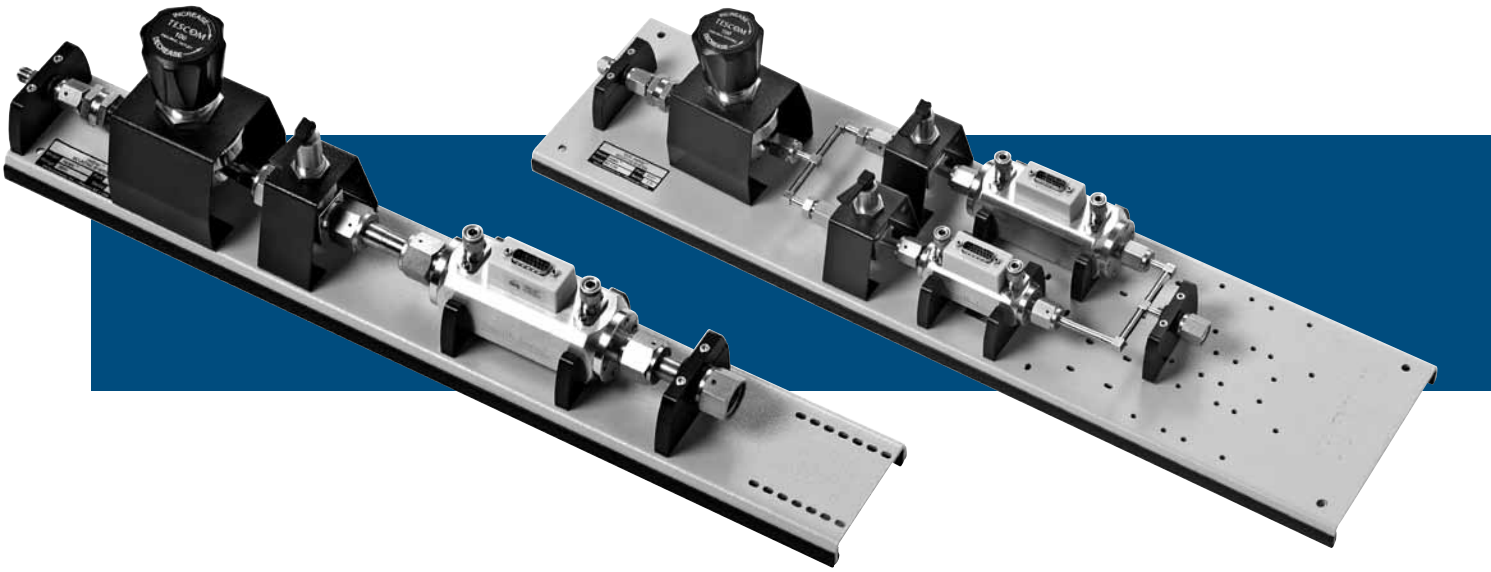
FLUKE®

Calibration

molstic-L™

Mounting Systems for molbloc-L® Mass Flow Elements

Technical Data



molstic molbloc mounting systems are available to assist you in realizing the full performance benefits of your molbloc/molbox™ system. molstics provide an engineered solution to the practical issues of mounting the molbloc, connecting a gas supply, regulating the pressure and connecting the device to be tested. Highest quality components are integrated into a compact assembly to assure optimum molbloc/molbox performance.

molstics provide a quick connector input for convenient connection to the gas supply. This is followed by a 2 micron (0.5 micron for low flow) filter to protect the downstream components. Then, an adjustable regulator sets and regulates optimum molbloc upstream pressure and protects the molbox transducers against accidental overpressure. The regulator range supports all standard molbloc operating pressure ranges. A bellows shut-off valve, just before the molbloc, allows the gas supply to be shut-off for configuration changes and/or system leak checking. Special cradles support the molbloc(s). A connection and pads are provided downstream of the molbloc for mounting the MFC (mass flow controller), another device under test, or the optional metering valve kit for manual flow control.

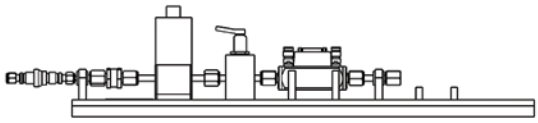
Single channel molstics are available to accommodate single molblocs. Dual channel models allow two molblocs to be mounted simultaneously to switch between two different molbloc ranges without changing hardware or to take advantage of molbox1's capability to run two molblocs in parallel.

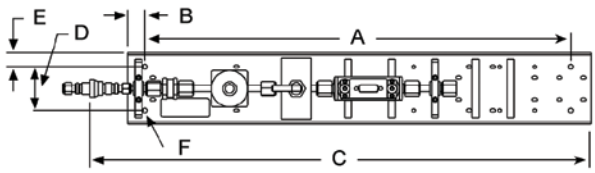
There are low, mid and high flow versions of molstic. Low flow molstics use a unique, very high stability pressure regulator and minimize dead volumes. They are required for effective use of 2E2-L and lower molblocs and can be used up to the 1E3-L molbloc size. The mid flow molstics cover the ranges of all the molblocs from as low 2E2-L up to the 3E4-L. The high flow molstic is required for the 1E5-L (100 slm) molbloc and supports that molbloc only.

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Calibration

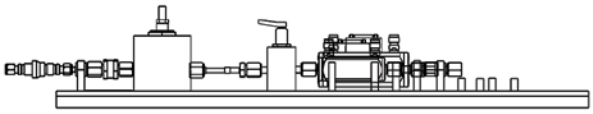
Pneumatic schematic

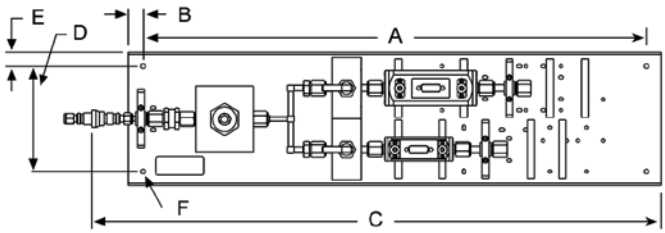
single, low flow



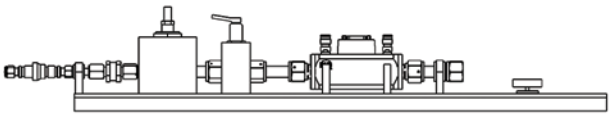


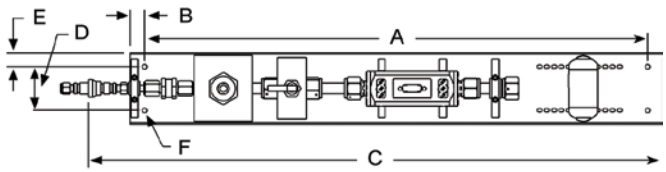
dual, mid flow





single, hi flow





Dimensions

	A	B	C	D	E	F
Single, low flow	584 mm (22.99 in)	26 mm (1.02 in)	687.3 mm (27.06 in)	60 mm (2.36 in)	19 mm (0.75 in)	6.40 mm (0.252 in) mounting holes, 4 PL
Dual, mid flow	690 mm (27.17 in)	20 mm (0.79 in)	752.4 mm (29.62 in)	144 mm (5.67 in)	19 mm (0.75 in)	6.40 mm (0.252 in) mounting holes, 4 PL
Single, hi flow	690 mm (27.17 in)	20 mm (0.79 in)	787.7 mm (31.01 in)	60 mm (2.36 in)	19 mm (0.75 in)	6.40 mm (0.252 in) mounting holes, 4 PL

Configuration notes

- 1E1-L to 5E3-L molblocs are "small" molblocs. 1E4-L to 1E5-L molblocs are "large" molblocs. The 1E5-L molbloc is unique due to its end fittings.
- The hi flow molstic supports only the 1E5-L molbloc with 1/2 in. VCR male end fittings. Low and mid flow molstics can only be used with molblocs having 1/4 in. VCR male end fittings (1E1-L to 3E4-L molblocs).
- The downstream connection of low and mid flow molstics is 1/4 in. VCR female and an adaptor to 1/4 in. male Swagelok is provided. The downstream connection of the hi flow molstic is 1/2 in. VCR female and a 1/4 in. VCR female adaptor is provided.
- The optimum range distribution between low and mid flow molstics is low for molblocs of 1E3-L and below and mid for molblocs from 5E3-L to 3E4-L. The 1E5-L molbloc requires the hi flow molstic which supports no other molbloc size.
- Mid molstics are designed to mount either large or small sized molblocs. Same size molblocs can be interchanged quickly on any molstic. More effort is required to interchange molblocs of different sizes.

Ordering information

Model
molstic single, low flow Single molbloc, 1E3-L or lower
molstic dual, low flow Two molblocs, 1E3-L or lower
molstic single, mid flow Single molbloc, 2E2-L to 3E4-L
molstic single, mid flow Two molblocs, 2E2-L to 3E4-L
molstic single, hi flow Single molbloc, 1E5-L only

Accessories
Tee, Downstream for dual mid molstic Connect two same size molblocs together at outlet
Tee, Downstream, lrg/sml for dual mid molstic Connect large and small size molblocs together at outlet
Metering Valve low flow molstic Install on molstic downstream of molbloc for manual flow control
Metering Valve mid/hi flow molstic Install on molstic downstream of molbloc for manual flow control

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Fax +31 (0) 40 2675 222
In Canada (800)-36-FLUKE or
Fax (905) 890-6866
From other countries +1 (425) 446-5500 or
Fax +1 (425) 446-5116
Web access: http://www.fluke.com

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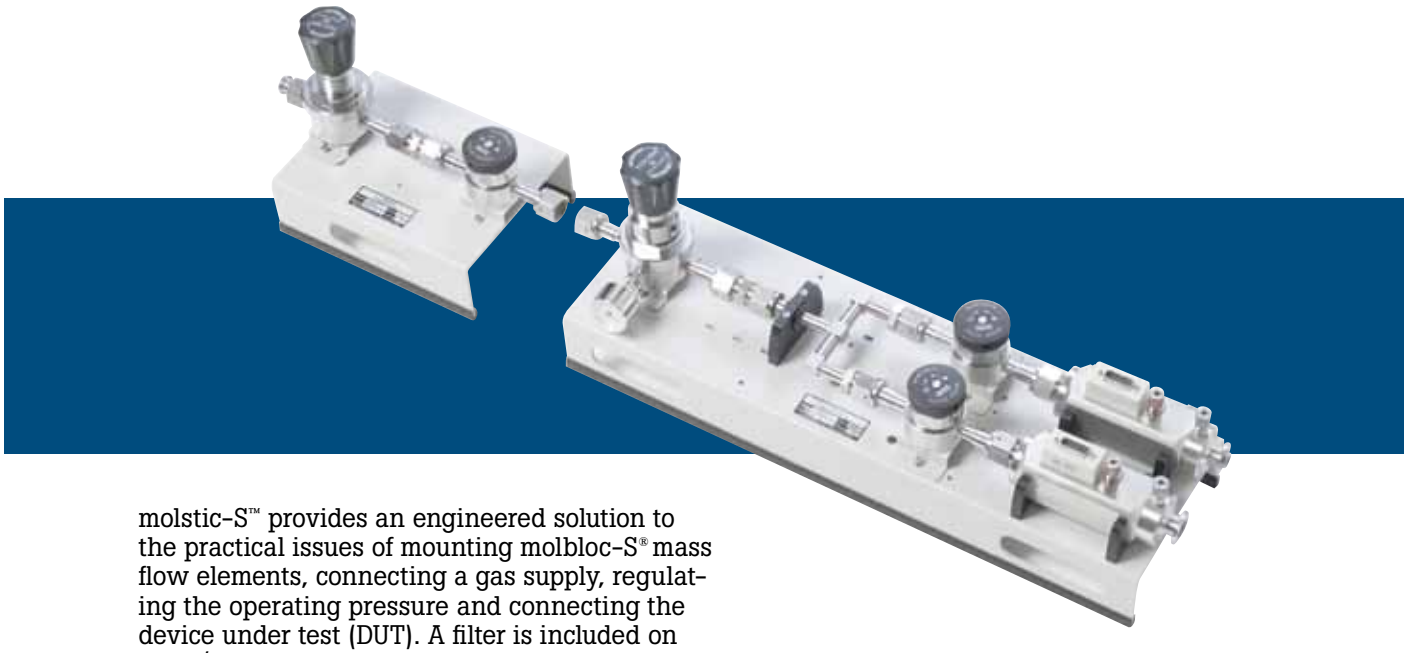
FLUKE®

Calibration

molstic-S™

Mounting System for molbloc-S® Mass Flow Elements

Technical Data



molstic-S™ provides an engineered solution to the practical issues of mounting molbloc-S® mass flow elements, connecting a gas supply, regulating the operating pressure and connecting the device under test (DUT). A filter is included on the 1/4 inch molstic-S to protect the smaller molbloc-S elements from contamination. Highest quality components are integrated into a convenient, compact, modular assembly to assure optimum molbloc®/molbox™ performance.

The single channel molstic-S is designed to accommodate one molbloc-S element. The dual channel allows two molbloc-S elements to be simultaneously mounted, allowing use of two ranges without changing hardware during a test. In addition, the outlet of the two molbloc-S elements can be plumbed in parallel using the downstream tee assembly (P/N 401884) in order to obtain additional flow range capacity when using a two-channel molbox1.

A key benefit of its modular design is that molstic-S can be used for testing devices in either the upstream or downstream position. The optional, adjustable DUT stand (P/N 401934) accommodates large DUTs that do not fit on the molstic-S.

molstic-S is available in either 1/2 inch or 1/4 inch system plumbing sizes. The 1/4 inch size is dedicated to the molbloc-S elements designated 1E2-S and lower, and the 1/2 inch size is for the 2E2-S through 2E3-S elements.

All molstic-S platforms come with integrated flow shut-off/metering valves. This allows for system leak testing and provides a means of flow control (if required by DUT type). Optional high resolution metering valve kits are available for use with the 1/4 inch molstic-S in order to obtain finer flow control capability.

molstic-S USAGE

Because molbloc-S operates in the critical flow regime, test devices that have flow control capability must be installed upstream of the molbloc-S in order to control flow.

Devices that are to be calibrated at atmospheric pressure are generally installed downstream of the molbloc-S. molstic-S is built modularly in order to provide this flexibility.

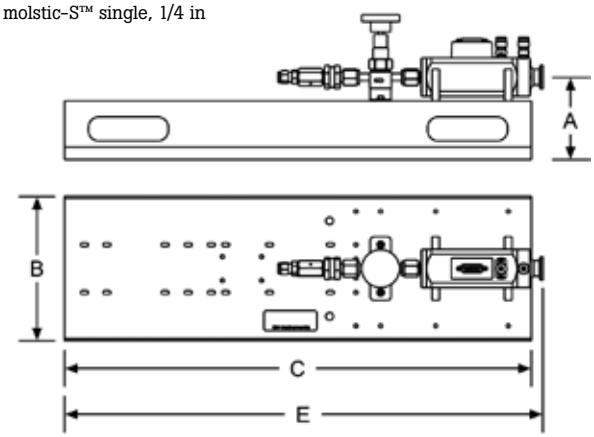
Inlet gas supply pressure regulation is vitally important in order to protect the molbox pressure transducers. Therefore, it is recommended that the molstic-S Supply Only molstic be used upstream of test devices that have flow control capability and that the pressure reducing regulator option be installed on the molstic-S when calibrating devices that operate at atmospheric pressure.

An optional back pressure regulator can be installed on the molstic-S to provide control of an upstream DUT's downstream pressure.

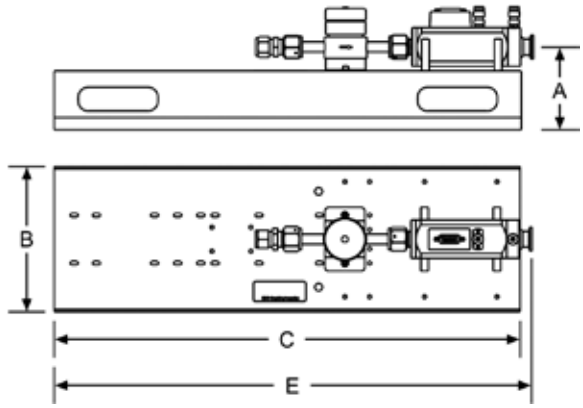
FLUKE®
Calibration

Configurations

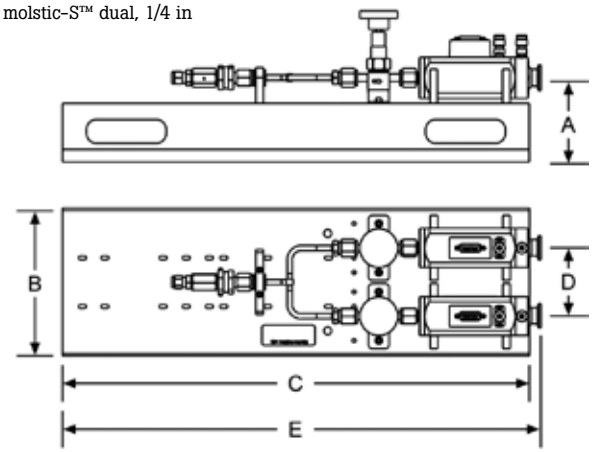
molstic-S™ single, 1/4 in



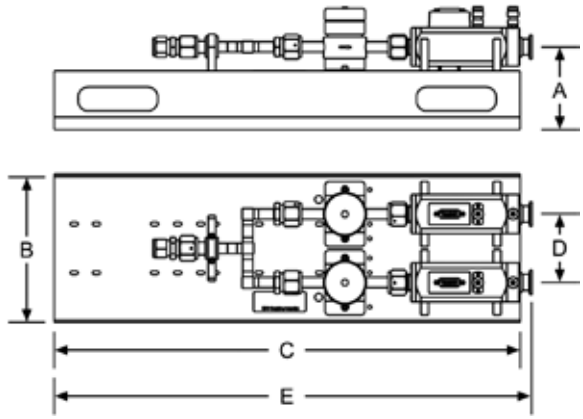
molstic-S™ single, 1/2 in



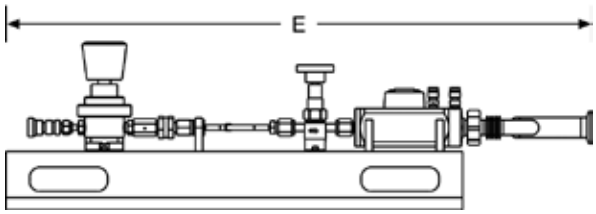
molstic-S™ dual, 1/4 in



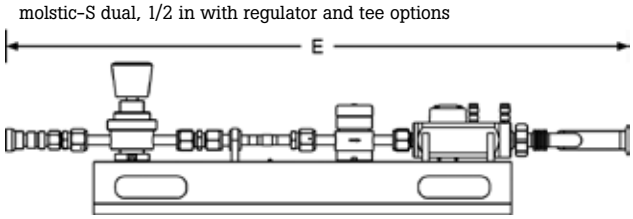
molstic-S™ dual, 1/2 in



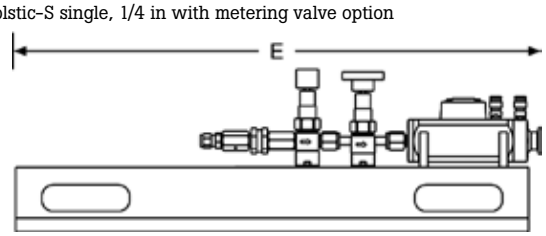
molstic-S dual, 1/4 in with regulator and tee options



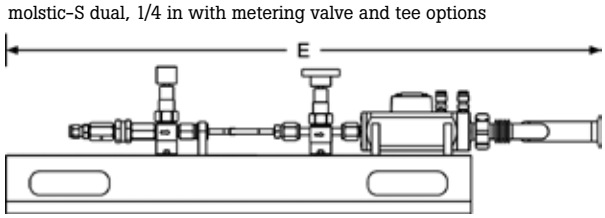
molstic-S dual, 1/2 in with regulator and tee options



molstic-S single, 1/4 in with metering valve option



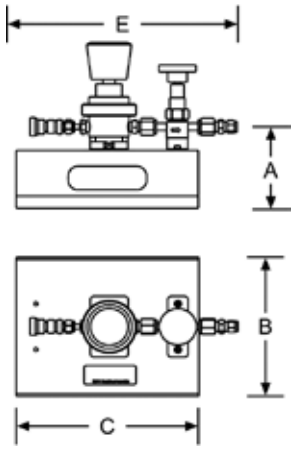
molstic-S dual, 1/4 in with metering valve and tee options



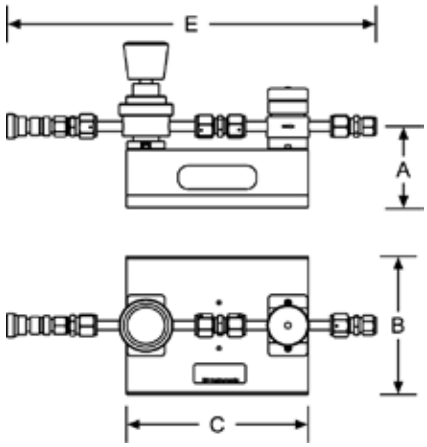
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Calibration

Configurations

molstic-S supply only, 1/4 in



molstic-S supply only, 1/2 in



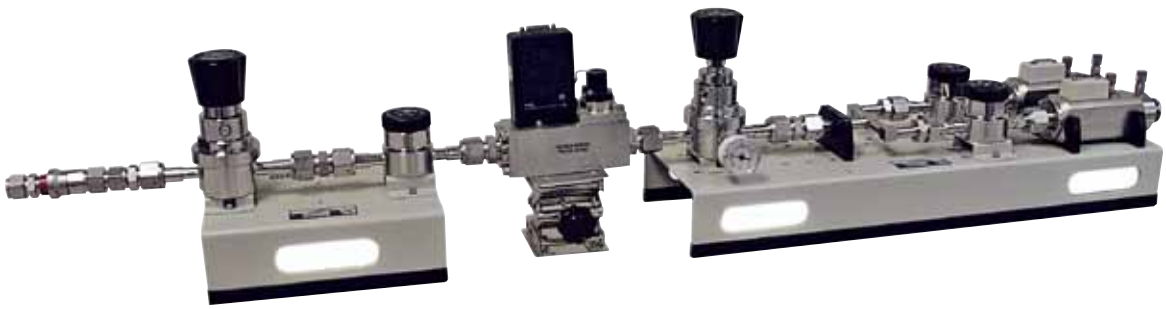
Dimensions

molstic-S	A	B	C	D	E
molstic-S single, 1/4 in	103.5 mm (4 in)	182 mm (7 in)	590 mm (23 in)	–	600 mm (23.6 in)
molstic-S single, 1/2 in	103.5 mm (4 in)	182 mm (7 in)	590 mm (23 in)	–	600 mm (23.6 in)
molstic-S dual, 1/4 in	103.5 mm (4 in)	182 mm (7 in)	590 mm (23 in)	84 mm (3.3 in)	600 mm (23.6 in)
molstic-S dual, 1/2 in	103.5 mm (4 in)	182 mm (7 in)	590 mm (23 in)	84 mm (3.3 in)	600 mm (23.6 in)
dual, 1/4 in w/regulator and tee	103.5 mm (4 in)	182 mm (7 in)	590 mm (23 in)	84 mm (3.3 in)	750 mm (29.5 in)
dual, 1/2 in w/regulator and tee	103.5 mm (4 in)	182 mm (7 in)	590 mm (23 in)	84 mm (3.3 in)	875 mm (34.5 in)
single, 1/4 in w/metering valve	103.5 mm (4 in)	182 mm (7 in)	590 mm (23 in)	–	600 mm (23.6 in)
dual, 1/4 w/metering valve and tee	103.5 mm (4 in)	182 mm (7 in)	590 mm (23 in)	84 mm (3.3 in)	875 mm (34.5 in)
supply only, 1/4 in	103.5 mm (4 in)	182 mm (7 in)	232 mm (09 in)	–	280 mm (11.0 in)
supply only, 1/2 in	103.5 mm (4 in)	182 mm (7 in)	232 mm (09 in)	–	471 mm (18.5 in)

Configuration notes

- Each molstic-S comes with 50 centimeters (20 inches) of clear PFA tubing in order to provide versatility in the connection of the device under test (DUT) and inlet supply plumbing.
- All molstic-S platforms come with integrated flow shut-off/metering valves. This allows for system leak testing and provides a means of flow control (if required by DUT type).
- The 1/4 inch molstic-S platforms are designed to be used with the molbloc-S elements designated 1E2-S and lower. The 1/2 inch molstic-S platforms are designed for use with the 2E2-S through 2E3-S elements. P/N 401935 replaces the 1/2 inch molbloc-S inlet flange of the higher flow elements so that they can be used on the 1/4 inch molstic-S. This is only recommended for 2E2-S molbloc-S element with either calibration type, or the 5E2-S with the LP calibration.
- P/N 401936 replaces the 1/4 inch molbloc-S inlet flange of the lower flow molblocs so that they can be used on the 1/2 inch molstic-S. This is only recommended for 1E2-S molbloc-S element.

Typical "upstream DUT" 1/2 inch includes supply only, adjustable DUT stand and molstic-S with back pressure regulator option



FLUKE®
Calibration

Ordering information

Model

molstic-S, Single, 1/4 in For use with single molbloc-S, 1E2-S and lower
molstic-S, Single 1/2 in For use with single molbloc-S, 2E2-S thru 2E3-S
molstic-S, Dual, 1/4 in For use with two molbloc-S, 1E2-S and lower
molstic-S, Dual, 1/2 in For use with two molbloc-S, 2E2-S thru 2E3-S
molstic-S Supply Only, 1/4 in Upstream regulation platform, 1/4 in
molstic-S Supply Only, 1/2 in Upstream regulation platform, 1/2 in

Options

Regulator, 1/4 in Installed on 1/4 in molstic-S for downstream DUTs
Regulator, 1/2 in Installed on 1/2 in molstic-S for downstream DUTs
Back Pressure Regulator, 1/4 in Installed on 1/4 in molstic-S for control of upstream pressure
Back Pressure Regulator, 1/2 in Installed on 1/2 in molstic-S for control of upstream pressure
Metering Valve, Low, 1/4 in Installed on 1/4 in molstic-S for metering flows up to 20 slm
Metering Valve, Mid, 1/4 in Installed on 1/4 in molstic-S for metering flows up to 100 slm

Accessories

Regulator, for molstics-S, 1/4 in Upgrade adds upstream pressure regulator to 1/4 in molstic-S
Regulator, for molstics-S, 1/2 in Upgrade adds upstream pressure regulator to 1/2 in molstic-S
Back Pressure Regulator, for molstics-S, 1/4 in Upgrade adds back pressure regulator to 1/4 in molstic-S
Back Pressure Regulator, for molstics-S, 1/2 in Upgrade adds back pressure regulator to 1/2 in molstic-S
PK-MOL-S-VAC, dwn V ac Connect, Mid/low Accessories to interconnect vacuum pump to molbloc-S, or downstream tee assembly (P/N 401884)
VA-MOL-S, V ac Pump Kit, Low, Std Vacuum pump kit for 250 slm (up to 5E2-S)
VA-MOL-S, V ac Pump Kit, Mid, Std Vacuum pump kit for 1000 slm (up to 5E3-S)
VA-MOL-S, V ac Pump Kit, Mid, PFPE Vacuum pump kit for 1000 slm (up to 5E3-S), special cleaning/oil
Tee assembly, for molbloc-S, downstream Connects output of two molbloc-S elements for A+B, or common vacuum connection
Metering Valve Kit, molstic-S, 1/4 in, low Kit installs on 1/4 in molstic-S for metering flows up to 20 slm
Metering Valve Kit, molstic-S, 1/4 in, mid Kit installs on 1/4 in molstic-S for metering flows up to 100 slm
DUT stand, adjustable 3 in x 3 in adjustable platform for vertical alignment of DUT
End Flange Kit, for molbloc-S, 1/4 in VCR Replaces 1/2 in molbloc-S inlet flange for use on 1/4 in molstic-S (recommended for 2E2-S only)
End flange Kit, for molbloc-S, 1/2 in VCR Replaces 1/4 in molbloc-S inlet flange for use on 1/2 in molstic-S (recommended for 1E2-S only)

Accessories (Adapter kits)

PK-MOL-KF16-1/4SWG, Converts 6 mm ISO-KF Style vacuum flange to 1/4 in Swagelok
PK-MOL-KF16-3/8SWG, Converts 16 mm ISO-KF Style vacuum flange to 3/8 in Swagelok
PK-MOL-KF16-1/4VCR, Converts 16 mm ISO-KF Style vacuum flange to 1/4 in male VCR
PK-MOL-KF16-1/2VCR, Converts 16 mm ISO-KF Style vacuum flange to 1/2 in male VCR
PK-MOL-KF16-1/4FNPT, Converts 16 mm ISO-KF Style vacuum flange to 1/4 in female NPT
PK-MOL-KF16-1/4MNPT, Converts 16 mm ISO-KF Style vacuum flange to 1/4 in male NPT
PK-MOL-KF16-1/2MNPT, Converts 16 mm ISO-KF Style vacuum flange to 1/2 in male NPT
PK-MOL-KF25-1/4SWG, Converts 25 mm ISO-KF Style vacuum flange to 1/4 in Swagelok
PK-MOL-KF25-3/8SWG, Converts 25 mm ISO-KF Style vacuum flange to 3/8 in Swagelok
PK-MOL-KF25-1/2SWG, Converts 25 mm ISO-KF Style vacuum flange to 1/2 in Swagelok
PK-MOL-KF25-3/4SWG, Converts 25 mm ISO-KF Style vacuum flange to 3/4 in Swagelok
PK-MOL-KF25-1/4VCR, Converts 25 mm ISO-KF Style vacuum flange to 1/4 in male VCR
PK-MOL-KF25-1/2VCR, Converts 25 mm ISO-KF Style vacuum flange to 1/2 in male VCR
PK-MOL-KF25-1/4FNPT, Converts 25 mm ISO-KF Style vacuum flange to 1/4 in female NPT
PK-MOL-KF25-1/2FNPT, Converts 25 mm ISO-KF Style vacuum flange to 1/2 in female NPT
PK-MOL-KF25-3/4FNPT, Converts 25 mm ISO-KF Style vacuum flange to 3/4 in female NPT
PK-MOL-KF25-1FNPT, Converts 25 mm ISO-KF Style vacuum flange to 1 in female NPT
PK-MOL-KF25-1/4MNPT, Converts 25 mm ISO-KF Style vacuum flange to 1/4 in male NPT
PK-MOL-KF25-1/2MNPT, Converts 25 mm ISO-KF Style vacuum flange to 1/2 in male NPT
PK-MOL-KF25-3/4MNPT, Converts 25 mm ISO-KF Style vacuum flange to 3/4 in male NPT
PK-MOL-KF25-1MNPT, Converts 25 mm ISO-KF Style vacuum flange to 1 in male NPT
PK-MOL-KF40-1/2SWG, Converts 40 mm ISO-KF Style vacuum flange to 1/2 in Swagelok
PK-MOL-KF40-3/4SWG, Converts 40 mm ISO-KF Style vacuum flange to 3/4 in Swagelok
PK-MOL-KF40-1SWG, Converts 40 mm ISO-KF Style vacuum flange to 1in Swagelok
PK-MOL-KF40-1/2FNPT, Converts 40 mm ISO-KF Style vacuum flange to 1/2 in female NPT
PK-MOL-KF40-3/4FNPT, Converts 40 mm ISO-KF Style vacuum flange to 3/4 in female NPT
PK-MOL-KF40-1FNPT, Converts 40 mm ISO-KF Style vacuum flange to 1 in female NPT
PK-MOL-KF40-1/2MNPT, Converts 40 mm ISO-KF Style vacuum flange to 1/2 in male NPT
PK-MOL-KF40-3/4MNPT, Converts 40 mm ISO-KF Style vacuum flange to 3/4 in male NPT
PK-MOL-KF40-1MNPT, Converts 40 mm ISO-KF Style vacuum flange to 1 in male NPT

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