VALVE USAGE & MAINTENANCE PAMPHLET

[Revision 0 Issue Date: 16/04/09]

SERIES CWH-10

Table of content

1 DESIGN DESCRIPTION

The design is wheel operated O-ring seal valves that use an EPDM/Viton O-ring/back up ring to seal for external tightness around the spindle. In addition Nylon 66/PCTFE thrust washer seals at higher pressure thereby protecting the O-ring during high pressure operation.

Gland nut abuts at the inner end with the valve body ensuring metal to metal seal eliminating need to retighten the gland nut during service.

The hand wheel driving the top spindle is non rising and always in the same position regardless of whether the valve is in the open or closed position. Further the threads are located on the lower spindle and are in the wetted gas stream.

These valves are available in three variants as under,

CWH-10/O – For technical and medical gases including oxidizing gases for WP up to 300 Bar
CWH-10/C – For carbon dioxide and carbon dioxide mixtures for TP up to 250 Bar
CWH-10/D – For Dissolved Acetylene for TP up to 60 Bar.

The variants use a different seat design for achieving internal tightness and hence have different valve body seating and bottom spindle configuration. In addition CWH-10/C has body designed from Low tensile brass to prevent stress corrosion cracking in CO2 service. All other parts are common between the three variants. As a result CWH-10/C valves are available with reduced thread length and enlarged undercut on the valve inlet to allow it be used without valve protection for package mass not exceeding 111.11 kgs.

These valves can be used in a wide range of pressure and gas applications where hand wheel operations and non-rising spindle are desired with extreme reliability, and are user friendly for non-corrosive and high purity products. However the design is inappropriate for corrosives and ultra-high purity gases.

In addition and to better understand the contents of this pamphlet refer and/or request detailed drawings and gas service chart.

2 SALIENT FEATURES

1. Valves meet design and test requirements of EN ISO 10297:2006.
2. Gland nut abuts at the inner end with the valve body ensuring metal to metal seal putting the gland nut into compressive stress thereby reducing the risk of stress corrosion cracking and eliminating need to retighten the gland nut during service.
3. Design uses O-ring/back up ring to seal for external tightness around the spindle. In addition non metallic thrust washer seals at higher pressure thereby protecting the O-ring during high pressure operation.
4. Spindle construction is two pieces with a robust square drive arrangement, and precision machined on turn mill centre in single set up for perfect alignment and very low operating torque.
5. Valve spindles made from Naval Brass for extra toughness and wear resistance.
6. Bottom spindle, thrust washer and O-rings are lubricated to minimize seizing and galling under high-pressure operation.
7. Inlet and outlet threads provided in all national and international outlet threads.
8. Valves can be provided with PRD as per customer's requirement and in compliance to international standard.
9. Valves can be used without protective cap for weight of package mass not exceeding 111.11 kgs since they pass impact test at 400 J. (For CWH-10/C design, inlet thread length is reduced to allow valves to bend rather than break).
10. CWH-10/C provided with provision for fitting dip tube threads.
11. Valve maximum dimensions allow fitment of valve protection cap as per ISO 11117.

3 VALVE FITMENT AND REMOVAL FROM CYLINDERS

We recommend use of PTFE thread sealant to tighten valve inlet on the cylinder coupling. The recommended valve tightening torque as per ISO 13341 on valves having inlet 25E to EN629-1 should be between is 200-300 Nm for fitting in Seamless steel cylinders. It is advisable to clean/tap cylinder coupling before valve fitment to avoid damage to the valve inlet and to facilitate sealing between the threads.

Valve fitment and removal can be accomplished with either a manual, electric or hydraulic wrench. Remove valves from cylinders ensuring that the jaws gripping the valve fit properly over the wrenching flats on the valve without contacting the outlet, inlet or relief device on the valve.

DISCLAIMER : The pamphlet shall be used as reference for the users of Tekno Valves design CWH-10. The procedure is not meant to substitute existing plant usage guidelines. Tekno Valves do not take any responsibility for incorrect reconditioning and repair of valves and any mishap as a result of the same.

Contact:Tekno Valves, Natun Rasta, Bilkanda, 24 Parganas (N), Kolkata - 700 113, WB, India
Phone:+91-33-2595 6767-74 Fax : +91-33-2595 6779 E-mail : post@teknovalves.com

VALVE USAGE & MAINTENANCE PAMPHLET

[Revision 0 Issue Date: 16/04/09]

The valves should be removed slowly to prevent damage to engaged threads. Before removing the valves, it is important that the container is completely empty of gas, preferably vacuumized and secure to prevent toppling during valve removal.

Valve inspection & reconditioning should be carried out by trained personnel familiar with valve design and performance requirements and with proper tools, gauges and gadgets.

4 VALVE DISASSEMBLY, INSPECTION AND RECONDITIONING

- Use ¾" Hex A/F spanner to open Gland nut and disassemble the operating mechanism.
- Inspect individual components for structural cracks, gross corrosion & other significant damage.
- Valve body and components should be cleaned with dry clean cloth to remove impurities and sediments and inspected for deformation, cracks & unacceptable wear. All components should meet the dimensional specifications of the drawings except inlet thread which are deformed during valve installation, & cannot be regauged.
- Rethreading dies can be used for outlet and packing nut threads to remove material buildup and re-died threads should be subsequently checked by Thread ring "Go" and gauges "Go" and "No Go"
- The valve outlet sealing face should be checked for nicks and crack and refaced if required. Repeated resurfacing will reduce the number of effective threads and may weaken the body.
- Inlet threads on used valves should be inspected visually & soft wire brushed to remove burrs & polish threads.
- The internal bores and threads should be inspected for thread deformation, wear and material loss. Inspection gauges should be used to check internal M 15 x 1.5 thread and M 22 x1 threads.
- Check thrust washer, nylon 66 tip and O-rings for wear. Replace if necessary.
- Clean/ Degrease components by suitable solvent before assembly. Ensure valve body and components for Oxygen service and gases having oxidizing potential greater than air are free from foreign particles, impurities and any trace of oil etc by checking in bright white light and also preferably under black light. (ultraviolet light).

5 REASSEMBLY AND TESTING

1. Lubricate ridge on upper stem.
   Fit thrust washer to rest on above upper stem ridge.
   Use special tool to fit 'O' ring and back up ring in top spindle groove.
   Lubricate 'O' ring and back up ring.
2. Insert top spindle assembly inside gland nut carefully (with a twisted motion) so that there is no damage on 'O' ring/s, and push till it rests on gland nut.
3. Lubricant bottom spindle threads and screw into valve body. Slide top spindle square inside bottom spindle square. Screw gland nut into valve body. Use hand wheel to lower the bottom spindle to close valve seat.
4. Clamp valve body assembly in bench vice between nylon clamp pads so that there is no damage in subsequent tightening operation. Tighten gland nut with Torque Wrench at specified torque.
5. Place square plate to rest on spindle square. Rotate valve to fully open position before fitting hand wheel. Hand tight wheel nut on top of plain washer and use thread locker on the nut threads.
6. Pressure test each reconditioned valve after assembly for external and internal tightness at pressure sequence 0.5 Bar, 10 Bar and 1.2 times the maximum working pressure of the valve by dry compressed air or Nitrogen using Teepol HB7 or equivalent soap solution by bubble method.

DISCLAIMER : The pamphlet shall be used as reference for the users of Tekno Valves design CWH-10. The procedure is not meant to substitute existing plant usage guidelines. Tekno Valves do not take any responsibility for incorrect reconditioning and repair of valves and any mishap as a result of the same.

Contact:Tekno Valves, Natun Rasta, Bilkanda, 24 Parganas (N), Kolkata - 700 113, WB, India
Phone:+91-33-2595 6767-74 Fax : +91-33-2595 6779 E-mail : post@teknovalves.com