

TECHNICAL CATALOGUE

ACCESSORIES FOR SOLAR HEATING SYSTEMS

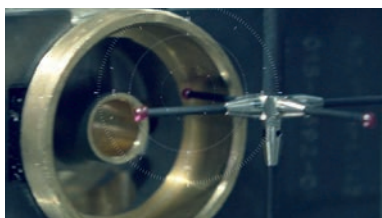
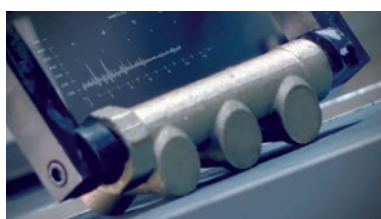


> THE COMPANY

ITAP SpA, founded in Lumezzane (Brescia) in 1972, is currently one of the leading production companies in Italy of **valves, fittings and distribution manifolds** for plumbing and heating systems.

Thanks to a fully automated production process, with 85 transfer machines and 55 assembly lines, it is capable of producing 400,000 pieces per day.

Our innate pursuit for innovation and observance of technical regulations is supported by the company certification ISO 9001. The company has always considered its focus on quality as the main tool to obtain significant business results: today ITAP SpA is proud to offer products bearing the approval of numerous international certifying bodies.



> ITAP products have obtained approvals by more than 30 certification bodies from all over the world.





ACCESSORIES FOR SOLAR HEATING SYSTEMS

362S Automatic air vent valve for solar heating systems

ACCESSORIES FOR SOLAR HEATING SYSTEMS



MEASURE	PRESSURE	CODE	PACKING
3/8" (DN 10)	10bar/145psi	3620038S	10/70
1/2" (DN 15)	10bar/145psi	3620012S	10/70

CERTIFICATIONS



TECHNICAL SPECIFICATIONS

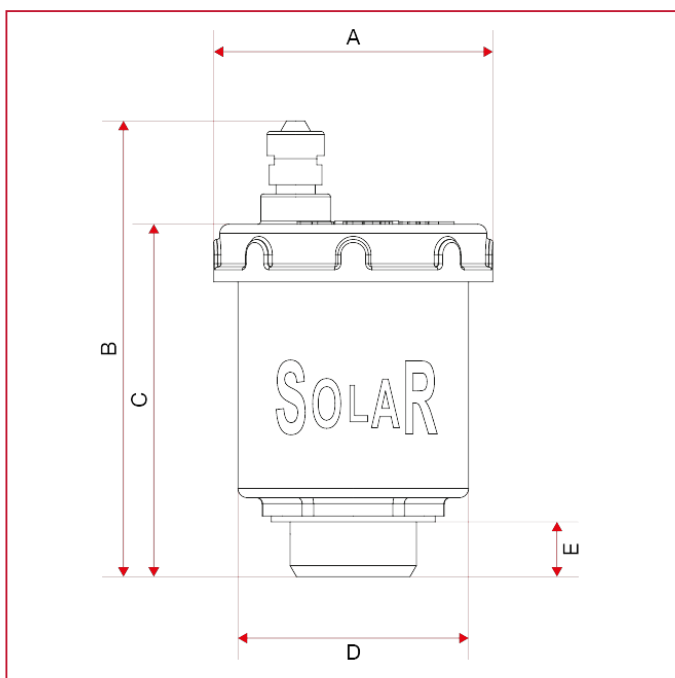
Body in nickel-plated brass.

Minimum and maximum working temperatures: -20°C, 180°C.

Nominal pressure: 10 bar.

Threads: ISO228 (equivalent to DIN EN ISO 228 and BS EN ISO 228).

OVERALL DIMENSIONS

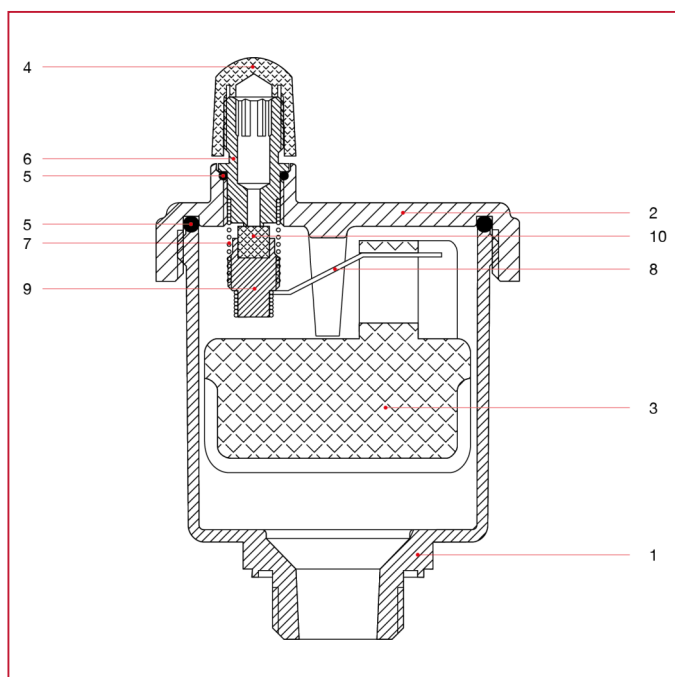




ACCESSORIES FOR SOLAR HEATING SYSTEMS

	3/8"	1/2"
A	50	46
B	78,5	75
C	65	58
D	40	38
E	8,5	9
Kg/cm2 bar	10	10
LBS - psi	145	145

MATERIALS



POS.	DESCRIPTION	N.	MATERIAL
1	Body	-	Brass ALLOY UNI EN 1982:2008 CB754S
2	Cap	-	Brass ALLOY UNI EN 1982:2008 CB754S
3	Float	-	Polypropylene
4	Cap	-	Brass CW614N
5	O-ring	-	Red silicone
6	Mechanism	-	Brass CW614N
7	Spring	-	Stainless steel AISI 302
8	Detector	-	Stainless steel AISI 302
9	Cap	-	PPSR4
10	Rubber seal	-	Red silicone 50



ACCESSORIES FOR SOLAR HEATING SYSTEMS

OPERATION AND INSTALLATION:

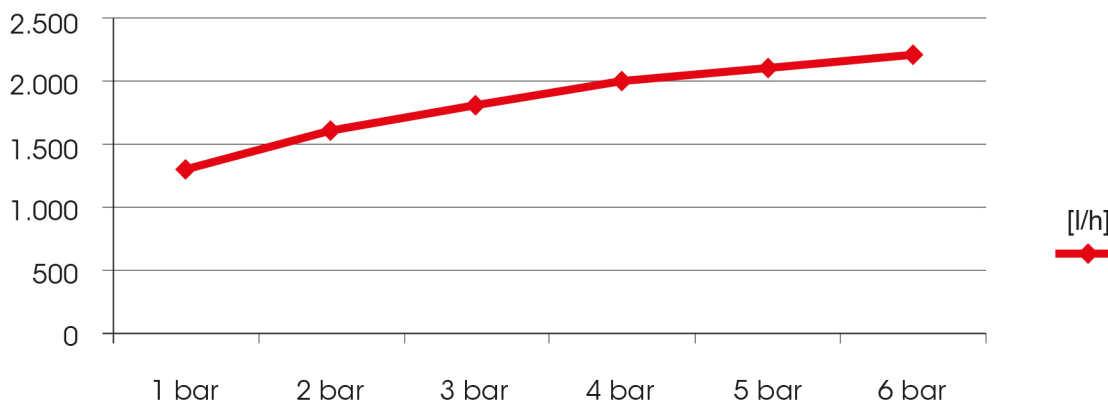
The automatic air vent valves are installed in order to remove the air that accumulates in heating and air conditioning systems. Thanks to their functioning, without need of manual operation, they allow to avoid for certain and permanently harmful phenomena that could compromise the life and the performance of any systems. Especially, it is possible to limit the negative effect of galvanic corrosion (due to extreme presence of oxygen inside the piping) and cavitation. Moreover, these valves allow to optimize the heating and cooling power of each system, since they avoid the formation of air pockets inside radiators and fan-coil units.

Such valves have to be installed in vertical position only, on top of each systems and, generally, where it is the evidence of air pockets' formation (distribution manifolds, riser pipes, etc.)

Under normal operating conditions, it is recommended to leave the cap loose.

The air flow of these valves raises in accordance to the working pressure of a system, up to reach a maximum figure when the pressure raises up to 6 bar.

Here below there is the flow rate chart of these valves, when the system is being filled: as it is possible to read, the chart includes a maximum working pressure of 6 bar, since this figure is higher than an usual working pressure in heating and air-conditioning system (generally they work till 3 bar).





ACCESSORIES FOR SOLAR HEATING SYSTEMS

475 Thermostatic mixing valve for solar heating systems

ACCESSORIES FOR SOLAR HEATING SYSTEMS



MEASURE	PRESSURE	CODE	PACKING
3/4" (DN 20)	10bar/145psi	4750034	1/12
1" (DN 25)	10bar/145psi	4750100	1/12

CERTIFICATIONS



TECHNICAL SPECIFICATIONS

Body in brass.

Female threads.

Nominal pressure: 10 bar.

Maximum working temperature: 110°C.

Setting range: from 35°C to 55°C.

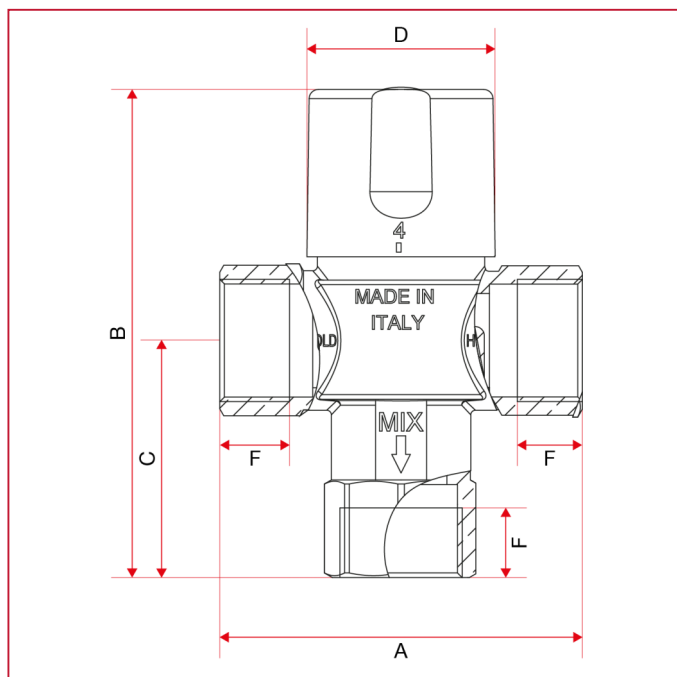
KV= 2,17 m3/h.

Threads: ISO228 (equivalent to DIN EN ISO 228 and BS EN ISO 228).



ACCESSORIES FOR SOLAR HEATING SYSTEMS

OVERALL DIMENSIONS

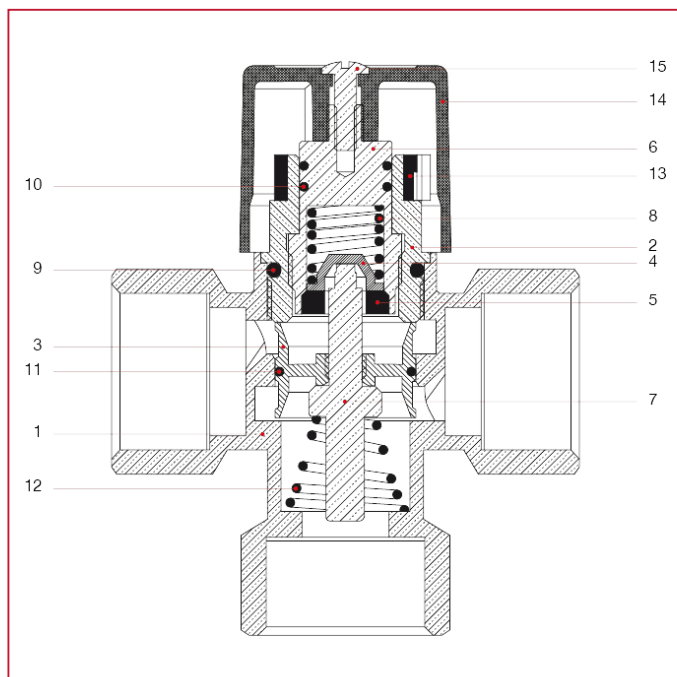


	3/4"	1"
DN	20	25
A	78	88,5
B	105	103
C	50,5	49
D	40,5	40,5
F	15	16,5
Kg/cm2 bar	10	10
LBS - psi	145	145



ACCESSORIES FOR SOLAR HEATING SYSTEMS

MATERIALS



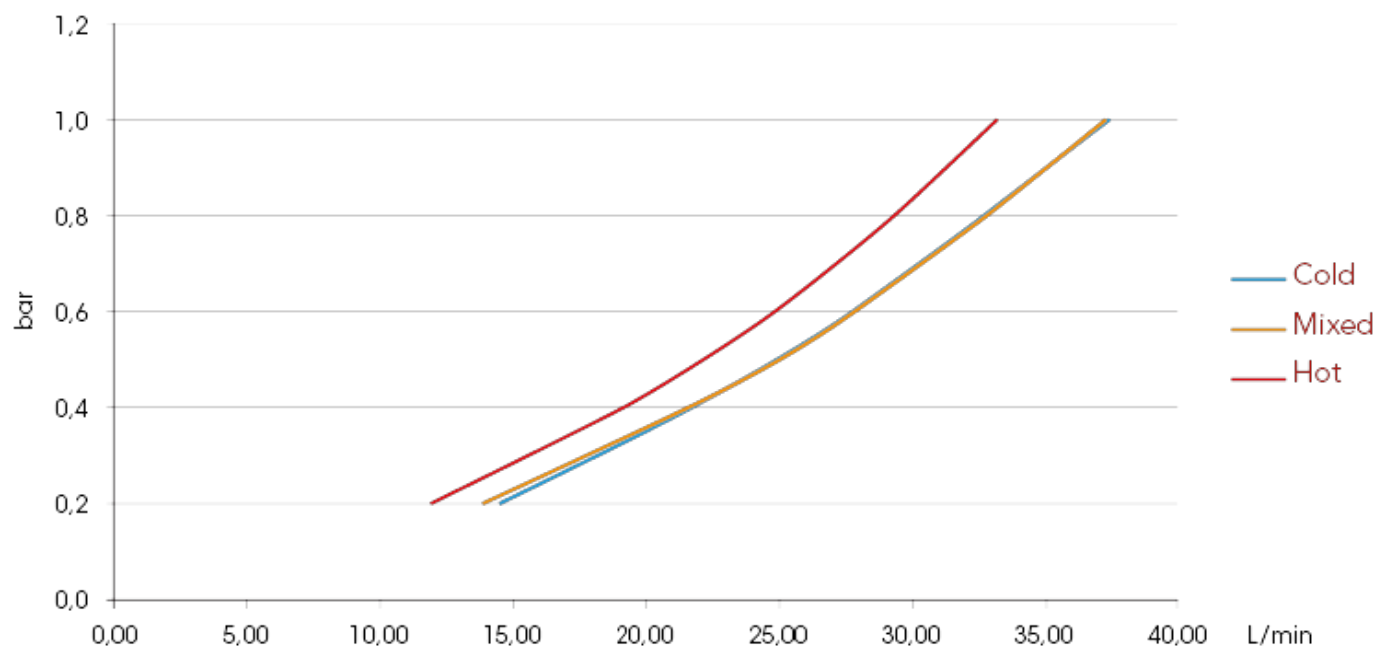
POS.	DESCRIPTION	N.	MATERIAL
1	Body	1	Brass CW510L
2	Bonnet	1	Brass CW510L
3	Piston	1	Brass CW510L
4	Small piston	1	Brass CW510L
5	Ring	1	Ring CW510L
6	Stem	1	Brass CW510L
7	Bulb	1	WAX
8	Spring	1	ANSI 302 UNI ISO 6931
9	O-ring	1	EPDM
10	O-ring	2	EPDM
11	O-ring	1	EPDM
12	Conical spring	1	ANSI 302 UNI ISO 6931
13	Ring	1	Plastic
14	Handle	1	ABS
15	Screw	1	Steel



ACCESSORIES FOR SOLAR HEATING SYSTEMS

LOSS DIAGRAM (With water) size 3/4"

	3/4"	1"
KV	2,17	2,17

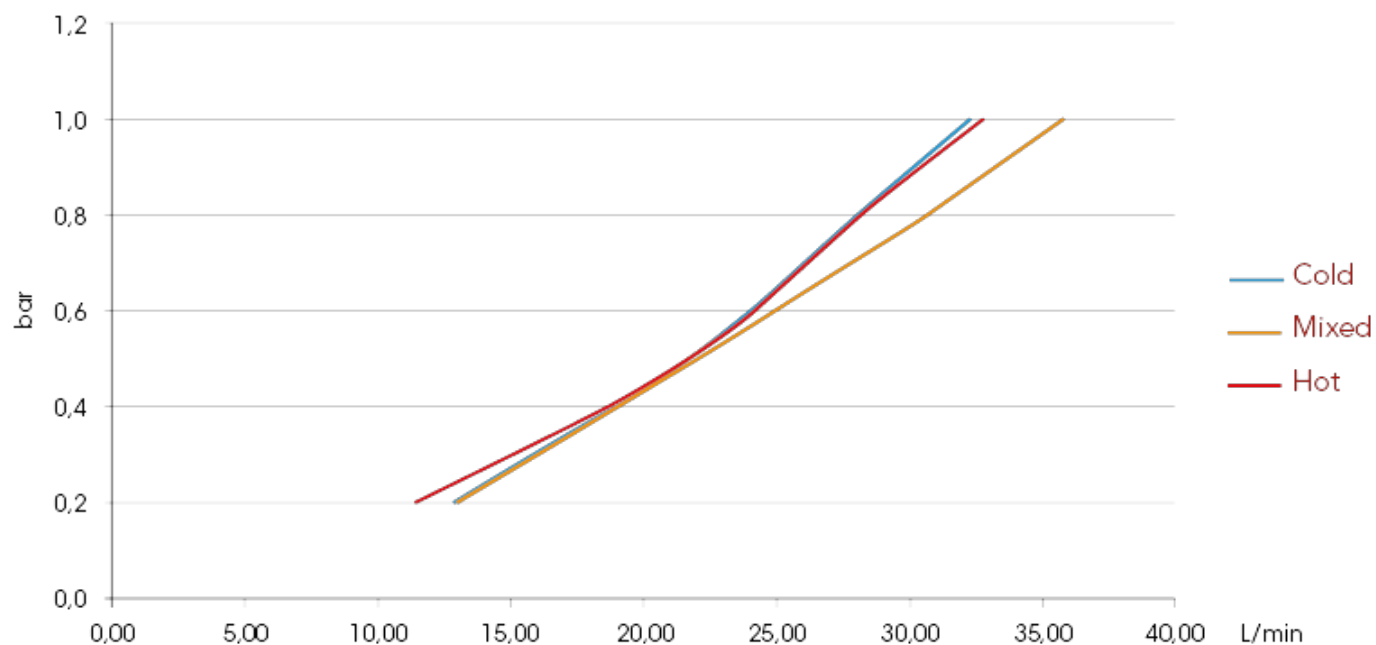




ACCESSORIES FOR SOLAR HEATING SYSTEMS

LOSS DIAGRAM (With water) size 1"

	3/4"	1"
KV	2,17	2,17





ACCESSORIES FOR SOLAR HEATING SYSTEMS

477 Temperature and pressure relief valve for solar heating systems

ACCESSORIES FOR SOLAR HEATING SYSTEMS



MEASURE	PRESSURE	CODE	PACKING
3/4" (DN 20)	10bar/145psi	4770034	1/39

CERTIFICATIONS



TECHNICAL SPECIFICATIONS

It provides automatic temperature and pressure relief protection for hot water and storage tank.

It is equipped with a manually operating lever.

The valve lever must be manually operated at least once a year to insure that water-ways are clear.

Body in antidezincification brass.

105 mm extension thermostat.

Setting temperature: 90°C.

Power rating: 25KW.

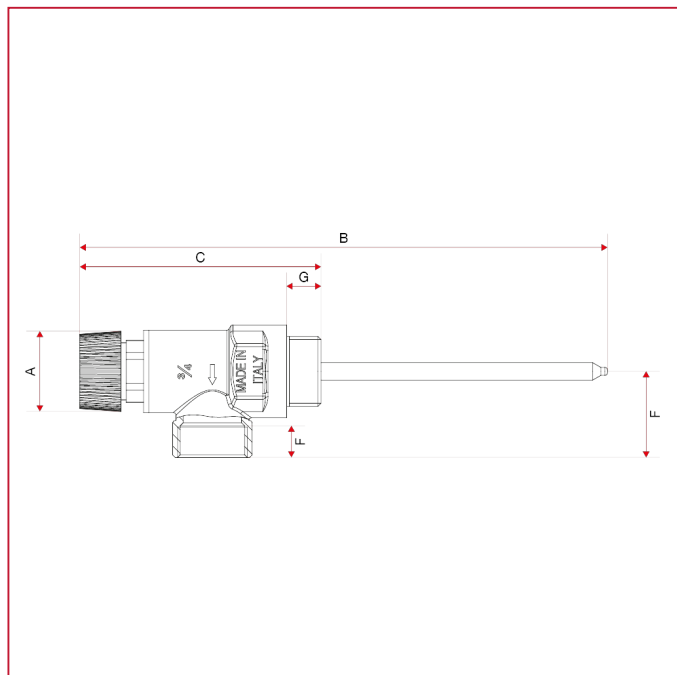
Setting pressure: 7 bar.

Threads: ISO228 (equivalent to DIN EN ISO 228 and BS EN ISO 228).



ACCESSORIES FOR SOLAR HEATING SYSTEMS

OVERALL DIMENSIONS

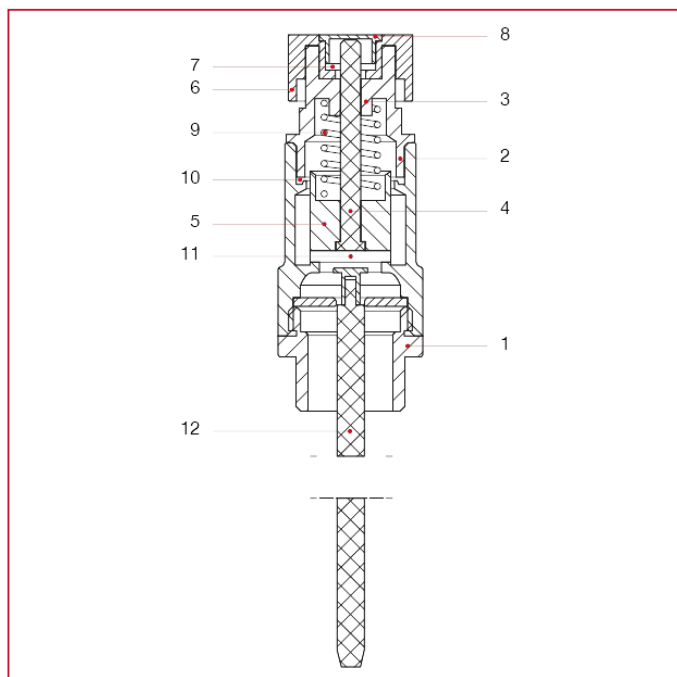


	3/4"
DN	20
A	30
B	180
C	90
D	35
F	11
G	13
Kg/cm ² bar	10
LBS - psi	145



ACCESSORIES FOR SOLAR HEATING SYSTEMS

MATERIALS



POS.	DESCRIPTION	N.	MATERIAL
1	Valve body	1	Brass UNI EN 12165 CW602N ADZ
2	Ratchet body	1	Nylon
3	Threaded cap	1	Nylon
4	Stem	1	Nylon
5	Membrane holder cylinder	1	Nylon
6	Handle	1	ABS
7	Seeger	1	Steel UNI 3823
8	Cap	1	ABS
9	Spring	1	Zinc-plated steel UNI 3823
10	Washer	1	Supersinterite
11	Membrane seal	1	Santoprene TPV 101-55
12	Probe	1	Varnished copper + Steel AISI 304 CU



ACCESSORIES FOR SOLAR HEATING SYSTEMS

478 Diaphragm safety relief valve - f/f threads - for solar heating systems

ACCESSORIES FOR SOLAR HEATING SYSTEMS



MEASURE	PRESSURE	CODE	PACKING
1/2"x3/4"	10bar/145psi	4780012	10/90

CERTIFICATIONS



TECHNICAL SPECIFICATIONS

It provides automatic pressure relief protection for hot water and storage tank.

It is equipped with a manually operating lever.

The valve lever must be manually operated at least once a year to insure that water-ways are clear.

Body in nickel-plated brass.

Nominal pressure: 10 bar.

Available setting: 6 bar.

Minimum and maximum working temperatures: -20°C, 160°C.

Opening overpressure: 20%.

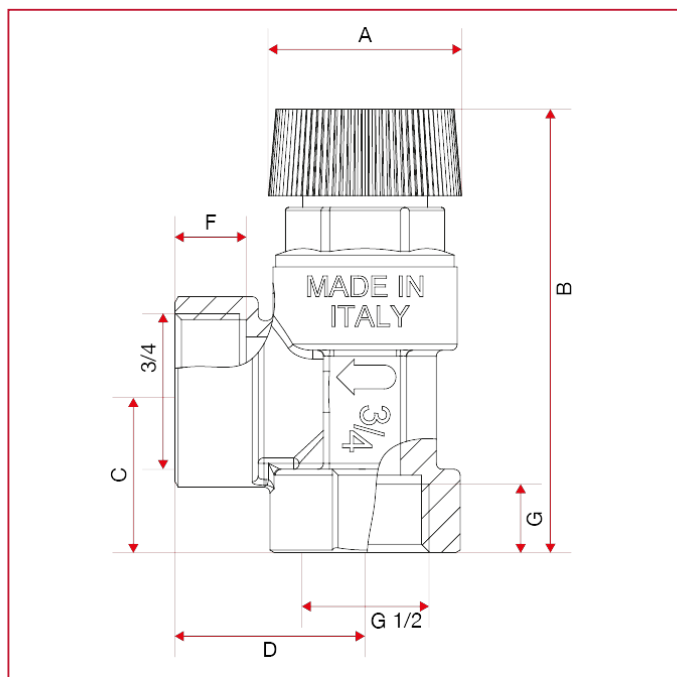
Closing differential: 20%.

Threads: ISO228 (equivalent to DIN EN ISO 228 and BS EN ISO 228).



ACCESSORIES FOR SOLAR HEATING SYSTEMS

OVERALL DIMENSIONS

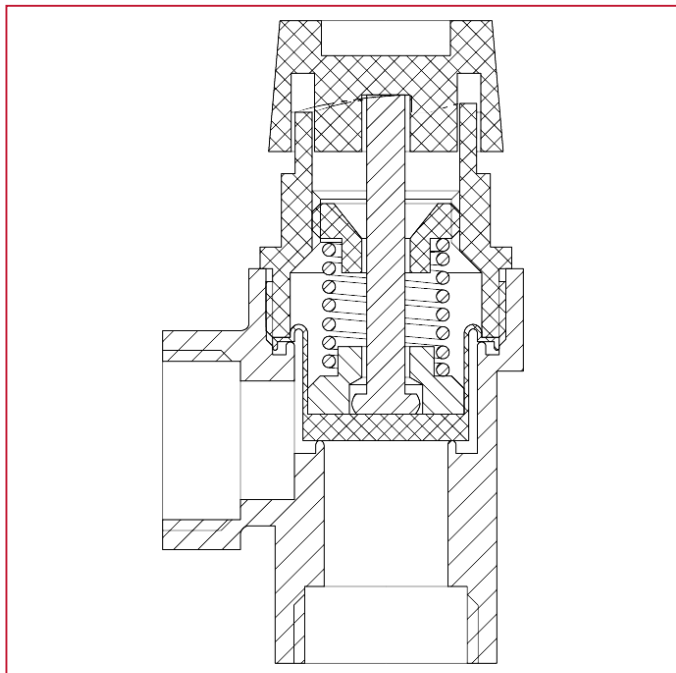


	1/2"x3/4"
DN	20
A	31,5
B	75
C	26
D	32
F	12
G	13
Kg/cm ² bar	10
LBS - psi	145



ACCESSORIES FOR SOLAR HEATING SYSTEMS

MATERIALS

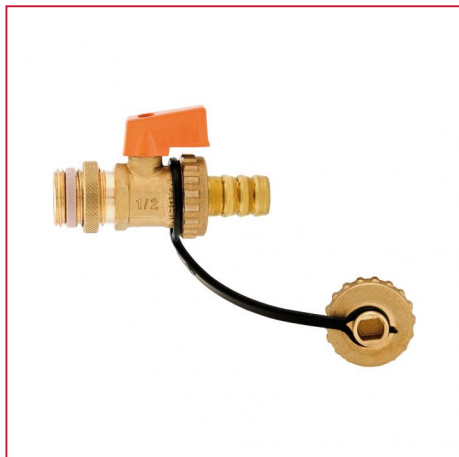


POS.	DESCRIPTION	N.	MATERIAL
1	Body	-	Brass CW617W
2	Stem	-	Brass CW617W
3	Plate	-	Brass CW617W
4	Spring stop	-	Brass CW617W
5	Spring	-	Stainless steel
6	Cylinder	-	EPDM
7	Washer	-	Fiber
8	Handle	-	MOPLen®



ACCESSORIES FOR SOLAR HEATING SYSTEMS

139S Drain ball valve with brass hose connection for solar heating systems



MEASURE	PRESSURE	CODE	PACKING
1/2" (DN 15)	16bar/232psi	1390012S	20/160

CERTIFICATIONS



TECHNICAL SPECIFICATIONS

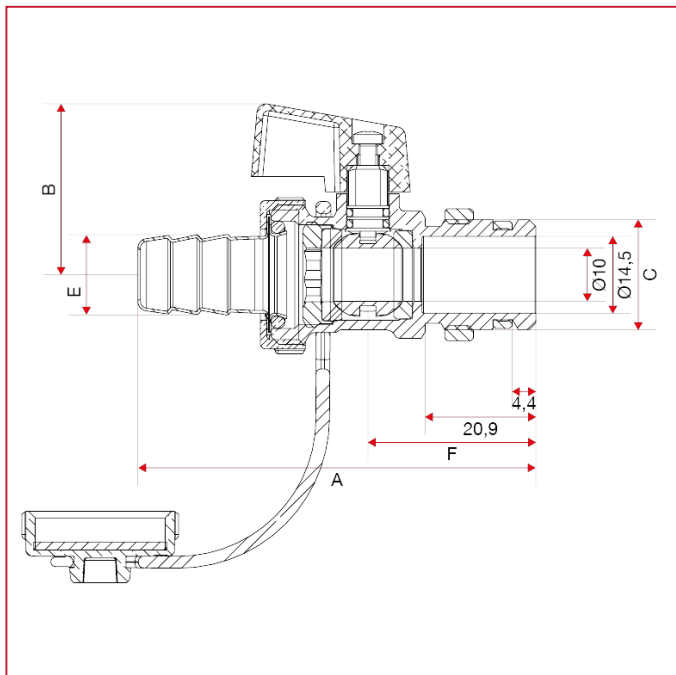
Body in brass.

Hose connection in brass.

Minimum and maximum working temperature: -10°C, 140°C.

Threads: ISO228 (equivalent to DIN EN ISO 228 and BS EN ISO 228).

OVERALL DIMENSIONS

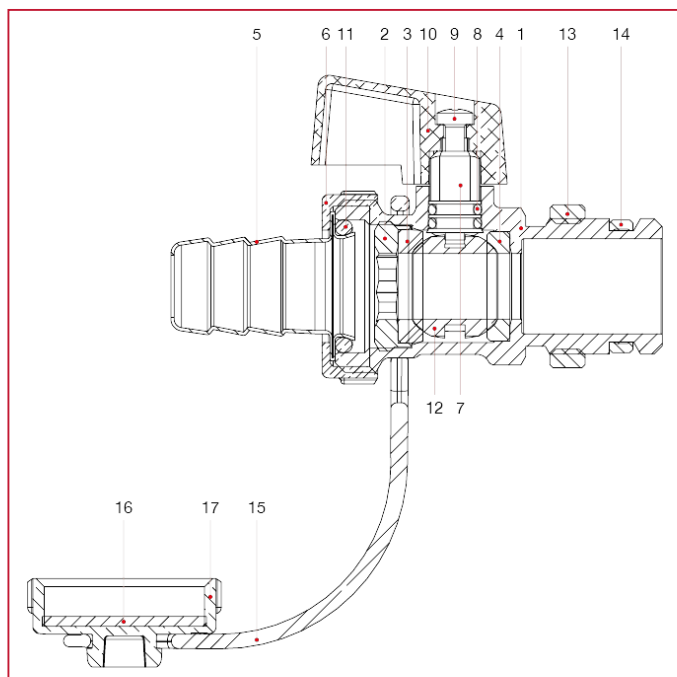




ACCESSORIES FOR SOLAR HEATING SYSTEMS

	1/2"
DN	15
A	75,1
B	32,2
C	1/2"
E	15
F	31,7
Kg/cm ² bar	10
LBS - psi	145

MATERIALS



POS.	DESCRIPTION	N.	MATERIAL
1	Body	1	Brass CW617N
2	Washer	1	Brass CW614N
3	Seat for solar	1	P.T.F.E.
4	Seat	1	P.T.F.E.
5	Hose connection	1	Brass CW508L
6	Nut	1	Brass CW617N
7	Stem	1	Brass CW614N
8	Washer	2	VITON®
9	Screw	1	Steel C4C
10	Handle	1	Stainless steel AISI 12Cu2Fe UNI 5076/74
11	O-Ring	1	VITON®
12	Ball	1	Chrome-plated brass CW614N
13	Ring	1	Brass CW614N
14	Ring	1	P.T.F.E.
15	Strap	1	PIBIFLEX®
16	Washer	1	EPDM
17	Cap	1	Brass CW617N



ACCESSORIES FOR SOLAR HEATING SYSTEMS

982 3-way diverter zone ball valve



MEASURE	PRESSURE	CODE	PACKING
3/4" (DN 20)	16bar/232psi	9820034	1/14
1" (DN 25)	16bar/232psi	9820100	1/9

CERTIFICATIONS



TECHNICAL SPECIFICATIONS

Body in nickel-plated brass.

Full flow ball.

Maximum working pressure: 16 bar.

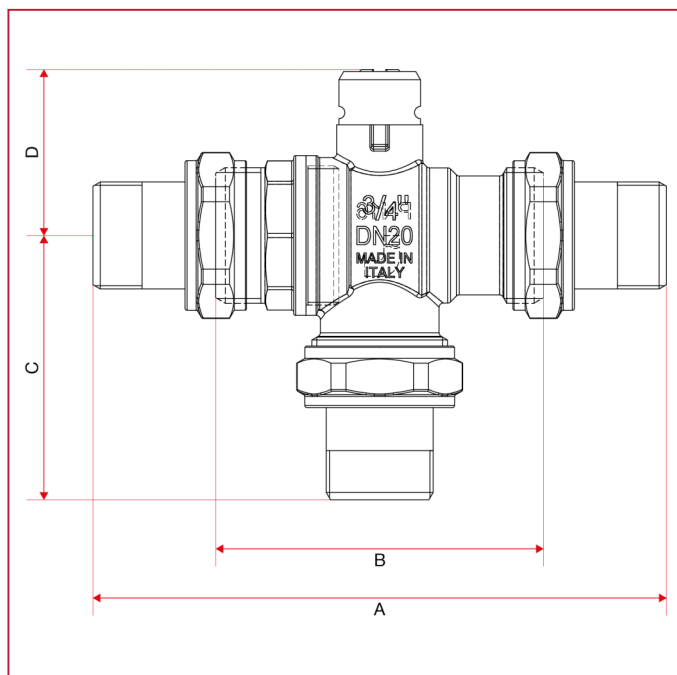
Maximum differential pressure: 10bar.

Minimum and maximum working temperatures: -10°C (with antifreeze solution), 100°C.

Threads: ISO 228 (equivalent to DIN EN ISO 228 and BS EN ISO 228).

Suitable for the electric actuators art. 990 and 991.

OVERALL DIMENSIONS

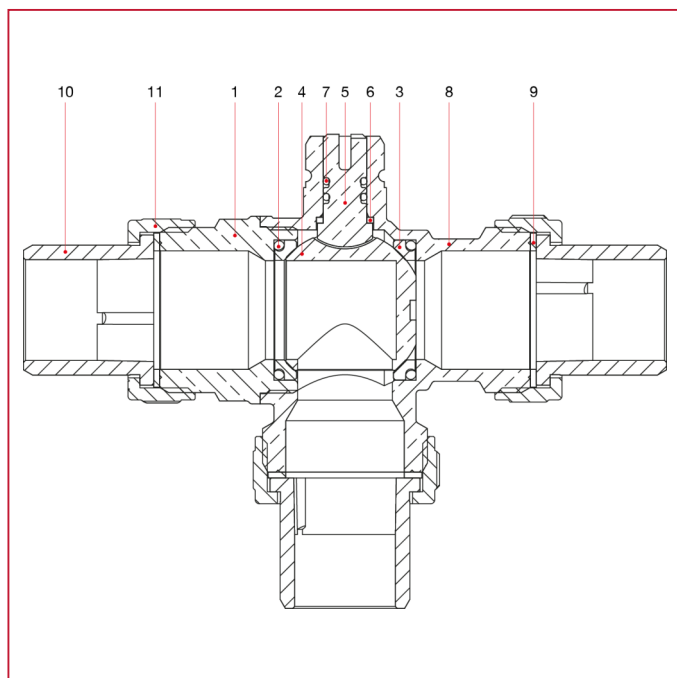




ACCESSORIES FOR SOLAR HEATING SYSTEMS

	3/4"	1"
DN	20	25
A	140	163
B	80	94
C	64,5	75,5
D	40,5	44,5
Kg/cm2 bar	16	16
LBS - psi	232	232

MATERIALS



POS.	DESCRIPTION	N.	MATERIAL
1	Body	1	Nickel-plated brass CW617N
2	End adapter	1	Nickel-plated brass CW617N
3	Flat seat union	3	Nickel-plated brass CW617N
4	Washer	3	Red fiber
5	Nut	3	Nickel-plated brass CW617N
6	Ball	1	Chrome-plated brass CW617N
7	Seat	2	P.T.F.E.
8	O-ring	2	EPDM
9	Ring	1	P.T.F.E.
10	Stem	1	Brass
11	O-ring	2	EPDM



ACCESSORIES FOR SOLAR HEATING SYSTEMS

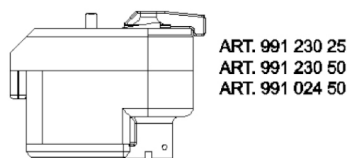
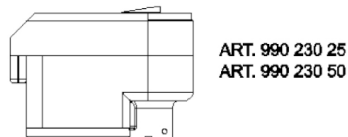
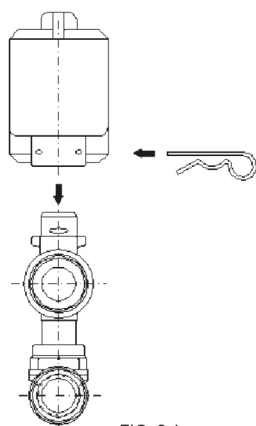
INSTRUCTIONS

ACTUATOR INSTALLATION:

- 1) Line up the manoeuvre stem in the position of the servo-control manoeuvre joint.
- 2) insert the servo-control pushing it in the indicating direction.
- 3) insert the split pin in the hole.
- 4) make sure that the servo-control is correctly assembled.

The servo-control must be installed with the valves completely open.

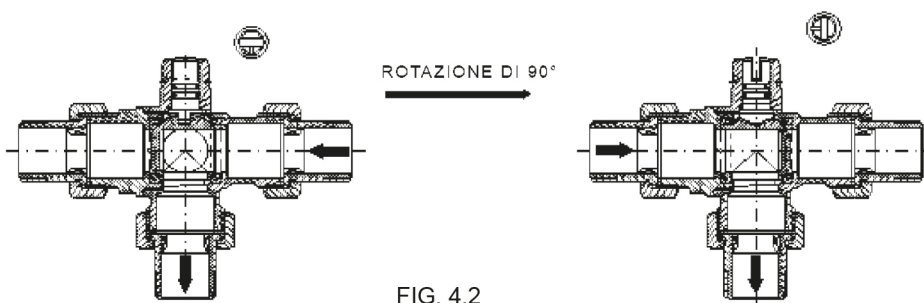
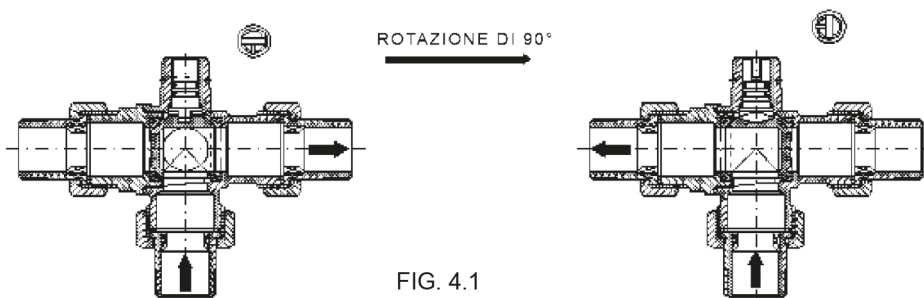
The servo-controls are supplied in the "open" position and can be installed on all the series of ITAP zone valves.



3-way Deviator Valve:

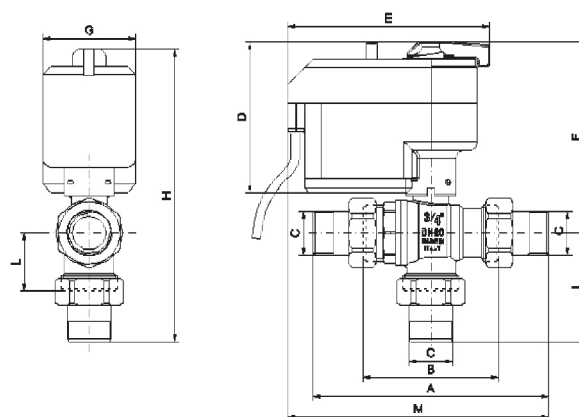
The 3-way deviator valve performs interception and deviation functions. It allows the fluid to enter from below and delivers it to the left or to the right according to the position of the servo control or vice-versa downwards from the right or the left.

Figure 4.1 shows the first case while Figure 4.2 shows the downward passage of the fluid from the right or left. Before mounting the servo control check that the manoeuvre stem is in the correct position.





ACCESSORIES FOR SOLAR HEATING SYSTEMS



	A	B	C	D	E	F	G	H	I	L	M	PRESSURE kg/cm ² - bar	LBS WORKING PRESSURE
3/4"	140	80	3/4"	92	120	114	55	178.5	64.5	34.5	155	16	230
1"	163	94	1"	92	120	118	55	193.5	75.5	41	166.5	16	230

WARNING:

The servo control must never be mounted facing downwards.

When installing in metal boxes it is necessary to leave enough space above the servo control for the unblocking device manoeuvres and for eventual maintenances or replacements.

To limit the overall dimensions, position the interception valves as illustrated in fig. 7.2, 7.3

To install art 986 in boxes it is necessary to correctly line up the pipes with the coplanar manifold to avoid excessive stress between the servo motor and the valve unit.

FIG. 7.1

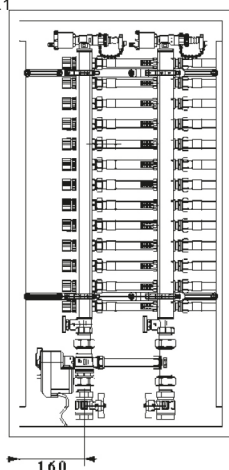


FIG. 7.2

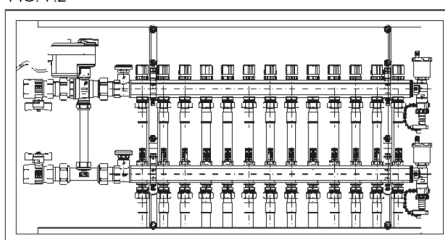
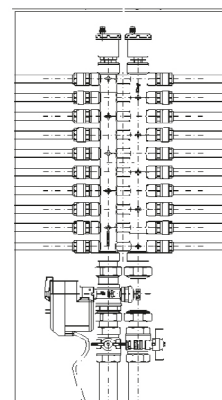


FIG. 7.3

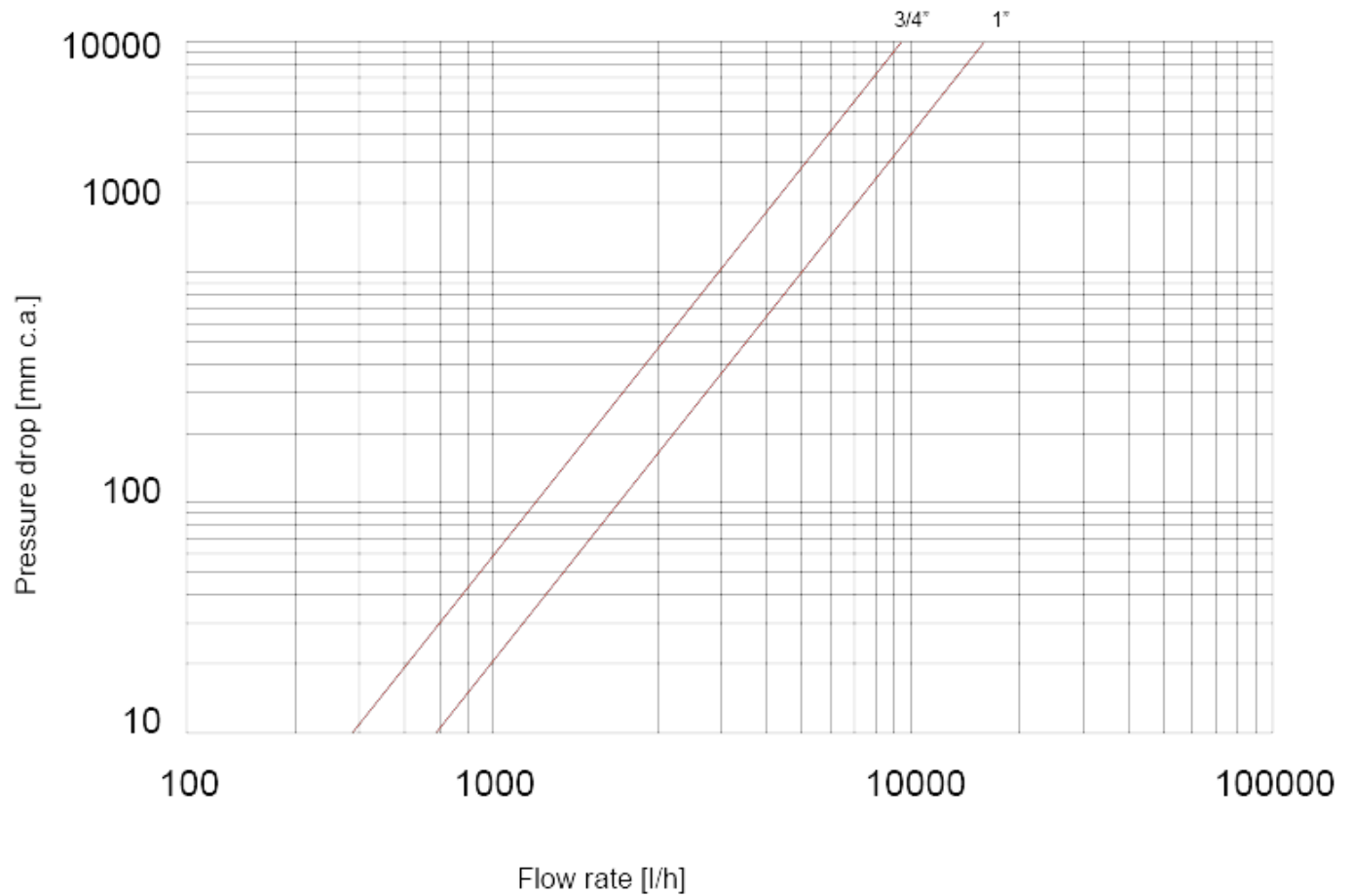




ACCESSORIES FOR SOLAR HEATING SYSTEMS

LOSS DIAGRAM (With water)

	3/4"	1"
KV	9,44	16,07





ACCESSORIES FOR SOLAR HEATING SYSTEMS

990 Electric actuator for zone ball valves



MEASURE	CODE	PACKING
230V x 25sec	99023025	1/17
230V x 50sec	99023050	1/17

CERTIFICATIONS



TECHNICAL SPECIFICATIONS

Bidirectional electric actuators.

Supplied with an auxiliary microswitch.

Case in nylon.

Power supply voltage: 230V.

Power consumption: 4VA.

Minimum and maximum working ambient temperature: -5°C, 70°C.

Class of protection: IP54.

Capacity of the auxiliary connection: 2A.

Operating time: 25 or 50 seconds.

Angle of rotation: 90°.

Starting torque:

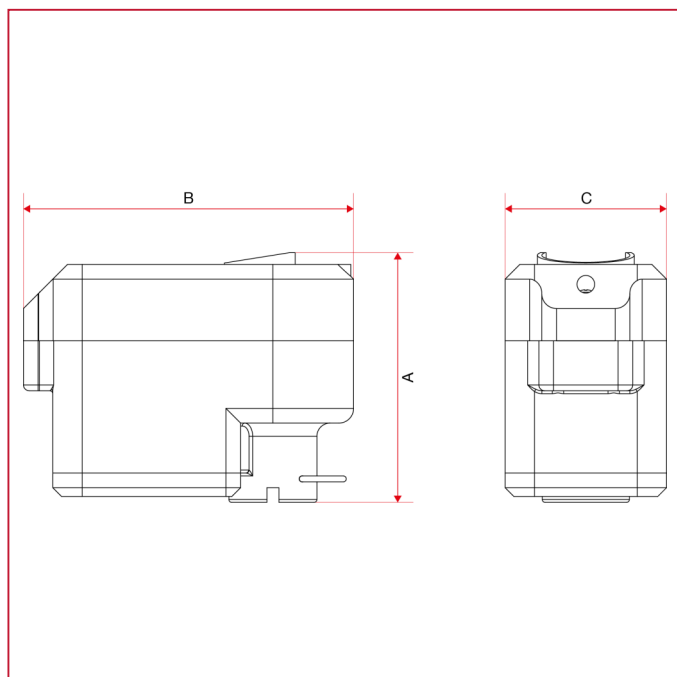
- 50" model: 10Nm;

- 25" model: 5Nm.



ACCESSORIES FOR SOLAR HEATING SYSTEMS

OVERALL DIMENSIONS

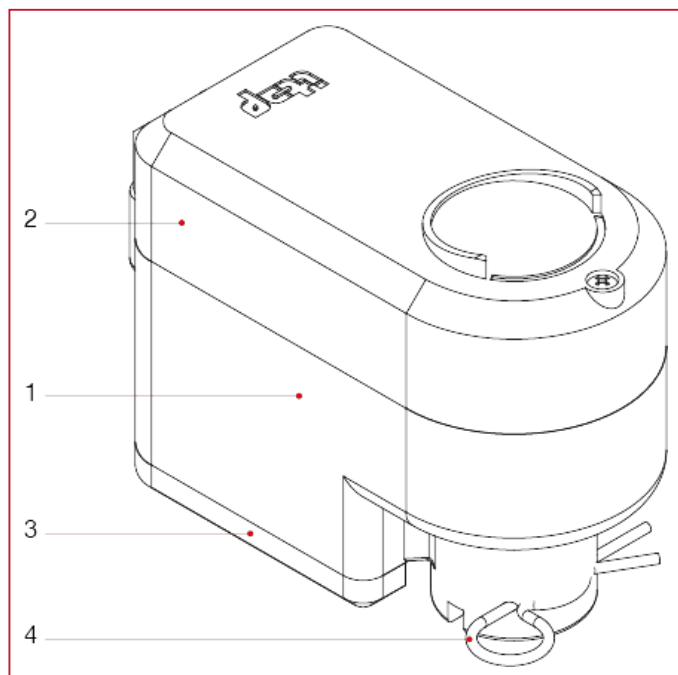


	230V x 25sec	230V x 50sec
A	85	85
B	112,5	112,5
C	55	55



ACCESSORIES FOR SOLAR HEATING SYSTEMS

MATERIALS



POS.	DESCRIPTION	N.	MATERIAL
1	Base	1	Nylon
2	Up cover	1	Makrolon® 2207
3	Down cover	1	Nylon
4	Split pin	1	EN 10270-3



ACCESSORIES FOR SOLAR HEATING SYSTEMS

INSTRUCTIONS

INSTALLATION:

- 1) Line up the manoeuvre stem in the position of the servo-control manoeuvre joint.
- 2) insert the servo-control pushing it in the indicating direction.
- 3) insert the split pin in the hole.
- 4) make sure that the servo-control is correctly assembled.

The servo-control must be installed with the valves completely open.

The servo-controls are supplied in the "open" position and can be installed on all the series of ITAP zone valves.

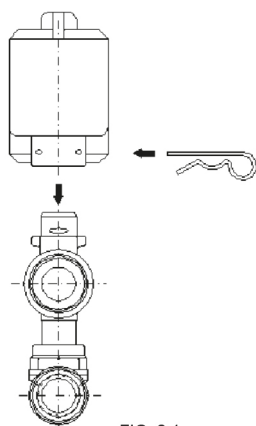
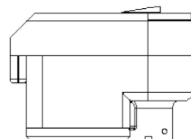
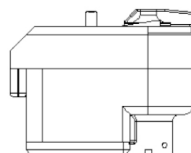


FIG. 2.1



ART. 990 230 25
ART. 990 230 50

FIG. 2.2



ART. 991 230 25
ART. 991 230 50
ART. 991 024 50

FIG. 2.3

WARNING:

The servo control must never be mounted facing downwards.

When installing in metal boxes it is necessary to leave enough space above the servo control for the unblocking device manoeuvres and for eventual maintenances or replacements.

To limit the overall dimensions, position the interception valves as illustrated in fig. 7.2, 7.3

To install art 986 in boxes it is necessary to correctly line up the pipes with the coplanar manifold to avoid excessive stress between the servo motor and the valve unit.

FIG. 7.1

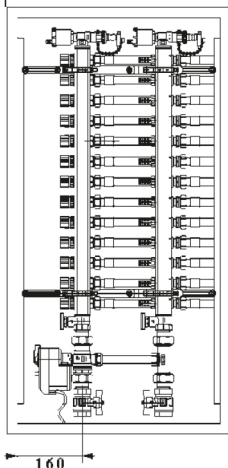


FIG. 7.2

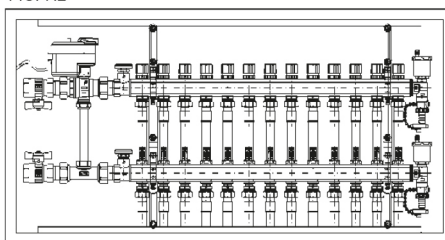
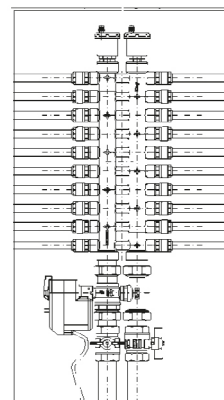


FIG. 7.3



INTERNAL DIAGRAM:

- R relay
- MC1 opening limit microswitch
- MC2 closing limit microswitch
- MC3 auxiliary free microswitch with normally closed and normally open contact

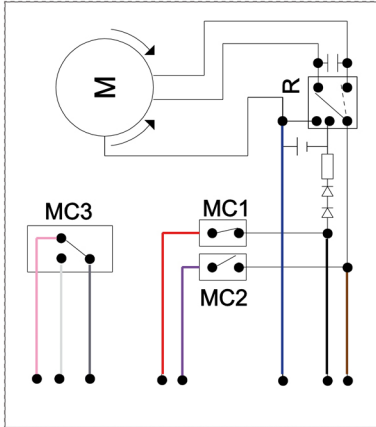
- 1) Brown wire always connected to phase



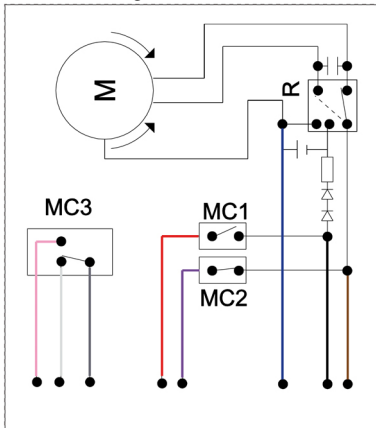
ACCESSORIES FOR SOLAR HEATING SYSTEMS

- 2) Blue wire always connected to neutral
- 3) Black wire for command connection
- 4) Purple wire closed valve phase output
- 5) Red wire open valve phase output
- 6) Grey wire common auxiliary microswitch
- 7) White wire N.C. auxiliary microswitch
- 8) Pink wire N.A. auxiliary microswitch

Valve opening



Valve closing



ENVIRONMENT THERMOSTAT (TA - ET) CONNECTION AND ELECTRICAL POWER SUPPLY DIAGRAM

The thermostat works by means of the zone valve, which opens or closes the distribution circuit of the interested zone based on environment needs.

The Figure illustrates the electrical connection of the actuator with the environment thermostat.



The Figure illustrated the electrical connection of the actuator with the hour counter.

The figure illustrates the connection of different actuators with the environment thermostat, the hour counter and the pump. In this diagram, the pump is fed by the phase available on the red wire. The special flexibility of the internal actuator wiring model allows you to have different plant solutions.





ACCESSORIES FOR SOLAR HEATING SYSTEMS

991 Electric actuator for zone ball valves with manual unlocking device



MEASURE	CODE	PACKING
230V x 25sec	99123025	1/17
230V x 50sec	99123050	1/17
24V x 50sec	99102450	1/17

CERTIFICATIONS



TECHNICAL SPECIFICATIONS

Bidirectional electric actuators.

Supplied with an auxiliary microswitch.

Case in nylon.

Power supply voltage: 230V or 24V.

Power consumption: 4VA.

Minimum and maximum working ambient temperature: -5°C, 70°C.

Class of protection: IP54.

Capacity of the auxiliary connection: 2A.

Operating time: 25 or 50 seconds.

Angle of rotation: 90°.

Starting torque:

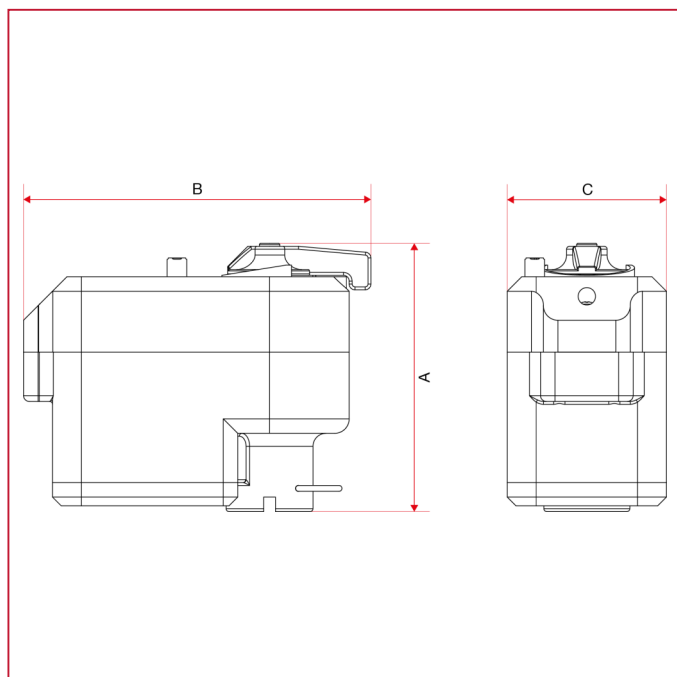
- 50" model: 10Nm;

- 25" model: 5Nm.



ACCESSORIES FOR SOLAR HEATING SYSTEMS

OVERALL DIMENSIONS

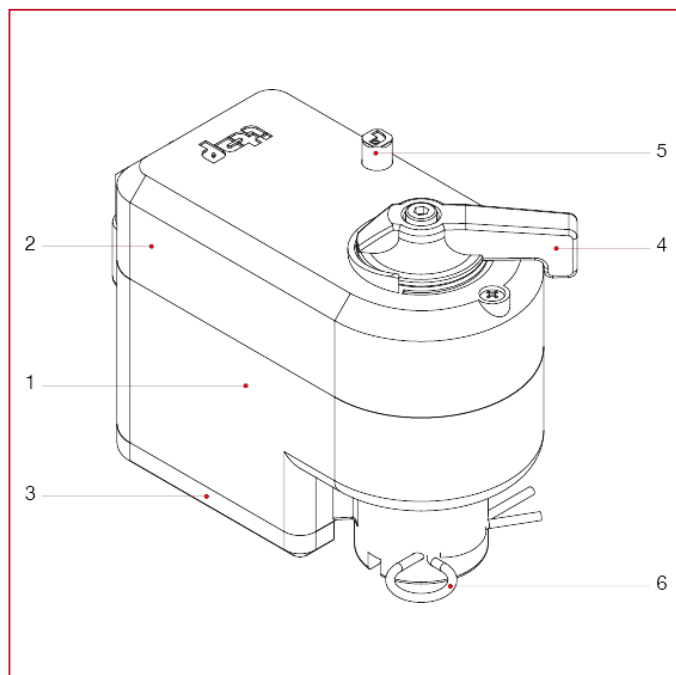


	230V x 25sec	230V x 50sec	24V x 50sec
A	92,5	92,5	92,5
B	120	120	120
C	55	55	55



ACCESSORIES FOR SOLAR HEATING SYSTEMS

MATERIALS



POS.	DESCRIPTION	N.	MATERIAL
1	Base	1	Nylon
2	Up cover	1	Makrolon® 2207
3	Down cover	1	Nylon
4	Handle	1	ABS
5	Unlocking	1	ABS
6	Split pin	1	EN 10270-3



ACCESSORIES FOR SOLAR HEATING SYSTEMS

INSTRUCTIONS

INSTALLATION:

- 1) Line up the manoeuvre stem in the position of the servo-control manoeuvre joint.
- 2) insert the servo-control pushing it in the indicating direction.
- 3) insert the split pin in the hole.
- 4) make sure that the servo-control is correctly assembled.

The servo-control must be installed with the valves completely open.

The servo-controls are supplied in the "open" position and can be installed on all the series of ITAP zone valves.

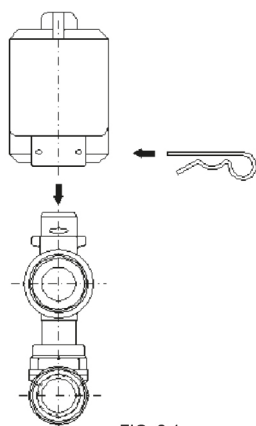
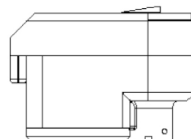
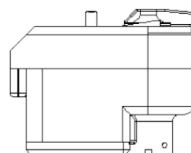


FIG. 2.1



ART. 990 230 25
ART. 990 230 50

FIG. 2.2



ART. 991 230 25
ART. 991 230 50
ART. 991 024 50

FIG. 2.3

WARNING:

The servo control must never be mounted facing downwards.

When installing in metal boxes it is necessary to leave enough space above the servo control for the unblocking device manoeuvres and for eventual maintenances or replacements.

To limit the overall dimensions, position the interception valves as illustrated in fig. 7.2, 7.3

To install art 986 in boxes it is necessary to correctly line up the pipes with the coplanar manifold to avoid excessive stress between the servo motor and the valve unit.

FIG. 7.1

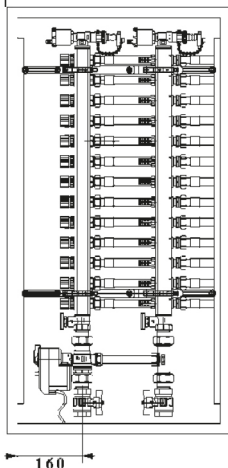


FIG. 7.2

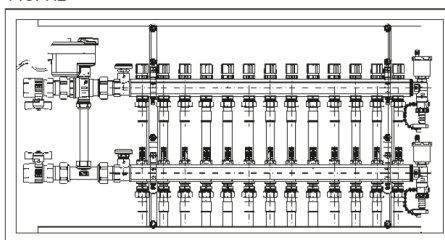
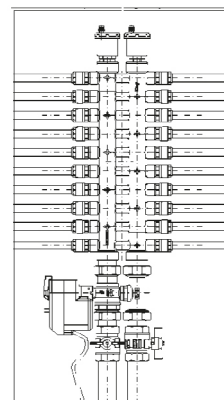


FIG. 7.3



INTERNAL DIAGRAM:

- R relay
- MC1 opening limit microswitch
- MC2 closing limit microswitch
- MC3 auxiliary free microswitch with normally closed and normally open contact

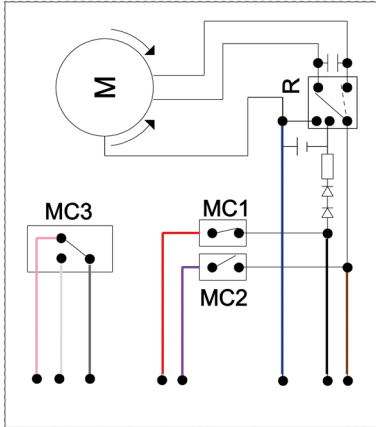
- 1) Brown wire always connected to phase



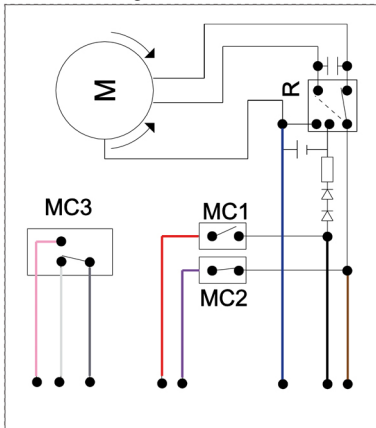
ACCESSORIES FOR SOLAR HEATING SYSTEMS

- 2) Blue wire always connected to neutral
- 3) Black wire for command connection
- 4) Purple wire closed valve phase output
- 5) Red wire open valve phase output
- 6) Grey wire common auxiliary microswitch
- 7) White wire N.C. auxiliary microswitch
- 8) Pink wire N.A. auxiliary microswitch

Valve opening



Valve closing



ENVIRONMENT THERMOSTAT (TA - ET) CONNECTION AND ELECTRICAL POWER SUPPLY DIAGRAM

The thermostat works by means of the zone valve, which opens or closes the distribution circuit of the interested zone based on environment needs.

The Figure illustrates the electrical connection of the actuator with the environment thermostat.





ITAP S.p.A.
Via Ruca 19
25065 Lumezzane
Brescia (ITALY)
Tel 030 8927011
Fax 030 8921990
www.itap.it - info@itap.it

We reserve the right to make improvements and changes to the products described herein and to the relative technical data, at any time and without forewarning.

rev. 20250402