INSTALLATION, SERVICE AND MAINTENANCE INSTRUCTION

5/2 and 5/3 solenoid pilot operated valves

Type: 52VEE16D
52VEE25D
53VEE16DF
53VEE25DF

5/3 pneumatic pilot operated valves

Type: 53VPP16F
53VPP25F

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Application

5/2 and 5/3 valves of solenoid pilot-operated type and 5/3 valves of pneumatic pilot-operated type are designed to distribute compressed air into two workspaces, which are alternately filled and discharged. The valves are mainly used to control double acting pneumatic cylinders, pneumatic clamps and other performance elements requiring two-way or three-way control.

Description and function

Valves interconnect the input pressure to one of two outputs and the second output is connected to the exhaust . Linking input and output depending on the control signal is indicated on the label distributors graphic symbol (see Fig.).

Technical valve data according TP 75 0129/93

Parameter		Type					
		52VEE16D	**53VEE16DF**	**53VPP16F**	**52VEE25D**	**53VEE25DF**	**53VPP25F**
Diameter DN [mm]		16			25		
Operating pressure [MPa]		0,2 to 1					
Junction thread	inlet „ 1 „	G1/2			G1		
	outlet „ 2 , 4 „						
	exhaust„3, 5 „						
Connecting thread for pneumatic operated (12 and 14)		-		G1/4	-		G1/4
Weight [kg]		1,8		1,5	3,1		2,8
Flow factor Kv [$m^3 .h^{-1}$]		3,5			11		
Max switching speed [s^{-1}]		3					
Ambient temperature [°C]		-10 to +50					
Fluid temperature [°C]		+2 to +60					
Flowing fluid requirements		Conditioned compresed air – Air grade 5 7 5 according to ISO 8573-1					
Solenoid data	voltage	230 V / 50Hz 12, 24, 42, 110 V / 50Hz a 60 Hz 12, 24, 48, 110, 220 V DC					
	coil power	15VA 10W					
	enclosure	IP 65 with connector					
	duty rating	100%					
	voltage tolerance	±10%					

Applied materials

Body, flange.... .....aluminum alloy
Coil..... .....type 2241241xx (System 13-32 Regada)
Seals..... .....NBR

Installation

The valves can be mounted in any position inside the distribution pipeline. When mounting the valve on the pipeline, control solenoids cannot be used as a counter power.
The valves are designed for the use in closed rooms (objects) with no effect of atmospheric precipitations, direct sunlight or moisture condensation.
Based on operating conditions and quality of compressed air in the distribution system, it is recommended to place an air treatment unit with filtering capacity of at least 55 μm in front of the valve.
It is possible to use fixing holes in the body to fix the valve to the unit. The connecting dimensions of elements in front of the valve, air treatment unit, must, at least, correspond with the dimensions of the valve entry connection.
In order to reduce the noise level, it is recommended to apply a silencer corresponding, at least, with the dimensions of the exhaust threaded connection on exhausts of valves “3” and “5”. The silencer has to discharge air directly in the atmosphere and cannot get clogged if to avoid any reduction in air exhaust rate.

Electrical connection

Valves equipped with a block of function electric checking will be wired by the user based on requirements arising from standards for relevant machine control.
Connect the coil in accordance with National electrical Engineering Standards. Before coil connection check electric data on coil and mains voltage. Voltage is connected to terminals marked on terminal board. Protective conductor must by safely connected to protective terminal, which is marked on the terminal board. The electrical cable must by effectively sealed in a plug. Electric connector plug provides protection for coil IP 65.
Coil is mounted to valve rotated in 360°. The plug can be positioned on the coil by 4 x 90 °. Voltage can be connected to the coil only when assembled on the valve, the coil for alternating power can be damaged during connection, if is not slipped on the core guide.
Attention: Coil at continuous operation without media flow - DANGER OF BURNS BY TOUCH BY UNPROTECTED BODY PARTS!!!!!!!! The coil is designed for continuous operation and therefore mentioned warming of coil does not restrict its permanent use. In case of excessive heating the thermal injury of coil winding would be accompanied by smoke and smell of burning coil insulation and in that case, the coil must be immediately disconnected from electrical power supply!!!!
The valve can only be wired by a certified professional.

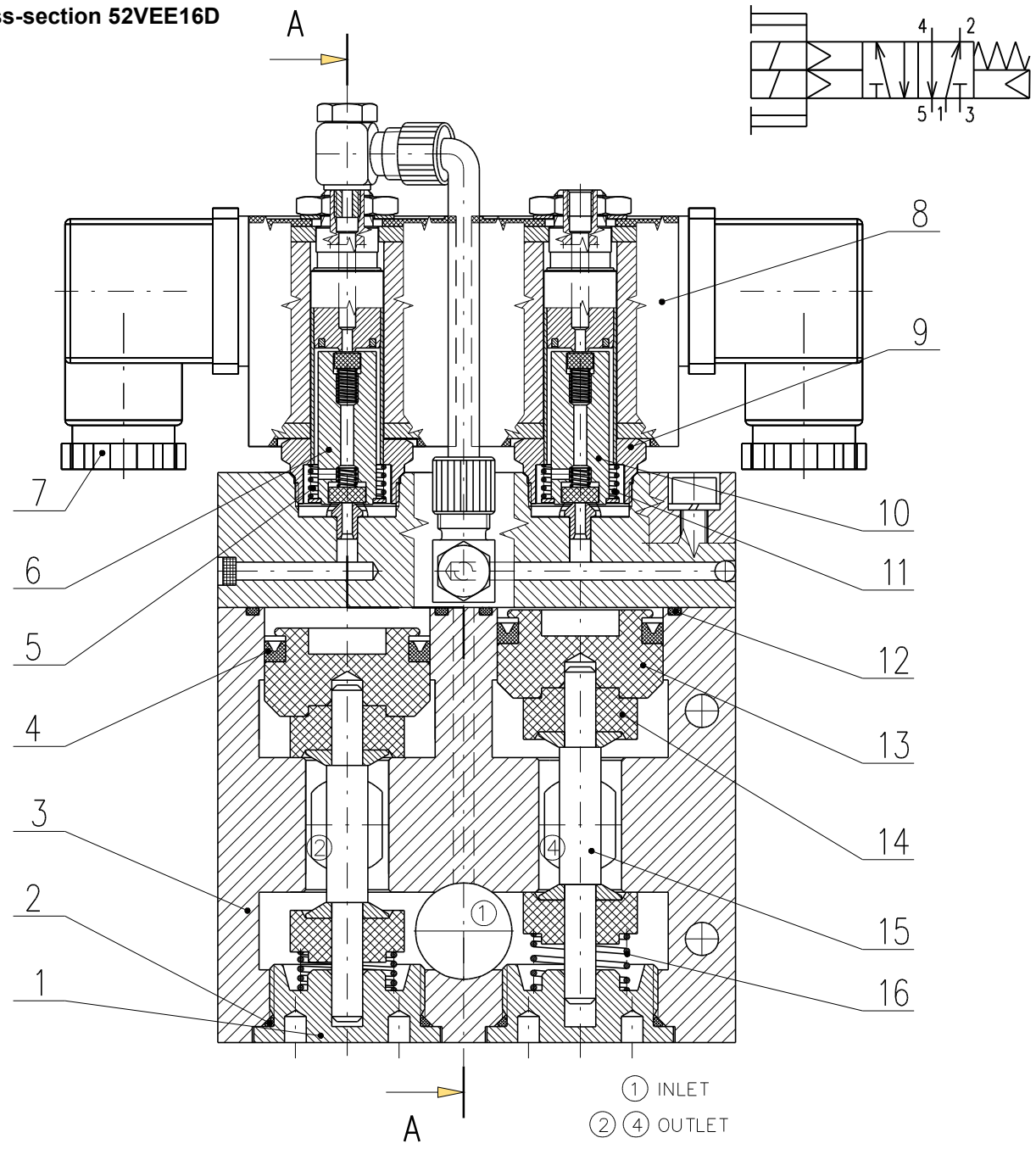
Service

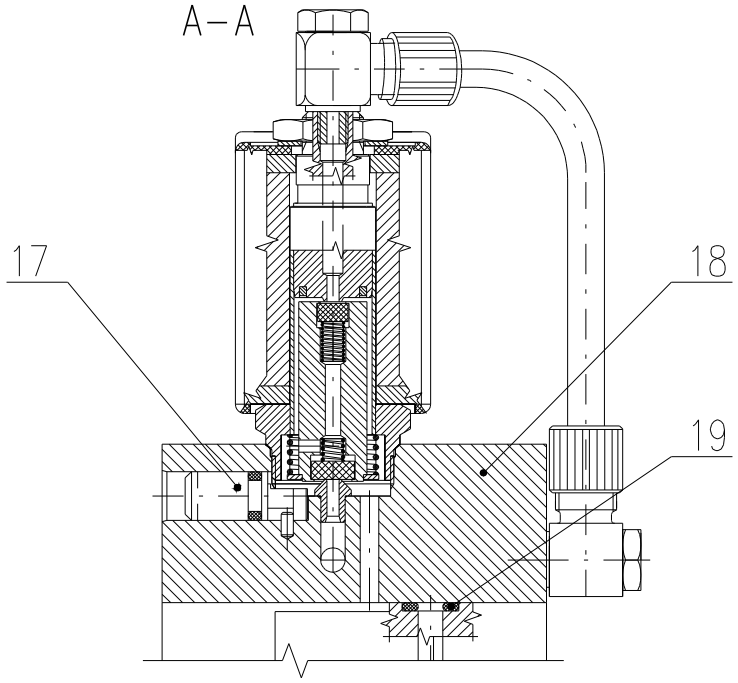
Before putting in operation, it is necessary to check the correctness of wiring and the value of voltage with reference to the data stated on the coil. While connecting the solenoid, its coil for alternating current can get damaged if not put on the core guide. Once in operation, valves do not require any special care.
The valve can be manually overridden if in emergency e.g. when aligning the machine. The manual control cam is accessible upon yellow cover removal. The manual control is placed in the flange under the control solenoids. Solenoid cores can be manually reset to position “I” at the same time using a screw driver (the groove of the cam turned to position I – see the detail of manual control). When in operation, the manual control cam has to be in the “0” position.

Maintenance

If the device needs to be dismounted as a part of maintenance, it is necessary to clean internal parts, check seal conditions, lubricate moving parts of the device at least once a year based on the character of its operation. Once back in position, the device has to be checked for leakage and faulty functioning applying the procedure described in the Operation section. Only tools recommended by the manufacturer can be used for disassembly.
Conditions of the silencer have to be checked on a regular basis as a part of maintenance.
It is also necessary to pay attention to correct functioning and maintenance of air treatment elements on the valve input and to observe their manufacturer’s operating instructions.
The staff assembling, operating and maintaining the machinery have to meet the certification requirements as per relevant legal regulations.

Valve cross-section 52VEE16D

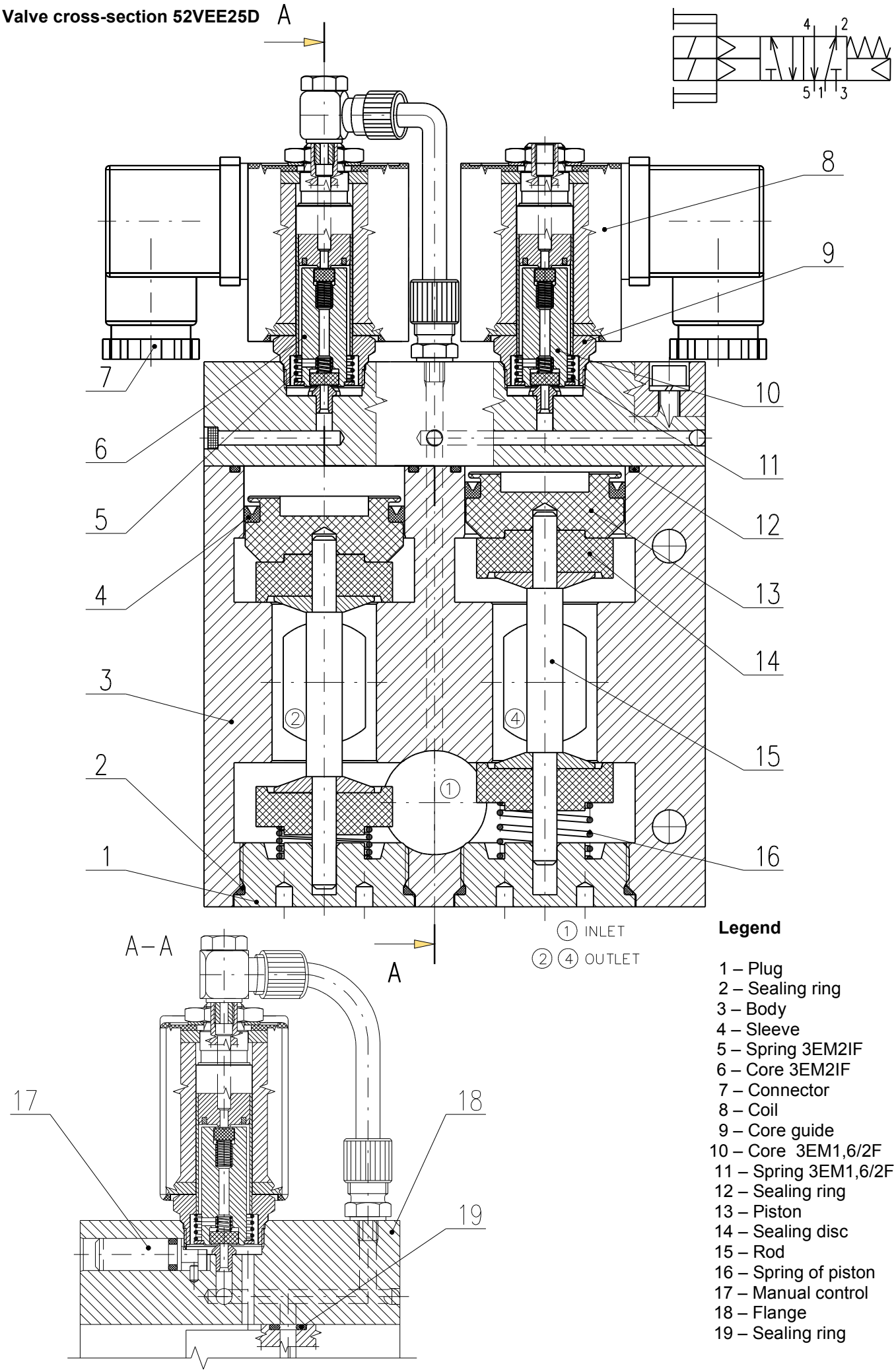




Legend

1 – Plug
2 – Sealing ring
3 – Body
4 – Sleeve
5 – Spring 3EM2IF
6 – Core 3EM2IF
7 – Connector
8 – Coil
9 – Core guide
10 – Core 3EM1,6/2F
11 – Spring 3EM1,6/2F
12 – Sealing ring
13 – Piston
14 – Sealing disc
15 – Rod
16 – Spring of piston
17 – Manual control
18 – Flange
19 – Sealing ring

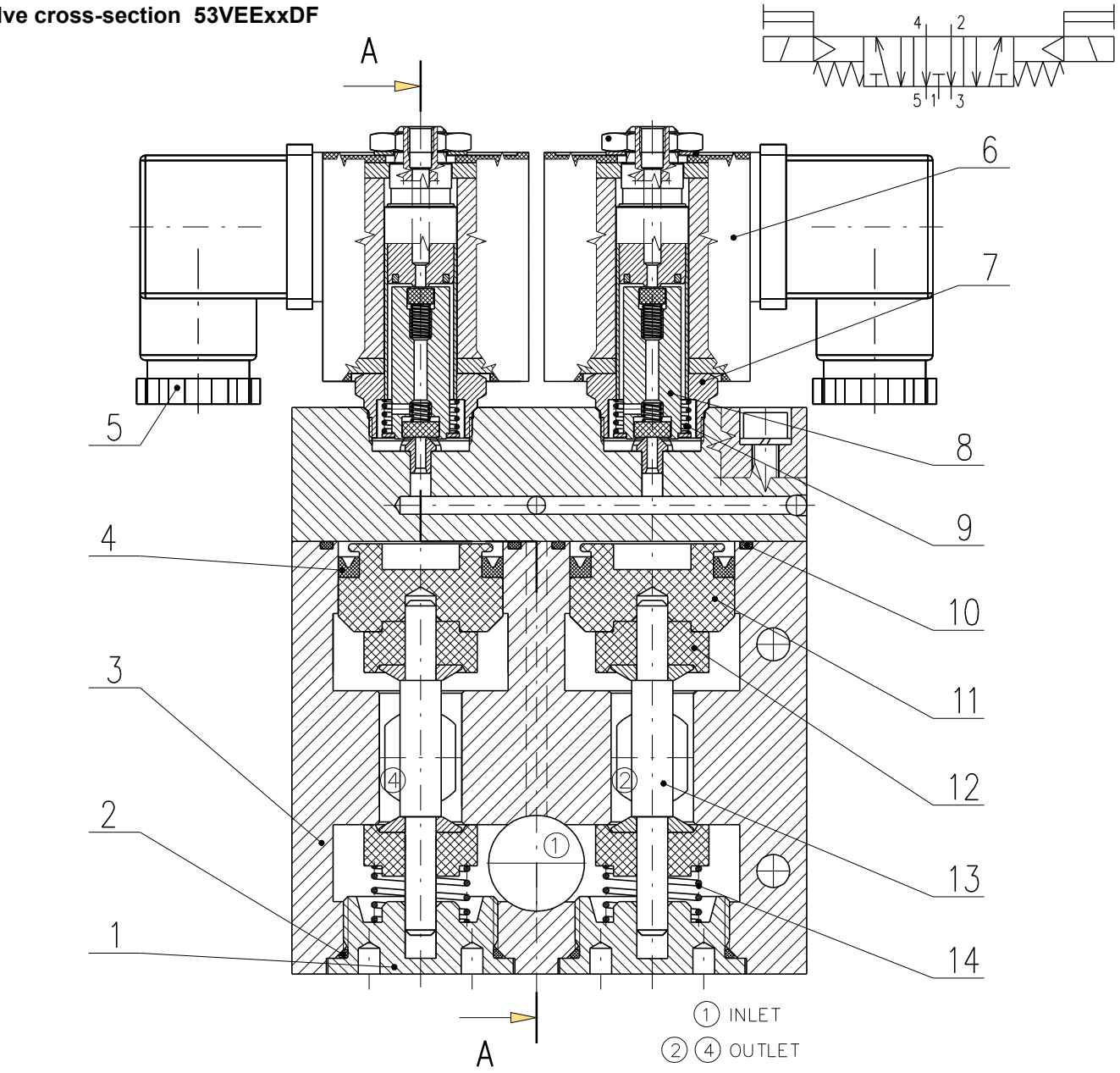
Valve cross-section 52VEE25D

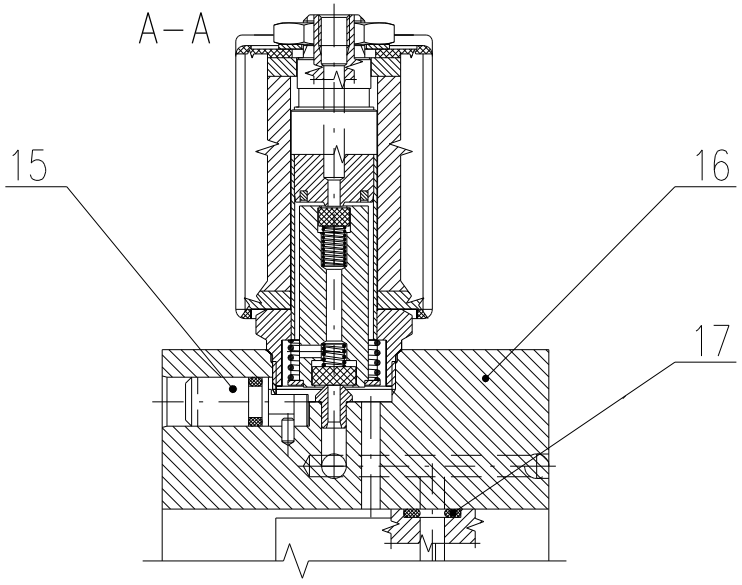


Legend

1 – Plug
2 – Sealing ring
3 – Body
4 – Sleeve
5 – Spring 3EM2IF
6 – Core 3EM2IF
7 – Connector
8 – Coil
9 – Core guide
10 – Core 3EM1,6/2F
11 – Spring 3EM1,6/2F
12 – Sealing ring
13 – Piston
14 – Sealing disc
15 – Rod
16 – Spring of piston
17 – Manual control
18 – Flange
19 – Sealing ring

Valve cross-section 53VEExxDF





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1 – Plug
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3 – Body
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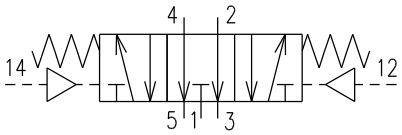
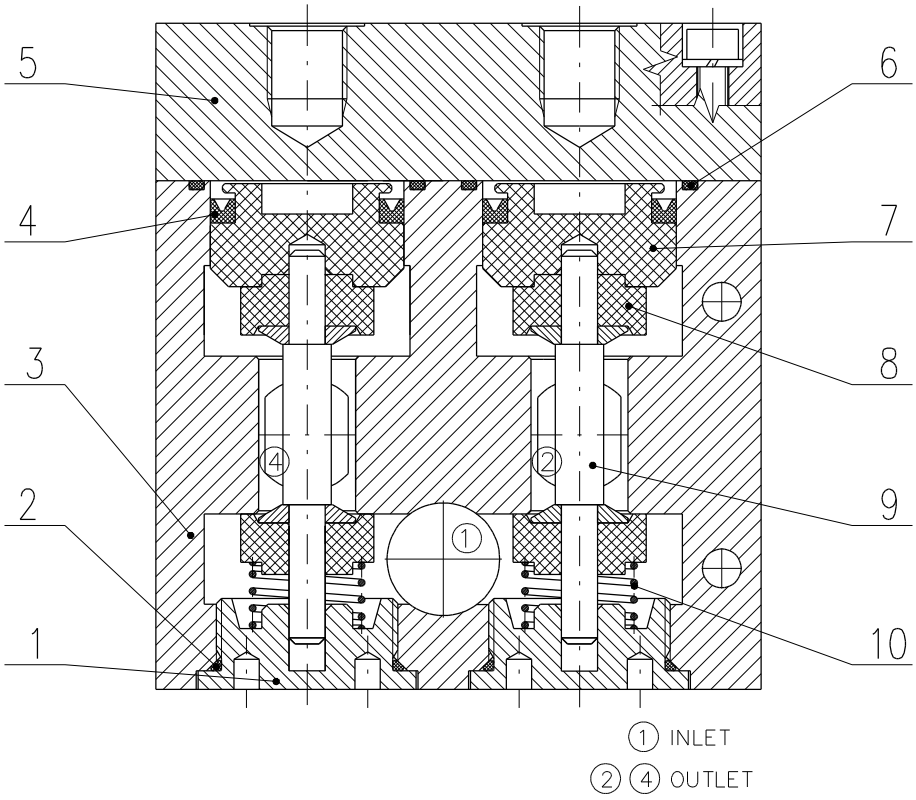
9 – Spring 3EM1,6/2F
10 – Sealing ring
11 – Piston
12 – Sealing disc
13 – Rod
14 – Spring of piston
15 – Manual control
16 – Flange
17 – Sealing ring

Valve cross-section 53VPPxxF

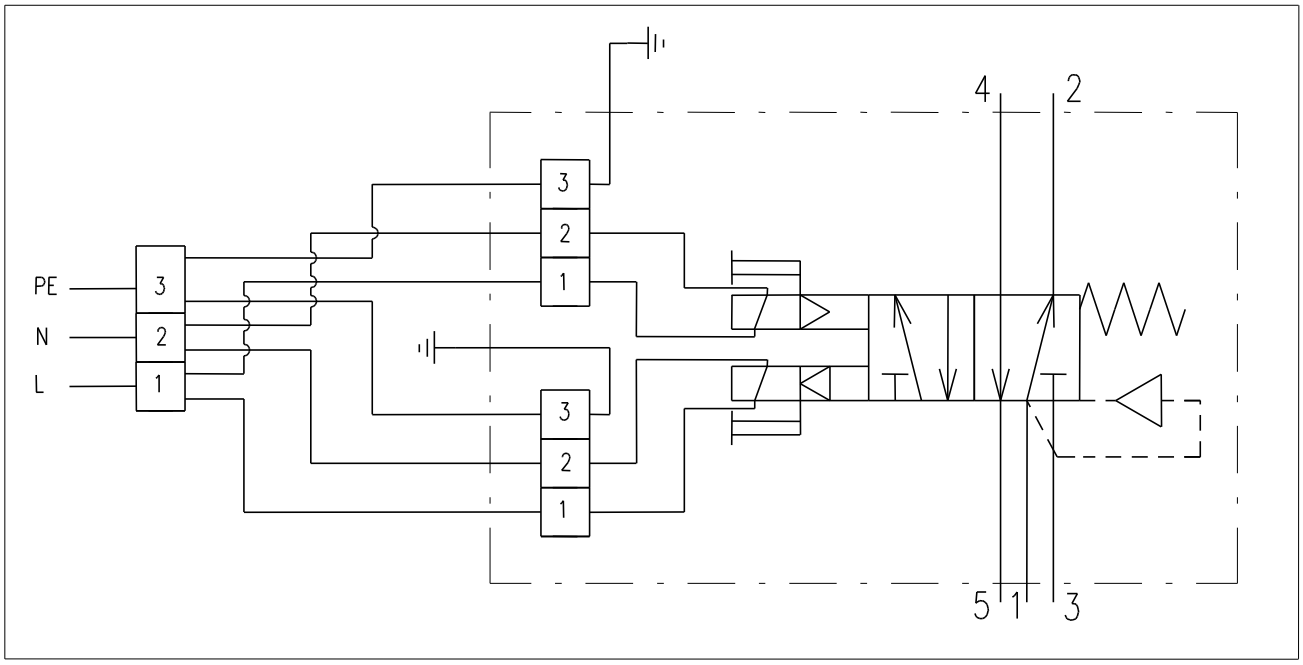




Legend

1 – Plug
2 – Sealing ring
3 – Body
4 – Sleeve
5 – Flange
6 – Sealing ring
7 – Piston
8 – Sealing disc
9– Rod
10 – Spring of piston

Diagram of recommended valve connection of valves 52VEE16D and 52VEE25D



Guarantee and Service

The manufacturer is responsible for valves properties for a minimum of 12 months from delivery of goods if the purchase contract has not been established by another warranty period. The manufacturer is responsible for ensuring that this product has and, during the prescribed period, will have properties established by technical standards, conditions, regulations and properties as agreed in the purchase contract.
Warranty does not cover defects caused by improper or forcible manipulation with the product.
The manufacturer is not responsible for the worsening of the product or damage caused by failure of buyer who doesn’t comply with these instructions, or someone else's by bad storage, incorrect connection of the product or damage caused by disaster natural.
Warranty or Post-warranty services are carried by manufacturer or its authorized agencies that are qualified to do so by the manufacturer.

Product liquidation

Components and pack can be used as source of secondary raw material.
Product is not source of environmental pollution and doesn’t include danger scrap.