

MS5 and MS7 PS1, PS3, PS5 and PS7



General

For safety during installation and later use it is very important that installation, operating and maintenance instructions are carefully followed.

You are requested to keep this instruction manual at a location where it will be available at all times, and it should be submitted to the person who is responsible for this product. In the event that the instruction manual is lost, you are welcome to order a new one from your dealer.

If any doubt should arise with regard to the content of these instructions, please contact the distributor.

Proper use

System Cleaners' system is exclusively designed to transport and pressure-increase of water to satellite stations. All other forms of application or use not within the scope of the above are considered to be improper and inconsistent with the requirements and regulations, and may lead to hazardous situations.

System Cleaners A/S cannot be held liable for consequential damage resulting from improper use of the equipment.

Proper use includes the following:

- The instructions, regulations and recommendations concerning the system stated in the instruction manual
- Observance of the specified inspection and maintenance intervals
- Correct maintenance of good operating condition of the system
- Observance of the specified environmental and operating conditions

Proper use also includes observance of all information that is stated in this instruction manual. This applies in particular to the specified safety instructions.

Liability

Each user must handle and use the system in a responsible manner.

It is therefore of great importance that this instruction manual is available to the sanitation employee concerned at all times.

Safety

The design of the system complies with generally accepted technical regulations and provisions concerning the working environment and accident prevention. Despite this, risks can occur during use that can lead to physical inconvenience for the user or a third party or have an impact on the machine or other equipment.

The system must therefore be in prime technical condition before use and may only be used in accordance with its purpose and with strict observance of the safety requirements and operating instructions. In particular, malfunctions and irregularities that can affect safety must be remedied immediately.

Warranty

For a period of 24 months from the date of delivery, your dealer will honor a warranty on parts that do not function properly due to material defects or manufacturing faults. The warranty does not cover wearing parts. The warranty will cover replacement or repair of the defective part. Costs with regard to dismantling, forwarding and reassembly are defrayed by the purchaser. Any return shipments from System Cleaners A/S following completed repairs are defrayed by System Cleaners A/S. The defective parts remain the property of System Cleaners A/S.

Claims that may be made for legal reasons, ordinary wear and tear, as well as damage to parts that can be attributed to negligent or improper handling are not covered by the warranty. The warranty will be void if the system has been exposed to frost. The warranty will also be void if modifications or repairs have been carried out by unauthorized personnel. Warranty claims will only be accepted if they are reported to System Cleaners A/S immediately after damage has been discovered. The warranty is terminated if there is a change of ownership of the machine. System Cleaners A/S and its dealers cannot be held liable for personal injury, damage to equipment, loss of earnings, including production losses, losses to stock or similar that may have arisen as a result of defects or delayed delivery of the sold product, irrespective of the cause, including manufacturing faults or material defects. In addition, please refer to our general terms and conditions of sales and delivery.

Disposal

Please be aware of the following applicable provisions: the equipment must be disposed of according to its nature and applicable requirements, e.g. electrical scrap, synthetic material, stainless steel, brass, etc.

Labelling

The system is equipped with a type plate containing technical data.

The type plate is located on a fixed part of the system.

Declaration of conformity

We declare that this product is in conformity with the following directives:

- 2006/42/EC Directive on Machinery
- 2014/35/EU Low Voltage Directive
- 2014/30/EU EMC Directive



Per Kjøller
Development Manager

DESCRIPTION

Main station (MS5 and MS7)

A main station has a built-in pump, a built-in satellite and is connected to electrical power, water mains, a number of chemicals and compressed air. It supplies pressurized water to the built-in satellite and a number of external satellites.

With the built-in satellite it is possible for one operator to rinse, foam or disinfect (depending on model) while pressurized water is supplied to external satellites.

The outlet pressure is constant regardless of the number of connected satellites in use.

The pump is protected from dry running in case of insufficient water supply.

The main station is protected from excessive water temperatures by a switch in the pump.

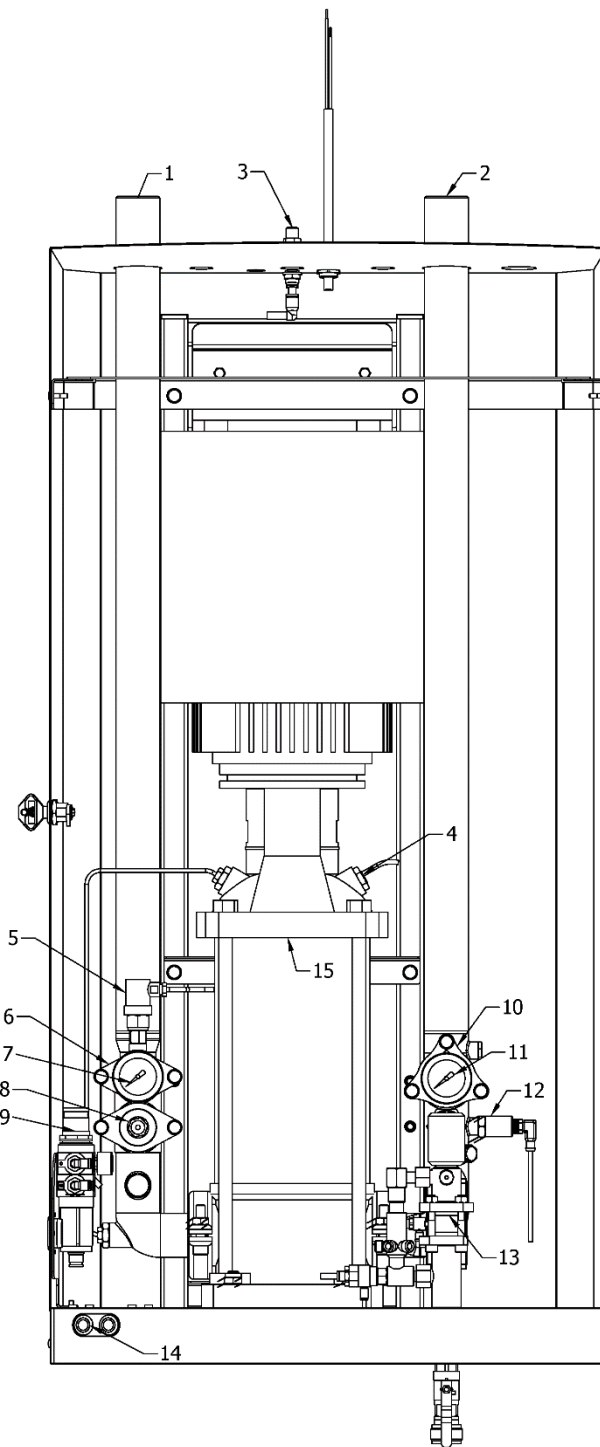
Pump station (PS1, PS3, PS5 and PS7)

A pump station has a built-in pump and is connected to electrical power, water mains and supplies pressurized water to a number of satellites.

The outlet pressure is constant regardless of the number of connected satellites in use.

The pump is protected from dry running in case of insufficient water supply.

The pump station is protected from excessive water temperatures by a switch in the pump.



Pos.	Description
1	Input 1.1/2"
2	Outlet 1.1/2"
3	Air connection ø8
4	Temperature switch
5	Pressure switch
6	Filter
7	Input pressure
8	Flow switch
9	Pneumatic assembly
10	Non-return valve
11	Outlet pressure
12	Pressure transmitter
13	Injector system
14	Start/Stop
15	Pump

INSTALLATION

Storage

The machine must not be exposed to frost unless it has been emptied of water (frost protected). Even brief periods of exposure to frost may cause damage to the equipment.

Store the equipment in a frost-free room in the original packing.

Installation

Place the equipment in a frost-free room, well protected from the sun and place it on a hard surface.

Make sure that, in the event of failing non-return valves in the air and water supply, there are suitable back-flow preventers fitted.

Local regulations may require installation of a back-flow protecting device to prevent compressed air or chemicals getting into the water supply.

Piping

The piping should be made from materials suitable for the media in the pipes, the maximum pressure and temperature.

It is the fitter's responsibility to ensure that the piping including all armatures conform to local regulations.

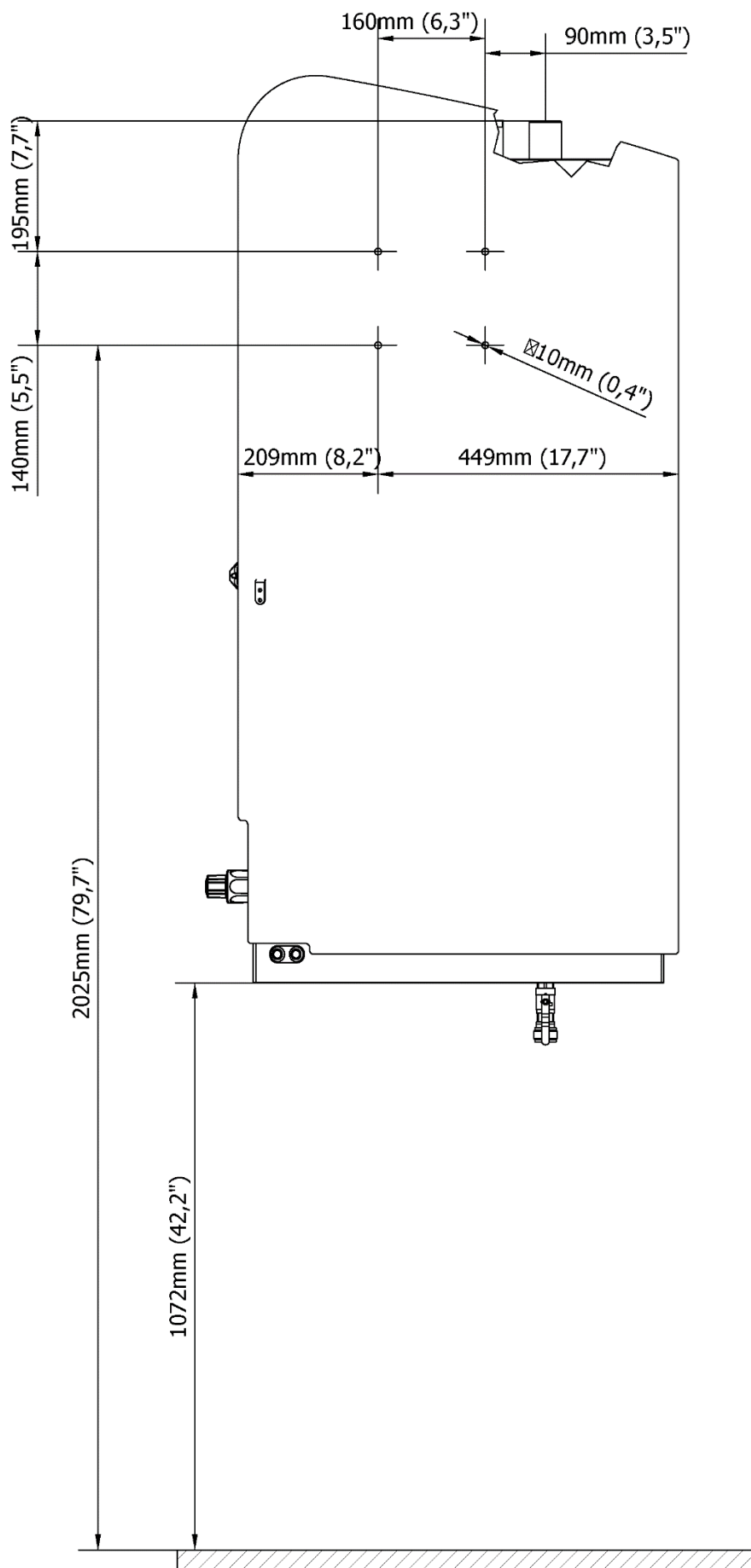
The installation must be performed such that forces from pipes etc. are not transferred to the equipment during and after fitting, as this may result in leaks or damage the equipment.

Select a pipe size so that the flow velocity in the pipe is up to 3 meters/second (10 feet/second). This gives a normally accepted pressure loss and low noise from the flow.

In order to facilitate maintenance of the equipment, it is recommended to fit a shut-off valve in the pipelines immediately at the connections for water.

Pipe supports

Always use pipe supports designed for the pipe size and material and maximum working pressure and temperature.



COMMISSIONING

Flushing

Pipes etc. must be flushed efficiently before connecting the unit.

Before commencing operation on the unit or following repair work, the unit must be flushed thoroughly to remove any impurities or foreign bodies.

Bleeding

Prior to starting the system for the first time and following any interruption of the water supply, the pump and pipelines must be bled thoroughly to avoid damage to the pump's shaft seal.

Air pockets in the pipes may cause destructive water hammer when the pump starts.

Disinfection

Local specifications may require disinfection of the wetted parts like internals of pipes and pumps before use to avoid contamination of newly cleaned surfaces.

Dosing (MS5 and MS7)

Adjust the dosing according to the chemical supplier's recommendations.

Always calibrate and, if required, document the dosing on a regular basis.

Air (MS5 and MS7)

Adjust the air pressure until a satisfactory foam quality is achieved.

Note that good foam quality depends on the mixture of water, chemical and air and getting a perfect result requires some adjustments of the mixing ratios.

OPERATION

Safety

It is recommended that suitable working clothes be worn. For protection against certain types of detergents, always use protective goggles, respiratory protective equipment and rubber gloves.

It is recommended that non-slip footwear be worn since the floor can be slippery due to the presence of water and foam.

This system may only be operated, maintained and – not least - repaired by persons who are familiar with the system and properly trained to carry out the job concerned.

It is the customer's responsibility that these installation and operating instructions are supplemented by in-house instructions concerning inspection and reporting, industrial management, personnel training, etc.

Do not carry out any work if you are unsure of the consequences or are insufficiently skilled to carry it out. If in doubt, you should contact your superior or your agent in advance.

Never direct the water jet at other persons.

Never direct the water jet at electrical installations.

Check that couplings "lock" when hoses and nozzles are fitted. If possible, practise this procedure before operation. Always relieve the pressure in the rinsing hose by opening the low-pressure gun or valve after the water supply has been shut off before dismantling the couplings and removing the hose.

During operation of the system, ensure that the low-pressure gun/valve is closed before releasing the handle.

When the low-pressure gun or valve is opened, the water jet will result in a certain amount of counter-pressure. Therefore make sure that you hold the handle firmly and have a firm foothold.

Before removing the cabinet, the power supply must be switched off.

Safety precautions and safety devices must comply with national regulations applicable at any time.

Internally, protection corresponds to IP 55. On a number of components hazardous voltages can occur. During operation the cabinet must always be closed.

Never insert or remove a plug from an electrical socket unless the power has been switched off.

System Cleaners low-pressure systems may only be used in conjunction with soaps and chemicals that are approved for cleaning within the food or transport industries.

Soaps and chemicals that are classified as highly corrosive, toxic or which pose a health risk to humans or animals may not be used.

The system must not be used together with solvents or volatile liquids that pose a health risk or are inflammable.

In the event that the system is used with non-approved soaps, chemicals or solvents, System Cleaners A/S disclaims all liability.

If in doubt, please contact your soap or chemical supplier and read the supplier manual.

In the event that you use the system with chemicals that require mandatory labelling, or if the water temperature exceeds 50°C, a low-pressure gun with an automatic closing device must be used.

Start

The system starts automatically in the event of falling pressure in the outlet pipe like when the operator opens the low pressure gun or valve.

Pressure setting (remote control)

Use the optional R100 remote control or the optional Bluetooth dongle to change the pressure set point. Be careful not to set the pressure below 15 bar (217 psi) if the unit is supplying a satellite – both built-in and external - as this may compromise the function of the injector.

Stop

The system stops automatically shortly after water is no longer being used like when the operator closes the low pressure gun or valve.

Leaks

If there are leaks in the system's non-return valve, pipelines or satellites, the pump will start although there is no water being used.

Flush injector system (MS5 and MS7)

After each use flush the injector system with warm water to avoid clogging of the injector.

MAINTENANCE

Water filter

Depending on the mains water quality it may be necessary to clean the water filter on a regular basis to prevent the pump from stopping.

Flow switch

The flow switch does not require maintenance.

Shaft seal

The shaft seal does not require maintenance. Leaks are normally a sign of dry running caused by insufficient water supply to the pump.

Water non-return valve

Water non-return valves are critical wear parts and should be replaced yearly.

Pump, motor and frequency drive

Scaling compromises the function of the pump and de-scaling following the chemical supplier's guidelines may be necessary on a regular basis.

Motor and frequency drive do not require maintenance.

Air filter (MS5 and MS7)

Depending on the quality of the compressed air it may be necessary to empty condensation collected in the air filter bowl on a regular basis.

Injector system (MS5 and MS7)

The injector system consists of foot strainer, dosing valve, non-return valve and injector.

Chemical residues compromises the function of the injector and flushing with warm water after each use is required to maintain trouble free operation.

Depending on the water quality it may be necessary to de-scale the water side of the injector on a regular basis following the chemical supplier's guidelines.

TROUBLE SHOOTING MS5 and MS7

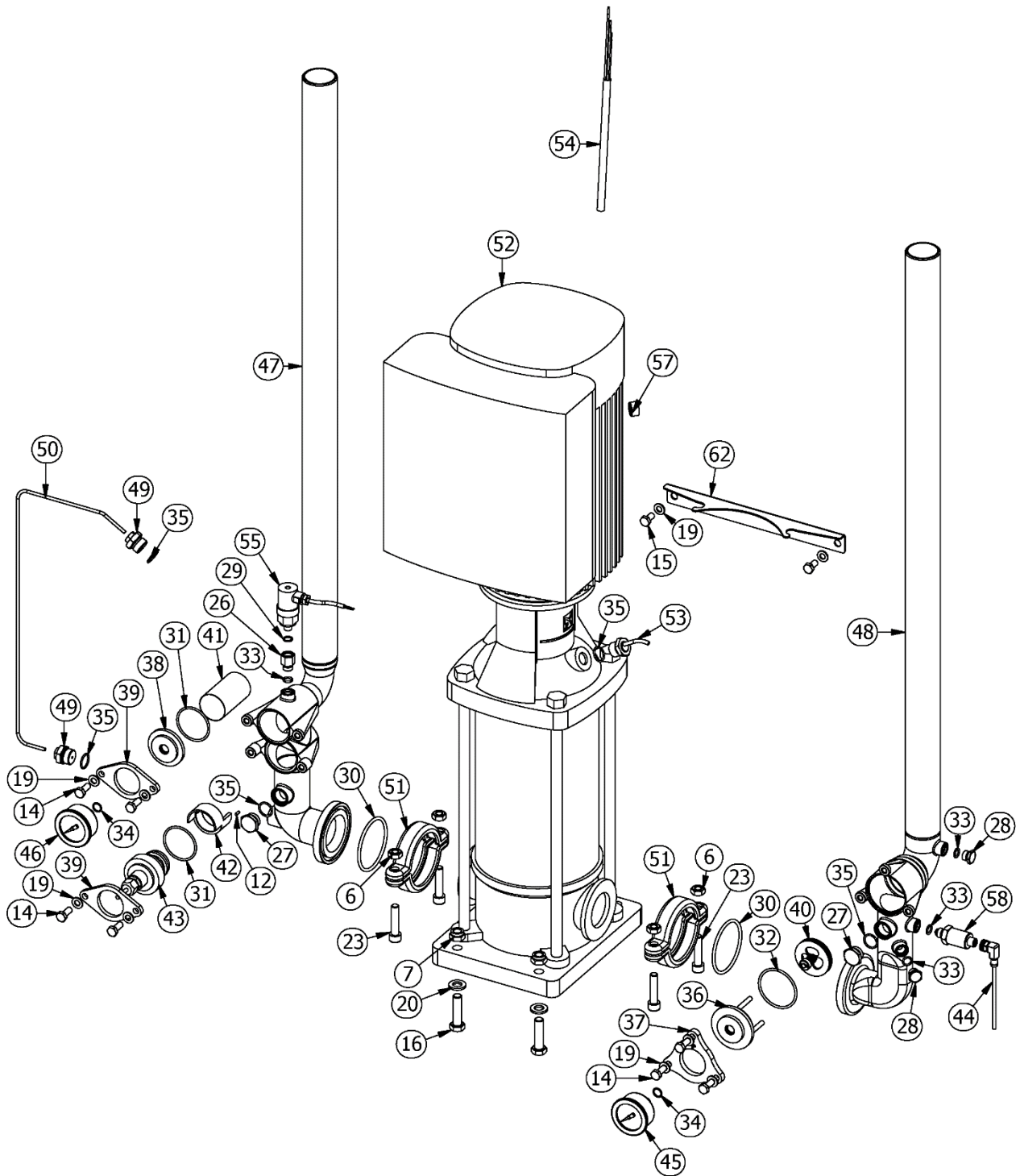
Fault	Cause	Remedy
No water or insufficient water at the nozzle when rinsing	Function selector is in closed position	Turn the function selector switch to the desired function
	Insufficient water supply to the unit	Make sure that the water supply is as described in the technical specifications
	Valve at the end of the hose not open	Open valve
The unit does not suck up detergent	Function selector is not in the correct position	Turn function selector switch to desired function
	Suction filter or chemical restrictor are blocked by chemical residue	Clean suction filter or chemical restrictor
	Water pressure is too low	Make sure water supply is as described in the technical specifications
	Suction filter is above the fluid level in chemical container	Position the suction filter below fluid level
Poor foam quality	Chemical product is not a foaming product	Change to a foaming chemical
	Incorrect dosing	Adjust the dosing according to chemical supplier's specifications
	Suction filter or chemical restrictor are blocked by chemical residue	Clean the suction filter or chemical restrictor
	Water pressure is too low	Make sure that the water supply is as described in the technical specifications
	Air pressure too low	Increase air pressure
	Non-original foam nozzle fitted	Replace with original white foam nozzle

Fault	Cause	Remedy
Rinse pressure too low	Pump station not started	Press green button
	Too many simultaneous users	Reduce the number of simultaneous users
	Pump stopped due to inlet pressure less than 1.5 bar (23 psi)	Increase inlet pressure to between 1.5 and 10 bar (23 and 145 psi)
The device will not start	Valve in inlet or outlet closed	Open valves
	Inlet water pressure less than 1.5 bar (23 psi)	Increase inlet pressure to between 1.5 and 10 bar (23 and 145 psi)

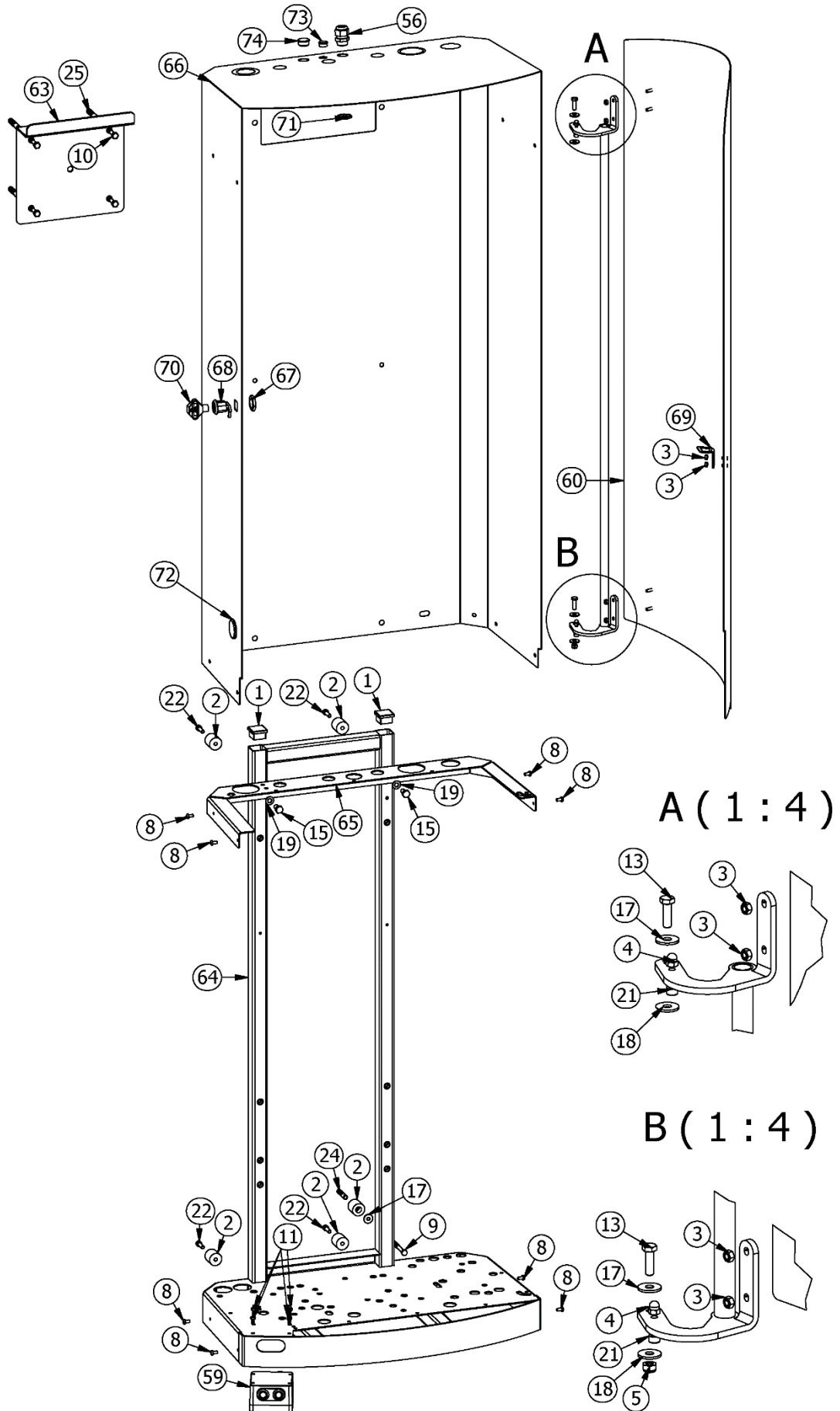
TROUBLE SHOOTING PS1, PS3, PS5 and PS7

Fault	Cause	Remedy
Rinse pressure too low	Pump station not started	Press green button
	Too many simultaneous users	Reduce the number of simultaneous users
	Pump stopped due to inlet pressure less than 1.5 bar (23 psi)	Increase inlet pressure to between 1.5 and 10 bar (23 and 145 psi)
The device will not start	Valve in inlet or outlet closed	Open valves
	Inlet water pressure less than 1.5 bar (23 psi)	Increase inlet pressure to between 1.5 and 10 bar (23 and 145 psi)

Spare parts machine



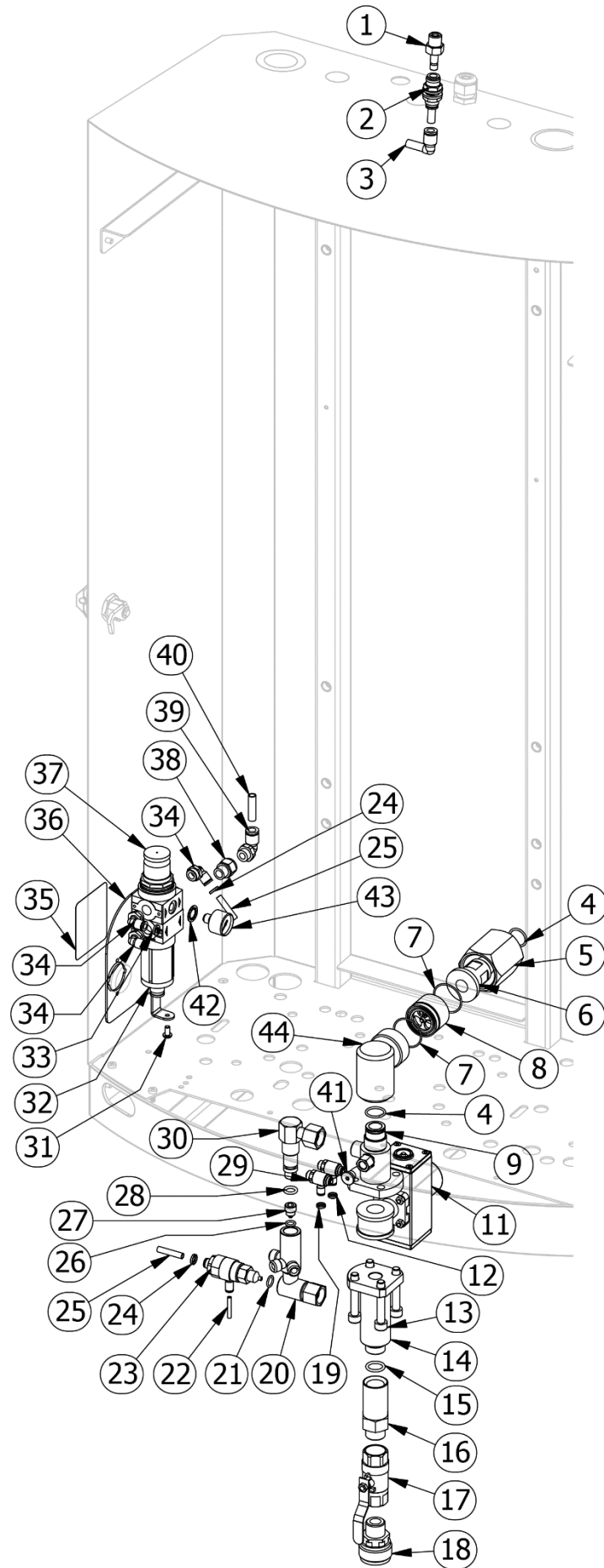
Spare parts Cabinet



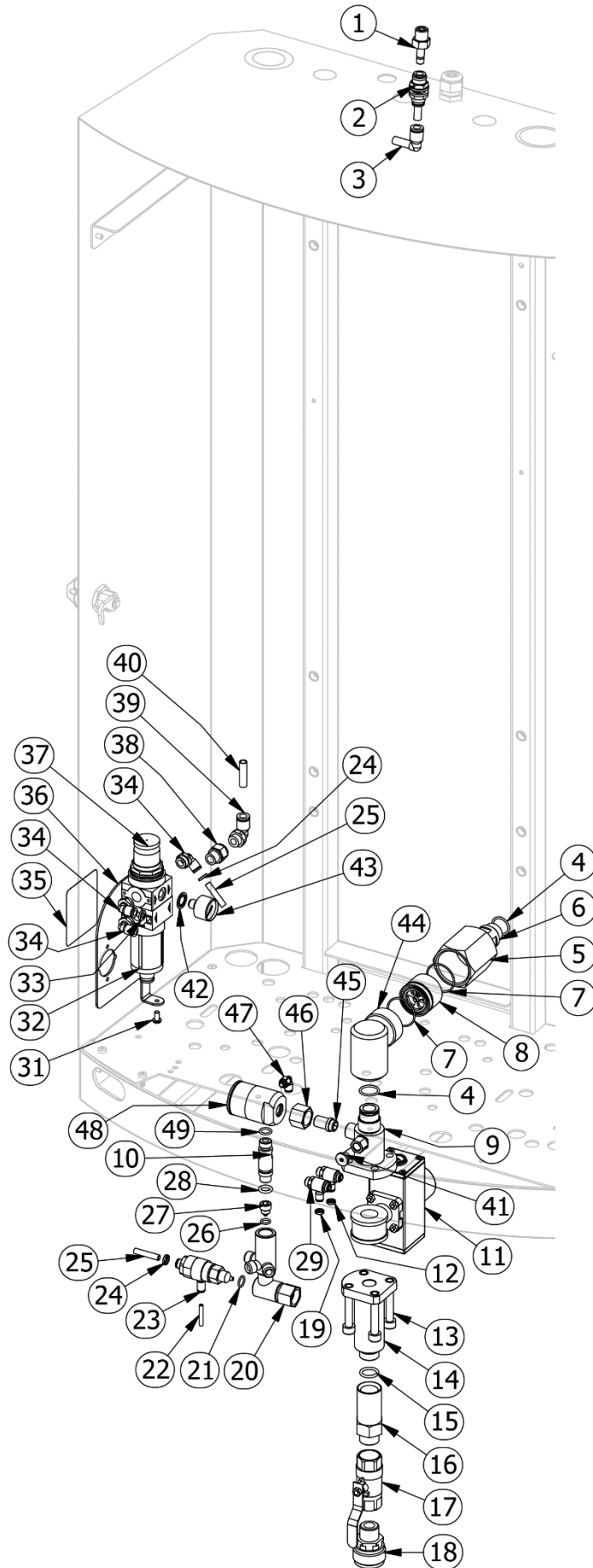
Pos.	Part no.	Description	Material	Version
1	04-000072	Plastic knob 30mm	Plastic	All
2	04-000178	Spacer ø25x25,75 sort	PVC-U	All
3	08-000502	Lock nut M5	A2	All
4	08-000504	Cap nut M5	A2	All
5	08-000602	Lock nut M6	A2	All
6	08-000801	Nut M8	A2	MS5, PS1, PS3, PS5
6	08-001001	Nut M10	A2	MS7, PS7
7	08-001201	Lock nut M12	A2	All
8	08-100515	Screw buttonhead M5x10mm	A2	All
9	08-100610	Coach screw M6x80mm	A2	All
10	08-100801	Coach screw M8x60	A2	All
11	08-104015	Screw for plastic 5x12	A2	All
12	08-105020	Spring pin ø3x8 RF	A2	All
13	08-200602	Set screw M6x20	A2	All
14	08-200805	Set screw M8x20	A2	All
15	08-200808	Set screw M8x16	A2	All
16	08-201207	Set screw M12x40	A2	MS5, PS1, PS3, PS5
16	08-201211	Set screw M12x45	A2	MS7, PS7
17	08-300602	Disc washer ø6	A2	All
18	08-300605	Disc washer ø6	Nylon	All
19	08-300803	Plane washer ø8	A2	All
20	08-301202	Disc washer ø12	A2	All
21	08-800505	Cheese-head screw M5x10	A2	All
22	08-800601	Cheese-head screw M6x20	A2	All
23	08-800835	Cheese-head screw M8x35	A2	MS5, PS1, PS3, PS5
23	08-801003	Cheese-head screw M10x45	A2	MS7, PS7
24	08-900008	Rawlplugs S 8	PVC	All
25	08-900010	Rawlplugs S 10	PVC	All
26	15-200082	Socket 1/4"x1/8"	AISI 316	All
27	16-501200	Plug 1/2"	AISI 304	All
28	16-501403	Plug 1/4" 9mm	AISI 316	All
29	17-000032	O-ring 10,1x1,6 NBR 70 shore	NBR	All
30	17-010010	O-ring 46x3	NBR	MS5, PS1, PS3, PS5
30	17-010011	O-ring 70x4	NBR	MS7, PS7
31	17-020004	O-ring 47,29x2,62 EPDM 70 sh	EPDM	All
32	17-020017	O-ring 55,2x3 EPDM	EPDM	All
33	17-020055	O-ring 10x2 70 shore	EPDM	All
34	17-020056	O-ring 11x1,5 70 shore	EPDM	All
35	17-020080	O-ring 18x2 70 shore	EPDM	All
36	20-010006	Cap for Non-return valve	AISI 303	All
37	20-010007	Flange for Non-return valve	AISI 303	All
38	20-010008	Cap for Filter	AISI 303	All
39	20-010009	Flange for Filter	AISI 303	All
40	20-200200	Non-return valve 1.1/2"	AISI 304/NBR	All
41	20-510040	Filter insertion 1.1/2" 800 µm	AISI 304	All
42	21-000022	Insert for flow-switch	AISI 303	All
43	21-000025	Flow switch 1.1/2"	-	All
44	21-000102	Angle connector M12x5m	-	All
45	22-000042	Gauge ø50 0-60 bar SS	AISI 304/brass/glycerine	All
46	22-000044	Gauge ø50, -1-16 bar SS	AISI 304/brass/glycerine	All
47	25-050019	Inlet pipe 1.1/4"/1.1/2" BSP	AISI 304	MS5, PS1, PS3, PS5 BSP
47	25-050020	Inlet pipe 1.1/2" BSP	AISI 304	MS7, PS7, BSP
47	25-050027	Inlet pipe 1.1/4"/1.1/2" NPT	AISI 316	MS5, PS1, PS3, PS5 NPT
47	25-050028	Inlet pipe 1.1/2" NPT	AISI 316	MS7, PS7, NPT
48	25-250020	Outlet pipe 1.1/4"/1.1/2" BSP	AISI 304	MS5, PS1, PS3, PS5 BSP
48	25-250021	Outlet pipe 1.1/2" BSP	AISI 304	MS7, PS7, BSP
48	25-250026	Outlet pipe 1.1/4"/1.1/2" NPT	AISI 316	MS5, PS1, PS3, PS5 NPT

48	25-250027	Outlet pipe 1.1/2" NPT	AISI 316	MS7, PS7, NPT
49	26-100100	Clamping ring fitting 1/2"x4	AISI 303	All
50	26-100121	Vent pipe model 5	AISI 304	MS5, PS1, PS3, PS5
50	26-100131	Vent pipe model 7	AISI 304	MS7, PS7
51	30-740483	Flexi clamps ø48,3	-	MS5, PS1, PS3, PS5
51	30-740761	Flexi clamps ø76,1	-	MS7, PS7
52	06-000315	Pumpe CRNE 3-9 2,2 kW	-	PS1 3x380-500v/50-60Hz
52	06-000600	Pumpe CRNE 3-9 4 kW	-	PS3 3x380-500v/50-60Hz
52	06-000525	Pumpe CRNE 5-14 6 kW	-	MS5, PS5 3x380-500v/50-60Hz
52	06-000005	Pumpe CRNE 10-9 7,5 kW	-	MS7, PS7 3x380-500v/50-60Hz
53	32-000090	Temperature switch 88°C 1/2"NC	AISI 304	All
54	35-411001	Cable 4x1,5mm² CE 3m	-	MS5, PS1, PS3, PS5 3x400V/50Hz
54	35-411011	Cable 4x1,5mm² 3 m AWG16	-	MS5, PS5 3x460V/60Hz
54	35-411000	Cable 4x2,5mm² CE	-	MS7, PS7 3x400V/50Hz
54	35-411010	Cable 4x2,5mm² CSA	-	MS7, PS7 3x460V/60Hz
55	35-600064	Pressure switch 1/8" 0,1-2bar NO	-	All
56	35-700201	Screwed cable connection	Plastic	All
57	35-712498	Multiple packing M25x1,5 4x6,5mm	Plastic	All
58	36-100090	Pressure transmitter 60 bar	-	All
59	36-800015	On/off buttons G5	-	All
60	41-231001	Door 1000mm G5	AISI 304	All
61	42-600047	Hinge for cabinet 1000 mm	AISI 304	All
62	42-600069	Attachment bracket	AISI 304	MS5, PS1, PS3, PS5
62	42-600070	Attachment bracket	AISI 304	MS7, PS7
63	43-100070-01	Wall bracket	AISI 304	All
64	46-023010	Pump bracket 1000 mm G5 IE5	AISI 304	All
65	46-160160	Top plate for MS/AM IE5	AISI 304	All
66	46-401004	Housing 1000mm IE5	AISI 304	All
67	72-000030	Nut for lock	Nylon	All
68	72-000040	Lock with hook	AISI 304/Plastic	All
69	72-000050	Strike plate	-	All
70	72-100010	Key for housing	Plastic	All
71	35-700200	Cablenut M20x1,5	Brass	All
72	04-000223	Blind plug ø32,5 black	Plastic	PS1, PS3, PS5, PS7
73	04-000012	Blind plug ø15 black	polyethylene	PS1, PS3, PS5, PS7
74	010-200200	Plastic plug ø23xø20mm	Nylon	PS1, PS3, PS5, PS7

Injector concentrated MS5 and MS7



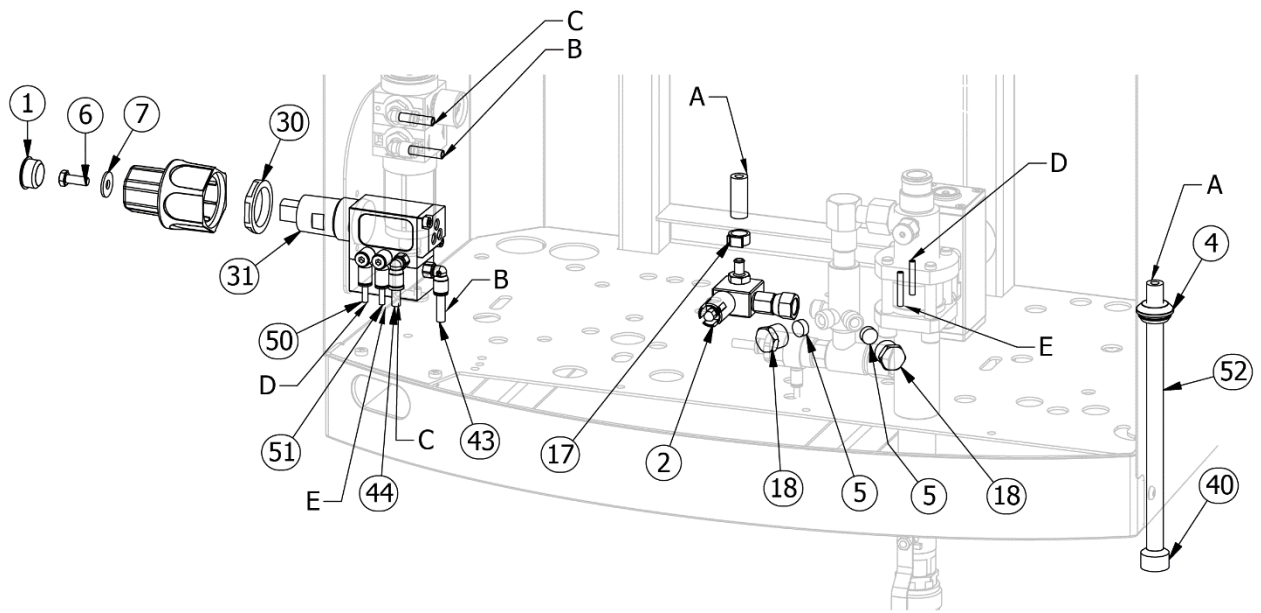
Injector Pre-diluted MS5 and MS7



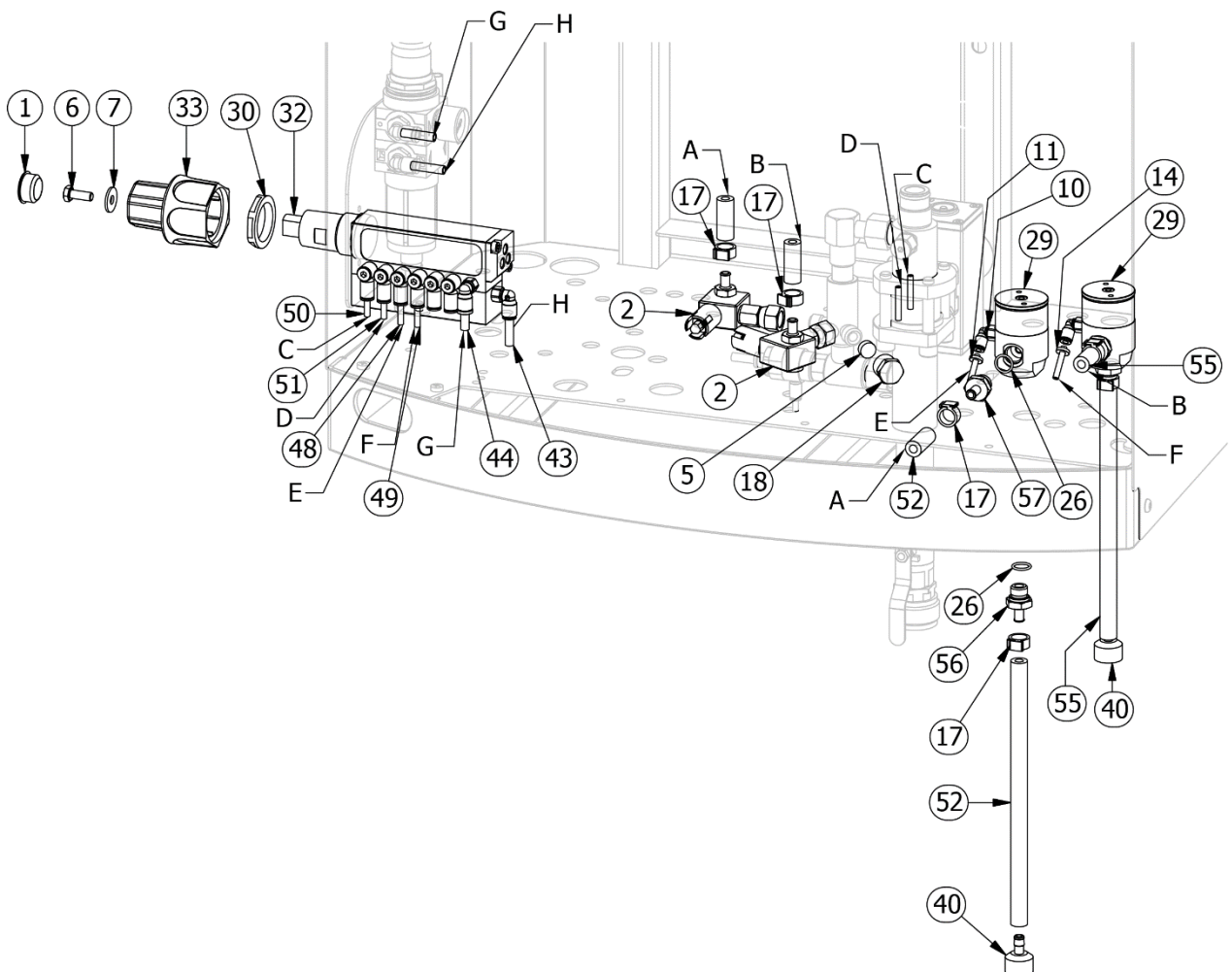
Pos.	Part no.	Description	Material	Version
1	15-000010	Adapter ø8x1/4" NPT SS	AISI 304	NPT
2	15-000071	Bulkhead connection air 8mm	Plastic	All
3	15-000061	Air fitting 8x8 elbow	Plastic	All
4	17-020080	O-ring 18x2 70 shore	EPDM	All
5	16-900045	Union nut for Non-return valve	AISI 303	All
6	25-000595	Inlet pipe 1/2" MS 5	AISI 303	MS5
6	25-000594	Inlet pipe 1/2" MS 7	AISI 303	MS7
7	17-030129	O-ring 32x1,5 Viton 75 sh	Viton	All
8	20-200410	Non-return valve 1/2"	AISI 304/NBR	All
9	25-100510	Flanged nipple M24x1	AISI 316	All
10	16-110013	Adapter injector	AISI 316	Pre-diluted
11	20-000283	Ball valve 1/2"	-	All
12	15-090402	Color ring 4mm green	Plastic	All
13	08-800807	Cheese-head screw M8x50	A2	All
14	25-200350	Outlet pipe 1/2"	AISI 316	All
15	17-000083	O-ring 15,54x2,62	NBR	All
16	16-800070	Outlet nipple 1/2"x67 E/I	AISI 316	All
17	20-000220	Ball valve 1/2" (blue)	AISI 316	All
18	30-000050	Outlet coupling 1/2"	Special stainless	All
19	15-090406	Color ring 4mm grey	Plastic	All
20	27-010141	Injector with 3 connections	AISI 316	All
21	17-000032	O-ring 10,1x1,6 NBR 70 shore	NBR	All
22	55-110080	Air hose ø4mm black	PA12	All
23	15-010161	Air fitting ø2,0	Nickel-plated brass/Plastic	All
24	15-090606	Color ring 6mm green	Plastic	All
25	55-100034	Air hose 6x430 green	PA12	All
26	17-030008	O-ring 7,65x1,78 Viton 70 sh	Viton	All
27	27-200020	Water nozzle ø1,8	AISI 316	All
28	17-000132	O-ring 9,92x2,62	NBR	All
29	15-020050	Elbow 1/8"x4	Plastic/Brass	All
30	16-110012	Adaptor for injector	AISI 316	Concentrated
31	08-100515	Screw buttonhead M5x10mm	A2	All
32	20-300141	Filter 1/4"	Plastic	All
33	15-090603	Color ring 6mm red	Plastic	All
34	15-010010	Air fitting 1/4"x6 elbow	Nickel-plated brass/Plastic	All
35	69-400100	Label Quickguide	-	All
36	42-200120	Bracket for pneumatics G5	AISI 304	All
37	20-300080	Air regulator without filter	Plastic	All
38	16-400040	Extension nipple 1/4"x20	Nickel-plated brass	All
39	15-000011	Air fitting 1/4"x8 elbow	Nickel-plated brass/Plastic	All
40	55-100044	Air hose 8x1200 black	PA12	All
41	16-501802	Plug 1/8"	AISI 316	All
42	17-000072	Gasket 1/8"	Nylon	All
43	22-000071	Gauge ø20 0-10 bar	AISI 304/brass/glycerine	All
44	25-100522	Elbow for injector	AISI 316	All
45	16-800090	Nipple for needle valve	AISI 316	Pre-diluted
46	16-900010	Nut 3/8"	AISI 316	Pre-diluted
47	15-020081	Air fitting M7x4 elbow	Nickel-plated brass/Plastic	Pre-diluted
48	20-000810	Chemical valve, pneumatic Viton	AISI 316/Viton	Pre-diluted
49	17-020055	O-ring 10x2 70 shore	EPDM	Pre-diluted

Spare parts Functions (MS5 and MS7)

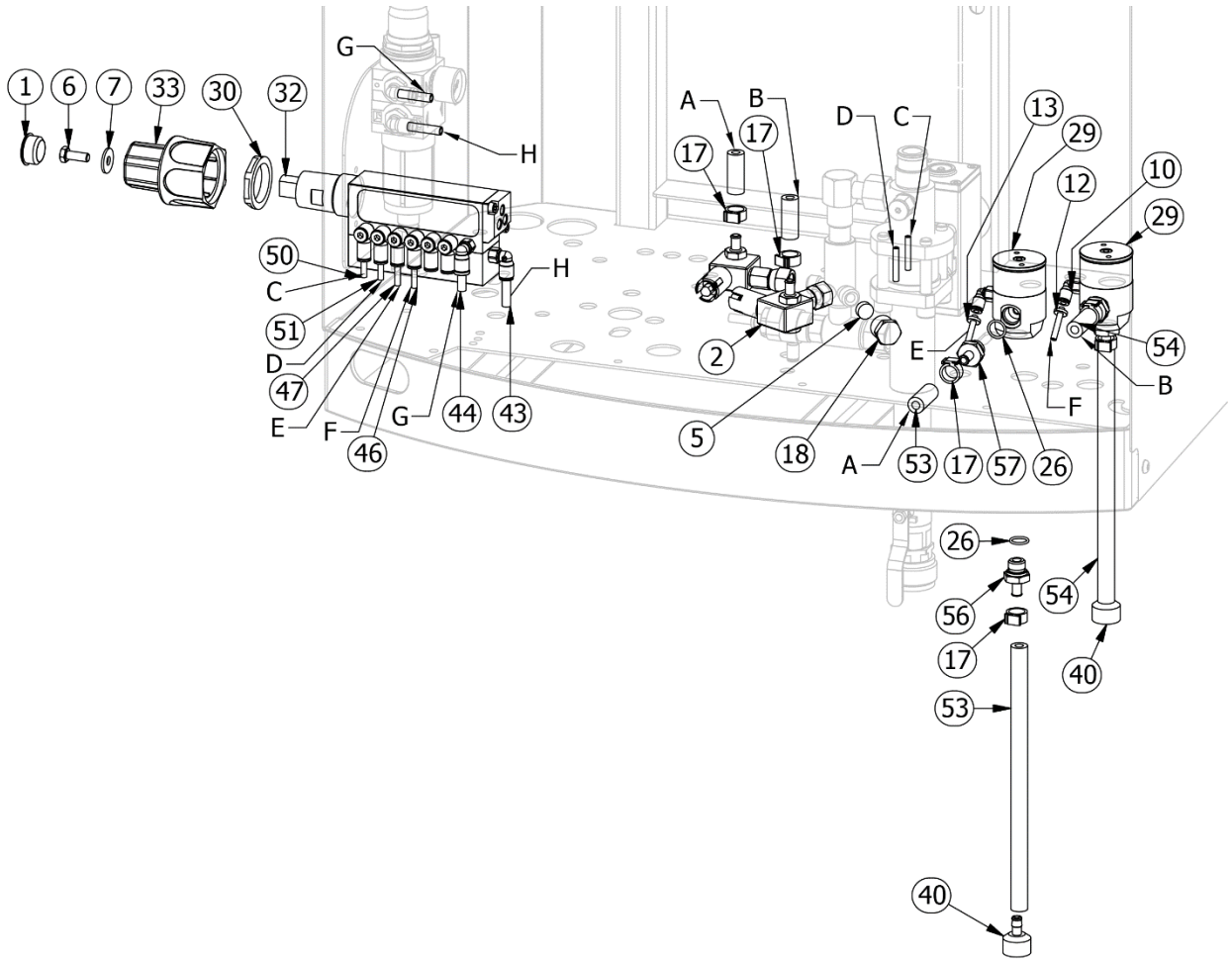
Function F



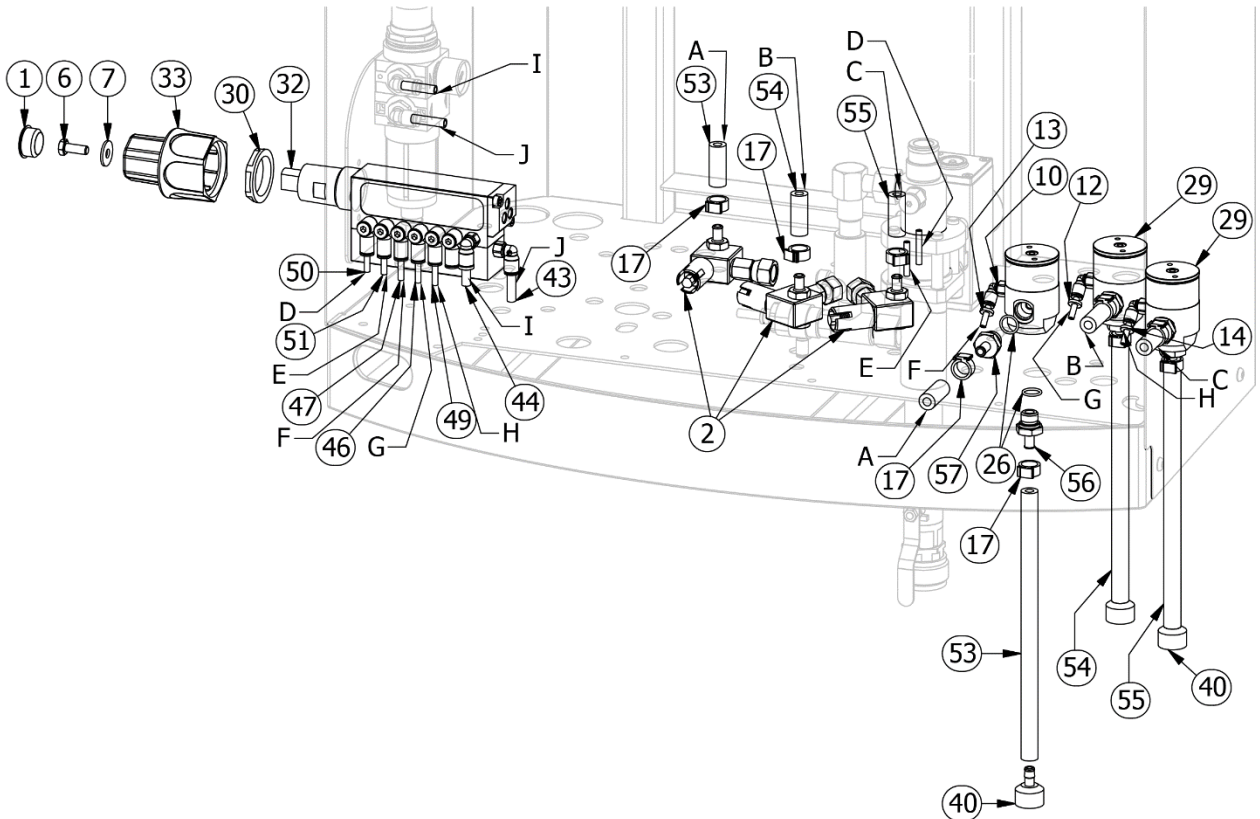
Function F D



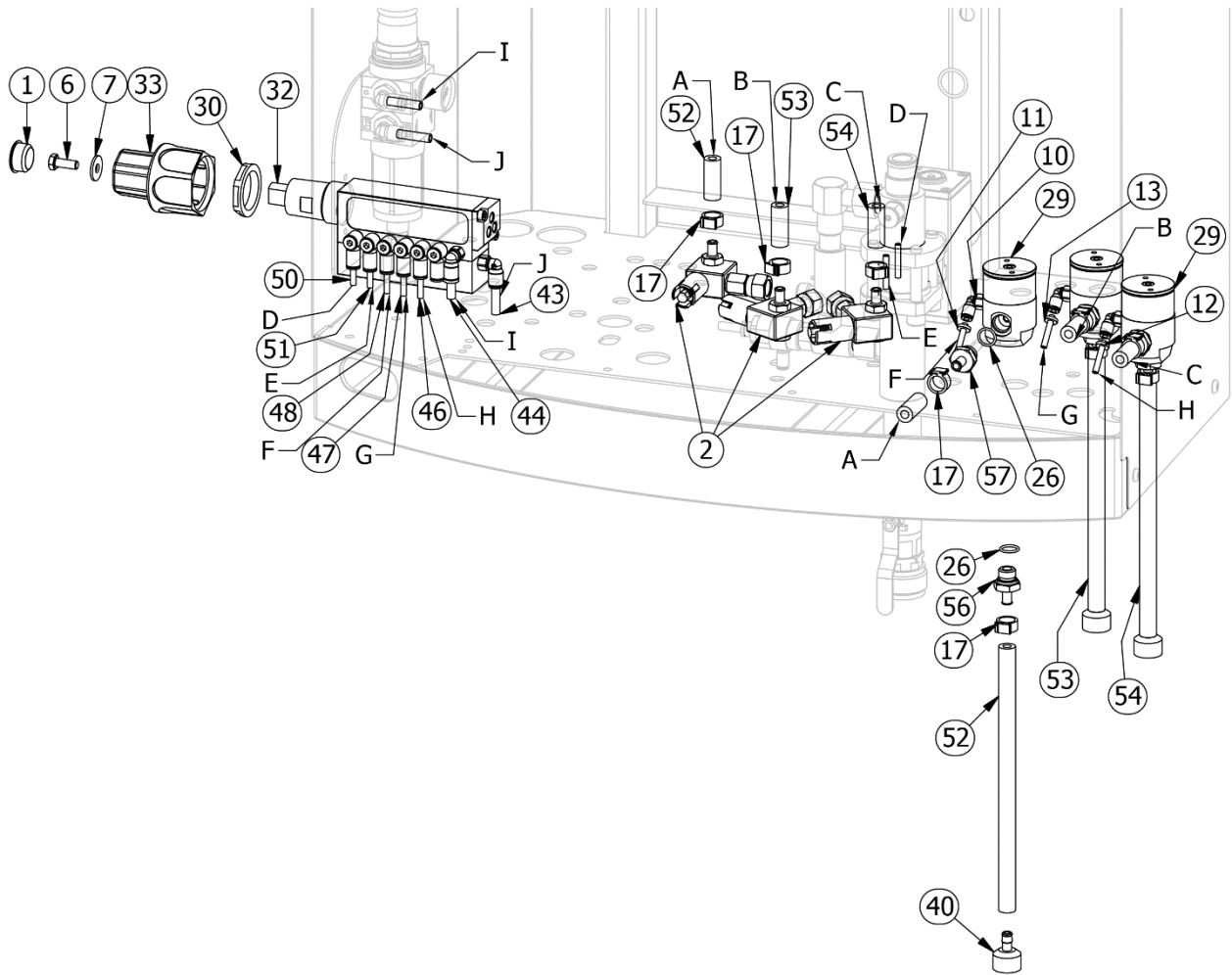
Function F F



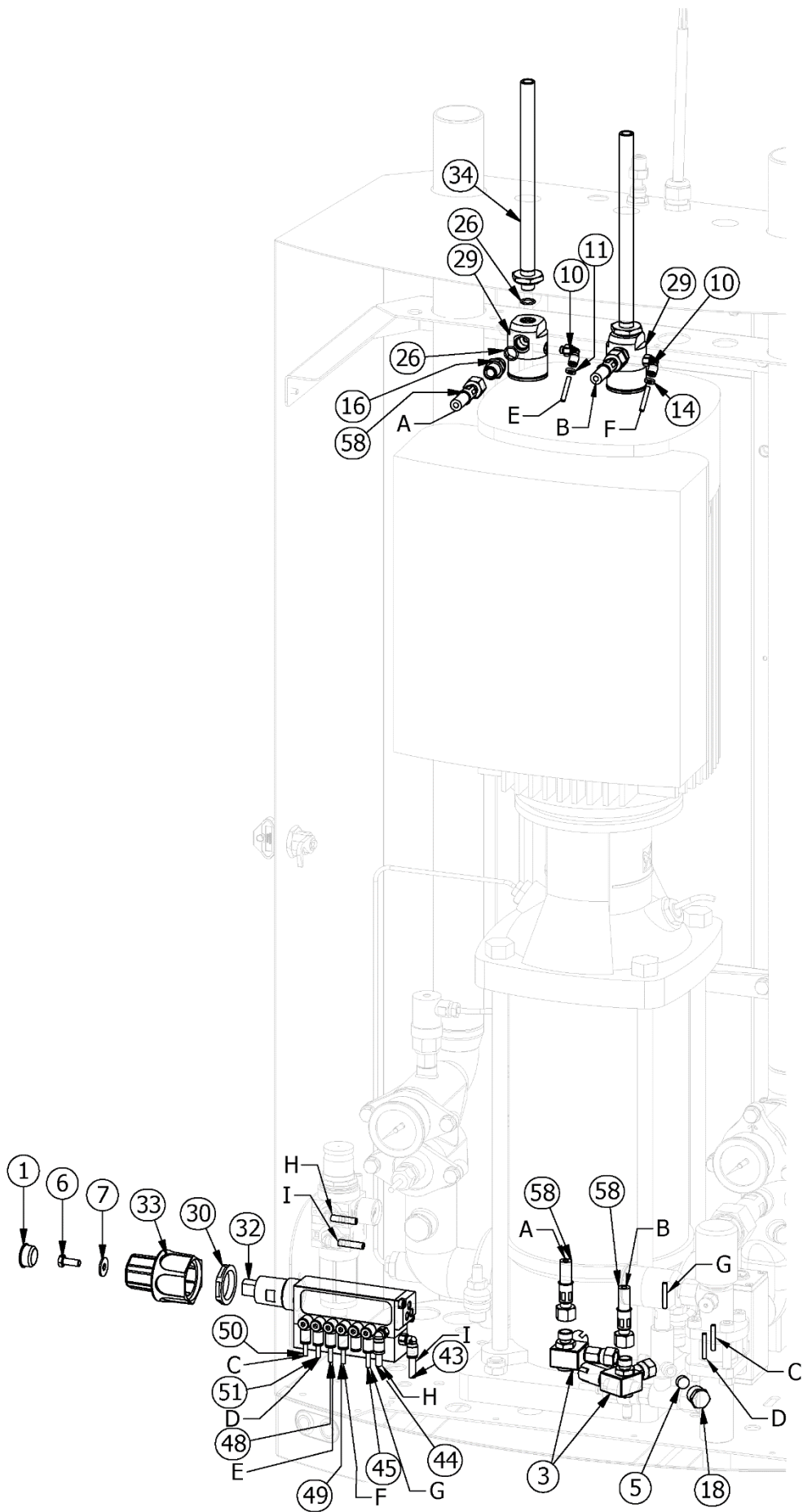
Function F F D



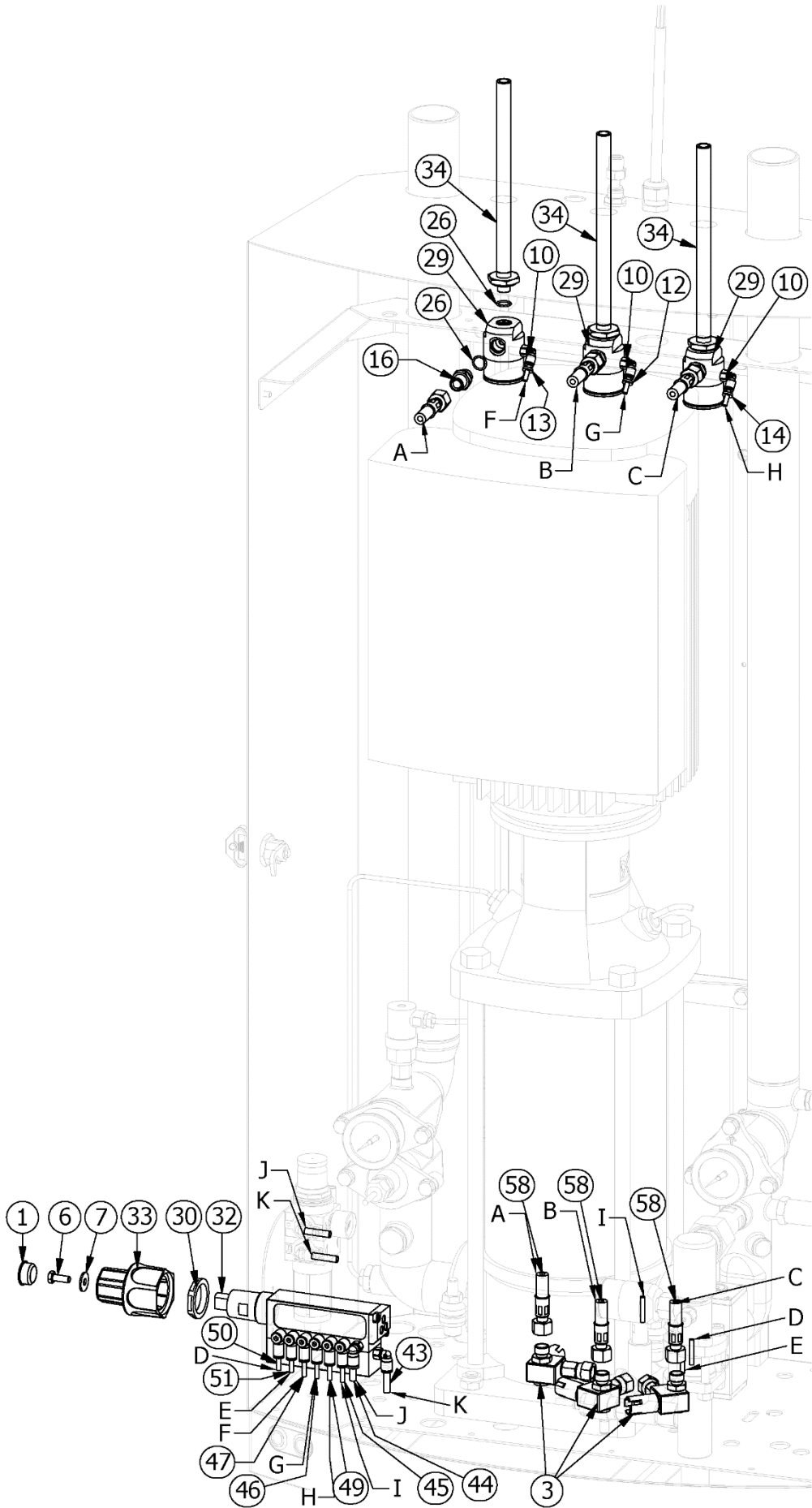
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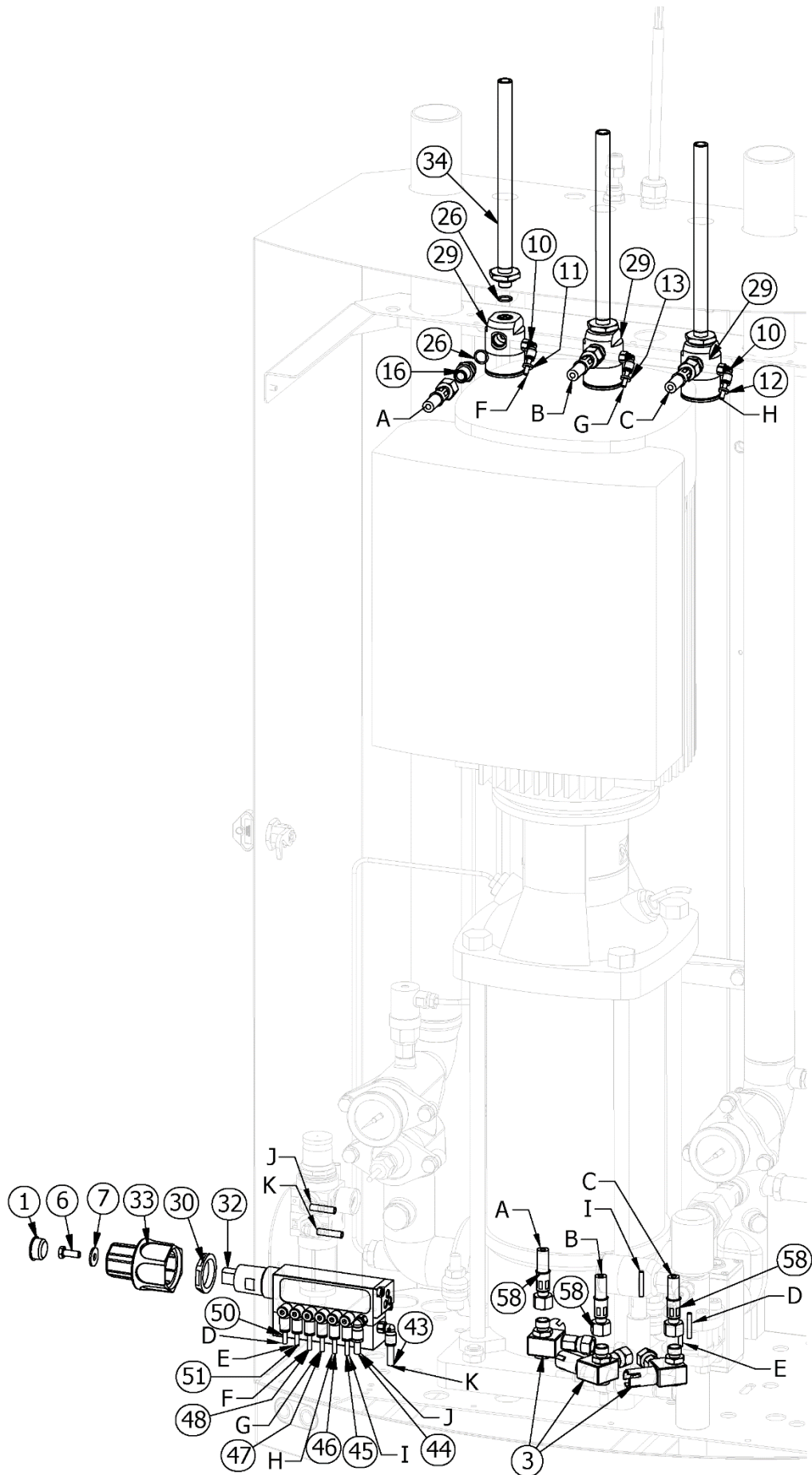
Function PF PD



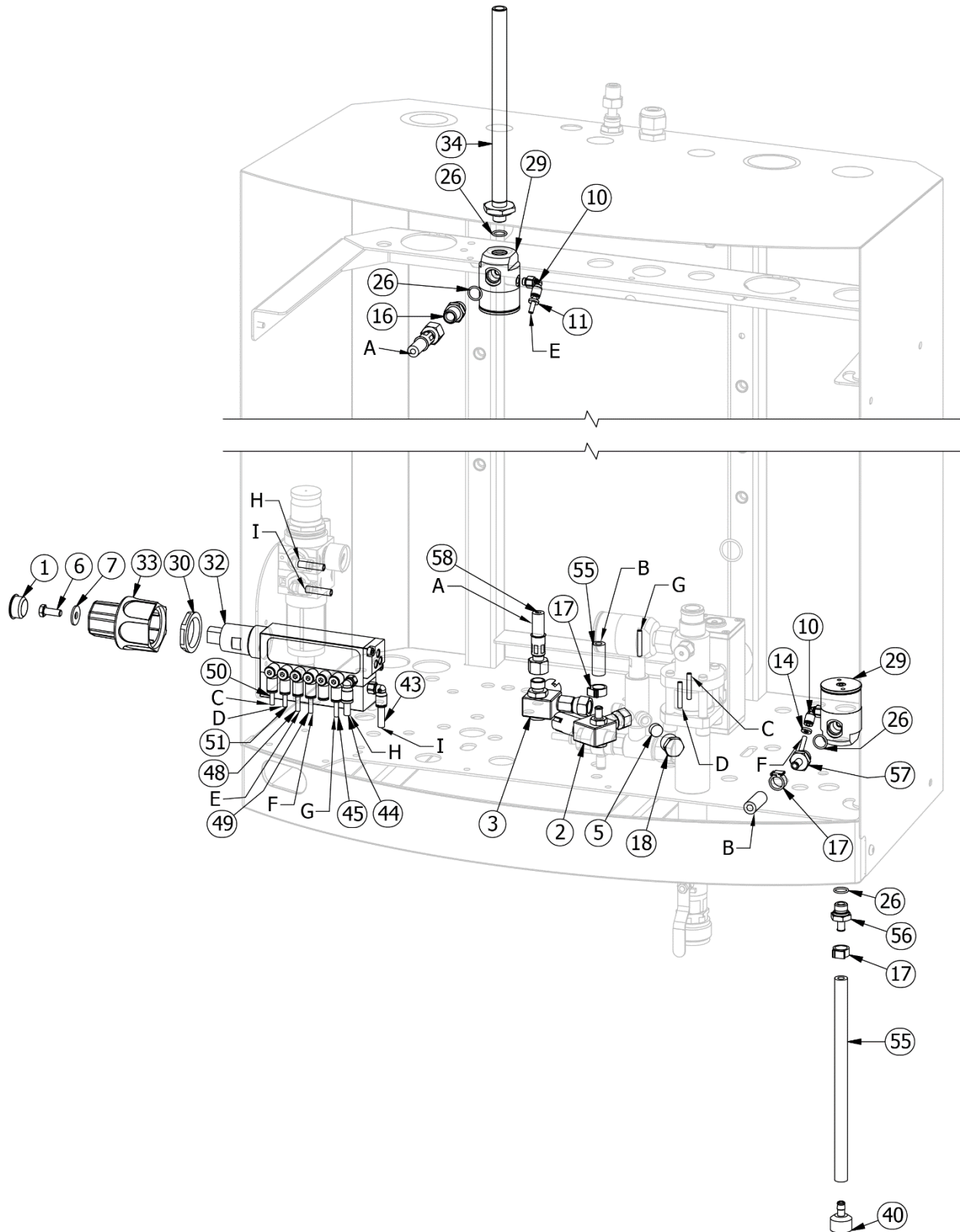
Function PF PF PD



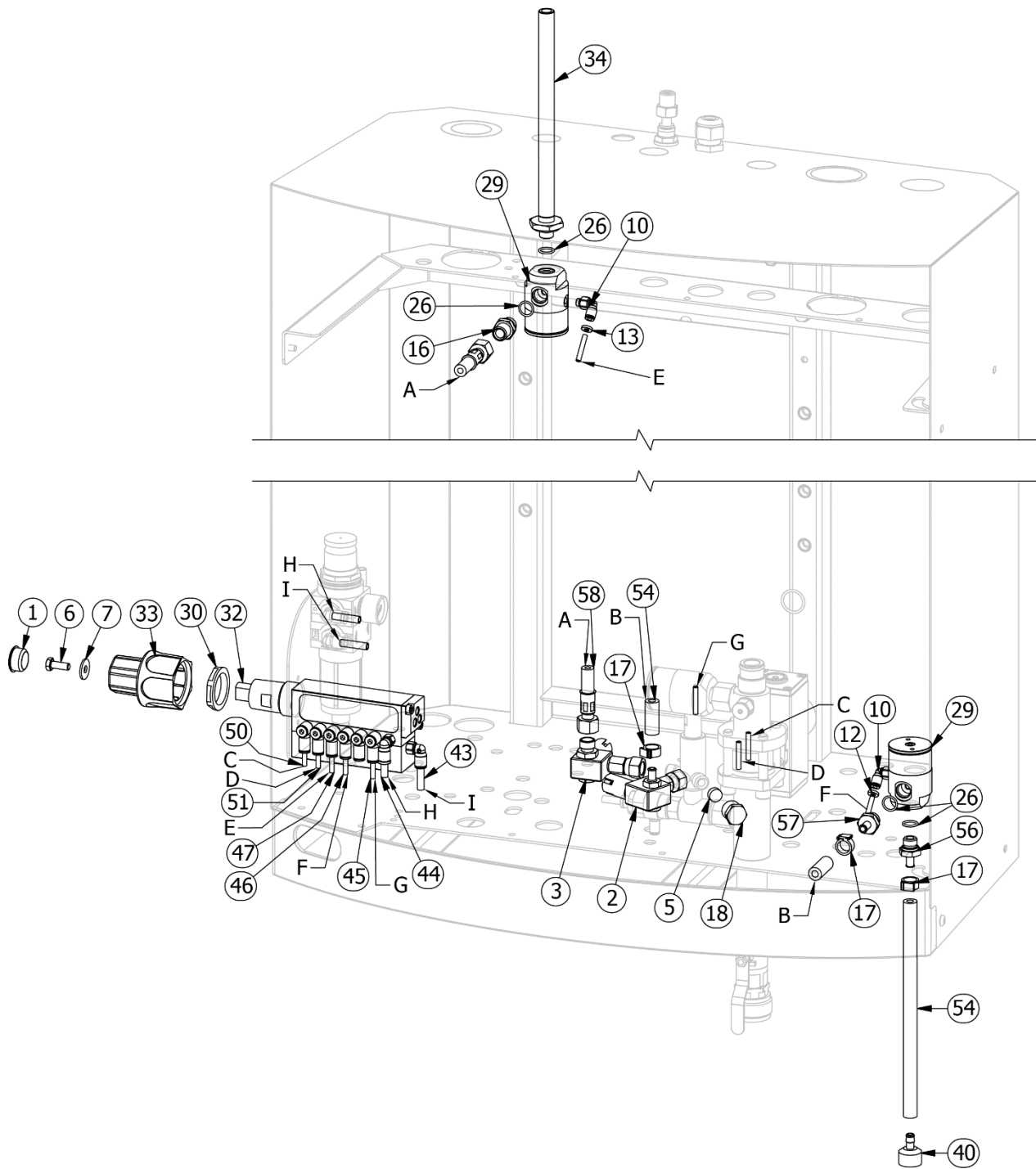
Function PF PF PF



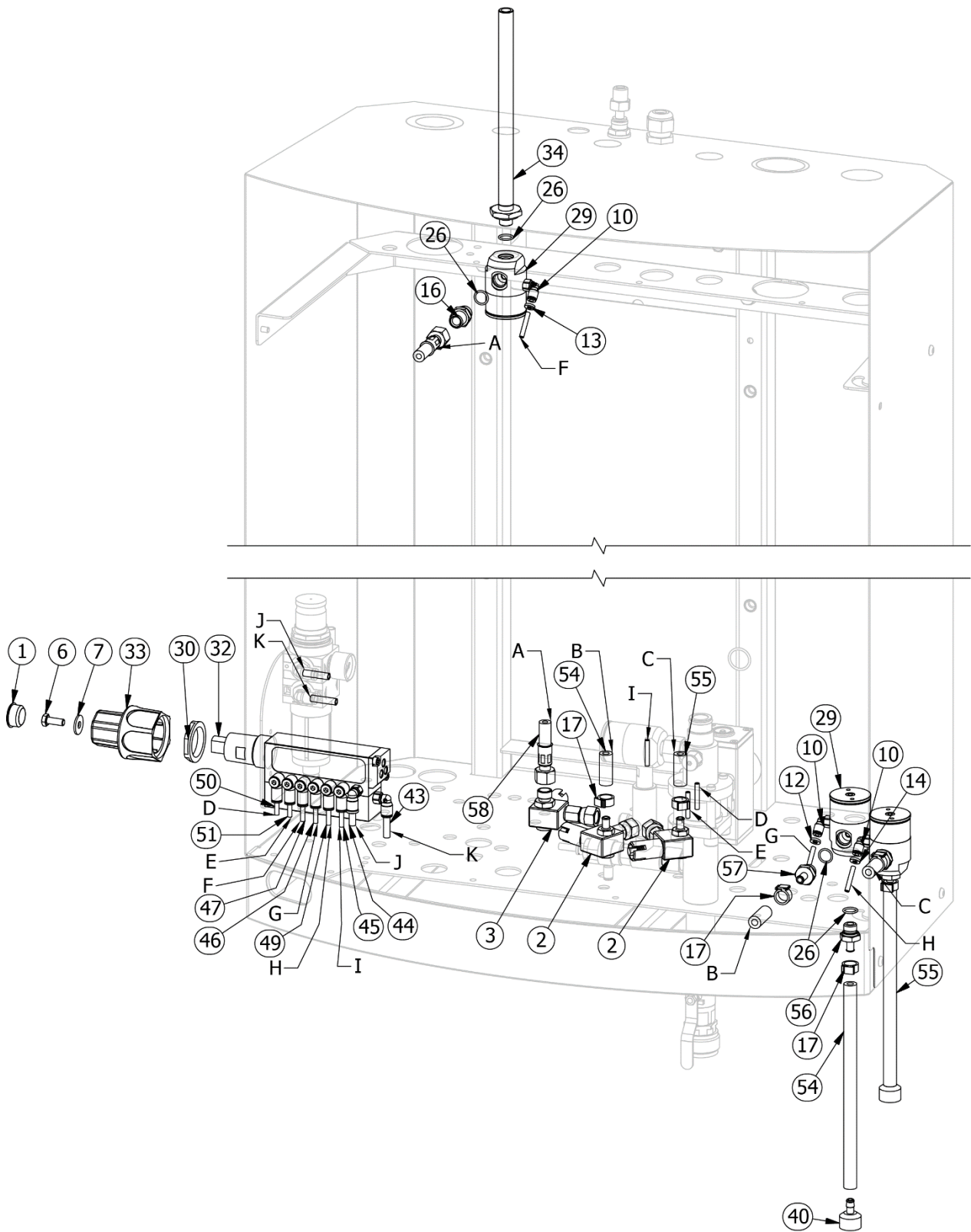
Function PF D



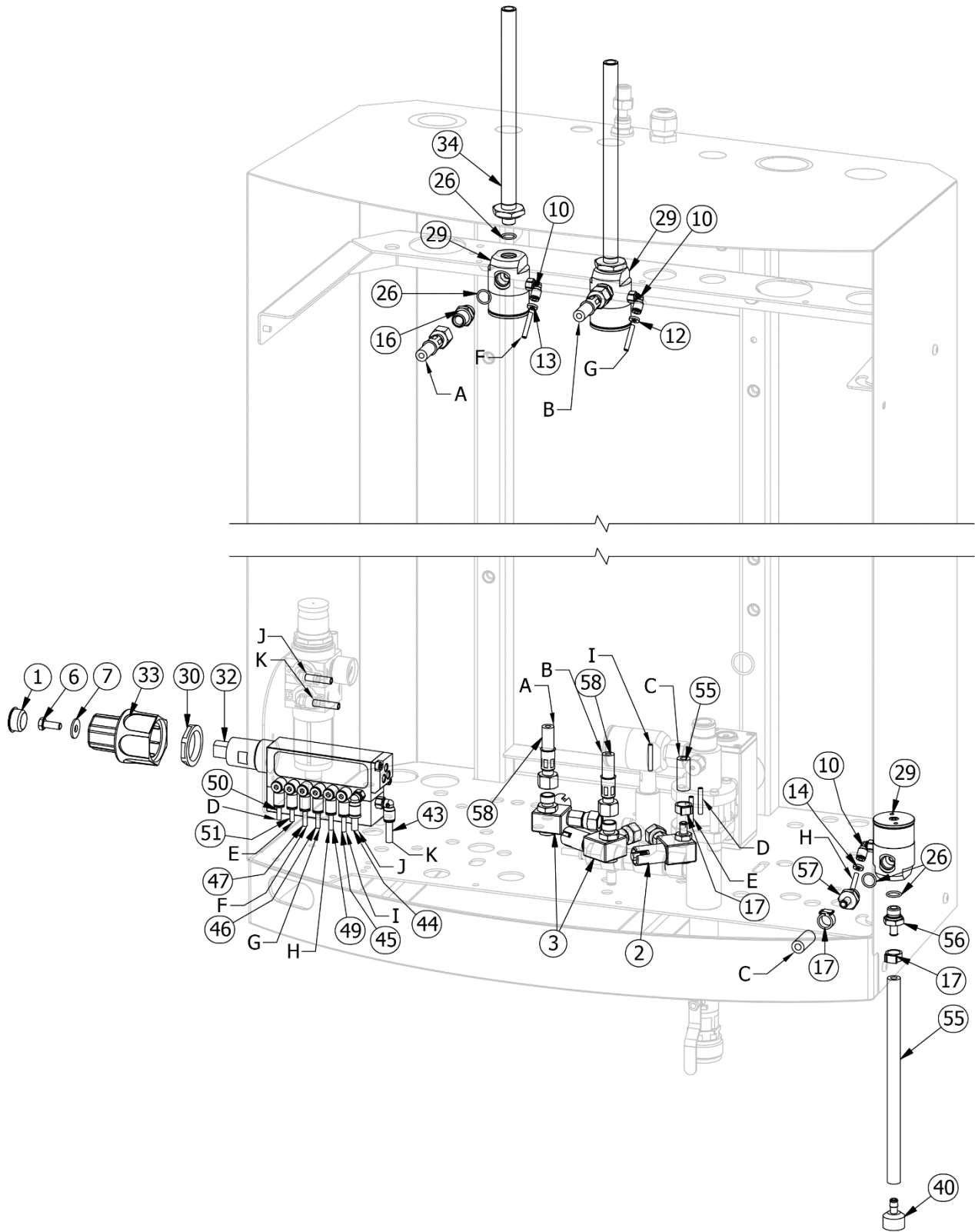
Function PF F



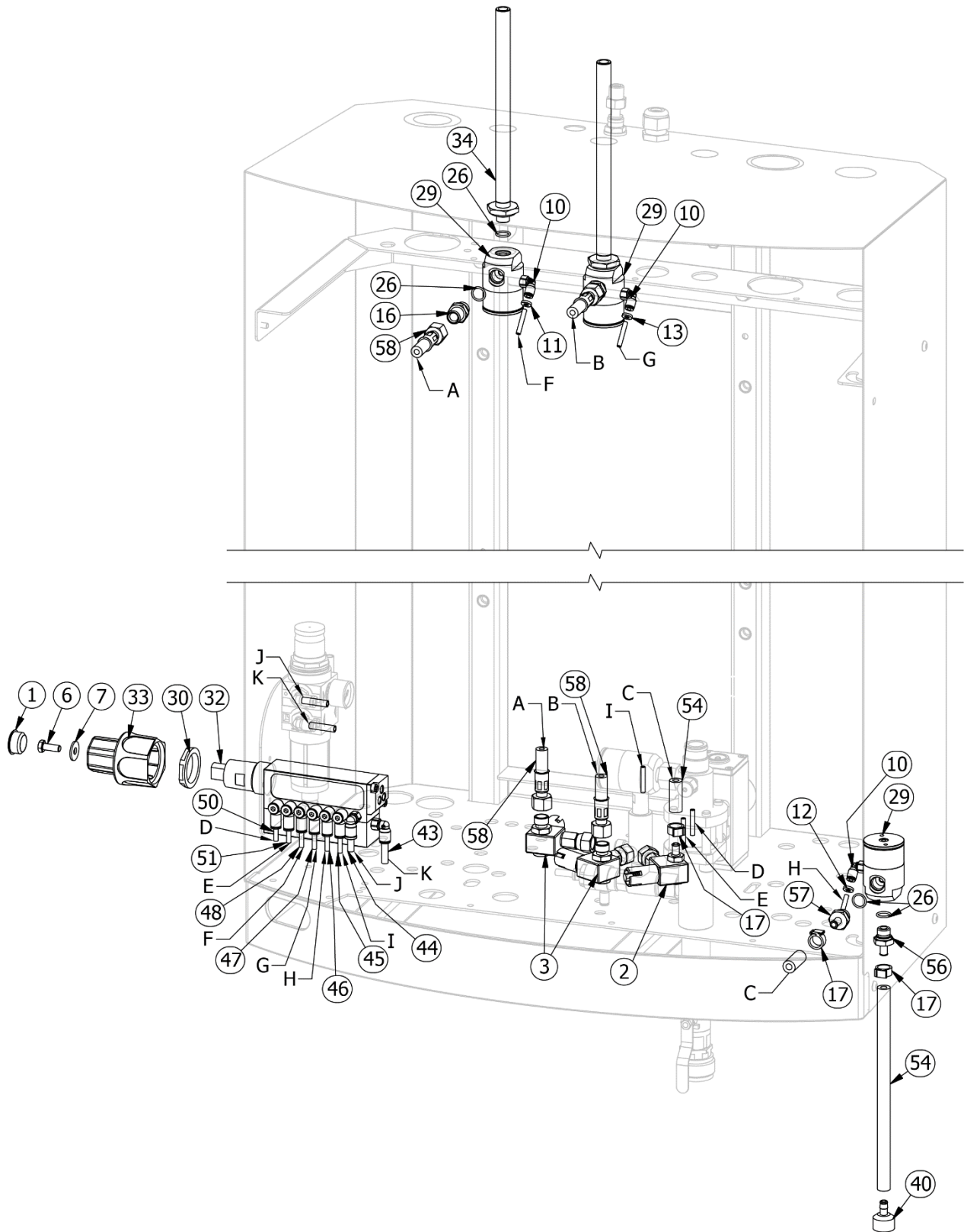
Function PF F D



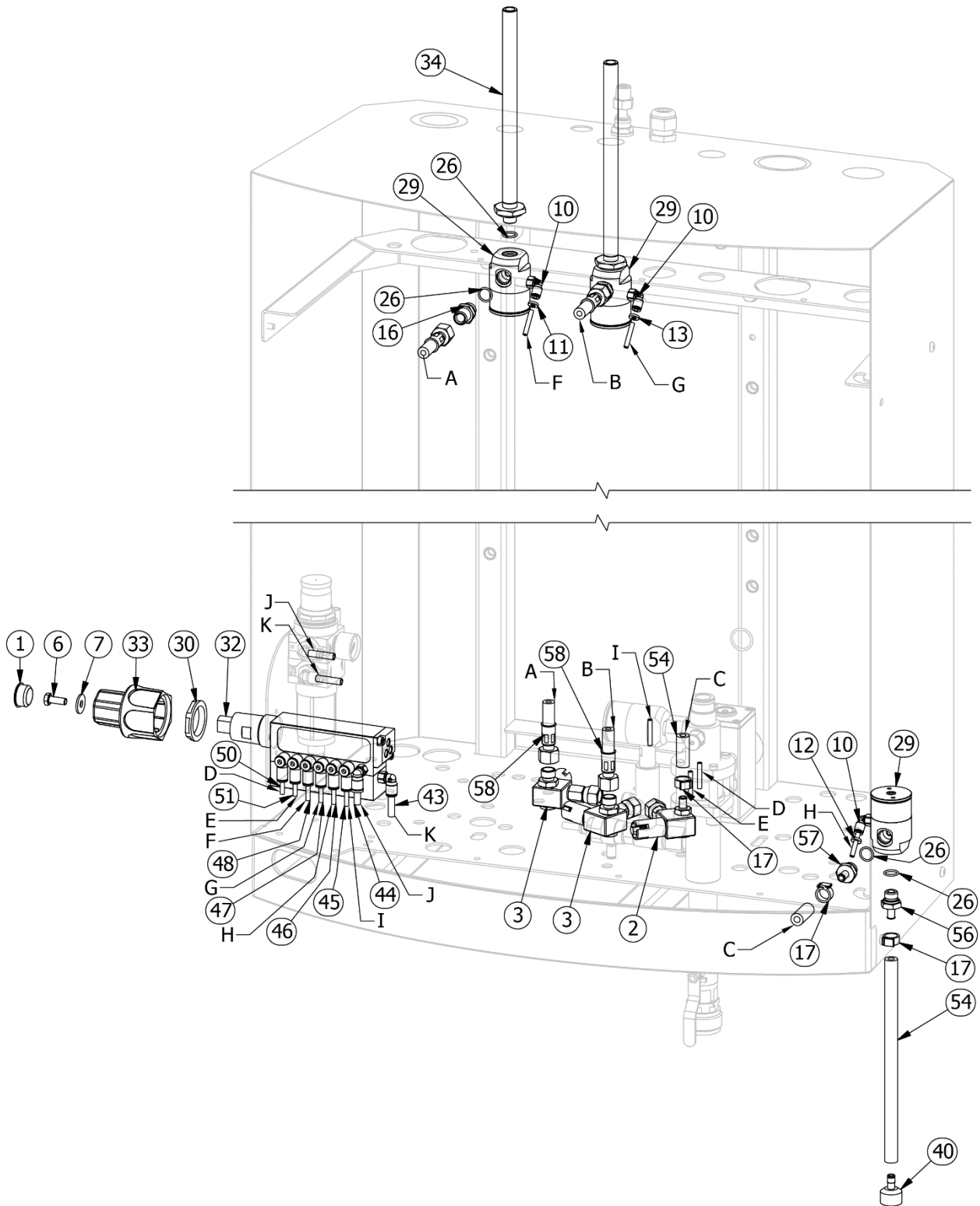
Function PF PF D



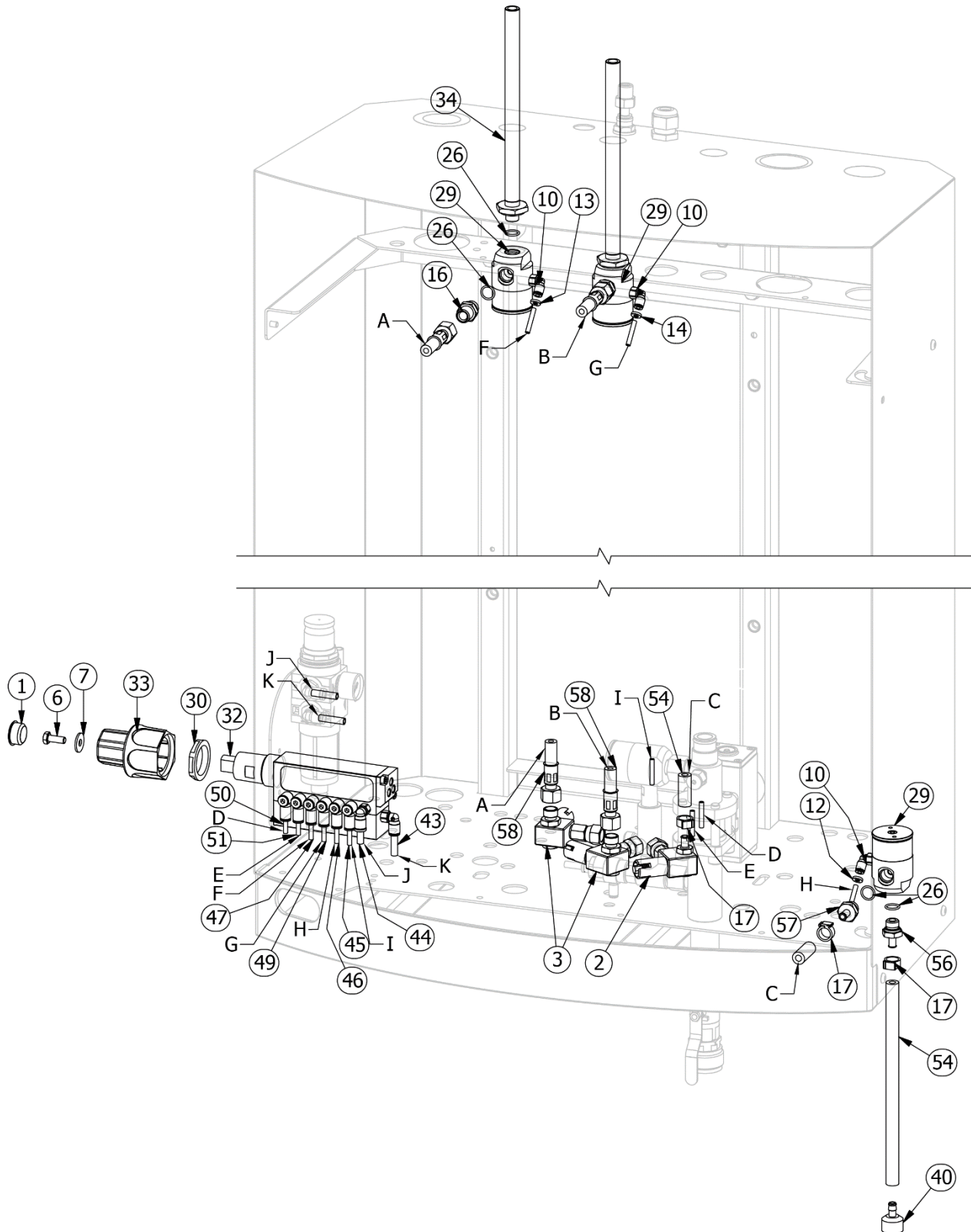
Function PF PF F



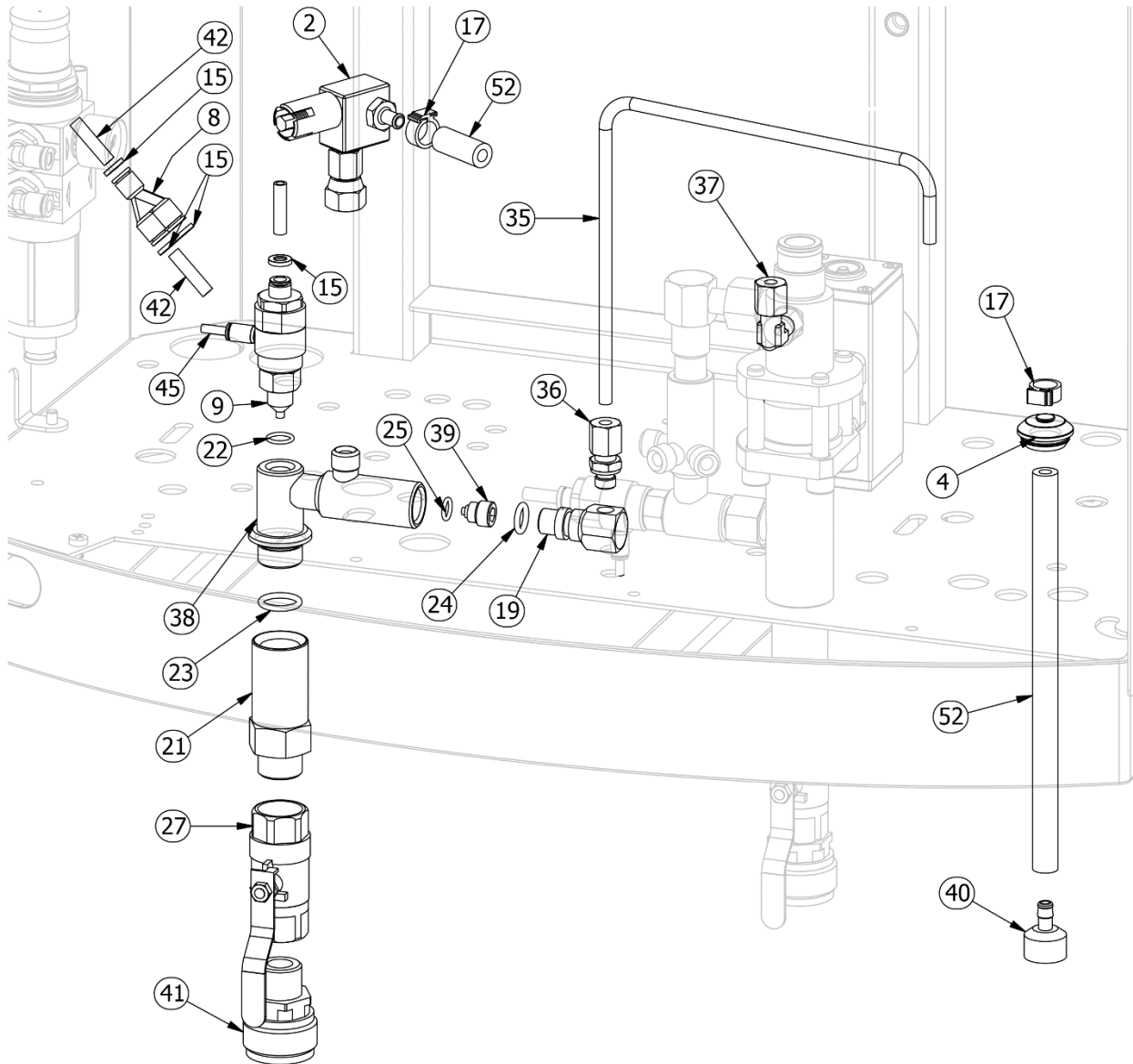
Function PF PD D



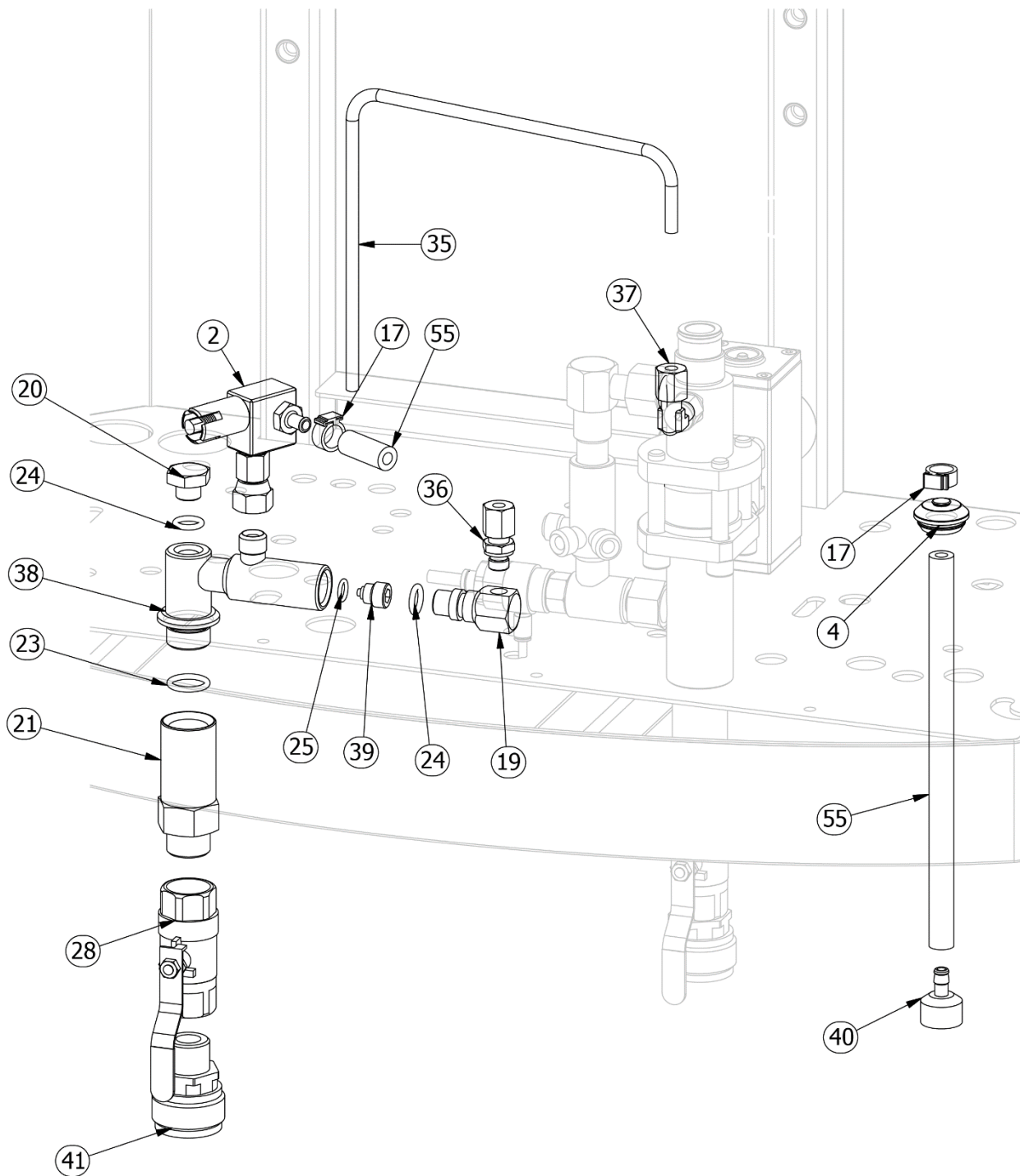
Function PF PD F



Separate F- injector



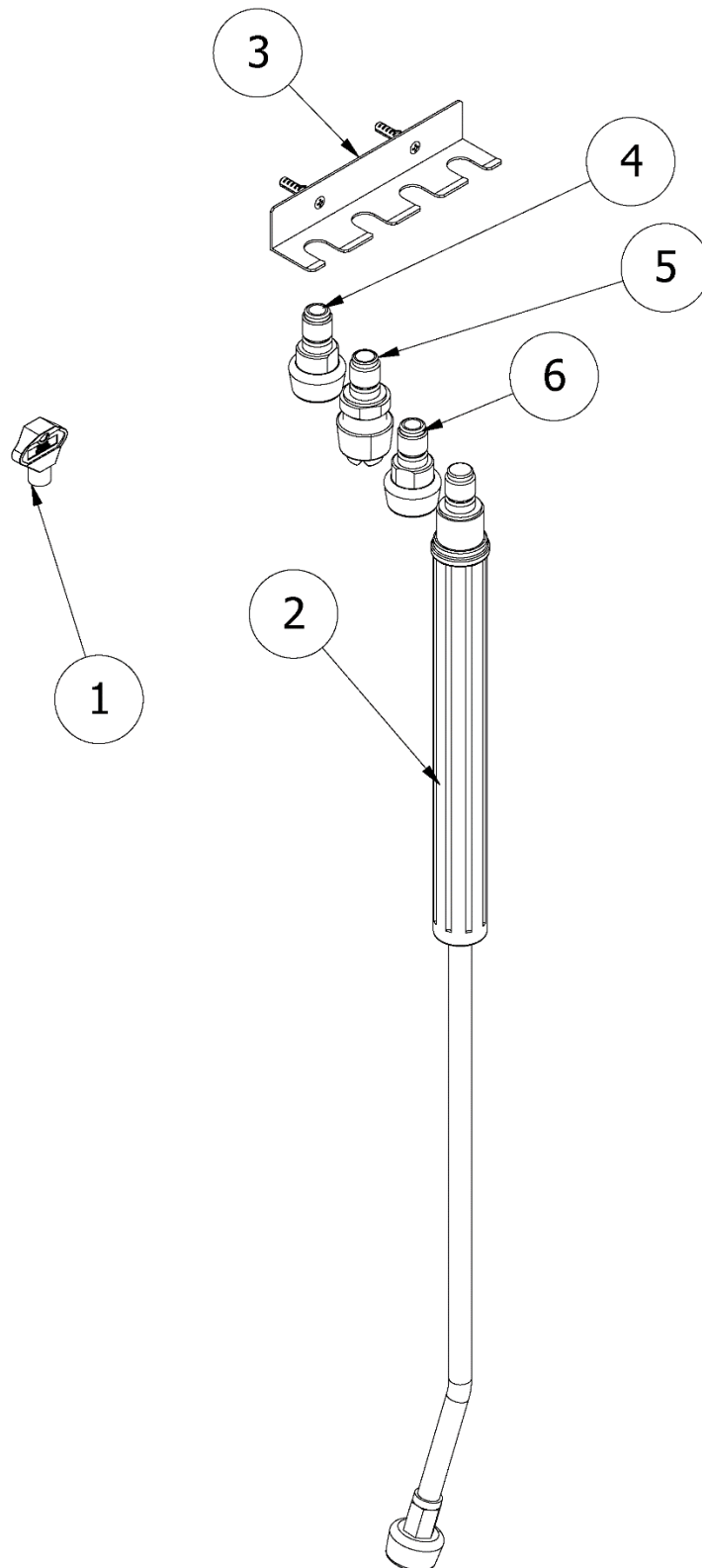
Separate D-injector



Pos.	Part no.	Description	Material	Version
1	010-200200	Plastic plug ø23xø20mm	Nylon	All
2	20-400056	Dosing valve concentrated	AISI 316/Viton	All
3	20-400054	Dosing valve pre-diluted	AISI 316/Viton	All
4	04-000082	Diaphragm nipple	EPDM	All
5	04-000232	Cone ø12 black	Plastic	All
6	08-200606	Set screw M6x16	A2	All
7	08-300602	Disc washer ø6	A2	All
8	15-010040	Air fitting ø6 Y	Plastic	All
9	15-010161	Air fitting ø2,0	Nickel-plated brass/Plastic	All
10	15-020081	Air fitting M7x4 elbow	Nickel-plated brass/Plastic	All
11	15-090400	Color ring 4mm white	Plastic	All
12	15-090403	Color ring 4mm red	Plastic	All
13	15-090404	Color ring 4mm blue	Plastic	All
14	15-090405	Color ring 4mm yellow	Plastic	All
15	15-090606	Color ring 6mm green	Plastic	All
16	15-100082	Hexagon nipple 1/4"	AISI 316	All
17	15-300012	Hose clip for 1/4"	PVC	All
18	15-901400	Closing cap 1/4"	Nickel-plated brass	All
19	16-100100	Adaptor 1/8"xM12x1	AISI 316	All
20	16-500010	Plug M12x1	AISI 316	All
21	16-800070	Outlet nipple 1/2"x67 E/I	AISI 316	All
22	17-000032	O-ring 10,1x1,6 NBR 70 shore	NBR	All
23	17-000062	O-ring 18x2	NBR	All
24	17-000132	O-ring 9,92x2,62	NBR	All
25	17-030008	O-ring 7,65x1,78 Viton 70 sh	Viton	All
26	17-030018	O-ring 11x1,5 Viton 70 shore	Viton	All
27	20-000220	Ball valve 1/2" (blue)	AISI 316	All
28	20-000221	Ball valve 1/2" (Yellow)	AISI 316	All
29	20-000810	Chemical valve, pneumatic Viton	AISI 316/Viton	All
30	20-300000-02	Panel nut function selector	Plastic	All
31	20-301400	Selector switch F	-	F
32	20-301410	Selector switch F D	-	F D
32	20-301420	Selector switch F F	-	F F
32	20-301430	Selector switch F F D	-	F F D
32	20-301440	Selector switch F F F	-	F F F
32	20-301450	Selector switch PF	-	PF
32	20-301460	Selector switch PF PD	-	PF PD
32	20-301470	Selector switch PF PF	-	PF PF
32	20-301480	Selector switch PF PF PD	-	PF PF PD
32	20-301490	Selector switch PF PF PF	-	PF PF PF
32	20-301500	Selector switch PF D	-	PF D
32	20-301510	Selector switch PF F	-	PF F
32	20-301520	Selector switch PF F D	-	PF F D
32	20-301530	Selector switch PF PF D	-	PF PF D
32	20-301540	Selector switch PF PF F	-	PF PF F
32	20-301550	Selector switch PF PD D	-	PF PD D
32	20-301560	Selector switch PF PD F	-	PF PD F
33	20-304002	Handle, F	ABS	F
33	20-304003	Handle, F D	ABS	F D
33	20-304004	Handle, F F	ABS	F F
33	20-304005	Handle, F F D	ABS	F F D
33	20-304006	Handle, F F F	ABS	F F F
33	20-304007	Handle, PF	ABS	PF
33	20-304008	Handle, PF PD	ABS	PF PD
33	20-304009	Handle, PF PF	ABS	PF PF
33	20-304011	Handle, PF PF PD	ABS	PF PF PD
33	20-304012	Handle, PF PF PF	ABS	PF PF PF
33	20-304013	Handle, PF D	ABS	PF D
33	20-304014	Handle, PF F	ABS	PF F
33	20-304015	Handle, PF F D	ABS	PF F D
33	20-304016	Handle, PF PF D	ABS	PF PF D






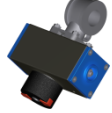


33	20-304017	Handle, PF PF F	ABS	PF PF F
33	20-304018	Handle, PF PD D	ABS	PF PD D
33	20-304019	Handle, PF PD F	ABS	PF PD F
34	25-000620	Inlet pipe 1/4" BSP	AISI 316	BSP
34	25-000621	Inlet pipe 1/4" NPT	AISI 316	NPT
35	26-000380	Pipe ø6x1	AISI 316	All
36	26-100020	Clamping ring fitting 1/8"x6	AISI 316	All
37	26-100030	Clamping ring fitting 1/8"x6	AISI 316	All
38	27-010111	Injector housing	AISI 316	All
39	27-200020	Water nozzle ø1,8	AISI 316	All
40	27-300040	Suction filter ø6,5	AISI 316	All
41	30-000050	Outlet coupling 1/2"	Special stainless	All
42	55-100030	Air hose 6mm green	PA12	All
43	55-110040	Air hose ø6mm black	PA12	All
44	55-110060	Air hose ø6mm red, m	PA12	All
45	55-110080	Air hose ø4mm black	PA12	All
46	55-110110	Air hose ø4mm red	PA12	All
47	55-110120	Air hose ø4mm blue	PA12	All
48	55-110130	Air hose ø4mm white	PA12	All
49	55-110140	Air hose ø4mm yellow	PA12	All
50	55-110150	Air hose ø4mm green	PA12	All
51	55-110170	Air hose ø4mm grey	PA12	All
52	55-200020	Suction hose 1/4" white, m	PVC	All
53	55-200041	Suction hose 12x6 blue, m	PVC	All
54	55-200051	Suction hose 1/4" red, m	PVC	All
55	55-200061	Suction hose 1/4" yellow	PVC	All
56	55-600015	Hose nipple M12x7,5	AISI 316	All
57	55-600016	Hose nipple 1/4"x7,5	AISI 316	All
58	55-700102	Hose 1/4"x1155	-	All

Accessories

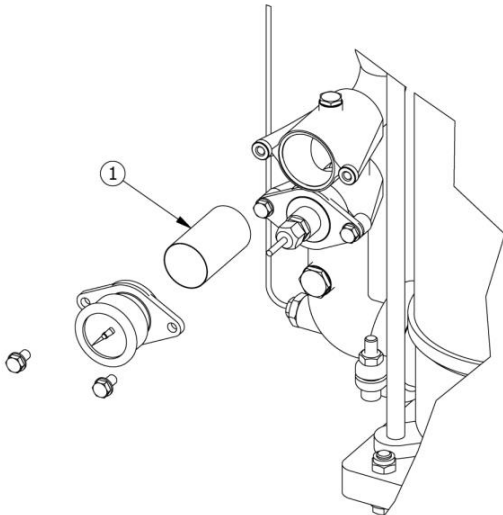


Pos.	Part no.	Description	Material	Version
1	72-100010	Key for housing	Plastic	All
2	53-015303	Rinse pipe 660mm 15/30 BR	-	With manual function
3	57-000050	Nozzle holder	-	With manual function
4	53-015301	Rinse nozzle System 15/30 BR	-	With manual function
5	53-502000	Foam nozzle System 50/200 BR	-	With manual function
6	52-160300	Disinfection nozzle KS60/30	-	With manual function

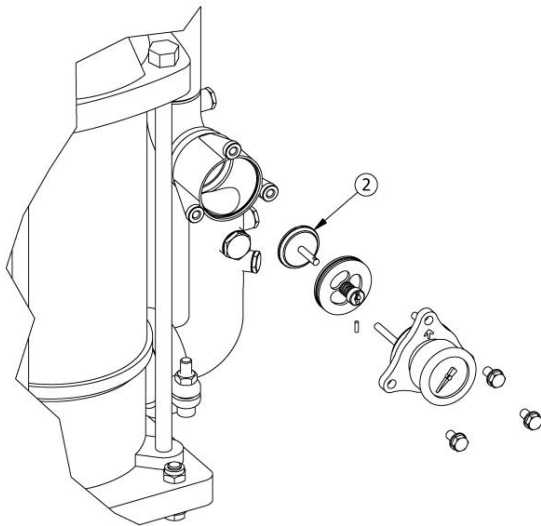
RECOMMENDED SPARE PARTS

Pos.	Part no.	Description	Material	Version
	20-200201	Piston Non-return valve 1.1/2"	AISI 316/EPDM	All
	32-300010	Shaft seal cartridge 1/3/5 M3	-	MS5 PS1, PS3, PS5
	32-100020	Shaft seal cartridge CR10/15/20	-	MS7 PS7
	20-400056	Dosing valve conc.	AISI 316/Viton	MS5 MS7
	20-400054	Dosing valve conc.	AISI 316/Viton	MS5 MS7
	20-000283	Ball valve 1/2"	-	MS5 MS7
	20-200175	Non-return valve DN 20	PPO-GF/EPDM	MS5 MS7
	15-010161	Air fitting ø2,0	Nickel-plated brass/Plastic	MS5 MS7

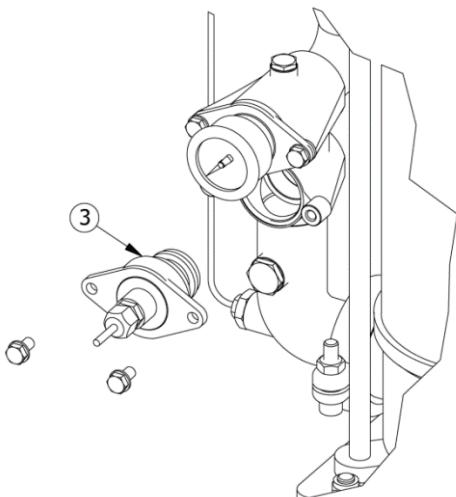
Replacement / cleaning of the filter



Replacement of the non-return valve

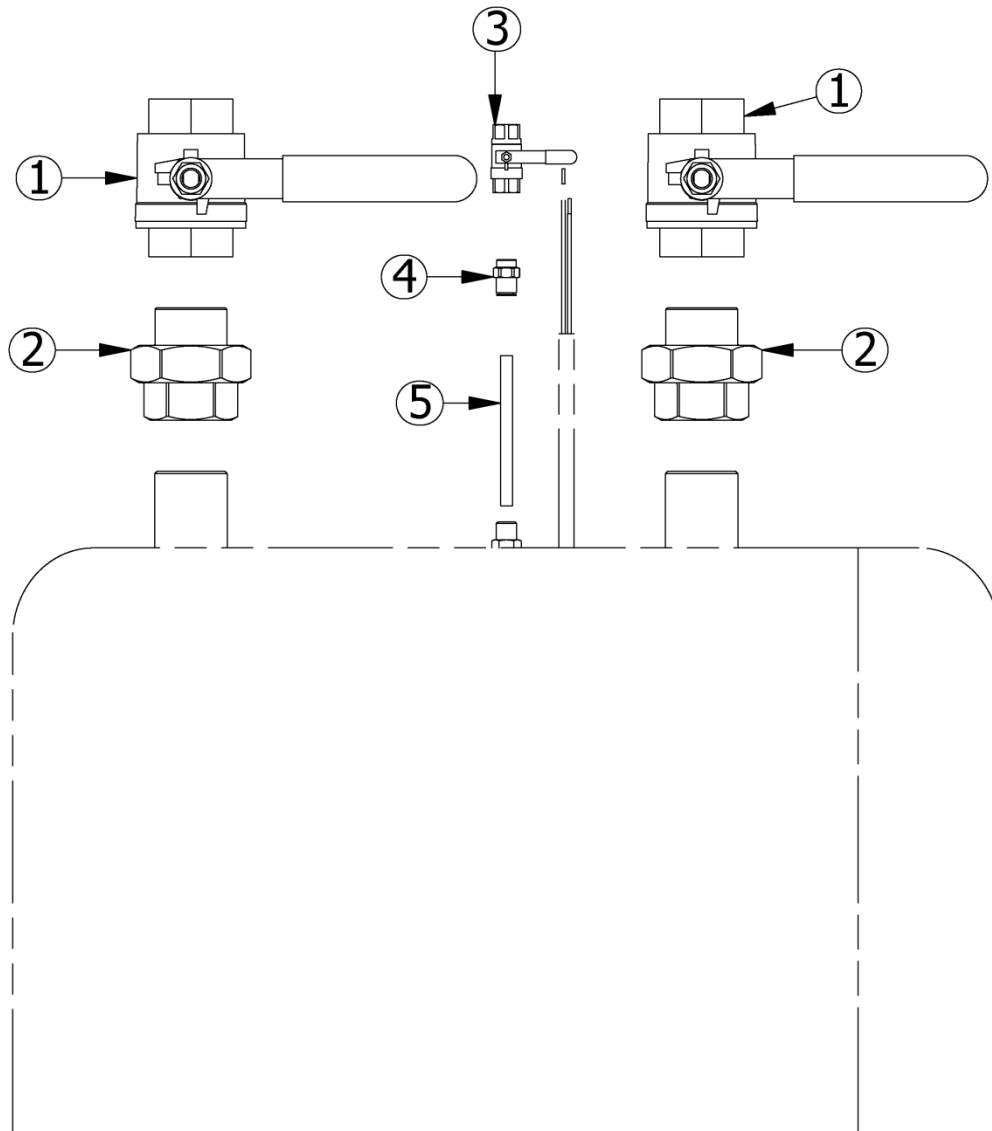


Replacement of the flow switch



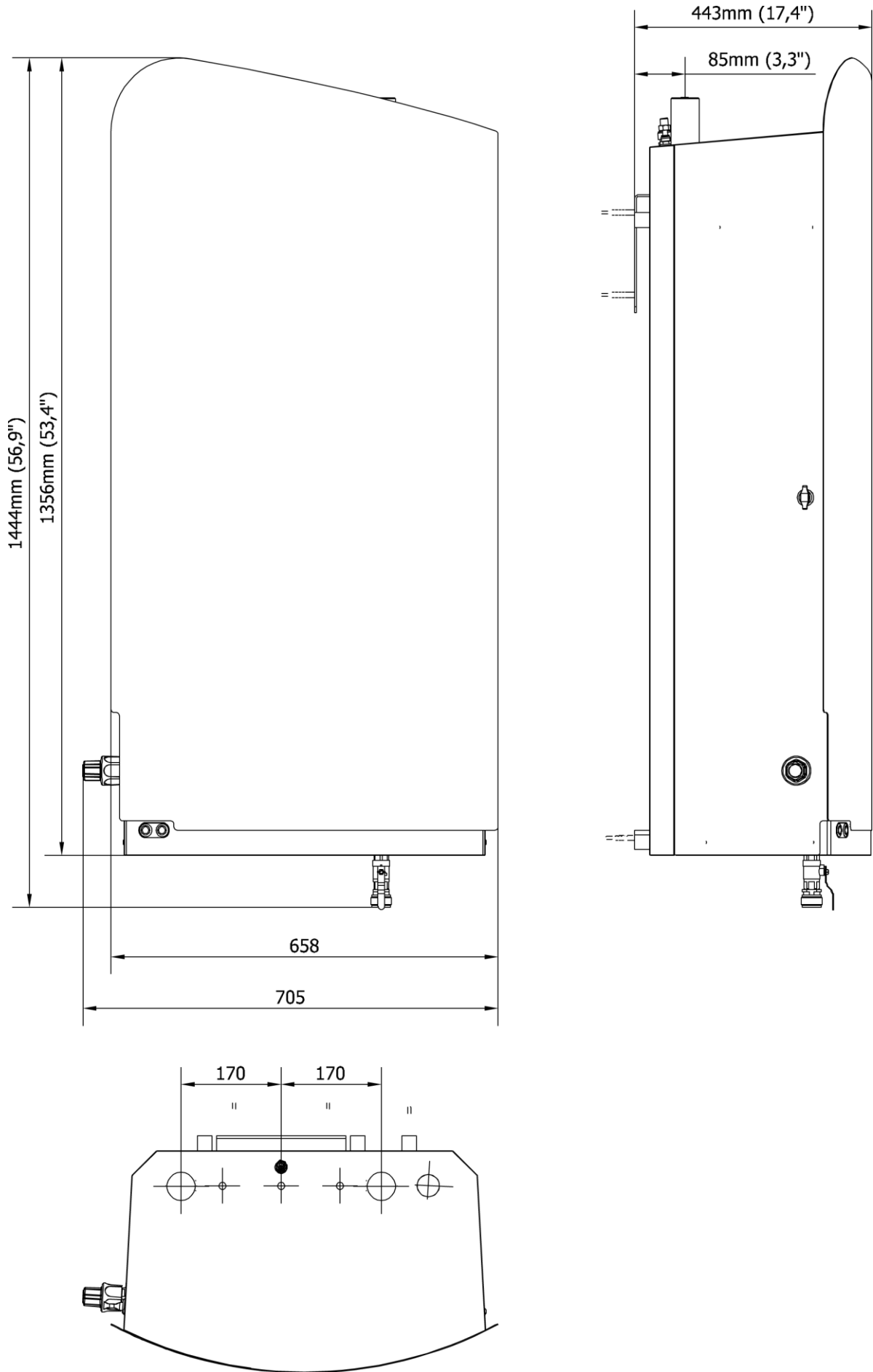
Pos.	Part no.	Description	Material
1	20-510040	Filter insertion 1.1/2" 800 µm	AISI 304
2	20-200201	Piston Non-return valve 1.1/2"	AISI 316/EPDM
3	21-000025	Flow switch 1.1/2"	-

Fitting kit



Pos.	Qty.	Part no.	Description	Material	Version
1	2	20-000042	Ball valve 1.1/2" (blue)	AISI 316	BSP
1	2	20-000039	Ball valve 1.1/2" (blue) NPT	AISI 316	NPT
2	2	15-800054	Union 1.1/2" m/n PTFE	AISI 316/PTFE	BSP
2	2	15-800056	Union 1.1/2" m/n PTFE NPT	AISI 316/PTFE	NPT
3	1	20-000240	Ball valve 1/4" SS (blue)	AISI 316	BSP
3	1	20-000243	Ball valve 1/4" SS NPT (blue)	AISI 316	NPT
4	1	15-000021	Air fitting 1/4"x8 (inside)	Nickel-plated brass/Plastic	All
5	1	55-100040	Air hose 8mm black	PA12	All

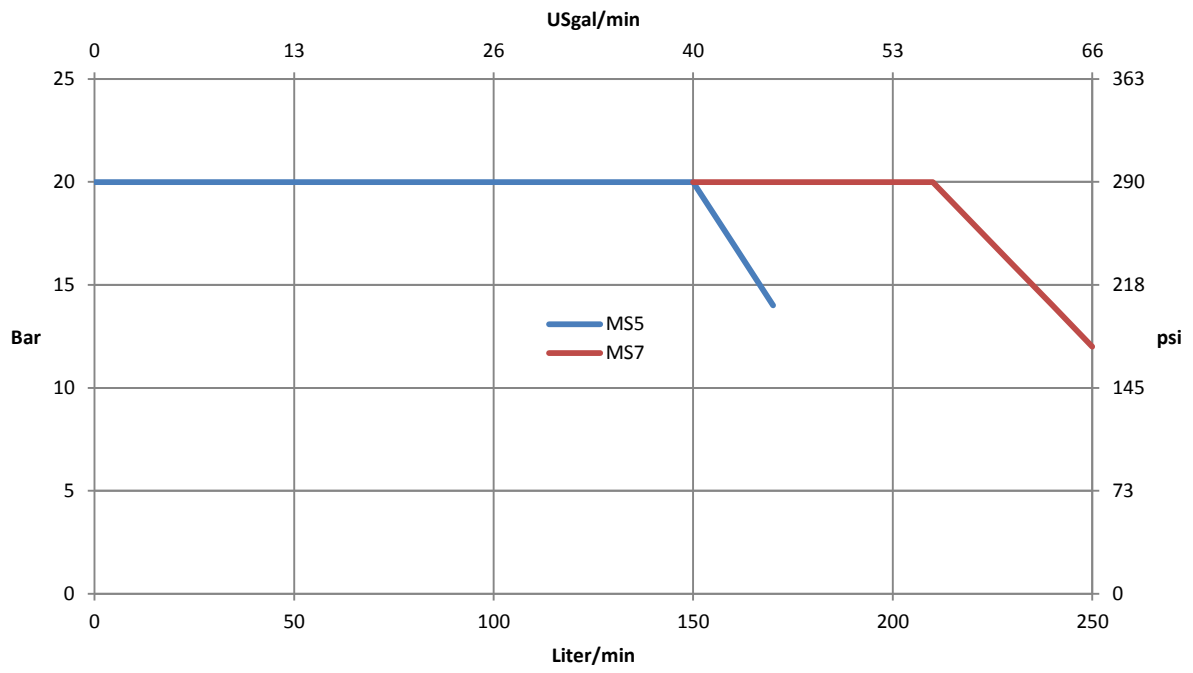
TECHNICAL SPECIFICATIONS



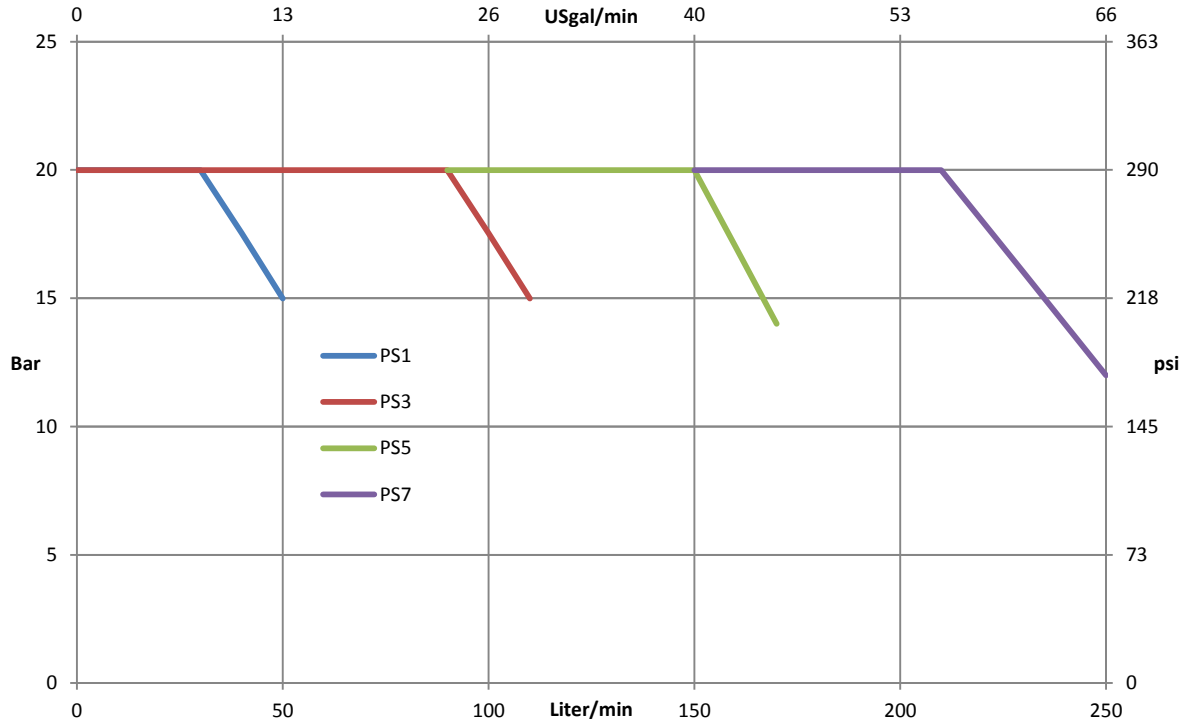
Model	PS1	PS3
Installation		
Ambient temperature	3-40°C / 37-104°F	
Pump		
Pump type	CRNE 3-9J	CRNE 3-9J
Motor power	2.2 kW / 3 HP	4 kW / 5.4 HP
Frequency drive	Integrated in pump motor	
Degree of protection	IP 54	
Connections		
In- and outlet	1½" BSP or NPT	
Water, inlet		
Pressure	1.5-10 bar / 23-150 psi	
Maximum pump cut-out pressure	1.5 bar / 22 psi	
Temperature	3-70°C / 37-160°F	
Minimum pump cut-out temperature	90°C / 190°F	
Minimum recommended flow	4.5 m³/h / 18 USgal/min	4.5 m³/h / 18 USgal/min
Water, outlet		
Setpoint	20 bar / 290 psi	
Maximum flow at 20 bar (290 psi) (including 4.0 bar (58 psi) inlet pressure)	30 liter/min / 7.9 US gal/min	90 liter/min / 23.8 US gal/min
Air, inlet		
Pressure	-	-
Minimum flow	-	-
Electrical 230V		
Voltage and frequency	3x208-230V +/- 10% 50-60 Hz	Not available
Current	8 A	
Recommended pre-fusing	16 A	
Recommended cable cross section	4 x 1.5 mm² / 4 x AWG16	
Electrical 400 and 460V		
Voltage and frequency	3x380-500V +/- 10% 50-60 Hz	
Current	3.4-4.15 A	6.2-7.6 A
Recommended pre-fusing	10 A	16 A
Recommended cable cross section	4 x 1.5 mm² / 4 x AWG16	4 x 1.5 mm² / 4 x AWG14
Chemical		
Dosing range	-	-
Dimensions		
Weight	125 kg / 276 lbs	150 kg / 331 lbs

Model	PS5	MS5	PS7	MS7
Installation				
Ambient temperature	3-40°C / 37-104°F			
Pump				
Pump type	CRNE 5-14J		CRNE 10-9J	
Motor power	6 kW / 8 HP		7.5 kW / 10 HP	
Frequency drive	Integrated in pump motor			
Degree of protection	IP 54			
Connections				
In- and outlet	1½" BSP or NPT			
Water, inlet				
Pressure	1.5-10 bar / 23-150 psi			
Maximum pump cut-out pressure	1.5 bar / 23 psi			
Temperature	3-70°C / 37-160°F			
Minimum pump cut-out temperature	90°C / 190°F			
Minimum recommended flow	12 m³/h / 52.8 USgal/min		15 m³/h / 66 USgal/min	
Water, outlet				
Setpoint	20 bar / 290 psi			
Maximum flow at 20 bar (290 psi) (including 4.0 bar (58 psi) inlet pressure)	150 liter/min / 39.6 US gal/min		200 liter/min / 52.8 USgal/min	
Air, inlet				
Pressure	-	5-10 bar / 72-145 psi	-	5-10 bar / 72-145 psi
Minimum flow	-	150 liter/min / 5.3 cfm	-	200 liter/min / 7.1 cfm
Electrical 400 and 460V				
Voltage and frequency	3x380-500V +/- 10% 50-60 Hz			
Current	9.0-11.5 A		11.2-14.1 A	
Recommended pre-fusing	20 A		32 A	
Recommended cable cross section	4 x 1.5 mm² / 4 x AWG16		4 x 2.5 mm² / 4 x AWG14	
Chemical				
Dosing range	-	0.2-6%*	-	0.2-6%*
Dimensions				
Weight	125 kg / 276 lbs	135 kg / 298 lbs	150 kg / 331 lbs	160 kg / 353 lbs

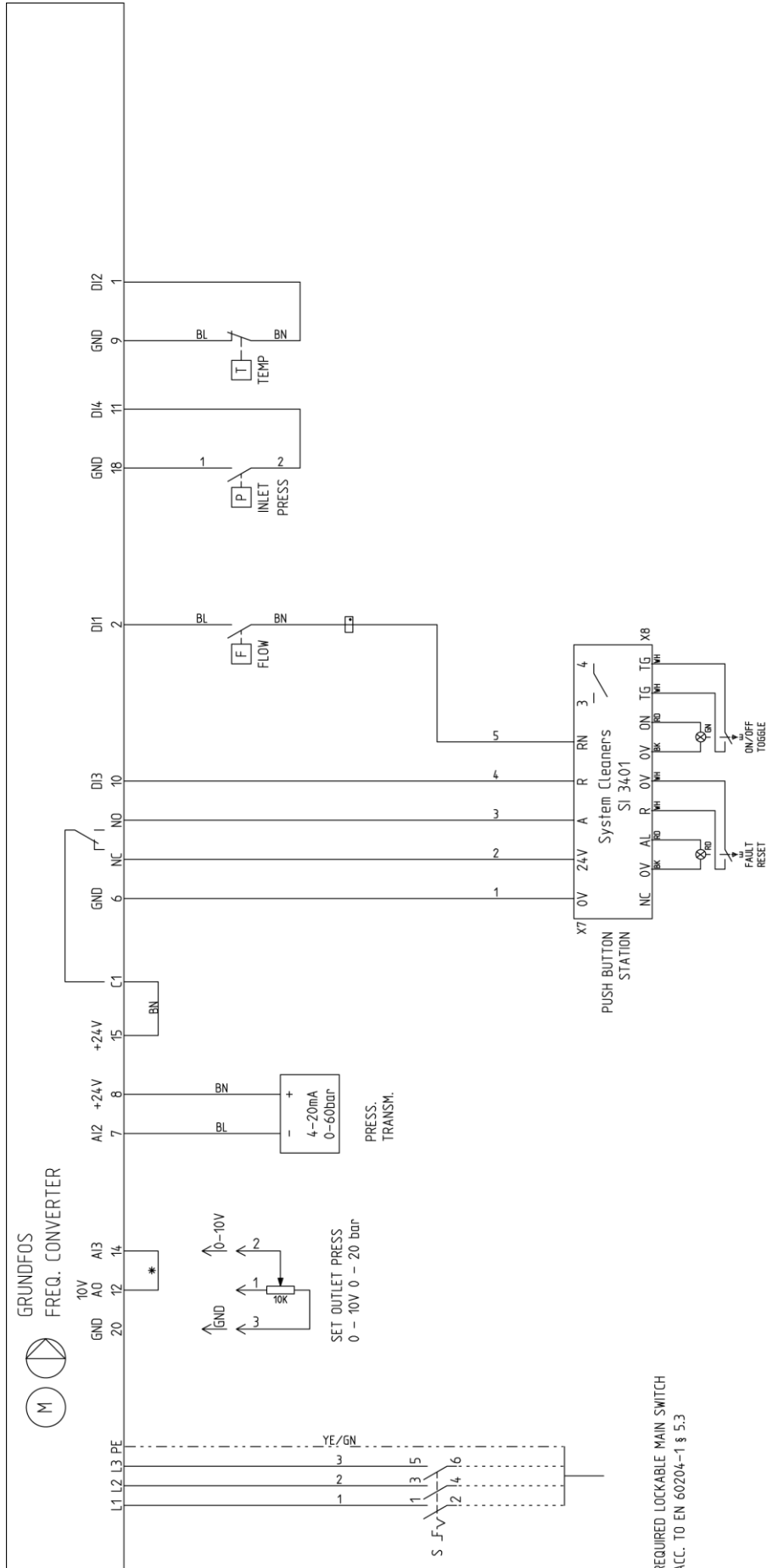
Pump curve MS5 and MS7



Pump curve PS1, PS3, PS5 and PS7



Wiring diagram



REQUIRED LOCKABLE MAIN SWITCH
ACC. TO EN 60204-1 § 5.3

- ☐ CONNECTIONS IN MOTOR
- * REMOVE THIS JUMPER IF EXT. SETPOINT



System Cleaners A/S

Halkjærvej 17
DK-9200 Aalborg SV
Denmark
Tel.: +45 96 34 04 04
Fax.: +45 98 79 19 42
info@systemcleaners.com
www.systemcleaners.com

Please note:

We reserve the right to make alterations to the technical specifications without notice.