

Constaflo ½" to 2"

Installation, Operation and Maintenance Manual

Reference Number:	IOM 016	Date:	31 August 2011	Issue:	A
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WARNING!

**BEFORE ANY INSTALLATION AND MAINTENANCE WORK CAN
COMMENCE ENSURE THE VALVE AND SURROUNDING SYSTEM IS
DRAINED OF PRESSURE AND ISOLATED.**

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Disclaimer

If the valves produced by Bestobell Valves/LNG are refurbished by a third party organisation that is not approved by Bestobell Valves/LNG, then the safety and performance will not be guaranteed and the warranty may be invalid.

If unsure about the installation and operation procedures for this valve, please contact Bestobell Valves/LNG.

Bestobell Valves has produced this manual in order to provide engineering personnel with sufficient general information to enable the operation, installation and effective maintenance of the valve manufactured by Bestobell Valves.

In the interest of product development, the designs and specifications for our products are constantly under review and we therefore reserve the right to make changes and improvements without notice.

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This manual must not be reproduced or disclosed nor must any information taken there from be disclosed, without prior consent in writing of PRESIDENT ENGINEERING GROUP.

This document has been authorised for use by:

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Title:	ENGINEERING MANAGER
Signed:	<i>M. Robinson</i>
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Introduction

The purpose of this document is to introduce the procedures for the installation, operation and maintenance of the Constaflo valve manufactured by Bestobell Valves. The Constaflo is a water flow controller using a patented device that ensures the maintenance of flow rates within +/- 10% of its rated capacity, when operating within the limits of temperature and pressure specified.

Maximum Pressure: 13.8 Bar (200 p.s.i)
Temperature Range: +5°C to +1000°C
Only suitable for use with media: H₂O

Safety

Read and understand these instructions before installing the valve. Improper installation, operation or maintenance by the owner or operator of this valve can result in personal injury.

Only use genuine Bestobell Valves spares to ensure safe and optimum performance.

Prior to the installation of the valve into the system and any maintenance work, ensure the system is de-pressurised and isolated for the duration of the installation and during any subsequent maintenance.

It is essential that the installers and operators are conversant with all of the safety issues relating to the medium within the system, and are fully trained to an adequate standard.

Wear safety glasses and gloves during any installation or operation of the valve.

The valve should be inspected for wear as part of a regular system maintenance programme.

Ensure that all end connections to the valve are in line and that the pipe work is supported to reduce unwanted stresses, loading and vibration on the valve and system pipe work.

Ensure that all joining materials / components used during the installation of the valve are compatible, and will not cause any deterioration to the valve structure.

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Cleanliness

It is essential to maintain this cleanliness throughout all stages of installation. Particular care should be taken not to contaminate the internals of the valve with grease, moisture, grinding dust, weld/brazing spatter etc.

Clean practices will save time later with reduced 'flushing' and maintenance.

If dirt or contaminant particles can be present in the system, it is recommended that a strainer be fitted upstream of the Constaflo.

Service Intervals

Bestobell Valves recommends that a major service is carried out on its valves in line with the procedures contained in this manual every 2 years.

In addition to this, a regular inspection should take place to ensure correct operational condition.

Regular inspections are suggested on a monthly basis and maintenance work should be carried out in line with this service manual.

It is recommended that the Service Record Sheet enclosed be fully completed at every service interval.

Installation

Personnel carrying out Assembly / Joining / Welding / Inspection must be adequately trained and hold the necessary approvals.

Ensure that environmental conditions (atmospheric pollution) are compatible with the valve materials.

Installation Overview

The quality of performance in service is a function of the care taken to ensure good installation. A careful study of these instructions is therefore recommended, as properly installed equipment will normally operate for long periods without problems.

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The most critical point in the lifetime of a valve is the time of installation, therefore, proper care at this stage and during any maintenance will increase the probability of trouble free valve service.

It is important to maintain cleanliness throughout all stages of the installation, with particular care being taken not to contaminate the internals of the valve with grease, moisture, grinding dust, weld / brazing spatter or other foreign matter.

Clean practices will save time later with reduced 'flushing' and maintenance.

STORAGE:

The equipment packing cases are **NOT** waterproof and should be stored in a weatherproof location before use.

It is recommended that each item should only be unpacked immediately before it is required.

Before installation the engineer should check for:

- Damaged Packaging
- Bent or Distorted Items
- Scratches, Dents or Damage

TOOLS REQUIRED:

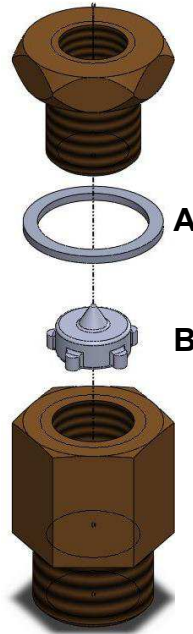
No special tooling is required for the installation of this valve.

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Installation and Maintenance

Spares Kit



Reference	Description	Part Number
A	Gasket	Contact Bestobell Valves Technical Sales
B	Diaphragm	

Torque Table

Valve Size	Bolt Torque
3/8" to 1/2"	20NM
1/4"	12NM
3/4" to 1"	25NM

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Installation

Method

STEP 1:

Identify your systems intended flow direction and note the Valves flow direction arrow. Ensure all end connection to the valve are in line and that pipe work is supported to reduce unwanted stresses/loading and vibration on the valve and system pipe work. Ensure that all joining materials / components are compatible with the valve and will not cause any deterioration to the valve structure.

Step 2:

(Taper Threaded End Connections):

For valves with taper threaded end connections, a good quality PTFE thread tape may be used. Firstly tighten end connections by hand to reduce the risk of cross threads, before finally tightening with a suitable wrench.

(Parallel Threaded End Connections):

Use a suitable seal for the end face of the valve e.g. soft copper washer or gasket.

STEP 4 (Testing):

Before introducing pressure to the valve, carry out a thorough inspection of all connections. Once pressure is introduced to the valve, a method appropriate to the medium being carried by the system should be employed to test for leaks.

Note: If unsure about the installation and operation of this valve please contact Bestobell Valves before you continue.

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Refit / Refurbishment Method (#")

STEP 1:

Depressurise and isolate the valve/line.

Remove the valve from the line.

STEP 2:

Dismantle the valve and replace the diaphragm/orifice assembly with the one from the spares kit, ensuring that the diaphragm is installed in the correct direction.



STEP 3:

Re-assemble the valve and tighten bolts/union nut to the torque shown in the table.

Replace the valve back in line following the installation method.

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Refit / Refurbishment Method (1 1/4" / 1 1/2" / 2")

STEP 1:

Depressurise and isolate the valve/line.

Remove the valve from the line.



STEP 2:

Dismantle the valve and remove the old diaphragms/orifice assemblies and discard



STEP 3:

Dismantle the valve and remove the old nozzles, diaphragms/orifice assemblies and discard



STEP 4:

Apply loctite 648 to the flat side of the nozzle.

(Apply to all nozzles)



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STEP 5:

Insert the nozzles, **flat side first** into the individual holes of the nozzle retainer.

Ensure the nozzles are pushed firmly down into the nozzle retainer flat side first; the loctite should be pressed against the nozzle retainer.



STEP 6:

Select the correct sized diaphragms.

One diaphragm is required per nozzle.



STEP 7:

Insert the diaphragms into the nozzle retainer.

Ensure they face the same way as shown in the picture.



STEP 8:

Insert all of the diaphragms into the nozzle retainer.



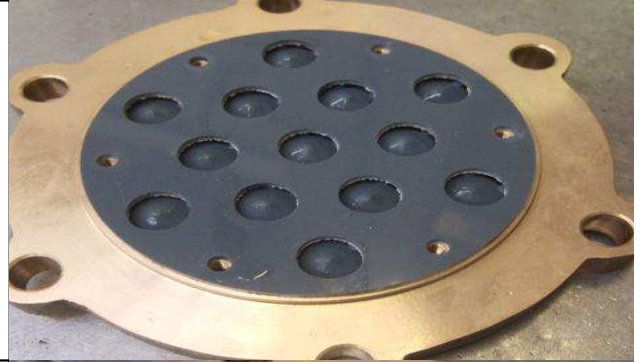
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STEP 9:

Place the diaphragm retainer on top of the diaphragms.

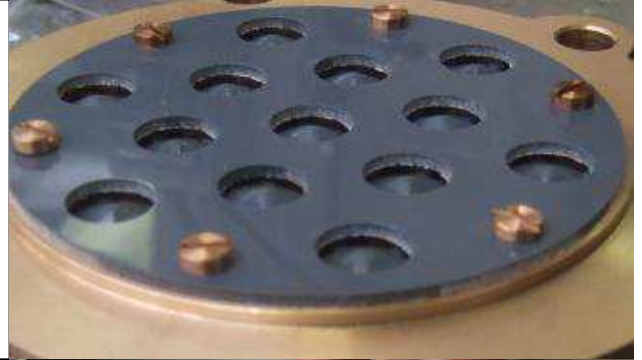
Ensure the screw holes on the nozzle retainer are still visible.



STEP 10:

Secure the diaphragm retainer in place with the screws.

Regularly switch to alternate sides while screwing to distribute the pressure.



STEP 11:

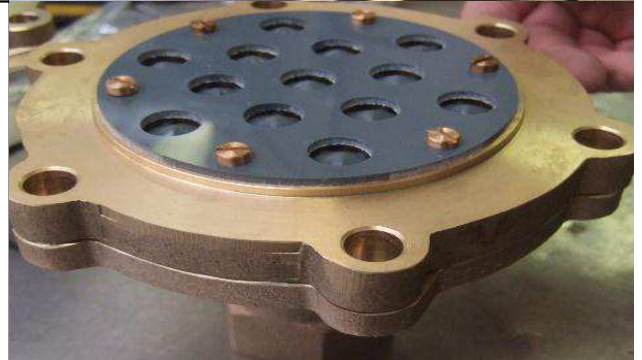
Take both bodies and insert an o-seal into each one.

Ensure the o-seals are properly fitted before continuing.



STEP 12:

Place the nozzle retainer on top of either of the bodies.



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STEP 13:

Place the last body on top of the nozzle retainer.



STEP 14:

Bolt the valve together.

Tighten the bolts sequentially; this will give equal compression across the bodies and retainer.



STEP 15:

Tighten the nuts with a torque adjustable spanner



Valve	Torque
1¼"	20Nm
1½"	37Nm
2"	37Nm

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Contact Details

For further maintenance instructions and spares contact:

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