Installation instruction

Installation of Spectron compression ring fittings

Contents

1 Use

The following sections of this operating manual describe the handling of Spectron compression ring fittings for use in Spectron pressure control panels.

The safety information given here must be complied with in order to ensure the correct and safe functioning of the overall installation.

2 Safety information

- Spectron compression ring fittings are designed exclusively for the establishment of connections for applications involving the transport of gaseous media.
- The specified operating conditions (e.g. pressure, temperature, media compatibility) must be complied with.
- Where recommendations are given with regard to pipes, these must be complied with. The use of other materials, degrees of hardness or tolerances will produce poor installation results and lead to malfunctions.
- Incomplete installation reduces the resistance to pressure and vibration and thus the service life of the screw fitting. This will result in leakage and in extreme cases in shearing off or breakage of the pipes. Pre-assembled Spectron compression ring fittings must be correctly and fully installed.
- Each time a connection is released, the union nut must be tightened as firmly as during initial installation. Insufficient tightening may result in reduced resistance to vibration. Over-tightening reduces the possibility of repeat installations and may in extreme cases lead to destruction of the components.
- Do not use metal balls, locating or taper pins, washers or coins as blind plugs.
- Once mounted, the pipe connection and the gland body are inseparable. The gland body can only be fitted once.
- Tightening and venting screw fittings which are under pressure can result in fatal injury.
- Pipes must be fitted without tension before installation. The union nut must screw in easily over the entire length of the thread. Failure to observe this may lead to leakage – or pipe breakage if additional vibration occurs.
- Do not attach pipes to each other, but to suitable attachment points. Sheet metal clamps, cable ties and fastening elements are not suitable. Pipes must not be used to mount installations such as filters, fans or fittings.

- Suitable pipe brackets must be mounted to absorb vibrations. Independent areas where vibration may occur must be isolated by means of hoses. Failure to comply with these instructions will lead to pipe breakage.
- When dismantling/transporting and reinstalling pipework systems, measures must be taken to ensure that no dirt can penetrate the system, that the connecting parts (threads, sealing surfaces) are not damaged, that gaskets are not lost and that lines are not bent or dented. We recommend the use of suitable protective caps.
- Dismantled screw fittings must be inspected for dimensional stability and freedom from damage and must be replaced if necessary.
- Do not use portable cutoff machines or unsuitable pipe cutters to cut the pipes to size.
- Contamination and metal shavings can cause the system to malfunction and may lead to leakage at the connections.
- Flow rates > 8 m/s should be avoided, as they exert high forces on bent pipes and can thus lead to failure of the pipelines.
- Comply with the relevant directives (e.g. BG, TÜV, DIN).
- Spectron compression ring fittings are not suitable for welding.
- Screw fittings are not bulk goods and must be handled individually and with care.
- When installing Spectron compression ring fittings, the pipe must bottom up in the stud during assembly.
- In the case of pre-assembled Spectron compression ring fittings, full final assembly in accordance with Section 4 (repeat assembly) is required.
- Compression rings and union nuts of Spectron compression ring fittings must not be mounted on self-made standpipe stud ends. This could result in incorrect mounting, causing the connection to shear off under load.
- Spectron compression ring fittings are available in brass and stainless steel. The individual components must not be interchanged. This could lead to total failure of the connection.

Get in touch with your contact person at Spectron if you are in any doubt.

As a fundamental principle, handling pressurised gases requires specialist knowledge and compliance with the instructions in this operating manual and the regulations valid in the respective country.

Training and regular safety training for operating personnel on the correct procedures for handling systems using pressurised gases is mandatory and must be repeated annually. Incorrect handling and/or use of such systems can endanger operating personnel and other persons, and can lead to damage to the system and in the surrounding area.

This instruction manual must be available to operating personnel at all times.

2.1 Application conditions

The materials of compression ring fittings must be suitable for the specific gas used, the maximum system pressure and temperature.

2.2 Resistance of the materials

The resistance of the materials can only be guaranteed with the use of dry gas and if lines and fittings are dry-purged. Incorrect installation and leaking screw fittings can give rise to serious risks.

2.3 Regulations, directives, technical specifications

A series of regulations must be observed when installing and operating gas systems. For example, the systems created must comply with the following regulations and rules.

2.3.1 Accident prevention regulations

- BGV-A1 (German trade association basic accident prevention regulations)
- BGR-500 (Sections 2.26, 2.31, 2.32, 2.33)

2.3.2 Laws, ordinances, technical regulations

- Industrial health and safety ordinance incl. the corresponding TRBS (technical regulations on industrial safety and health)
- Ordinance on hazardous substances incl. the corresponding TRGS (technical regulations for hazardous substances)
- Explosion Protection Directive 1999/92/EC (ATEX 137)
- EIGA publications

3 Initial installation
(non pre-assembled components)

3.1 Check that the compression ring fitting has been assembled correctly.
Figure 1 shows the component parts of a screw fitting and the direction in which they are assembled.

3.2 Now insert the pipe into the compression ring fitting and push it in gently as far as the stop (Figure 2).

3.3 Screw the union nut tight by hand and then tighten it beyond this point using two standard open-end wrenches (Figure 3) while holding it in place
- 1 ¼ turns for pipe diameters greater than 6mm
- ¾ turn for pipe diameters of less than 6mm. No extension may be used (Figure 4).

No further tightening is performed!

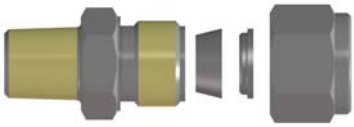

Figure 1

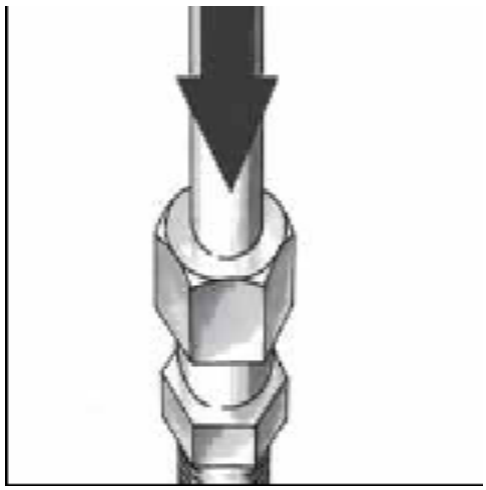

Figure 2

3.4 Before commissioning a pressurised gas system, it must always be checked for leaking screw connections using inert gas.

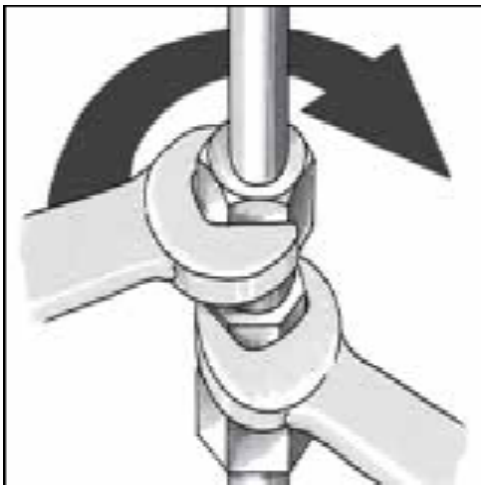

Figure 3

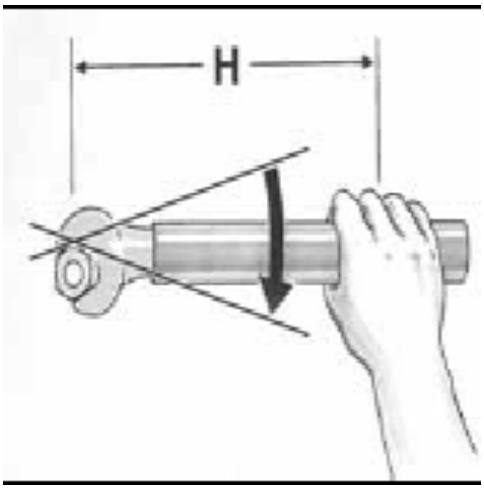

Figure 4

4 Installation of pre-assembled screw fittings

4.1 The pre-assembled pipe (with compression rings and union nut) is inserted into the respective screw fitting and tightened by hand.

4.2 Using two standard open-end wrenches (hold in position!), the union nut is then tightened to the point where the screwing force increases slightly.
The nut must not be tightened beyond this point, as this would overstress the connection, resulting in a loss of strength.

4.3 Before commissioning a pressurised gas system, it must always be checked for leaking screw connections using inert gas.

Spectron Gas Control Systems GmbH
Fritz-Klatte-Str.8, D-65933 Frankfurt
Tel.: 069-38016-0, Fax: 069-38016-200