

# molbloc-L ranges with low pressure and downstream calibrations

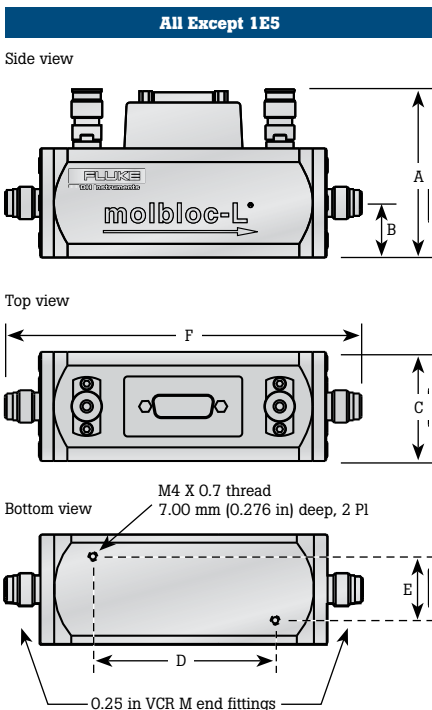
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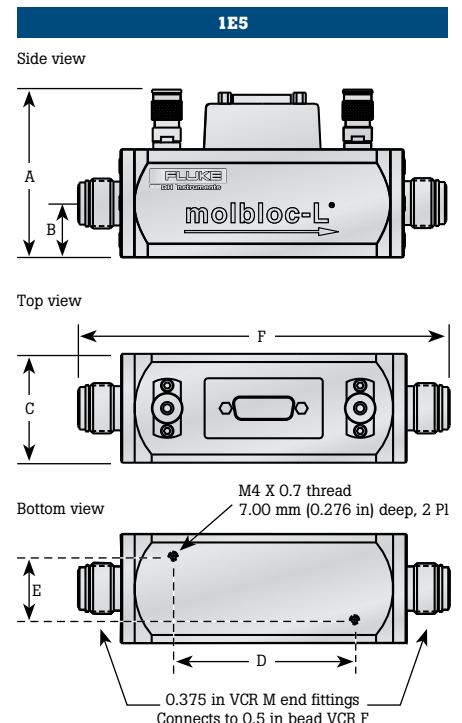
|                |                                    | molbloc size and full scale flow (sccm @ 0 °C) |     |         |           |           |            |             |              |               |               |                 |
|----------------|------------------------------------|--|-----|---------|-----------|-----------|------------|-------------|--------------|---------------|---------------|-----------------|
|                |                                    | Size   |     |         |           |           |            |             |              |               |               |                 |
| Gases          |                                    | 1E1  | 5E1 | 1E2     | 2E2       | 5E2       | 1E3        | 5E3         | 1E4          | 3E4           | 1E5           |                 |
| Inert          | Nitrogen                           | N <sub>2</sub>                                 | 10  | 50      | 100       | 200       | 500        | 1000        | 5000         | 10000         | 30000         | 100000          |
|                | Argon                              | Ar   | 10  | 50      | 100       | 200       | 500        | 1000        | 5000         | 10000         | 30000         | 80000           |
|                | Helium                             | He   | 10  | 50      | 100       | 200       | 500        | 1000        | 5000         | 10000         | 30000         | 100000          |
|                | Sulfur hexafluoride                | SF <sub>6</sub>                                | 10  | 50      | 100       | 200       | 500        | 1000        | 2000<br>500  | 6000<br>1000  | 6000<br>4000  | —               |
|                | Xenon                              | Xe   | 10  | 40      | 80        | 150       | 400        | 800         | 3500<br>500  | 8000          | 11000<br>3000 | 30000<br>20000  |
| Flammable      | Butane                             | C <sub>4</sub> H <sub>10</sub>                 | 20  | 100     | 130<br>30 | 270<br>50 | 670<br>140 | 2300        | 2200<br>1400 | 7000<br>3000  | —<br>—        | —               |
|                | Ethane                             | C <sub>2</sub> H <sub>6</sub>                  | 20  | 100     | 200       | 400       | 1000       | 2000        | 6000<br>1000 | 18000<br>2000 | 18000<br>6000 | 60000<br>50000  |
|                | Ethylene                           | C <sub>2</sub> H <sub>4</sub>                  | 16  | 18      | 160       | 320       | 800        | 1600        | 7000<br>1000 | 16000         | 20000<br>5000 | 70000<br>40000  |
|                | Hydrogen                           | H <sub>2</sub>                                 | 20  | 100     | 200       | 400       | 1000       | 2000        | 10000        | 20000         | 60000         | 200000          |
|                | Methane                            | CH <sub>4</sub>                                | 16  | 80      | 160       | 320       | 800        | 1600        | 8000         | 16000         | 40000<br>5000 | 120000<br>40000 |
|                | Propane                            | C <sub>3</sub> H <sub>8</sub>                  | 20  | 100     | 200       | 400       | 1000       | 2000        | 3000<br>1000 | 10000<br>2000 | 10000<br>7000 | —               |
| Fluoro-carbons | Carbon tetrafluoride               | CF <sub>4</sub>                                | 10  | 50      | 100       | 200       | 500        | 1000        | 4000<br>600  | 10000         | 12000<br>3000 | 36000<br>25000  |
|                | Hexafluoroethene                   | C <sub>2</sub> F <sub>6</sub>                  | 10  | 50      | 100       | 200       | 500        | 1000        | 2000<br>600  | 6000<br>1200  | 6000<br>4000  | —               |
|                | Trifluoromethane                   | CHF <sub>3</sub>                               | 10  | 50      | 100       | 200       | 500        | 1000        | 4000<br>600  | 10000         | 12000<br>4000 | 38000<br>30000  |
| Other          | Air                                | Air  | 10  | 50      | 100       | 200       | 500        | 1000        | 5000         | 10000         | 30000         | 100000          |
|                | Carbon dioxide                     | CO <sub>2</sub>                                | 10  | 50      | 100       | 200       | 500        | 1000        | 5000         | 10000         | 20000<br>4000 | 60000<br>30000  |
|                | Carbon monoxide                    | CO   | 10  | 50      | 100       | 200       | 500        | 1000        | 5000         | 10000         | 30000         | 100000          |
|                | Nitrous oxide                      | N <sub>2</sub> O                               | 10  | 50      | 100       | 200       | 500        | 1000        | 5000         | 10000         | 20000<br>4000 | 60000<br>30000  |
|                | Octafluorocyclobutane <sup>1</sup> | C <sub>4</sub> F <sub>8</sub>                  | 15  | 60<br>9 | 65<br>17  | 130<br>34 | 330<br>85  | 1100<br>175 | 1050<br>840  | 3400<br>1700  | —<br>—        | —               |
|                | Oxygen                             | O <sub>2</sub>                                 | 10  | 50      | 100       | 200       | 500        | 1000        | 5000         | 10000         | 30000         | 80000           |

See page 2 for footnotes.

## molbloc-L dimensions



|          | 5E3 and lower             | 1E4,3E4                   | 1E5                       |
|----------|---------------------------|---------------------------|---------------------------|
| <b>A</b> | 58.50 mm<br>(2.303 in)    | 74.50 mm<br>(2.933 in)    | 74.50 mm<br>(2.933 in)    |
| <b>B</b> | 16.00 mm<br>(0.630 in)    | 24.00 mm<br>(0.945 in)    | 24.00 mm<br>(0.945 in)    |
| <b>C</b> | 32.00 mm<br>(1.260 in) sq | 48.00 mm<br>(1.890 in) sq | 48.00 mm<br>(1.890 in) sq |
| <b>D</b> | 68.84 mm<br>(2.750 in)    | 80.00 mm<br>(3.150 in)    | 80.00 mm<br>(3.150 in)    |
| <b>E</b> | 19.06 mm<br>(0.750 in)    | 28.00 mm<br>(1.102 in)    | 28.00 mm<br>(1.102 in)    |
| <b>F</b> | 124.00 mm<br>(4.881 in)   | 157.00 mm<br>(6.181 in)   | 164.00 mm<br>(6.458 in)   |



End views

# molbloc-L ranges with high pressure calibrations

|                |                                    | molbloc size and full scale flow (sccm @ 0 °C) |     |           |           |            |             |             |               |               |                |            |
|----------------|------------------------------------|--|-----|-----------|-----------|------------|-------------|-------------|---------------|---------------|----------------|------------|
|                |                                    | Size   |     |           |           |            |             |             |               |               |                |            |
| Gases          |                                    | 1E1  | 5E1 | 1E2       | 2E2       | 5E2        | 1E3         | 5E3         | 1E4           | 3E4           | 1E5            |            |
| Inert          | Nitrogen                           | N <sub>2</sub>                                 | 20  | 100       | 200       | 400        | 1000        | 2000        | 10000         | 20000         | 40000<br>7500  | N/A        |
|                | Argon                              | Ar   | 20  | 100       | 200       | 400        | 1000        | 2000        | 10000         | 17000         | 35000<br>6000  | N/A        |
|                | Helium                             | He   | 20  | 100       | 200       | 400        | 1000        | 2000        | 10000         | 20000         | 65000          | N/A        |
|                | Sulfur hexafluoride                | SF <sub>6</sub>                                | 25  | 100<br>15 | 120<br>30 | 250<br>50  | 600<br>150  | 2000<br>300 | 2000<br>1400  | 6200<br>2800  | –<br>–         | N/A<br>N/A |
|                | Xenon                              | Xe   | 20  | 100       | 150       | 350        | 650         | 1700        | 3350<br>950   | 11000<br>1900 | 11000<br>5700  | N/A        |
| Flammable      | Butane <sup>2</sup>                | C <sub>4</sub> H <sub>10</sub>                 | N/A | N/A       | N/A       | N/A        | N/A         | N/A         | N/A           | N/A           | N/A            | N/A        |
|                | Ethane                             | C <sub>2</sub> H <sub>6</sub>                  | 40  | 200       | 350<br>50 | 700<br>100 | 1800<br>200 | 4000        | 6000<br>2300  | 20000<br>4500 | 20000<br>13800 | N/A<br>N/A |
|                | Ethylene                           | C <sub>2</sub> H <sub>4</sub>                  | 40  | 200       | 350       | 700        | 1800        | 4000        | 7000<br>2000  | 22000<br>4000 | 22000<br>12700 | N/A        |
|                | Hydrogen                           | H <sub>2</sub>                                 | 40  | 200       | 400       | 900        | 2000        | 4500        | 22000         | 45000         | 130000         | N/A        |
|                | Methane                            | CH <sub>4</sub>                                | 35  | 175       | 350       | 700        | 1700        | 3500        | 13000<br>2000 | 33000         | 42000<br>12000 | N/A        |
|                | Propane                            | C <sub>3</sub> H <sub>8</sub>                  | 50  | 200<br>25 | 200<br>50 | 400<br>100 | 1000<br>250 | 3500<br>500 | 3500<br>2600  | 11000<br>5400 | –<br>–         | N/A        |
| Fluoro-carbons | Carbon tetrafluoride               | CF <sub>4</sub>                                | 20  | 100       | 200       | 400        | 1000        | 2000        | 3700<br>1200  | 12000<br>2400 | 12000<br>7300  | N/A        |
|                | Hexafluoroethene                   | C <sub>2</sub> F <sub>6</sub>                  | 25  | 100<br>15 | 120<br>30 | 250<br>50  | 600<br>150  | 2000<br>300 | 1800<br>1500  | 6000<br>3000  | –<br>–         | N/A        |
|                | Trifluoromethane                   | CHF <sub>3</sub>                               | 25  | 125       | 240<br>30 | 450<br>60  | 1200<br>150 | 2500        | 4000<br>1500  | 12000<br>3000 | 12000<br>8800  | N/A        |
| Other          | Air                                | Air  | 20  | 100       | 200       | 400        | 1000        | 2000        | 10000         | 20000         | 40000<br>7200  | N/A        |
|                | Carbon dioxide                     | CO <sub>2</sub>                                | 25  | 125       | 250       | 500        | 1250        | 2500        | 6600<br>1400  | 20000<br>2500 | 40000<br>8800  | N/A        |
|                | Carbon monoxide                    | CO   | 20  | 100       | 200       | 400        | 1000        | 2000        | 10000         | 20000         | 40000<br>7500  | N/A        |
|                | Nitrous oxide                      | N <sub>2</sub> O                               | 25  | 125       | 250       | 500        | 1250        | 2500        | 11000<br>1500 | 20000<br>3000 | 20000<br>9000  | N/A        |
|                | Octafluorocyclobutane <sup>2</sup> | C <sub>4</sub> F <sub>8</sub>                  | N/A | N/A       | N/A       | N/A        | N/A         | N/A         | N/A           | N/A           | N/A            | N/A        |
|                | Oxygen                             | O <sub>2</sub>                                 | 20  | 100       | 200       | 400        | 1000        | 2000        | 10000         | 20000         | 40000<br>6500  | N/A        |

A bold value indicates that the maximum flow is limited by the maximum Reynolds number value of 1 200 which is reached before the normal differential pressure range is reached. In that case, the second value gives the minimum flow for which measurement uncertainty (accuracy) is equal to the nominal uncertainty specification. Divide the second value by 10 when using molbox RPM micro-range option.

Where there is no value in the field (–), this indicates that the maximum Reynolds number is reached before the differential pressure reaches 5 kPa (1 kPa in the case of the 1E5 molbloc), therefore calibration with that gas is not useful.

<sup>1</sup> Due to low vapor pressure, only downstream calibration type is available.

<sup>2</sup> The operating pressure range is greater than the vapor pressure value for this gas.

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