

BID SPECIFICATIONS

General Requirements

One (or more) open circuit Self Contained Breathing Apparatus consisting of the following major sub assemblies: -

- 1) Cylinder and valve assembly.
- 2) Full facemask assembly.
- 3) A harness and backframe for supporting the equipment on the wearer's body.
- 4) A pneumatic assembly consisting of the elements below.
- 5) A fully automatic first stage pressure reducer.
- 6) A removable, facepiece mounted, first breath activated, positive pressure demand valve.
- 7) A shoulder strap mounted remote pressure gauge.
- 8) Low-pressure warning alarm to operate at 55 bar.

The Breathing Apparatus set must be CE marked and approved in accordance with EN137:2006 Class II and the facemask in accordance with EN136.

1. Cylinder and valve assembly - CYL-FWC-1860

Cylinder - The cylinder should be of fully wrapped carbon fibre composite construction with a time duration of not less than 45 minutes based on a nominal breathing rate of 40 litres per minute. The specification of the cylinder should be in accordance with the PED and the cylinder should be CE marked.

Cylinder valve assembly - The cylinder valve shall be in accordance with EN 144-2 and the valve will feature a safety locking hand wheel that can be turned on using one hand. The locking hand wheel will prevent the cylinder valve being inadvertently turned.

2. a) Facemask Assembly - Vision 3

The facemask - Shall be offered in different sizes and will accommodate a wide range of facial shapes and sizes. The facemasks shall be positive pressure and feature a Liquid Silicone Rubber outer mask with reflex seal and EDME ori-nasal inner mask. The facemask visor shall be of multi curvature and made of a scratch and impact resistant polycarbonate material with a flame-retardant coating and provide excellent panoramic vision. The visor shall be held in place by two U-shaped clamps. The mask will allow the wearer to wear integrated spectacle frames, without compromising the facemask seal. The facemask will be available with either a five-point fully adjustable neoprene strap style harness or a two-point adjustable polyester or Kevlar™ net style harnesses.

The facemask shall feature a left hand side bayonet connection for the demand valve. An option of an additional right quick-fit port to take a communications interface is required.

A speech diaphragm will be mounted at the front of the mask to offer unimpeded speech transmission and will include a low resistance positive pressure exhalation valve that allows for normal breathing with no extra effort. The mask will be designed with separate inspiratory and expiratory paths to minimise the risk of cross contamination of second stage regulators.

b) Facemask Assembly – Promask PP

The facemask - shall be offered in different sizes and will accommodate a wide range of facial shapes and sizes. The masks shall be positive pressure and feature a Butyl Rubber (Procomp™) outer mask with reflex seal and silicone ori-nasal inner mask. The facepiece visor shall be of single curvature and made of a scratch and impact resistant polycarbonate material with a flame-retardant coating and provide excellent panoramic vision. The visor shall be held in place by two U-shaped clamps. The mask will allow the wearer to wear integrated spectacle frames, without compromising the facemask seal. The mask will be available with either a five-point fully adjustable neoprene strap style harness or a two-point adjustable Polyester or Kevlar™ net style harnesses.

The facemask shall feature a left hand side bayonet connection for the demand valve. An option of an additional right quick-fit port to take a communications interface is required.

A speech diaphragm will be mounted at the front of the mask to offer unimpeded speech transmission and will include a low resistance positive pressure exhalation valve that allows for normal breathing with no extra effort. The mask will be designed with separate inspiratory and expiratory paths to minimize the risk of cross contamination of second stage regulators

3. Harness and Backframe Assembly

The backframe shall be manufactured from lightweight polyamide material. The backframe shall include full back padding designed in conjunction with an osteopath for additional wearer comfort.

The harness shall be manufactured from Kevlar™ and Pyrogard™ blend webbing and Proban material and feature padded shoulder straps and waistbelt. The harness shall include a fully adjustable waist belt using a double pull action with a quick release plastic buckle. The webbing will contain reflective thread

The cylinder shall be held on the backframe by a Kevlar™ and Pyrogard™ blend webbing cylinder band, with an over centre latching glass filled polyamide buckle. A double action steel locking catch will prevent accidental opening. The cylinder band shall be adjustable, without the use of tools and shall secure all cylinders specified in 1) above.

The reducer/cylinder connector shall support the cylinder valve at the lower end of the backframe to support the cylinder assembly.

The backplate and harness shall be able to be machine washed.

The waistbelt shall also be able to swivel as the user moves ensuring comfort and freedom of movement for the wearer.

There should be adjustment straps connecting the upper shoulder straps to the backplate allowing these to be positioned in the most comfortable position for the wearer.

4. Pneumatics

The pneumatics assembly will consist of the elements listed below. The assembly should be able to be removed quickly and easily from the set without the use of tools and without breaking into the pneumatics. Therefore when removing the pneumatics from the set and replacing them back onto the set they should not need to be retested.

5. First Stage Pressure Reducer

The first stage pressure reducer shall be mounted in a protected position on the rear, lower portion of the backframe. The pressure reducer shall be of a fail-safe spring-loaded piston design, with an integral pressure relief valve, consisting of only two moving parts. The reducer shall be completely automatic, low maintenance and require no calibration. The reducer shall have flow characteristics that exceed 650liters/min and be protected by a pressure relief valve that operates between 11.5 and 13.5 bar. The pressure reducer shall incorporate an internal flow restrictor leading to a supply gauge hose that will limit the airflow to less than 25 lpm, preventing rapid air loss should the gauge supply hose become severed or damaged. The reducer shall be designed to function with either 200 or 300 bar cylinders. The cylinder connector shall accept both 200 and 300 bar cylinders and shall be joined directly to the reducer. The cylinder connector should have a sintered filter that can be removed and changed without having to take the cylinder connector apart.

6. Demand Valve

The positive pressure demand valve shall provide air, on demand to the wearer, utilising a servo-assisted tilting diaphragm mechanism providing peak flow in excess of 500 l/m, while maintaining a static positive pressure of 1 - 5 mbar inside the facepiece. The demand valve shall connect to the facemask via a quarter turn bayonet fitting on the left of the facemask.

The demand valve reducer shall feature an automatic first breath mechanism, which prevents the loss of air during the donning procedure. The regulator is to be equipped with a true bypass valve which, when rotated to the on position, provides a nominal constant flow of air (150l/m) to the facemask for emergency use and to purge the system when depressurising.

7. Pressure Gauge

The unit shall feature a 300 bar pressure gauge to monitor cylinder pressure at the input of the first stage reducer. It will feature a luminous dial, indicating 0-350 bar. The gauge shall be shoulder strap mounted and capable of being pulled close up to the facemask for use in poor visibility. The gauge shall be equipped with a blow-out vent and the gauge shall feature a rubber shroud for impact protection.

8. Low Pressure warning alarms

The unit shall feature low-pressure warning alarm that will operate at 55 bar. The alarm shall be a warning whistle, mounted next to the pressure gauge.

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