RC Series
Installation and Maintenance Manual

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

Acess.
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.produto, se realizado de maneira apropriada.

3. Introduction

The **RC Series** is a pressure regulator self operated pressure reguladora valve, suitable for control stem, water, oil, air, gases and other fluids.

According to the application, it may be used in the following functions:

R-Type – For pressure reduction service (down-stream pressure control).
A-Type – For pressure relief service (upstream pres- sure control)

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

4. Intallation

4.1. The valve is inspected and shipped in a special packing with protection covers in the 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 transpor-tation or storage.

4.2. Several valves are damaged when they are firstly 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 of valve, aiming to remove rust, dust, welding debris and other debris.

4.3. In case of valves with flange, be sure the adjacent flanges are perfectly aligned to each other. The de-alignment may cause installation problems and seri-ously compromise the equipment performance due to abnormal stresses appearing.

4.4. Be sure the flange faces are free of imperfection, live corners and burrs.

4.5. Install the valve obeying the flow direction indi-cated by arrow in body (figure 1).

4.6. Do not install any valve downstream with quick closing, once the quick interruption of the flow may cause immediate increase of pressure, damaging the valve.

4.7. Once it is an automatic functioning equipment, in-stall a flow derivation, in order to allow manual op-eration if the pressure regulator valve is under inspec-tion, cleaning, revision or repair. The derivation pipe-line diameter should be at leas equal to the reduction valve.

4.8. In case of redutora valve, it is recommended to installa safety valve downtream to the reduction valve.

4.9. The installation downstream or upstream (accord-ing to the valve function) of a manometer to allow an accurate adjustment of the pressure regulator valve, and also to allow constant verification of its perfor-mance.

4.10. Insert the stud bolt and tighten the nuts alternately in a diametrically crossed sequence. The 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. 4).

5. Maintenance

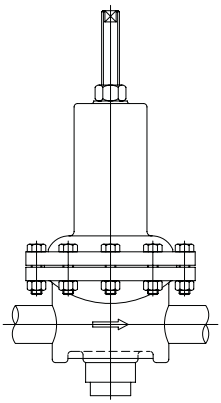

Fig. 1 – Valve installation

WARNING

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

In the disassembly procedure description, our refer-ence shall be the figures 2 and 3, except when ad-versely indicated.

5.1. DISASSEMBLY

R-Type – Reduction

1. Relief spring tension (19), loosing the locking nut (21) and the adjusting bolt (22) to remove all the spring compression.
2. Loose the nuts (16) releasing the fixing bolt (17) and remove the spring casing (18).
3. Remove the spring plate (20) and spring (19).
4. Remove the body (1), plug (4) together with the spring (3).
5. Using the wrench, fasten the plug (5) through the bottom hexagon and remove the sealing nut (14) and backing nuts (13).
6. Remove the top plate from diaphragm (12).
7. Remove the diaphragm and, in case of stainless steel diaphragm, the gaskets (9) and (10).
8. Unthread the diaphragm bottom plate (11) and re-move the plug (5).

A-Type – Relief

1. Relief the spring tension (19), loosing the locking nut (21) and releasing the adjusting bolt (22) to re-move all the spring compression.
2. Loose the nuts (16) releasing the fixing bolt (17) and remove the spring casing (18).
3. Remove the spring plate (20) and the spring (19).
4. Remove the plug (4) from body (1).
5. Remove from body (1) the assembly constituted of plug (5), diaphragm and diaphragm upper plate (12). In case of stainless steel diaphragm, remove the gas-ket (10).
6. When disassembling the assembly removed in last item, loose the backing nuts (13).
7. If replacement is required, remove the seat (2) from body (1).

5.2. CLEANING, INSPECTION AND REPAIR

All valve metallic parts must be cleaned using sol-vent and dried with compressed air after inspection.

Those approved should be kept clean and very well protected up to the assembly. The oil protector appli-cation to the steel carbon non painted parts is recom-mended. 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. Any barbs in bore edges must be removed using fine sandpa-per, as they can cause cuts.

5.2.2. Check the seat conditions. Material flowing in re-silient seats means the valve has been submitted to differentials of pressure above the allowed limit, or operated with elevated temperature. Deep scratches in the seat sealing area with the valve body also may cause leaking in operation. In these cases it is recom-mended seat replacement.

5.2.3. Small scratches on metallic seat sealing surface by lapidation. In market place there is a great variety of pastes used for rectifying, thus a good quality paste can be used.

In the disassembly procedure description, our refer-ence shall be the figures 3 and 4, except when ad-versely indicated.

5.3. ASSEMBLY

Type R – Reduction

1. When reassembling the valve, clean all surfaces that make contact to diaphragm and gaskets.
2. Insert the plug (5) by the body bottom part (1) and fix it using a wrench applied to the bottom hexagon.
3. Thread the diaphragm bottom plate (11) on the ob-turator (5) until the gap between plate (11) and body (1), with the plug (5) making contact to the seating surface be at 4mm (valve travel).
4. In case of valves with stainless steel diaphragm, install the gaskets (9) and (10).
5. Place the diaphragm and diaphragm upper plate (12) on the diaphragm bottom plate (11).
6. Lock the assembly with the backing nuts (13) and assemble the sealing nut (14).
7. Assemble the spring (3) and plug (4) on the body (1).

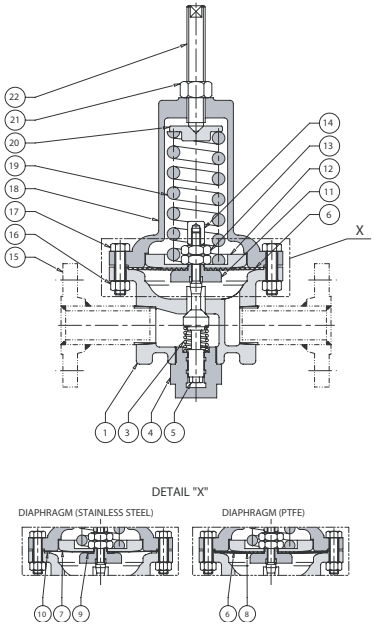

Fig. 2 – R-Type valve RC series

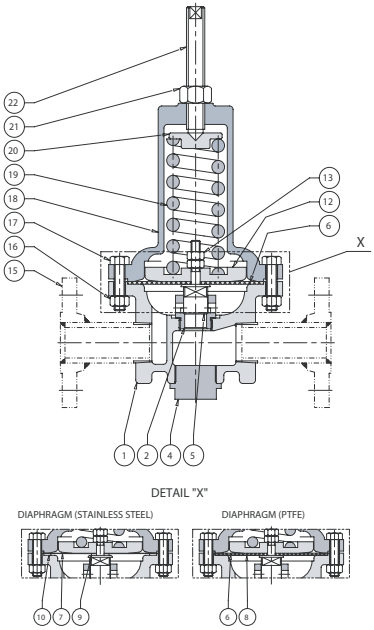

Fig. 3 – A-Type valve RC series

8. Assemble the spring (19) and spring plate (20) on the diaphragm upper plate (12).

9. Assemble the spring casing (18) and fix it with screws (17) and nuts (16).

10. Regulate the adjustment using the bolt (22) and lock it with the nut (21).

A-Type – Relief

1. When reassembling the valve, clean all surfaces making contact to diaphragm and gaskets.

2. If the seat (2) has been removed, thread it on body (1) using a mixture of litargírio and glicerine for lock-ing and sealing.

3. Mount the plug assembly with the diaphragm. Place the diaphragm and the diaphragm upper plate (12) on the plug (5). In case of stainless steel diaphragm, a gasket (9) between the plug and diaphragm should be installed. Lock this assembly with the backing nuts (13).

4. In case of stainless steel diaphragm, install the body gasket (10).

5. Place the mounted assembly on the seat (2).

6. Assemble the spring (19) and spring plate (20) on the diaphragm upper plate (12).

7. Assemble the spring casing (18) and fix it with bolt (17) and nuts (16).

8. Assemble the plug (4) on body (1).

9. Reguleate the adjustment through bolt (22) and lock it with the nut (21).

TABLE 1 – GUIDE TORQUE FOR ASSEMBLY5.4. AJUSTE

Thread (inch)	Torque (lb.ft)
1/2"	43
5/8"	86
3/4"	151

5.4. ADJUSTMENTS

In the disassembly procedure description, our refer-ence shall be the figures 1 and 2, except when ad-versely indicated.

1. The **Serie RC** reguladoras de pressão valves are factory-calibrated for the pressure previously deter-mined by the client. If a small adjustment is required, loose the locking nut (21) of the regulador screw (22) and tighten it if you want a higher pressure; or loose it to reach a lower pressure.

2. The factory adjustment can be changed within the spring regulagem range. The available spring ranges are: 3-29, 30-79, 80-219 or 220-260 psig.

6. Part List

TABLE 2 – PART LIST - (Figs. 1 and 2)

Item	Descrição	Item	Descrição
1	BODY	**12**	UPPER PLATE
2	SEAT	**13**	NUT (BACKING)
3	SPRING	**14**	NUT (SEALING)
4	PLUG (BODY)	**15**	FLANGE (OPTIONAL)
• 5	PLUG	**16**	NUT
• 6	DIAPHRAGM (BUNA-N)	**17**	BOLT
• 7	DIAPHRAGM (STAINLESS STEEL)	**18**	SPRING CASING
• 8	DIAPHRAGM (PTFE)	19	SPRING
• 9	GASKET (BODY)	20	SPRING PLATE
• 10	BODY GASKET	21	NUT
11	BOTTOM PLATE	22	ADJUSTING BOLT

- Recommended spare parts

More information on
our website in English:

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