

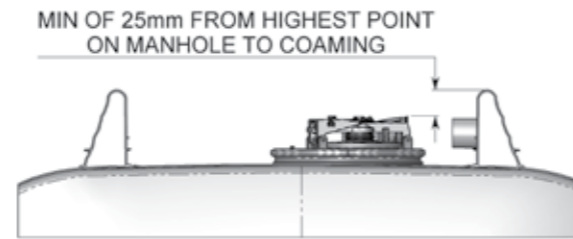
## Manholes and Hatches

In most cases, location of equipment is dictated by reasons of specifications or standards. The following procedures are a guide for installation where known specifications exist. Typically a distance of 25mm should exist between the highest point of walkway equipment and top of rollover coaming.

### Location Of Hatch

Allow adequate clearance for welding operation and for operation of swinging lids or removable caps. Generally the fill cap (oversees hatches) hinge is positioned towards the front of the tanker to aid closure if accidentally left open while driving.

- Models fitted with dip stick provisions on the manhole cover must be aligned with dip point on tank floor - along the centre line of the tank.
- Maximize size of clear passageway for safety of personnel.



### Welding In Weld-Ring

Weld-ring may sit in or on the tank shell dependent on the allowable height.

For setting your own height or for rounded walkways a straight-sided ring exists, but if the walkway is flat a ring with a shoulder is recommended for the VOH400.

### Special Instructions

- Loosen all clamping mechanisms and studs on the manhole assembly.
- Ensure manhole is positioned so dip tube in hatch and dip guide on tank floor align.
- Cut hole (refer to table below for dia.) in walkway with clean edge to provide 1mm to 2mm air gap between tank and weld-ring.
- Insert ring so it rests on walkway at desired height with enough height to enable welding torch to fit under lugs etc.
- Place six (6) tack welds around outside of ring not more than 20mm long.
- Fully weld around outside of ring with fillet weld runs not more than 100mm long on opposite sides of ring or taking other steps to ensure minimal distortion during welding. (i.e. skip welding, backstep etc.).

### Note:

1. Contact Liquip for a weld in diagram.
2. A continuous weld may create residual stresses and cause cracking.

### Recommended Hatch Hole Sizes

Coaming	Suits Hatch Series	Material	Hole diameter required	Mount type/ torque	Typical Test Pressure
VOH300-15 & 15P	410	Aluminium 6060-T595	449-450mm	Clampband/27-34Nm	45kPa
VOH300-17	410	Mild Steel 250 grade	449-450mm	Clampband/27-34Nm	45kPa
VOH500-14A	500	Aluminium 5005 H34	515-516mm	24 bolts/10Nm	35kPa
VOH500-17M	500	Mild Steel 250 grade	502-503mm	24 bolts/10Nm	35kPa
VOH700-26	750	Aluminium 5005 H34	400-401mm	24 bolts/10Nm	35kPa
VOH700-26M	750	Mild Steel 250 grade	400-401mm	24 bolts/10Nm	35kPa

Note: All installation information contained in this catalogue is a guide only. Ask Liquip for installation manual.

### Fitting Hatch

- Allow weld-ring to cool to avoid damage to seal
- Remove any weld spatter from sealing face: check flatness and roundness
- Flatness of the seal face must be within 1mm; roundness of the seal face must be within 2mm
- Fit manhole with seal where applicable
- Fit clamp band, where applicable, (top label up) and clamp bolt and tap gently around band as bolt is tightened
- When assembling the VOH400 & VOH200 manhole covers to the weld-ring, the clamp-band nut tension should be 27-34 Nm. As the clamp-band is being tensioned the clamp-band must be tapped gently around the band during tightening of the nut.
- When assembling the VOH700 & VOH500 manhole covers to the weld-ring the fastener tension should be 10-12 Nm. Draw down fasteners evenly to prevent a lopsided fit.
- Pressure test to local standards requirements. Vents may need to be blanked or disabled during pressure testing.

### Dip/Fill Tubes and Related Equipment

- Insert dip and fill tubes through mounting bosses
- Cut tubes 25mm shorter than bottom of tank when the tube is correctly positioned on hatch to allow for clearance.
- Cut fill tube off at 45° to allow the liquid to escape easily
- Position gauze in dip and fill tubes away from inspection hatch to minimise possible damage from top loading spears
- Install tube steady to stop any excess movement
- Dip tube guides can be fitted later after noting position of tubes on tank base.

### Hatch Weather Covers

This comes complete with all equipment needed to install, with instructions for the different models, as each has varying fixtures.

## VOH SERIES Ordering Guide



VOH 410 2A 4A 0

### PRESSURE / VACUUM VENT



PVV104 TO AS2809 AUST STANDARD

OPENS AT: PRESSURE: 1881 kPa VACUUM: 281 kPa MUST BE FITTED TO 'W' SERIES EMERGENCY VENTS



PVV104U TO NFPA385 & UK REQUIREMENTS

OPENS AT: PRESSURE: 1881 kPa VACUUM: 205.4 kPa MUST BE FITTED TO 'V' SERIES & 'W' SERIES EMERGENCY VENTS

NO PVV104 FITTED 4N



PVV104-2 BLANKING PLATE 4250 GASKET NBR CORK 0107 WASHER SPRING 0714 CAPSCREW 1/2" X 1"

### GRAVITY LATCH



IF GRAVITY LATCH IS REQUIRED ADD FOLLOWING PARTS:  
1 x VOH700-12 GRAVITY LATCH  
1 x 0096 E-CLIP 1/2"  
1 x 4446 SPRING f. GRAVITY LATCH

GRAVITY LATCH NOT FITTED 0

PART NUMBER EXAMPLE FOR VOH410 SERIES MANHOLE, CLAMPBAND STYLE WITH BRIDGE AND PLAIN HANDLE, 30kPa SPRING, PVV104, NO GRAVITY LATCH. COAMINGS, SEAL AND CLAMPBAND ASSEMBLIES TO BE ORDERED SEPARATELY, SEE LIQUIP DRAWING V90803 FOR PART NUMBERS.