

89 Series Installation and Maintenance Manual



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1. Warranty term

Hiter Controls guarantees, subject to the conditions described below, to repair and replace as free of charge, including labor, any components that fail within 1 year of delivery of the product to the end customer. Such failure must have occurred due to a defect in material or workmanship, and not as a result of the product not having been used in accordance with the instructions in this instruction.

This warranty does not apply to products that require repair or replacement due to normal wear and tear on the product or products that are subject to accidents, misuse or improper maintenance. Hiter Controls only obligation with the Warranty Term is to repair or replace any product that we deem defective. Spirax Sarco reserves the right to inspect the product at the end customer's facility or request the return of the product with prepaid freight by the buyer.

Hiter Controls can replace with new equipment or improve any parts that are found to be defective without further liability. All repairs or services carry out ed by Hiter Controls , which are not covered by this warranty term, will be charged according to the current Hiter Controls price list.

THIS IS HITER CONTROLS ONLY WARRANTY TERM AND ONLY THROUGH HITER CONTROLS IS EXPRESSED AND THE BUYER DISCLAIMS ALL OTHER WARRANTIES, IMPLIED BY LAW, INCLUDING ANY MARKET WARRANTY FOR A PARTICULAR PURPOSE.

2. General safety information

Access.

Ensure safe access and if necessary a safe working platform (suitably guarded) before attempting to work on the product. Arrange suitable lifting gear if required.

Lighting.

Ensure adequate lighting, particularly where detailed or intricate work is required

Hazardous liquids or gases in the pipeline.

Consider what is in the pipeline or what may have been in the pipeline at some previous time. Consider; flammable materials, substances hazardous to health, extremes of temperature.

Hazardous environment around the product.

Consider; explosion risk areas, lack of oxygen (e.g. tanks, pits), dangerous gases, extremes of temperature, hot surfaces, fire hazard (e.g. during welding), excessive noise, moving machinery.

The system.

Consider the effect on the complete system of the work proposed. Will any proposed action (e.g. closing isolation valves, electrical isolation) put any other part of the system or any personnel at risk? Dangers might include isolation of vents or protective devices or the rendering ineffective of controls or alarms. Ensure isolation valves are turned on and off in a gradual way to avoid system shocks.

Pressure systems.

Isolation (double block and bleed) and the locking or labelling of closed valves. Do not assume that the system has depressurised even when the pressure gauge indicates zero.

Temperature.

Allow time for temperature to normalise after isolation to avoid danger of burns.

Tools and consumables

Before starting work ensure that you have suitable tools and/or consumables available. Use only genuine Spirax Sarco replacement parts.

Protective clothing

Consider whether any protective clothing is required by yourself and/or others in the vicinity to protect against the hazards of, for example, chemicals, high/low temperature, noise, falling objects, and dangers to eyes and face.

Permits to work

All work must be carried out or be supervised by a suitably competent person.

Commissioning

After installation or maintenance, make sure that the system is working properly. Carry out tests on all alarms and protective devices.

Handling and Storage

The equipment and materials must be stored in their own premises and in a safe manner. See item 5.

Disposal

Unless otherwise stated in the Installation and Maintenance Instructions, this product is recyclable and no ecological hazard is anticipated with its disposal providing due care is taken. However, if the valve is fitted with a Viton seal, special care must be taken to avoid potential health hazards associated with decomposition/burning of this item.

Additional Information

Additional information and help is available worldwide at any Spirax Sarco service center.

3. Introduction

The **89 Series** is a type globe valve designed to control small flows, comprehending a range of industrial applications.

Due to the component responsibility for an adequate valve performance, for maintenance use only original parts supplied by **HITER**.

4. Installation

- 4.1 The valve is inspected and shipped in a special packing with protection covers in body openings. However, a carefully inspection should be performed in order to ensure there is no damage and that no material has penetrated in the valve during transportation and storage.
- 4.2 Several valves are damaged when they are firstly placed in service due to the lack of a proper and complete internal cleaning of piping before the installation. Make a complete internal cleaning in the system lines and also inside the valve, aiming to remove rust, dust, welding debris and other debris.
- 4.3 Be sure adjacent end conection are perfectly aligned among them. The misalignment may cause installation problems and seriously compromise the equipment performance due to abnormal stresses appearing.
- 4.4 Be sure the end conections face is free of imperfections, live corners and burrs.
- 4.5 During the installation the actuator must be positioned on the valve and in vertical position. If possible, look for a position closer the vertical one. The horizontal position should be avoided and, in some cases, there should be a support to the actuator.
- 4.6 Install the valve obeying the flow direction indicated by the arrow in the body.
- 4.7 Introduce the stud bolts and tighten the nuts alternately in a diametrically crossed sequence. Torques must not be applied only at a time. The crossed sequence should be repeated several times, increasing the stud bolt torque in a gradual and uniform manner, until the recommended value is reached (table 1 - page 3).
- 4.8 For valves welded on piping we strongly recommend all inner components removal before welding, thus avoiding damage.
- 4.9 The straight piping length upstream the valve must be in accordance with the control valve installation standards or recommendations.
- 4.10 In continuous operation units, the installation must include a blockage and by pass systems, constituted of three manual valves.
- 4.11 Do not install the valve in a system whose pressure and temperature values are not satisfying the valve classes. When a valve is manufactured, the component materials are selected for a specific service condition. So, do not apply the valve in a more critical service without firstly consulting **HITER**.
- 4.12 The valves should be installed in an easy-maintenance place, with space for the actuator removal and the internal parts disassembly.

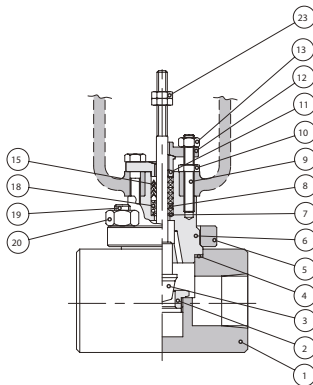


Fig. 1 – 89-3 Series

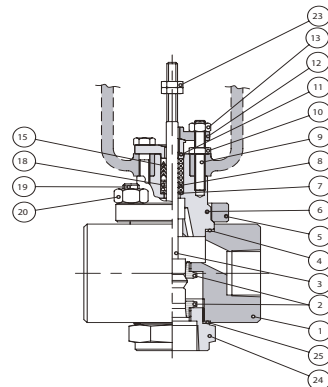


Fig. 2 – 89-3 way Series

4.13 Consult the Actuator Installation and Maintenance Manual for installation and respective adjustments.

5. Maintenance

WARNING

For personnel safety and to avoid damage to the system, before starting the piping check valve removal, isolate it through block valves and relief all pressure therein contained.

In the disassembly procedure description, our reference shall be the figures 1 and 2.

5.1 DISASSEMBLY

5.1.1 Fix the valve firmly in a workbench and disassemble the actuator.

- In case of direct-acting actuator, unthread the plug (3) from actuator stem, using a wrench in the backing nut (23).
- In case of an inverse-acting actuator, pressurize the actuator up to its maximum stroke and unthread the plug (3) from actuator stem, using a wrench in the backing nut (23). Following, depressurize the actuator.

5.1.2 Remove the actuator from valve removing the nuts (13), flange (12), packing follower (11), backing nuts (10) and stud-bolts (9). Remove backing nuts from plug (23).

5.1.3 Remove the nuts from body (20), bonnet flange (5) and bonnet (6) together with the plug (3).

5.1.4 Remove the plug (3) from bonnet (6). Do not damage the packings (8) or (15) when the plug (3) threaded part passes by them.

5.1.5 Remove the gasket (bonnet) (4).

5.1.6 Unthread the seat (2) from body (1).

5.1.7 Remove the packings (8) or (15) and other bonnet internal components, by one of the following procedures:

- Using a wire hook, pull the packings and other components out.
- Using a stem or stick, force the spring (packings) (18) in order to enforce the components to leave by bonnet (6) superior end

5.2 CLEANING, INSPECTION AND REPAIR

All valve metallic parts must be cleaned using solvent and dried with compressed air after inspection. Those approved should be kept clean and very well protected up to the assembly. The oil protector application to the steel carbon non painted parts is recommended. If there is a damage that can not be resolved by parts replacement and/or corrective actions, the valve should be returned properly assembled to **HITER** for general revision.

5.2.1 Inspect the seal surfaces (seat areas). Deep scratches or other imperfections on this area may compromise the valve sealing, damaging the seat. They only can be eliminated through the surface rectifying.

5.2.2 Normally it is not possible to get total sealing in metal-to-metal sealing valves. However, the leakage caused by small grooves or disarrangement of the surfaces can be reduced by plug rectifying against the seal. When the mentioned damages are larger ones, it is necessary to look for a milling before rectifying.

5.2.3 In the market place there is a great variety of pastes used for rectifying, thus a good quality paste can be used. Also, the paste can be prepared by mixing 600-granulation Carborundum, with solidified vegetal oil.

5.2.4 Application of an Alvalyade layer on seating surfaces should help the operation, avoiding excessive cutting and the grooves reduction. The Alvalyade must be applied apart and not together with the Carborundum.

5.2.5 To help the plug alignment (7) to the seat (2) and also to position the retainer ring, assemble the bonnet and respective gaskets on the body.

5.3.6 A simple tool may be provided to help the rectifying. This tool can be provided with a steel disk connected to the obturator stem by nuts.

5.3.7 After operation, remove the bonnet, clean the seating surfaces and make a seal testing. If need, repeat the operation.

In the assembly procedure description, our reference shall be figure 1 and 2 except when adversely recommended.

5.3 . ASSEMBLY

5.3.1 When reassembling the valve, use only new packings and clean all surfaces which shall contact them.

5.3.2 Assemble the plug (3), bonnet (6) and bonnet flange (5) in the body (1), tightening the nuts (20). The nuts must always be tightened gradually in a crossed sequence opposed to the torque data contained in Table 1.

5.3.3 Clean carefully the packing box and the internal metallic components. Replace the packings and the other components. When inserting packings, do not damage them they pass by the plug (3) threaded part.

5.3.4 Assemble the actuator, inserting the flange (12) and stud bolts (9), backing nut (10), gland (11) and flange packing follower (12). Put the plug nuts (23).

TABLE 1 – GUIDE TORQUE FOR ASSEMBLY

Thread (inches)	Torque (pound x feet)
3/8"	20
1/2"	43

6. Action Of The Valve and Position by Failure

6.1 Due to the construction, the action of the valve and the safety position by failure in the **89 Series** valves depends exclusively on the actuator.

6.2 A straight action actuator shall supply a normally opened valve (air to close). An inverse action actuator shall supply a normally closed valve (air to open).

6.3 For the valve action inversion, an inverse assembly should be done, once the DC Series which is standard in 89 Series is totally reversible.

6.4 The instructions for connection between the valve and the actuator are described in the Actuator Installation and Maintenance Manual.

7. Part List

TABLE 2 – PART LIST (Figure 1 and 2)

Item	Description	Item	Description
1	BODY	10	BACKING NUT
• 2	SEAT	11	PACKING FOLLOWER
• 3	PLUG	12	FLANGE PACKING
• 4	BONNET GASKET	13	GLAND NUT
5	BONNET FLANGE	15	PACKING (1)
6	BONNET	• 18	PACKING SPRING (1)
7	RETAINER RING	19	STUD-BOLT (BODY)
• 8	PACKINGS	20	NUT (BODY)
9	PACKING STUD-BOLT	23	BACKING NUT

(1) Used with V-shaped PTFE packings only.

• Recommended spare parts.

More information on
our website in English:



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