

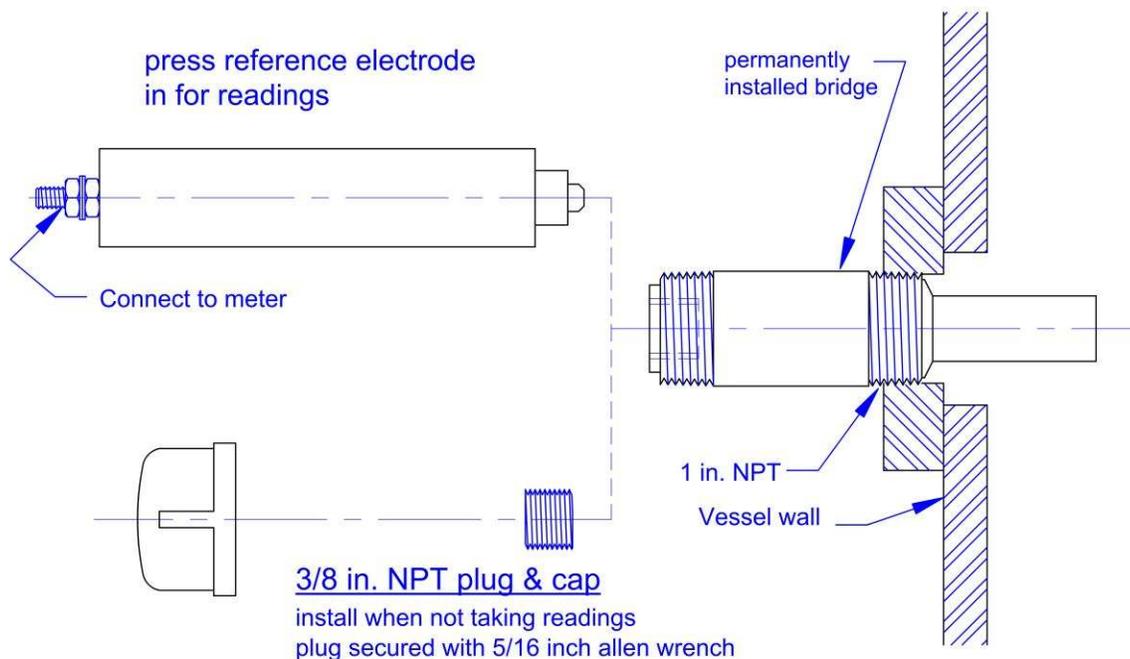


The Model FE Process Vessel reference electrode consists of two pieces:

1. A bridge, which is permanently installed on the vessel,
2. A reference, which can be either permanently installed or temporarily inserted when measurements are required.

All bridges without coupons are pressure rated to 150 psi (1,000 kPa); those with coupons are rated to 25 psi (173 kPa). The bridge is designed to leak slightly in service to ensure good conductivity; the quantity of liquid emitted will be proportional to the pressure differential across the bridge.

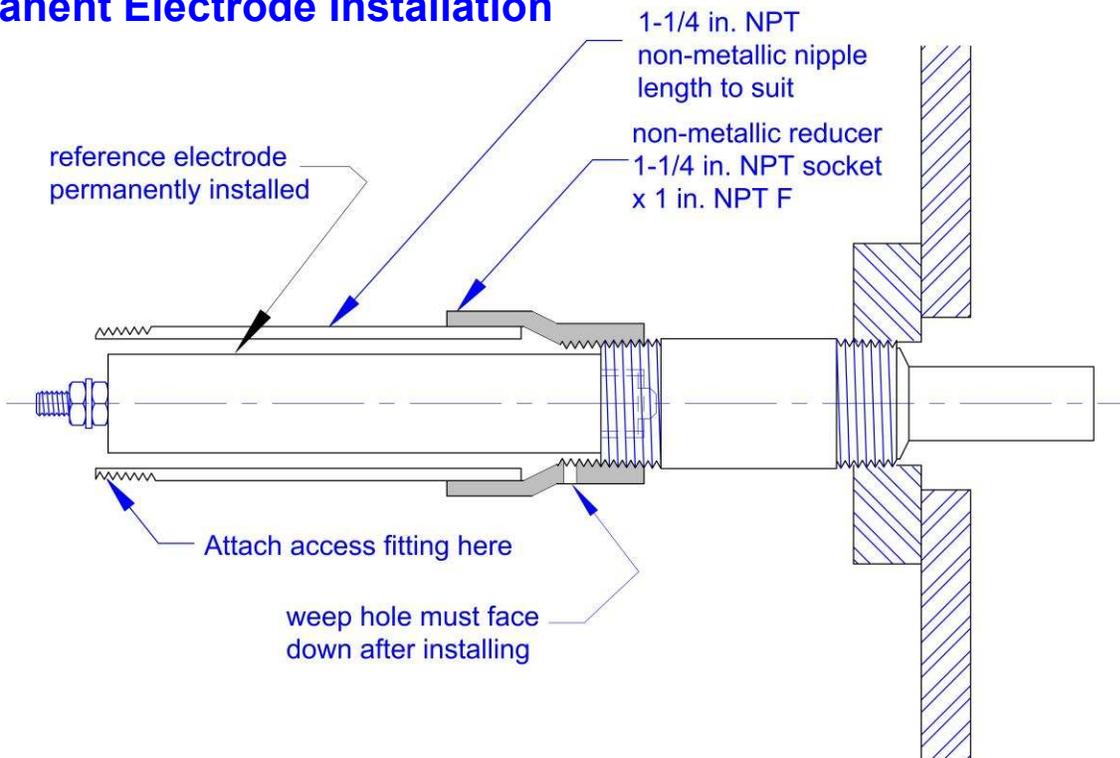
Temporary Electrode Installation



In a temporary installation, the reference electrode is inserted into the bridge whenever a potential measurement is required. If electrolyte weeping from the bridge contacts the metal nipple, the readings may be affected. This can be prevented by drying the plastic extending from the nipple before making readings. In between readings, the 3/8 inch pipe plug should be installed in the bridge; at pressures over 50 psi (350 kPa), the 1 inch end cap should also be used. Since the bridge will leak slightly, Teflon tape or a non-hardening Teflon pipe dope should be used on the end cap threads when leak-free installation is required.

Whenever the end cap or pipe plug is removed, it should be assumed that the liquid behind it is under pressure. The cap should be slowly loosened to bleed off the pressure; once the leakage has stopped, the cap can be removed. The same procedure must be repeated when removing the plug.

Permanent Electrode Installation



For maximum electrode life, the electrode should be installed into the bridge using no pipe thread sealants or gaskets. A small amount of liquid will leak from the joint preventing a pressure buildup between the bridge and the reference electrode. Should a leak-free joint be required, then the appropriate sealants and gasket can be used. Note, however, that if the gasket is used, the bridge will be operating at the vessel pressure, which can force some of the vessel contents into the electrode and shorten its life.

To replace a permanently installed electrode, it is not necessary to drain the vessel since the bridge remains permanently installed. Loosen the electrode just enough for the joint to start leaking which will relieve any pressure at the end of the bridge. When the leaking stops, continue to slowly unscrew the electrode until it is removed. A new electrode can then be installed.

Safety Precautions

Appropriate safety equipment as required by the vessel contents and pressure must be used whenever the pipe plug, end cap or electrode is removed from the bridge. At a minimum, suitable eye protection must be used even if the vessel only contains water. It is always possible that a small amount of liquid will spray out under pressure when the plug, cap or electrode is first loosened.