

## ZSU<sup>2</sup> - Zone Service Unit

### Area Valve Service Unit

#### SPECIFICATION

##### **ZSU2 – Zone Service Unit**

The ZSU<sup>2</sup> (also known as a Area Valve Service Unit - AVSU) shall conform to HTM 02-01 and BS EN ISO 7396-1:2007. The ZSU<sup>2</sup> shall provide a zone isolation facility, for use either in an emergency or for maintenance purposes. It shall also provide a physical breakpoint to allow work to be safely carried out on the pipeline. A red coloured physical barrier (spade) shall be capable of insertion when required on either side of the valve, without the need to totally dismantle the line valve. During normal service, full-flow gaskets with an 'O' ring groove on one side shall be coloured white and provide sealing between the flat face connector and ball valve. The line valve shall be brass 22mm or 28mm ball valve with PTFE seals/seats, operated by a quarter turn handle with over-travel prevention in both directions. The ball valve shall connect by 22mm or 28mm copper stub pipes to the distribution system. The assembly shall be housed in a valve box, which shall be capable of both surface and concealed installation. The box shall be made from extruded aluminium with die-cast aluminium end caps to prevent corrosion, offer high strength, and resist high temperatures from brazing in close proximity. The box shall be finished in RAL 9010 polyester powder coat finish. A hinged door shall lock in the closed position and ZSU's installed adjacent to each other shall be operated by different key/lock combinations. The ZSU<sup>2</sup> door shall open through a minimum of 160° to provide maximum access, and provide for natural ventilation to prevent build up of gas within the valve box. A blank zone identification label shall be provided with each ZSU<sup>2</sup> 2nd fix assembly. Each ZSU<sup>2</sup> assembly shall be factory tested for gas tightness.

##### **Emergency Access**

The 2nd fix shall include a transparent plastic window incorporating the words 'Pull in Emergency and Close Valve'. In order to gain access in an emergency, a ring pull shall be fitted to the removable portion of the window. The emergency access mechanism shall be safely operable by a 5th percentile woman without the use of a tool. Glass windows shall not be used. It shall not be possible to refit or reset the means of emergency access.

##### **Door Tamper Alarm**

A door tamper alarm facility shall be available, with a reed switch initiating a system alarm indication on the local alarm panel when the emergency access window is removed. Normally only oxygen and medical air ZSU<sup>2</sup>'s controlling high acuity care areas, resuscitation bays and accident and emergency wards shall be fitted with the door tamper facility.

##### **Materials**

The second fix assembly shall be manufactured from fire retardant V0 rated ABS. All wetted parts (except seals and gaskets) shall be brass or copper. Copper stubs pipes shall be manufactured from phosphorous de-oxidised non-arsenical copper to EN 1412:1996 grade CW024A, manufactured to metric outside diameters in accordance with BS EN 13348:2008 R250 (half hard). Rubber pipe grommets shall be provided to ensure any leaking gas does not escape from the box into a wall cavity. All elastomeric gas seals shall be manufactured from Viton with a Shore hardness of 75. Mild steel components shall not be used. Sacrificial protection (e.g. galvanising), passivation or painting shall not be used to provide corrosion protection. Materials shall be inherently resistant to corrosion.

##### **Gas Specific Connections**

The ZSU<sup>2</sup> shall be fully gas specific and labelled to identify the medical gas service. The gas specific shrouds shall clearly show the gas service and use colour coding to BS EN ISO 5359. Shrouds shall be pin indexed such that the only the correct shroud can be fitted to each 1st fix. Gas specific NIST connections to BS EN 15908 shall be incorporated on each side of the line valve and include a permanently fitted gas identification label. Pressure gas service (not vacuum) NIST connections shall incorporate 100% self sealing valves which, held closed by gas pressure until insertion of the appropriate gas specific male NIST fitting. Additional sealing of NIST fittings shall be achieved using blank NIST nuts, with a knurled outer diameter. The blank NIST nuts shall include an internal 'O' ring groove and 'O' ring to seal on the smooth outer diameter of the female NIST. Blank NIST nuts shall be hand tightened only. Each NIST connection shall be capable of providing a free air flow rate of 300 l/min with a pressure drop of 0.4 bar from a 4 bar nominal inlet pressure.

##### **Local Alarm Pressure Switches**

The ZSU<sup>2</sup> shall incorporate minimum leak pressure switch connection ports on the left and right-hand sides to enable installation of a line pressure switch inside the box.

##### **CE Marking**

The standard range of BeaconMedaes ZSU<sup>2</sup>'s are 'CE' marked under the Medical Devices Directive 93/42/EEC with approval from notified body no. 0088 (Lloyd's Register Quality Assurance). Under this directive, the specified products are classified as Class IIa Medical Devices.

##### **Part Numbers**

Part No	Description	Size
2003900	ZSU <sup>2</sup> 1st Fix Assembly - with NISTs	Oxygen
2003901	ZSU <sup>2</sup> 1st Fix Assembly - with NISTs	N2O
2003902	ZSU <sup>2</sup> 1st Fix Assembly - with NISTs	N2O/O2 Mix
2003903	ZSU <sup>2</sup> 1st Fix Assembly - with NISTs	Medical Air
2003904	ZSU <sup>2</sup> 1st Fix Assembly - with NISTs	Surgical Air
2003905	ZSU <sup>2</sup> 1st Fix Assembly - with NISTs	Vacuum
2003909	ZSU <sup>2</sup> 1st Fix Assembly - with NISTs	Nitrogen
2005122	ZSU <sup>2</sup> 1st Fix Assembly - with NISTs	Carbon Dioxide
2004825	ZSU <sup>2</sup> 1st Fix Assembly - 28mm with NISTs	Oxygen
2003906	ZSU <sup>2</sup> 1st Fix Assembly - 28mm with NISTs	Vacuum

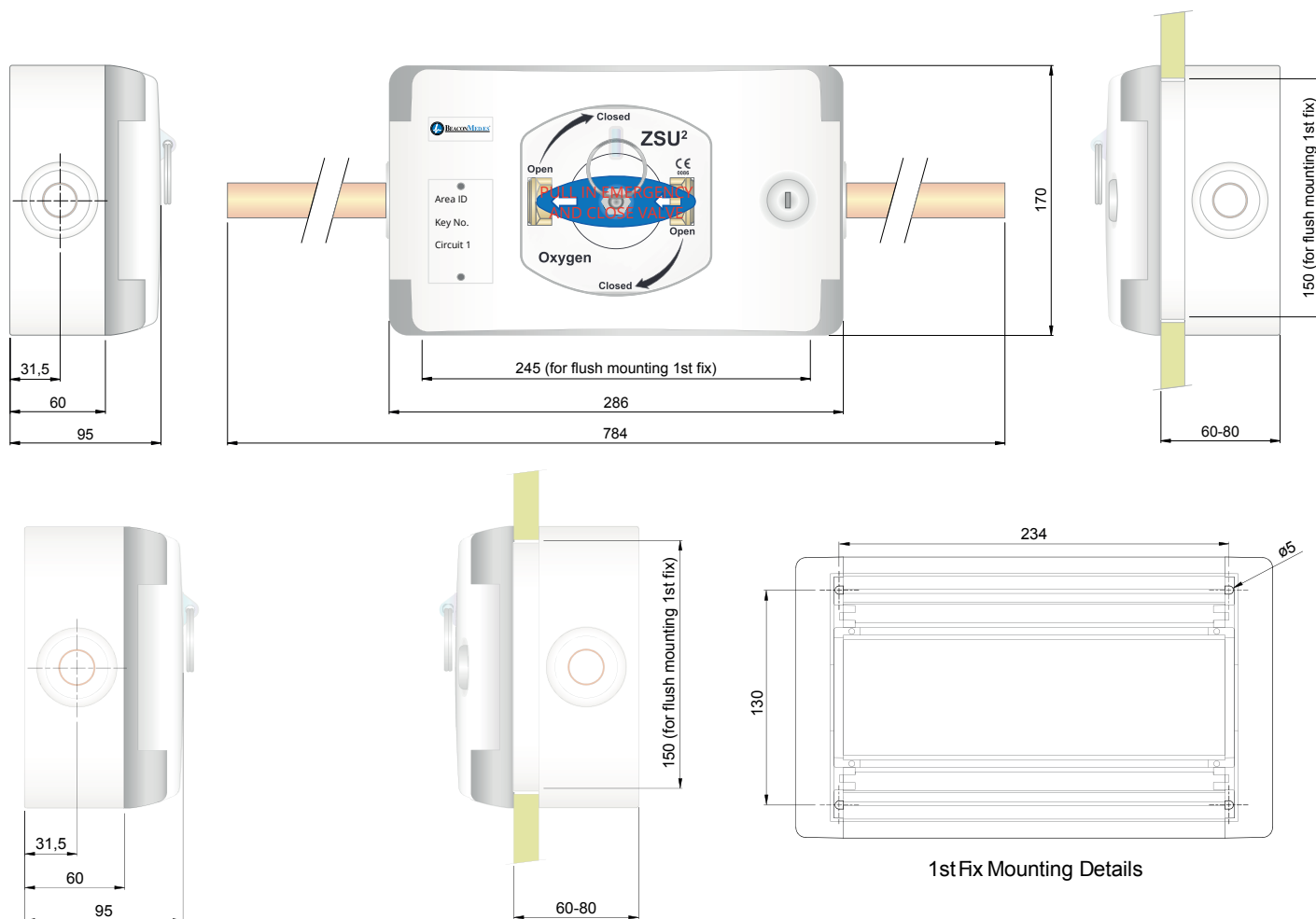
Part No	Description	Size
2004290	ZSU <sup>2</sup> 1st Fix Assembly - without NISTs	Oxygen
2004291	ZSU <sup>2</sup> 1st Fix Assembly - without NISTs	N <sub>2</sub> O
2004292	ZSU <sup>2</sup> 1st Fix Assembly - without NISTs	N <sub>2</sub> O/O <sub>2</sub> Mix
2004293	ZSU <sup>2</sup> 1st Fix Assembly - without NISTs	Medical Air
2004294	ZSU <sup>2</sup> 1st Fix Assembly - without NISTs	Surgical Air
2004295	ZSU <sup>2</sup> 1st Fix Assembly - without NISTs	Vacuum
2004296	ZSU <sup>2</sup> 1st Fix Assembly - 28mm without NISTs	Vacuum
2004298	ZSU <sup>2</sup> 1st Fix Assembly - without NISTs	Nitrogen

2003973	ZSU <sup>2</sup> Tamper Alarm Kit	All Gases
2004994	ZSU <sup>2</sup> Pressure Switch Kit - 4 bar	4 bar
2004995	ZSU <sup>2</sup> Pressure Switch Kit - 7 bar	Surg Air
2004996	ZSU <sup>2</sup> Pressure Switch Kit - 11 bar	Surg Air
2004997	ZSU <sup>2</sup> Pressure Switch Kit - Vacuum	Vacuum

\* Lab projects only

2003910	ZSU <sup>2</sup> 2nd Fix Assembly	All Gases
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### Installation Details



Surface Mount

Flush Mount