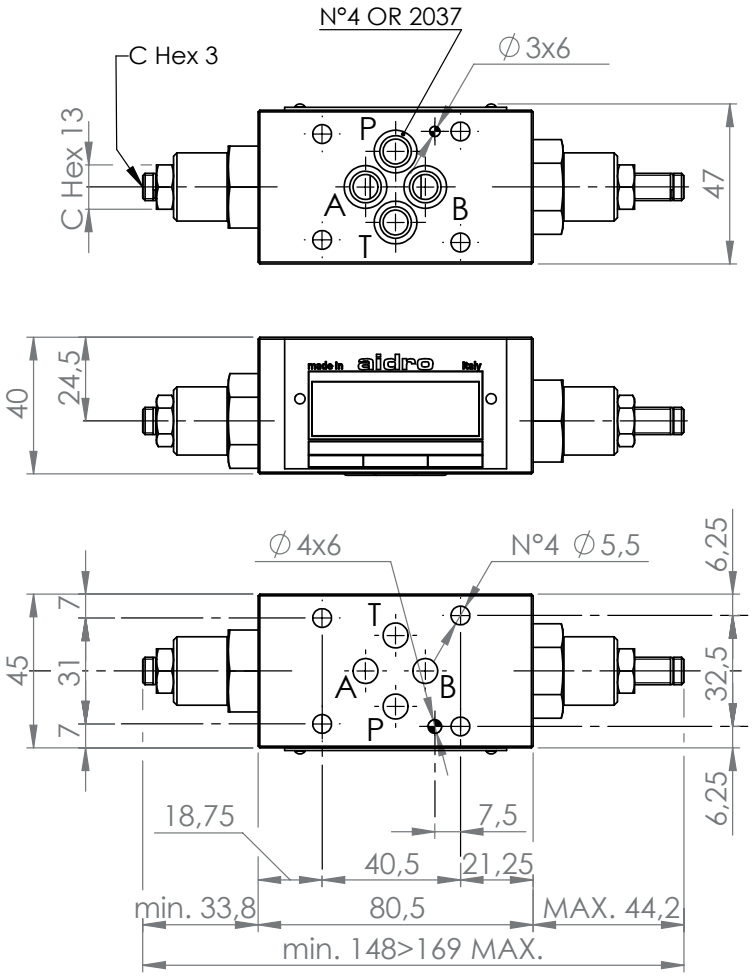
4 TYPICAL DIAGRAMS

Typical p-Q curves for valves AM3-FX- * in standard configuration, with mineral oil at 36 cSt and at 50°C with throttling axis at full retraction.



① A->A1 B->B1 ② A1->A B1->B ③ P->P T ->T

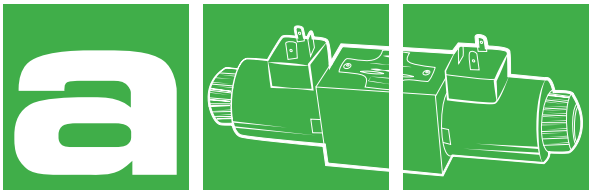
5 INSTALLATION DIMENSIONS (mm)



All stackable valves AM3-FX-* conform with ISO and CETOP specifications for mounting surface dimensions. Valves height 40 mm. Leakage between valve and mounting surface is prevented by the positive compression on their seats of 4 seals of OR type. All valves have on their "mounting" surface a ø 4 mm cylindrical hole and have on their "seals" surface a ø 3 mm cylindrical hole, conform with ISO and CETOP norms.

6 HYDRAULIC FLUIDS

Seals and materials used on standard valves AM3-* are fully compatible with hydraulic fluids of mineral oil base, upgraded with antifoaming and antioxidizing agents. The hydraulic fluid must be kept clean and filtered to ISO 4406 class 19/17/14, or better, and used in a recommended viscosity range from 10 cSt to 60 cSt.



PRESSURE COMPENSATED FLOW CONTROL VALVES

AM3-Q3-P

40 l/min - 32 MPa (320 bar)

1 DESCRIPTION

3 way pressure compensated flow control valves are designed to provide adjustable controlled flow rates indipendent of chanches in system pressure.

2 ORDERING CODE

(1)		(2)		(3)		(4)		(5)		(6)
AM3	-	Q3	-	P	/	16	-		/	10

(1) AM3: stackable valve CETOP 03 - Pressure 32 MPa (320 bar)

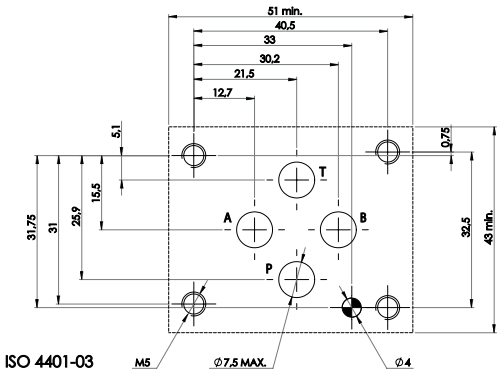
(2) Q3: 3-way pressure compensated flow control valves

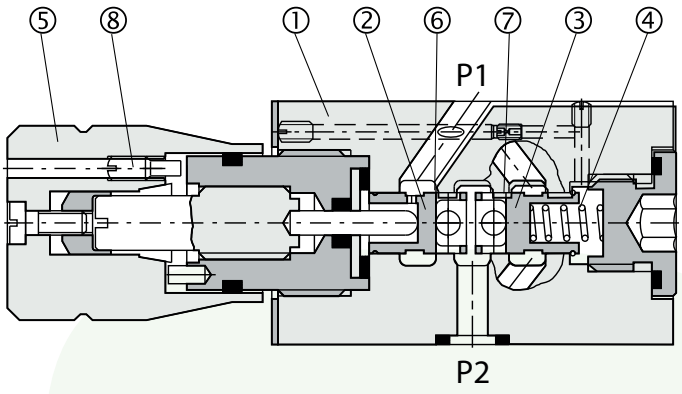
(3) P: Service lines where the controls operate

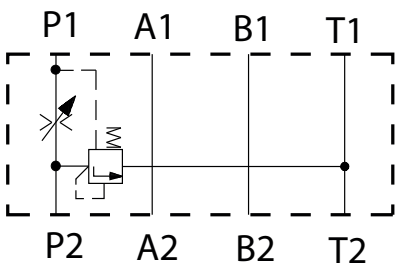
(4) Flow control characteristics:
16=0,06-> 16l/min max regulated flow control rate to P1.
When the inlet flow (at P2) is more than the regulated value, the excess is discharged at T line

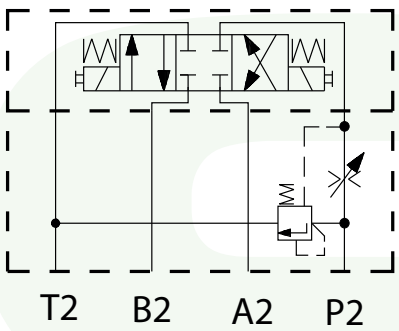
(5) Code reserved for more options and variants

(6) Design number (progressive) of the valves









3 TECHNICAL DATA

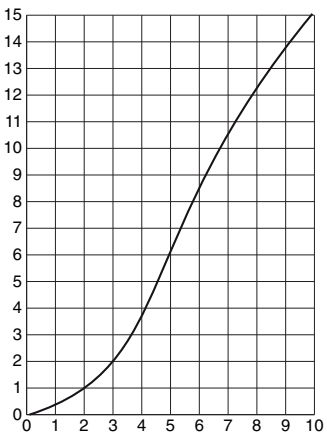
Maximum rec. flow rate	40 l/min
Maximum flow rate on P1 port	16 l/min
Maximum nominal pressure	32 MPa (320 bar)
Flow curves	see 4
Installation and dimensions	see 6
Mass	approx 0,8 kg

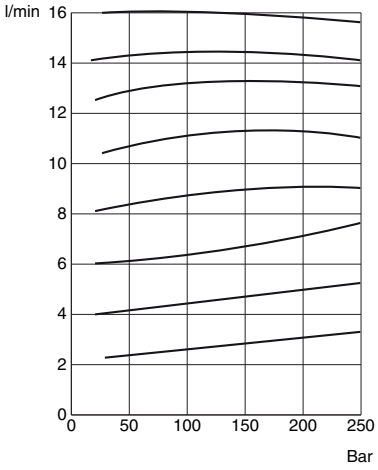
Control of the flow:

By turning the knob 5, the value of the regulated flow changes. The scale/flow characteristic is approx linear and the full range is covered by turning the knob by approx 320°.
The scale is divided in 10 marks.
Clockwise: flow increases
Anticlockwise: flow decreases
When the required value is reached, set the knob position by fixing screw 8.

4 TYPICAL DIAGRAMS

Typical adjustement curves (Q-marcks and Q-P) for valves AM3-Q3-P in standard configuration

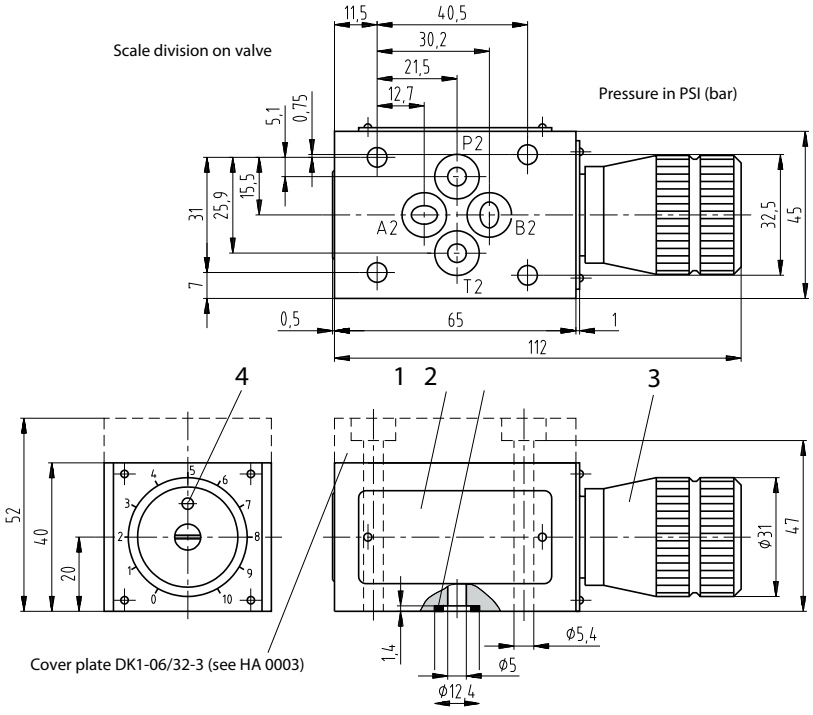




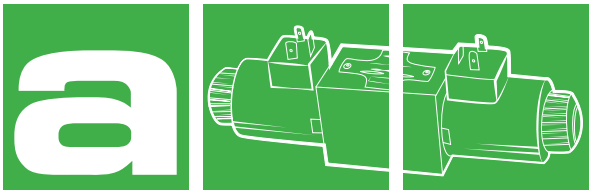
5 HYDRAULIC FLUIDS

Seals and materials used on standard valve AM3-* are fully compatible with hydraylic fluids of mineral oil base, upgraded with antifoaming and antioxidizing agents.The hydraulic fluid must be kept clean and filtered to ISO 4406 class 19/17/14, or better, and used in a recommended viscosity range from 10 cSt to 60 cSt.

6 INSTALLATION DIMENSIONS (mm)



All stackable valves AM3-Q3- * conform with ISO and CETOP specifications for mounting surface dimensions and for valves height 40 mm. Leakage between valve and mounting surface is prevented by the positive compression on their seats of 4 seals type OR 2037.



PRESSURE COMPENSATED FLOW CONTROL VALVES

AM3-Q*-A

40 l/min - 32 MPa (320 bar)

1 DESCRIPTION

Pressure compensated flow control valve designed to provide adjustable controlled flow indipendent of changes of pressure.

2 ORDERING CODE

(1)		(2)		(3)		(4)		(5)		(6)
AM3	-	Q*	-	A	/		-		/	10

(1) AM3: stackable valve CETOP 03 - Pressure 32 MPa (320 bar)

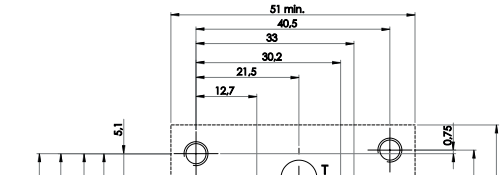
(2) Q: the options are:
- QC: one-way pressure compensated flow control valves with meter-out control (referred to the hidraulic actuator)
- QX: as above, with meter-in control

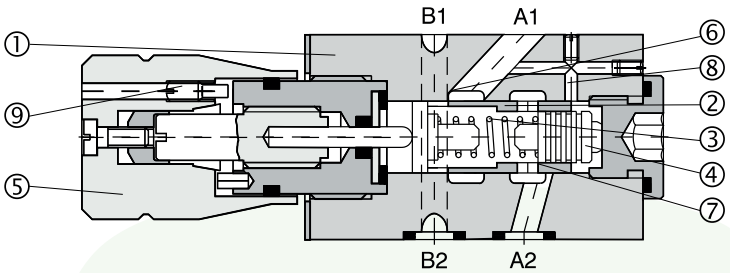
(3) A: Service lines where the controls operate

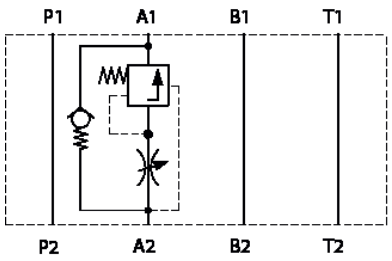
(4) Range of regulated flow:
- 06= 0-> 6 l/min
- 12= 0-> 12 l/min
- 22= 0-> 22 l/min

(5) Code reserved for more options and variants

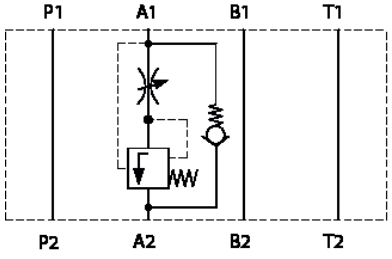
(6) Design number (progressive) of the valves



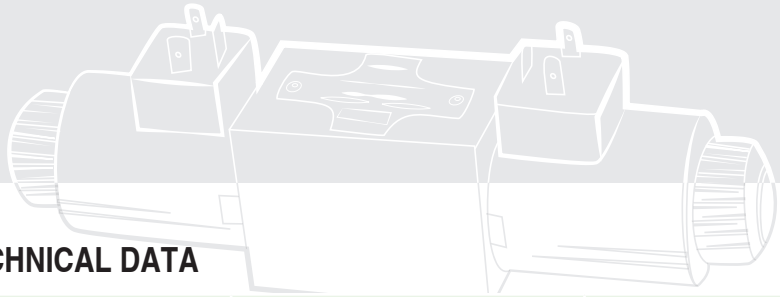




AM3-QC-A



AM3-QX-A



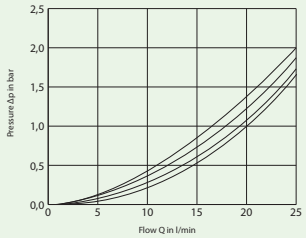
3 TECHNICAL DATA

Maximum rec. flow rate	40 l/min
Maximum flow rate on A port	24 l/min
Maximum nominal pressure	32 MPa (320 bar)
Flow curves	see 4
Installation and dimensions	see 5
Mass	approx 0,8 kg

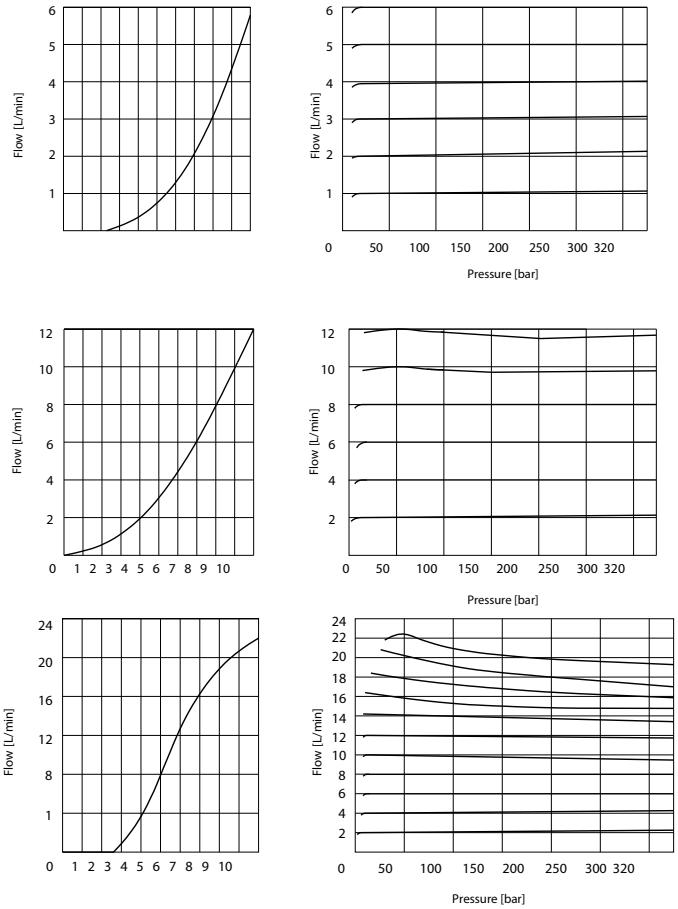
Control of the flow:

By turning the knob 5, the value of the regulated flow changes. The scale/flow characteristic is approx linear (see 4) and the full range is covered by turning the knob by approx 320°. The scale is divided in 10 marks.
Clockwise: flow increases
Anticlockwise: flow decreases
When the required value is reached, set the knob position by fixing screw 8.

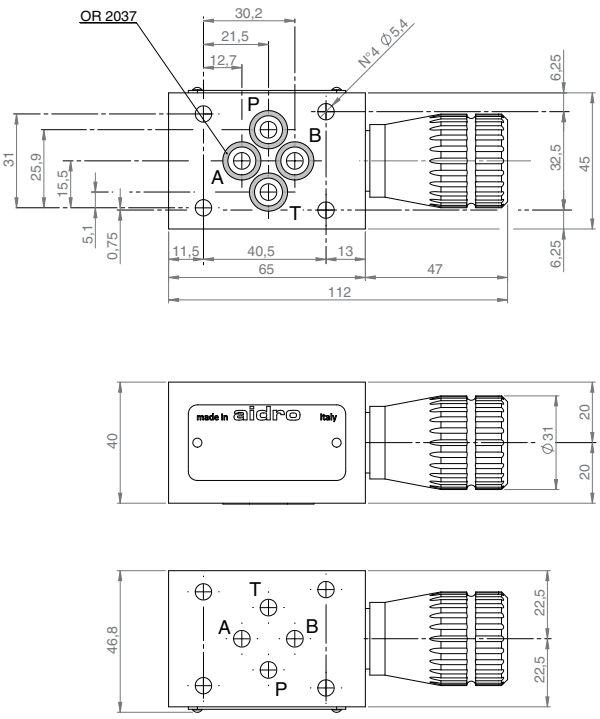
Δp-Q characteristics
Pressure drops for reverse flow



4 TYPICAL DIAGRAMS



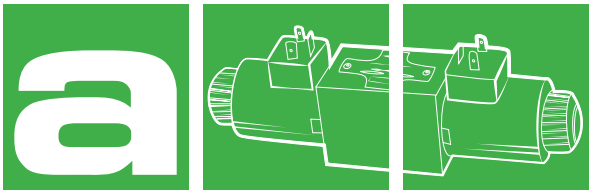
5 INSTALLATION DIMENSIONS (mm)



All stackable valves AM-Q*-* conform with ISO and CETOP specifications for mounting surface dimensions and for valves height 40 mm. Leakage between valve and mounting surface is prevented by the positive compression on their seats of 4 seals type OR 2037.

6 HYDRAULIC FLUIDS

Seals and materials used on standard valve AM3-* are fully compatible with hydraylic fluids of mineral oil base, upgraded with antifoaming and antioxidizing agents. The hydraulic fluid must be kept clean and filtered to ISO 4406 class 19/17/14, or better, and used in a recommended viscosity range from 10 cSt to 60 cSt.



STACKABLE VALVE PRESSURE COMPENSATED, FIXED CONTROL VALVES

AM3-Q*-P/34

32 MPa (320 bar)

1 DESCRIPTION

Stackable valve CETOP 3 with flow restrictor function pressure compensated.
With this model It is possible to control the line P.
Diffirent orifice sizes are available.

2 ORDERING CODE

(1)		(2)	(3)		(4)		(5)		(6)
AM3	-	Q		-	P	-		/	34

(1) AM3: Stackable valve CETOP 03

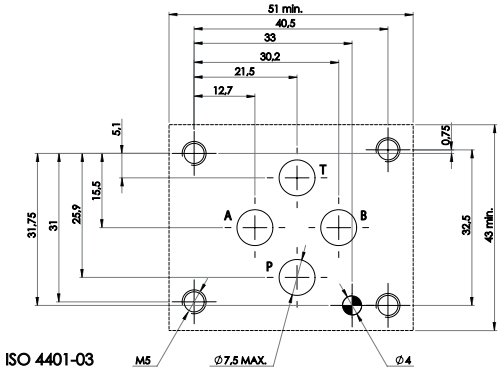
(2) Q: Pressure compensated, fixed flow control

(3) Flow rate setting (see 3)

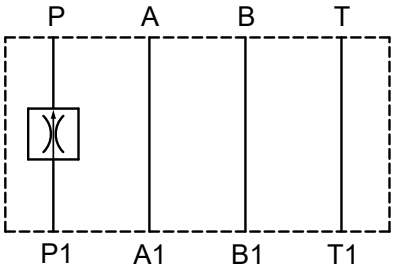
(4) P: Line where the control operates

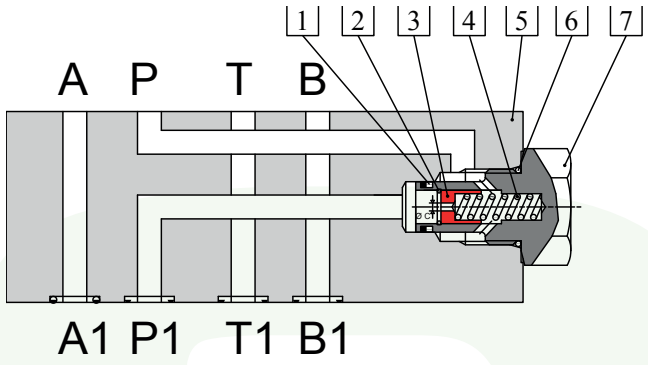
(5) Code reserved for more options and variants

(6) Cavity for cartridge valves is 3/4" 16 UNF

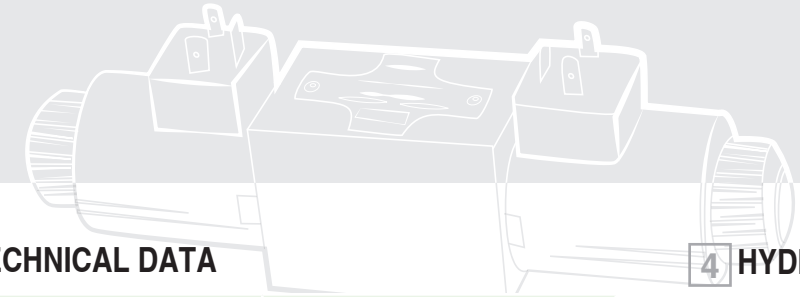


AM3-Q(*)-P/34





Fluid flows freely in A, B and T lines. P1->P : fluid flows through orifice of throttle 3 (flow rate depending on the value orifice diameter Ø C). When pressure difference between P1 and P increases, throttle 3 moves against spring 4 and reduces the area of the lateral orifices, thus keeping flow rate constant at the requested value.



3 TECHNICAL DATA

Maximum rec. flow rate on P line	25 l/min
Maximum nominal pressure	32 MPa (320 bar)

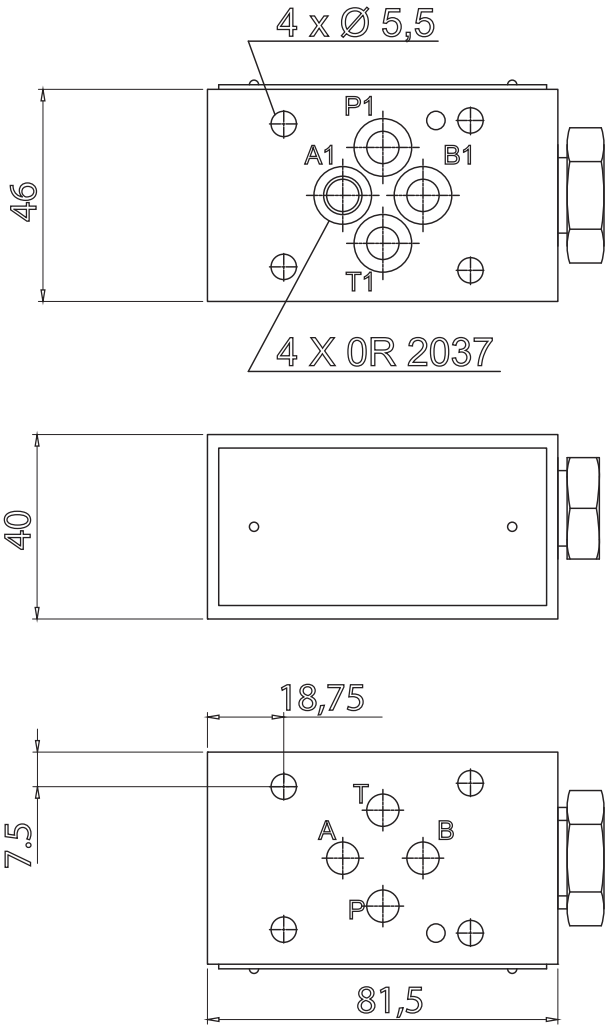
Approximate flow rates corresponding with the orifice Ø C

Ordering Code	ORIFICE Ø C (mm)	Flow (l/min)
AM3-Q1-P/34	0,8	1
AM3-Q2-P/34	1	2
AM3-Q3-P/34	1,25	3
AM3-Q4-P/34	1,5	4
AM3-Q5-P/34	1,75	5
AM3-Q6-P/34	2	6
AM3-Q9-P/34	3	9
AM3-Q12-P/34	4	12

4 HYDRAULIC FLUIDS

Seals and materials used on standard valves AM3-* are fully compatible with hydraulic fluids of mineral oil base, upgraded with antifoaming and antioxidizing agents. The hydraulic fluid must be kept clean and filtered to ISO 4406 class 19/17/14, or better, and used in a recommended viscosity range from 10 cSt to 60 cSt.

5 INSTALLATION DIMENSIONS (mm)



All stackable valves AM3-* conform with ISO and CETOP specifications for mounting surface dimensions and for valves height (40 mm). Leakage between valve and mounting surface is prevented by the positive compression on their seats of 4 seals of OR type

PRESSURE COMPENSATED FLOW CONTROL VALVES

QVC-06

32 l/min - 32 MPa (320 bar)

1 DESCRIPTION

Pressure compensated flow control valve designed to provide adjustable controlled flow indipendent of changes of pressure.

2 ORDERING CODE

(1)		(2)		(3)		(4)		(5)		(6)
QVC	-	06	/		-		-		/	10

(1) QVC: pressure compensated, variable flow control valve with integral check valve for reverse flow

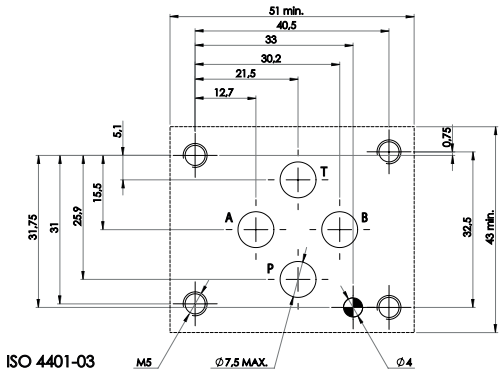
(2) 06: size CETOP 03- pressure 32 MPa (320 bar)

(3) Range of regulated flow:
- 01= 0 -> 1,6 l/min
- 03= 0 -> 3,2 l/min
- 06= 0 -> 6,3 l/min
- 16= 0 -> 16 l/min
- 32= 0 -> 32 l/min

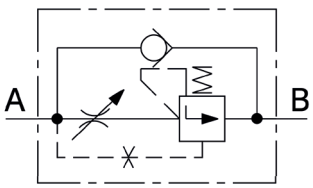
(4) Pilot pressure arrangement
- no designation: internal (standard)
- E: external via P port

(5) Code reserved for more options and variants
- no designation: no variant (standard)
- K: key lock on the adjustement knob

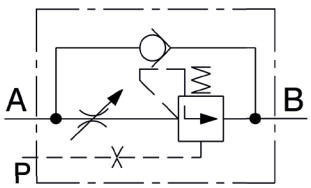
(6) Design number (progressive) of the valves

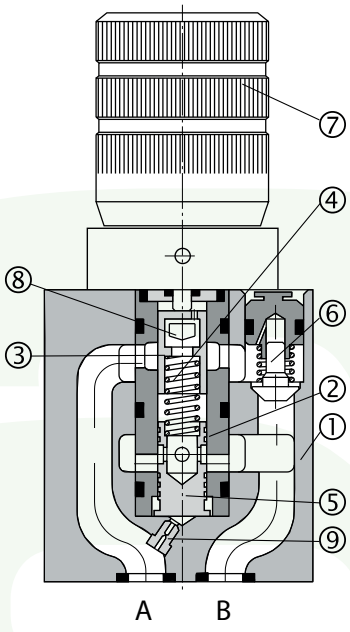


without external pilot

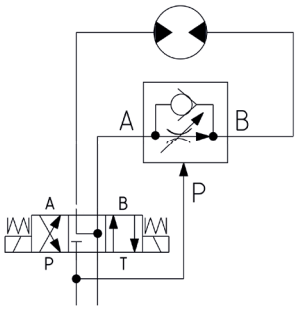


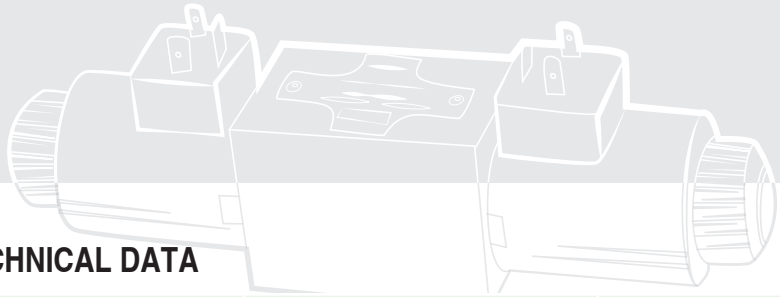
with external pilot





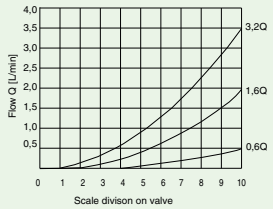
QVC-06/*-E with external pilot is used for metering-in circuits to avoid “jumps” when the actuator starts

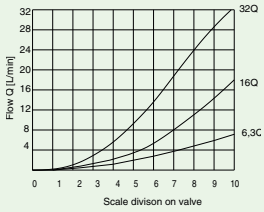




3 TECHNICAL DATA

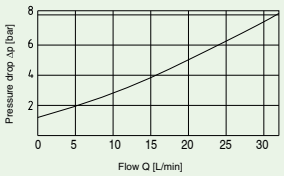
Maximum rec. flow rate	32 l/min
Maximum nominal pressure	32 MPa (320 bar)
Flow curves	see 4
Adjustement	see
Installation and dimensions	see 5
Mass	approx 1,2 kg





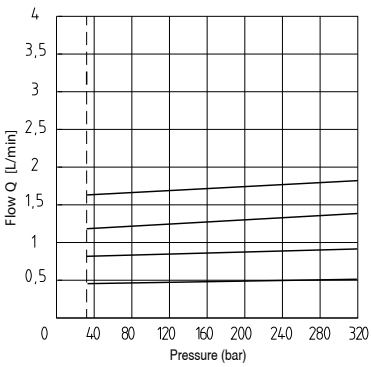
Control of the flow:

By turning the knob 5, the value of the regulated flow changes. For each range of flow (0->1,6; 0->3,2; 0->6,3; 0->16; 0->32 l/min) the scale/flow characteristics is approx linear (see below) and the full range is covered by turning the knob by approx 350°. The scale is divided in 10 marks.
Clockwise: flow increases
Anticlockwise: flow decreases
When the required value is reached, set the knob position by fixing screw 8.

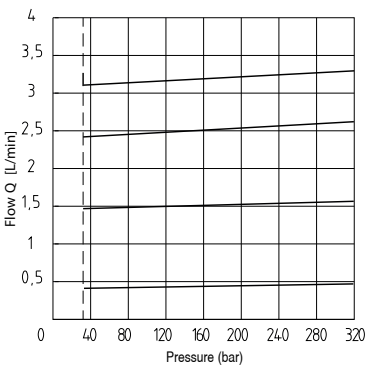


4 TYPICAL DIAGRAMS

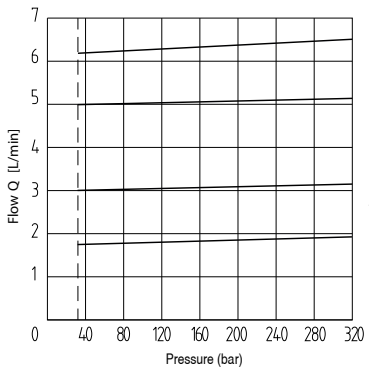
01



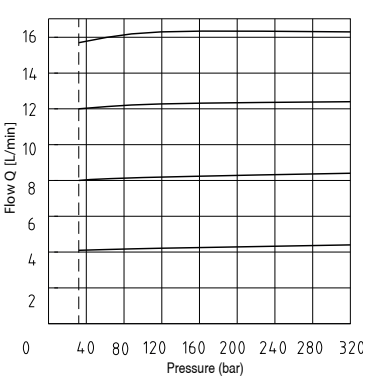
03



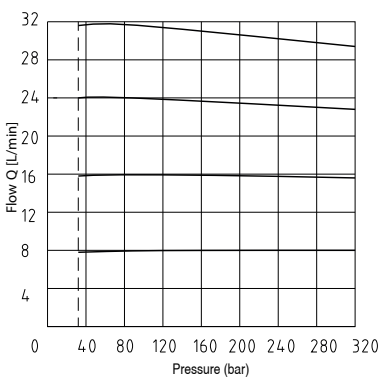
06



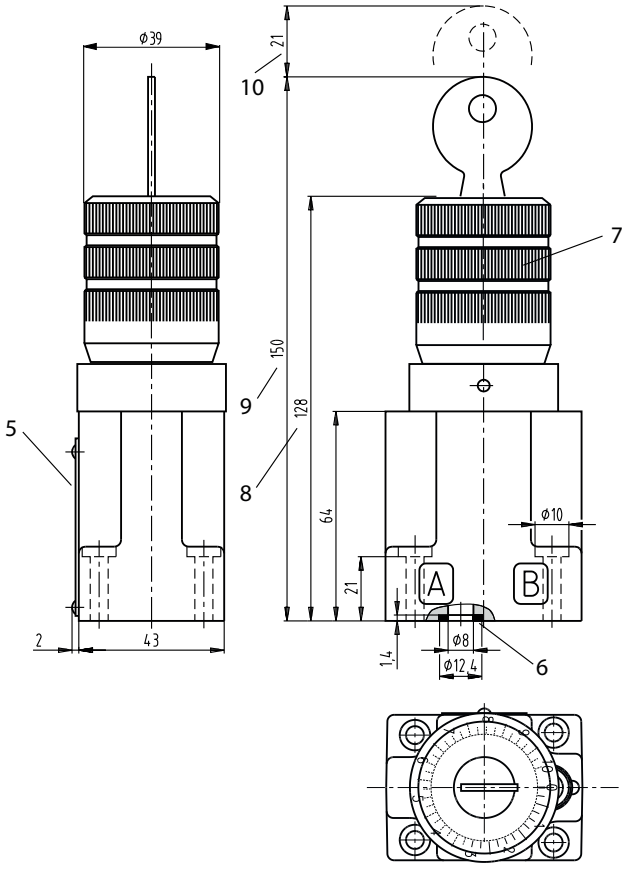
16



32



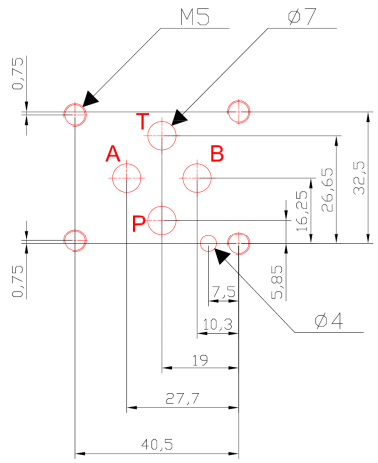
5 INSTALLATION DIMENSIONS (mm)



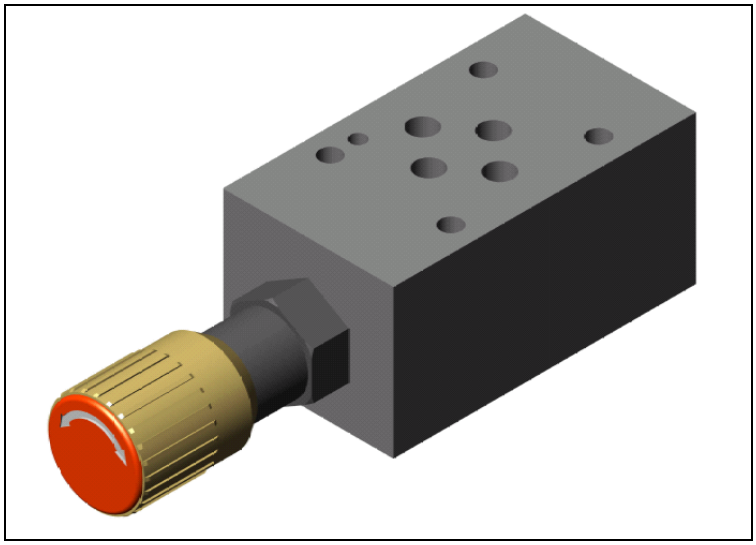
6 HYDRAULIC FLUIDS

Seals and materials used on standard valves QVC* are fully compatible with hydraulic fluids of mineral oil base, upgraded with antifoaming and antioxidizing agents. The hydraulic fluid must be kept clean and filtered to ISO 4406 class 19/17/14, or better, and used in a recommended viscosity range from 10cSt to 60 cSt.

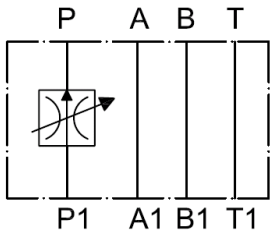
Stackable valves CETOP 03
pressure compensated, adjustable flow control valves
type AM3-QV-P/34



ISO 4401-03



❷ FUNCTIONAL SYMBOLS



❶ HOW TO READ THE MODEL CODE FOR VALVES AM3-QV-P/34

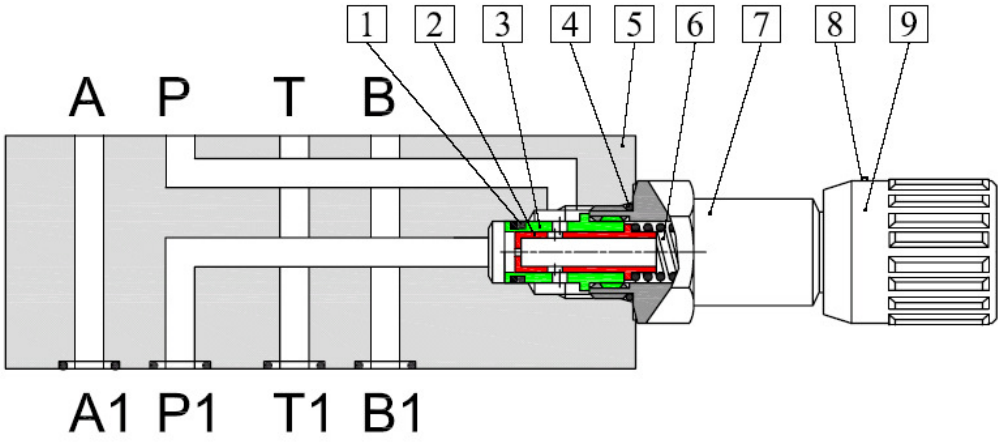
AM3	-	**QV**	-	**P**	-	*	/	**34**
①		②		③		④		⑤

①	**AM3**	:	Stackable valve CETOP 03
②	**QV**	:	Pressure compensated, adjustable flow control
③	**P**	:	Line where the control operates (see functional symbols ❷)
④	*	:	Code reserved for special variants
⑤	**34**	:	Cavity for cartridge valves is 3/4” 16 UNF

❸ DESCRIPTION

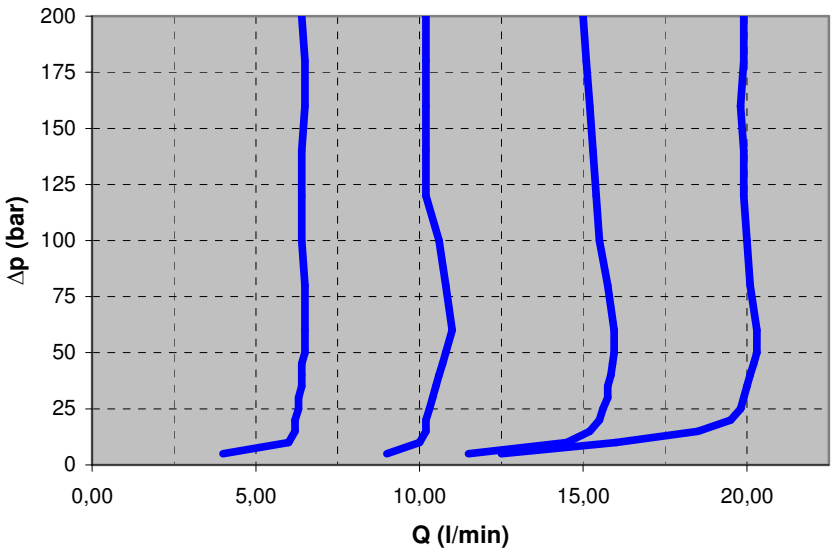
Fluid flows freely in A, B and T lines.

P1→P : fluid flows through orifice of throttle **2**. When pressure difference between P1 and P increases, throttle **2** moves against spring **6** and reduces the area of the lateral orifices, thus keeping flow rate constant at the requested value.

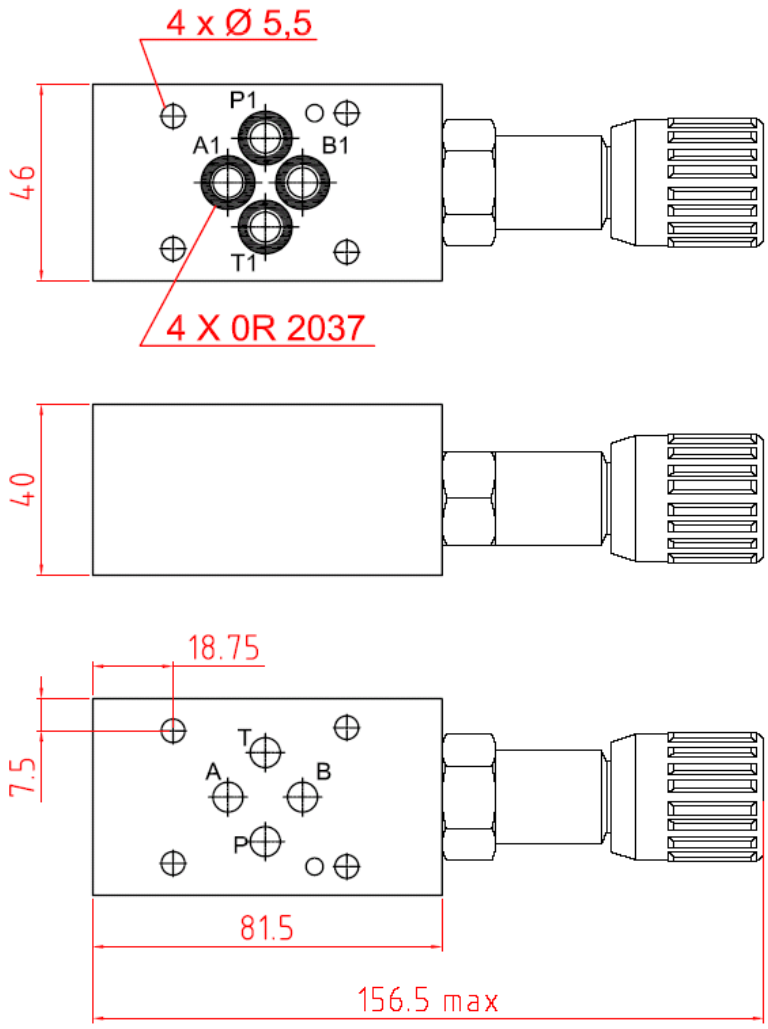


❹ TYPICAL DIAGRAMS (measured at ν = 36 cSt and 50°C)

P1 → P



❺ INSTALLATION DIMENSIONS (all dimensions are mm)



❻ DATA AND OPERATING LIMITS

Maximum nominal pressure	25 MPa (250 bar)
Maximum rec. flow rate on P line	20 l/min

❼ ADJUSTMENT OF THE REGULATED FLOW

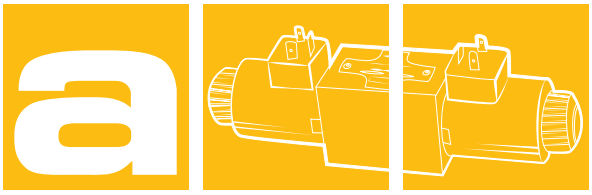
To increase flow rate on P line turn clockwise the graduated knob **9**, after having unlocked its locking screw **8**.

❽ INSTALLATION

All stackable valves AM3-* conform with ISO and CETOP specifications for mounting surface dimensions and for valves height (40mm).
Leakage between valve and mounting surface is prevented by the positive compression on their seats of 4 seals of OR type.

❾ HYDRAULIC FLUIDS

Seals and materials used on standard valves AM3-* are fully compatible with hydraulic fluids of mineral oil base, upgraded with antifoaming and antioxidizing agents.
The hydraulic fluid must be kept clean and filtered to ISO 4406 class 19/17/14, or better, and used in a recommended viscosity range from 10 cSt to 60 cSt.



STACKABLE VALVES FLOW CONTROL

AM5-FC-*

100 l/min 32 MPa (320 bar)

1 DESCRIPTION

Stackable valve CETOP 5 with meter out control (referred to the hydraulic actuator). It is possible to control the lines A, B or AB simply turning the side screws.
On demand it is possible to have also the fine control option.

2 ORDERING CODE

(1)		(2)		(3)		(4)		(5)		(6)
AM5	-	FC	-		-		-		/	10

(1) AM5 : stackable valve CETOP 05 - Pressure 32 MPa (320 bar)

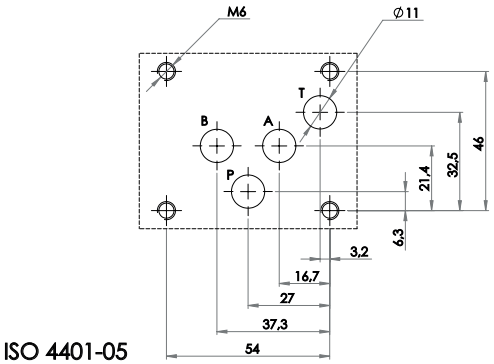
(2) FC : one-way flow control valves with meter-out control
(referred to the hydraulic actuator)

(3) Service lines where the controls operates:
AB : controls on A and B. Fluid flows unrestricted A->A1 and B->B1;
flow is controlled from A1->A and B1->B.
A : flow is controlled from A1->A; free on B.
B : flow is controlled from B1->B; free on A.

(4) flow control characteristics for A1->A and B1->B
and check valve opening pressure (Pm) for flow A ->A1 and B->B1
no designation : standard control and Pm approx 0.04 MPa (0.4 bar)
V : fine control
4 : Pm approx 0.4 MPa (4 bar)

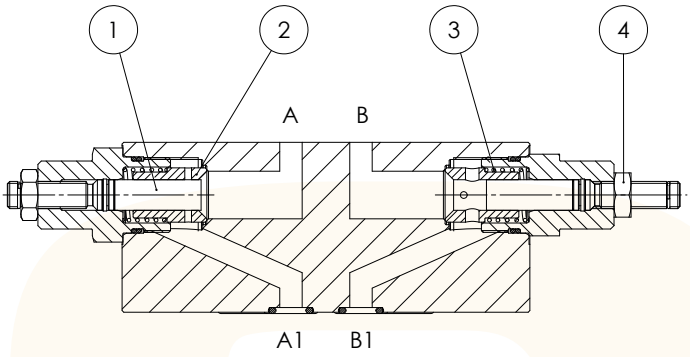
(5) Code reserved for special variants

(6) Design number (progressive) of the valve

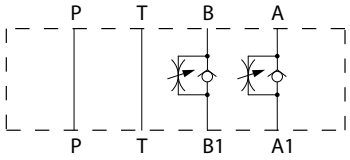


ISO 4401-05

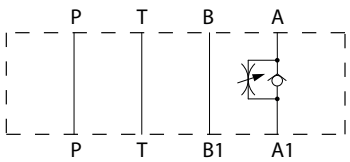
AM5-FC-AB



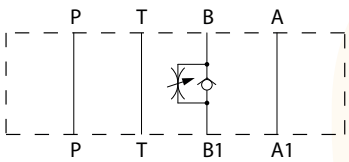
AM5-FC-AB



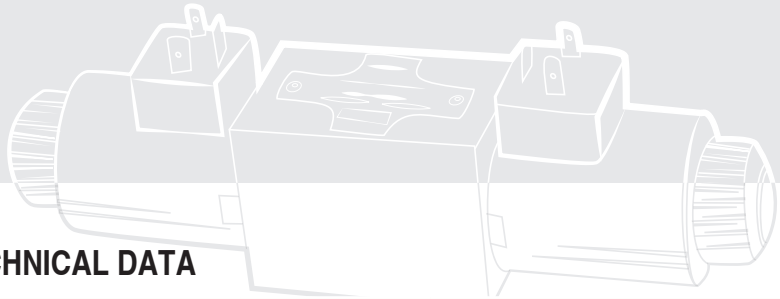
AM5-FC-A



AM5-FC-B



Fluids flows freely on P and T lines: on service lines A and/or B with controls, fluid flows from A -> A1 (and/or B-> B1) overcoming the force of spring 3 acting on sleeve 2; fluid flows from A1-> A (and/or B1->B) through orifices to sleeve 2 which is pushed against its seat; the throttling axis 1, which is shifted by screwing it and locked by its nut 4, partially obstructs the control orifices, thus making the flow ate entirely dependent upon the available pressure drop.

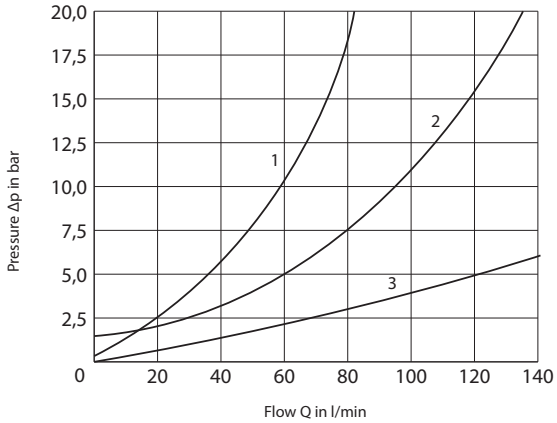


3 TECHNICAL DATA

Maximum rec. flow rate	100 l/min	Control of the flow:
Maximum nominal pressure	32 MPa (320 bar)	The control is made by throttling from A1->A (and/or B1->B), through variable orifices. Depending on the various sleeve/axis combination, the control adjustement is: - (standard) : orifices area is reduced from 100% (*) to 0% with 6 complete turns of the adjustement screw. -V (fine): from 100% (**) to 0% with 5 complete turns of the adjustement screw. (*) 100% approx: Q=60 l/min at p=20 bar (**) 100% approx : Q=30 l/min at p=20 bar The axis is shifted to increase throttling by unlocking its nut and turning clock wise the adjustement screw. Suitable mechanical stops prevent dangerous manoevring.
Pressure drops	see 4	
Installation and dimensions	see 6	
mass	approx 3 kg	

4 TYPICAL DIAGRAMS

Typical Δp-Q curves for valves AM5-FC-AB in standard configuration, with mineral oil at 36 cSt and at 50°C with throttling axis at full retraction.

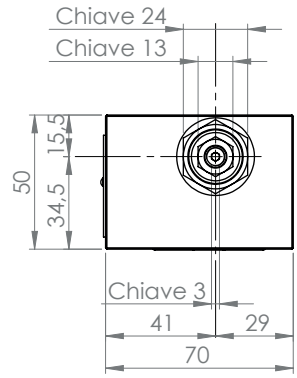


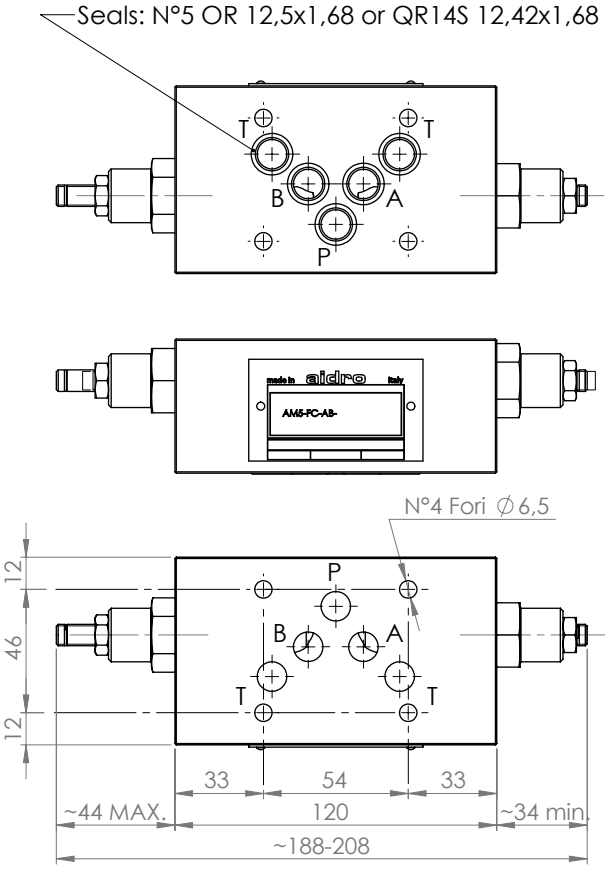
① A1->A B1-> B ② A->A1 B->B1 ③P<->P T<->T

5 HYDRAULIC FLUIDS

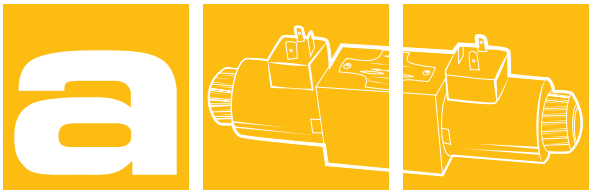
Seals and materials used on standard valves AM5-* are fully compatible with hydraulic fluids of mineral oil base, upgraded with antifoaming and antioxidizing agents. The hydraulic fluid must be kept clean and filtered to ISO 4406 class 19/17/14, or better, and used in a recommended viscosity range from 10 cSt to 60 cSt.

6 INSTALLATION DIMENSIONS





All stackable valves AM5-FC-* conform with ISO and CETOP specifications for mounting surface dimensions (see also front page). Valves height 50 mm. Leakage between valve and mounting surface is prevented by the positive ompression on their seats of 4 seals of OR type or Quadring type.



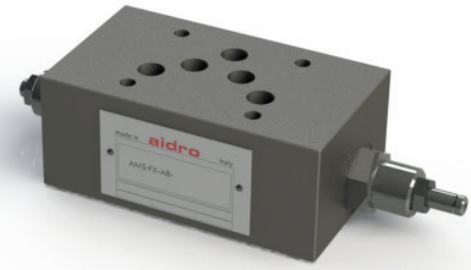
STACKABLE VALVES FLOW CONTROL

AM5-FX-*

100 l/min 32 MPa (320 bar)

1 DESCRIPTION

Stackable valve CETOP 5 with meter in control (referred to the hydraulic actuator). It is possible to control the lines A, B or AB simply turning the side screws.
On demand it is possible to have also the fine control option.



2 ORDERING CODE

(1)		(2)		(3)		(4)		(5)		(6)
AM5	-	FX	-		-		-		/	10

(1) AM5 : stackable valve CETOP 05 - Pressure 32 MPa (320 bar)

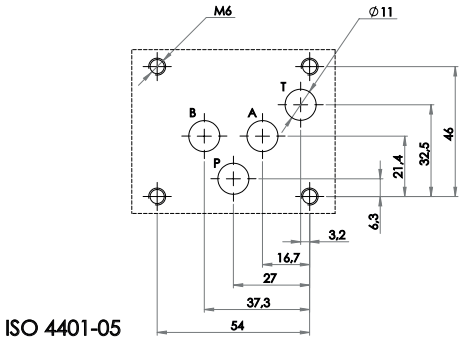
(2) FC : one-way flow control valves with meter-out control
(referred to the hydraulic actuator)

(3) Service lines where the controls operates:
AB : controls on A and B. Fluid flows unrestricted A->A1 and B->B1;
flow is controlled from A1->A and B1->B.
A : flow is controlled from A1->A; free on B.
B : flow is controlled from B1->B; free on A.

(4) flow control characteristics for A1->A and B1->B (see also 6)
and check valve opening pressure (Pm) for flow A ->A1 and B->B1
no designation : standard control and Pm approx 0.04 MPa (0.4 bar)
V : fine control
4 : Pm approx 0.4 MPa (4 bar)

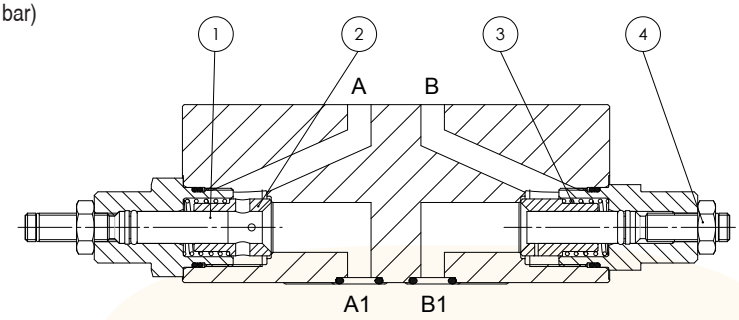
(5) Code reserved for special variants

(6) Design number (progressive) of the valve

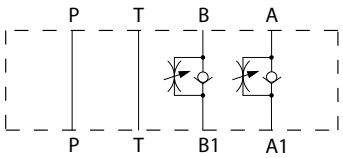


ISO 4401-05

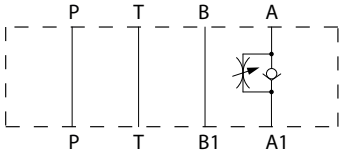
AM5 - FX - AB



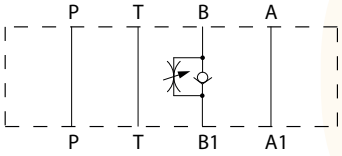
AM5-FX-AB



AM5-FX-A



AM5-FX-B



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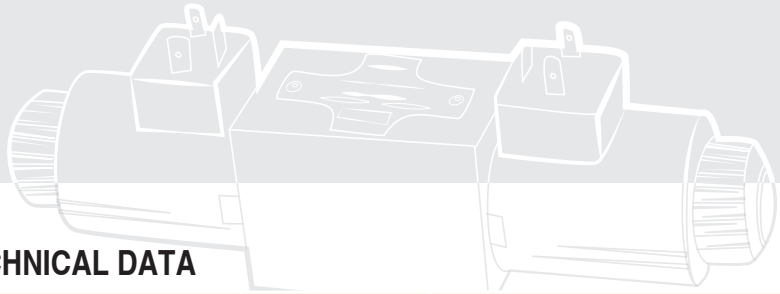

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Installation and dimensions	see 6	
mass	approx 3 kg	

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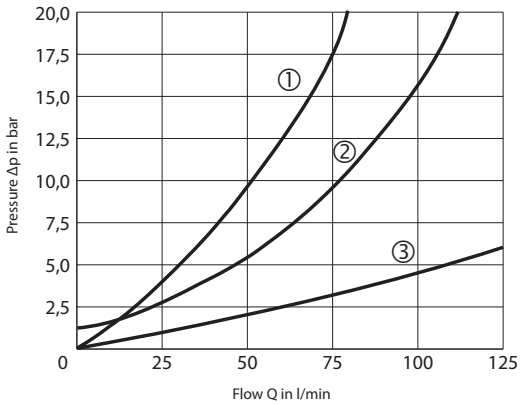

① A->A1 B->B1 ② A1->A B1->B ③ P<->P T<->T

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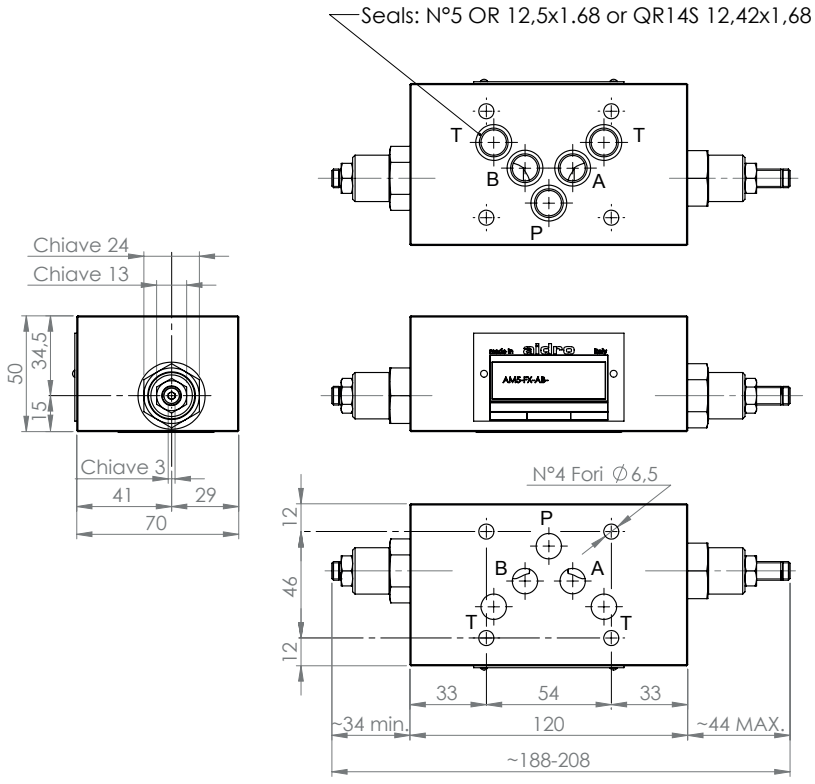
6 INSTALLATION DIMENSIONS



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