

**VLI™**  
**Visible Level Interface**  
**Operation & Maintenance Manual**

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## NOTES

# 1. INTRODUCTION

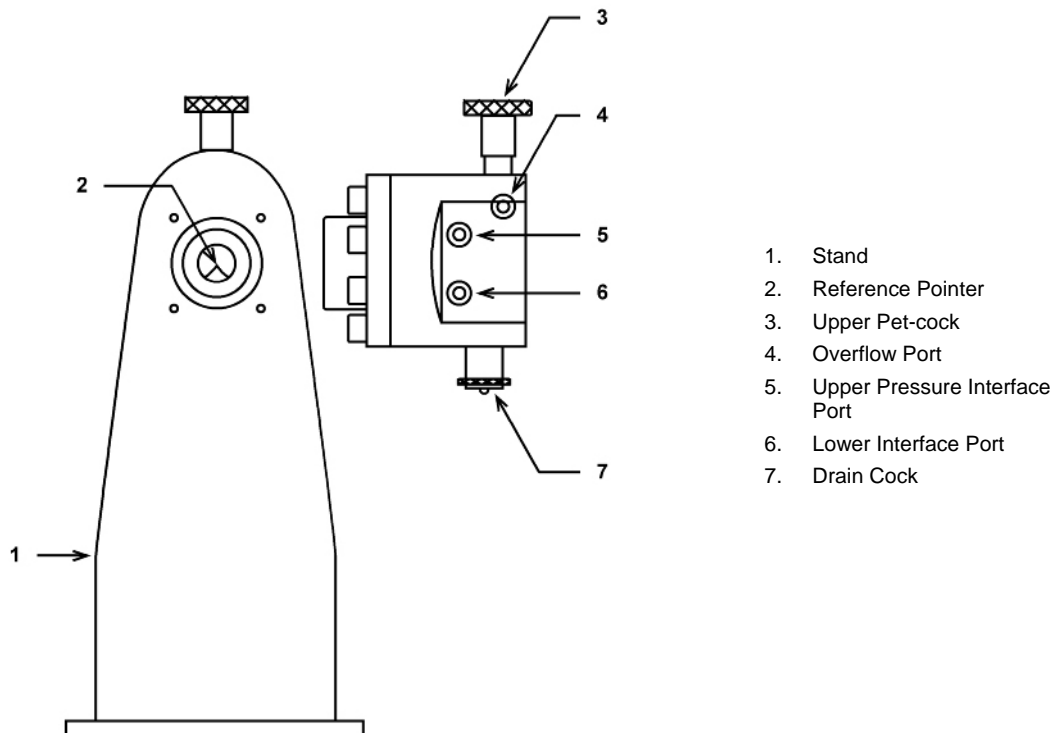
## 1.1 PRODUCT OVERVIEW

The purpose of the **DH Instruments (DHI)** Visible level Interface (VLI) P/N 100693 is to interface two pressure media directly; for example, gas and oil or oil and water. A VLI is often used when the medium used by a piston gauge is not the same as the medium used by the test. Max working pressure of VLI P/N 100693 is 100 MPa (15 000 psi)

## 1.2 OPERATING PRINCIPLE

This component interfaces two pressure media in a high pressure chamber. Using two media of different densities allows a natural separation between the two fluids that can be referenced to an indicating pointer in the VLI and viewed through a transparent lens.

## 1.3 COMPONENT LOCATION



**Figure 1.** VLI Components

## NOTES



## 2. INSTALLATION

### 2.1 UNPACKING AND INSPECTION

The VLI consists of the following items:

**Table 1.** VLI Parts List

DESCRIPTION		PART #
1 ea.	Visible Level Interface (VLI)	100693
6 ea.	DH 1500 Gland (1500 bar, metric thread)	100265
4 ea.	DH 1500 Collar (1500 bar)	100278
2 ea.	DH 1500 Plug (1500 bar)	102053
1 ea.	O-Ring (spare)	101063
4 ea.	4x12 mm Button Head Screw	NPN
1 ea.	Operation and Maintenance Manual	550039
OPTIONAL		PART #
1 ea.	VLI Stand, High OR	100703
1 ea.	VLI Stand, Low	100702

### 2.2 INITIAL SETUP

- ❶ Place the VLI on the same surface as the piston gauge or other reference to which it is to be connected.
- ❷ Ensure the VLI and the connecting hardware are clean and free of contamination.
- ❸ Connect the VLI to the standard using the connecting hardware supplied.

If the piston gauge medium has the greater density, the connection should be made at the lower port of the VLI. If this is not true, then the connection should be made at the middle port.

- ❹ Fill the VLI through the connecting hardware to the tip of the interface level indicator with the fluid that has the highest density.
- ❺ Remove the upper pet-cock on the VLI. Carefully fill the rest of the VLI with the lighter medium until the air is completely displaced from the VLI. Install the upper pet-cock and tighten hand tight.
- ❻ When interfacing a gas medium with a liquid medium the control of pressure must be performed on the gas side. A variable volume in the hydraulic side is necessary to adjust the change in the interface level as pressures and temperatures change.

## 2.3 OPERATION

### 2.3.1 INTERFACING TWO LIQUIDS (OIL, WATER, ETC.)

Pressures can be generated from either side, or on both sides. The interface reference level can then be changed by adjusting the volume on either side. When interfacing two liquids it is preferable if they are easily identifiable. If both liquids are the same color, identification of the interface level may be difficult.

### 2.3.2 INTERFACING A GAS WITH A LIQUID

It would not be possible to generate pressure by decreasing the volume in the hydraulic pressure circuit. Pressure is increased through the gas pressure circuit. The hydraulic circuit volume can be adjusted to fine tune the interface reference level. Again, unless the fluid temperature or the volumes change, the level will stay the same.

Decreasing pressure is achieved by releasing gas pressure through the gas pressure circuit.



*Never open a hydraulic exhaust to release pressure when using a VLI with gas. Equipment failure and personal injury may occur.*

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An additional caution must be observed when interfacing a gas with a liquid in the VLI. This is due to the fact that once a pressure is reached, there exists a possibility that some of the gas will be dissolved into the liquid. This condition could lead to outgassing (rapid boiling) when returning to zero.

To prevent boiling liquid into the gas or gas into the liquid, decrease pressures slowly to approximately 200 psi (1.4 MPa). Hold that pressure until outgassing has apparently stopped and then decrease to zero.

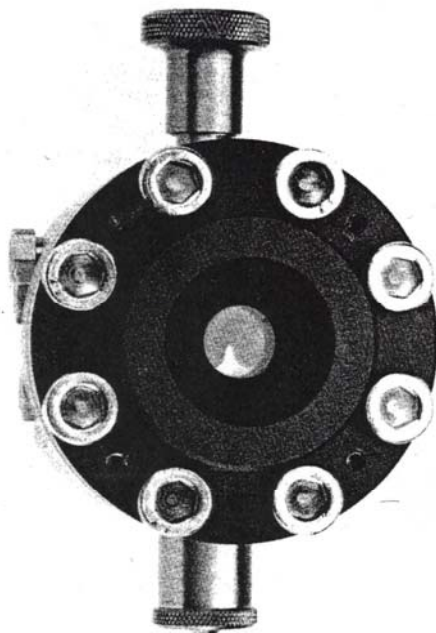


## 3. MAINTENANCE

No special maintenance requirements are necessary for the VLI. Attention to cleanliness in the system is the only caution.

## NOTES

## DIRECT PRESSURE INTERFACE WITH SIGHTGLASS



### DESCRIPTION:

A stainless steel vessel is fitted with a sightglass, upper and lower pressure fittings, a fill cap and a drain cock.

### APPLICATIONS:

The direct pressure interface is used to establish a direct and observable interface between two compatible fluids under pressure (air/water, oil/water, oil/air, etc.).

### MANUFACTURER'S REFERENCE:

Left—42038  
Right—41315

### CONNECTIONS:

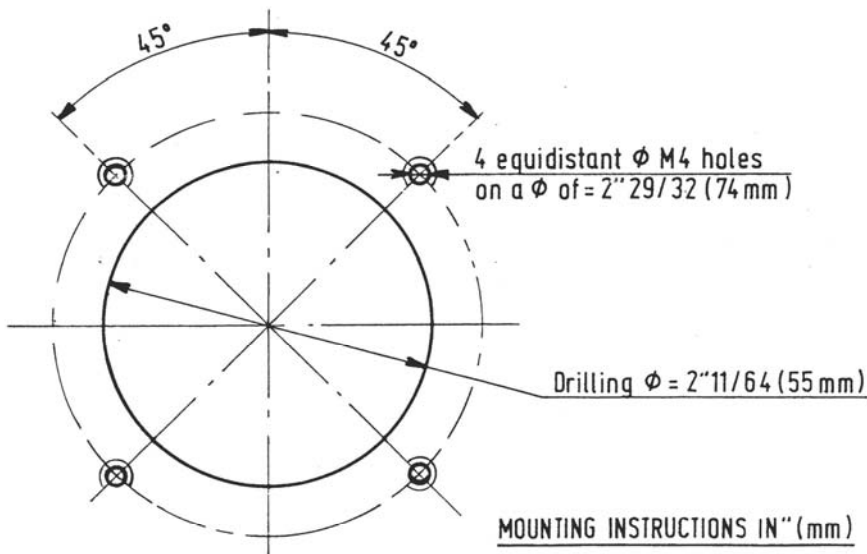
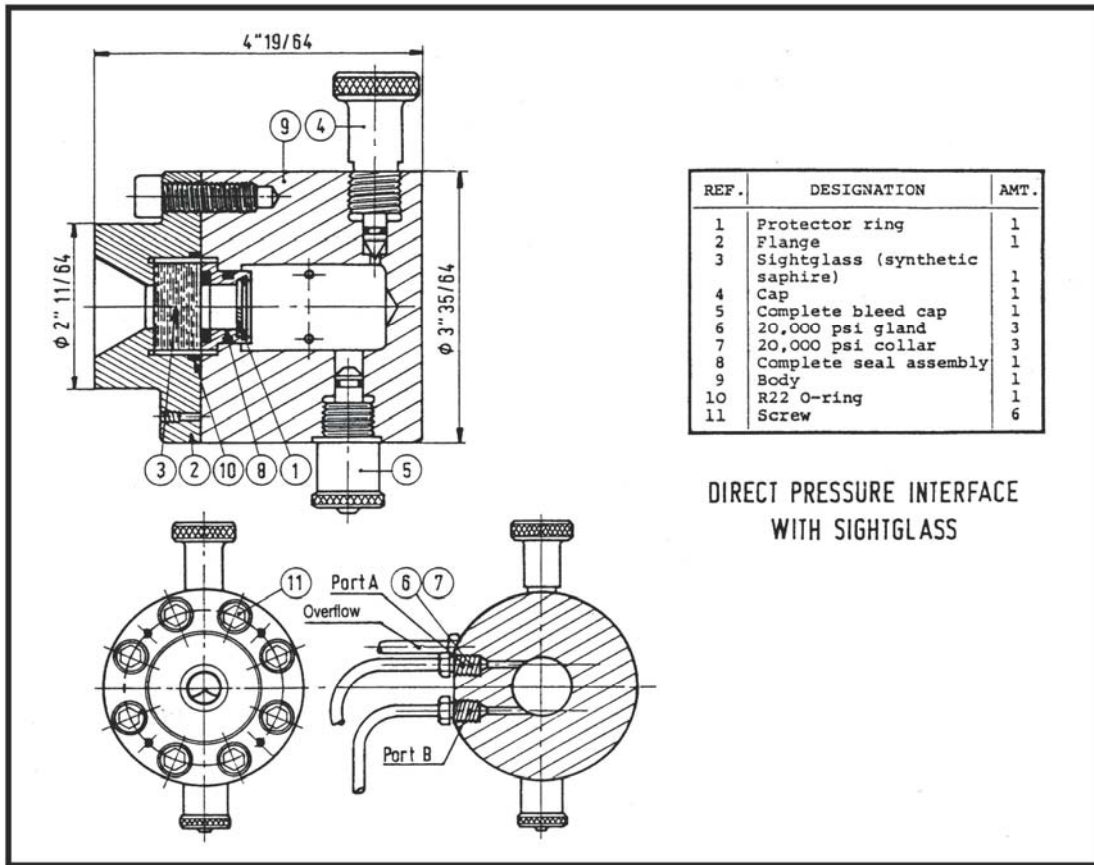
Port A & B

DH 41095—15,000 psi maximum

NOTE: DH connection 41905 compatible with ¼" or 6mm coned and threaded tubings (e.g. AE SF 250CX).

### FEATURES

- Maximum pressure 15,000 psi, 30,000 psi available
- Total volume 40 cm<sup>3</sup>
- Easy to fill, purge and drain
- Constructed of AISI 431 and 303 stainless steel
- Synthetic sapphire sightglass
- Sightglass retainer flange constructed of 2017 nickel steel.
- Used with accessory stand 41625 or 41684, the internal indicator is located at the reference height of DH pressure standards



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