

ZSU² - Zone Service Unit

Area Valve Service Unit

SPECIFICATION

ZSU² – Zone Service Unit

The ZSU² (also known as a Area Valve Service Unit - AVSU) shall conform to HTM 02-01 and BS EN ISO 7396-1. The ZSU² 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 ZSU² 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 ZSU² 2nd fix assembly. Each ZSU² 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 ZSU²'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 grade CW024A, manufactured to metric outside diameters in accordance with BS EN 13348 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 ZSU² 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 Sensors

The ZSU² shall incorporate minimum leak pressure sensor connection ports on the left and right-hand sides to enable installation of a line pressure sensor inside the box.

CE Marking

The standard range of BeaconMedæS Area Valve Service Units are 'CE' marked with approval from notified body (more detailed information available on request).

Part number

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

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

Part No	Description
4233400546	ZSU ² Pressure Sensor Kit

Part No	Description	Size
2003910	ZSU ² 2 nd Fix Assembly	All Gases

* Lab projects only

Installation Details

