The Diamond Non Return Valve

INSTALLATION & OPERATING INSTRUCTIONS

IMPORTANT - PLEASE READ CAREFULLY BEFORE INSTALLING YOUR VALVE

INSTALLATION

A process system can generally be associated with many varying conditions. When designing the system, aggressive conditions such as water hammer, pressure shock and excessive vibration should be avoided to prevent damage to the valve and the process system. A maximum flow velocity of 3m/s should not be exceeded. When installing the Non Return Valve into a pipework system, careful consideration must be made to ensure good alignment and adequate support for the valve by means of pipe-clips and framework etc. If self drainage is required consideration must be made to the valve installation orientation. The pipework / valve should be mounted at an appropriate angle or in the vertical position to enable adequate drainage.

VALVES WITH PLAIN BUTT WELD ENDS

If welding the valve body directly into the pipeline the valve should be disassembled and all seal components removed from the valve (see page 2). This will prevent heat damage to the valve seals and other internal components. When welding ensure correct alignment and squareness of the butt weld joints to avoid stress in the pipe / valve bodies. This is important to ensure correct operation and leak tightness of the valve once assembled. Gas backed TIG welding is recommended. A minimum weld bead should be produced to reduce the risk of heat distortion of the valve body parts. The valve must be allowed to cool following welding before re-assembly. Consideration should be made to future maintenance access of the valve once welded in place.

ATEX RATED VALVES

DPL offer an option for ATEX certification, details of which can be found on the valve data sheet at our web-site. Valves suitable for use in ATEX applications are marked accordingly for identification and confirmation of the ATEX classification group and category.

The following important information must be adhered to for the use of ATEX certified Non Return Valves:

1. Connecting Pipe-work must be earthed at all times.
2. A conductivity test should be performed following dismantling or maintenance of the valve by using a simple multi-meter. Electrical conductivity between the valve body (item 1) and liner (item 2) should be checked, see page 2. This should be done once the valve is assembled. Place one multi-meter probe on the valve body (item 1) and the other on the valve liner (item 2). Electrical conductivity should exist between these two parts. If it does not, the valve should not be used.
3. DPL Non Return Valves are designed for fluid use and are not designed for dry, gas or air applications.

SPARES KITS

The user should establish a maintenance programme for valves depending upon the type of product and frequency of the valve use. We recommend that the seals and spring be replaced at least on a yearly basis. Spares kits (including spring) complete with maintenance instructions are available from the DPL Sales Team. Spares kit part numbers are given below:

Valve Size	Spares Kit Part No.
1.0” Valve (incl 0.5” & 0.75”)	KNR100 * 3A
1.5” Valve	KNR150 * 3A
2.0” Valve	KNR200 * 3A
2.5” Valve	KNR250 * 3A
3.0” Valve	KNR300 * 3A
4.0” Valve	KNR400 * 3A

Seal Material Suffix

* Denotes the seat seal material suffix:
E - EPDM V - Viton N - Nitrile F - FEP
Note: PTFE Guide seals are fitted as standard.

PRESSURE EQUIPMENT DIRECTIVE 2014/68/EU

Article 4, paragraph 3 - Sound Engineering Practise (SEP) applies to this product for non-group 1 use and at pressures not exceeding 10 bar.

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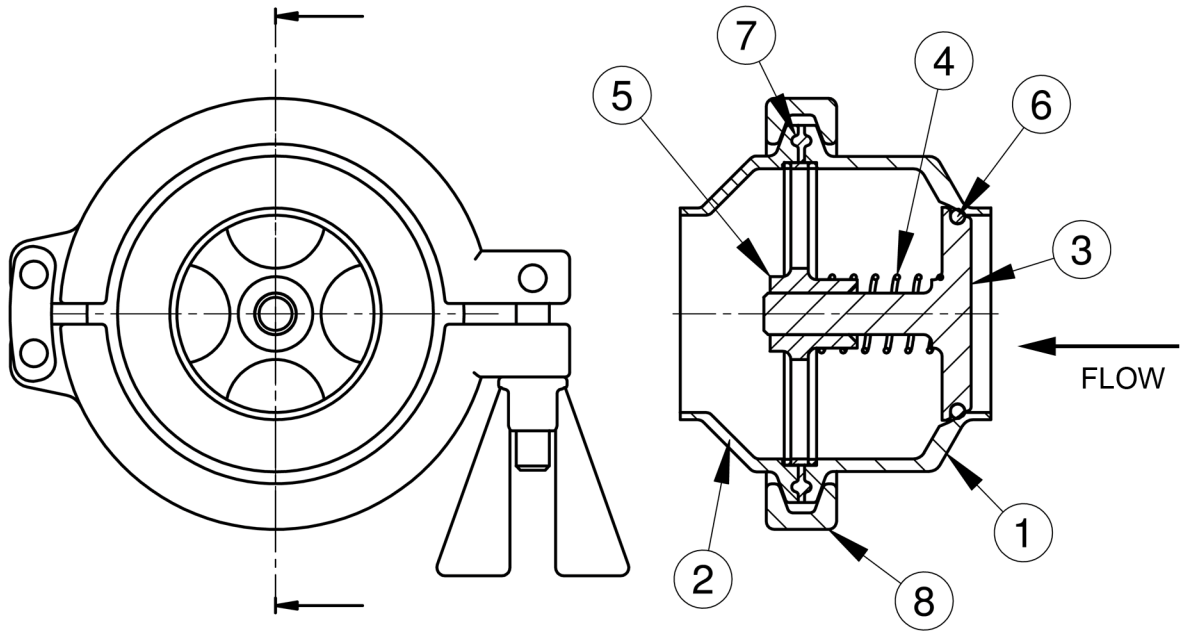
WELD IN PLACE PROCEDURE

Disassemble as described below prior to welding.



1. Place the valve on the bench with the spindle face (item 3) facing down.
2. Carefully remove the clamp item 8 taking care to hold items 1 and 2 together whilst doing so as these two parts will spring apart slightly on release of the clamp.
3. Seperate the the valve body and liner parts 1 and 2 and remove all of the internal parts and seals and put them to one side.
4. Prepare the tube ends to be welded in-line with your company weld procedures.
5. Note the flow direction as stated above and marked on the valve body for correct orientation.
6. Using minimum heat, tack weld the body and liner parts to your tube ends, making sure that enough space is allowed for fitting the body seal item 7 after welding is complete.
7. Following your company weld procedures, weld the valve liner and body parts in place using a minimum penetrating weld bead and minimum heat to avoid distortion. Argon backed TIG is the preferred method. The valve body and liner must be correctly in-line with each other so as to ensure correct sealing and operation of the valve once re-assembled.
8. Allow the welded parts to cool before replacing the internal valve parts and seals, noting correct orientation as depicted above. Make sure that the guide item 5 is oriented correctly as the valve will only function correctly when assembled as shown.
9. Tighten the clamp item 8 and pressure test to ensure correct assembly has been achieved. If the valve is ATEX certified, the conductivity test as described on page 1 should be performed before use.

Temperature Rating: ATEX Rated valves carrying the Ex are marked T6...T4, 85°C...135°C. This temperature range is provided to cover process media temperatures for valves fitted with seal material as follows:
Nitrile: Max Operating Temperature 85°C.
EPDM, Silicone, Viton, PTFE: Max Operating Temperature 135°C.