



Medical Oxygen Single Cylinder Filling System

Manual cylinder loading,
fully automatic control of filling

Introduction

Our system solutions have been developed from many years experience in gases engineering, equipment manufacture and operations. The end result is a range of manual to fully automatic systems that are highly productive, easy to operate and cost effective for the modern gases industry.

This data sheet details our Single Cylinder Medical Filling (SCMF) System and encompasses the latest technology and methods for the filling of Medical Gas Homecare cylinders and can comprise the following modules:

- Integrated Supply System
- Filling Workbench, complete with remote support facility
- Integrated Analysis System
- Integrated Vacuum System



Product Technology

Our SCMF Systems are built as a single Workstation module comprising 4 filling points, suitable for 1, 2 & 10 litre (integral valve) cylinders. This state-of-the-art medical oxygen filling system package has been developed to provide our Clients with a system that meets and exceeds all the requirements of a medical filling system – Safety Productivity, Quality and Validation:

Safety - incorporates best practice design for O₂ systems; over-pressure protection; key process safety interlocks; and operator protection

Productivity - one man operation; 4x2 litre cylinders (to 300bar) per 1 minute; or 4x10 litre cylinders (to 300bar) per 1.5 minutes

Quality - cylinders are: automatically checked for residual pressure before proceeding to a vacuum cycle; filled individually by weight and flow control. All details during the fill are recorded automatically against a batch and cylinder ID. The system is paperless as all records are generated and stored electronically and each include: latest tanker analysis; latest vessel analysis (liquid batch); operator ID; fill cycle details; batch cylinder analysis

Validation - each system is supplied with 'Lifecycle' validation documentation to the European Pharmacopoeia (Ph Eur). This eliminates the need for external validation consultancy.



The systems are all built and tested off site, which significantly reduces the on-site installation and validation time.

The operator connects the cylinder, closes the guard and presses 'Start Fill', then moves to the next fill station (4 fill stations in total). The process from this point on is fully automatic: cylinder valve opens*; residual cylinder pressure confirmation; vacuum cycle; profile fill cycle by weight; cylinder valve closes*; vent manifold; and alert operator to remove and replace cylinder.

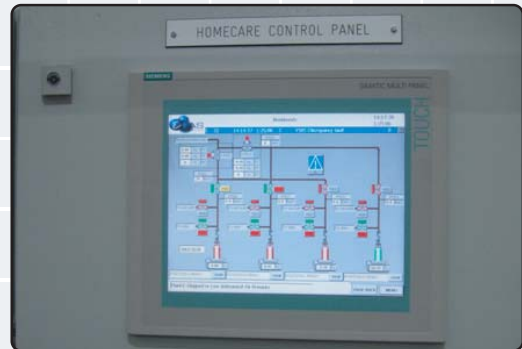
* Manual intervention may be required if cylinder valve has not been equipped with pin opening facility

Existing pumping systems can be utilised or we can provide new systems

– see Product Data Sheet ‘Tank, Pumping & Vaporiser Systems’

List of common features:

- Back flow prevention system
- Fill, Vent & Vacuum
- Proportional flow control
- 100% certainty of Gas Quality
- Return pressure checking
- Multi-Tasking
- Pressure Safety
- Control Interface
- Pre-built and testing workstation
- Interface for barcode reader or electronic tag
- Interface for automatic batch label generation
- Ergonomic design
- Easy to use operator interface
- Operator protection



Documentation

Each of our systems/projects comes with a comprehensive document package, which includes:

- Design Documents
- CE Build Files
- P&ID's and Process Descriptions
- Validation Documentation
- Safety Studies
- Spares and Maintenance lists
- Operating Instructions
- Certification for all materials/parts



Summary of Benefits

- Flexibility of Design
- Ergonomic design
- Validation
- Minimum on site Installation
- Turnkey Project or Equipment Only (with commissioning service)
- Up to 300 bar filling pressures (420 bar Design)
- High Productivity (minimum manning)
- Full Documentation with Safety Study

Also see our other Product Data Sheets:

- Storage, Pumping & Vaporiser Systems
- Fully Automatic Filling Systems
- Manual Filling Systems
- Semi-Automatic Cylinder Filling Systems
- Plant Systems
- Gas Generation Plant
- Gas Mixing & Distribution Systems
- Special Projects

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