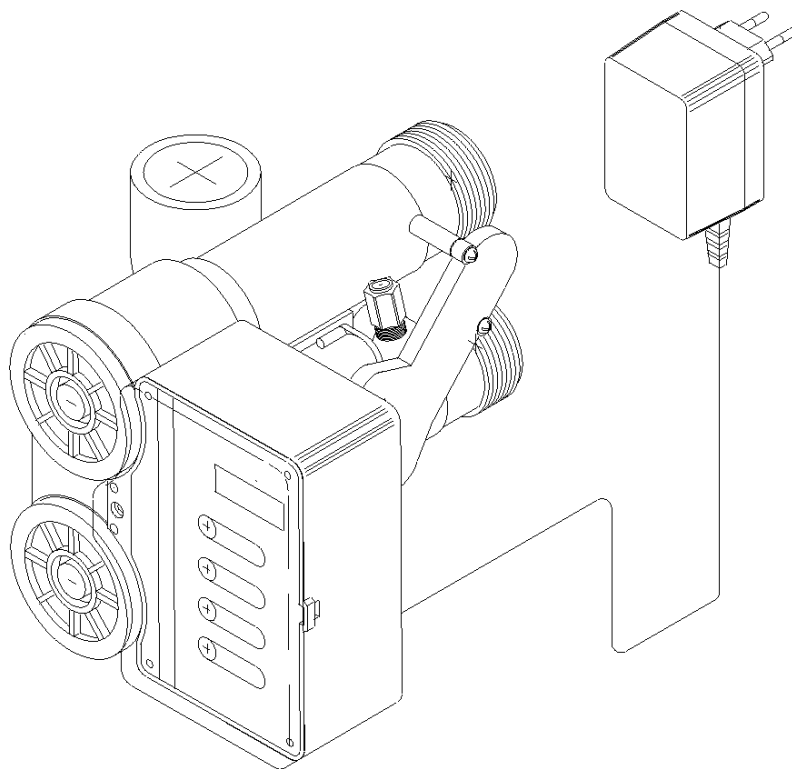


V240-FE VALVE OPERATING MANUAL



Documento	Revisione	Nota di revisione	Data
MAN0030	A	Bozza	19.06.98
MAN0030	B	EMISSIONE	

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GENERAL FEATURES

"V240" valves are the essential elements in building the following systems:

- simplex, duplex or multi-tank softening (decalcification) systems for domestic, laboratory and industrial use;
- simplex or duplex demineralisation and dealkalisation systems for laboratory and industrial use and all other uses requiring water with characteristics of guaranteed quality;
- simplex or duplex filtering systems for all of the previous applications.

The valves are made with materials that guarantee utmost resistance and quality. They are available with a vast range of controllers for every operation phase of service and regeneration, starting from the simplest electronic basic controller with weekly clock to the sophisticated electronic controllers in various models which enable volume, volume-time control and salinity control in MicroSiemens/cm, etc.

In the electronic systems, all the intervention times of operation phases can be programmed in relation to system type and dimension.

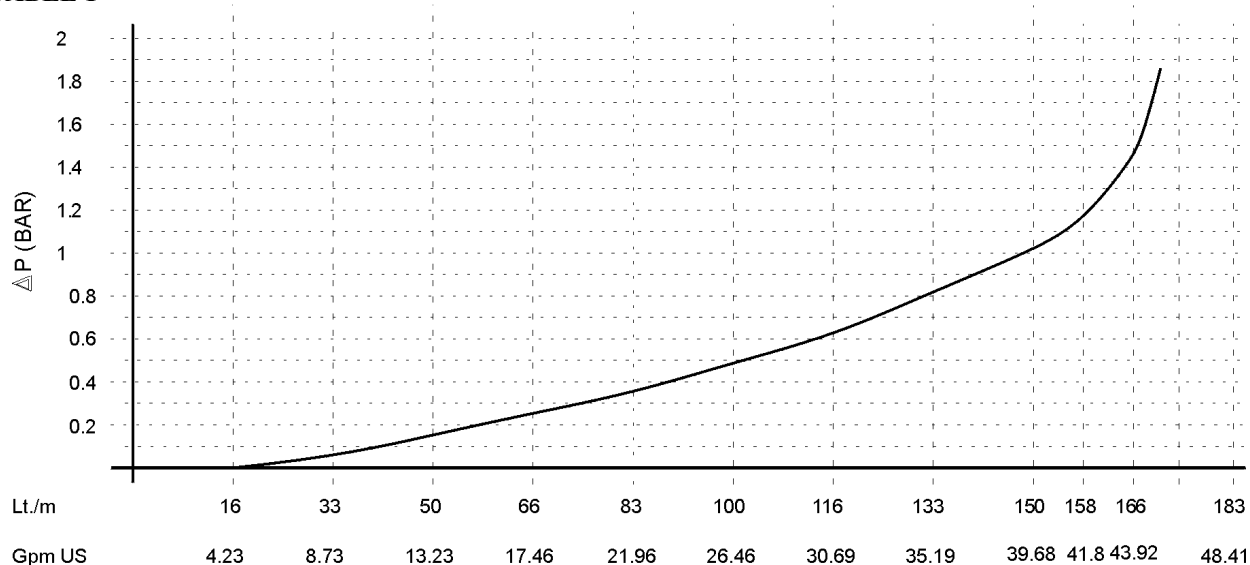
For specific controller features, see the relative manual.

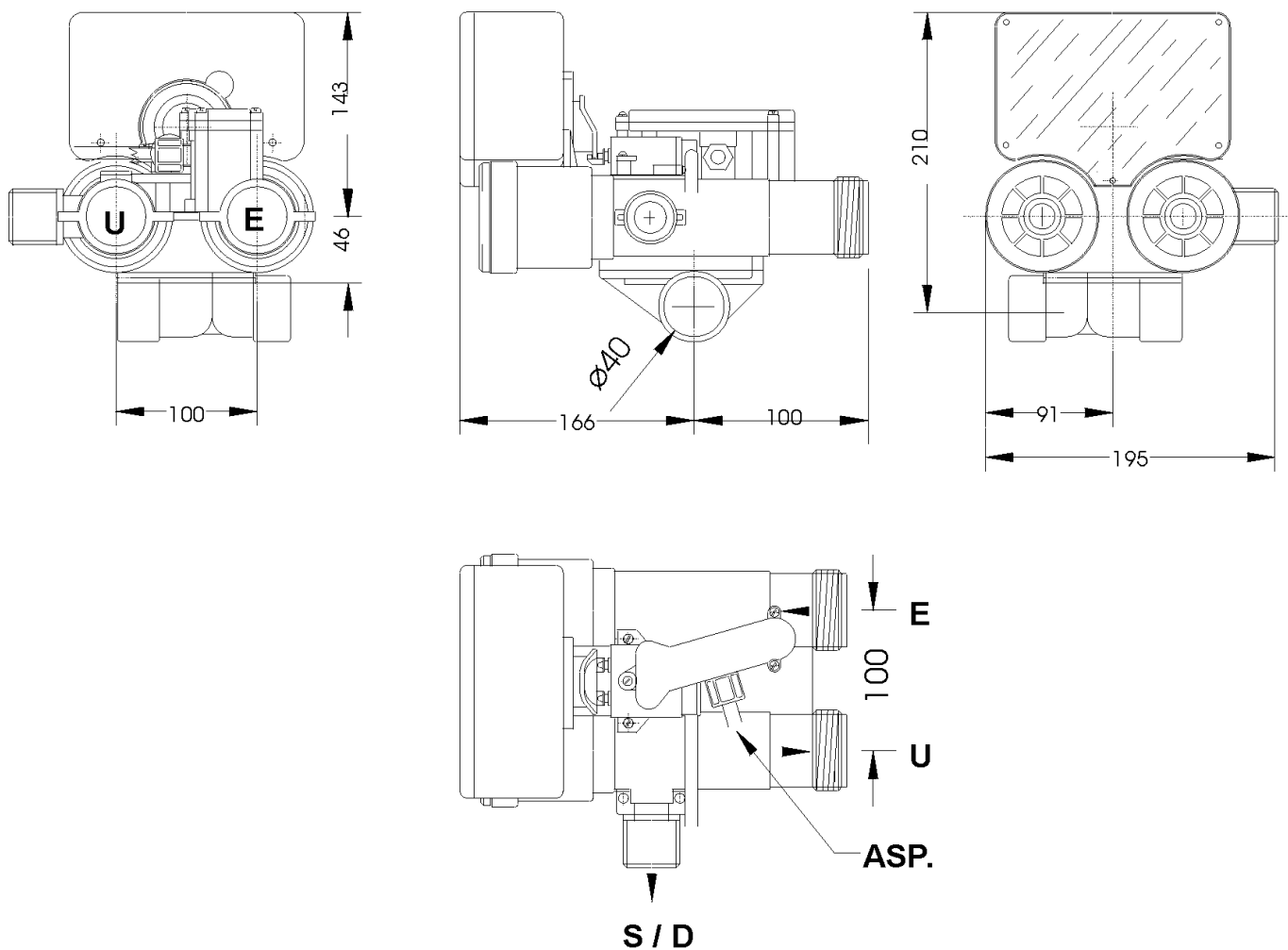
TECHNICAL SPECIFICATIONS

Operating pressure	From 1.5 to 6 bar
Maximum water flow with load loss of 1bar	44.09 US gpm.-25.7 UK gpm
See Table 1 for value variables	-
Backwash water flow	max. 17.64 US gpm 11 UK gpm
Slow rinse water flow	0.44 to 2.65 US gpm □ 0.16 to 1.28
Fast rinse water flow (down-flow)	max. 24.25 US gpm 9.2 UK gpm
Static resistance to pressure	22 bar
Maximum quantity of regenerative resin	200 lt.
Operating temperature	From 5 to 40°C
Materials of main components	ABS+FV
Tank connection	2½" 8 threads/"
Input output attachments	2" gas male

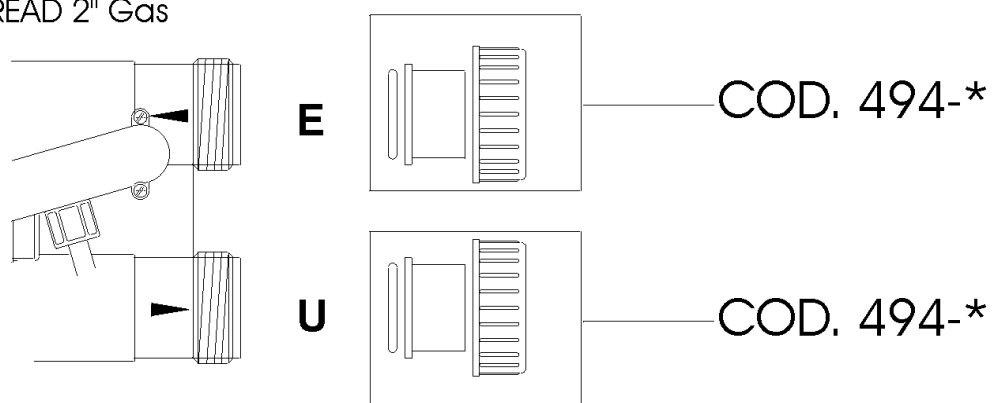
PRESSURE DROP

TABLE 1





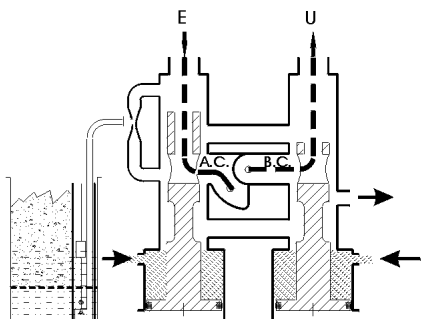
FILETTO MASCHIO 2" Gas
MALE TREAD 2" Gas



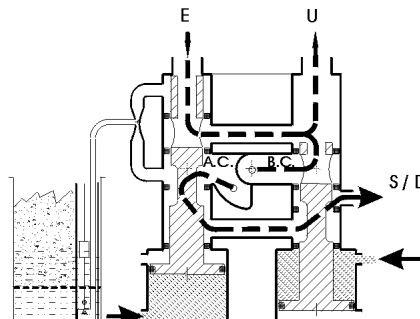
For code 494-* see page 29

FUNCTION SCHEMES

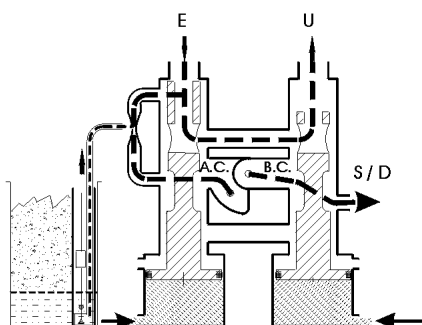
Service
Servizio



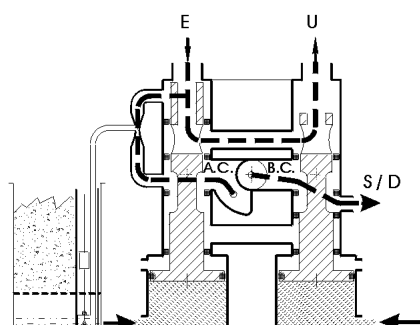
Backwash
Controcorrente



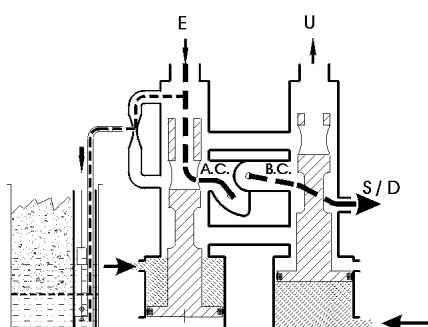
Brine draw
Aspirazione



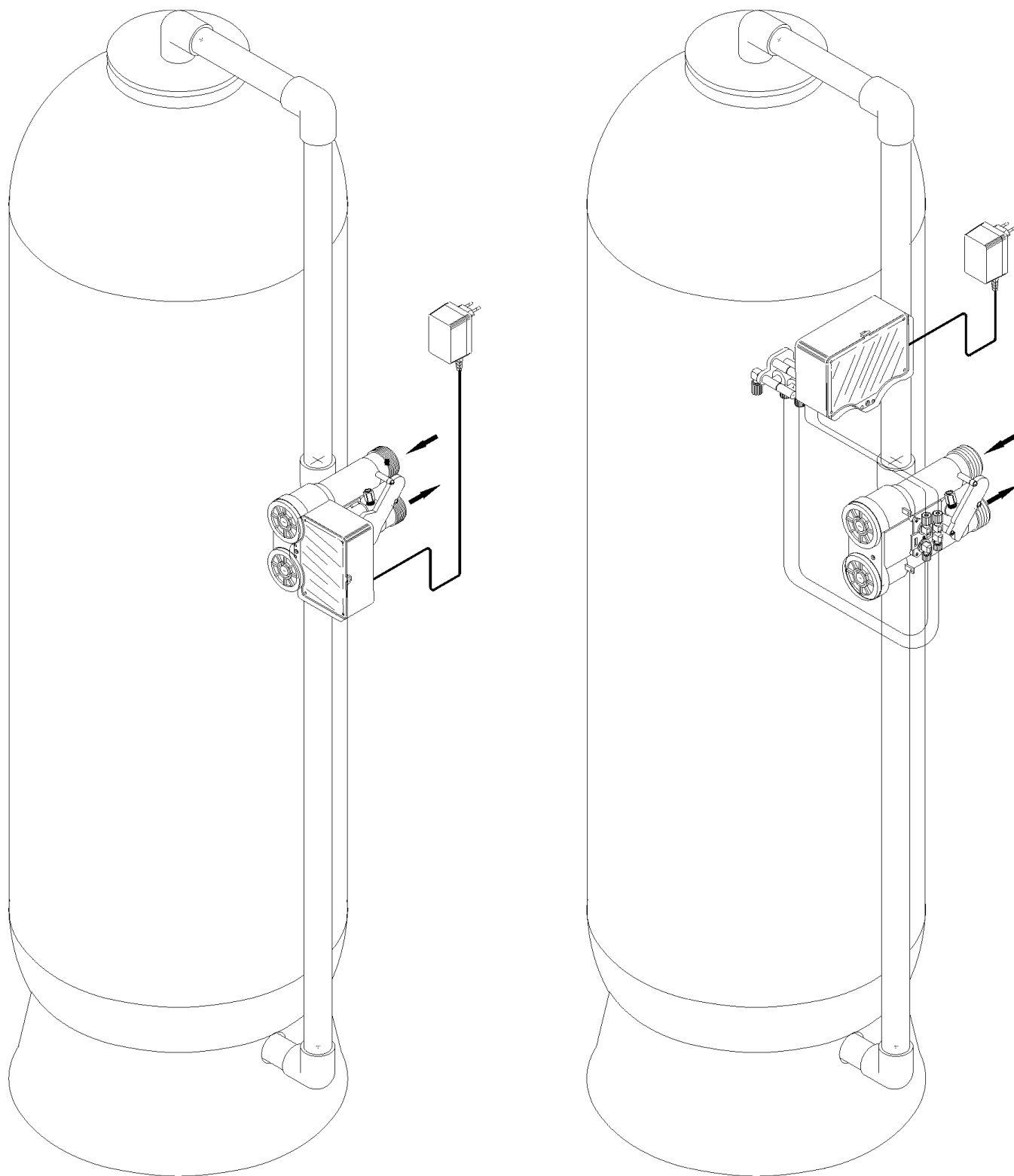
Slow rinse
Lavaggio lento



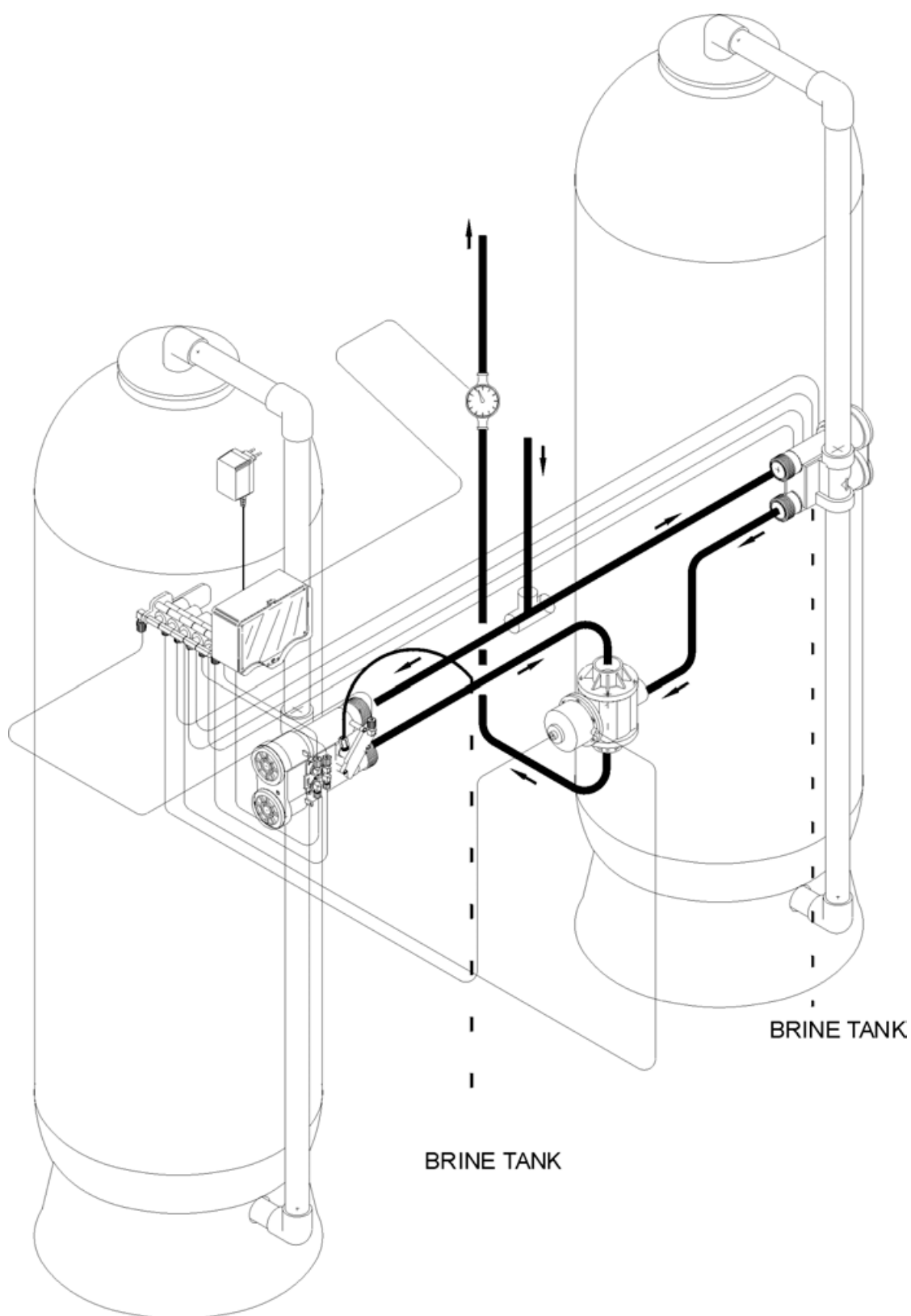
Fast rinse
Lavaggio veloce



**VARIATIONS OF USE
SINGLE SYSTEM**



**VARIATIONS OF USE
DUPLEX PLANT**



SPECIFIC OF USE

Making reference to the schemes of pag. 5 and 6, the varied possibilities of employment of this valve can be examined in the varied applications.

1) Single softening: the plant consists in a basic valve V240A, with or without bypass, and of a timer furnished in different solutions, with which we succeed in personalizing the plant to our liking.

Particularly the sketch to pag. 5 bring two variations of the same plant and that is:

- To the left we have the valve commanded by a timer climbed on directly on the valve, on which has been preassembled to a double pilot.
- Instead we have to the right the same plant with a timer to 2 external pilots. The use of the external pilots allows us of to vary the configuration of the plant in the following way,:
 - I. 2 pilots it commands the solo movement of the pistons of the valve
 - II. 3 pilots it also commands an additional valve of closing I use
 - III. 4 pilots it commands a closing I use + a closing aspiration

2) Softening duplex: the plant has realized on two columns every of which has managed with a valve V240A. This last is comandabile, to water or to air, with a timer with a minimum of 2 pilots for every valve. To pag. 7 have a plant duplex in alternate (a column is in service and the other one it is in regeneration or in pause), which is commanded by a timer AQUA CUBIC 5 pilots (AC5-02/05), managed to volume. The plant foresees the use of two valves brine.

How variation to this plant is proposed of to replace the two brines with two valves on-off idro-pneumatiche for the chiusura/apertura of the duct of aspiration using a timer AQUA CUBIC 7 pilots. (AC7-02/05)

3) Filtering : either for single fittings that duplexes are worth the considerations done for the sweetening, with the only variation that in this case it doesn't have each other from to check the aspiration of the rigenerante

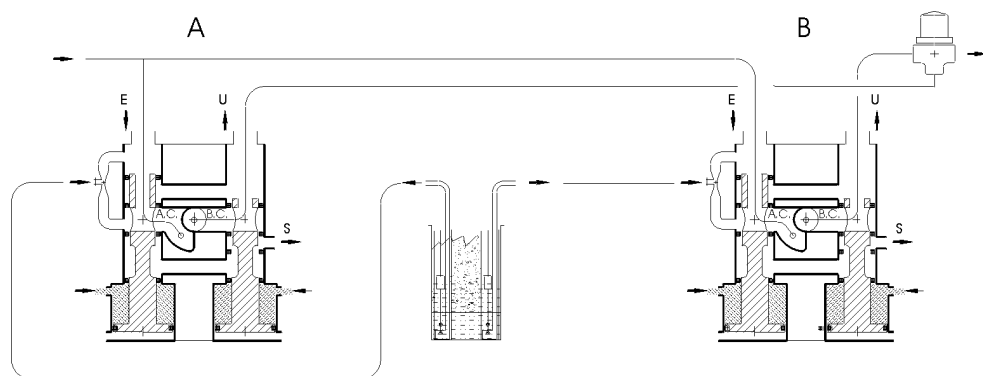
4) Demineralizzazione and Decarbonatazione: This is the sector applicativo where better the characteristics of the valve V240 are appreciated, in the fattispecie V240D. The timer predisposed for the demineralizzazione is electronic to external pilots, able to command a column anionica and a cationica, can check the value of the conductivity noticing a valvora automatically in $\mu\text{siemens/cm}$ to the exit of the plant and rigenerare the plant. The number of the pilots of the timer has determined from the type of plant that wants to get each other

- I. AQUA IONIC 5 pilots (AI5-02/05) it checks the two columns + a valve on-off idro-pneumatiche of closing I use
- II. AQUA IONIC 7 pilots (AI7-02/05) it checks the two columns + a valve on-off idro-pneumatiche of closing I use + two valves on-off idro-pneumatiche idro-pneumatiche idro-pneumatiche for the chiusura/apertura of the aspiration of the rigenerantis

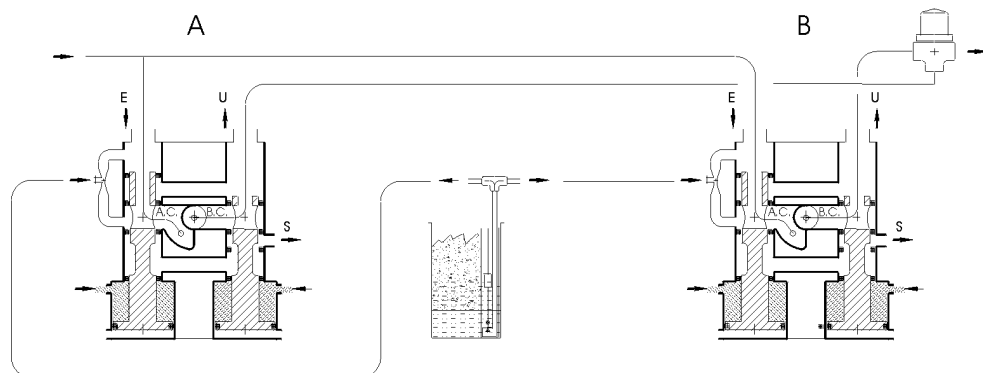
. For great details on the timers it is postponed to the chart of choice of the timers (pag. 22)

SOFTENING VERSIONS SCHEMES

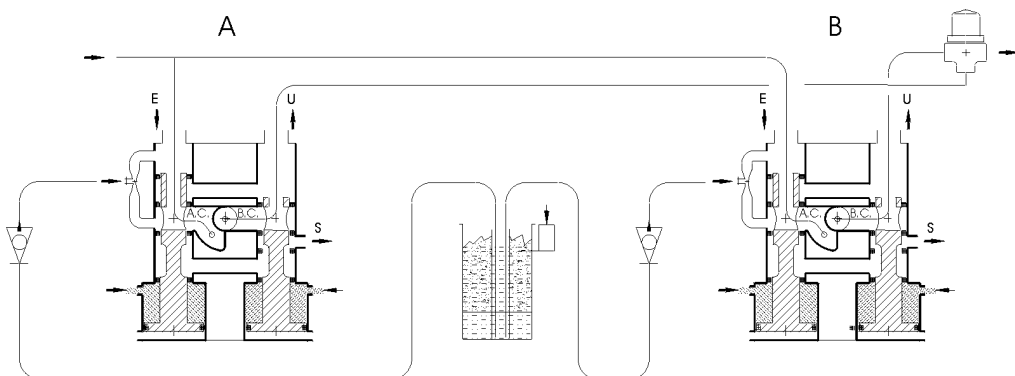
- A) Duplex softening scheme with two brine measure valves, slow rinse, 3V output valve. 5 pilot valve controller.



- B) Duplex softening scheme with brine measure valve, slow rinse and automatic/dynamic device to determine brine-draw line. 5 pilot valve controller. 3V valve.

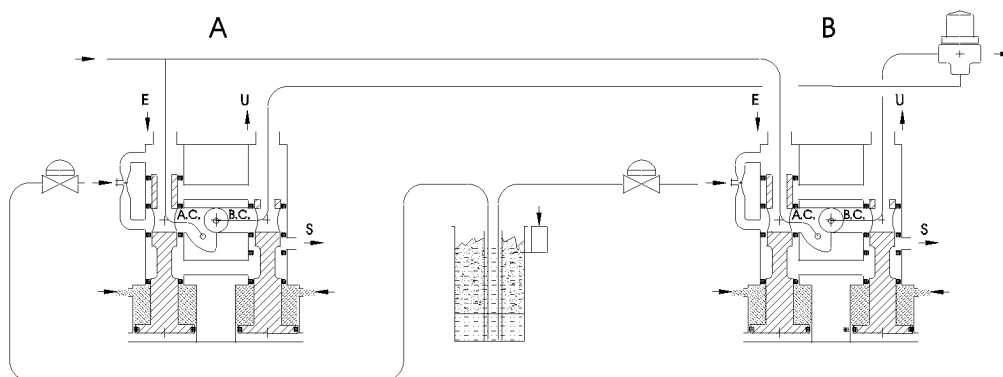


- C) Duplex softening scheme without slow rinse, (salt-brine container fed separately), without brine-measure valve. 5 pilot valve controller. 3V valve.

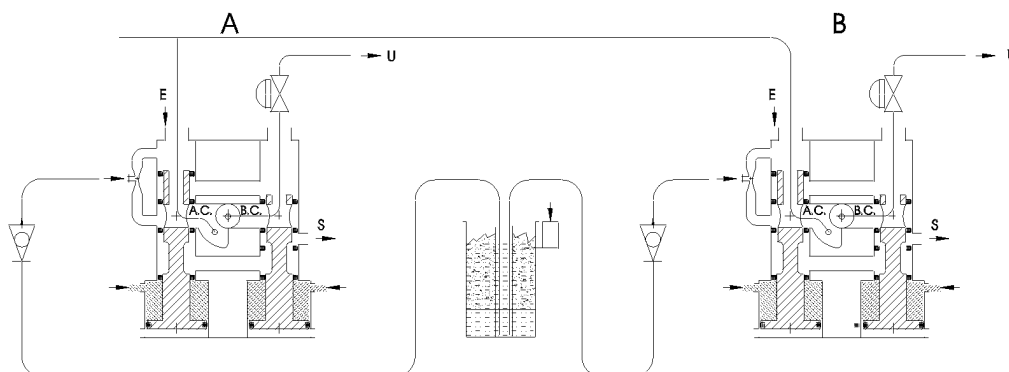


SOFTENING VERSIONS SCHEMES

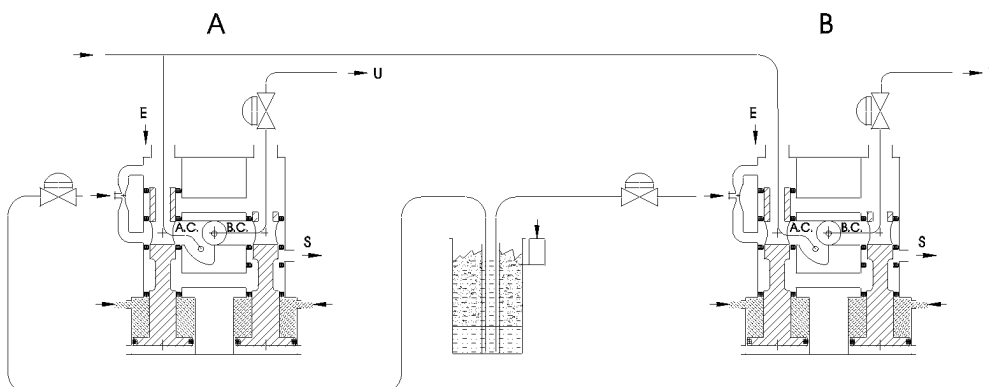
- E) Duplex softening scheme with slow rinse (Salt/brine container fed separately) without brine-measure valve. 7 pilot valve controller. 3V valve.



- F) Duplex softening scheme without slow rinse (Salt/brine container fed separately) Two output valves "A" and "B". 5 pilot valve controller. Without brine measure valve.

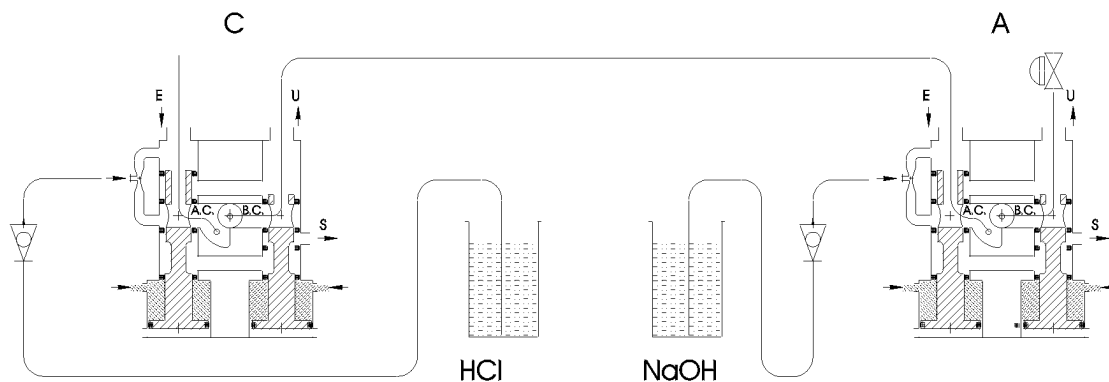


- G) Duplex softening scheme with slow rinse (Salt/brine container fed separately) Two output valves "A" and "B". 7 pilot valve controller. Without brine measure valve.

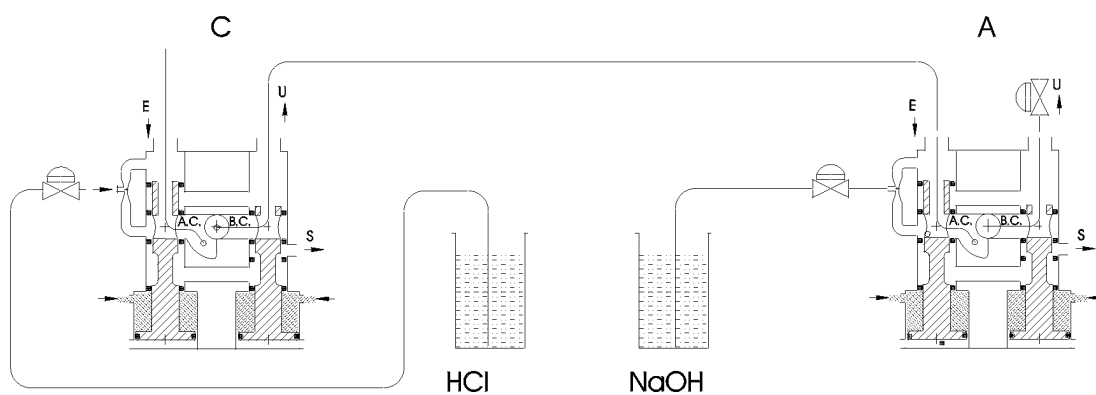


DEMINERALISATION VERSIONS SCHEMES

- H) Demineralisation scheme without valves for slow rinse, 5 pilot valve controller. Attention! Dissuaded application

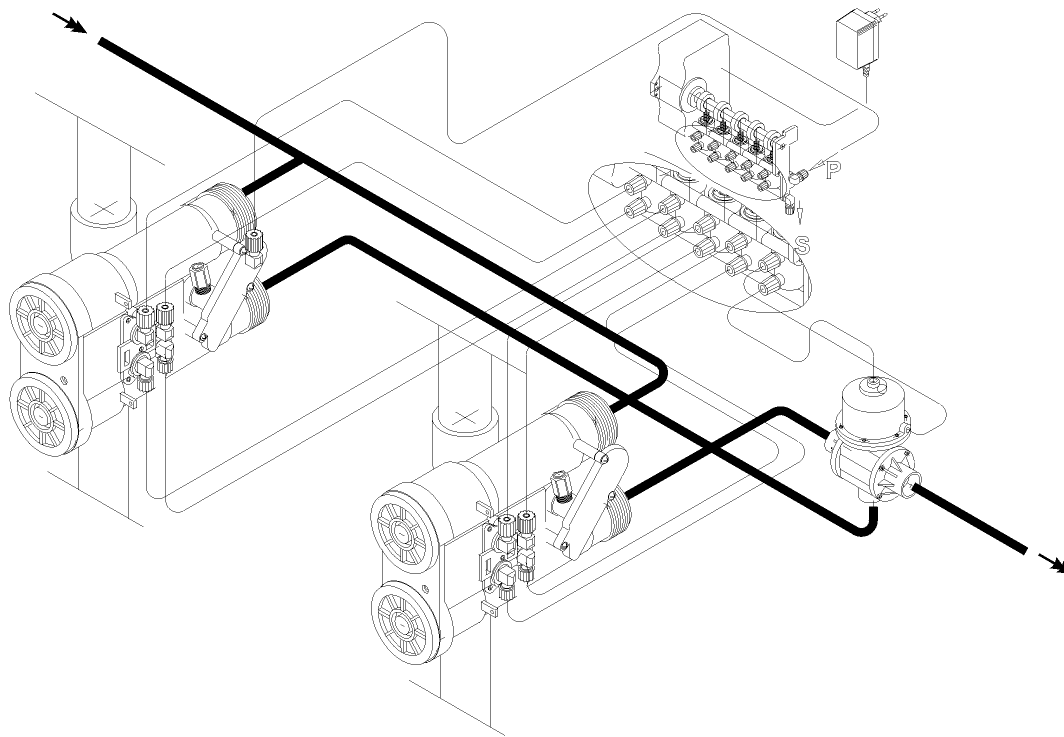


- I) Demineralisation scheme with valves for slow rinse, 7 pilot valve controller. Attention! Application Recommended

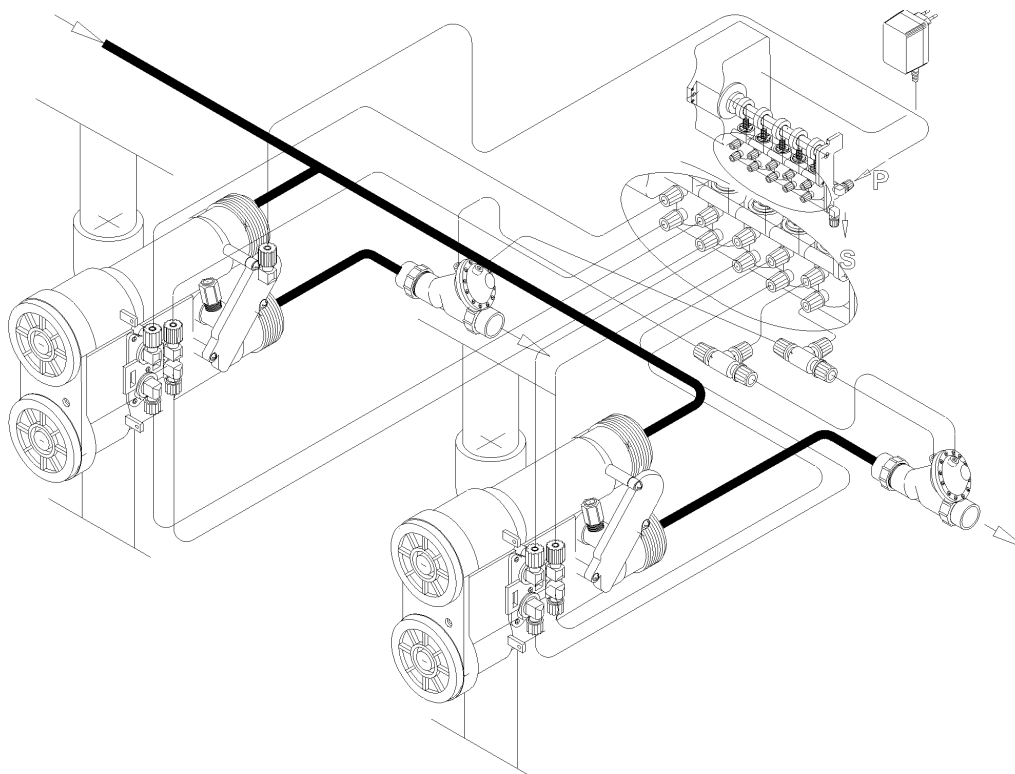


**Variations of Use =
Controller/Pilot Valves Connections**

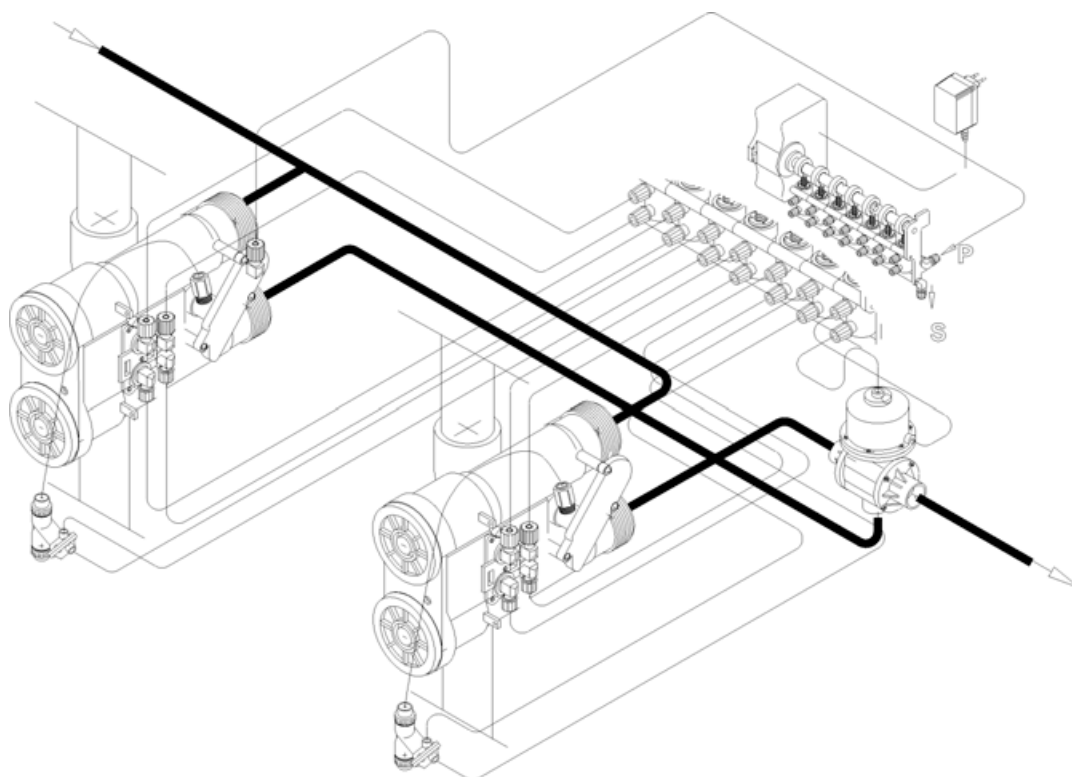
Duplex softening connections referring to schemes “A”, “B”, “C”



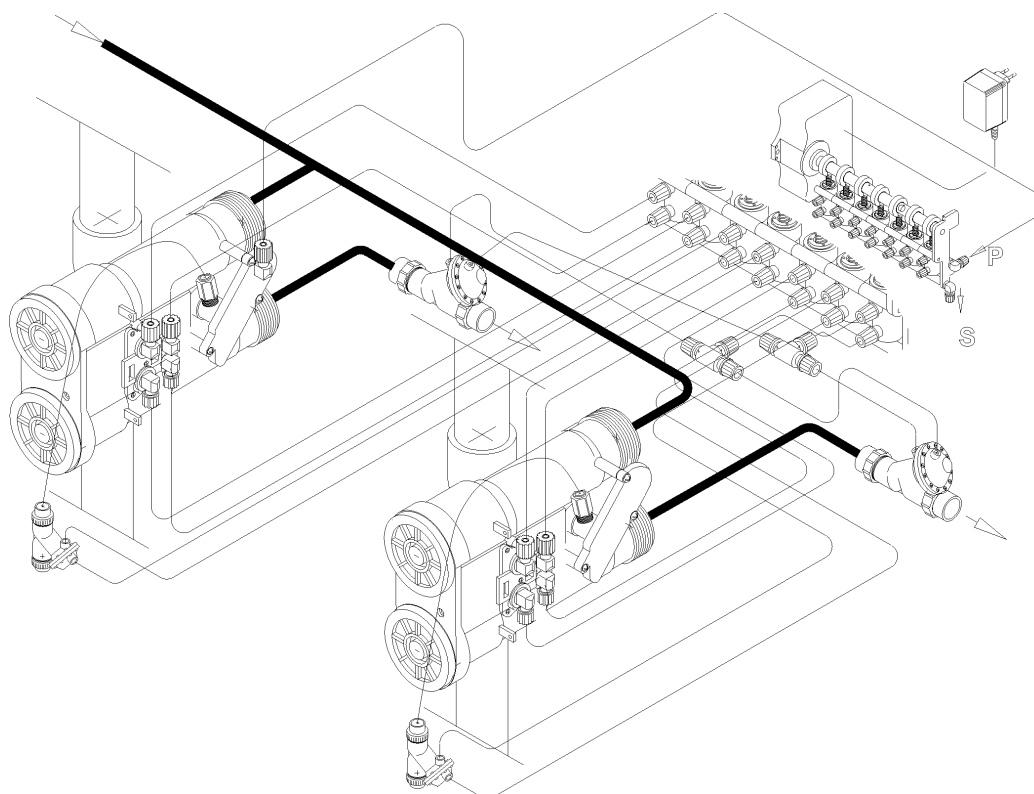
Duplex softening connections referring to schemes “F”



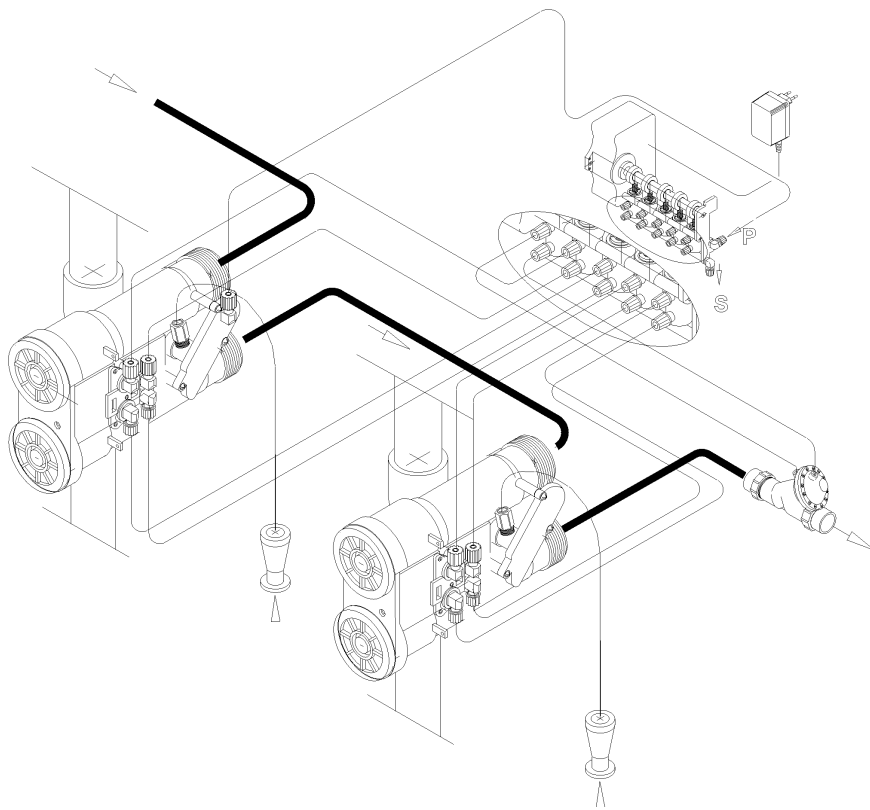
Duplex softening connections referring to schemes “E”



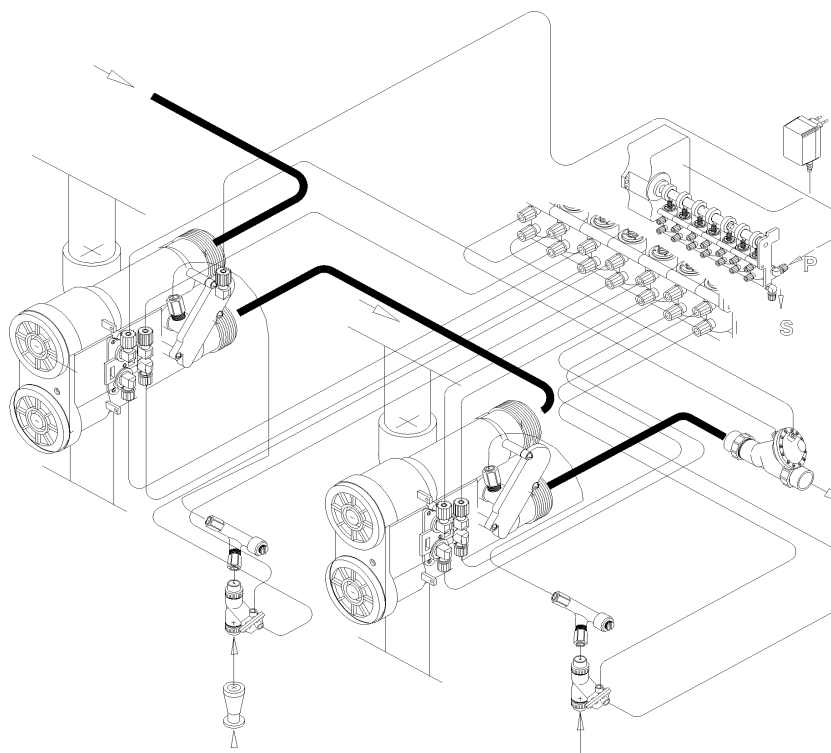
Duplex softening connections referring to schemes “G”.



Duplex softening connections referring to schemes “H”.



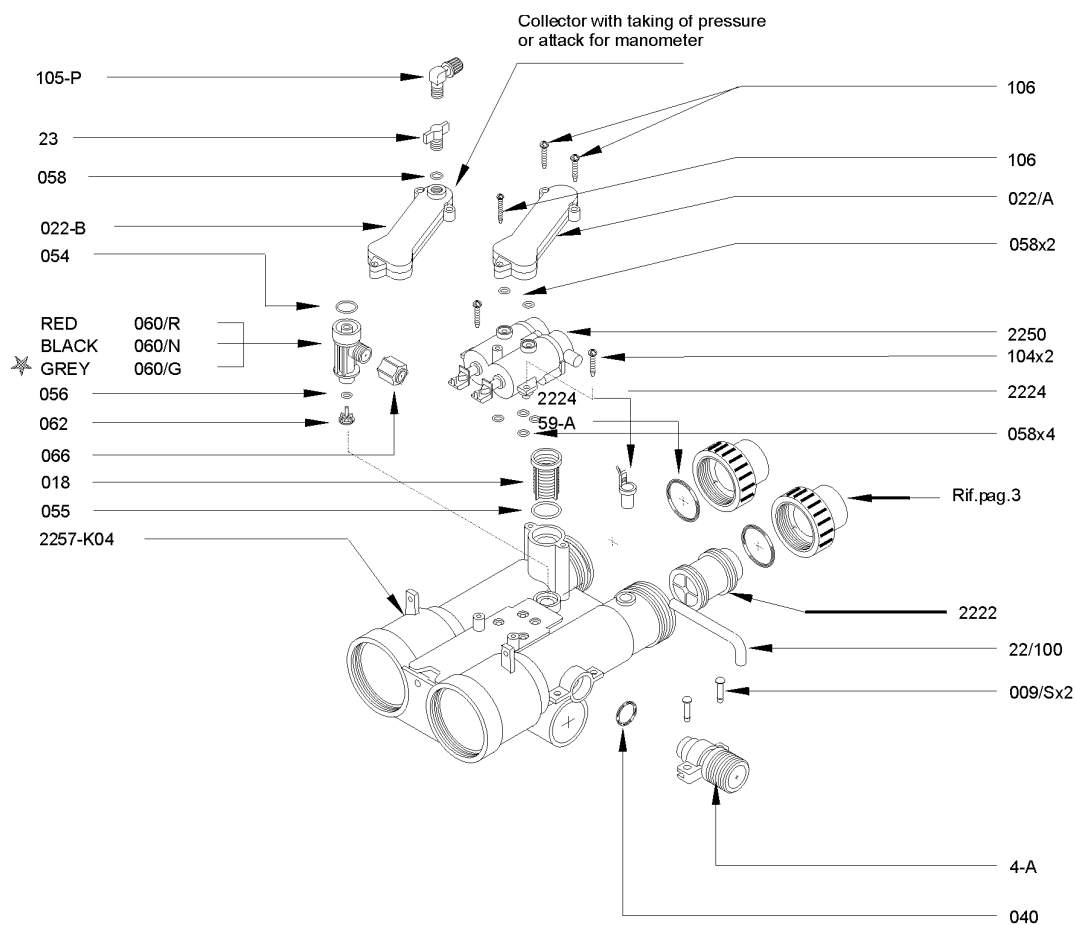
Duplex softening connections referring to schemes “T”.



INJECTORS & FLOW CONTROLS

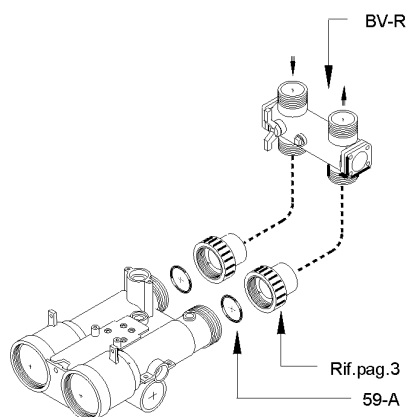
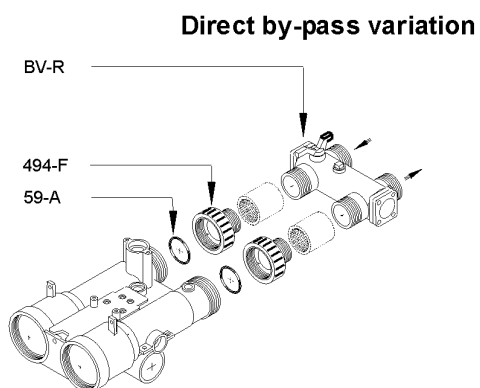
PRESSIONE PRESSURE		BAR PSI	2 29	2.5 37	3 44	3.5 51	4 59	4.5 66	5 73	5.5 81
Eiettore Rosso RED INJECTOR	ASPIRATO BRINE DELIVERY	L/h Gpm US	111 0.49	133 0.59	149 0.66	173 0.76	180 0.79	183 0.81	186 0.82	189 0.83
	MOTRICE MOTIVE/SLOW RINSE DELIVERY	L/h Gpm US	159 0.7	177 0.78	194 0.85	210 0.92	224 0.99	238 1.05	251 1.11	263 1.16
	PORTATA TOTALE REGENERATION DELIVERY	L/h Gpm US	270 1.19	310 1.36	343 1.51	383 1.69	404 1.78	421 1.85	437 1.92	452 1.99
Eiettore Nero BLACK INJECTOR	ASPIRATO BRINE DELIVERY	L/h Gpm US	188 0.83	210 0.92	228 1.0	270 1.19	282 1.24	281 1.28	300 1.32	307 1.35
	MOTRICE MOTIVE/SLOW RINSE DELIVERY	L/h Gpm US	249 1.1	279 1.23	305 1.34	330 1.45	353 1.55	374 1.65	394 1.73	414 1.82
	PORTATA TOTALE REGENERATION DELIVERY	L/h Gpm US	435 1.92	489 2.15	533 2.35	600 2.64	635 2.80	665 2.93	694 3.06	721 3.17
Eiettore Grigio GREY INJECTOR	ASPIRATO BRINE DELIVERY	L/h Gpm US	252 1.11	311 1.37	342 1.51	362 1.60	378 1.67	387 1.71	411 1.81	419 1.85
	MOTRICE MOTIVE/SLOW RINSE DELIVERY	L/h Gpm US	405 1.79	451 1.99	506 2.23	526 2.32	573 2.53	598 2.64	636 2.80	668 2.94
	PORTATA TOTALE REGENERATION DELIVERY	L/h Gpm US	657 2.90	762 3.36	848 3.74	888 3.91	951 4.20	985 4.34	1047 4.62	1085 4.78

STANDARD VOLUME VERSION

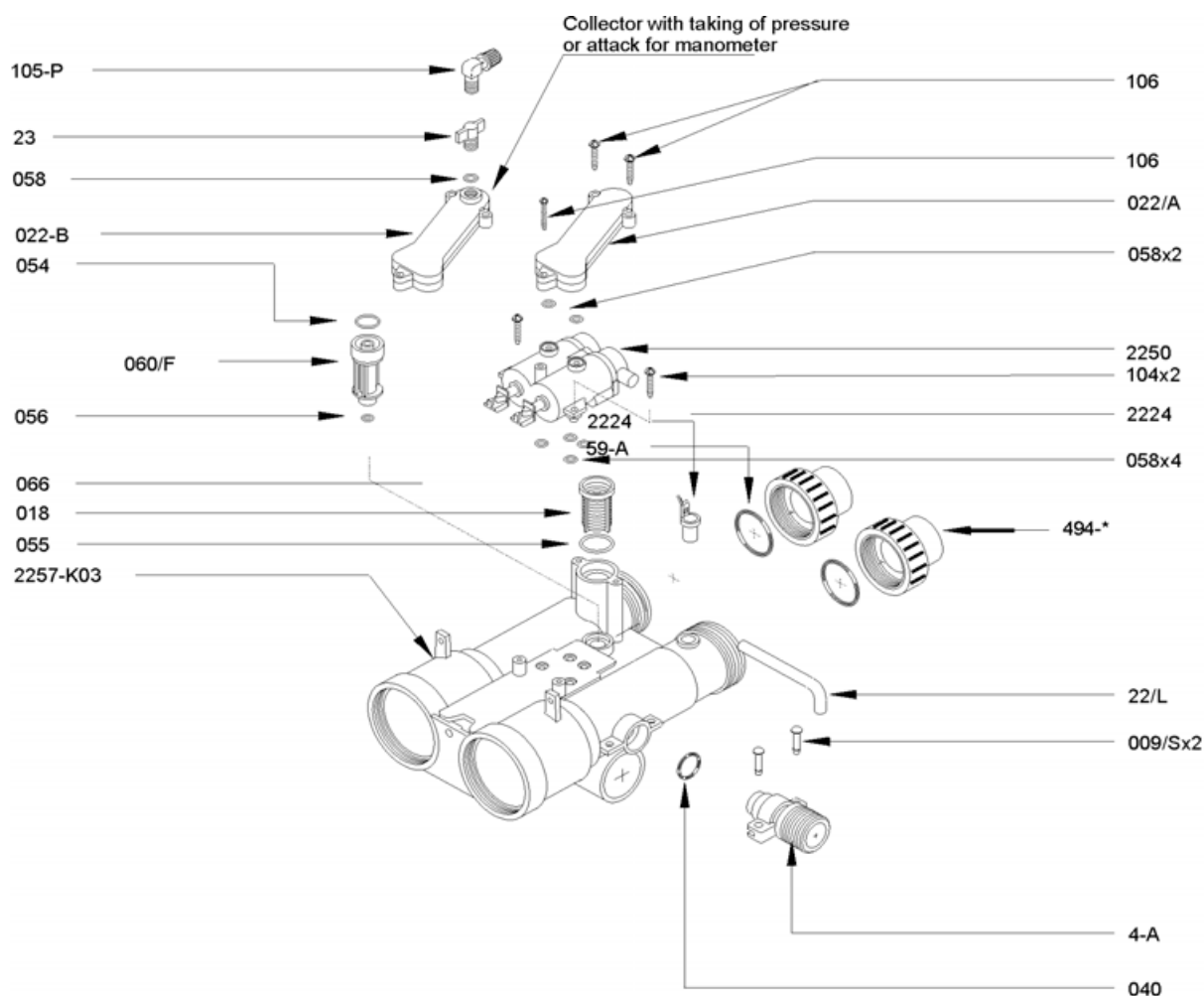


★ Is possible to mount grey injector with flow control

Remote by-pass variation

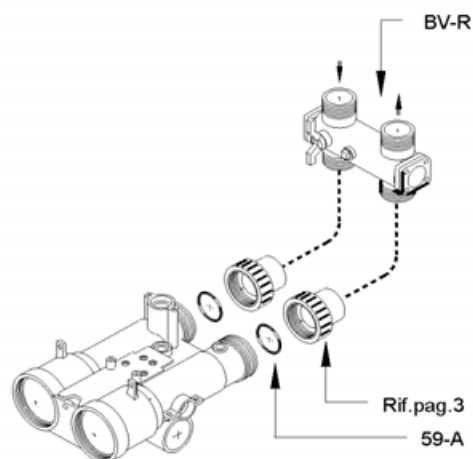
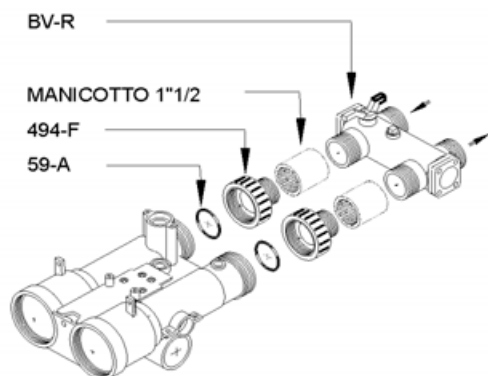


STANDARD FILTRATION VERSION

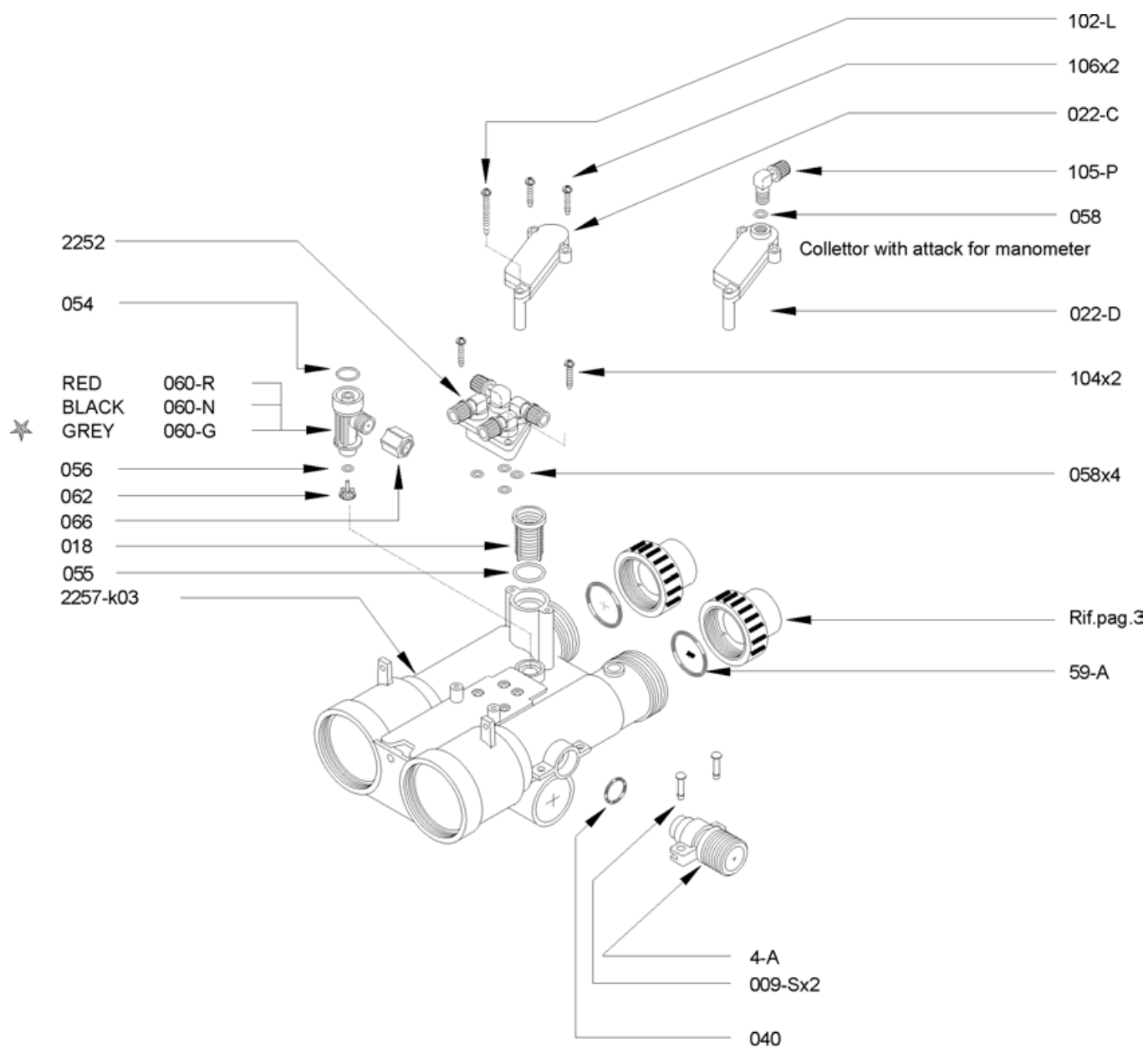


Remote by-pass variation

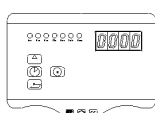
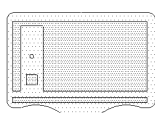
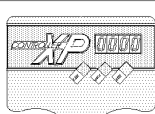
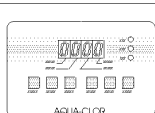
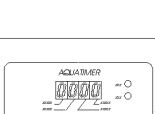
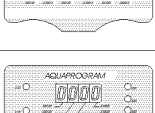
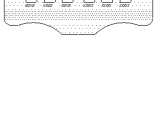
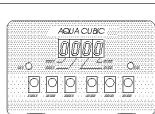
Direct by-pass variation



DUPLEX AND DEMINERALISATION VALVE VERSION

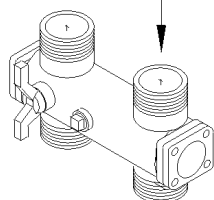


CONTROLLER

		Applications			Valve type					Function Versions						
		Softening	Filtration	Demineralisation	V132A	V132T	V132F	V132E	V132D	Time control	Volume control	Time / Volume control	Din connector	Clotline producer	Economy probe	Cable to watermeter
		Timer Code														
	CONTROLLER STANDARD ELECTRONIC	CS0	○	○	○	○				○						
	Electronic standard timer wich regenerates at the set hour in the allowed days the regeneration cycles are dependet upon a set rigeneration cycle scheme															
	STANDARD PULSI	SPO	○		○								1			
	Electromechanical controller with manual regeneration start, with the possibility of remote start function.	SPO/08		○			○						1			
	XP CONTROLLER	XPO	○	○	○		○			○						
	Electronic controller with adjustable regeneration cycle state times, time or time-volume regeneration start with delayed intervention. Manual start too	XPO/01	○				○			○		○				○
	AQUA CLOR	ACLO	○		○					○				○		
	Electronic controller with adjustable regeneration times, volume regeneration or volume regeneration with delayed start. EEPROM device. Chlorine producer TIMER	ACLO/01	○				○			○	○	○		○		○
	AQUA TIMER	ATO	○	○	○		○			○						
	Electronic controller with adjustable regeneration cycle stage times. Time, volume, volume regeneration with delayed start. Remote ellettronic signal available on request.	ATO/01	○				○			○	○	○				○
		ATO/02	○			○	○			○	○	○				
	AQUA PROGRAM	AP0/02	○			○	○			○	○	○	2		○	
	Electronic controller with adjustable regeneration cycle stage times: time, volume or volume regeneration start with remote start function. Optimises and controls regeneration cycle, command for another device available on request. Remote starter. INHIBIT. EEPROM device. (SIATA patent).															
	AQUA CUBIC	AC5	○	○				○		○			1			
	Electronic controller with adjustable regeneration times. Till 8 steps full regable. Usualy use for duplex plant. Volume regeneration start. EEPROM device.	AC7	○	○				○		○			1			
	AQUA IONIC	AI5			○				○	○			3		○	
	Electronic controller. Specific for demineralization systems. Adjustable regeneration cycle stage times. Treated water quality control in micro siemens/cm. Regeneration start: Volume - Conductivity - Volume/conductivity Manual both too. Interface available for auxiliary services.	AI7			○				○	○			3		○	

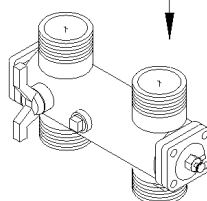
AUTOMATIC BY-PASS FOR DECALCIFIERS

Automatic remote by-pass
with mixer and withdrawal



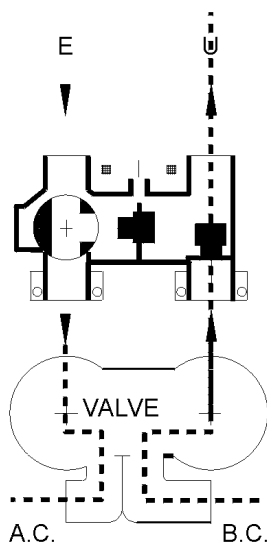
Code BV-R

Automatic remote by-pass
with mixer and withdrawal

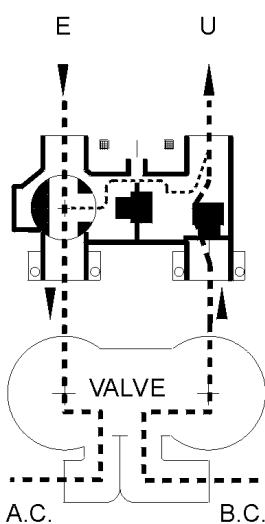


Code BV-RP

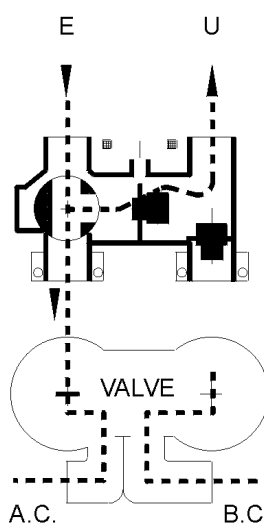
Service without
mixer



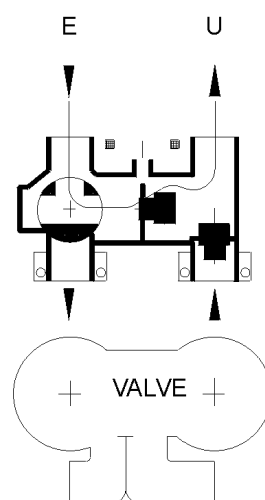
Service with
mixer



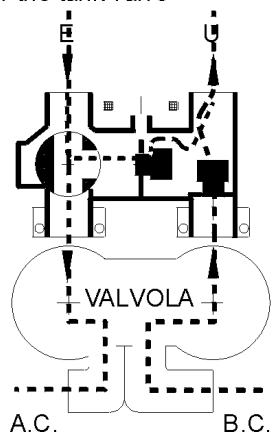
Regeneration



Exclusion

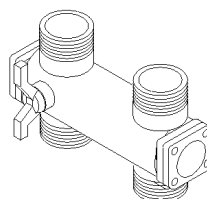


Service with elevated pressure drop
after the tank valve



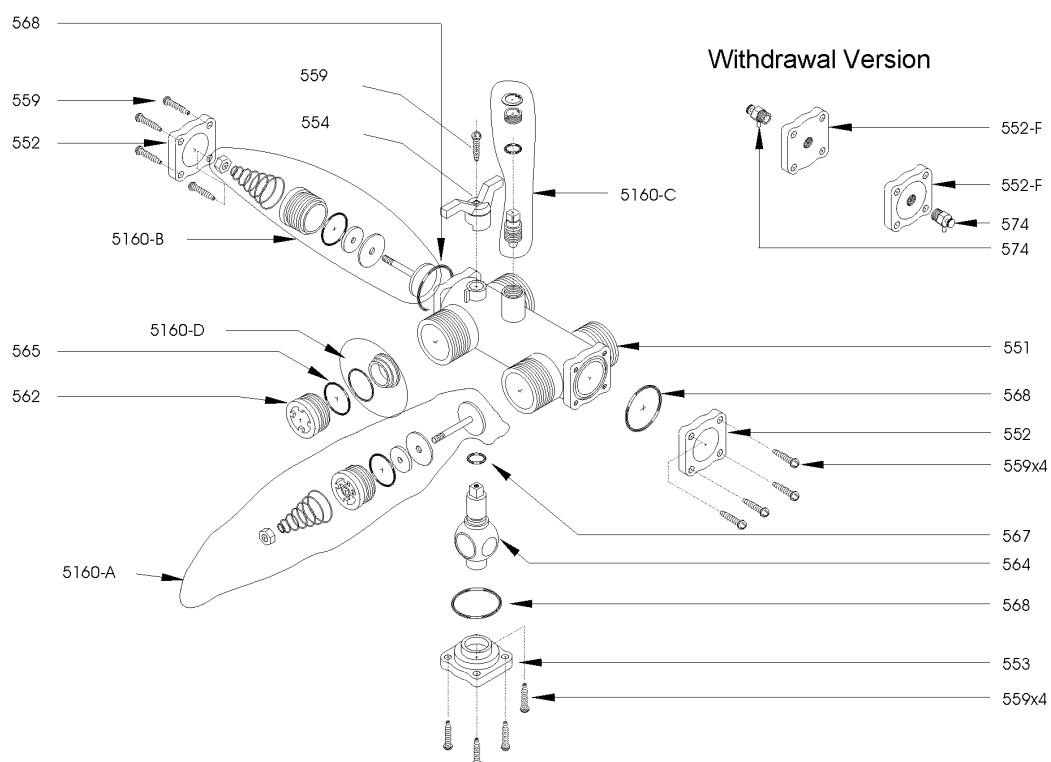
BY-PASS FOR FILTERS

Remote by-pass for filter

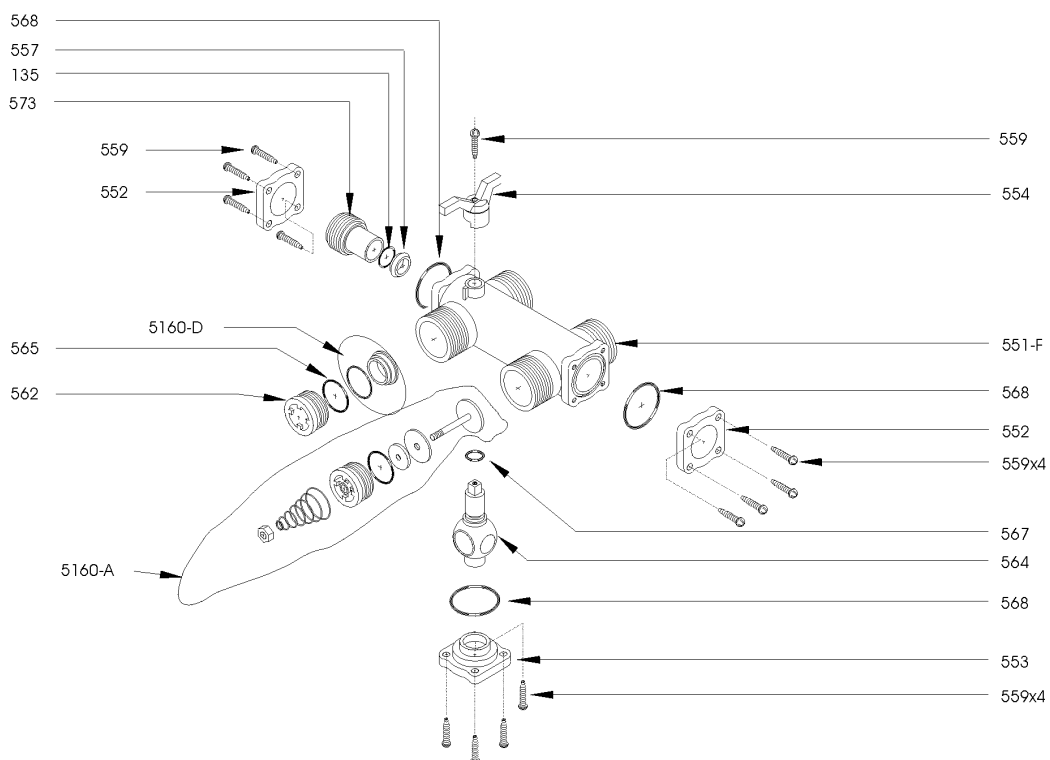


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REMOTE AUTOMATIC BY-PASS COMPONENTS



REMOTE BY-PASS COMPONENTS FOR FILTRATION





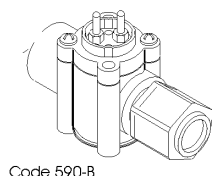
AUTOMATIC BY-PASS FUNCTIONS

Proportional automatic by-pass functions consist in performances that facilitate system service with the following functions:

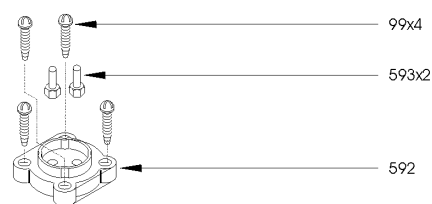
- a) delivery of untreated water during regeneration phases;
- b) partial delivery of water under use and service when withdrawals momentarily are higher than normal;
Example: a momentary increase in water consumption creates a drop in pressure after the softening tank. The drop in water pressure as it comes out of the softener causes the automatic by-pass valve to open partially, making up for the increased demand.
- c) the by-pass has a mixer which, regulated to system functioning, obtains a residual hardness value in treated water in conformity with norms.
- d) in the event the system is equipped with a chlorine producer, it is advised to use a BVRPOD by-pass with incoming and outgoing withdrawal, so as to perform the checks set out in DPR 443.
- e) the by-pass makes it possible to exclude the valve or the entire system without interrupting water delivery.

CHLORINE PRODUCER COMPONENTS

MALE/FEMALE



Code 590-B



99x4

593x2

592

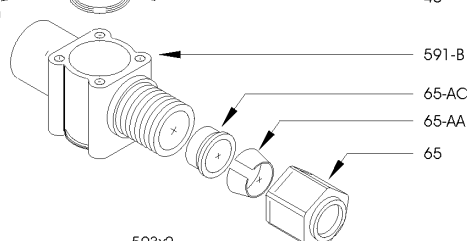


594x2



39

40

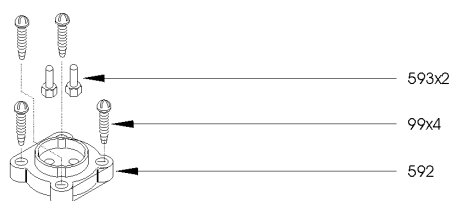


591-B

65-AC

65-AA

65



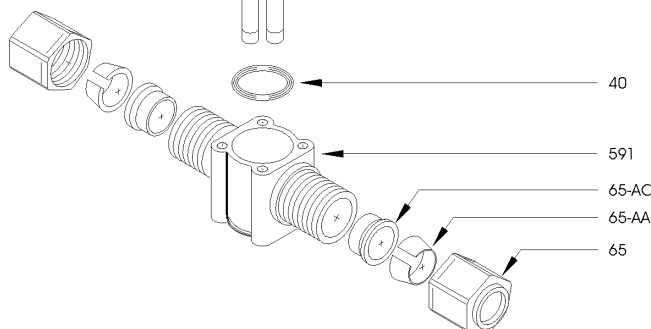
593x2

99x4

592



594x2



40

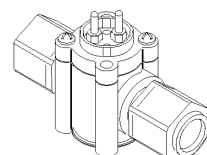
591

65-AC

65-AA

65

MALE/MALE

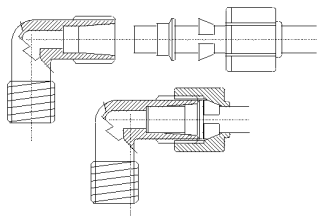


Code 590-A

CHLORINE PRODUCER FUNCTIONS

The chlorine producer is characterised by the possibility to automatically sterilise resin with each regeneration. For this function, of course, the valve must be equipped with the appropriate "cloro" electronic timer. This controller feeds electrically, during the phase of regeneration 2C, the cell electrolytic, producing so for the duration of the phase chlorine or is mixtures. The duration of the phase 2C rule so the quantity of chlorine that is necessary for the sterilisation of the resins.

TIPS AND SUGGESTIONS

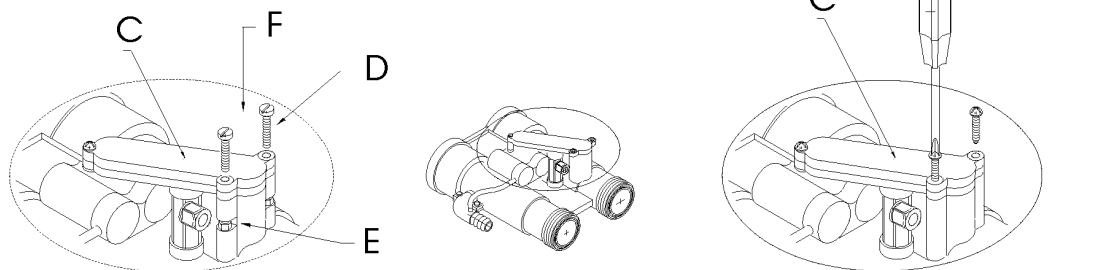


In connecting tubes and joints, using 1/8" \varnothing 9.7 mm rigid or flexible tubes, respect tube size. Tubes of smaller dimensions can not guarantee retaining quality to pressure or pressure loss. Tubes of larger dimensions can force the housing and compromise the mounting of blocking rings and retaining quality as well.

In performing interventions on existing connections, always use new retaining rings, cod. 65-AC 65-AA. In assembling, take care that the tube end fully enters the housing to guarantee the best grip.

In the case of flexible tubes, screw on the nut tightly using only one's hands and then, if necessary, a wrench. In using rigid tubes, use a wrench.

Disassembly and reassembly of self-threading screws



PRECAUTIONS IN DISASSEMBLING "C" COLLECTOR

In disassembling the "C" collector, unscrew the screws slowly to avoid gripping between materials and screws.

Before remounting, carefully clean the hole and screws.

Insert the screw in the hole and by hand, slowly turn it in direction "A" until reaching the beginning of the thread, then turn the screw in direction "B," still by hand, without forcing it.

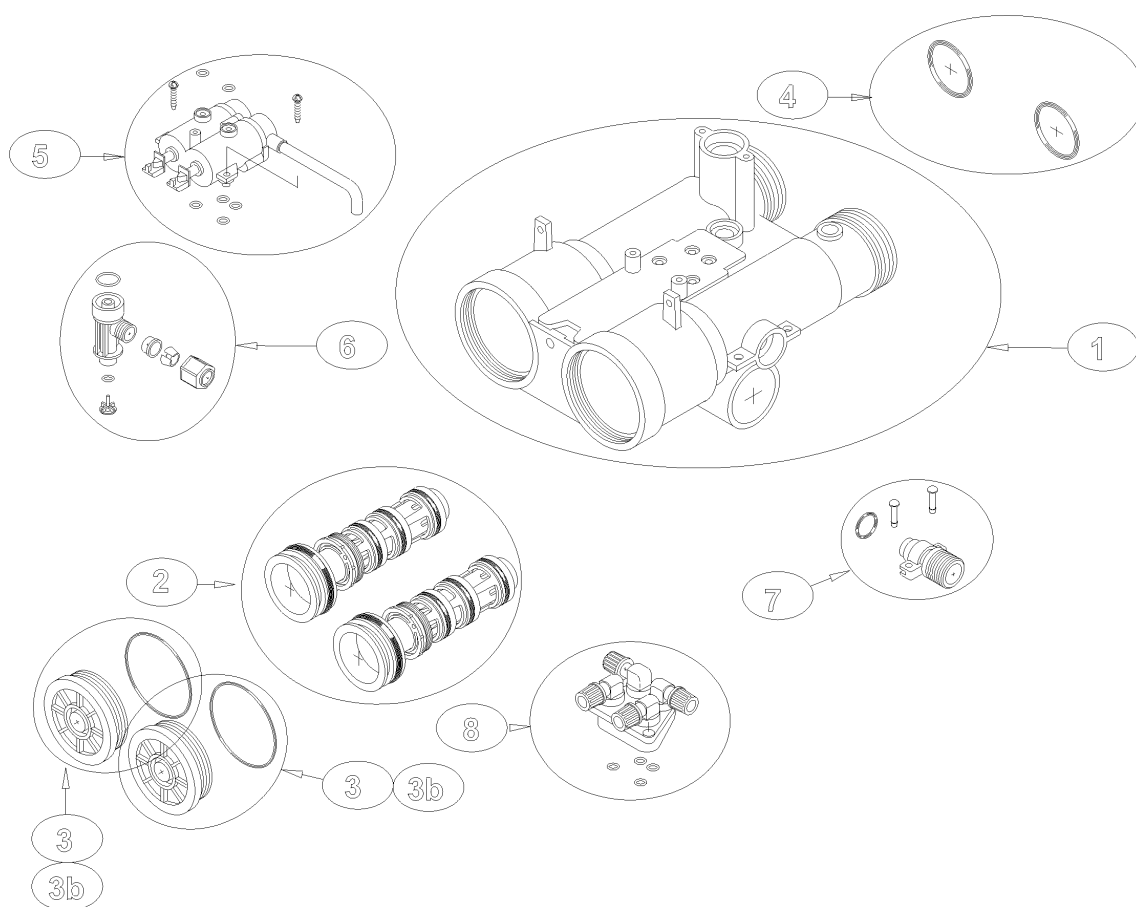
Using a screwdriver, slowly screw in direction "B" until tight; do not force. Always perform these operations using normal screwdrivers; do not use automatic screwdrivers.

MODIFICATION TO PERFORM IN CASE OF DAMAGE TO THREADED HOUSING OF "F" SELF-THREADING SCREWS

If during disassembly and reassembly of the "C" collector, the threads of the "F" screw housing, make a hole as indicated in "E," using a flat or squared large-grain file, 3 or 4 mm thick.

Insert a 3M nut in this hole and replace the "F" screws with M3 "D" screws of the proper length (minimum 15 mm).

Spare Parts Kit



RIF .	CODE	DESCRITION
1	- 2257-k03	240 valve body service kit
	- 2257-k04	230 volume valve body kit
2	- 2230	Piston service kit
3	- 1916-a	Piston cover
3b	- 1916-b	Piston cover with 1/8" threaded hole
4	- 59-a	External inlet-outlet port o-ring
5	- 2250	Pilot assembly
6	- 2231-r	Injector red
	- 2231-n	Injector black
	- 2231-g	Injector grey
7	- 2249-a	Drain manifold
7a	- 2249-c	Closed drain manifold
8	- 2252	Motive assembly connections

ACCESSORIES AND SPARE PARTS

Ref.	Code	Description
3	1916-A-05	valve cap with o-ring
4	1916-B-05	valve cap with o-ring and 1-8" g hole
5	590-A	Chlorine producer, ø 3-8" M/M
6	590-B	Chlorine producer, ø 3-8" F/M
7	494-B	PVC connection kit, 2"x1¼"
8	494-C	PVC connection kit, 2"xISO 40
9	494-F	Brass connection kit, 2"x1½"
10	494-S	2" gas – 1" ¼ npt pvc connection kit
11	2222	Complete turbine body
12	2296	1½" turbine water meter
13	2163	Conductivity sensor
14	2162-A	Anti-corrosion retaining valve, black (NaOH)
15	2162-K	Antiacid retaining valve, red (HCl)
16	2216	Temporised brine filling device
17	2161	Pin regulator
18	2238	V132 internal maintenance kit

INTERVENTIONS OF ORDINARY MAINTENANCE

drawback	cause	corrective action
leakage from drain during the service	leakage from the pilot	<p>1) - to close water in entrance</p> <p>2) - to close water in exit.</p> <p>3) - to detach the tube of connection between the pilot and the drain collector .</p> <p>4) - to remove the three screws that keep down the collector code 022 page. 9. To remove the two O-R 058 page. 9 and to replace them with two diskettes in soft rubber, thickness around 2mm. Or closing the passage with a thin sheet of plastic.</p> <p>5) - to reassemble the collector 022, tightening the three screws taking care not to force.</p> <p>6) - to reopen the inlet and the outlet of the water. Completed the procedure, if the leakage to drain has disappeared, the drawback is due to the pilot. In this case it's necessary a substitution. If the leakage persists, the cause could be owed to a leakage of the chambers of the main cylinders. To identify the defective chamber, to proceed as to the 4 point , to close only one of the two O-R 058 beginning from the left one. the same operation will be effected, eventually, also for the right chamber.</p> <p>The indication of what chamber is defective is the disappearance of the leakage, in relationship to the closed side of the pilot. To eliminate the defect, it is necessary to take a part the defective chamber, proceeding as below:</p> <p>a) to -close water inlet and outlet</p> <p>b) to -unscrew the cap of the defective chamber using the special tool or seeger pliers. The maintenance kit contains the right tools for the interventions of maintenance.</p> <p>c) - to remove the stem of the pilot of the side related to the chamber.</p> <p>d) - to extract the piston with a pliers, take out the inside pivot.</p> <p>e) -to -verify that there are not scratches or other damages on the stem of the piston.</p> <p>f) -if evident defects are not found on the piston, to unscrew the blockage ferrule of the spacer package , and to verify the state of the O-R 043-044-048 pag.9. If there isn't damage, it's advisable to replace all the gaskets O-R, verifying carefully the state of all. In the case to proceed is necessary to the complete removal of the spacer package, take care at the moment of the reassembly, to check the exact position page. 9.</p>
	Leakage from external command pilot	<p>Also this may be detected through a simple test:</p> <p>1) Disconnect, in service position, pressure connectors 2 and 4 alternatively.</p> <p>2) In case some water should leak from one of the pressure connectors from the pilot body, it means that the related pilot has some leaks and must be replaced. If the leakage is not due to the pilots, its cause has to be ascribed to a possible leakage of valve piston.</p>
	leakage of her valve through the system of the pistons	<p>In the case the leakage is found to originate only from the collector of draining, it is possible to determine easily in what chamber / piston there is the leakage.</p> <p>7) -if the water of leakage to drain is hard water, it is due probably to the O-R of the ferrule 012 (043-044-048), inlet side, page. 9. Phase service pag.7.</p> <p>8) - if the water of leakage to drain it results soft water, to replace the third O-R after the ferrule, page. 7 phase service.</p> <p>To effect this intervention, to proceed as suitable to the point 6 paragraphs "a,b,c,d,e,f."</p>
Hardness' escape To the exit	probable leakage between entrance and exit O-R on the kept ac/bc	<p>9) -to extract the piston of the entrance, to check that there are not damages evident on the surface. if the piston results damaged, to replace it. Otherwise I would replace the first O-R departing from the end of the stem piston (entered). Page. 7 and 9. to effect this intervention, to proceed as suitable to the point 6°, paragraphs "a,b,c,d,e,f."</p> <p>10) - to remove the valve from the cylinder, to replace the O-R 046 that it operates the estate between the top column and the pipe of the down column.</p>
It doesn't inhale brine	lack of pressure	<p>11) -to close the entrance to the valve, verifier that the manometer points at one non inferior pressure to 2 bar, if it results inferior, the pressure is insufficient.</p> <p>12) - if to the point 11 the pressure is superior to 2 bar, to check the state of stoppage of the mechanical filter, installed to the entry of the plant. To get off it and to polish up. If after this operation the problem has not resolved, to proceed with the point 13.</p>
	Obstruction pre filter over pilot. Obstruction perforate injector. Problems to the brain tank	<p>13) -to remove the collector 022 page. 9, to extract the filter 018 and to polish up it carefully, therefore to proceed to the point 14.</p> <p>14) -to remove the injector 060 page. 9, to polish up the holes of the same carefully and to reassemble everything.</p> <p>15) -if after this actions, the problem has not been eliminated, proceed to an accurate control of the complex connections and brine tank :</p> <p>g) -to check that there are not obstructions in the system of connection.</p> <p>h) -to check that the pole of the craft forced toward the lower part, disburse water.</p> <p>i) -to check that the salt of the container, is not become hard.</p> <p>j) -verify that the brine valve works in all regularly its components, doesn't have leakage on some terminal or link.</p>