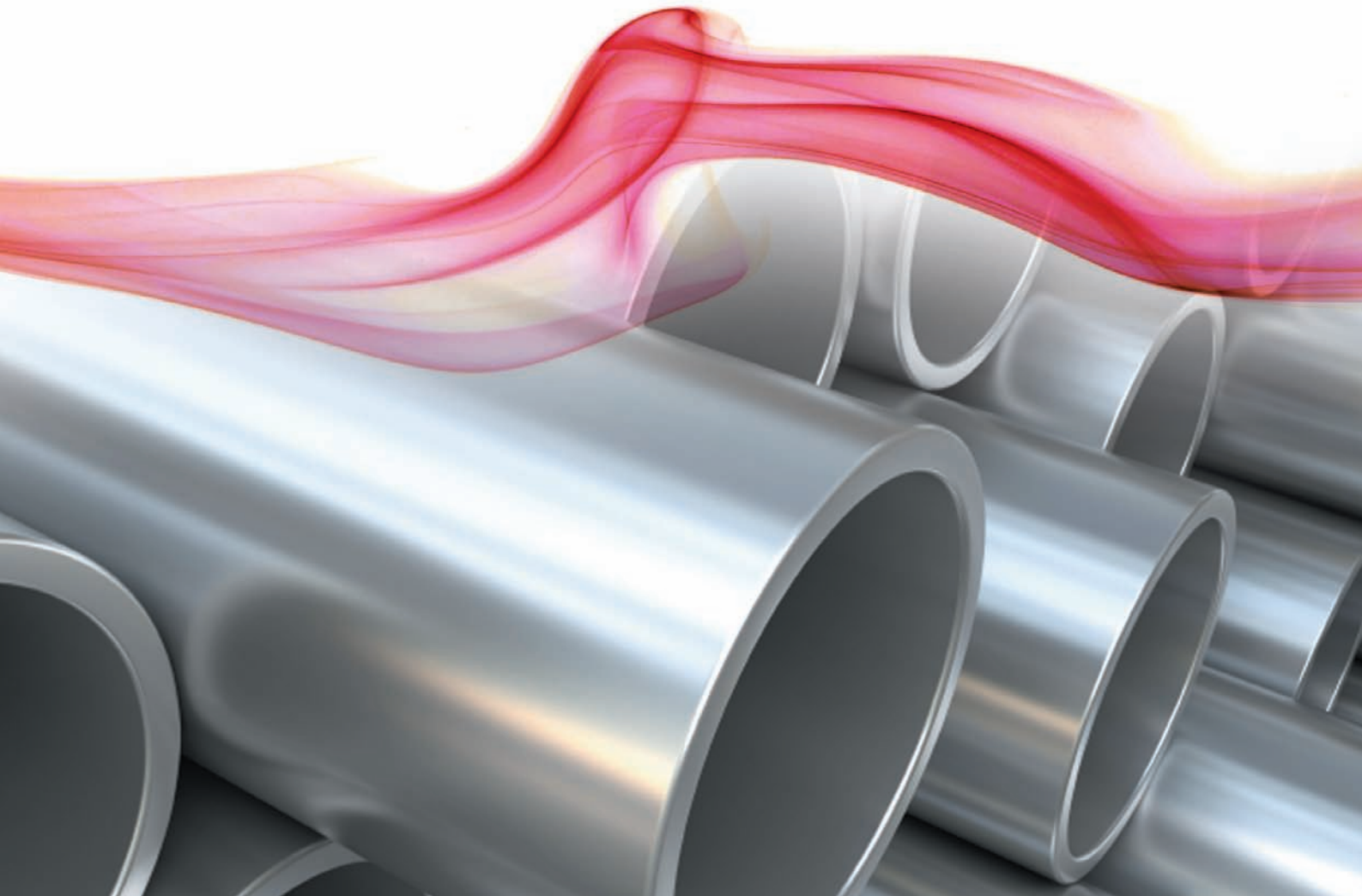




SIRCAL

# MP-2000 Rare Gas Purifier

The cost effective and reliable solution  
for rare gas purification



# MP-2000 Rare Gas Purifier



## The cost effective and reliable solution for rare gas purification



The MP-2000 Rare Gas Purifier is a stand-alone unit for the purification of argon or any rare gas: helium, neon, xenon and krypton. It offers a compact system for delivery of purified gas directly to the point of use.

Rare gases are commonly used to create an inert chemical environment for applications where prohibition of the formation of undesirable molecular species (e.g. oxides, carbides, etc.) in testing is critical, such as Arc/Spark Optical Emission Spectroscopy for metal analysis.

These inert gases are very often stored in compressed or liquefied form in metal containers which are subject to contamination. Gas will then be dispensed through a regulator which is also

subject to contamination over time. This can greatly affect the validity of test results especially where identification of trace elements is required in rigorous applications.

Installing an MP-2000 Rare Gas Purifier in-line between your gas supply and instrument offers the reassurance of reducing total contaminant levels to 1 vpm or less.

The purifier contains two reactive getter tubes and a molecular sieve drier tube housed in a cabinet for immediate use. Just plug into the local ac power supply, connect the gas and purge the lines, turn on the power and you are up and running.

“  
*a compact system for delivery of purified gas  
directly to the point of use*  
”

## Features & Benefits

- The MP-2000 will remove the impurities, i.e. oxygen, nitrogen, hydrogen, carbon monoxide, hydrocarbons, carbon dioxide and moisture (often present in the range of 30-50vpm) in commercially available rare gases down to a concentration of less than 1 vpm in total.
- Easy to use self-sealing plug-in gas connections ensure the user cannot leave the purifier open to air contamination when the purifier is disconnected from its feed gas.
- Low maintenance requirement with a quick- change getter tube feature when needed (two years + lifetime for normal impurity levels).
- Dual thermocouple temperature control, with remote status indication and fault alarm system.

- Built in safeguards against any fluctuations in ambient temperature or surges in electrical supply, offering long term optimum performance and reliability.
- Optional pressure sensor interfaces with microcontroller to provide display of system pressure and furnace shut down if the gas supply fails.

## Applications

- Purification of argon for Arc/Spark Optical Emission Spectroscopy.
- Purification of argon and helium carrier gases for low level Gas Chromatographic analysis.
- Purification of argon or helium for use as inert gas blankets.
- Any application where absolute and reliable gas purity levels are required.

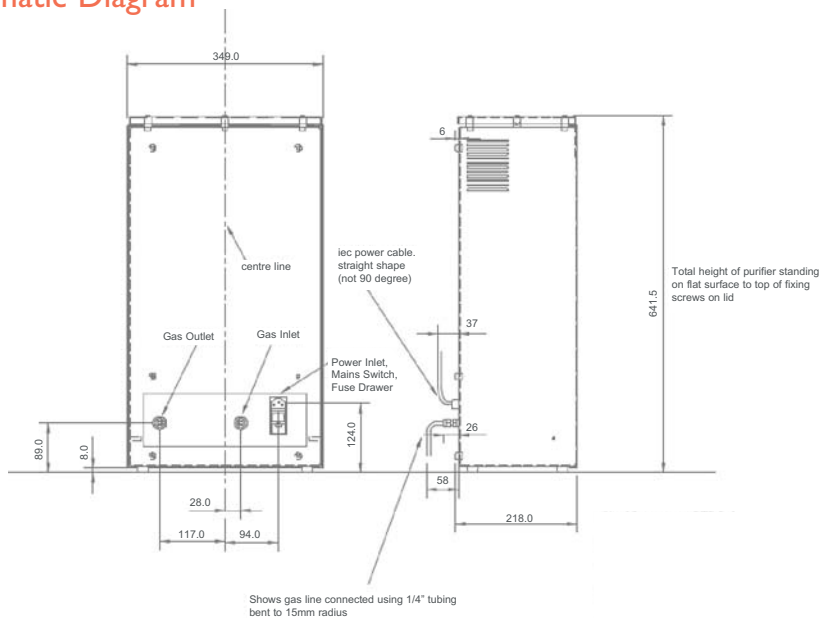
## Principle of Operation

The purification system consists of a furnace in which a titanium getter tube at 680°C removes oxygen and nitrogen by chemical reaction and a copper oxide tube at 450°C removes carbon monoxide, hydrogen and hydrocarbons, again by chemical reaction. Finally, external to the furnace, there is a molecular sieve drier tube operating at ambient temperature which removes moisture and carbon dioxide by physical adsorption. The molecular sieve drier tube can be regenerated in-situ by means of the band heater facility provided.

The furnace temperature is controlled at 700°C by means of a pair of thermocouples which in turn control the amount of power fed to the furnace heater element via a zero switching controller and triac. A supervisory alarm circuit in the unit cuts off the power to the heater element if the temperature of the furnace for any reason rises above 800°C.



## Schematic Diagram



## Technical Specification

Outlet Gas Purity:	< 1 vpm in total (for typical input impurity levels of 10 vpm.)
Impurities Removed:	O <sub>2</sub> , N <sub>2</sub> , H <sub>2</sub> , CO, CO <sub>2</sub> , H <sub>2</sub> O and Hydrocarbons
Furnace temperature:	680°C
Furnace warm-up time:	< 15 minutes
Furnace temperature control:	Dual thermocouple with micro controller
Ambient Operating Temperature:	0-40°C
Maximum Flow rate:	10 litres/minute
Maximum Inlet Pressure:	17 bar
Gas Connections:	Plug-in 1/4" (6mm available) at rear/or at side with Side Entry Kit
Voltage:	220-240V // 100-120V
Frequency:	50-60Hz
Cabinet Dimensions:	H 642 mm (25.3") x W 349 mm (13.8") x D 218 mm (8.6")
Weight:	19Kg (42.5lb)

Due to the continuous development policy of Sircal Instruments, technical changes could be made without prior notice.

## Ordering Information

Cat. No. Description

System	
P3170	MP-2000 Rare Gas Purifier 220-240V
P3171	MP-2000 Rare Gas Purifier 100-120V

Consumables	
P4003	Titanium Tube
P4004	Copper Oxide Tube
P4005	Molecular Sieve Tube

Options and Accessories	
P4020	Gas Side Entry Kit (Type F)- factory fit only
P4021	Gas Side Entry Kit (Type C)- customer can fit
P4030	Pressure Sensor
P4031	Stainless Steel Particle Filter
P4050	Gas Side Entry Kit with Diverter Valve/ Flowmeter (Type C)
P4051	Gas Side Entry Kit with Diverter Valve/ Flowmeter (Type F)
PI670	Wall Mounting Bracket

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