

Data Sheet for Steam Driven Air Pump suitable for Narrow Gauge Locomotives

These brake pump units are suitable for use on new and historic steam locomotives carrying out a wide variety of duties including:

- Tourist railways
- Museums
- Industrial systems

Designed to provide a reliable source of compressed air for both single and twin line air braking systems the pumps are constructed to a high standard and feature the use of modern seal materials for low maintenance in service.

The pumps can be mounted in a variety of orientations as indicated in the adjacent diagram enabling the units to be positioned where appropriate on the locomotive.

In most cases when mounting on a single flat surface such as a running plate or tank end the two optional mounting brackets shown provide a convenient fixing arrangement. However, in instances where the pump can be stood vertically, it can be directly mounted by the four tie rods which join the steam and air cylinders and the brackets are not required.

A steam supply from the boiler is required with a shut-off valve accessible from the cab. The displacement lubricator which lubricates the steam cylinder and valve is coupled into this line and must be situated at least 300 mm above the pump inlet. A drain valve to release the steam pressure in the feed lines is also required adjacent to the pump to enable the displacement lubricator to be refilled when the pump is turned off.

The exhaust steam can either be directed into the chimney petticoat pipe to provide additional draught or piped to discharge above the cab roof line to avoid obscuring the drivers vision.

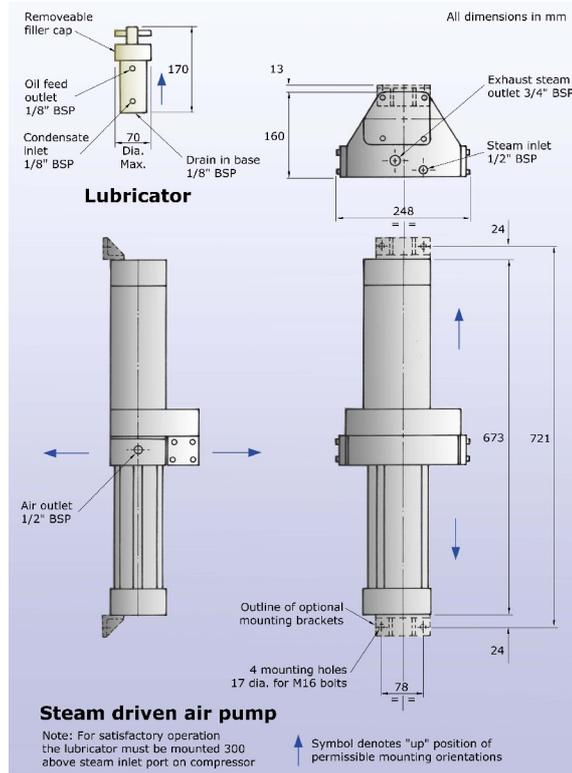
A single air connection is provided to feed the locomotive main reservoir which should have a relief valve to control the maximum compressed air pressure.

Full installation and maintenance instructions are provided with the pump and each unit is inspected and tested under steam before despatch.

A starting valve is incorporated as standard to ensure easy reliable operation from rest when either hot or cold.

The only daily care required is to keep the lubricator topped up with steam cylinder oil.

Periodic maintenance is only required at very infrequent periods after extended periods of operation. To completely refurbish the pump normally only requires the replacement of the seals within the unit and re-lubrication of the air cylinder. A full seal and lubricant kit is available and the work can be easily undertaken using only hand tools.



Pump Specification

Max. steam pressure to suit customer's requirements.	12.4bar (180 psi) gauge
Typical max. pressure	
Max. steam consumption per hr at 10.3 bar (150 psi) gauge	22.5 Kg (49.5 lbs)
Steam and Air Cylinder bore	80 mm (3.15")
Steam and Air Cylinder stroke	200 mm (7.87")
Max. air delivery pressure to suit customer's requirements.	10.3 bar (150 psi) gauge
Typical max. pressure	
Typical main reservoir pressure	6.6 bar (95 psi) gauge
Pump delivery at main reservoir pressure/ min	5.56 litres (0.196 cu ft)
Cylinder end caps	Mild steel
Cylinders	Honed alloy steel
Pistons	Aluminium alloy with fixed elastomeric cushions on air cylinder
Piston rod	Stainless steel
Piston seals, gland seals, wipers and bearing rings	High temperature polymers and elastomers
Steam valve body	Alloy steel
Steam slide valve	Graphite loaded PTFE
Steam valve operating pistons	Aluminium alloy with PTFE cushions
Tie rods and mounting brackets	Steel
Valve springs	Stainless steel
Steam cylinder lagging on cylinder walls only	Ceramic fibre with mild steel cover
Finish on all steel components	Chemi-black with gloss heat resistant black paint on exterior surface
Weight of Pump + lubricator	50Kg (110 lbs)

Steam Loco Design, 24 Willow Lane, Cambourne, Cambs, CB23 6AA, UK

Tel +44 (0)1954 204338

Email: ian.gaylor@steam-loco-design.co.uk

Web site: www.steam-loco-design.co.uk