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## **1. Product Description**

### **1.1 General**

CPX Terminal Units comprise a first fix, second fix and check valve. The first fix assembly includes an ø12mm copper pipe for brazing to the fixed pipeline system, a NIST connector for connection to a hose assembly or a permanently crimped hose assembly.

Terminal units are available for oxygen, nitrous oxide, 50% oxygen/50% nitrous oxide mixture, medical air, surgical air and medical vacuum.

Terminal units are available for wall mounting (flush or surface), bedhead trunking and pendant mounting.

### **1.2 First Fix Assembly**

The first fix assembly comprises of a precision-machined brass block of which the unit is indexed for each different gas service to prevent interchangeability. The unit incorporates a maintenance valve/flutter disc, which will automatically shut off the gas supply (95%) if the second fix assembly is removed whilst the pipeline system is under pressure.

### **1.3 2<sup>nd</sup> Fix Valve Assembly**

The check valve assembly comprises of a spring-loaded valve housed in a machined brass body. The check valve permits the gas to flow when a probe is connected and seals off the gas flow when the probe is disconnected. The unit is installed between the first fix and the second fix.

### **1.4 Second Fix Assembly**

The second fix assembly comprises of a gas specific body, which accepts, retains and releases the probe. The base of the body is indexed to match the first fix assembly. The front face of the second fix assembly incorporates a colour coded gas identity label. The unit will only accept the probe for the appropriate service.

## **2. Operation**

### **2.1 General**

Each terminal unit is gas specific and will only accept the appropriate BS probe ensuring that a probe for one service cannot be inserted into a terminal unit for another service. It is important that only probes conforming to BS 5682 are used.

The probe should be inserted so that the cutout in the indexing collar is uppermost. This cutout aligns with an anti-swivel pin incorporated into the second fix assembly, which

prevents the probe from rotating. This ensures that equipment such as flowmeters remain vertical when plugged directly into the terminal unit.

Pendant mounted terminal units do not incorporate an anti-swivel pin as it is not necessary to restrict probe orientation.

### 2.2 Probe Connection/Disconnection

To connect, the appropriate probe is pushed firmly into the second fix until it engages. This action opens the check valve and allows gas to flow.

To disconnect, the probe should be held and the front of the second fix pushed forward. This action releases the probe. When the probe is removed, the check valve closes providing a gas tight seal.

## 3. Safety

### 3.1 General

This equipment should be installed, operated and maintained by personnel who are suitably trained, are fully conversant with HTM 2022 & BS EN 737 and are familiar with this product.



This equipment should be kept clean and be free from oil and grease at all times. Oxygen will ignite spontaneously in the presence of oil and grease. If you suspect that any equipment is contaminated, do not use it.

No attempt should be made to use or modify this equipment for use with a gas other than as identified.

This equipment should not be operated at pressures exceeding those stated in HTM 2022 and BS EN 737.

## 4. Installation

### 4.1 General

Terminal units should be mounted at a height of between 900mm and 1400mm above finished floor level and not less than 200mm from any obstruction.

Where more than one terminal unit is to be mounted in one location, these should be mounted at the following spacing;

- Two terminal units - 150mm centres.
- Three or more terminal units - 135mm centres.

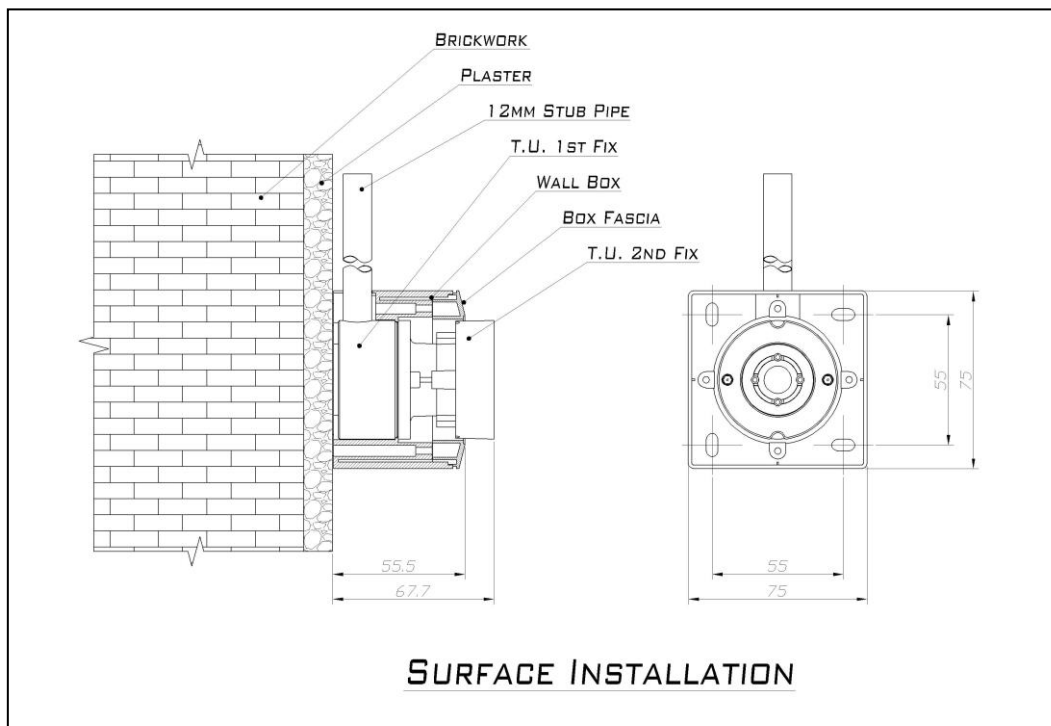
Terminal units mounted in a horizontal array shall be installed in the following sequence when viewed from the front, left to right;

O<sub>2</sub>; N<sub>2</sub>O; 50% O<sub>2</sub>/50% N<sub>2</sub>O; Medical Air; Surgical Air; Vacuum; AGSS

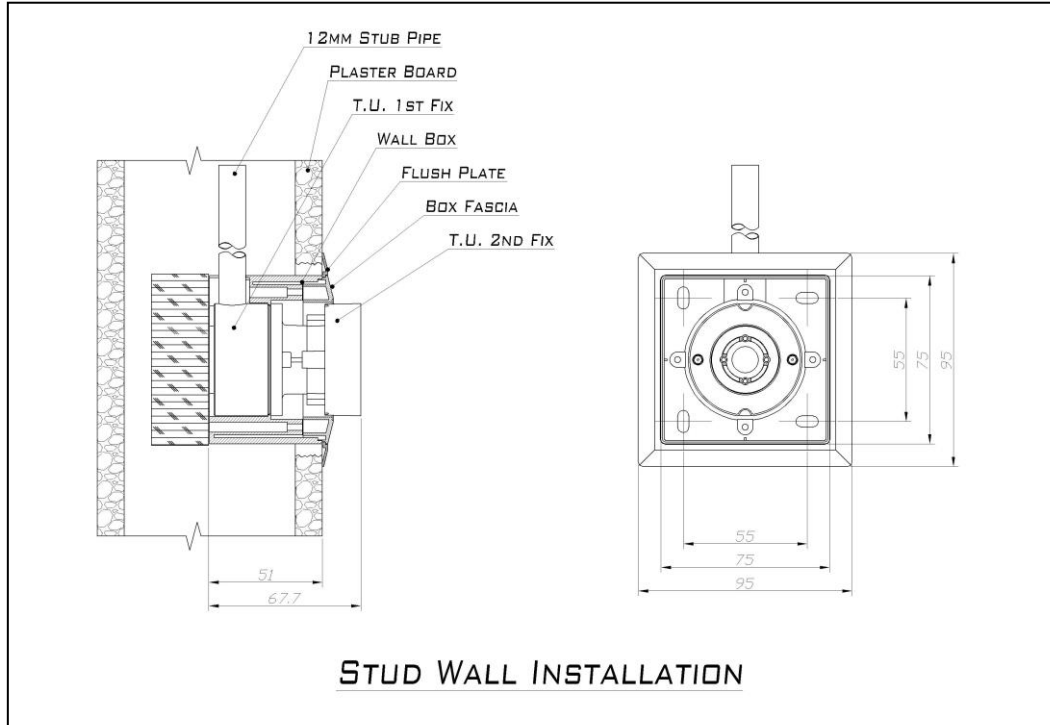
### 4.2 Assembly

1. Determine the required position of the terminal unit and secure the first fix assembly and wall-mounting box, if required, using suitable fixings ensuring that the assembly is horizontal and plumb.
2. Braze the copper stub pipe to the fixed pipeline system. If the joint to be brazed is close to the brass block, remove the internal components during the brazing operation.
3. Fit the first fix test plug into the first fix assembly and pressure test the pipeline system.
4. When the wall is finished, remove the test plug and fit the check valve assembly and second fix assembly.
5. Fit the fascia and flush surround if required, pressure test and purge the pipeline system.
6. Remove the anti-swivel pin if this is not required.

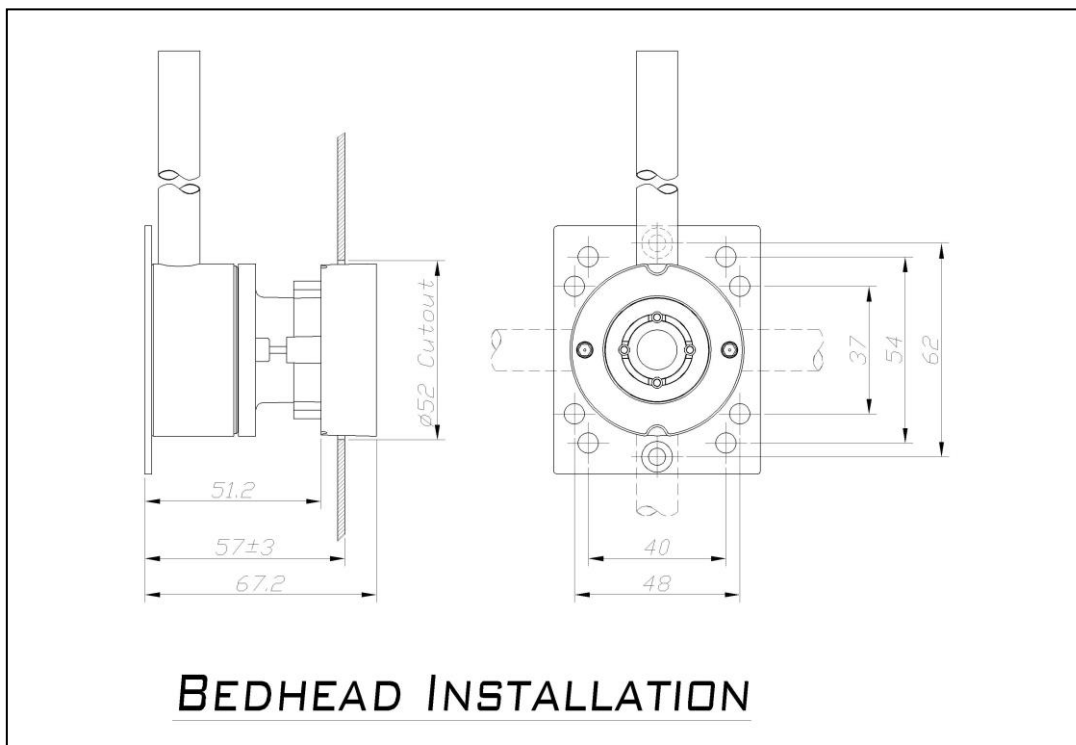
### 4.3 Surface Mounting



### 4.4 Flush Mounting – Solid Walls



### 4.5 Bedhead Mounting



## **5. Testing**

### 5.1 General

All terminal units should be pressure tested once incorporated into the fixed pipeline system. The testing is split into two phases as detailed below. The second phase of testing can only be carried out when the first phase has been deemed satisfactory and accepted.

### 5.2 First Fix Testing

This pressure test is carried out when the first fix installation has been completed. The required testing pressures are as stated below or as per the contract specification if different.

- First fix testing pressures in accordance with HTM 2022 are;
  - (a) 10 barg. for compressed medical gas systems.
  - (b) 18 barg. for compressed surgical gas systems.
  - (c) 7 barg. for vacuum systems.
- First fix pressure tests in accordance with BS EN 737-3 are 1.5 times nominal distribution pressure for compressed gas systems and 500 kPa for vacuum systems.

### 5.3 Second Fix Testing

This pressure test is carried out upon completion of the second (final) fix installation with the system pressurized to nominal distribution pressure in accordance with HTM 2022 and BS EN 737.

### 5.4 Commissioning

The terminal unit must not be used until all testing & commissioning procedures for the pipeline system as detailed in HTM 2022 and/or BS EN 737-3 have been satisfactorily completed and accepted.

## **6. Maintenance**

### 6.1 General

The only maintenance required is to replace parts that will become worn during normal usage, however the use of damaged probes or faulty equipment may require further maintenance to be undertaken.

The first fix assembly, retainer housing and check valve assembly incorporate 'o' rings that will require replacing periodically.

The second fix assembly is generally maintenance free and should be replaced if damaged.

The maintenance valve in the first fix assembly is designed to prevent the flow of gas during short periods of maintenance. If a second fix assembly is to be removed for a long period, it is recommended that alternative arrangements are made for a more secure seal.

Should the external surfaces of the terminal unit require cleaning, we recommend that this is carried out using a damp cloth along with a mild soap solution if required. Do not use abrasive or solvent based cleaning solutions. Do not let any liquid enter the terminal unit.

## 6.2 Preventative Maintenance

Regular inspections and maintenance of the terminal unit will prolong its life and reduce the possibility of sudden, inconvenient component failures.

Terminal units should be subjected to regular inspection and testing as detailed below.

- Monthly;
  - (a) Visually inspect the terminal unit for signs of damage.
  - (b) Check the second fix assembly operates freely.
  - (c) Any reluctance in the operation of the second fix should result in the removal of the unit for closer inspection/repair/replacement as necessary.
  
- Annually;
  - (a) Remove fascia and clean any debris from the mounting box.
  - (b) Remove second fix assembly and replace the first fix 'o' rings.
  - (c) Remove second fix assembly and replace check valve assembly.
  - (d) Test second fix for correct operation (connection and disconnection of probe) using a blank probe.

## 6.3 First Fix Assembly

To replace the 'o' rings in the first fix assembly;

1. Isolate the gas supply to the terminal unit via the AVSU or line valve.
2. Undo the two screws and remove the fascia and flush surround if applicable.
3. Remove the two Allen head screw that secure the second fix assembly to the first fix assembly.
4. Remove the second fix assembly and check valve assembly and place on one side.
5. Remove the retainer housing from inside the brass block taking care not to damage the sealing faces.
6. Fit new 'o' rings into the groove after checking that the maintenance valve is in place and the right way round.





Note: There is no maintenance valve/flutter disc in vacuum terminal units.

7. Place the check valve assembly and second fix assembly in position. Fully tighten the two Allen head screws, alternating between the two, screwing them in a few turns at a time.
8. Turn on the gas supply and check for leaks.
9. Ref-fit the fascia and flush surround if applicable.

## 6.4 Check Valve Assembly

To replace the check valve assembly;

1. Remove the two Allen head screw that secure the second fix assembly to the first fix assembly.
2. Remove the second fix assembly and check valve assembly.
3. Discard the check valve assembly and place the second fix assembly on one side.

Note: The maintenance valve/flutter disc will restrict the gas flow. On vacuum terminal units, place a blank disc over the inlet if the system is under vacuum.

4. Insert a new replacement check valve assembly into the first fix block and re-fit the second fix assembly. Fully tighten the two Allen head screws, alternating between the two, screwing them in a few turns at a time.
5. Test second fix for correct operation (connection and disconnection of probe) using a blank probe.