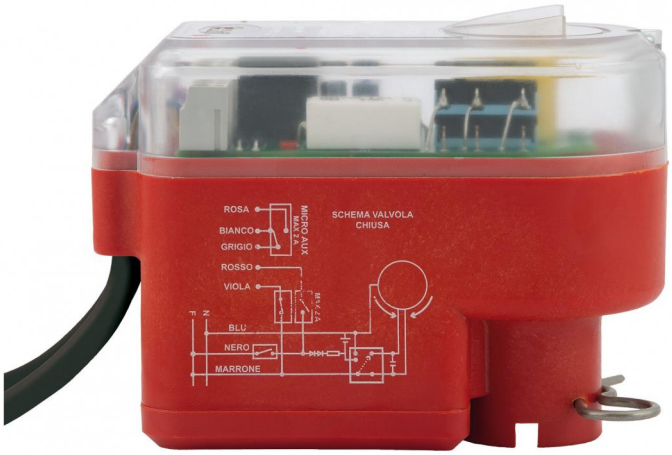
TECHNICAL CATALOGUE

ELECTRIC ACTUATORS AND ZONE BALL VALVES



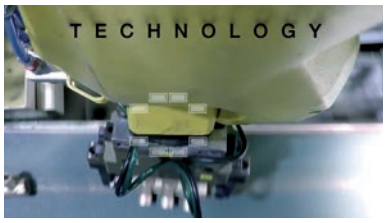
ITAP AT A GLANCE

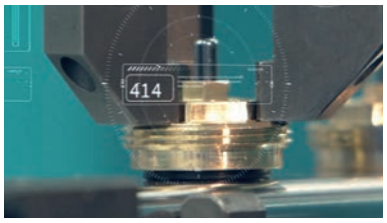
THE COMPANY

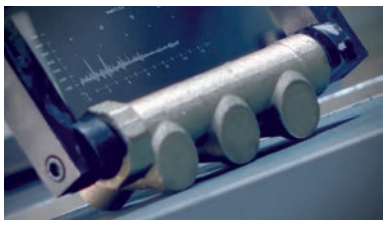
ITAP SpA, founded in Lumezzane (Brescia) in 1972, is currently one of the leading production companies in Italy of **valves, fittings and distribution manifolds** for plumbing and heating systems.

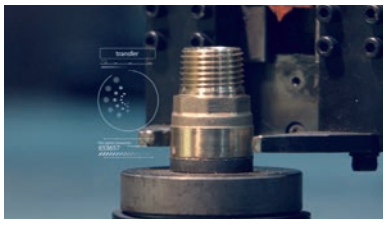
Thanks to a fully automated production process, with 85 transfer machines and 55 assembly lines, it is capable of producing 400,000 pieces per day.

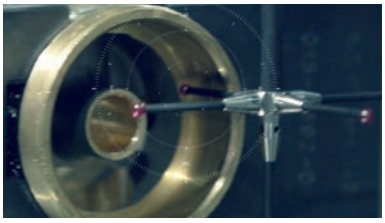
Our innate pursuit for innovation and observance of technical regulations is supported by the company certification ISO 9001. The company has always considered its focus on quality as the main tool to obtain significant business results: today ITAP SpA is proud to offer products bearing the approval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











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

990 Electric actuator for zone ball valves

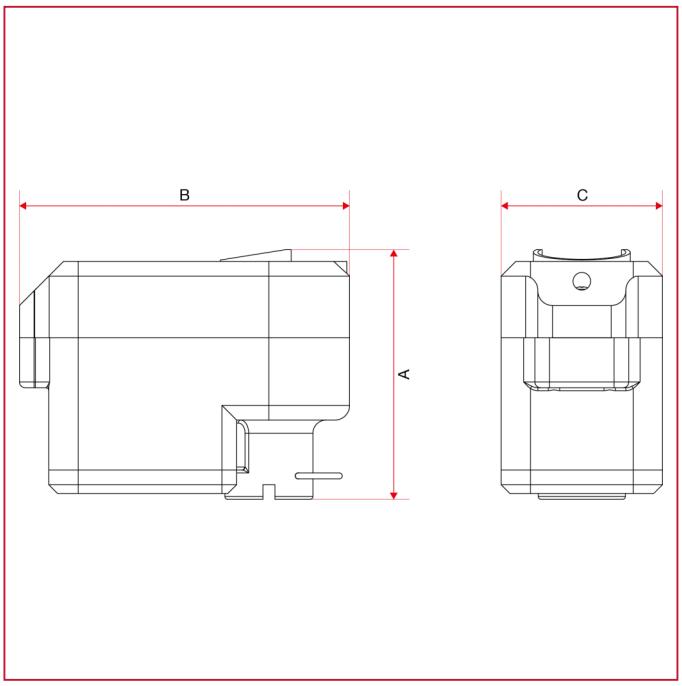
MEASURE	CODE	PACKING
230V x 25sec	99023025	1/17
230V x 50sec	99023050	1/17

CERTIFICATIONS

TECHNICAL SPECIFICATIONS

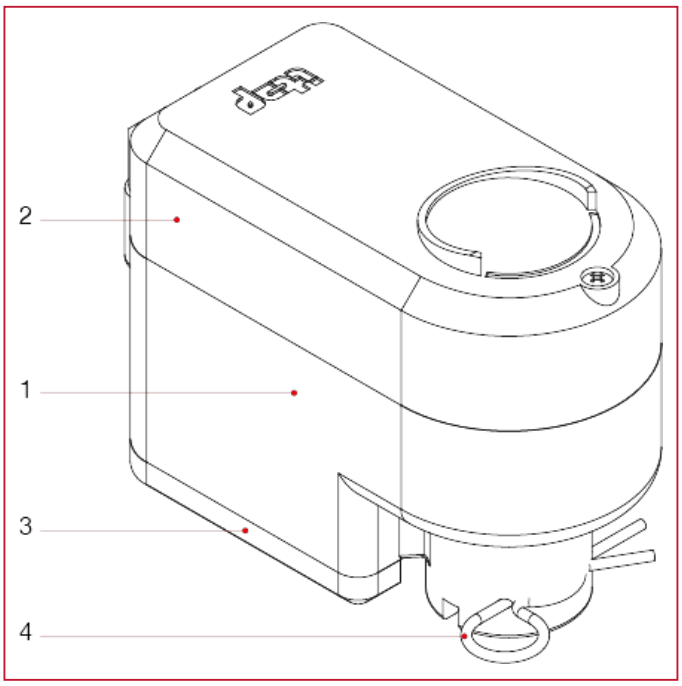
Bidirectional electric actuators.
Supplied with an auxiliary microswitch.
Case in nylon.
Power supply voltage: 230V.
Power consumption: 4VA.
Minimum and maximum working ambient temperature: -5°C, 70°C.
Class of protection: IP54.
Capacity of the auxiliary connection: 2A.
Operating time: 25 or 50 seconds.
Angle of rotation: 90°.
Starting torque:
- 50” model: 10Nm;
- 25” model: 5Nm.

OVERALL DIMENSIONS



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

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

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.

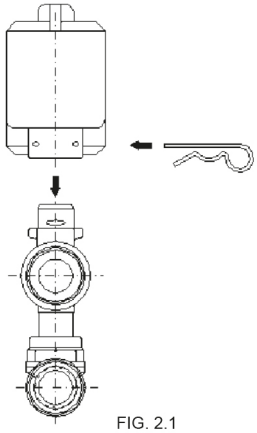
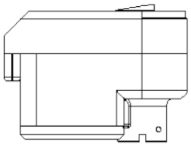
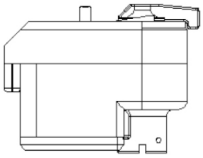


FIG. 2.1



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

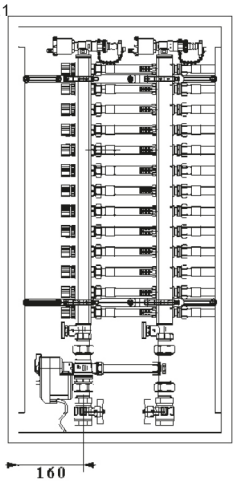
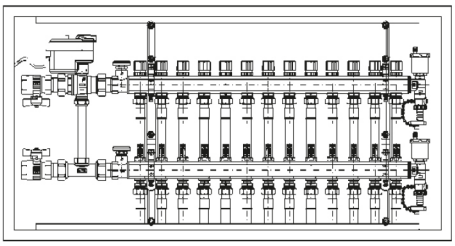


FIG. 7.2



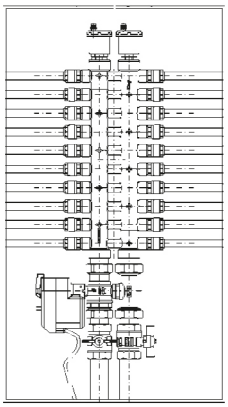


FIG. 7.3

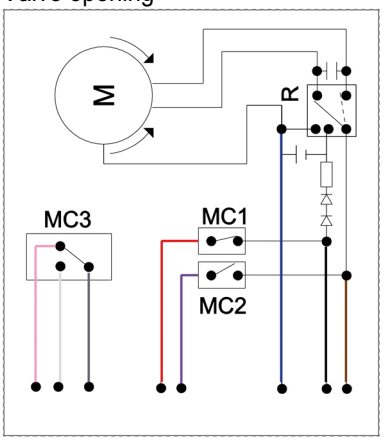
INTERNAL DIAGRAM:

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

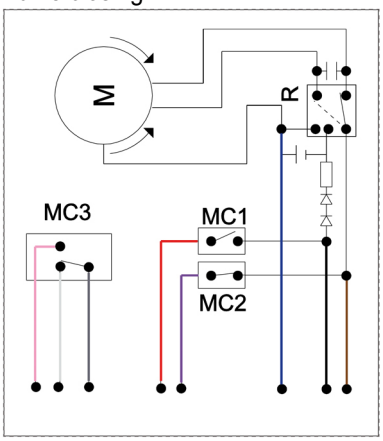
1) Brown wire always connected to phase

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

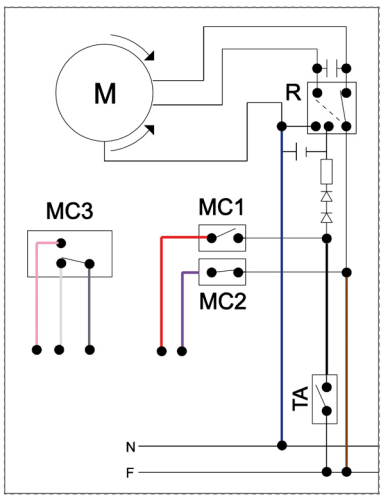
Valve opening



Valve closing



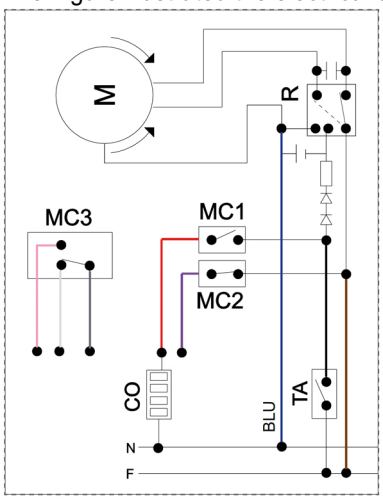
ENVIRONMENT THERMOSTAT (TA - ET) CONNECTION AND ELECTRICAL POWER SUPPLY DIAGRAM
The thermostat works by means of the zone valve, which opens or closes the distribution circuit of the interested zone based on environment needs.
The Figure illustrates the electrical connection of the actuator with the environment thermostat.



HOUR COUNTER (CO - HC) ENVIRONMENT THERMOSTAT (TA - ET) AND ELECTRICAL POWER CONNECTION DIAGRAM

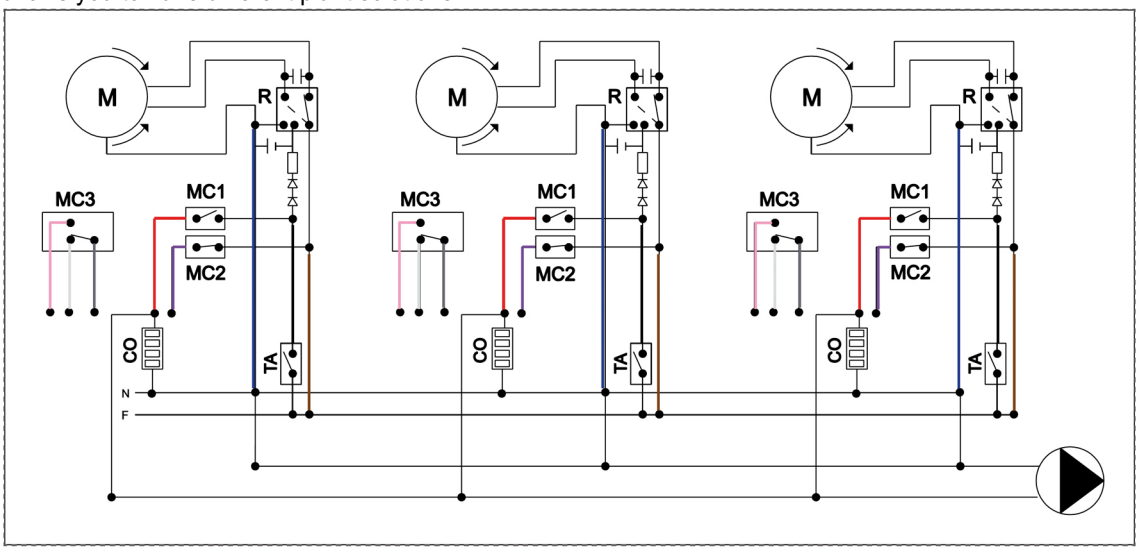
The count is carried out by means of an hour counter, totalling the valve opening times.

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



PUMP MANAGEMENT DIAGRAM

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.



991 Electric actuator for zone ball valves with manual unlocking device

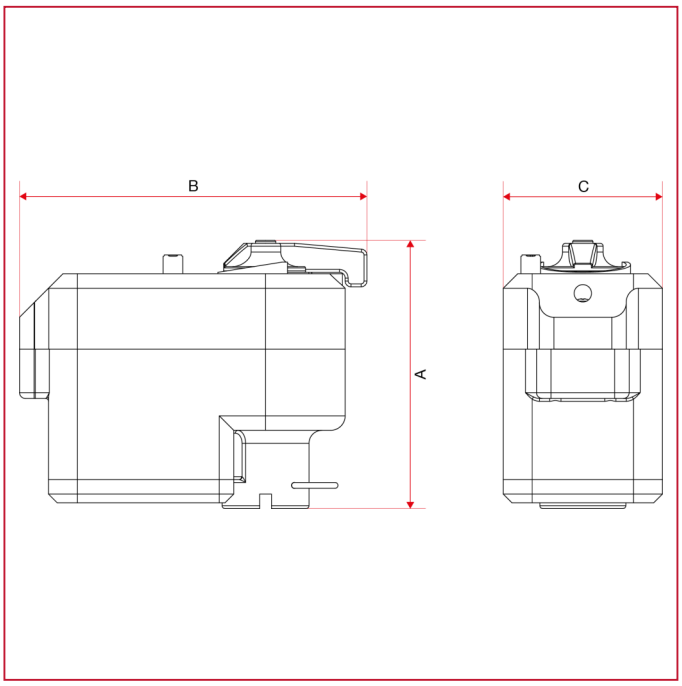
MEASURE	CODE	PACKING
230V x 25sec	99123025	1/17
230V x 50sec	99123050	1/17
24V x 50sec	99102450	1/17

CERTIFICATIONS

TECHNICAL SPECIFICATIONS

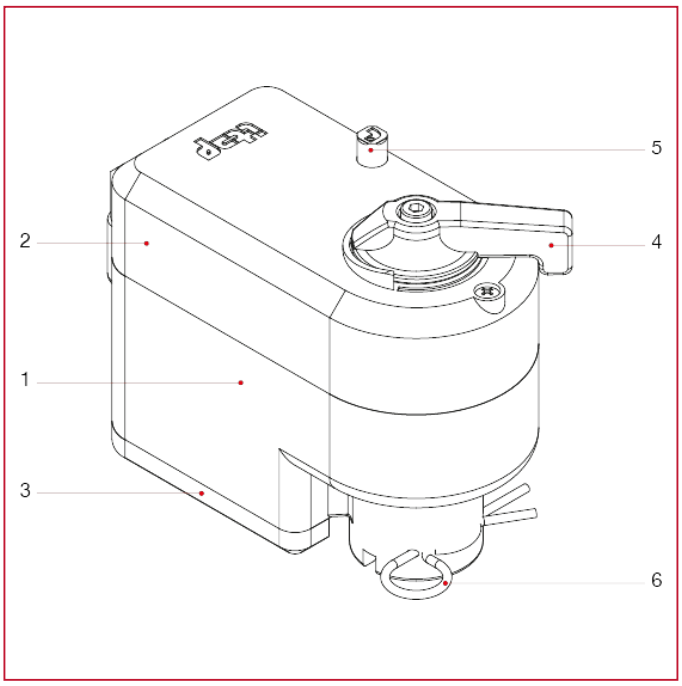
Bidirectional electric actuators.
Supplied with an auxiliary microswitch.
Case in nylon.
Power supply voltage: 230V or 24V.
Power consumption: 4VA.
Minimum and maximum working ambient temperature: -5°C, 70°C.
Class of protection: IP54.
Capacity of the auxiliary connection: 2A.
Operating time: 25 or 50 seconds.
Angle of rotation: 90°.
Starting torque:
- 50” model: 10Nm;
- 25” model: 5Nm.

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

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

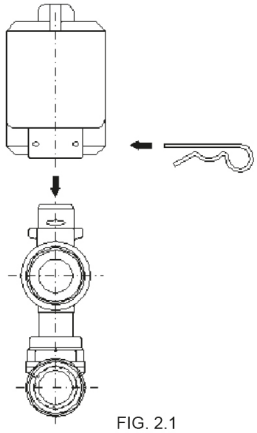
INSTRUCTIONS

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.



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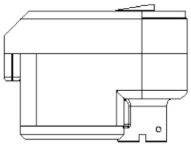

ART. 990 230 25
ART. 990 230 50

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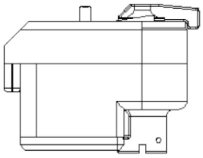

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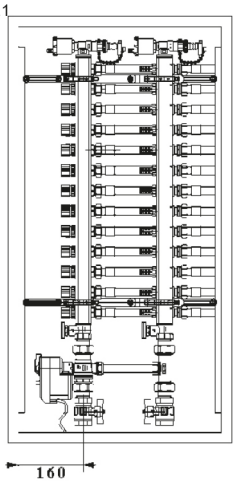

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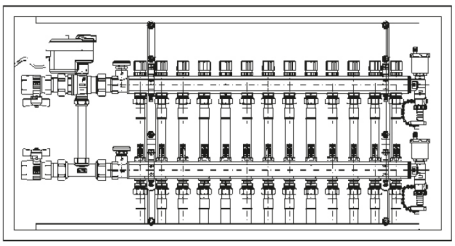

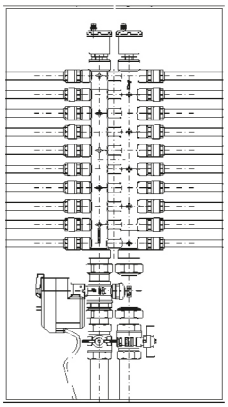

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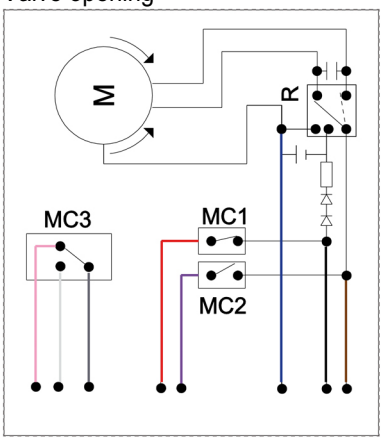
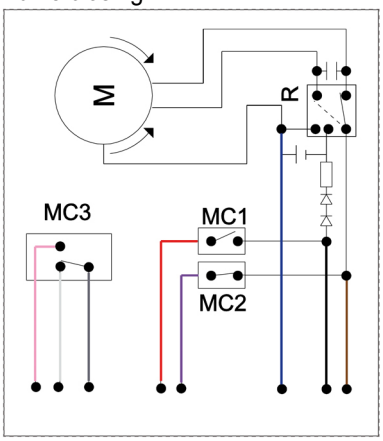
Valve opening



Valve closing



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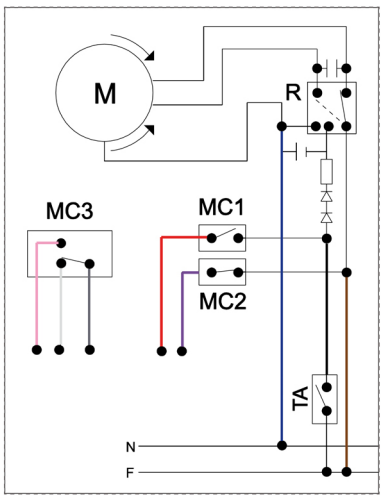

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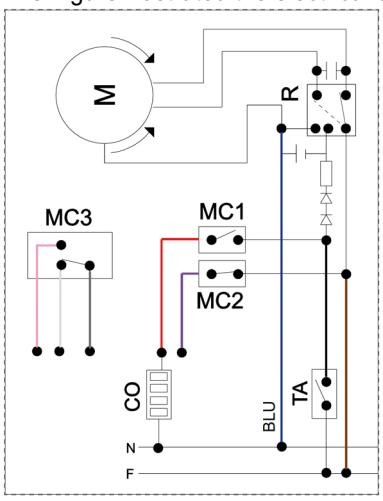

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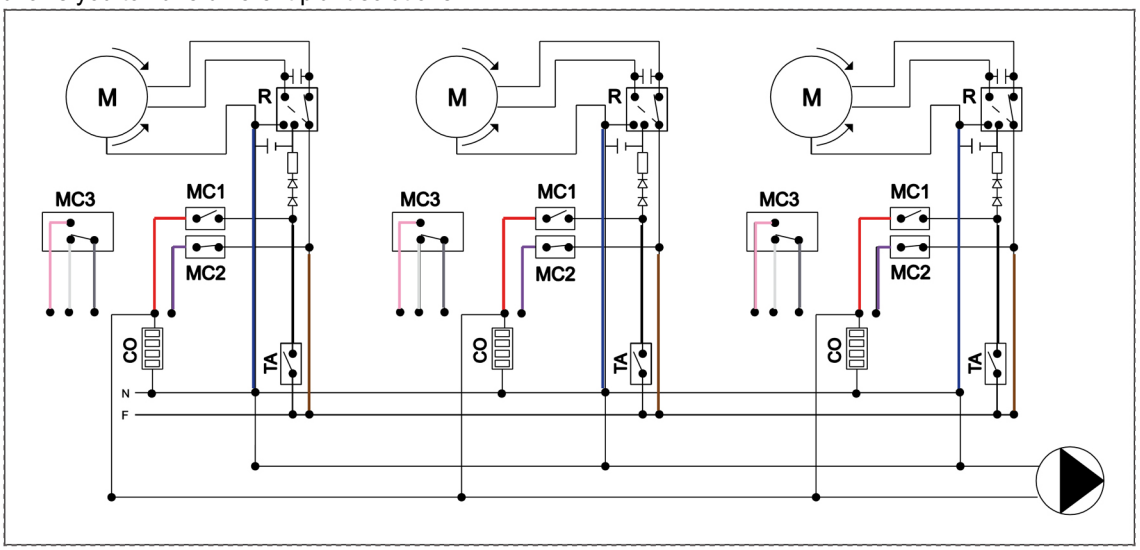


989 Electric actuator for zone ball valves

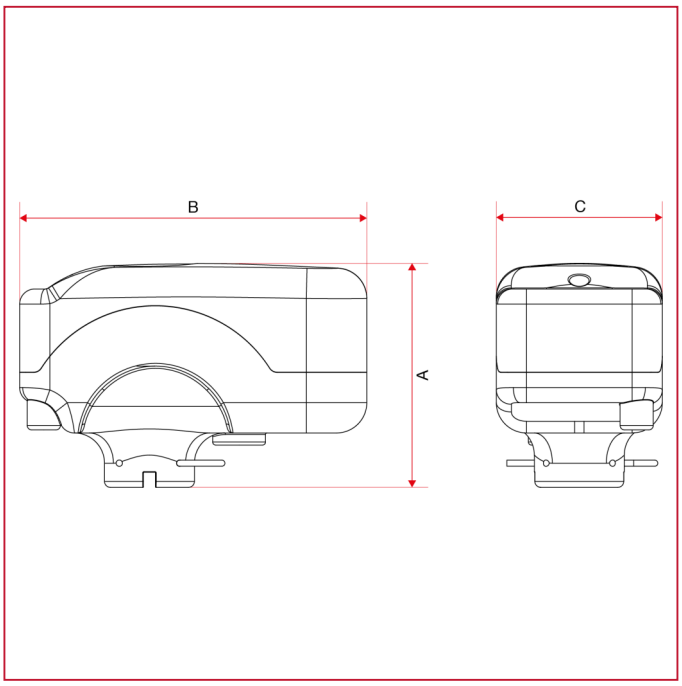
MEASURE	CODE	PACKING
230V x 90sec	98923090	1/17

CERTIFICATIONS

TECHNICAL SPECIFICATIONS

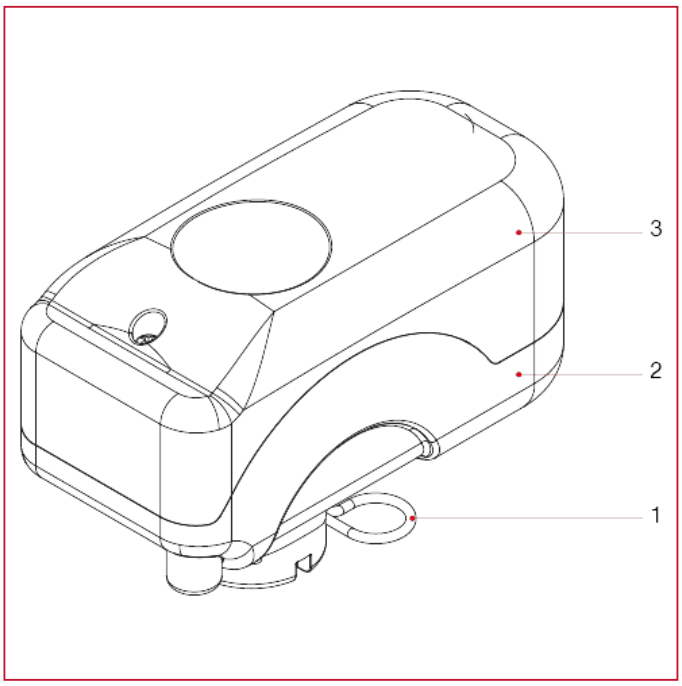
Unidirectional electric actuators.
Case in Kelon® (Keramic + Nylon).
Power supply voltage: 230V.
Power consumption: 4VA.
Minimum and maximum working ambient temperature: 0°C, 55°C.
Class of protection: IP44.
Operating time: 90 seconds.
Angle of rotation: 90°.
Starting torque: 10Nm.
Suitable for 2-way zone ball valves art.980 and 981.

OVERALL DIMENSIONS



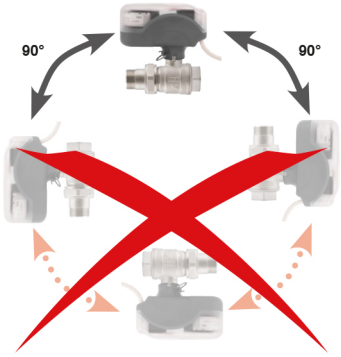
	230V x 90sec
A	74
B	115
C	55

MATERIALS



POS.	DESCRIPTION	N.	MATERIAL
1	Split pin	1	EN 10270-3
2	Base	1	Kelon®
3	Cover	1	Makrolon® 2207

ACTUATOR MANUAL



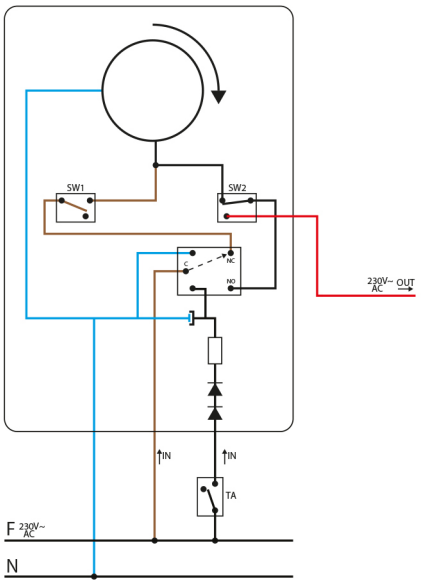
NOT ALLOWED.

ELECTRICAL SAFETY NOTE:
- Check the connections before energizing the power supply.
- Local accident prevention regulations should be adhered when installing the actuator.
- The motor moves about slightly while it is working so it is important to use flexible leads for the electrical connections.
ATTENTION: opening the cover compromises the product guarantee.

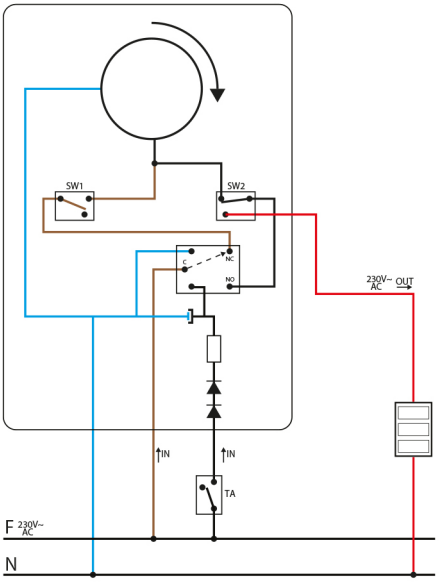
OPERATING FEATURES:
Starting torque: 10Nm
Operating time: 90 sec
Power supply: 230V
Frequency: 50Hz÷60Hz
Control signals: on-off
Angle working range: 90°
Degree of protection: IP 44
Ambient temp. Range: -20°C - 70°C
Working temperature: -5° - 50°C
Maintenance: Free
Standards: CE standard

ATTENTION. Please read these instruction carefully before installing the actuator and retain safety for reference.
INSTALLATION. Put the actuator on the valve paying attention that the valve is on the opening position, like the actuators standards, lock with the safety pin.
ELECTRICAL CONNECTIONS. Electrical connections are wired with a quadrupole cable, the extremities are linked on the apposit terminal board, in the following way:
- Brown cable: phase
- Black cable linked to phase: open valve
- Black cable not linked to phase: close valve
- Blue cable: neutral
- Red cable: phase exit open valve

SCHEMA VALVOLA CHIUSA - STANDARD
CLOSED VALVE CHART - STANDARD



SCHEMA VALVOLA CHIUSA - CON CONTATORE
CLOSED VALVE CHART - WITH METER



980 2-way zone ball valve

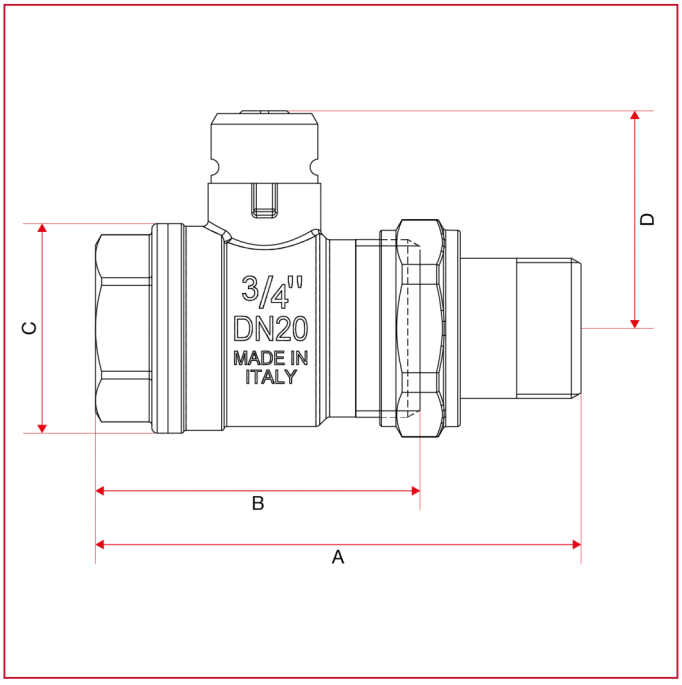
MEASURE	PRESSURE	CODE	PACKING
3/4" (DN 20)	16bar/232psi	9800034	1/26
1" (DN 25)	16bar/232psi	9800100	1/26
1"1/4 (DN 32)	16bar/232psi	9800114	1/14

CERTIFICATIONS

TECHNICAL SPECIFICATIONS

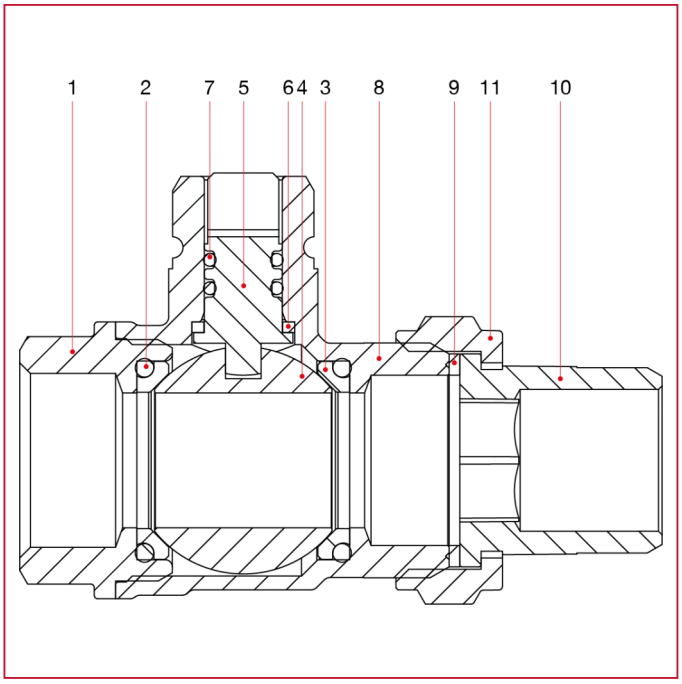
Body in nickel-plated brass.
Full flow ball.
Maximum working pressure: 16 bar.
Maximum differential pressure: 10bar.
Minimum and maximum working temperatures: -10°C (with antifreeze solution), 100°C.
Threads: ISO 228 (equivalent to DIN EN ISO 228 and BS EN ISO 228).
Suitable for the electric actuators art. 989, 990 and 991.

OVERALL DIMENSIONS



	3/4"	1"	1"1/4
DN	20	25	32
A	90,5	103	116,5
B	60,5	68,5	78
C	40,5	44,5	49,5
D	39	47,5	58
Kg/cm2 bar	16	16	16
LBS - psi	232	232	232

MATERIALS



POS.	DESCRIPTION	N.	MATERIAL
1	End adapter	1	Nickel-plated brass CW617N
2	O-ring	2	EPDM
3	Seal	2	P.T.F.E.
4	Ball	1	Brass CW617N
5	Stem	1	Brass CW614N
6	Ring	1	P.T.F.E.
7	O-ring	2	EPDM
8	Body	1	Nickel-plated brass CW617N
9	Washer	1	FASIT OMNIA
10	Union	1	Nickel-plated brass CW617N
11	Nut	1	Nickel-plated brass CW617N

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.

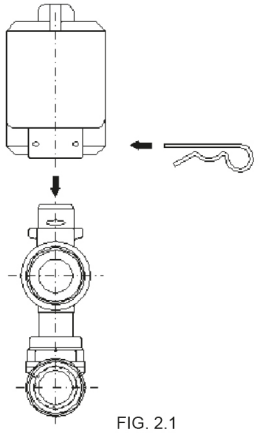
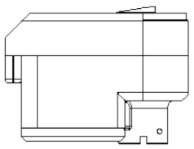
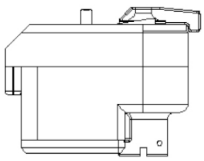


FIG. 2.1



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

2-Way Zone Valve:

The servo control operates on the valve with a 90° rotation passing from the open position to the closed position. Figure 3.1 shows the two-way valve in the “open” position. Figure 3.2 shows the valve in a “closed” position. The screwdriver cut corresponds to the open position of the valve. To avoid increases in differential pressure in the systems using 2-way zone valves, it is recommended to fit a bypass between the output and input or to use pumps with variable speeds.

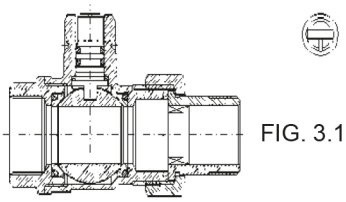


FIG. 3.1

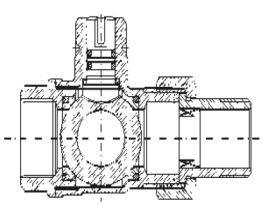
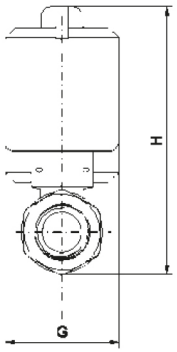
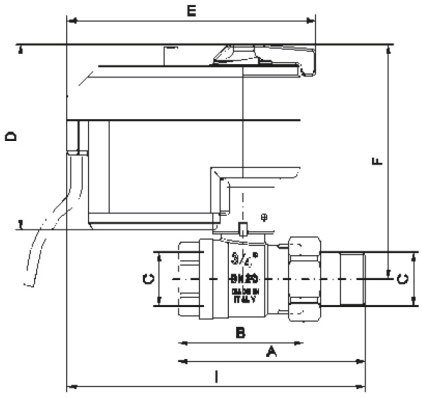


FIG. 3.2





	A	B	C	D	E	F	G	H	I	PRESSURE kg/cm^2 - bar	LBS WORKING PRESSURE
3/4”	90.5	60.5	3/4”	92	120	114	55	134.5	144	16	230
1”	103	68.5	1”	92	120	118	55	143	152	16	230
1”1/4	116.5	78	1”1/4	92	120	123	55	152	160.5	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

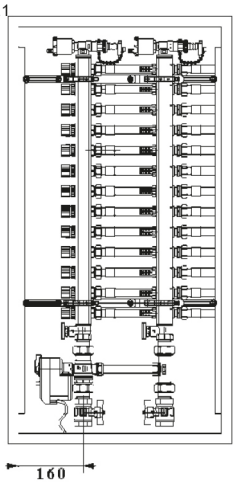


FIG. 7.2

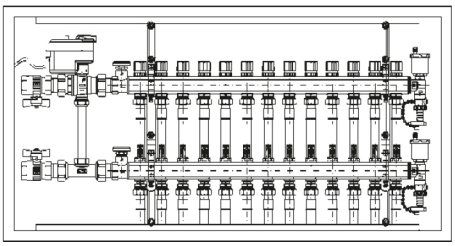
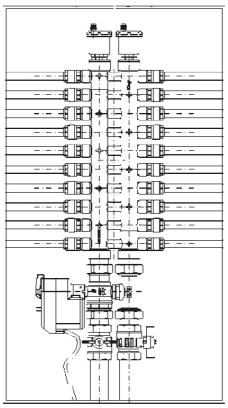


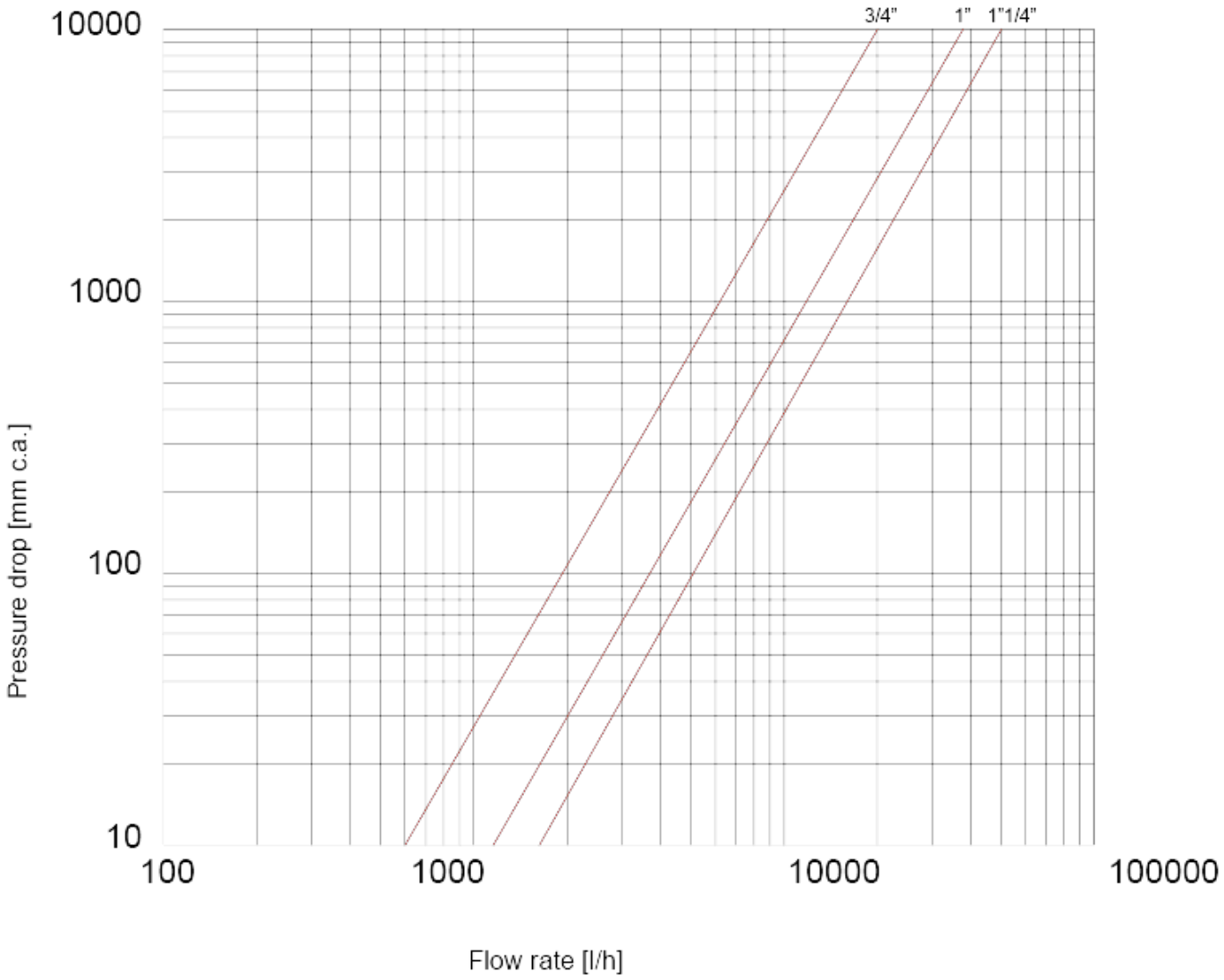
FIG. 7.3



Maximum tightening torques:
3/4" = 90 Nm
1" = 130 Nm
1"1/4 = 160 Nm

LOSS DIAGRAM (With water)

	3/4"	1"	1"1/4
KV	20,20	37,30	51,50



981 2-way zone ball valve with double union connection

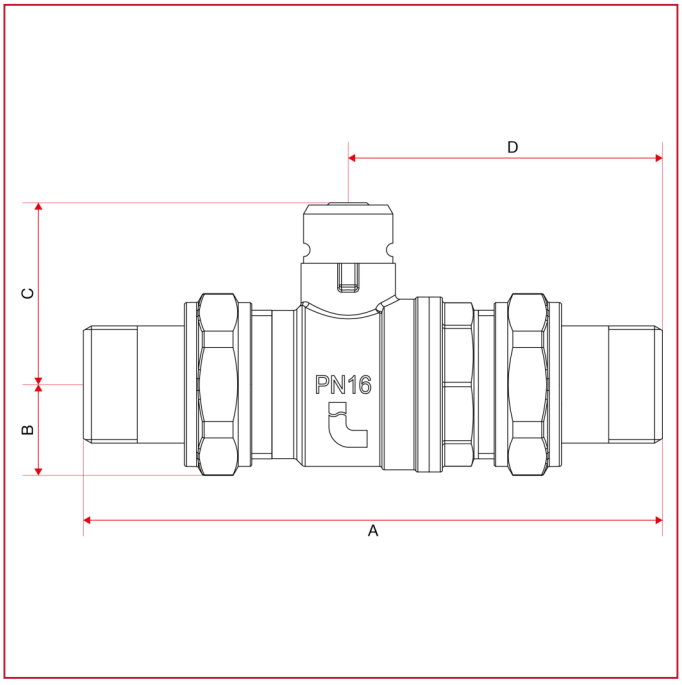
MEASURE	PRESSURE	CODE	PACKING
3/4" (DN 20)	16bar/232psi	9810034	1/26
1" (DN 25)	16bar/232psi	9810100	1/26
1"1/4 (DN 32)	16bar/232psi	9810114	1/12

CERTIFICATIONS

TECHNICAL SPECIFICATIONS

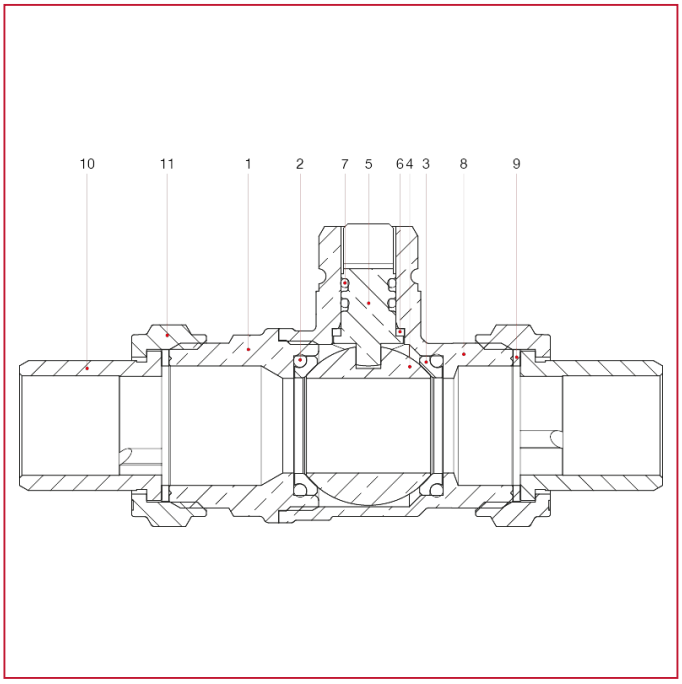
Body in nickel-plated brass.
Full flow ball.
Maximum working pressure: 16 bar.
Maximum differential pressure: 10bar.
Minimum and maximum working temperatures: -10°C (with antifreeze solution), 100°C.
Threads: ISO 228 (equivalent to DIN EN ISO 228 and BS EN ISO 228).
Suitable for the electric actuators art. 989, 990 and 991.

OVERALL DIMENSIONS



	3/4"	1"	1"1/4
DN	20	25	32
A	129	148,5	163
B	20,25	24,5	27,5
C	40,5	44,5	49,5
D	70	81,5	87,5
Kg/cm2 bar	16	16	16
LBS - psi	232	232	232

MATERIALS



POS.	DESCRIPTION	N.	MATERIAL
1	End adapter	1	Nickel-plated brass CW617N
2	O-ring	2	EPDM
3	Seal	2	P.T.F.E.
4	Ball	1	Brass CW617N
5	Stem	1	Brass CW614N
6	Ring	1	P.T.F.E.
7	O-ring	2	EPDM
8	Body	1	Nickel-plated brass CW617N
9	Washer	2	FASIT OMNIA
10	Union	2	Nickel-plated brass CW617N
11	Nut	2	Nickel-plated brass CW617N

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.

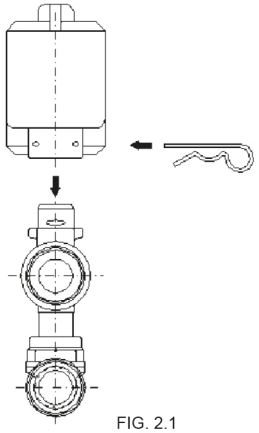
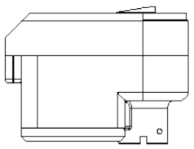
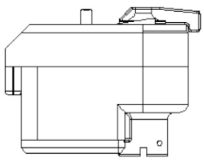


FIG. 2.1



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

2-Way Zone Valve:

The servo control operates on the valve with a 90° rotation passing from the open position to the closed position. Figure 3.1 shows the two-way valve in the “open” position. Figure 3.2 shows the valve in a “closed” position. The screwdriver cut corresponds to the open position of the valve. To avoid increases in differential pressure in the systems using 2-way zone valves, it is recommended to fit a bypass between the output and input or to use pumps with variable speeds.

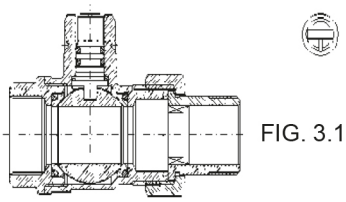


FIG. 3.1

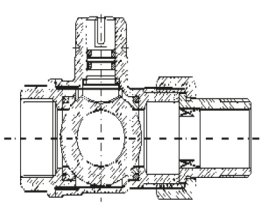
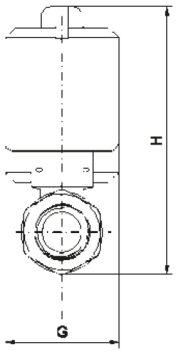
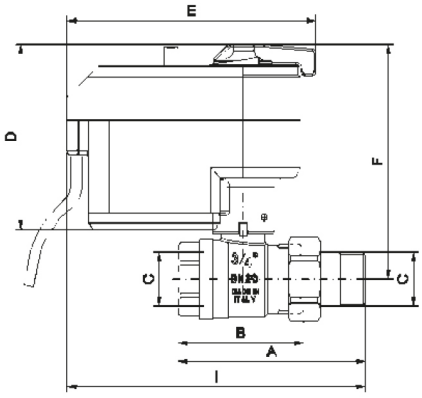


FIG. 3.2





	A	B	C	D	E	F	G	H	I	PRESSURE kg/cm^2 - bar	LBS WORKING PRESSURE
3/4”	90.5	60.5	3/4”	92	120	114	55	134.5	144	16	230
1”	103	68.5	1”	92	120	118	55	143	152	16	230
1”1/4	116.5	78	1”1/4	92	120	123	55	152	160.5	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

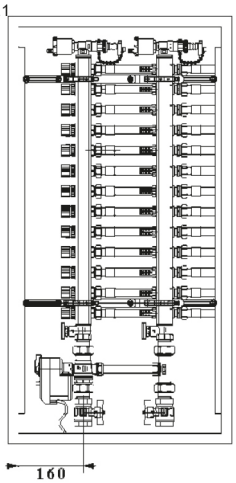


FIG. 7.2

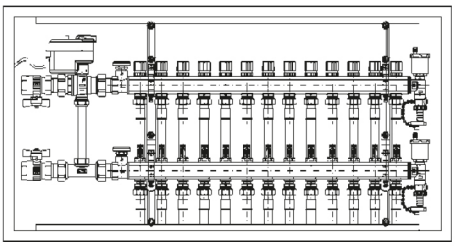
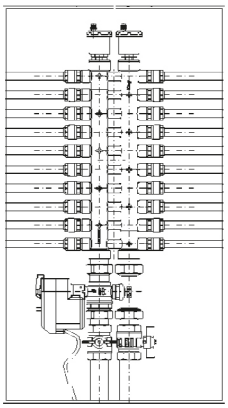


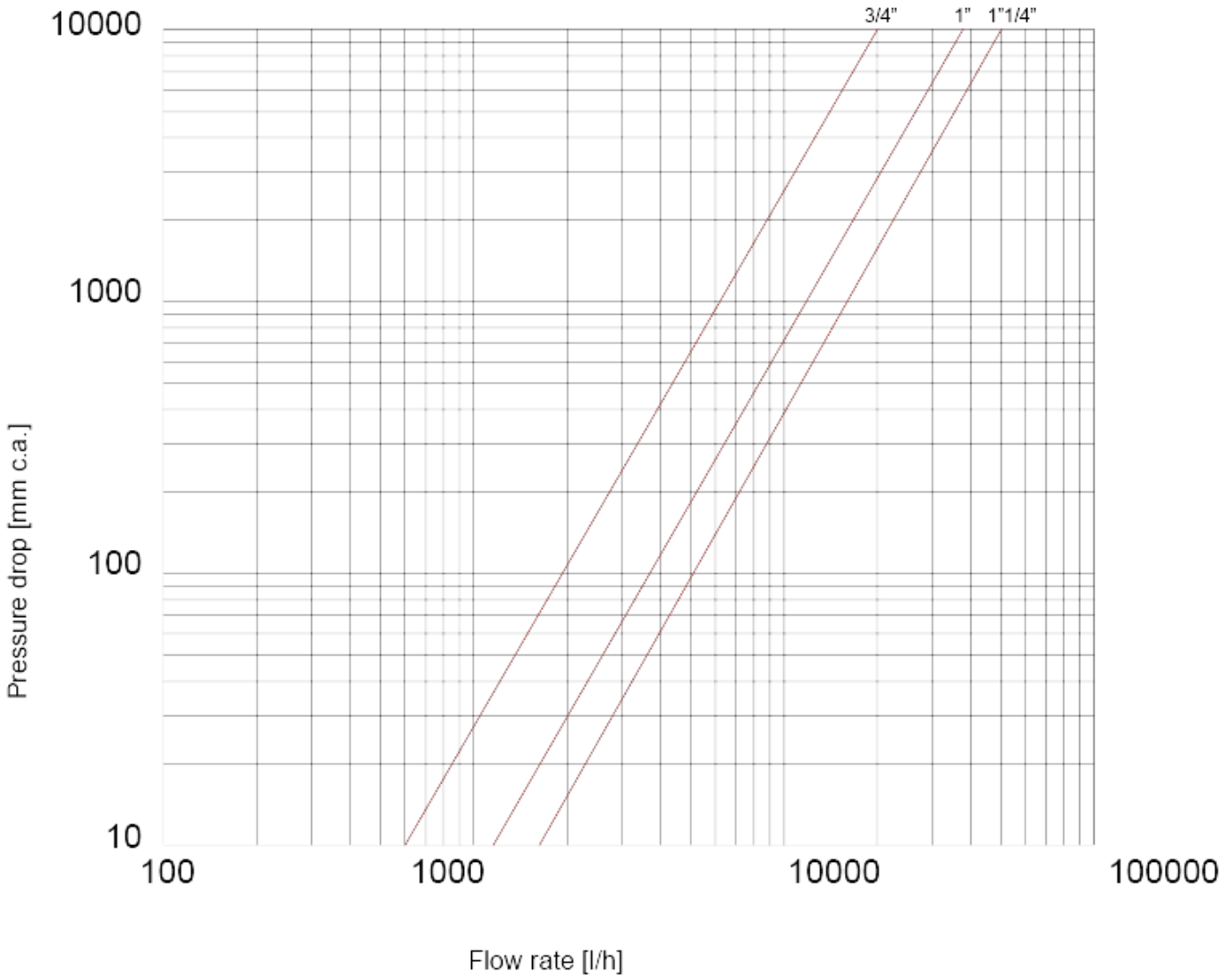
FIG. 7.3



Maximum tightening torques:
3/4" = 90 Nm
1" = 130 Nm
1"1/4 = 160 Nm

LOSS DIAGRAM (With water)

	3/4"	1"	1"1/4
KV	20,20	37,30	51,50



982 3-way diverter zone ball valve

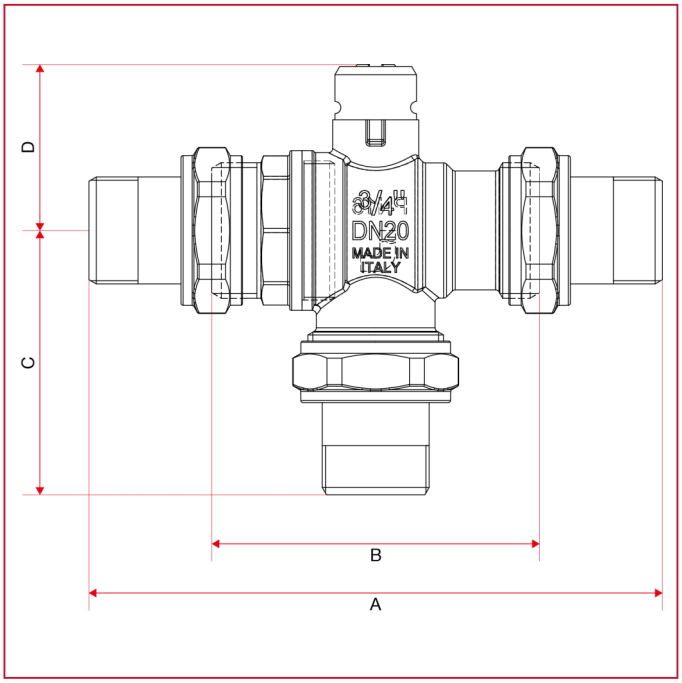
MEASURE	PRESSURE	CODE	PACKING
3/4" (DN 20)	16bar/232psi	9820034	1/14
1" (DN 25)	16bar/232psi	9820100	1/9

CERTIFICATIONS

TECHNICAL SPECIFICATIONS

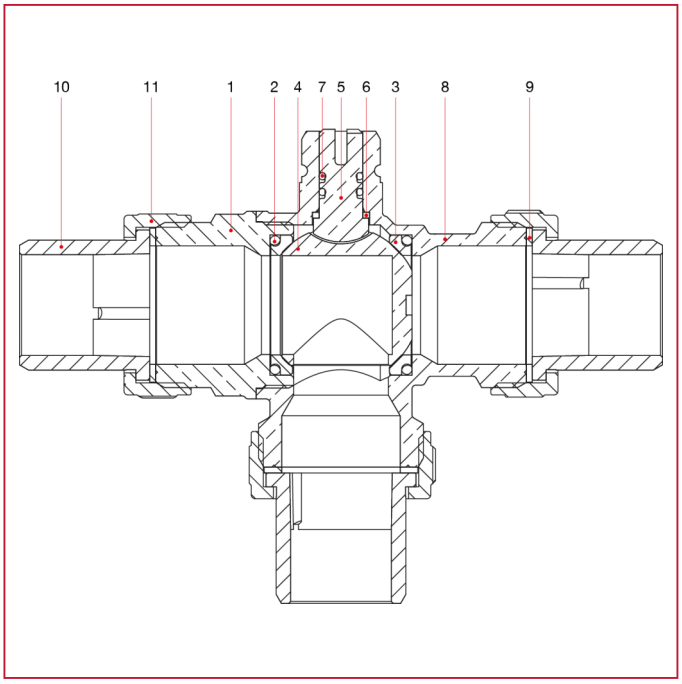
Body in nickel-plated brass.
Full flow ball.
Maximum working pressure: 16 bar.
Maximum differential pressure: 10bar.
Minimum and maximum working temperatures: -10°C (with antifreeze solution), 100°C.
Threads: ISO 228 (equivalent to DIN EN ISO 228 and BS EN ISO 228).
Suitable for the electric actuators art. 990 and 991.

OVERALL DIMENSIONS



	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	End adapter	1	Nickel-plated brass CW617N
2	O-ring	2	EPDM
3	Seal	2	P.T.F.E.
4	Ball	1	Chrome-plated brass CW617N
5	Stem	1	Brass CW614N
6	Ring	1	P.T.F.E.
7	O-ring	2	EPDM
8	Body	1	Nickel-plated brass CW617N
9	Washer	3	FASIT OMNIA
10	Flat seat union	3	Nickel-plated brass CW617N
11	Nut	3	Nickel-plated brass CW617N

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.

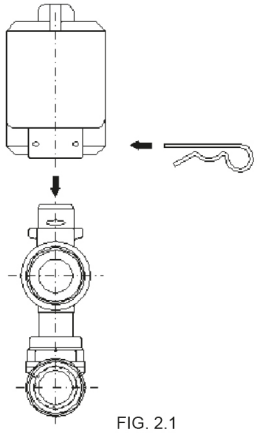
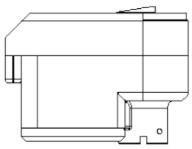
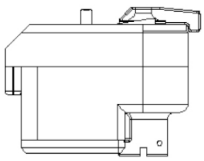


FIG. 2.1



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

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.

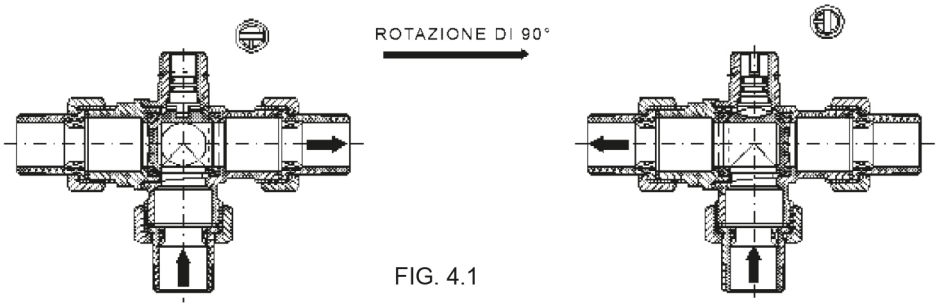


FIG. 4.1

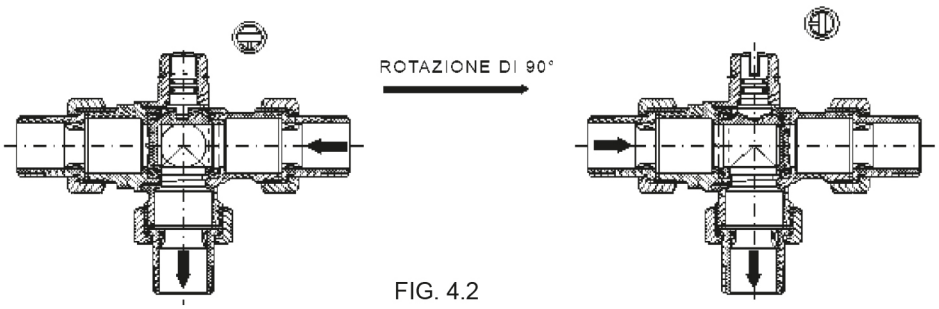
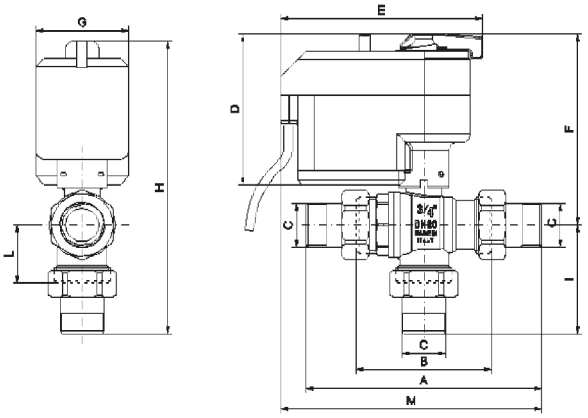


FIG. 4.2



	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

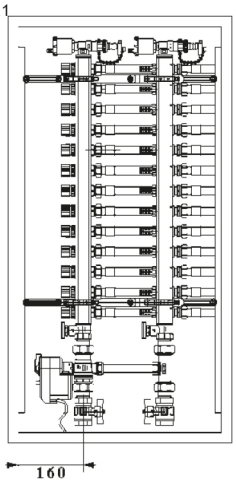


FIG. 7.2

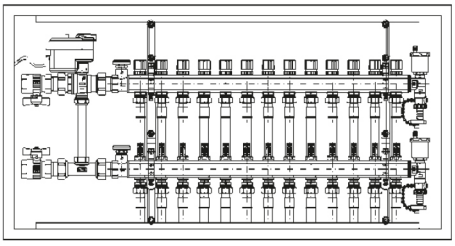
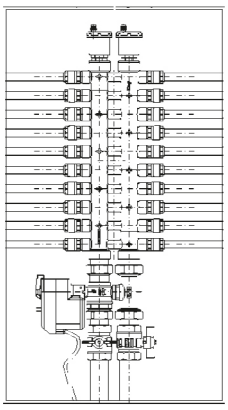


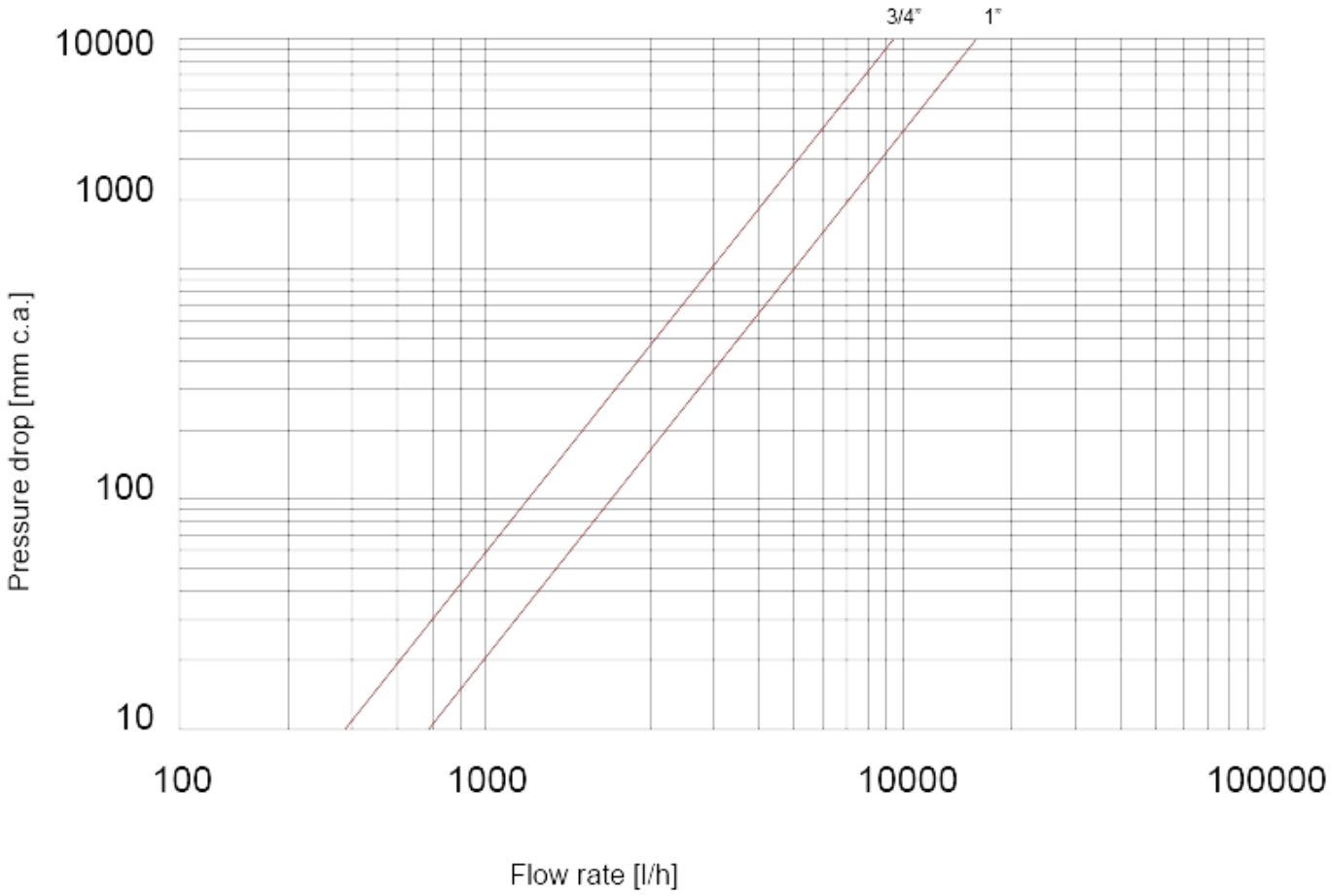
FIG. 7.3



Maximum tightening torques:
3/4" = 90 Nm
1" = 130 Nm

LOSS DIAGRAM (With water)

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



984 3-way zone ball valve

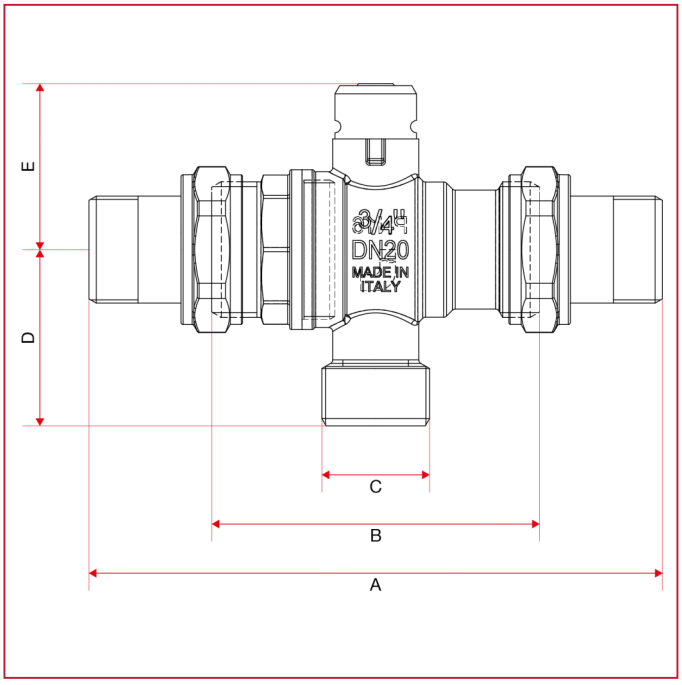
MEASURE	PRESSURE	CODE	PACKING
3/4" (DN 20)	16bar/232psi	9840034	1/14
1" (DN 25)	16bar/232psi	9840100	1/12

CERTIFICATIONS

TECHNICAL SPECIFICATIONS

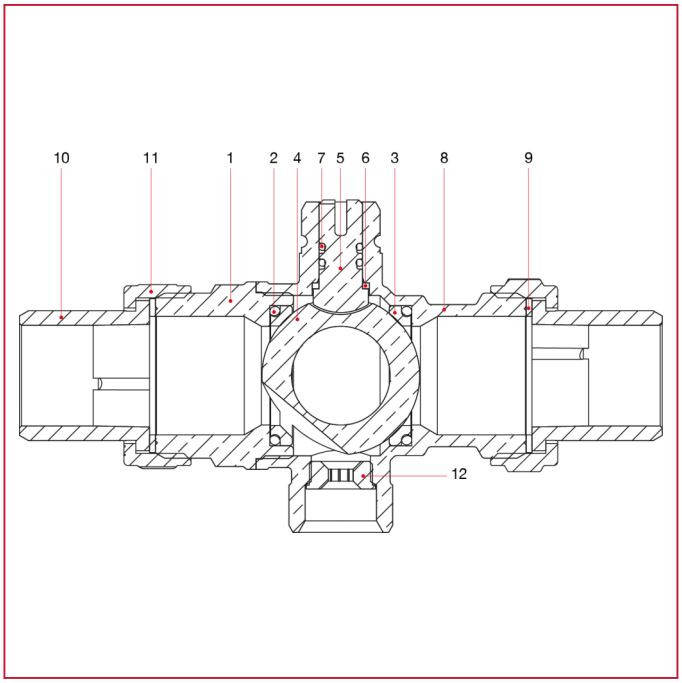
Body in nickel-plated brass.
Full flow ball.
Maximum working pressure: 16 bar.
Maximum differential pressure: 10bar.
Minimum and maximum working temperatures: -10°C (with antifreeze solution), 100°C.
Threads: ISO 228 (equivalent to DIN EN ISO 228 and BS EN ISO 228).
Suitable for the electric actuators art. 990 and 991.

OVERALL DIMENSIONS



	3/4"	1"
DN	20	25
A	140	163
B	80	94
C	G 3/4"	G 3/4"
D	43	39,75
E	40,5	44,5
Kg/cm2 bar	16	16
LBS - psi	232	232

MATERIALS



POS.	DESCRIPTION	N.	MATERIAL
1	End adapter	1	Nickel-plated brass CW617N
2	O-ring	2	EPDM
3	Seal	2	P.T.F.E.
4	Ball	1	Chrome-plated brass CW617N
5	Stem	1	Brass CW614N
6	Ring	1	P.T.F.E.
7	O-ring	2	EPDM
8	Body	1	Nickel-plated brass CW617N
9	Washer	2	FASIT OMNIA
10	Union	2	Nickel-plated brass CW617N
11	Nut	2	Nickel-plated brass CW617N
12	Nozzle	1	Brass CW614N

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.

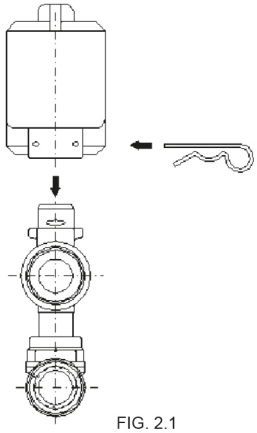
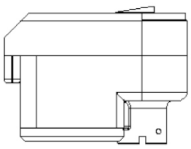
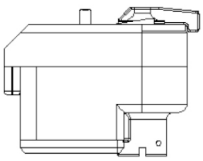


FIG. 2.1



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

3-way zone bypass Valves:

The 3-way bypass zone valve performs the same interception and balancing function as the art. 986 valve but can be used in thermal control units and on linear manifolds. In particular, with the use of the kit, art. 988, it can be used in the ITAP metal boxes art. 498. The assembly instructions for the valve unit motor are similar for those indicated for art. 986.

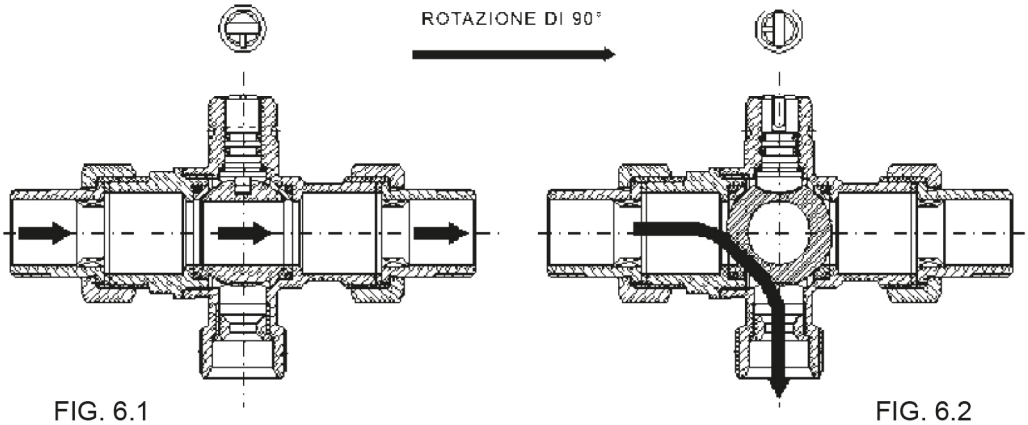
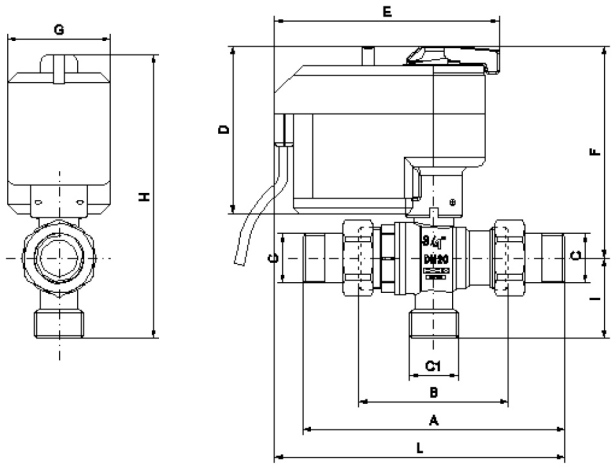


FIG. 6.1

FIG. 6.2



	A	B	C	C1	D	E	F	G	H	I	L	PRESSURE kg/cm^2 - bar	LBS WORKING PRESSURE
3/4”	140	80	3/4”	3/4”	92	120	114	55	157	43	155	16	230
1”	163	94	1”	3/4”	92	120	118	55	158	39.75	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

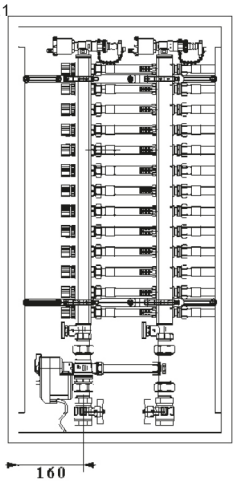


FIG. 7.2

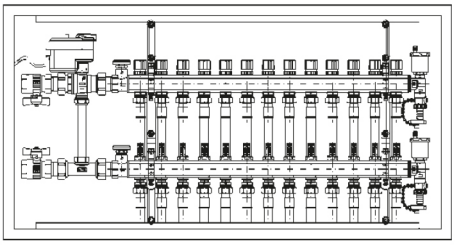
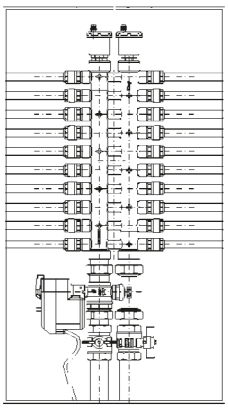


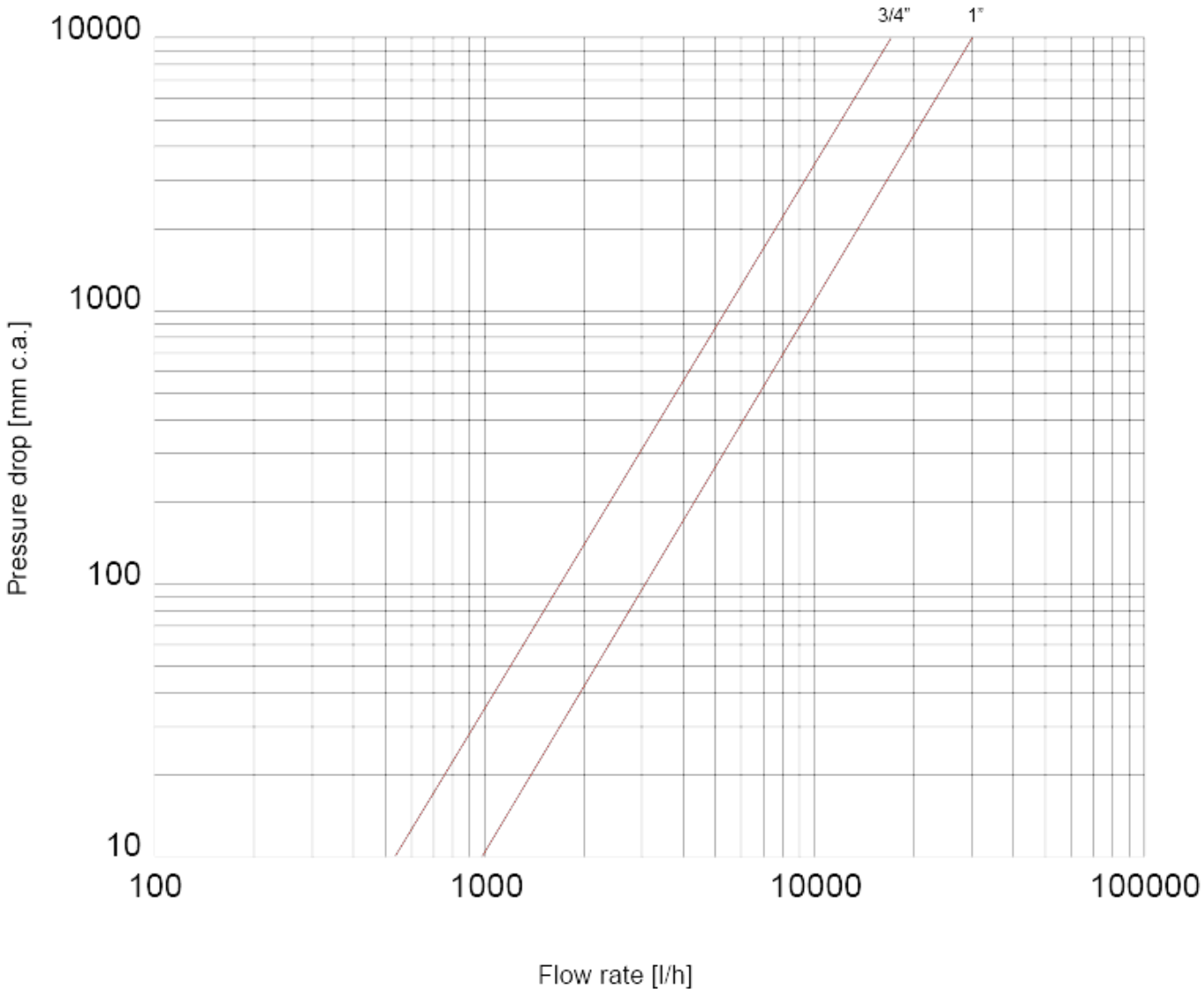
FIG. 7.3



Maximum tightening torques:
3/4" = 90 Nm
1" = 130 Nm

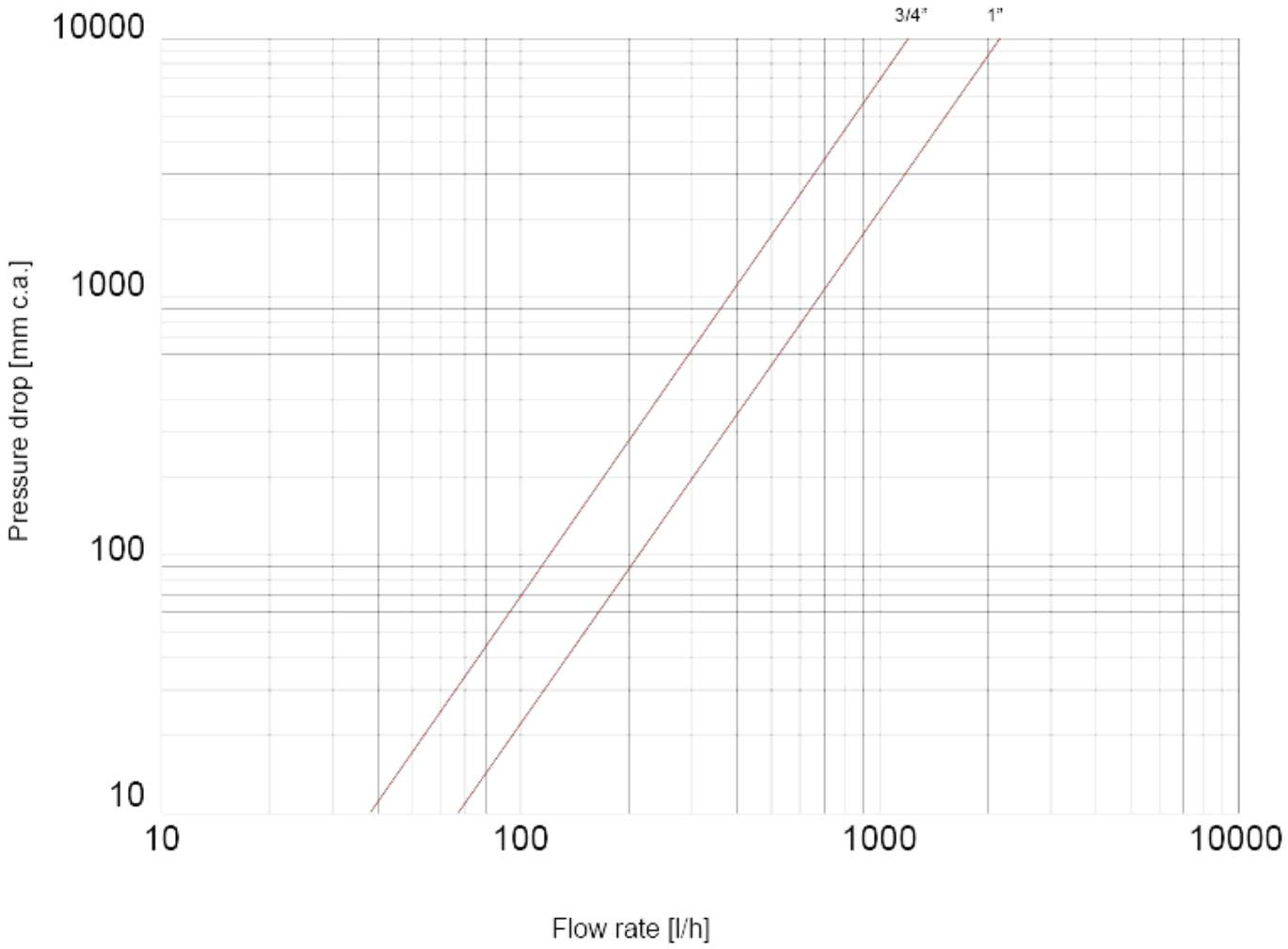
LOSS DIAGRAM (With water)

	3/4"	1"
KV	17,10 - By-pass 1,20	30,60 - By-pass 2,15

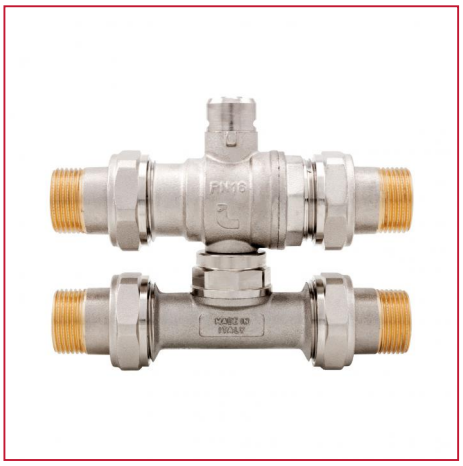


LOSS DIAGRAM (With water) By-pass

	3/4"	1"
KV	17,10 - By-pass 1,20	30,60 - By-pass 2,15



986 4-way zone ball valve



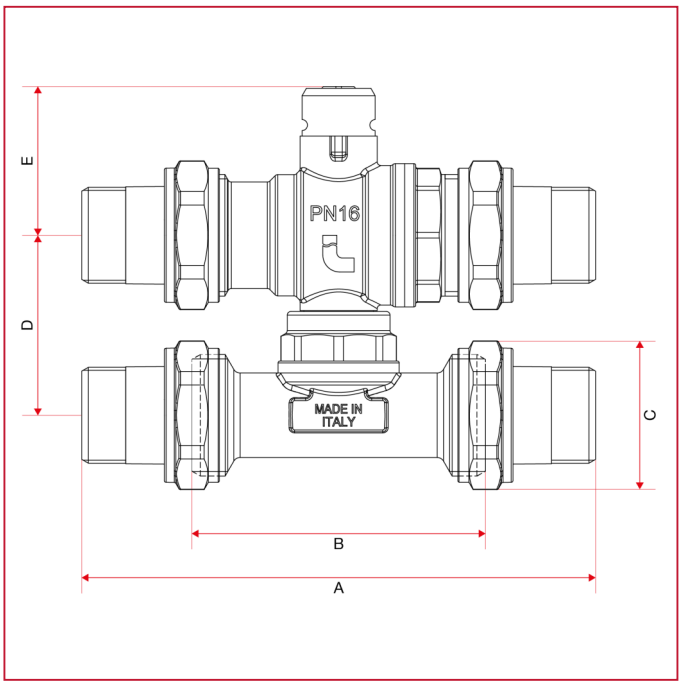
MEASURE	PRESSURE	CODE	PACKING
3/4" (DN 20)	16bar/232psi	9860034	1/9
1" (DN 25)	16bar/232psi	9860100	1/9

CERTIFICATIONS

TECHNICAL SPECIFICATIONS

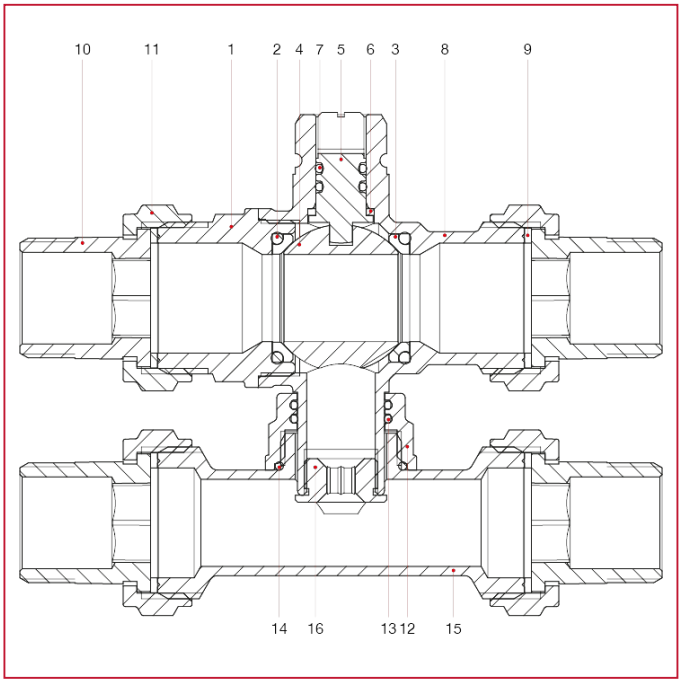
Body in nickel-plated brass.
Full flow ball.
Balanced by-pass.
Adjustable thread centres distance:
-3/4": mm.49 to mm.63;
-1": mm.55 to mm.63
Maximum working pressure: 16 bar.
Maximum differential pressure: 10bar.
Minimum and maximum working temperatures: -10°C (with antifreeze solution), 100°C.
Threads: ISO 228 (equivalent to DIN EN ISO 228 and BS EN ISO 228).
Suitable for the electric actuators art. 990 and 991.

OVERALL DIMENSIONS



	3/4"	1"
DN	20	25
A	140	163
B	80	94
C	40,5	49
D	49 - 63	55 - 63
E	40,5	44,5
Kg/cm2 bar	16	16
LBS - psi	232	232

MATERIALS



POS.	DESCRIPTION	N.	MATERIAL
1	End adapter	1	Nickel-plated brass CW617N
2	O-ring	2	EPDM
3	Seal	2	P.T.F.E.
4	Ball	1	Chrome-plated brass CW617N
5	Stem	1	Brass CW614N
6	Ring	1	P.T.F.E.
7	O-ring	2	EPDM
8	Body	1	Nickel-plated brass CW617N
9	Washer	4	FASIT OMNIA
10	Union	4	Nickel-plated brass CW617N
11	Nut	4	Nickel-plated brass CW617N
12	Nut	1	Nickel-plated brass CW614N
13	O-ring	2	EPDM
14	O-ring	1	EPDM
15	Tee	1	Nickel-plated brass CW617N
16	Nozzle	1	Brass CW614N

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.

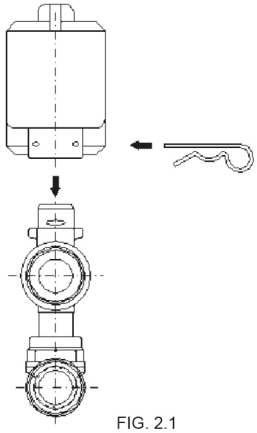
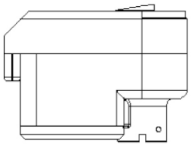
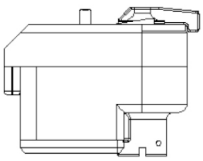


FIG. 2.1



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

4-way zone Valve with bypass.

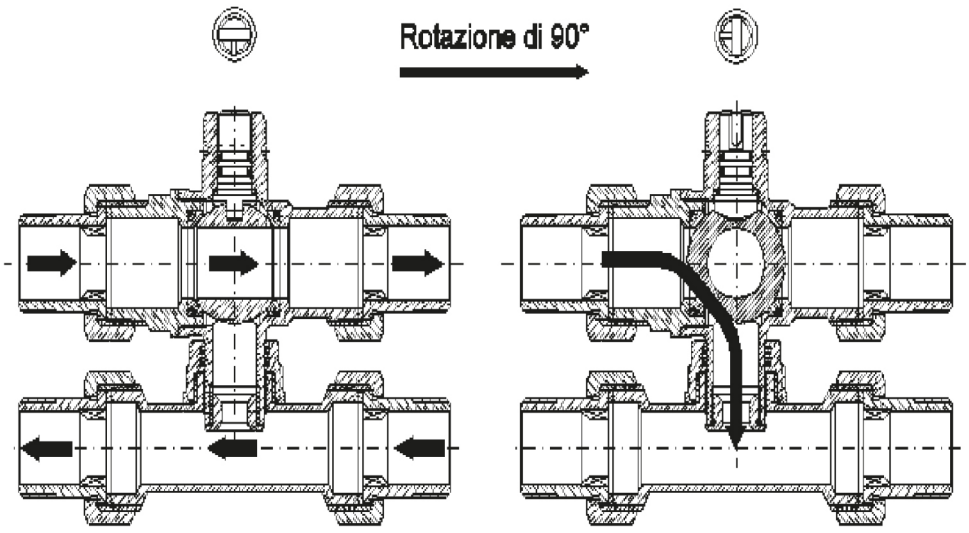
The 986 zone valve is ideal for systems where one wishes to avoid installing differential bypass valves to maintain the project pressure. This is possible thanks to the presence of a nozzle, calibrated to maintain the same loss in flow capacity that occurs when the valve is open.

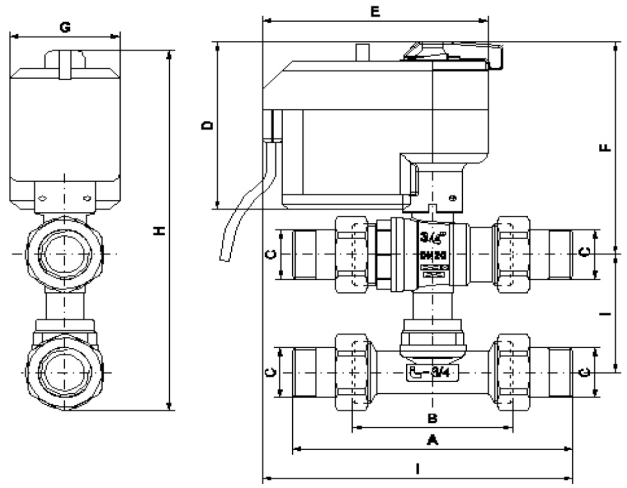
The screwdriver cut corresponds to the open position of the valve whilst the notch indicates the bypass position.

The 4-way version, with the varying centre distance between the valve unit and the T, from 49mm to 63mm for ¾” valves and from 55mm to 63mm for 1” valves, can be connected to most coplanar manifolds.

FIG. 5.1

FIG. 5.2





	A	B	C	D	E	F	G	H	I	L	PRESSURE kg/cm^2 - bar	LBS WORKING PRESSURE
3/4”	140	80	3/4”	92	120	114	55	197.5	49-63	155	16	230
1”	163	94	1”	92	120	118	55	206	55-63	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

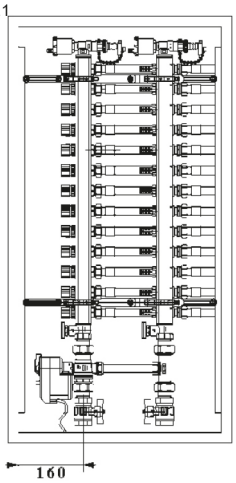
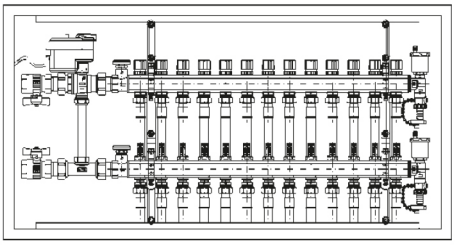


FIG. 7.2



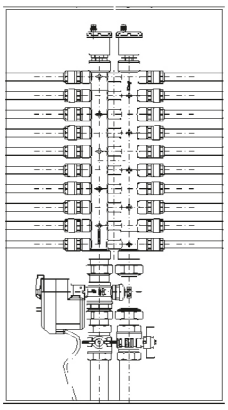
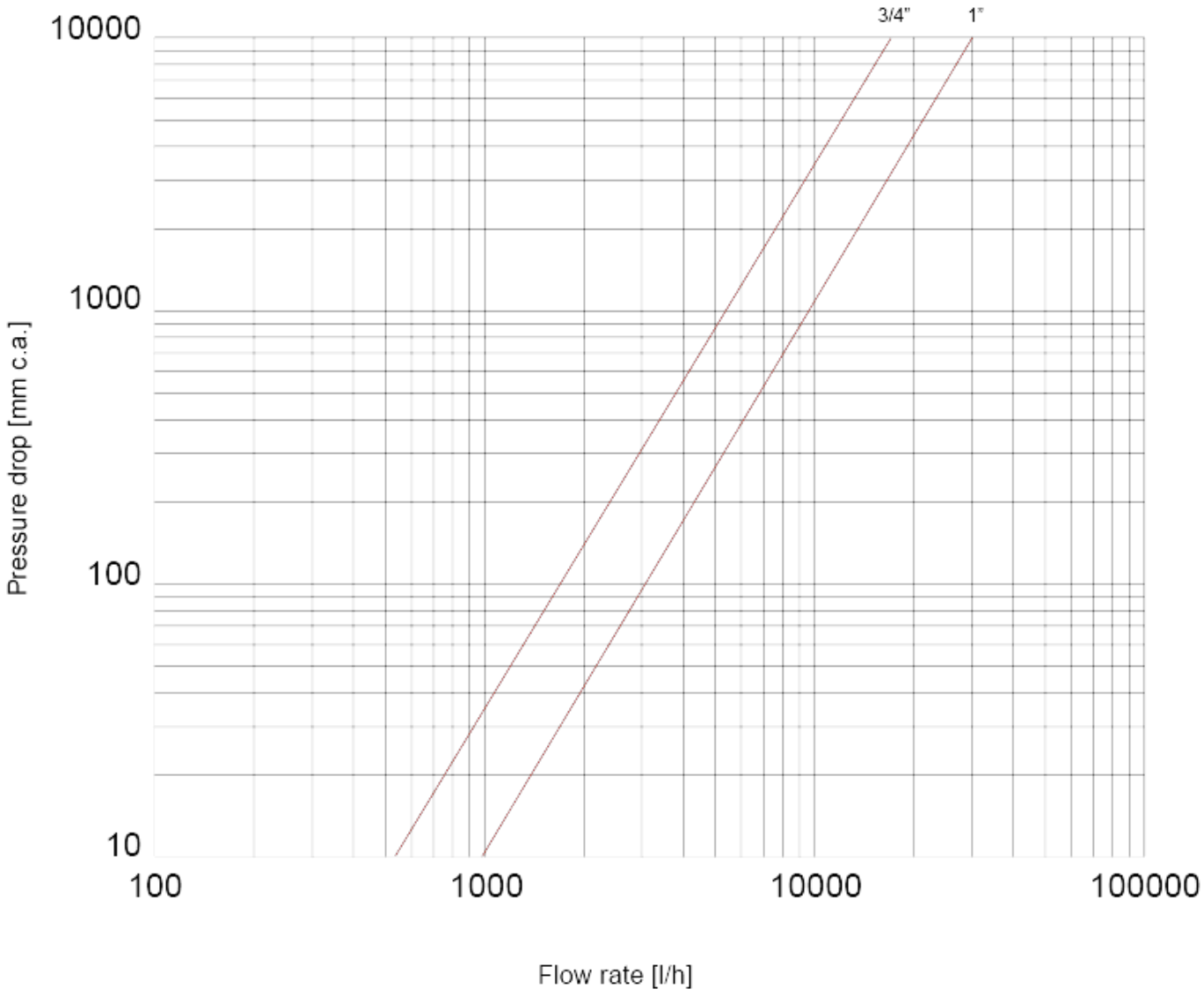


FIG. 7.3

Maximum tightening torques:
3/4" = 90 Nm
1" = 130 Nm

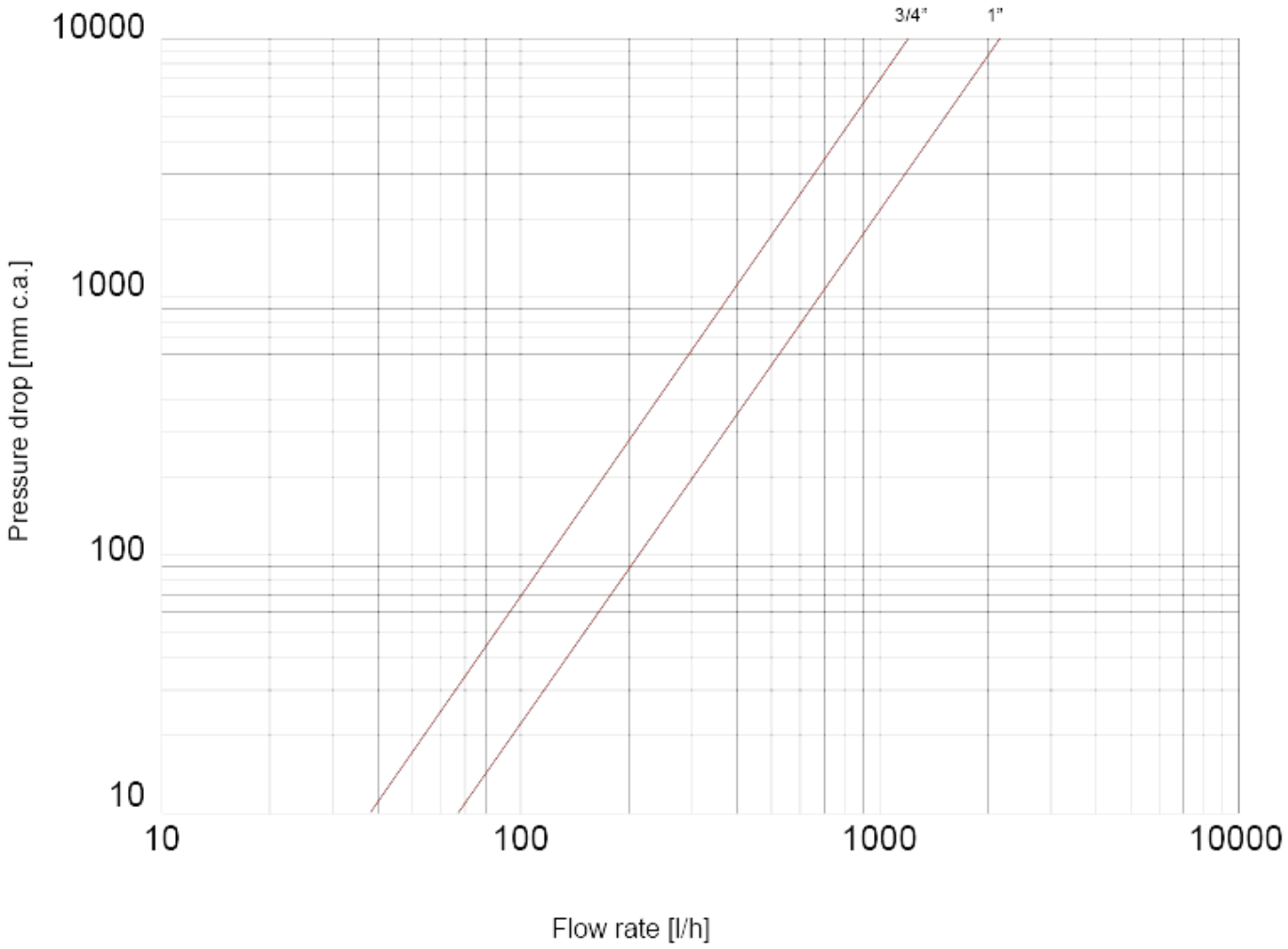
LOSS DIAGRAM (With water)

	3/4"	1"
KV	17,10 - By-pass 1,20	30,60 - By-pass 2,15



LOSS DIAGRAM (With water) By-pass

	3/4"	1"
KV	17,10 - By-pass 1,20	30,60 - By-pass 2,15



988 By-pass kit for zone ball valves

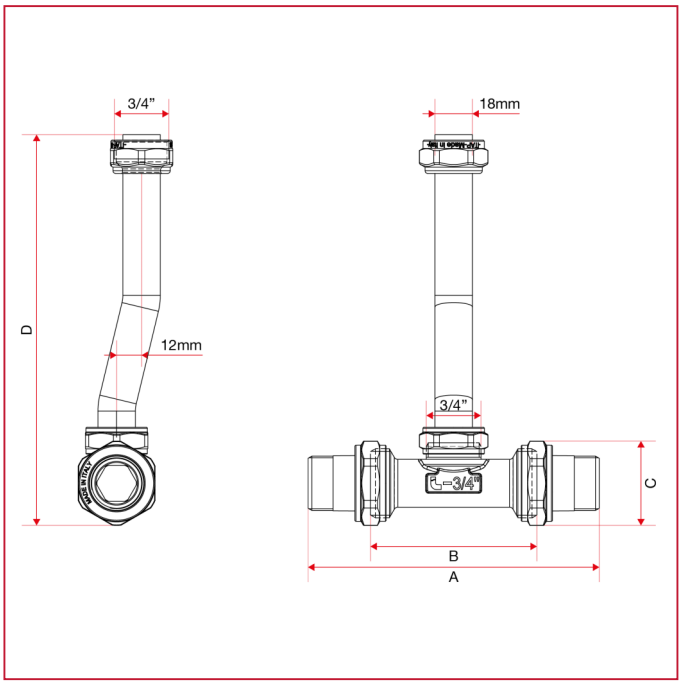
MEASURE	PRESSURE	CODE	PACKING
3/4" (DN 20)	10bar/145psi	9880034	1/26
1" (DN 25)	10bar/145psi	9880100	1/12

CERTIFICATIONS

TECHNICAL SPECIFICATIONS

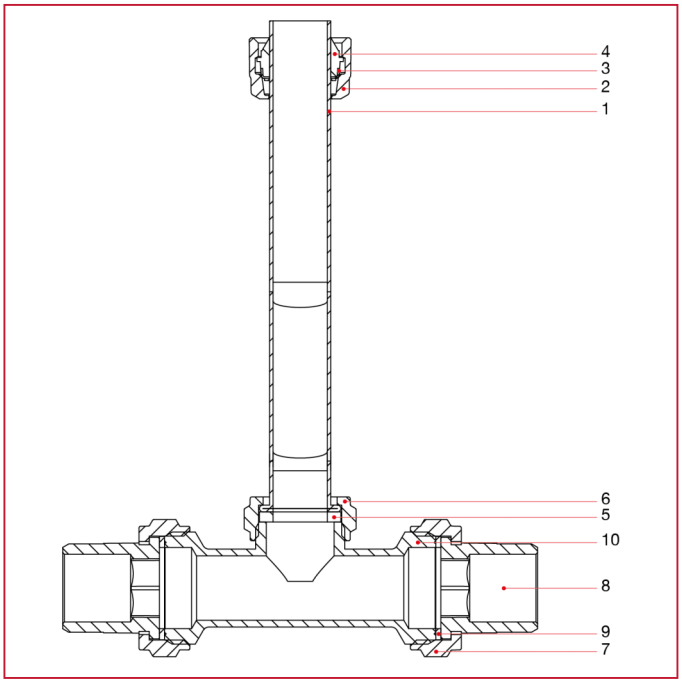
By-pass tee in nickel-plated brass.
Minimum and maximum working temperatures: -10°C (with antifreeze solution), 100°C.
Threads: ISO 228 (equivalent to DIN EN ISO 228 and BS EN ISO 228).
Suitable for zone valve art. 984 and installable in metal boxes art. 498, together with brass manifolds art. 850-860 and stainless steel manifolds art. 852-862.

OVERALL DIMENSIONS



	3/4"	1"
DN	20	25
A	140	163
B	80	94
C	41	50
D	188	195
Kg/cm2 bar	10	10
LBS - psi	145	145

MATERIALS

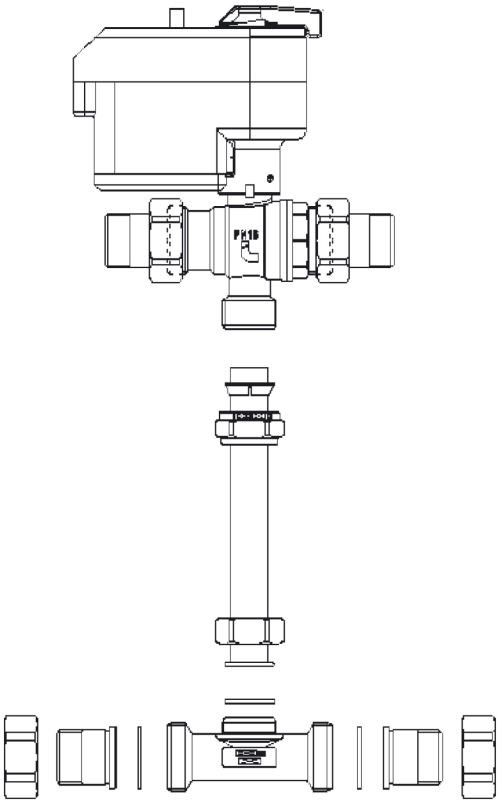


POS.	DESCRIPTION	N.	MATERIAL
1	Pipe	1	Copper
2	Nut	1	Nickel-plated brass CW617N
3	Elastic ring	1	Stainless steel AISI 430
4	Washer	1	NBR
5	Washer	1	NBR
6	Nut	1	Nickel-plated brass CW617N
7	Nut	2	Nickel-plated brass CW617N
8	Flat seat union	2	Nickel-plated brass CW617N
9	Washer	2	FASIT OMNIA
10	Tee	1	Nickel-plated brass CW617N

INSTRUCTIONS
BY-PASS KIT SUITABLE FOR 3-WAY ZONE VALVES ART. 984

1. Function
The bypass kit allows rapid and efficient installation of the zone valves (Art. 984) on the bar manifolds (Art. 850-860) in ITAP metal boxes (Art.498). Its geometry is designed to allow the necessary offset for the passage of the pipes to the upper manifold.

2. Technical features.
Nickel-plated brass body EN 12165-CW617N.
Nickle-plated brass nuts EN 12165-CW617N.
18 mm pipe with copper plate.
Gasket in EPDM and NBR.
Maximum working temperature 100°C.
Maximum working pressure 10 bar.



3. Safety.
Attention! The high temperature of the thermo-vector fluid can cause serious damage to persons and things. Adopt all necessary preventive action!

Maximum tightening torques:
3/4" = 90 Nm
1" = 130 Nm

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