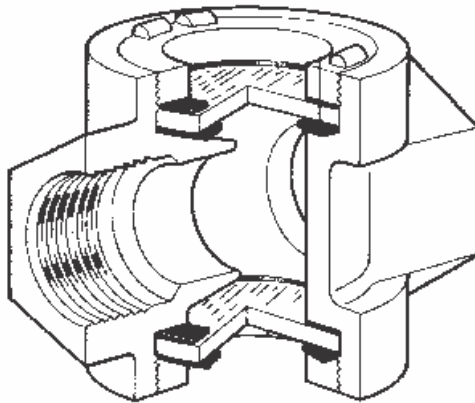


# Installation and Maintenance Manual

## Forbes Marshall View Glass

Vu10



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**PLEASE NOTE** - Throughout this manual this cautionary symbol is used to describe a potential damage or injury that might occur if the safety considerations are overlooked. This symbol denotes **CAUTION**, **WARNING** or **DANGER**.



## **1. Preface:**

This manual is intended for anyone using, commissioning, servicing, or disposing the below mentioned products safely and efficiently.

### **Forbes Marshall View Glass (VU10)**

**Sizes: DN15 (1/2"), DN20 (3/4"), DN25 (1") for Single Window Type.**

DN40 (1 1/2") and DN50 (2") for Double Window Type.

### **PLEASE NOTE:**

Throughout this manual the following cautionary symbol is used to describe a potential damage or injury that might occur if the safety considerations are overlooked.

## **2. Important Safety Notes:**



Read this section carefully before installing/operating/maintaining the product. The precautions listed in this manual are provided for personnel and equipment safety. Furthermore, Forbes Marshall accepts no responsibility for accidents or damage occurring as a result of failure to observe these precautions. Note that the product is designed to perform for non-contaminated fluids only. A contamination in the form of chemical, foreign particle etc. can lead to problem with product performance and life of the product.

If these products in compliance with the operating instructions are, properly installed, commissioned, maintained and installed by qualified personnel (refer Section 2.7) the safety operations of these products can be guaranteed. General instructions for proper use of tools and safety of equipments, pipeline and plant construction must also be complied with.

### **2.1 Intended use:**

Check if the product is suitable for intended use/ application by referring to the installation and maintenance instructions, name plates and technical information sheets.

- i) The product is suitable for use as defined in the technical information sheet. In case the need arises to use the product on any other fluid please contact Forbes Marshall for assistance.
- ii) Check for the suitability in conformance to the limiting conditions specified in technical information sheet of the product.
- iii) The correct installation and direction of fluid flow has to be determined.
- iv) Forbes Marshall products are not intended to resist external stresses, hence necessary precautions to be taken to minimize the same.

### **2.2 Accessibility and Lighting:**

Safe accessibility and working conditions are to be ensured prior to working on the product.

### **2.3 Hazardous environment and media:**

The product has to be protected from hazardous environment and check to ensure that no hazardous liquids or gases pass through the product.

### **2.4 Depressurizing of systems and normalizing of temperature:**

Ensure isolation and safety venting of any pressure to the atmospheric pressure. Even if the pressure gauge indicates zero, do not make an assumption that the system has been depressurized.

To avoid danger of burns allow temperature to normalize after isolation.

### **2.5 Tools and consumables:**

Ensure you have appropriate tools and / or consumables available before starting the work. Use of original Forbes Marshall replacement parts is recommended.

### **2.6 Protective clothing**

Consider for the requirement of any protective clothing for you/ or others in the vicinity for protection against hazards of temperature (high or low), chemicals, radiation, dangers to eyes and face, noise and falling objects.

### **2.7 Permits to work:**

All work to be carried out under supervision of a competent person. Training should be imparted to operating personnel on correct usage of product as per Installation and Maintenance instruction. "Permit to work" to be complied with (wherever applicable), in case of absence of this system a responsible person should have complete information and knowledge on what work is going on and where required, arrange to have an assistant with his primary goal and responsibility being safety. "Warning Notices" should be posted wherever necessary

### **2.8 Handling:**

There is a risk of injury if heavy products are handled manually. Analyze the risk and use appropriate handling method by taking into consideration the task, individual, the working environment and the load.

### **2.9 Freezing:**

Provision should be made to protect systems which are not self-draining, against frost damage (in environment where they may be exposed to temperatures below freezing point) to be made.

### **2.10 Product Disposal:**

It is necessary to dispose this product only in accordance with local regulations at the authorized, qualified collecting point specified for equipment's and its parts—Please refer the part details mentioned in the material table of this manual. Please follow all waste disposal guidelines (Management & Handling) as published by local governing authorities in India & abroad.

### **2.11 Returning products:**

Customers and Stockist are reminded that, when returning products to Forbes Marshall they must provide information on any hazards and the precautions to be taken due to contamination residues or mechanical damage which may present a health, safety or environmental risk.

This information must be provided in writing including Health and Safety data sheets relating to any substances identified as hazardous or potentially hazardous.

### 3. Brief Product Information:

#### 3.1 Description:

The Forbes Marshall View Glass, VU10, is a range of single and double window view glasses available in cast iron screwed connections.

#### 3.2 Sizes and End Connections:

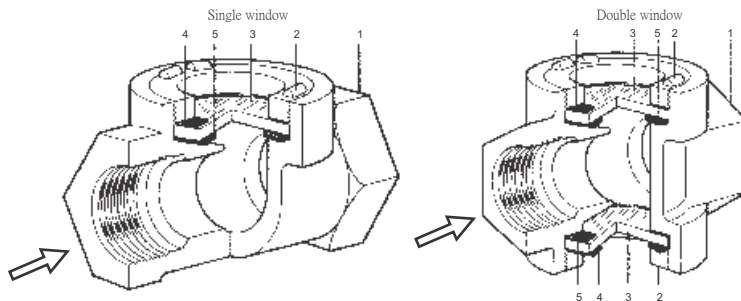
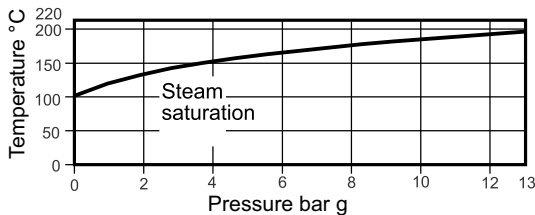
Single Window DN 15, 20 and 25 screwed BSPT / NPT

Double window DN 40 and DN 50 screwed BSPT / NPT

#### 3.3 Limiting Conditions:

PMO - Max. working pressure	13.0 bar g
TMO – Max. working pressure	220°C
Cold hydraulic test pressure	20 bar g

#### 3.4 Operating Range:



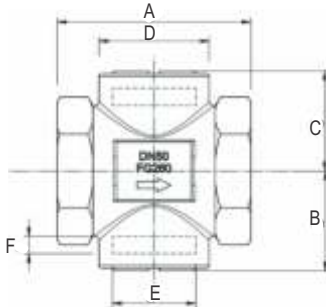
**Figure1: Forbes Marshall View Glass**

#### Material:

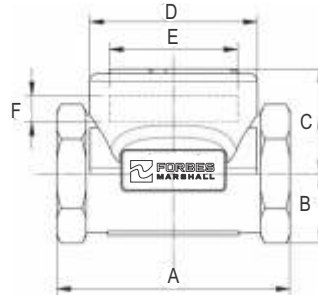
Sr.No.	Part	Material	Standard
1.	Body	Cast iron	IS 210 Gr. FG260
2.	Bazel	Brass	BSS 218
3.	Glass	Toughened glass	
4.	Top gasket	SS304 Exfoliated graphite	
5.	Bottom gasket	SS304 Exfoliated graphite	

### 3.5 Product Dimension and Drawing

**Double window**



**Single Window**



**Figure2: Dimensional drawing of VU10**

**Dimensions / Weights (approx.) in mm:**

**Single Window:**

Size	A	B	C	D	E	F	Weight
DN 15	89	18	34	64	50	10	0.8 Kg
DN 20	89	18	35	64	50	10	0.8 Kg
DN 25	89	24	38	64	50	10	1 Kg

**Double window:**

Size	A	B	C	D	E	F
DN 40	107	51	51	64	50	10
DN 50	114	57	57	64	50	10

#### 4. Operation:

Forbes Marshall View Glass VU10 is designed to give you clear visualization of flow will help you diagnose problems occurring in equipments upstream or downstream of the view glass.

#### 5. Installation Guidelines:



**Note:** Before implementing any installations observe the 'Important Safety notes' in section 2. Referring to the Installation and Maintenance Instructions, name-plate and Technical Information Sheet, check that the product is suitable for the intended installation.

View glass VU10 can be fitted in either a horizontal or vertical line on the outlet side of a steam trap. Where the trap is a blast discharge type e.g. thermodynamic the view glass must be fitted at least 1m from the trap. This is to ensure that the glass is not subjected to thermal shock or pressure. Reasonable steps should be taken to protect personnel from injury in unlikely event that the glass breaks.

View Glass should have stop valves fitted on both inlet and outlet side.

## 6. Maintenance Guidelines:



Before undertaking any maintenance on the product it must be isolated from both supply line and return line and any pressure should be allowed to safely normalize to atmosphere.

Before proceeding with any maintenance, close the upstream stop valve first to avoid over pressurization.

The glass should be checked for any signs of erosion or chemical reactions. Replace the damaged parts with the original spares available.

**For a detailed maintenance/replacement procedure of the View Glass, please refer to the instructions given below (Refer to Figure 3)**

1. Isolate the product upstream of the View Glass
2. Remove the View Glass from the line and thoroughly clean it.
3. Undo the bezel cap (2).
4. Remove the top gasket (4) and clean it. If damaged, replace it.
5. Clean the glass (3) and if damaged, replace it.
6. Remove the bottom gasket (5) and clean it. If damaged, replace it.

**Use the following tools and torque**

Part	Tool required	Torque
Bezel	Spanner	15Nm

## 7. Available Spares:

The spare parts available are shown in heavy outline. Parts drawn in broken line are supplied as spares

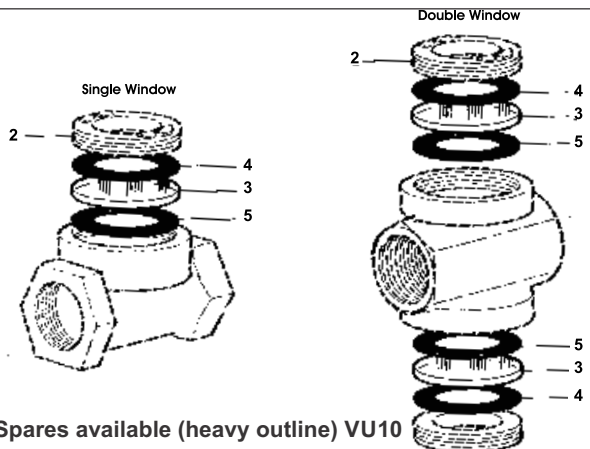
SPARE CODE	SPARE PART
SPARE-1550VU10-GGKIT	GLASS & GASKET KIT FOR 15/20/25/40/50VIEWGLASS [PACK OF 2]

### How to Order:

Example: 1 No. DN 25 Forbes Marshall View Glass VU10 screwed BSPT connection

### How to Order Spares:

Always order Spares by using the description given in the column headed "Available Spares" and state the size and type of view glass.



**Figure 3 : Spares available (heavy outline) VU10**

## 8. Warranty Period:

As per the ordering information and agreement in the contract.



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