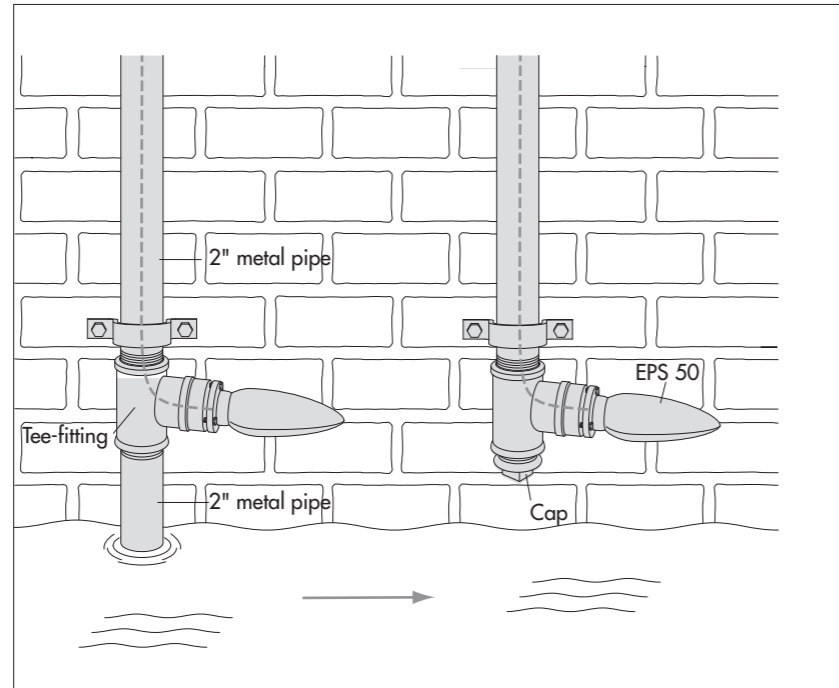


Figure 4: Example of wall installation

(The figure shows a low water level. The bubble chamber must be mounted completely beneath the water surface.)



Mounting instructions

EPS 50

Bubble Chamber

U.S. Version – 2" NPT for 3/8" O.D. - 1/8" I.D. tube

Maintenance

- Regularly check the bubble chamber – at least once a year – for debris and correct alignment. Installation in locations with high sediment or vegetation should be checked more frequently.
- To clean the chamber, remove the three Philips screws and the base plate of the bubble chamber. The bubble chamber should be removed for cleaning. After cleaning the bubble chamber alignment should be adjusted as described above.

Note: the bubble in pressure must be built up again by purging the CBS for ~ 6 minutes. To do so, remove power from the CBS and reapply. This will initiate the commissioning purge cycle; refer to OTT CBS operating instructions for more information!

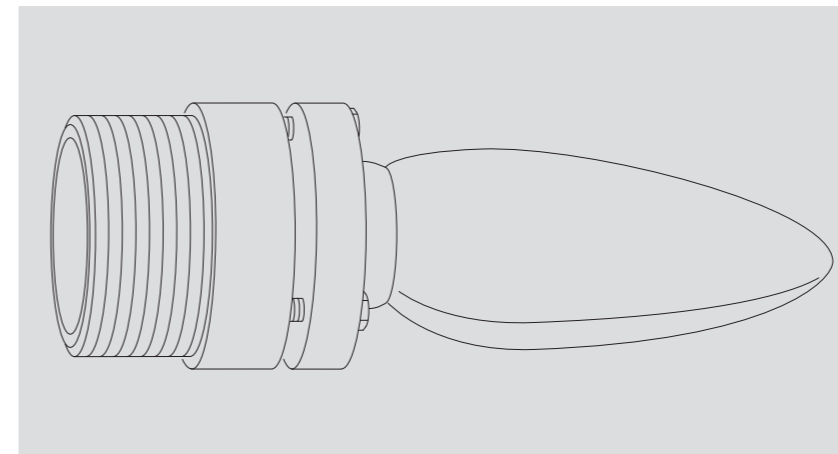
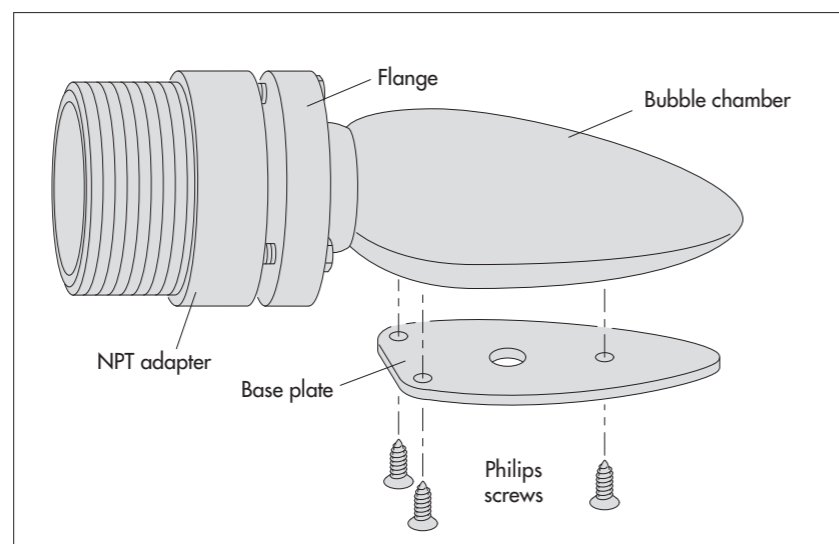


Figure 5: Cleaning the bubble chamber

If the bubble chamber is completely detached from the bubble tube for cleaning, trim the tube before connecting it again to ensure it has a uniform surface.



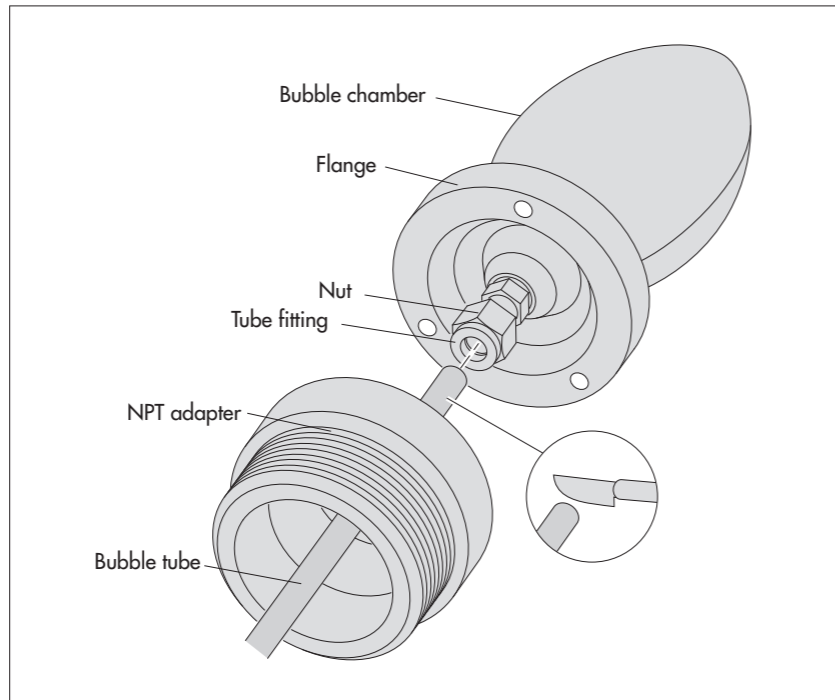
Installation of the bubble chamber

The EPS 50 bubble chamber is designed for use with the OTT CBS bubble level sensor. It reduces wave action near the measuring tube and minimizes influences of waves.

The 2 inch male thread of the NPT adapter allows it to be connected to standard plumbing materials configured to suit installation site conditions. It can be fixed to natural and lined banks as well as vertical walls.

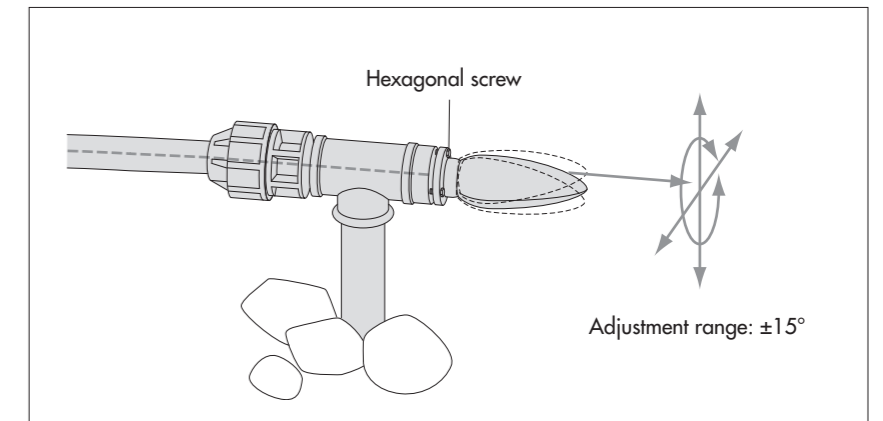
The bubble chamber must be installed in the direction of flow as shown in Figures 3 and 4.

Figure 1: Connection of the bubble tube



- Install a conduit (metal or plastic) from the instrument (CBS) to the location where the bubble chamber will be installed; see Figures 3 and 4. The conduit should be fixed in place and terminate with a 2 inch NPT female threaded connection at the bubble chamber location.
- Lead the bubble tube through the conduit.
- Cut the bubble tube at a 90° angle with a sharp blade (e.g., razor knife); see Figure 1. Do not use scissors.
- Detach the NPT adapter from the bubble chamber by unscrewing the three hexagonal screws of the bubble chamber's flange.
- Install the NPT adapter on the end of the conduit.
- Insert the bubble tube as far as possible into the tube fitting. Rotate the nut until finger-tight. While holding the bubble chamber steady, tighten the nut with a wrench about one and one-quarter turns.
To disconnect the tube, untighten the nut and pull out the tube. Trim the tube before connecting it again to ensure it has a uniform surface.
To reassemble, insert tubing with ferrules into the fitting until the front ferrule seats. Rotate the nut with a wrench to the previously pulled-up position and tighten slightly.
- Install the bubble chamber on the NPT adapter.
Note: For optimal measurement results the bubble chamber must be adjusted to be horizontal and aligned in the direction of flow (max. tolerance $\pm 5^\circ$). The EPS 50 has a ball-and-socket joint which allows for adjustment by 15° in any direction. To install and adjust:
 - Tighten the three hexagonal screws of the bubble chamber's flange only slightly.
 - Adjust the bubble chamber horizontally (both axes) and in the direction of flow; see Figure 2.
 - Tighten the screws using a wrench (size 10 mm).

Figure 2: Adjusting the bubble chamber
max. tolerance of adjustment is $\pm 5^\circ$



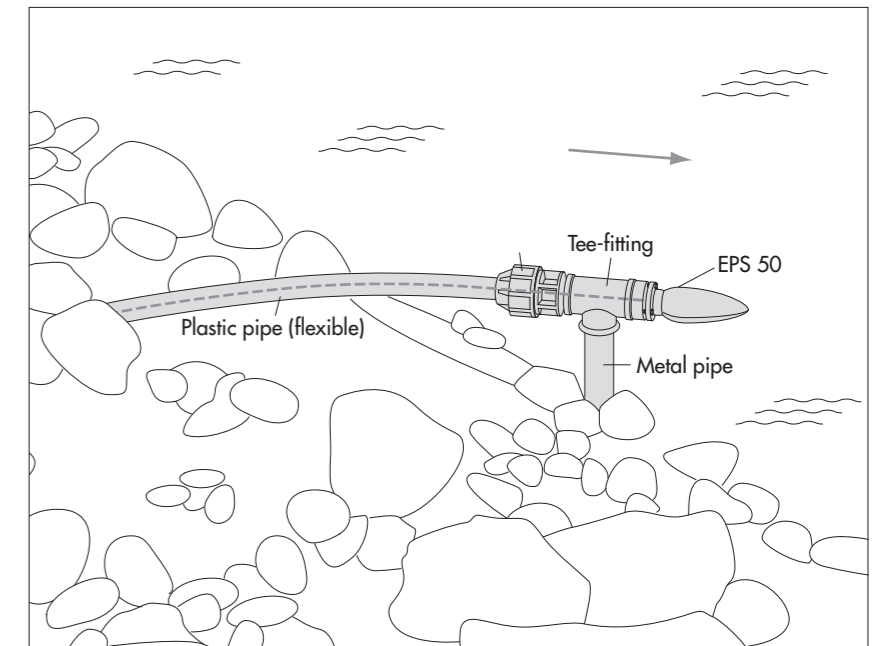
Example of application: Installation in stream bed

Figure 3 shows a conduit fixed by driving a metal pipe with a 2 inch tee-fitting into the stream bed.

Note that conduit and termination fitting such as tee-fittings and elbows are not included with the EPS 50.

Figure 3: Example of stream bed installation

(The figure shows a low water level. The bubble chamber must be mounted completely beneath the water surface.)



Example of application: Wall-mounting

Figure 4 shows two methods of mounting the bubble chamber on a wall. Note that the bubble chamber must be secure enough such that it does not vibrate at high velocities. For this purpose, as shown in the left drawing, the conduit can be extended using a tee-fitting and anchored to the bed of the canal to increase stability. If this is not necessary, an elbow or capped tee-fitting can be used.