

MODULAR VALVES

ABBREVIATIONS

AP	HIGH PRESSURE CONNECTION
AS	PHASE LAG (DEGREES)
BP	LOW PRESSURE CONNECTION
C	STROKE (MM)
CH	ACROSS FLATS
Ch	INTERNAL ACROSS FLATS
DA	AMPLITUDE DECAY (dB)
Dp	DIFFERENTIAL PRESSURE (BAR)
F	FORCE (N)
I%	INPUT CURRENT (A)
M	MANOMETER CONNECTION
NG	KNOB TURNS
OR	SEAL RING
P	LOAD PRESSURE (BAR)
PARBAK	PARBAK RING
PL	PARALLEL CONNECTION
Pr	REDUCED PRESSURE (BAR)
Q	FLOW (L/MIN)
Qp	PUMP FLOW (L/MIN)
SE	ELASTIC PIN
SF	BALL
SR	SERIES CONNECTION
X	PILOTING
Y	DRAINAGE

MODULAR VALVES CETOP 2



AM2UD...	CAP. IV • 2
AM2UP...	CAP. IV • 3
AM2VM...	CAP. IV • 4
AM2QF...	CAP. IV • 5
SCREWS AND STUDS	CAP. IV • 6

MODULAR VALVES CETOP 5



AM5UD...	CAP. IV • 22
AM5UP...	CAP. IV • 23
AM5VM... / AM5V1...	CAP. IV • 24
AM5CP...	CAP. IV • 26
AM5VR...	CAP. IV • 27
AM5VS...	CAP. IV • 29
AM5SH...	CAP. IV • 30
AM5QF...	CAP. IV • 31
AM88...	CAP. IV • 33
A88...	CAP. IV • 34
AM5RGT...	CAP. IV • 36
SCREWS AND STUDS	CAP. IV • 36

MODULAR VALVES CETOP 3



AM3UD...	CAP. IV • 7
AM3UP / AM3UP1	CAP. IV • 8
AM3VM... / AM3V1...	CAP. IV • 9
AM3CP...	CAP. IV • 11
AM3RD... / AM3SD...	CAP. IV • 12
AM3VR...	CAP. IV • 13
AM3VS...	CAP. IV • 15
AM3SH...	CAP. IV • 16
AM3QF...	CAP. IV • 17
AM66...	CAP. IV • 18
A66...	CAP. IV • 19
AM3RGT...	CAP. IV • 20
SCREWS AND STUDS	CAP. IV • 21

MODULAR VALVES CETOP 7



AM7UP...	CAP. IV • 37
AM7QF...	CAP. IV • 38

4



AM2UD...

SCREWS AND STUDS

CAP. IV • 6

AM2UD... MODULAR DIRECT CHECK VALVES CETOP 2

AM.2.UD type modular check valves allow one way free flow, while preventing any flow in the opposite direction by means of a conical seated poppet.

They are available on single P and T lines (see hydraulic symbols).

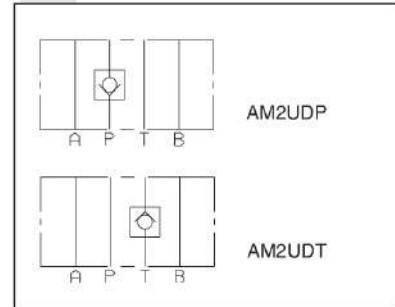
1 bar spring is standard, while a 5 bar rated spring is available on request.

Max. operating pressure	250 bar
Minimum opening pressure spring 1	1 bar
Minimum opening pressure spring 5	5 bar
Max. flow	20 l/min
Hydraulic fluids	Mineral oils DIN 51524
Fluid viscosity	10 ÷ 500 mm ² /s a 50°C
Fluid temperature	-20°C ÷ 75°C
Max. contamination level	class 10 in accordance with NAS 1638 with filter $\beta_{25} \geq 75$
Weight	0,4 Kg

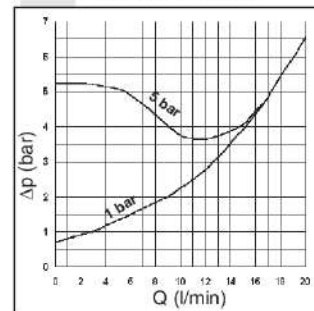
ORDERING CODE

AM	Modular valve
2	CETOP 2/NG4
UD	Direct check valve
*	Control on lines P / T
*	Minimum opening pressure 1 = 1 bar 5 = 5 bar
**	00 = No variant V1 = Viton
1	Serial No.

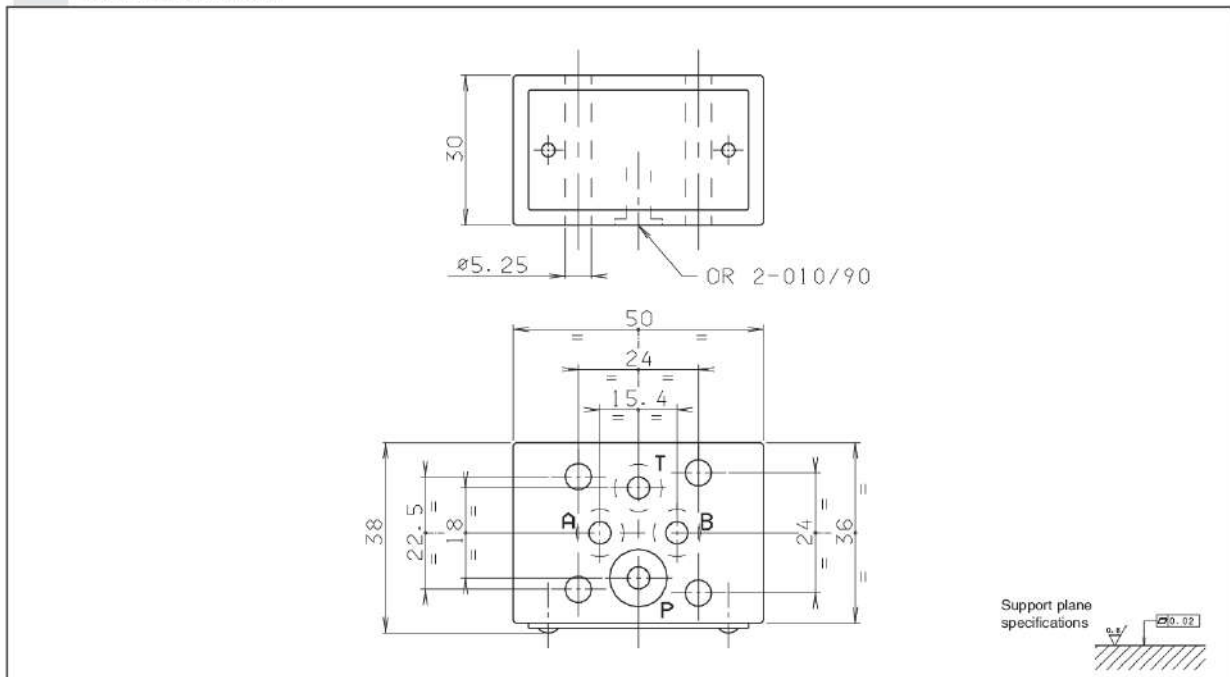
HYDRAULIC SYMBOLS



PRESSURE DROPS



OVERALL DIMENSIONS





AM2UP...

SCREWS AND STUDS

CAP. IV • 6

AM2UP... MODULAR PILOT OPERATED CHECK VALVES CETOP 2

AM.2.UP type modular check valves allow one way free flow by raising a conical shutter, while in the opposite direction the fluid can return by means of a small piston piloted by the pressure in the other line.

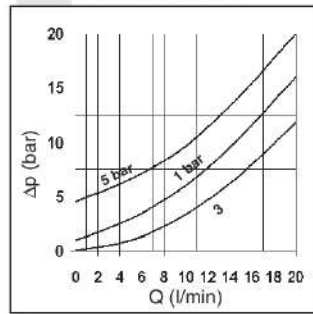
They are available on single A or B lines, and on double A and B lines (see hydraulic symbols).

Max. operating pressure	250 bar
Minimum opening pressure spring 1	1 bar
Minimum opening pressure spring 5	5 bar
Piloting ratio:	1:4
Max. flow	20 l/min
Hydraulic fluids	Mineral oils DIN 51524
Fluid viscosity	10 ÷ 500 mm ² /s a 50°C
Fluid temperature	-20°C ÷ 75°C
Max. contamination level	class 10 in accordance with NAS 1638 with filter $\beta_{25} \geq 75$
Weight	0,5 Kg

ORDERING CODE

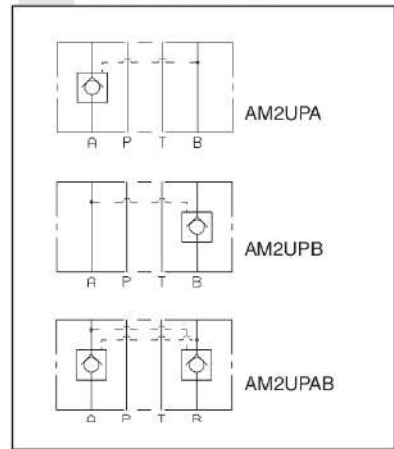
- AM** Modular valve
- 2** CETOP 2/NG4
- UP** Piloted check valve
- **** Control on lines **A / B / AB**
- *** Minimum opening pressure
1 = 1 bar
5 = 5 bar
- **** **00** = No variant
V1 = Viton
- 1** Serial No.

PRESSURE DROPS



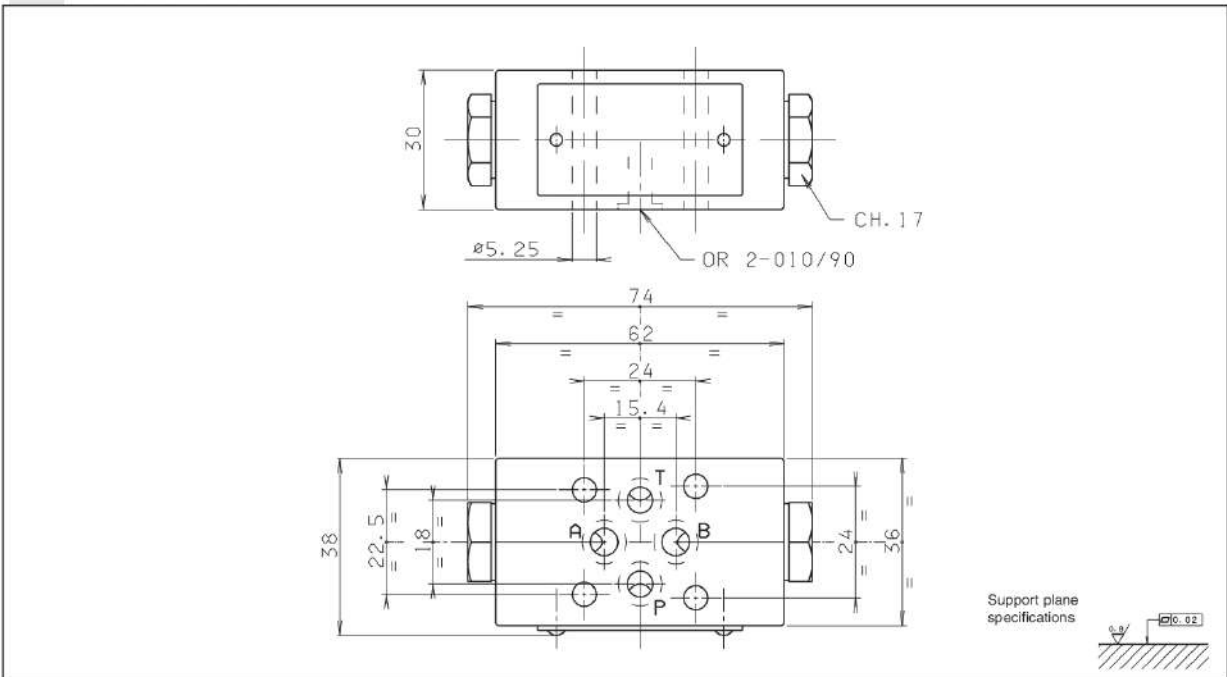
Curve n. 3 = Piloted side flow

HYDRAULIC SYMBOLS



4

OVERALL DIMENSIONS





AM2VM...
CMP02... CARTRIDGE CATALOGUE
SCREWS AND STUDS CAP. IV • 6

AM2VM... MODULAR MAXIMUM PRESSURE VALVES CETOP 2

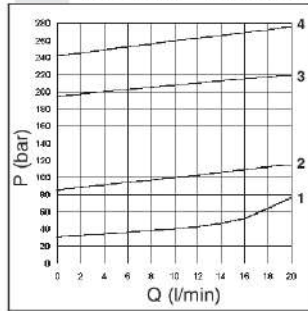
AM.2.VM type pressure regulating valves are available with an operating pressure range of 4 to 250 bar. Adjustment is via a grub screw. Two base versions are available: **AM2VM..** single on A or B, and double on A and B lines, with drainage on T; **AM2VMP..** single on P line, with drainage on T. 4 different types of springs can be mounted on all versions, with the adjustment range specified in the specifications. The cartridge used is the CMP02 type.

Max. operating pressure	250 bar
Setting ranges:	
spring 1	30 bar
spring 2	90 bar
spring 3	180 bar
spring 4	250 bar
Max. flow	20 l/min
Hydraulic fluids	Mineral oils DIN 51524
Fluid viscosity	10 ÷ 500 mm ² /s a 50°C
Fluid temperature	-20°C ÷ 75°C
Max. contamination level	class 10 in accordance with NAS 1638 with filter $\beta_{25} \geq 75$
Weight AM2VMA/B/P...	0,53 Kg
Weight AM2VMAB...	0,7 Kg

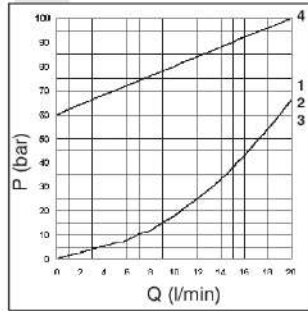
ORDERING CODE

- AM** Modular valve
- 2** CETOP 2/NG4
- VM** Max. pressure valves
- **** Adjustment on the lines **A / B / P / AB**
- C** Type of adjustment grub screw
- *** Setting ranges at port A/B/P
 1 = max.30 bar (**white spring**)
 2 = max.90 bar (**yellow spring**)
 3 = max.180 bar (**green spring**)
 4 = max.250 bar (**orange spring**)
- *** Setting ranges at port B
 (Omit if the setting is same as that at port A)
 1 = max.30 bar (**white spring**)
 2 = max.90 bar (**yellow spring**)
 3 = max.180 bar (**green spring**)
 4 = max.250 bar (**orange spring**)
- **** 00 = No variant
 V1 = Viton
- 1** Serial No.

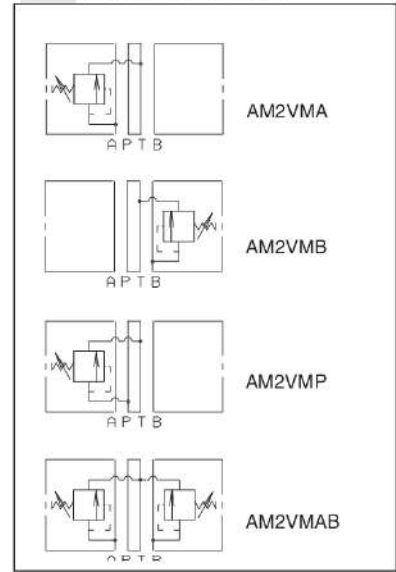
PRESSURE - FLOW RATE



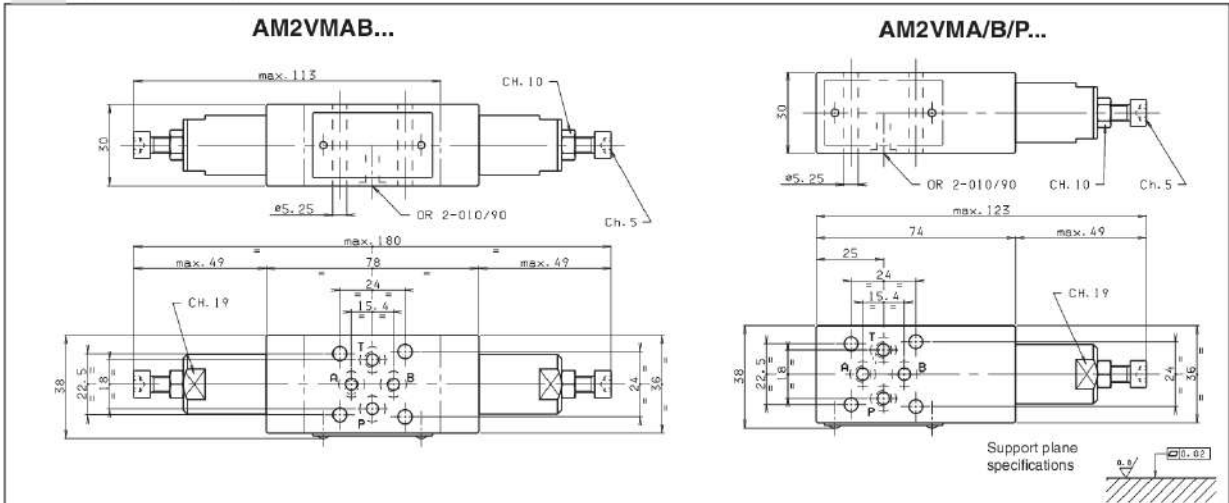
MINIMUM SETTING PRESSURE



HYDRAULIC SYMBOLS



OVERALL DIMENSIONS





AM2QF... MODULAR FLOW REGULATOR CETOP 2

AM2QF type one way non-compensated throttle valves are adjustable by means of a grub screw.

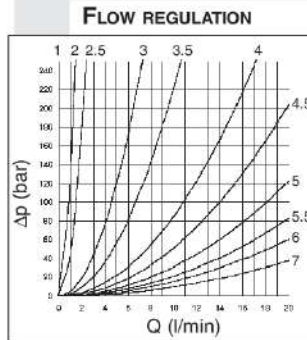
Three types of regulations are available on A / B / AB lines, as shown in the hydraulic symbols.

Max. operating pressure	250 bar
Flow rate regulation	on 6 screw turns
Max. flow.	20 l/min
Hydraulic fluids	Mineral oils DIN 51524
Fluid viscosity	10 ÷ 500 mm ² /s a 50°C
Fluid temperature	-20°C ÷ 75°C
Max. contamination level	class 10 in accordance with NAS 1638 with filter $\beta_{25} > 75$
Weight AM2QFA/B...	0,5 Kg
Weight AM2QFAB...	0,6 Kg

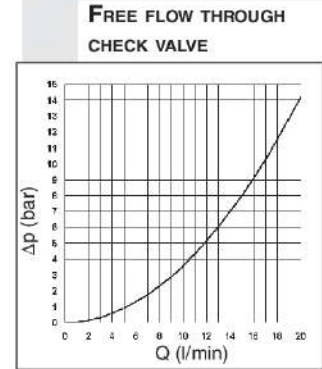
AM2QF...
SCREWS AND STUDS CAP. IV • 6

ORDERING CODE

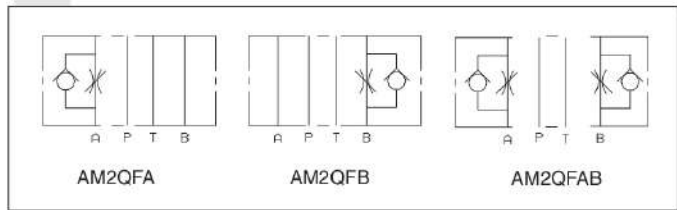
AM	Modular valve
2	CETOP 2/NG4
QF	Non-compensated flow rate regulator
**	Control on lines A / B / AB
C	Type of adjustment grub screw
**	00 = No variant V1 = Viton
1	Serial No.



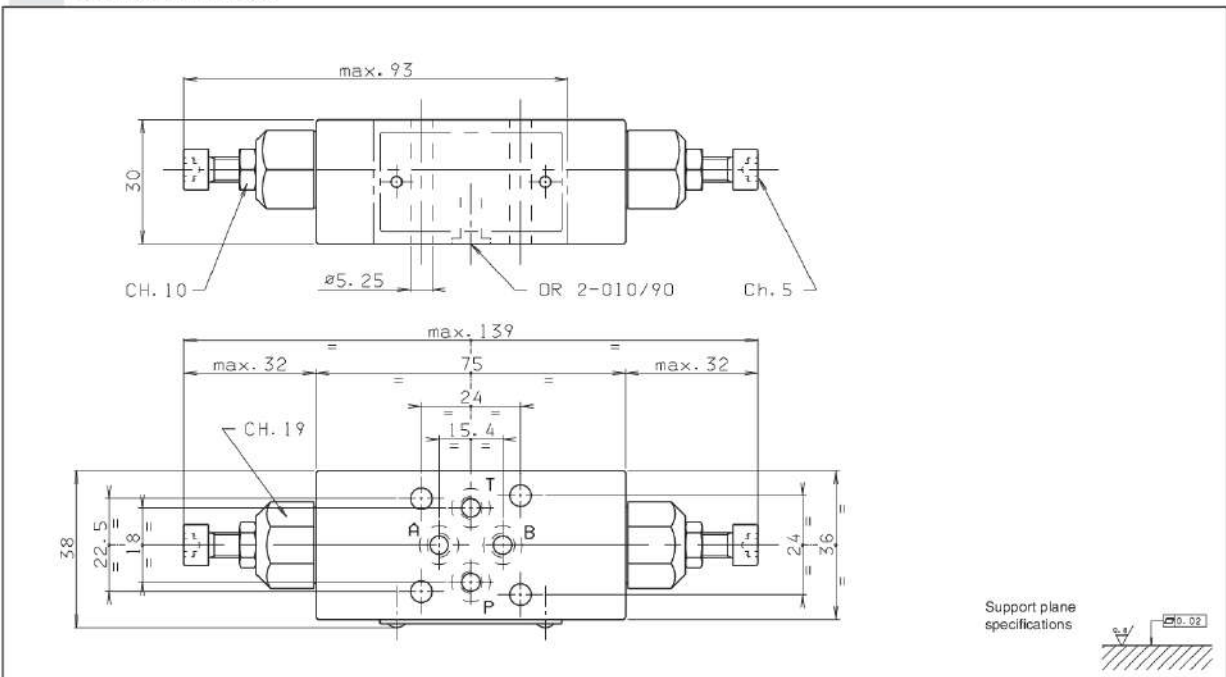
Each curve represents the flow rate adjustment for each screw turns, starting from the closed position



HYDRAULIC SYMBOLS



OVERALL DIMENSIONS



Support plane specifications

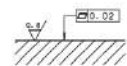
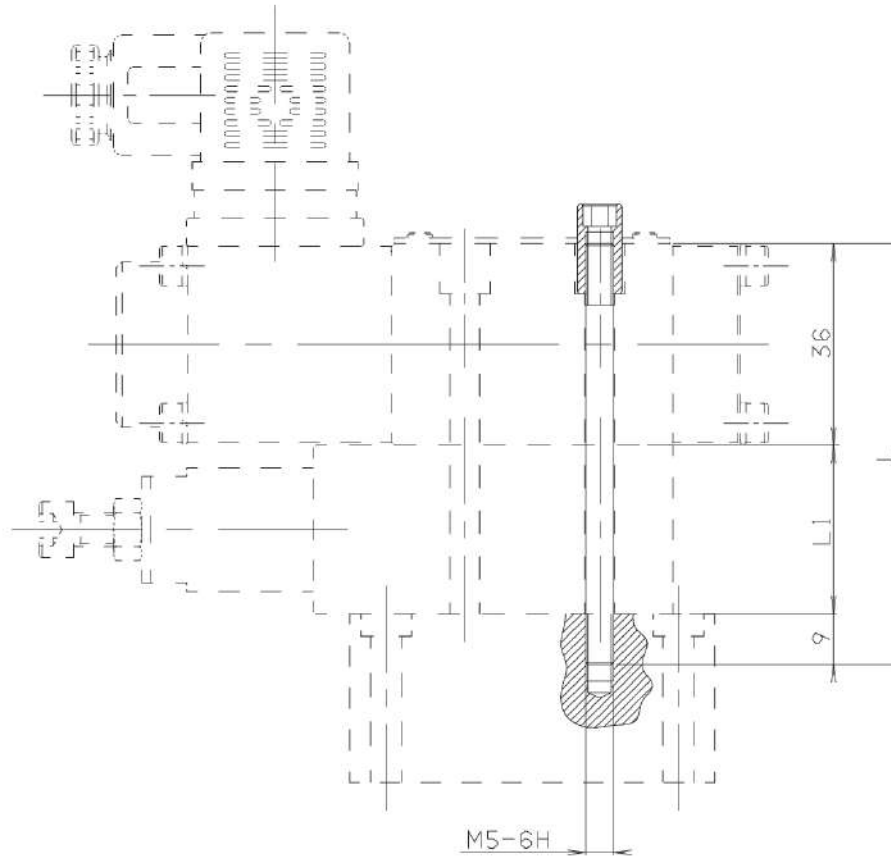


TABLE OF SCREWS AND STUDS FOR MOUNTING MODULES CETOP 2

OVERALL DIMENSIONS

Tighten M27.05.0001 to a torque of 5 Nm / 0.5 Kgm max.



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SCREWS T.C.E.I CODE	L mm	L1 * mm	COMPOSITION	Q.TY	SPECIAL NUTS CODE
Q26074069	35	—	AD2...	4	—
Q26074243	65	30	AD2... + 1 AM2... (ISO)	4	
Q26074252	95	60	AD2... + 2 AM2... (ISO)	4	
M80100008	135	90	AD2... + 3 AM2...	4	V89240000 (No. 20 nuts kit)
M80100020	165	120	AD2... + 4 AM2...	4	

* Indicative overall dimensions valves composition



AM3UD... MODULAR DIRECT CHECK VALVES CETOP 3

AM.3.UD type modular check valves allow one way free flow, while flow in the opposite direction is prevented by means of a conical seated poppet.

They are available on single A, B, P and T lines, and on double A and B, P and T lines (see hydraulic symbols).

1 bar spring is standard, while a 5 bar rated spring is available on request.

Max. operating pressure	350 bar
Minimum opening pressure spring 1	1 bar
Minimum opening pressure spring 5	5 bar
Max. flow	40 l/min
Hydraulic fluids	Mineral oils DIN 51524
Fluid viscosity	10 ÷ 500 mm ² /s a 50°
Fluid temperature	-25°C ÷ 75°C
Ambient temperature	-25°C ÷ 60°C
Max. contamination level	class 10 in accordance with NAS 1638 with filter $\beta_{25} \geq 75$
Weight	0,8 Kg

AM3UD...

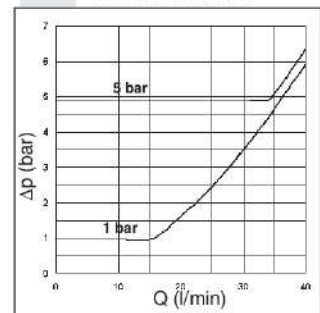
SCREWS AND STUDS

CAP. IV • 21

ORDERING CODE

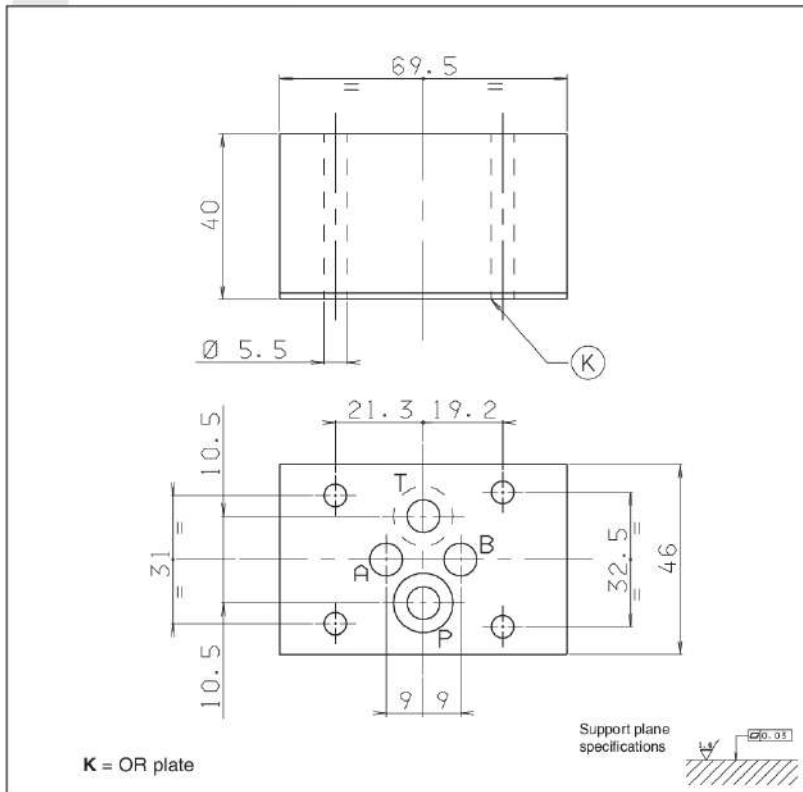
AM	Modular valve
3	CETOP 3/NG6
UD	Direct check valve
**	Control on lines A / B / P / T / AB
*	Minimum opening pressure 1 = 1 bar 5 = 5 bar
**	00 = No variant V1 = Viton
2	Serial No.

PRESSURE DROPS

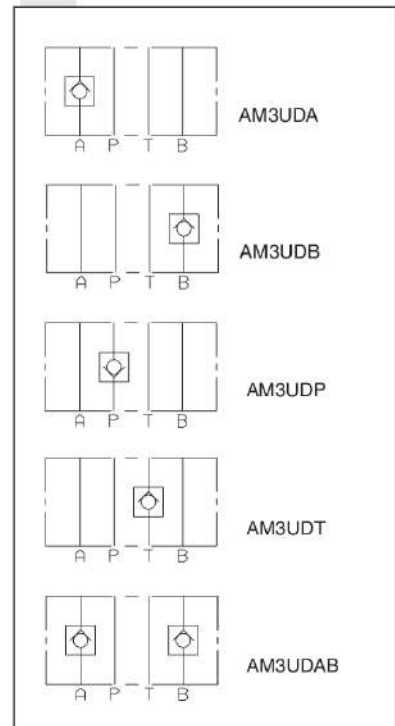


4

OVERALL DIMENSIONS



HYDRAULIC SYMBOLS





AM3UP / AM3UP1

SCREWS AND STUDS

CAP. IV • 21

AM3UP... / AM3UP1... MODULAR PILOT OPERATED CHECK VALVES CETOP 3

AM.3.UP type modular check valves allow free flow in one direction by raising a conical seated poppet valve, while in the opposite direction the fluid can return by means of a small piston piloted by the other line pressure (piloted side).

They are available on single A or B lines, and double A and B lines (see hydraulic symbols).

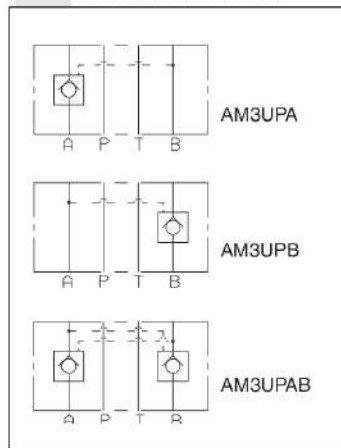
A pre-opening version is also available (AM3UP1..) only with 5 bar spring.

Max. operating pressure	350 bar
Minimum opening pressure spring 1	1 bar
Minimum opening pressure spring 5	5 bar
Piloting ratio AM.3.UP	1:4
Piloting ratio AM.3.UP1	1:12,5
Max. flow	40 l/min
Hydraulic fluids	Mineral oils DIN 51524
Fluid viscosity	10 ÷ 500 mm ² /s
Fluid temperature	-25°C ÷ 75°C
Ambient temperature	-25°C ÷ 60°C
Max. contamination level	class 10 in accordance with NAS 1638 with filter β ₂₅ >75
Weight	1 Kg

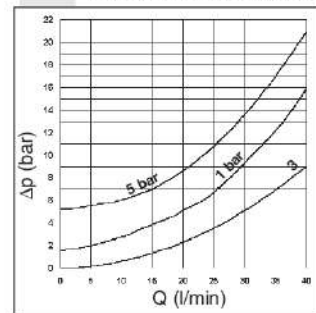
ORDERING CODE

AM	Modular valve
3	CETOP 3/NG6
**	UP = Piloted check valve UP1 = With pre-opening
**	Control on lines A / B / AB
*	Minimum opening pressure 1 = 1 bar (only for UP version) 5 = 5 bar 8 = 8 bar (only for UP version)
**	00 = No variant V1 = Viton
3	Serial No.

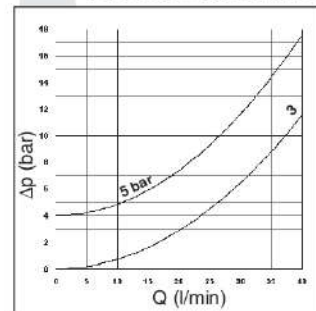
HYDRAULIC SYMBOLS



PRESSURE DROPS AM3UP



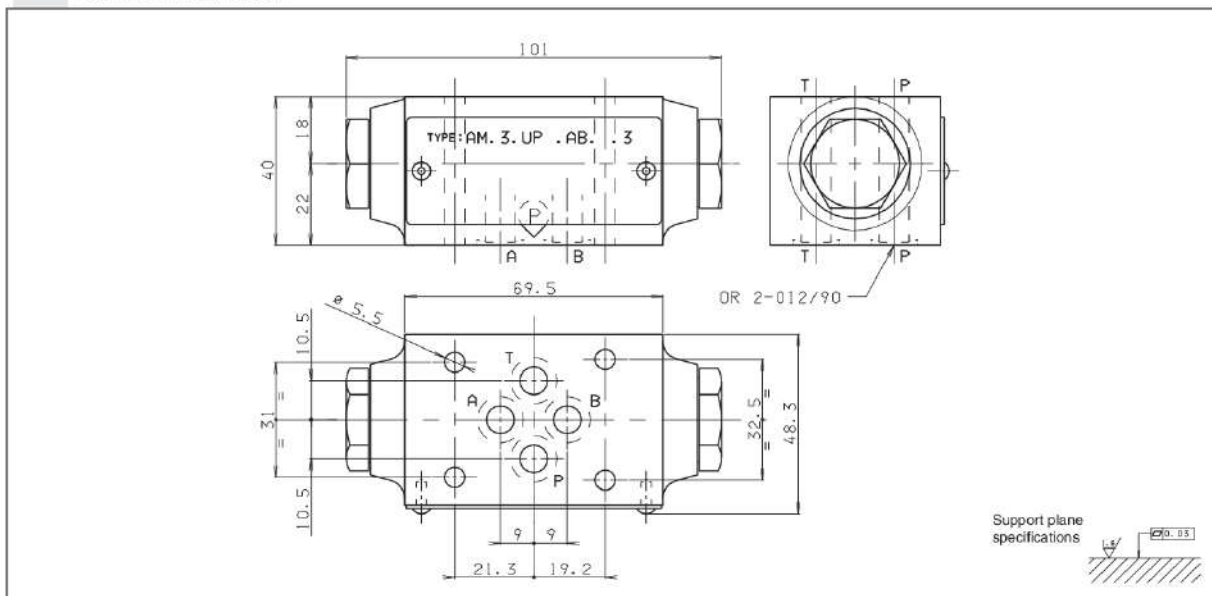
PRESSURE DROPS AM3UP1



Curve n. 3 = Piloted side flow

The fluid used is a mineral oil with a viscosity of 46 mm²/s at 40°C. The tests have been carried out a fluid temperature of 50°C.

OVERALL DIMENSIONS





AM3VM... / AM3VI... MODULAR MAX PRESSURE VALVES CETOP 3

AM.3.VM type pressure regulating valves are available with a pressure range of 2 ÷ 320 bar.

Adjustment is by means of a grub screw or a plastic knob.

Three basic versions are available:
 - AM3VM on single A or B lines, and on A and B lines, with drainage to T;
 - AM3VMP on single P line, with drainage to T;
 - AM3VI on single A or B lines, and on A and B lines, with crossed drainage on A or B (see hydraulic symbols).
 All versions can accept three types of springs with calibrated ranges as shown in the specifications.

Max. operating pressure	320 bar
Setting ranges:	spring 1 max. 50 bar
	spring 2 max. 150 bar
	spring 3 max. 320 bar
Max. flow	40 l/min
Hydraulic fluids	Mineral oils DIN 51524
Fluid viscosity	10 ÷ 500 mm ² /s
Fluid temperature	-25°C ÷ 75°C
Ambient temperature	-25°C ÷ 60°C
Max. contamination level	class 10 in accordance with NAS 1638 with filter β ₂₅ ≥ 75
Weight AM3VMA/B/P...	1,2 Kg
Weight AM3VMAB...	1,3 Kg
Weight AM3VIA/B...	2 Kg
Weight AM3VIAB...	2,2 Kg

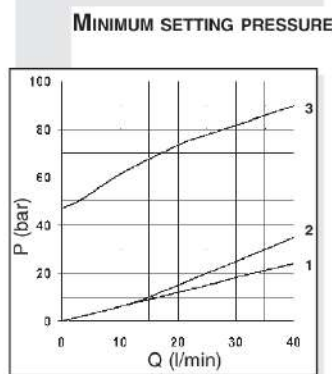
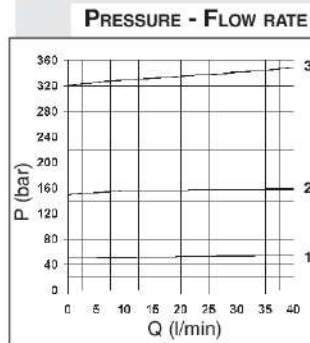
AM3VM...	
CMP10...	CAP. VII • 30
SCREWS AND STUDS	CAP. IV • 21

The cartridge, which is the same for all versions, is the direct acting type CMP10.

For the minimum permissible setting pressure depending on the spring, see minimum pressure setting curve.

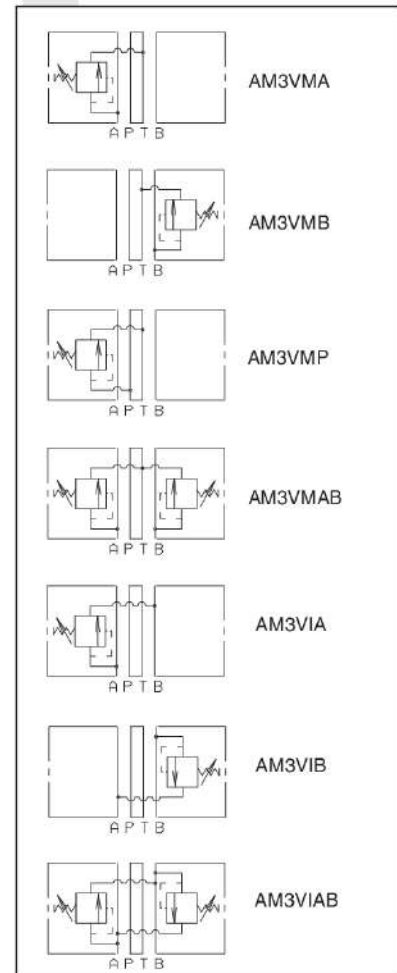
ORDERING CODE

AM	Modular valve
3	CETOP 3/NG6
**	VM = Maximum pressure VI = Maximum pressure crossline
**	Adjustment on the lines AM3VM Version = A / B / P / AB AM3VI Version = A / B / AB
*	Type of adjustment M = Plastic knob C = Grub screw
*	Setting ranges at port A/B/P 1 = max. 50 bar (white spring) 2 = max. 150 bar (yellow spring) 3 = max. 320 bar (green spring)
*	Setting ranges at port B (Omit if the setting is same as that at port A) 1 = max. 50 bar (white spring) 2 = max. 150 bar (yellow spring) 3 = max. 320 bar (green spring)
**	00 = No variant V1 = Viton
3	Serial No.



Curves n° 1 - 2 - 3 = setting ranges

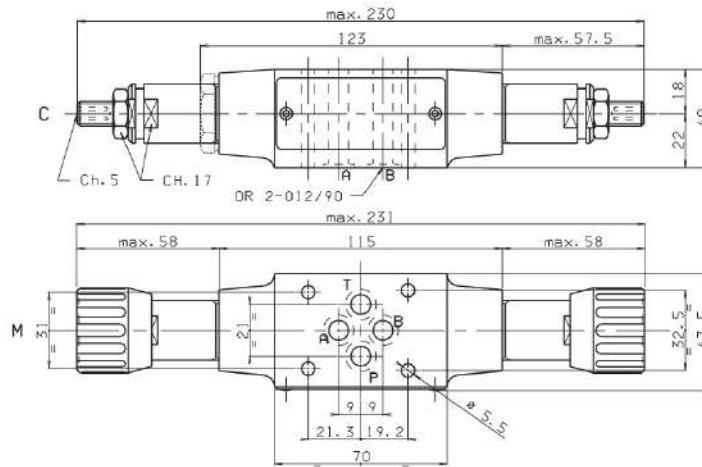
HYDRAULIC SYMBOLS



AM3VM... / AM3VI... MODULAR MAX PRESSURE VALVES CETOP 3

OVERALL DIMENSIONS

AM.3.VM.AB...

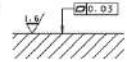


Type of adjustment

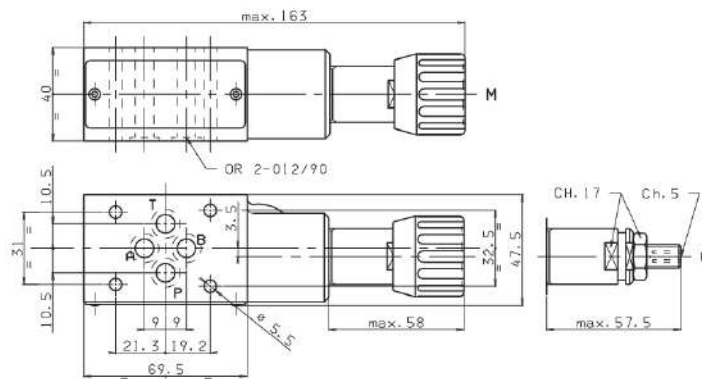
M Plastic knob

C Grub screw

Support plane specifications



AM.3.VM.P...

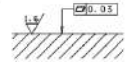


Type of adjustment

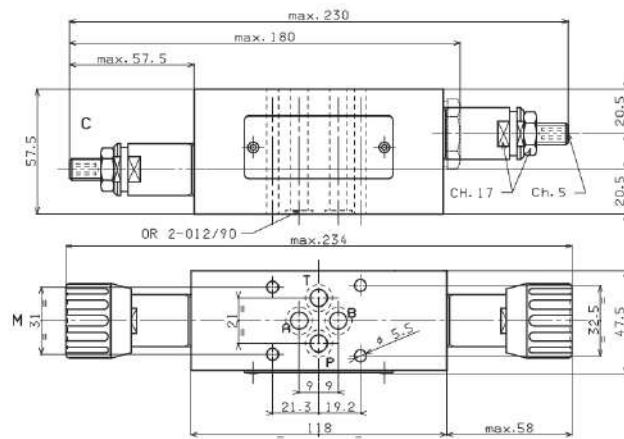
M Plastic knob

C Grub screw

Support plane specifications



AM.3.VI.AB...

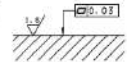


Type of adjustment

M Plastic knob

C Grub screw

Support plane specifications



4



AM3CP... MODULAR BACK PRESSURE VALVE CETOP 3

AM3CP...	
CMP.10...	CAP. VII • 30
SCREWS AND STUDS	CAP. IV • 21

AM3CP type back pressure valves are damped in-line direct acting pressure relief valves fitted with bypass non-return valves.

Adjustment within the range 2 ÷ 320 bar is by means of a grub screw or a plastic knob, on ports A or B (single) or AB (double).

The cartridge is the direct acting type CMP10.

These valves are especially used on vertically working cylinders with dragging loads.

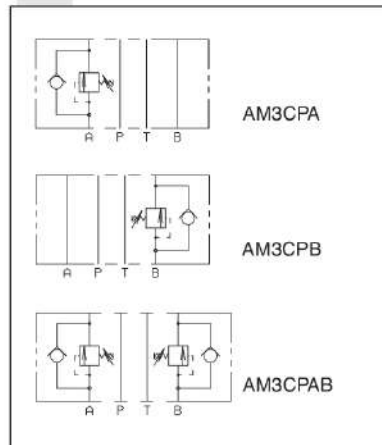
Max. operating pressure	350 bar	
Setting ranges:	spring 1	max. 50 bar
	spring 2	max. 150 bar
	spring 3	max. 320 bar
Max. flow	40 l/min	
Hydraulic fluids	Mineral oils DIN 51524	
Fluid viscosity	10 ÷ 500 mm ² /s	
Fluid temperature	-25°C ÷ 75°C	
Ambient temperature	-25°C ÷ 60°C	
Max. contamination level	class 10 in accordance with NAS 1638 with filter β ₂₅ ≥ 75	
Weight AM3CPA/B...	2 Kg	
Weight AM3CPAB...	2,7 Kg	

ORDERING CODE

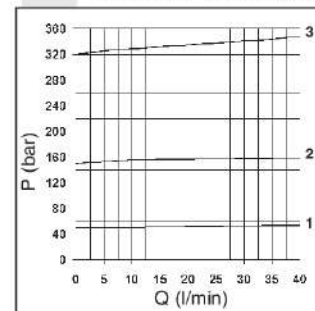
AM	Modular valve
3	CETOP 3/NG6
CP	Back pressure valve
**	Control on lines A / B / AB
*	Type of adjustment M = Plastic knob C = Grub screw
*	Setting ranges 1 = max. 50 bar (white spring) 2 = max. 150 bar (yellow spring) 3 = max. 320 bar (green spring)
**	00 = No variant V1 = Viton
3	Serial No.

For the minimum permissible setting pressure depending on the spring, see minimum pressure setting curve.

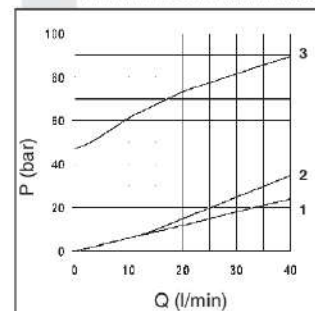
HYDRAULIC SYMBOLS



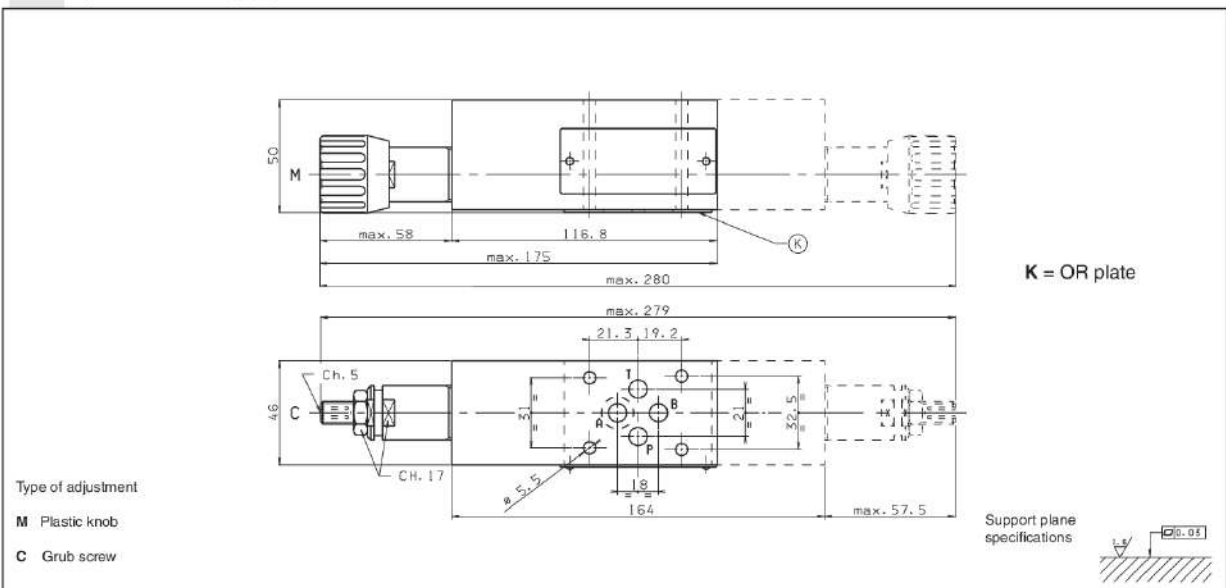
PRESSURE - FLOW RATE



MINIMUM SETTING PRESSURE



OVERALL DIMENSIONS



Type of adjustment

M Plastic knob

C Grub screw

Support plane specifications



AM3RD / AM3SD...

SCREWS AND STUDS CAP. IV • 21

AM3RD... / AM3SD... MODULAR PRESSURE REDUCING / PRESSURE SEQUENCING VALVES CETOP 3

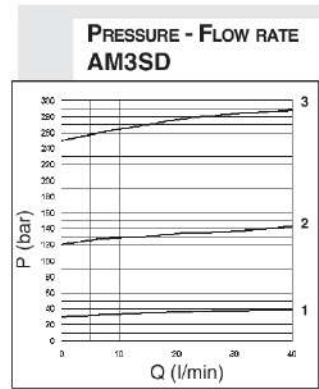
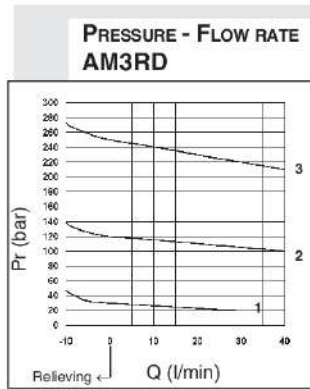
AM3RD and AM3SD valves are direct acting spool type pressure reducing and sequencing units, respectively, with one end pre-loaded by means of a spring on the other end exposed to the hydraulic pressure.

The drainage is drained within the valve to port T. Pressure is adjustable by means of a screw and locknut, or of a handwheel. Three types of springs allow adjustment within the range 2÷250 bar. The pressure reducing valves are available in two versions: with positive overlap (suitable with low flow rate) and with negative overlap to obtain a greater pressure reinstatement speed.

Max. operating pressure: port P	350 bar
Max. pressure adjustable	250 bar
Setting ranges:	
spring 1	2 ÷ 30 bar
spring 2	10 ÷ 120 bar
spring 3	60 ÷ 250 bar
Max. flow	40 l/min
Internal drainage RD:	
Positive overlap version	0,5 l/min
Negative overlap version	2 l/min
Hydraulic fluids	Mineral oils DIN 51524
Fluid viscosity	10 ÷ 500 mm ² /s
Fluid temperature	-25°C ÷ 75°C
Ambient temperature	-25°C ÷ 60°C
Max. contamination level	class 10 in accordance with NAS 1638 with filter $B_{25} > 75$
Weight	1,3 Kg

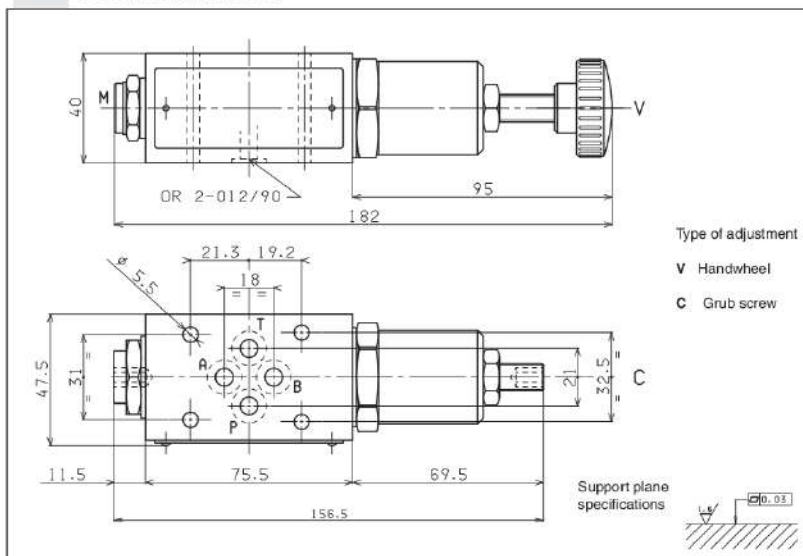
ORDERING CODE

- AM** Modular valve
- 3** CETOP 3/NG6
- **** **RD** = Direct pressure reducing valve
SD = Direct pressure sequencing valve
- *** Control on lines
AM3RD version = **A / P**
AM3SD version = **P**
- *** **1** = Positive overlap
2 = Negative overlap
Omit for version AM3SD
- *** Type of adjustment
C = Grub screw
V = Handwheel
- *** Setting ranges
1 = max. 2 ÷ 30 bar (**white spring**)
2 = max. 10 ÷ 120 bar (**yellow spring**)
3 = max. 60 ÷ 250 bar (**green spring**)
- **** **00** = No variant
V1 = Viton
- 4** Serial No.

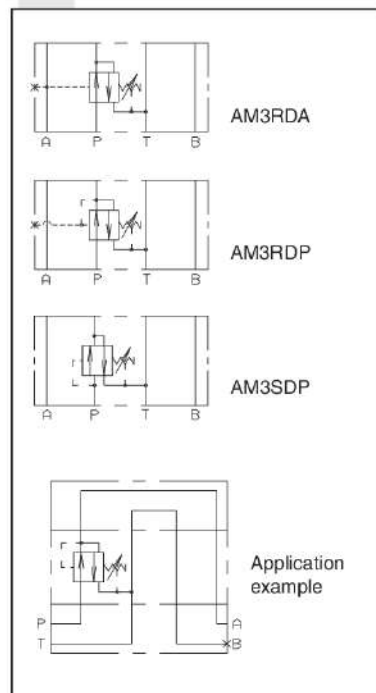


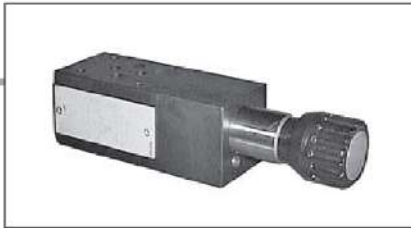
The fluid used is a mineral based oil with a viscosity of 46 mm²/sec at 40 degrees C. The tests have been carried out at with a fluid temperature of 40 degrees C.

OVERALL DIMENSIONS



HYDRAULIC SYMBOLS





AM3VR...
 CVR.20... CATALOGO CARTUCCE
 SCREWS AND STUDS CAP. IV • 21

AM3VR... MODULAR REDUCING VALVES WITH RELIEVING - PILOT OPERATED CETOP 3

These pressure reducing valves ensure a minimum pressure variation on the P or A port with changing flow rate up to 90 l/min.

Three spring types allow adjustment within the range 7 ÷ 250 bar. Manual adjustment is available by a grub screw or plastic knob.

The RELIEVING SYSTEM inside the valve AM3VR allows the passage from the setting pressure line to T line of the flow through the valve to avoid the increasing of pressure in the reduced-pressure line by diverting exceeding flow to reservoir. A bypass module with check valve for free flow from A to AR port (see hydraulic symbol) is available..

Max. operating pressure	350 bar
Setting ranges:	spring 1 max. 60 bar
	spring 2 max. 120 bar
	spring 3 max. 250 bar

Maximum allowed Δp pressure between the inlet an outlet pressure	150 bar
Max. flow	40 l/min
Draining on port T	0,5 ÷ 0,7 l/min
Hydraulic fluids	Mineral oils DIN 51524
Fluid viscosity	10 ÷ 500 mm ² /s
Fluid temperature	-25°C ÷ 75°C
Ambient temperature	-25°C ÷ 60°C
Max. contamination level	class 10 in accordance with NAS 1638 with filter $\beta_{25} \geq 75$
Weight	1,36 Kg
Weight bypass version	2 Kg

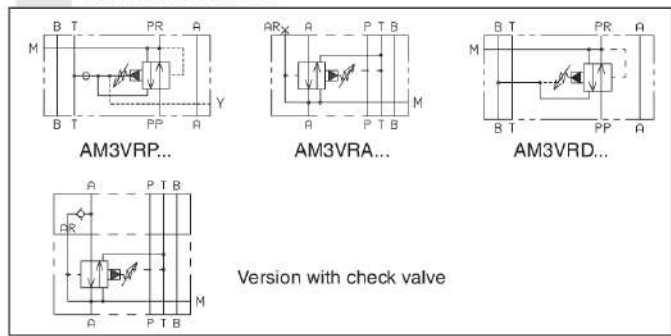
ORDERING CODE

AM	Modular valve
3	CETOP 3/NG6
VR	Pilot operated pressure reducing valve with relieving
*	Control on lines P = Drain on T A = Drain on T D = Drain on B reduct pressure on A
*	Drain connection E = External (only for control on the P line) I = Internal (Standard)
B	Version with bypass on line A only Omit if not required
*	Type of adjustment M = Plastic knob C = Grub screw
*	Setting ranges 1 = max. 60 bar (white spring) 2 = max. 120 bar (yellow spring) 3 = max. 250 bar (green spring)
**	00 = No variant V1 = Viton
1	Serial No

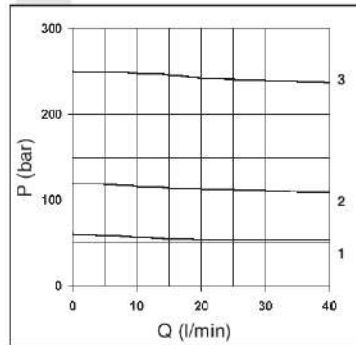
To changes valves AM3VRP... from internal to external drainage it is necessary:
 - screw out the plug on the "Y" port
 - screw out the plug T.C.E.I. M8x1 from the body
 - screw in a screw S.T.E.I. M6
 - rescrew the T.C.E.I. M8x1 plug on the body

NOTE: the external draining can be used as a piloting line (please, contact our technical department for other informations)

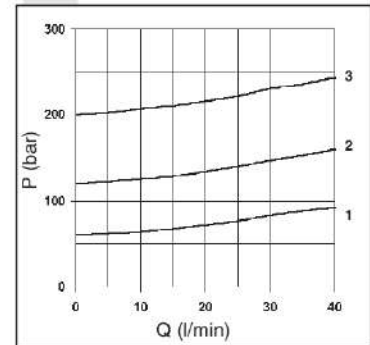
HYDRAULIC SYMBOLS



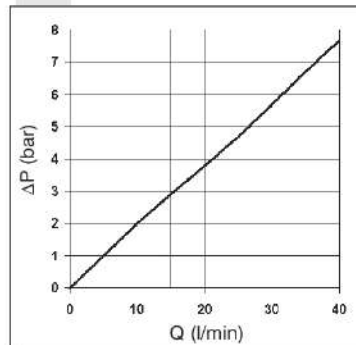
PRESSURE-FLOW RATE



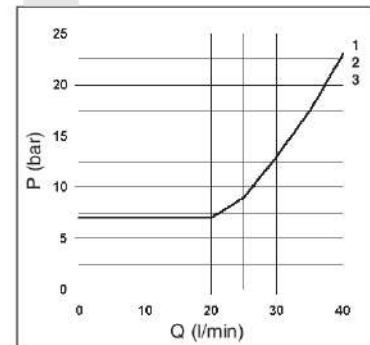
PRESSURE-FLOW OF RELIEVING



ΔP AM3+VR... + BYPASS

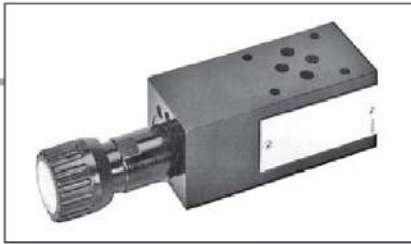


MINIMUM SETTING PRESSURE



Curves n° 1 - 2 - 3 = setting ranges

The fluid used is a mineral oil with a viscosity of 46 mm²/s at 40°C. The tests have been carried out a fluid temperature of 50°C.



AM3VS... MODULAR SEQUENCING VALVES CETOP 3

The sequence valve are used to assure that a secondary circuit is pressurized when the setting pressure is reached.

These valves grant a minimum variation of the setting pressure with a changing flow up to 40 l/min (see diagram).

Three spring types allow adjustment within the range 7 ÷ 250 bar. Manual adjustment is available by a grub screw or plastic knob.

The cartridge used is the "CVS" type.

Max. operating pressure	350 bar
Setting ranges:	Spring 1 max. 60 bar
	Spring 2 max. 120 bar
	Spring 3 max. 250 bar
Max. flow	40 l/min
Draining on port T	0,5 ÷ 0,7 l/min
Hydraulic fluids	Mineral oils DIN 51524
Fluid viscosity	10 ÷ 500 mm ² /s
Fluid temperature	-25°C ÷ 75°C
Ambient temperature	-25°C ÷ 60°C
Max. contamination level	class 10 in accordance with NAS 1638 with filter $\beta_{25} \geq 75$
Weight	1,36 Kg

AM3VS...	CARTRIDGE CATALOGUE
CVS.20...	CARTRIDGE CATALOGUE
SCREWS AND STUDS	CAP. IV • 21

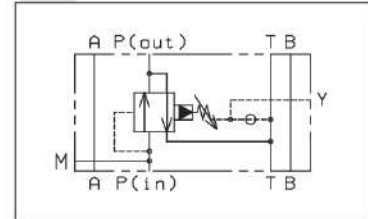
ORDERING CODE

AM	Modular valve
3	CETOP 3/NG6
VS	Sequencing valve
*	Drain connection E = External I = Internal (Standard)
*	Type of adjustment M = Plastic knob C = Grub screw
*	Setting ranges 1 = max. 60 bar (white spring) 2 = max. 120 bar (yellow spring) 3 = max. 250 bar (green spring)
**	00 = No variant V1 = Viton
1	Serial No

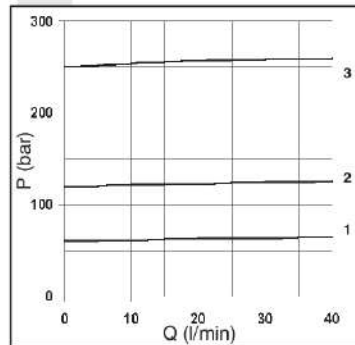
The fluid used is a mineral oil with a viscosity of 46 mm²/s at 40°C. The tests have been carried out at a fluid temperature of 50°C.

Curves n° 1 - 2 - 3 = setting ranges

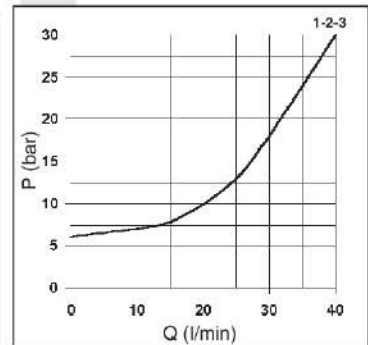
HYDRAULIC SYMBOL



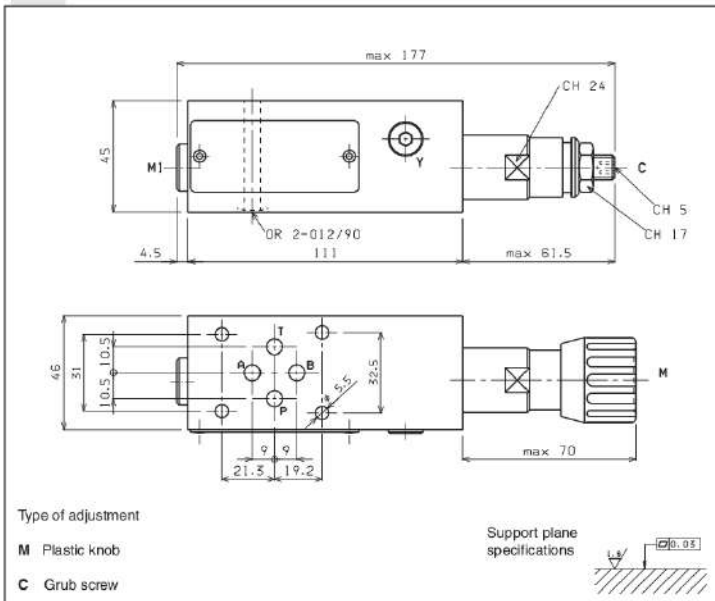
PRESSURE-FLOW RATE



MINIMUM SETTING PRESSURE



OVERALL DIMENSIONS



To changes valves AM.3.VS... from internal to external drainage it is necessary:

- screw out the plug on the Y port
- screw out the plug T.C.E.I. M8x1 from the body
- screw in a screw S.T.E.I. M6
- rescrew the T.C.E.I. M8x1 plug on the body

NOTE: the external draining can be used as a piloting line (please, contact our technical department for other informations)



AM3SH... MODULAR SHUTTLE VALVES CETOP 3

Modular valves type AM.3.SH are actuator load pressure selecting units, as they are fitted with an integral shuttle valve cartridge which allows taking of the highest pressure signal to the external port via displacement of a ball. They are usually employed to signal the actuator load to the pressure compensator of load sensing pump, or for the command of fail-safe brakes.

Max. operating pressure	350 bar
Max. flow at the cartridge	3 l/min
Max. flow at ports A/B/P/T	40 l/min
Hydraulic fluids	Mineral oils DIN 51524
Fluid viscosity	10 ÷ 500 mm ² /s
Fluid temperature	-25°C ÷ 75°C
Ambient temperature	-25°C ÷ 60°C
Max. contamination level	class 10 in accordance with NAS 1638 with filter $\beta_{25} > 75$
Weight	1 Kg
Cartridge tightening torque	20÷30 Nm/2÷3 Kgm

For seat overall dimensions see cartridge shuttle SH03 type.

AM3SH...

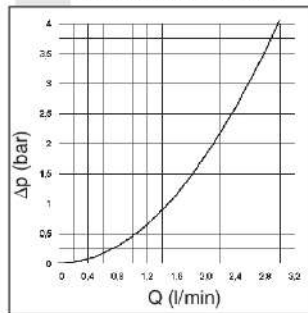
SH.03... CARTRIDGE CATALOGUE
SCREWS AND STUDS CAP. IV • 21

4

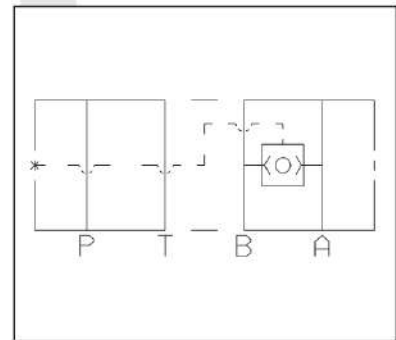
ORDERING CODE

AM	Modular valve
3	CETOP 3/NG6
SH	Cartridge shuttle
**	00 = No variant V1 = Viton
1	Serial No.

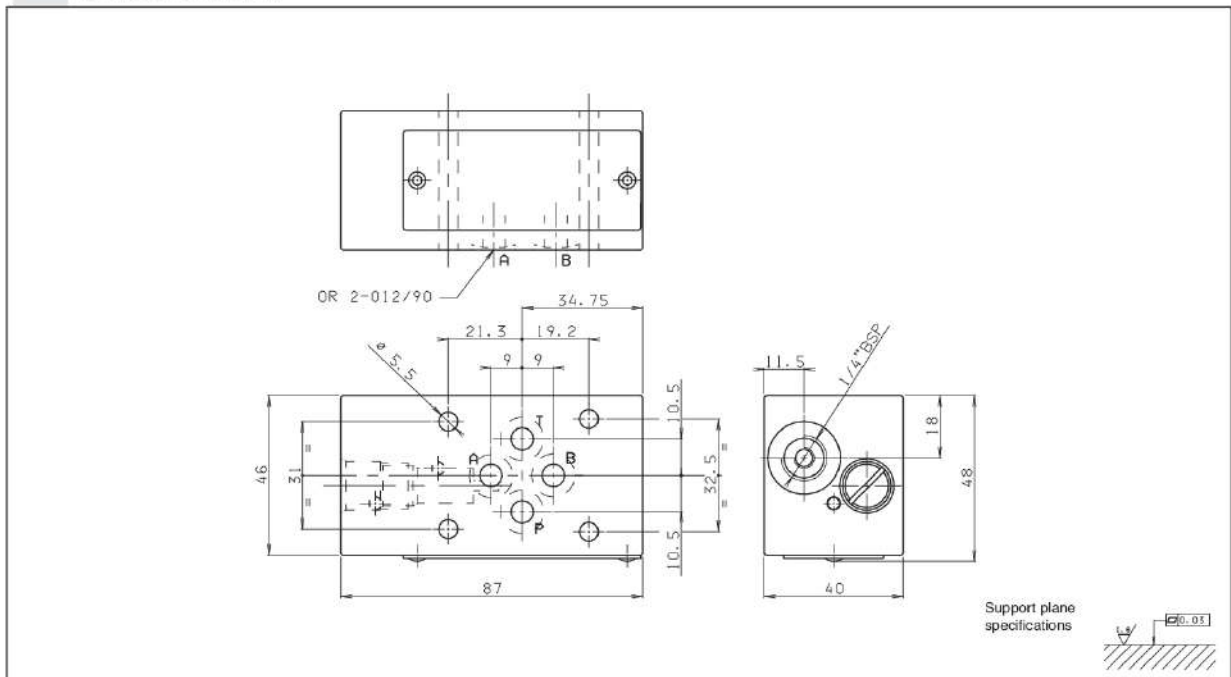
PRESSURE DROPS ON THE SHUTTLE VALVE



HYDRAULIC SYMBOL



OVERALL DIMENSIONS





AM3QF...

SCREWS AND STUDS

CAP. IV • 21

AM3QF... MODULAR FLOW REGULATOR CETOP 3

AM.3.QF type one way non-compensated throttle valve are fitted with an O-Ring mounting plate which allows its assembly for either input or output regulation. Adjustment is obtained by means of a grub screw or a plastic knob. They are available in the four regulating configurations shown in the hydraulic diagrams.

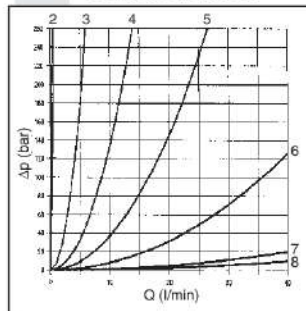
The standard valve configuration allows "meter in" regulation, while it is possible to obtain "meter out" regulation by turning the valve by 180° along its longitudinal axis.

Max. operating pressure	350 bar
Max. pressure adjustable	250 bar
Flow rate regulation	on 8 screw turns
Max. flow	40 l/min
Hydraulic fluids	Mineral oils DIN 51524
Fluid viscosity	10 ÷ 500 mm ² /s
Fluid temperature	-25°C ÷ 75°C
Ambient temperature	-25°C ÷ 60°C
Max. contamination level	class 10 in accordance with NAS 1638 with filter $\beta_{25} \geq 75$
Weight	1,5 Kg

ORDERING CODE

AM	Modular valve
3	CETOP 3/NG6
QF	Non compensated throttle valve
**	Control on lines A / B / P / AB
*	Type of adjustment M = Plastic knob C = Grub screw
**	00 = No variant V1 = Viton
4	Serial No.

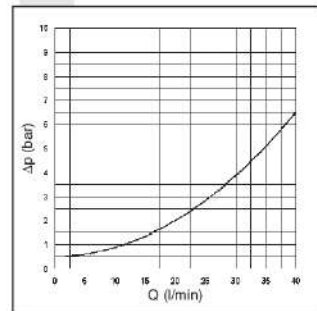
FLOW REGULATION



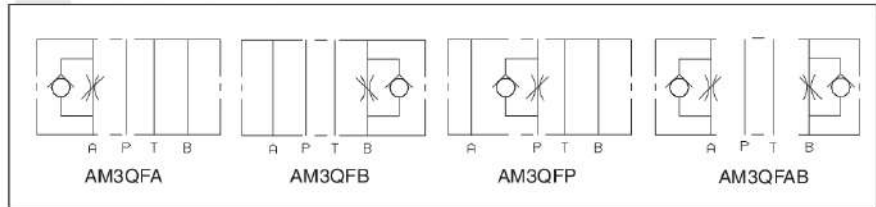
Each curve represents the flow rate adjustment for each screw turns, starting from the closed position.

FREE FLOW

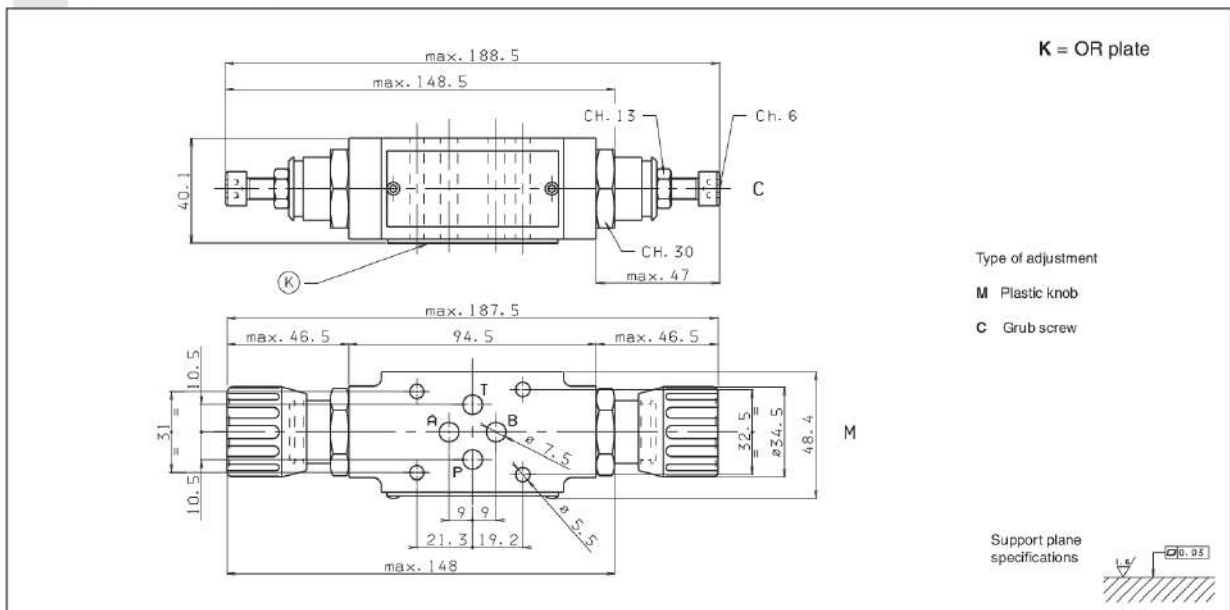
TOWARDS CHECK VALVE



HYDRAULIC SYMBOLS



OVERALL DIMENSIONS





AM66... MODULAR COMPENSATED FLOW CONTROL ASSEMBLY CETOP 3

This is an intermediate block for modular mounting of one or two flow rate regulators type QC3...

The flow regulator type QC3* must be ordered separately.

Max. operating pressure	320 bar
Hydraulic fluids	Mineral oils DIN 51524
Fluid viscosity	10 ÷ 500 mm ² /s
Fluid temperature	-25°C ÷ 75°C
Ambient temperature	-25°C ÷ 60°C
Max. contamination level	class 10 in accordance with NAS 1638 with filter $\beta_{25} \geq 75$
Weight	1,3 Kg

AM066...

QC32...	CAP. III • 2
QC33...	CAP. III • 3
SCREWS AND STUDS	CAP. IV • 21

4

ORDERING CODE

AM

Modular valve

66

Size

**

Control on lines

A / B / P / PT* / AB

For T / A1 / B1 / A1B1 versions see table "Hydraulic symbols"

**

00 = No variant

V3 = regulators for three-way QC33 (only with adjustment of P)

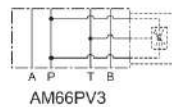
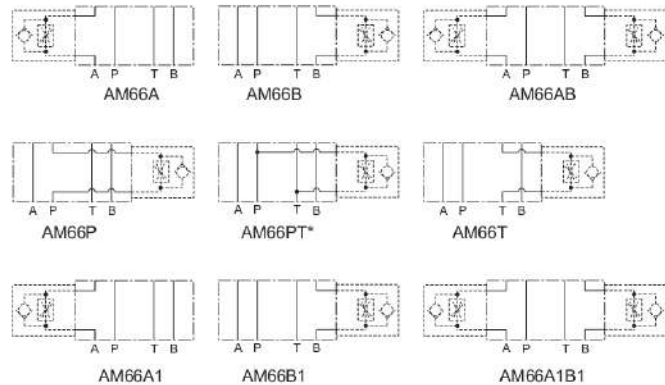
V1 = Viton

3

Serial No.

HYDRAULIC SYMBOLS

For regulators two-way QC32



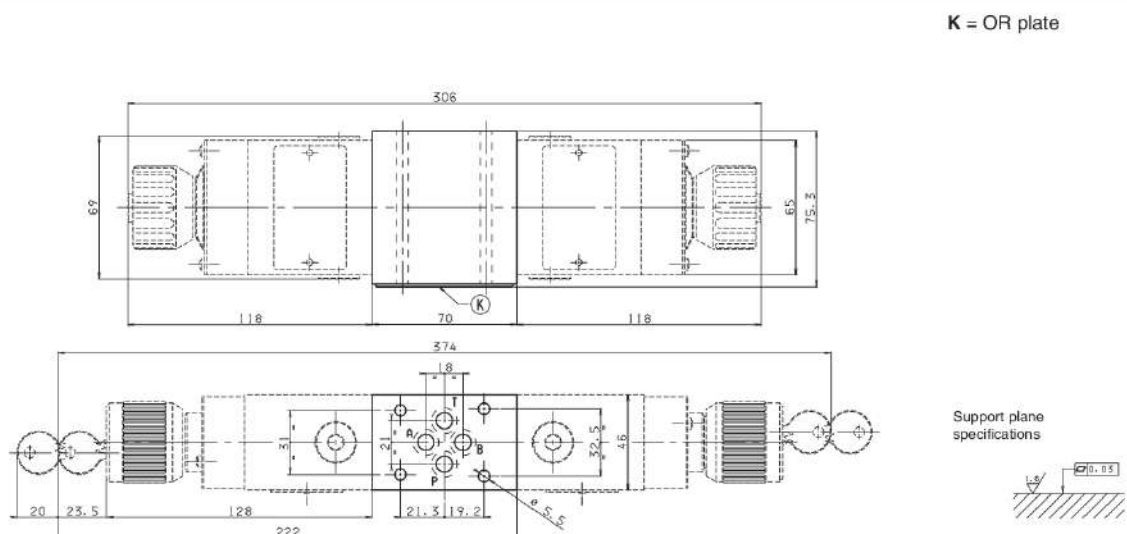
For regulators for three-way QC33

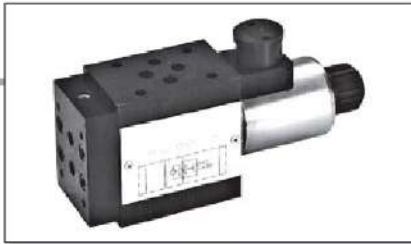
PT* = From line towards exhaust (P → T drain)

• In order to obtain versions with regulation on T, the AM66P regulator carrying block should be turned by 180°.

• In order to obtain versions **A1**, **B1** and **A1B1** the AM66A, AM66B or AM66AB regulators carrying block should be turned by 180°.

OVERALL DIMENSIONS





A66... MODULAR FLOW CONTROL VALVES FAST / SLOW ASSEMBLY CETOP 3

This is modular assembly ON/OFF solenoid valve which, by fitting suitable 2 way regulator, allows two speed operation in the same system via an electrical changeover command.

The flow rate regulator type QC32... must be ordered separately.
The operational limit curves have been obtained with the regulator fully closed, and those same limits improve gradually with the opening of the regulator.

Max. operating pressure	320 bar
Hydraulic fluids	Mineral oils DIN 51524
Fluid viscosity	10 ÷ 500 mm ² /s
Fluid temperature	-25°C ÷ 75°C
Ambient temperature	-25°C ÷ 60°C
Max. contamination level	class 10 in accordance with NAS 1638 with filter β ₂₅ >75
Weight	2,4 Kg

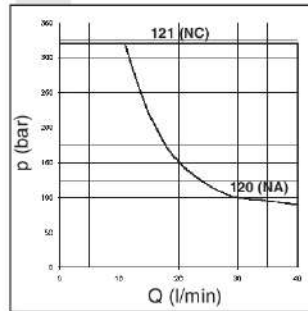
The test have been carried out at operating temperature, with a voltage 10% lower than rated voltage and with a fluid temperature of 50 degrees C. The fluid used was a mineral based oil with a viscosity of 46 mm²/s at 40 degrees C.

A66...	
STANDARD CONNECTORS	CAP. I • 20
DC COILS	CAP. I • 72
QC32...	CAP. III • 2
SCREWS AND STUDS	CAP. IV • 21

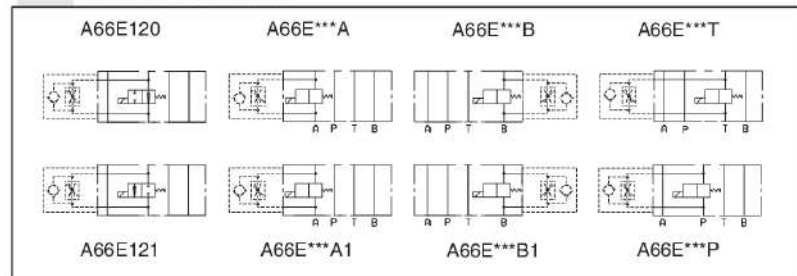
ORDERING CODE

A	Speed control valve
66	Size
E	Electrical operator
***	120 = Normally open 121 = Normally closed See table hydraulic symbols
*	Control on lines A/B/P/T (see symbols) The interface holder "H" must be turned by 180° in order to obtain the A1 and B1 versions.
*	Voltage: see tab.1
**	Variants: see tab.2
4	Serial No.

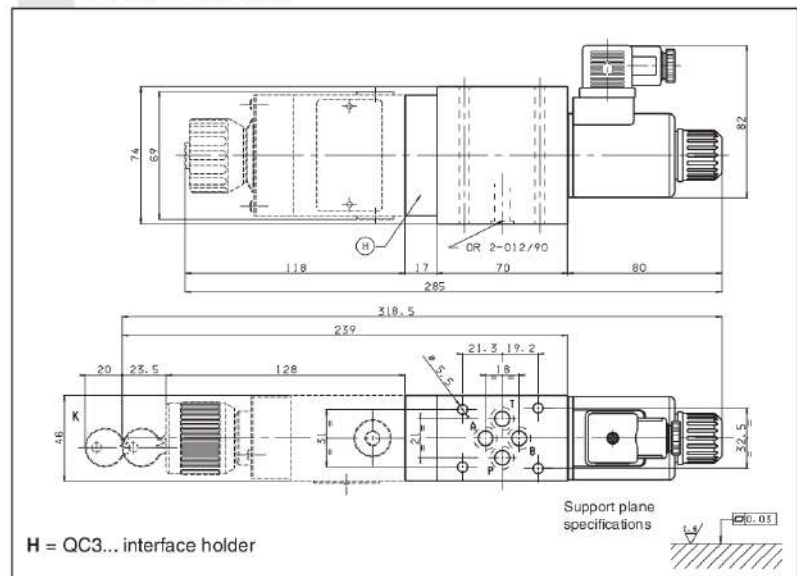
LIMITS OF USE



HYDRAULIC SYMBOLS



OVERALL DIMENSIONS



TAB.1 VOLTAGE

D15 COILS (IN DC - 30W) **

L	12V	115Vac/50Hz 120Vac/60Hz with rectifier
M	24V	
V	28V*	230Vac/50Hz 240Vac/60Hz with rectifier
N	48V*	
Z	102V*	
P	110V*	
X	205V*	
W	without coils	

Voltage codes are not stamped on the plate, their are readable on the coils.

* Special voltage

** Technical data see Cap. XII • 4

TAB.2 - VARIANTS

No variant (without connectors)	S1(*)
Viton	SV(*)

Other variants available on request

(*) Coils with Hirschmann connection supplied without connectors. The connectors can be ordered separately, Cap. I • 20.



AM3RGT...

SCREWS AND STUDS

CAP. IV • 21

AM3RGT... MODULAR VALVES FOR REGENERATIVE CIRCUIT CETOP 3

This modular valve produces a regenerative system to increase the actuator (differential cylinder) exit speed as shown in the diagram.

In particular, if a cylinder is used with a 2:1 ratio for the operating surfaces, the exit and re-entry speeds are the same.

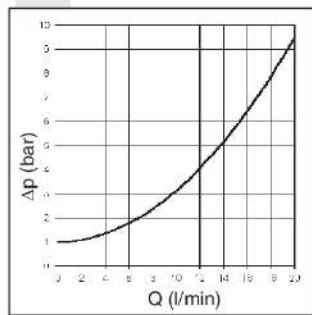
Max. operating pressure	350 bar
Max. flow at port A/B/P/T	20 l/min
Hydraulic fluids	Mineral oils DIN 51524
Fluid viscosity	10 ÷ 500 mm ² /s
Fluid temperature	-25°C ÷ 75°C
Ambient temperature	-25°C ÷ 60°C
Max. contamination level	class 10 in accordance with NAS 1638 with filter $\beta_{25} > 75$
Weight	1,7 Kg

4

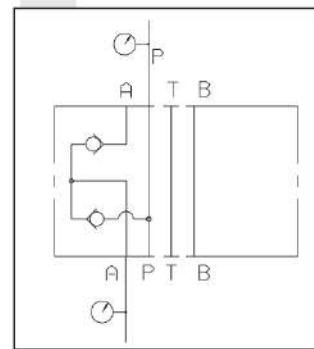
ORDERING CODE

AM	Modular valve
3	CETOP 3/NG6
RGT	For regenerative circuit
A	Size of check valves 3/8" BSP
1	Opening pressure 1 bar
**	00 = No variant V1 = Viton
1	Serial No.

PRESSURE DROPS A→P



HYDRAULIC SYMBOL



OVERALL DIMENSIONS

