TECHNICAL DATA

GFS dynamic gravimetric mass flow system

Key features

- Delivers a true Primary Mass Flow Standard.; independent metrological support for molblocs
- Range: 0.2 to 200 mg/s in various non-corrosive, non-toxic gases.
- Low flow measurement uncertainty as low as ± 0.013% of reading.
- Operate at a maximum outlet pressure of 650 kPa absolute.
- Allows for automated unattended operation.

Product overview: GFS dynamic gravimetric mass flow system

The GFS dynamic gravimetric mass flow calibration system consists of an electronic mass balance, enclosure, and electronic instruments required to make accurate real-time measurements of depleted gas mass in flow control systems, and the time duration over which it has run. In order to improve thermal stability and dampen vibrations, the balance is placed upon a large granite plate and surrounded by a draft enclosure. In this system the test gas is supplied by a pressurized cylinder which rests on the balance and whose mass is measured continuously to determine the quantity and rate of depleted mass during a test. The elapsed time over which this takes place is measured by a high-speed USB counter/timer connected to the system controller. Various non-corrosive gas species can be used with this system, simply by evacuating the reference cylinder and pressurizing with the media of choice.

A dedicated PC-based software program (GFSTools™) has been developed to act as the central control of the instrument and interface to the user. Discrete and averaged values of balance and device under test output are

recorded and the results are calculated and displayed in terms of total mass and mass flow. Compensation of measurements for ambient pressure, temperature, and humidity, and balance drift are all performed by GFSTools. Automated test setup, data reporting and flow control are also handled by the program.

Specifications: GFS dynamic gravimetric mass flow system

GFS General Specifications	
Power Requirements	
Balance	100 to 240 VAC, 50 to 60 Hz, 27 W max. consumption
LCM	100 to 240 VAC, 50 to 60 Hz, 40 W max. consumption
MFC-CB	85 to 264 VAC, 50 to 60 Hz, 36 W max. consumption
Operating Temperature Range	15 to 25 °C
Humidity Range	5 to 70% RH, non-condensing
Weight	
Granite table and stand	320 kg (700 lb) approximate
Rest of system	70 kg (150 lb) approximate
Dimensions	
Enclosure on Granite Table w/stand	150 cm H x 90 cm W x 60 cm D (58 in. x 36 in. x 24 in.)
LCM	8 cm H x 22.5 cm W x 20 cm D (3.1 in. x 8.9 in. x 7.9 in.)
MFC-CB	8 cm H x 22.5 cm W x 20 cm D (3.1 in. x 8.9 in. x 7.9 in.)
GFS-FS	20 cm H x 41.4 cm W x 20 cm D (7.9 in. x 16.3 in. x 7.9 in.)
Supported Gases	Nitrogen (N2), Air, Argon (Ar), Carbon Monoxide (CO), Helium (He), Oxygen (O2), Carbon Dioxide (CO2), Carbon Tetrafluoride (CF4), Ethane (C2H6), Ethylene (C2H4), Fluoroform (CHF3), Hexafluoroethane (C2F6), Hydrogen (H2), Methane (CH4), Nitrous Oxide (N2O), Sulfur Hexafluoride (SF6), Xenon (Xe)
Flow Measurement Range	at least:
He, H2	100 sccm to 10 slm
All other gases	10 sccm to 10 slm
Pressure Connections outlet flow path from enclosure	1/8" Swagelok tube fiing or equivalent, with adaptor to 1/4" Swagelok tube fiing or equivalent
Reference Gas Cylinder Pressure Limit	20 MPa (3000 psi)
CE Conformance	Available, must be specified.

Ordering information

GFS2102

Dynamic gravimetric mass flow system

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