

PURIFIRE® MFC – Mass Flow Controlled Blending Panels for Carburising and Hardening

Air Products PURIFIRE® MFC (Mass Flow Controlled) Blending Panels provide quality and consistency for all types of controlled atmospheres in processes such as carburising and hardening.

The required carbon containing atmosphere is often produced using a nitrogen/methanol blend. Using mass flow controllers to create this blend (and any other required atmosphere components), allows the effects of pressure and temperature fluctuations on the flow rates to be eliminated, resulting in stable and controllable atmosphere conditions.

This improved level of control leads to lower reject rates and a more economical use of process gases. When combined, these benefits can significantly reduce production costs.

The PURIFIRE® MFC Blending Panels will also work alongside existing carbon control systems to maximise the performance of the complete system.

Where the existing furnace programmable controller has the capability, it can be used to operate the PURIFIRE® MFC Blending Panel, thus reducing installation costs. An optional electrical panel with programmable controller is also available.

To increase security levels, the PURIFIRE® MFC Blending Panels also have conventional flow meters and manual regulation valves. This enables the automatic system to be by-passed if needed, for example, in the event of a failure in the programmable controller.

Where enhanced levels of carbon control are required, such as the Accelerated Carburising Process, Air Products can also offer the PURIFIRE® CAP 2000 system. This offers complete process control of the carburising procedure, including the atmosphere, and provides process documentation.



The benefits of using Purifire® MFC Blending Panels

Air Products standard Purifire® MFC Blending Panels offer:

- **Improved quality and consistency**
The system can accurately meter and control flows to the furnace, independent of pressure and temperature fluctuations.
- **Reduced product rejection rates**
A more consistent nitrogen/methanol mixture.
- **Increased economy**
The gas atmosphere can be controlled to achieve optimum efficiency.
- **A manual operation mode for increase security**
Conventional flow meters and manual flow valves enable the system to be operated independently of the programmable controller.
- **Safety Interlocks**
Safety features include a low (<750 C) furnace temperature switch that isolates the methanol supply through two solenoid valves. There are also check valves on flow lines and a pressure control system operating on the nitrogen line. The system also offers an automatic nitrogen purge facility.

A variety of options are available to further enhance the systems:

- **Electrical panel featuring:**
 - 1) *Programmable controller.* This allows the accurate entry of flow parameters to make the system even easier to use.
 - 2) *Flow rates and alarms monitoring,* even in a very narrow process window.
 - 3) *Data logging* for documenting flow rates precisely, thus facilitating improved quality control.
- **Accelerated Carburising Process**
This feature allows productivity to be improved by maximising the rate of carburising.
- **Modem Troubleshooting**
This allows remote process optimisation or fault diagnosis to take place.
- **PURIFIRE® CAP 2000**
Offers complete process control of the carburising procedure.

About Air Products



Air Products is a leading international supplier of industrial gases, chemicals and related equipment. We are committed to building lasting commercial relationships built on understanding our customers' business. Working together with our customers we continually find ways to help win in markets around the world whilst maintaining our focus on being an industry leader in safety, health and preservation of the environment. The company operates in over 30 countries worldwide, employs 17,000 people, and has an annual turnover in excess of \$5 billion.

Additional information

For more information on control panels available from Air Products, contact the company at one of the following locations:

Germany

Air Products GmbH
Hüttenstraße 50
D-45527 Hattingen
Tel +49(0)1805 427835
Fax +49(0)2324 689100

United Kingdom

European Marketing Department
Air Products PLC
Hersham Place
Molesey Road
Walton-on-Thames
Surrey KT12 4RZ
England
Tel +44(0)800 389 0202
Fax +44(0)1932 249565

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