

SMART TROLLEY



The Challenge

Despite Semmco having a portfolio of Nitrogen and Oxygen trolleys, there was a need to provide customers with a low cost addition to the range which included safety features to address the manual handling of cylinders along with a design suited to economical international shipping.

The trolley was to be used to provide Nitrogen at low pressure for inflation of aircraft tyres and high pressure for strut and accumulator inflation. It had to be easy to use and cost effective to maintain. Maintenance would be needed to ensure correct calibration of the control panel but this would be a challenge while in service.

Standardising business activities to ensure cost effective and smooth running of operations is vital in any current market, and none more so than in the world of shipping. Worldwide shipping of cargo of varying sizes and weights costs time and effort for a business so when Semmco came to design a new low cost Nitrogen and Oxygen trolley, consideration had to be given to how the SMART trolley could be packed for transport to minimise costs. Once a trolley reaches its destination it needed to be in operation quickly. Another challenge facing Semmco was to simplify the trolley design to allow for a quick and easy assembly at the final destination.

Solving the Problem

The resulting innovative design became the SMART trolley which is capable of sitting on a standard shipping pallet for worldwide destinations. The equipment is shrink-wrapped and is easy to disassemble on the pallet and assemble for use in approximately 20 minutes.

Oxygen / Nitrogen SMART Trolley - Semmco Case Study

Case Study

This trolley has been designed so that when the cradle is pulled forward it lifts the front wheels off the ground and stabilises ready for the cylinders to be rolled into place. The cradle then tilts to a pivotal point which acts as a counter balance and takes the strain when laying the cylinders to rest on the trolley.

The frame was constructed of steel and coated in Skydrol resilient paint with road-going pneumatic wheels which are mounted onto heavy duty tapered roller bearing hubs. A turntable mounted tow bar incorporates a safety lift and braking and parking system.

Control panel gauges are clear and well labeled in the recessed control cabinet so markings and instructions can be created in line with customers' requirements. Finger tight cylinder connectors can be specified to accommodate differing needs of various countries' cylinder connection requirement and the control panel allows for the gas supply to be taken from the front panel with easy and safe connection for hoses. In order to calibrate the control panel every 3 years a solution was found with service exchange - the customer would receive a panel to replace the one in situ.

The trolley is also suitable for use with Oxygen cylinders. The Oxygen trolley would be used for such tasks as topping up of Oxygen therapy cylinders and on board Oxygen.

The Benefits

Designing the trolley to be shipped as a transport pack and to fit on a standard pallet considerably reduces shipping costs as the customer is not paying for shipping air and it is significantly cheaper to ship than standard trolleys. Shrink-wrapping the equipment ensures that it is kept in the same condition as when it left the factory without unwanted damage to the paint and it is easy to dispose of the minimal packaging.

The movement allowed by the tow bar makes it very easy to position and manoeuvre in small spaces.

The layout, design and colour coding of the control panel ensures that low pressure and high pressure valves cannot be confused and finger tight cylinder connectors eliminate the need for tools when connecting the inlet and outlet valves ensure that there is no contamination of oil leading to a potentially dangerous explosion. Every 3 years the panel is easily removed to allow for the calibrated exchange panel replacement.

Without the need to lift the cylinders onto the cradle or use lifting equipment the trolley is fully compliant with OH&S manual handling requirements.

The materials used to manufacture, the robust construction along with the fact the wheels are able to endure varying road surfaces, ensures a cost effective, long life.

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