

MOUNTING, OPERATING, TESTING & MAINTENANCE INSTRUCTIONS FOR ROTEX 5/2 AIR OPERATED VALVE MODEL 53400, 53401, 53402, 53403

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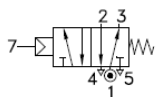
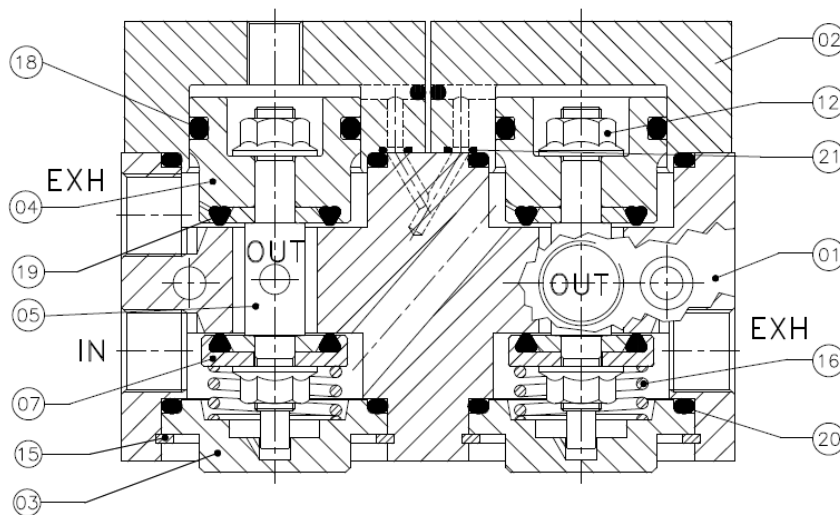
CONNECTION

VALVE TYPE	INLET	OUTLET	EXHAUST	OUTLET	EXHAUST	EXTERNAL PILOT INLET
53400, 53401, 53402, 53403	1	2	3	4	5	7

(A) OPERATING PRINCIPLE

When pressurized pilot air not available at external pilot inlet # 7, applied pressure at the inlet port # 1, a part of media from the inlet, drawn through the pilot passage up to the bottom kolben thus media pressure support to spring of Outlet port # 2 and top kolben of outlet port # 4 to keep piston assembly up. In this state inlet port # 1 and outlet port # 4 are connected. Outlet port # 2 and exhaust port # 3 are connected. Exhaust port # 5 is blocked. Media come out from the outlet port # 4.

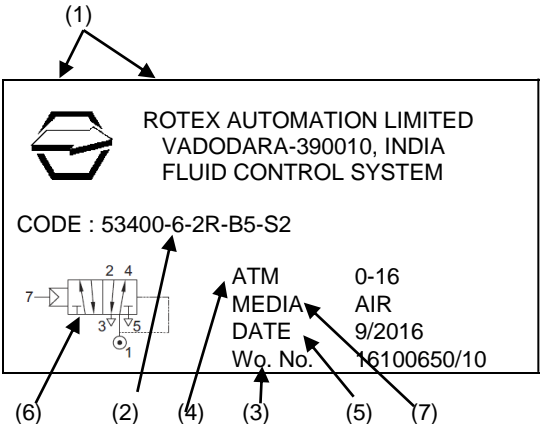
When pressurized pilot air available at external pilot inlet # 7, piston assembly moves down wards, applied the pressure at inlet port # 1, In this state inlet port # 1 and outlet port # 2 are connected. Outlet port # 4 and exhaust port # 5 are connected. Exhaust port # 3 is blocked. Media come out from the outlet port # 2.



QTY.	DESCRIPTION	POS.No.
02	PILOT 'O' RING	21
04	BODY 'O' RING	20
04	SEAT 'O' RING	19
02	PISTON 'O' RING	18
02	VENTILFEDER (VALVE SPRING)	16
02	INTERNAL CIRCLIP	15
04	NUT	12
02	VENTILTELLER (PRESSURE PLATE)	07
02	VENTILSCHAFT (VALVE SHAFT)	05
02	KOLBEN (PISTON)	04
02	VENTILBODEN (VALVE BOTTOM)	03
02	DECKEL (COVER)	02
01	GEHAUSE (BODY)	01

IDENTIFICATION ON THE SOLENOID VALVE

a) VALVE MARKING

 <p>(1) Logo + Name & address of the Manufacturer</p> <p>(2) Valve Type / Code 53400 = Valve Model Suffix = Nil 6 = Orifice Ø 2R = Port Connection B5 = Body Material S2 = Seal Material</p> <p>(3) Work Order reference / Sr. No. of the Valve</p> <p>(4) Operating Pressure</p> <p>(5) Month & Year of manufacture</p> <p>(6) Valve Symbol</p> <p>(7) Media</p>	<p>ROTEX AUTOMATION LIMITED VADODARA-390010, INDIA FLUID CONTROL SYSTEM</p> <p>CODE : 53400-6-2R-B5-S2</p> <p>ATM MEDIA 0-16 DATE AIR 9/2016 W.o. No. 16100650/10</p>
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B) PORT IDENTIFICATION

A Valve with NPT (F) threading is normally marked “N” near the port and with Metric threads are marked “M”. For ports with BSP threads, there is no marking.

⚠ NOTE: The product without label is out of warranty and risk.

(B) MOUNTING/INSTALLATION PROCEDURE:

1. ENSURE THAT:

- a) While storing, keep the valve in cool, dry, dust free area.
- b) On receipt of the valve, in case if the same is to be removed from the sealed plastic bag for inspection/testing, put them back with dust plugs on its ports and sealing the plastic bag as soon as the inspection/testing is over.
- c) The valve should be removed from its card board and/or plastic bag just before the installation.
- d) Flush lines before installing the valve.
- e) To avoid pressure, drop and to achieve optimum parameters, Pipe / Tube / Fitting from the source of pressure to the valve and to the connected equipment should have ID which is \geq NW (Orifice) of the valve.
- f) To avoid pressure, drop, if more than one valve is being operated simultaneously from a common header, then minimum ID of the header can be calculated as under.

$$ID \text{ Header} = \sqrt{(NW^2 \times n)}$$
 n = Number of Valves operating at a time and which are connected to a common header, NW = Orifice of the Valve.
- g) Incorporate filter in the line to avoid hard particles entering the valve.
- h) The valve should be installed for the media for which it is intended for. This is to avoid the malfunction of seals and the valve. In case if you intend to use valve for media other than the one specified on that valve, check compatibility of media to Body Seal material and grease. Consult **ROTEX** in case if any doubt.
- i) Do not try to drill any additional holes or machine, modify any of the valve components.
- j) In case if the valve is used for dangerous fluid gas/liquid then, the user is hereby advised to maintain during operation and maintenance of the valve below LEL or above UEL to avoid explosion due to internal spark as the valves have not been assessed for the same.
- k) Inlet pressure does not exceed rated pressure.
- l) Hemp-Filaments, 'Jute' or even Teflon-Ribbons are normally not required, as the port connections of ROTEX Valve is accurately machined.
- m) To avoid overlap of the Teflon ribbon or cuts generated while tightening, getting carried away into the valve. Do not cover first two thread pitches with Teflon tape or sealant.

2. **⚠** Provide Dust Cap on the exhaust port or ensure that the valve is mounted such a way that dust particles / rain water / process fluid do not enter the valve through exhaust port of the valve. You can connect bend pipe of ID \geq NW of the valve so that the exhaust port is not directly (straight) open into the atmosphere.
3. The process fluid etc. does not fall on the valve body.

TESTING OF THE VALVE AT THE TEST BENCH

- n) Check at least once in 3 years or following your routine maintenance schedule.
- o) Apply rated pressure at inlet port of the valve.
- p) Plug outlet ports.

- q) Check operation of the valve and leakage at the exhaust ports and pilot vent at the rated and minimum working pressure by applying External pilot Air at port 7 equal to or greater than Inlet pressure or minimum 2 bar.
- r) While keeping the valve deactivated, check operation and leakage from exhaust of the valve at the rated and minimum working pressure.

RECOMMENDED SPARES

- a) Seal Kit
- b) Repair Kit

RECOMMENDED MAINTENANCE

- | | | | |
|--|-----|------|-------------------------|
| • Replacement of Complete Set of O Ring | ... | ... | Once in 5 years or 2 |
| - Seat O Ring, Piston O Ring, Body O Ring, | ... | | ... millions operations |
| - Pilot O Ring | | | |

PREVENTIVE

MAINTENANCE – GENERAL INSTRUCTION



- All air connections must be switched off before removing valve from the line.
- It is recommended to replace complete set of O Ring even if one of the O Ring is damaged. This is to ensure trouble free operation of the valve and will avoid its premature failure.
- Using Grease other than Silicon base Molykote M55 will lead to premature failure of O Rings of the ROTEX Solenoid valve.
- If necessary to clean the components, **do not use Kerosene, Diesel, Petrol to clean valve as this damage the O Rings and other rubber material. Instead use light Detergent Soap Solution.**
- Ensure that the components are free from dust, dirt, lint and metal burrs.
- Twisting of O Ring should be avoided. Ensure that the twist is removed before fitting matching part.
- While closing the matching part, the matching part should be pushed in a straight line. Turning motion should be avoided.
- Pinching of O Ring at the groove corner at the time of closing gland should be avoided.
- User is requested to use safe practice for maintenance.
- It is important to place the dismantled Valve Parts on a clean paper or cloth in same sequence in which you have dismantled them.
- Ensure to keep all the components of the valve separately to avoid their mixing up. The component appears to be same may have small differences which will cause malfunction if interchanged.
- In case of difficulty you should contact the Agent, Distributor or **ROTEX** directly.
- Using **ROTEX** genuine spares will **Guarantee** you trouble free operation and will avoid premature failure.



(A) REPLACEMENT OF O RINGS

- 1) Remove Deckel (Cover) by opening screws.
- 2) Remove Ventilboden (Valve Bottom) using internal circlip plier.
- 3) Remove Ventildfeder (Valve Spring) (Please ensure to place the Spring in respective location on reassembly)
- 4) Open Nuts.
- 5) Insert rod in hole provide in Ventilschaft (Valve Shaft) to remove Nut.
- 6) Remove all the "O" Rings [Piston O Ring, Seat O Ring, Body O Ring, etc...].
- 7) Clean components.
- 8) Fix new O Rings applying light layer of Molykot M55 grease.
- 9) Ensure that the O Rings and other rubber parts are compatible to the media passing through the valve.
- 10) Reassemble the valve.
- 11) Check operation and leakage of the valve
- 12) Contact ROTEX in case of any difficulty.
- 13)

STORING, CLEANING AND MOUNTING OF ELASTOMERS: SYNTHETIC RUBBER PRODUCTS

- Store Plunger, O Ring Set in sealed polyethylene bag, kept in cool, dry, dust free area and avoid direct contact with all light sources emitting ultra violet rays, or contact with fumes, solvents, fuels, lubricants, chemicals, acids, disinfectants.
- Follow Maintenance General Instruction & specific procedures to replace O Ring set as listed above.

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