Data Sheet
DS-PR-5866E-5866M-PC-eng
August, 2008

Brooks® Models 5866E & 5866M

Elastomer and Metal Seal Pressure Controllers

Model 5866E
Elastomer Seal
Pressure Controller

Model 5866M
Metal Seal
Pressure Controller

GENERAL FEATURES

- Integral pressure transducer
- Electropolished wetted surfaces (optional)
- High accuracy
- High leak integrity
- Suitable for upstream or downstream control
- Normally closed valve (normally open valve optional)
- Current or voltage signal
- External valve control capability
- Electrically activated valve override
- Wide range of full scale pressures
- Eliminates droop, hysteresis and boost

Brooks® Models 5866E & 5866M

DESCRIPTION

The Brooks® Model 5866 Series Pressure Controllers accurately measure and control upstream or downstream pressure. The heart of the system is a solid state pressure transducer which produces an electrical output proportional to pressure. This signal is used to operate the integral control valve and to provide an output signal.

SPECIFICATIONS

Flow Ranges*

Any range from 0 to 3 sccm up to 0 to 30,000 sccm N_2

***Standard pressure and temperature in accordance with SEMI (Semiconductor Equipment and Materials Institute) standard: 0°C and 101 kPa (760 torr).**

Pressure Ranges

7.25 psia to 1450 psia full scale (Elastomer Seal)

7.25 psia to 72.5 psia full scale (Metal Seal)

Control Range

20 to 1

Accuracy

±0.5% full scale including linearity and hysteresis

Repeatability

±0.1% full scale

Pressure Ratings

Maximum design: 1450 psia

Maximum transducer:

21.75 psia for 0-14.5 psia full scale

108.5 psia for 14.5-72.5 psia full scale

435 psia for 72.5-290 psia full scale

1450 psia for 290-1450 psia full scale

(PED) Pressure Equipment Directive

(97/23/EC) as Sound Engineering Practice (SEP).

Leak Integrity, Inboard to Outboard

1 x 10^{-9} atm cc/sec Helium max. (Elastomer Seal)

1 x 10^{-10} atm cc/sec Helium max. (Metal Seal)

Temperature Coefficient

0.1% full scale/°C

Zero Stability

0.01% full scale per 30 days

Input/Output Offset

<0.2% full scale, (Voltage)

<1.5% full scale, (Current)

Proportional Gain

Adjustable from 1 to 200

Integration Time

Adjustable from 0.05 to 5 seconds

Control Action

Upstream or downstream pressure control (Figure 1)

Materials of Construction

	5866E	5866M
Wetted Parts	316 SS	316L Var SS
Ext./Internal Seals:	fluoroelastomers	Nickel 200316
Valve Seats:	Viton® fluoroelastomers	Nickel 200316LSS
Options	Buna-N Teflon® Kalrez®	N/A

Mechanical Connections

Model 5866E Standard: 1/8" or 1/4" Stainless Steel Compression Fittings. Optional: 1/4" VCO™ or VCR™

Model 5866M Standard: 1/4" VCR.

Electrical Connections

D-Connector (DA-15P)

Remote Pressure Sensor Input

Standard: 0-5 Vdc; Optional: 0-10 Vdc

Pressure Setpoint Signal

Standard: 0-5 Vdc. Optional: 0-10 Vdc, input impedance 1M ohm; 0(4)-20 mA, input impedance 250 ohm.

5 Volt Reference Output

5 Volts ±0.2% min. load 1 k ohms

Output Signals

Standard: 0-5 Vdc min. load 1 k ohm. Optional:

0-10 Vdc, min. load 2 k ohm; 0(4)-20mA into max. 500 ohm

Power Requirements

N.C. Valve, 3.5 watts; +15 Vdc (±5%) @ 30 mA, -15 Vdc (±5%) @ 170 mA

N.O. Valve, 10.5 watts; ±15 Vdc (±5%) @ 350 mA

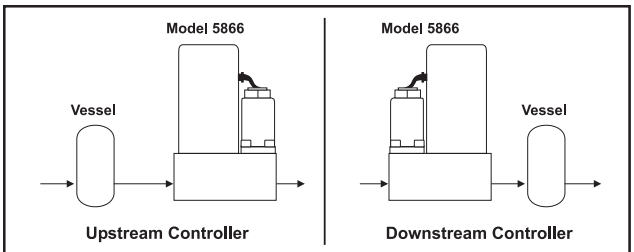
Certifications and Approvals
EMC Directive (89/336/EEC) per 61326.
Optionally - Hazardous Area Certification

Europe - ATEX KEMA 03ATEX1532 X
II 3 G EEx nA II T4

Enclosure: IP40
Ambient Temperature: 0°C to 65°C
Per: EN 60079-15: 2003

US and Canada - UL E73889
Class I, Division 2, Groups A, B. C, D; T4

Enclosure Type 1
Ambient Temperature: 0°C to 65°C
Per UL 1604, and CSA 213



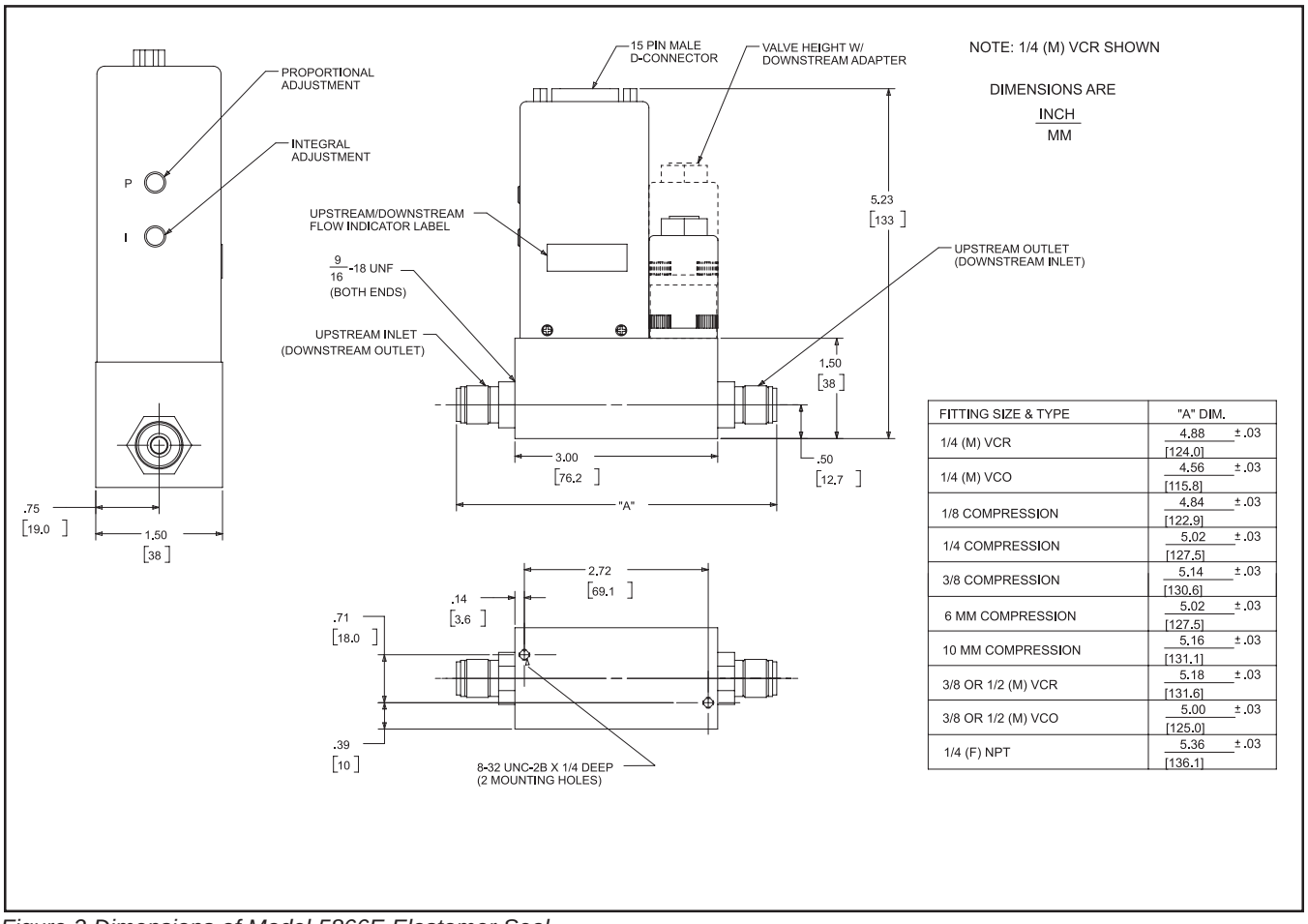
A pressure controller system can be built in two different configurations as shown above. When the controller is placed downstream of the pressure vessel, the flow is usually determined by a mass flow controller in the line upstream of the vessel.

With the pressure controller upstream of the vessel, the inlet of the pressure controller can be at atmospheric gas pressure or at the vapor pressure of a liquid source. The flow in this situation is usually determined by the characteristics of a vacuum pump.

Figure 1 Typical Configurations

TRADEMARKS

Brooks ..... Brooks Instrument, LLC
Inconel ..... Inco Alloys International, Inc.
Kalrez ..... DuPont Dow Elastomers
Teflon ..... E.I. DuPont de Nemours & Co.
Viton ..... DuPont Performance Elastomers



FITTING SIZE & TYPE	"A" DIM.
1/4 (M) VCR	4.88 ±.03 [124.0]
1/4 (M) VCO	4.56 ±.03 [115.8]
1/8 COMPRESSION	4.84 ±.03 [122.9]
1/4 COMPRESSION	5.02 ±.03 [127.5]
3/8 COMPRESSION	5.14 ±.03 [130.6]
6 MM COMPRESSION	5.02 ±.03 [127.5]
10 MM COMPRESSION	5.16 ±.03 [131.1]
3/8 OR 1/2 (M) VCR	5.18 ±.03 [131.6]
3/8 OR 1/2 (M) VCO	5.00 ±.03 [125.0]
1/4 (F) NPT	5.36 ±.03 [136.1]

Figure 2 Dimensions of Model 5866E Elastomer Seal

Brooks® Models 5866E & 5866M

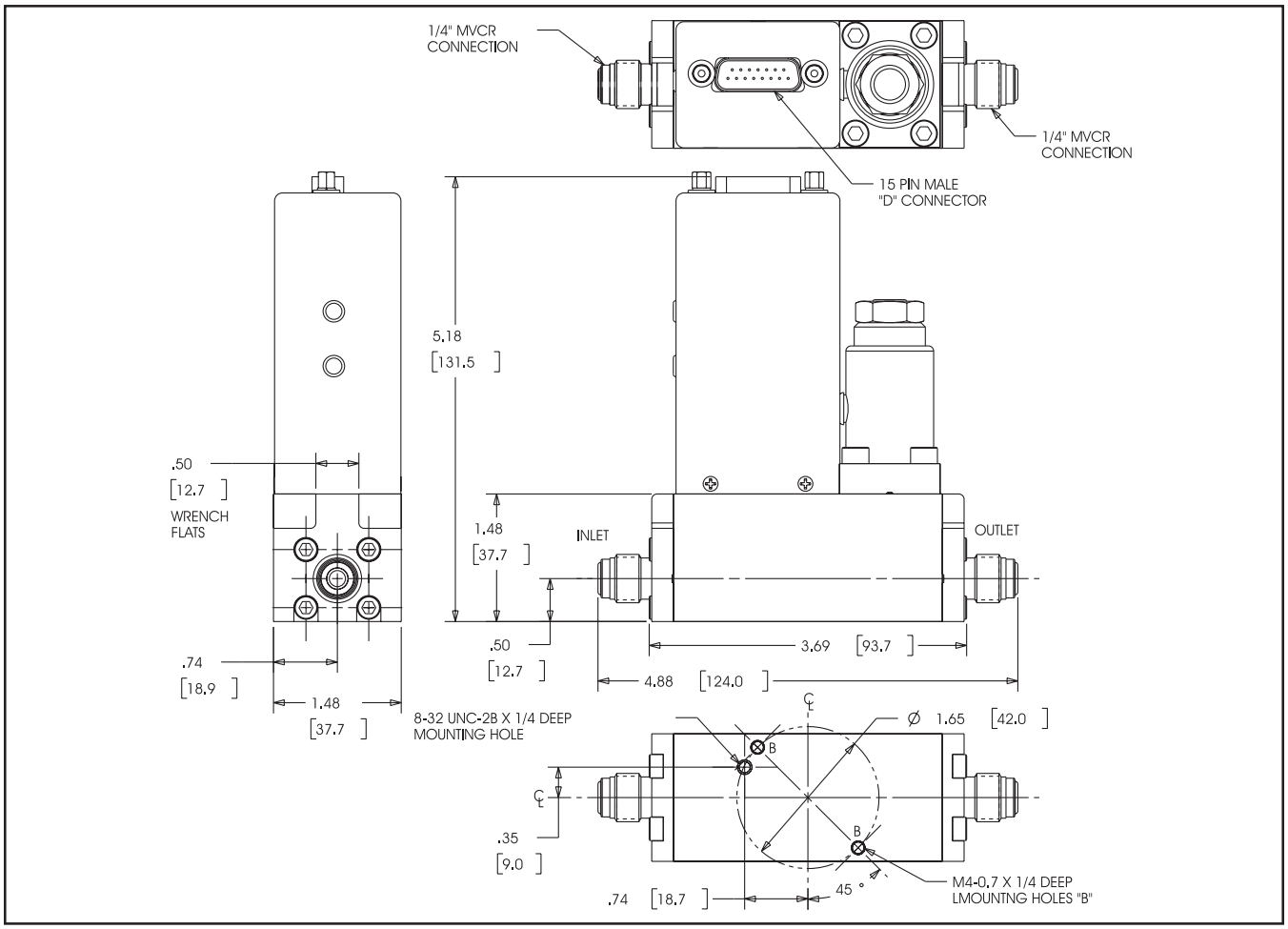


Figure 3 Dimensions of Model 5866M Metal Seal

BROOKS LOCAL AND WORLDWIDE SUPPORT

- Brooks Instrument provides sales and service facilities around the world.
- Calibration facilities are available in local sales and service offices. Certified by our local Weights and Measures Authorities and traceable to the relevant international standards.

START-UP SERVICE AND IN-SITU CALIBRATION

- Brooks Instrument can provide start-up service prior to operation when required, if necessary under in-situ conditions, and the results will be traceable to the relevant international quality standards.

CUSTOMER SEMINARS AND TRAINING

- Brooks® can provide customer seminars and dedicated training to engineers, end users and maintenance persons.

HELP DESK

In case you need technical assistance:

Americas	☎ 1-888-554-FLOW		
Europe	☎ +(31)-318-549-290	Within Netherlands	☎ 0318-549-290
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Due to Brooks Instrument's commitment to continuous improvement of our products, all specifications are subject to change without notice.

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