LEE IMH 2.5mm INSERT STYLE ORIFICE (for gases*)

The new Lee IMH 2.5mm orifice for gases is the smallest, self-retained restrictor available, allowing designers to save space and weight, while reducing overall design and assembly time. This new orifice is 100% flow tested on nitrogen to ensure that every part is within ±5% of its nominal flow rate, providing more consistent system performance and reducing the need for system rework. Flow tolerances as tight as this are only possible if entrance and exit conditions of the orifice are closely controlled. This provides far more accuracy than an orifice specified by hole tolerance. An ordinary hole held to a very tight tolerance will not result in a tight flow tolerance.

Constructed entirely of stainless steel, the Insert Orifice is available in a range of Lohm† rates and certain models are offered with an integral safety screen.

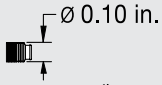
Installation is simple using Lee's field-proven controlled expansion principle which provides retention and creates a leak tight seal that prevents bypass leakage. To install, simply insert the orifice into a drilled hole and drive the expansion pin into the orifice body to seal and lock the orifice in place.

† The Lohm is a measure of flow resistance.

** For liquid applications, bidirectional flow requirements, other Lohm rates, or tighter flow tolerances, contact your Lee Sales Engineer for more information.*

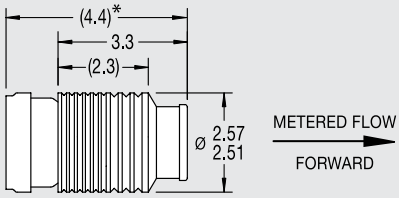
- 100% flow tested for consistent flow performance
- All stainless steel construction
- Simple installation
- Screened models available

ACTUAL SIZE (as installed)

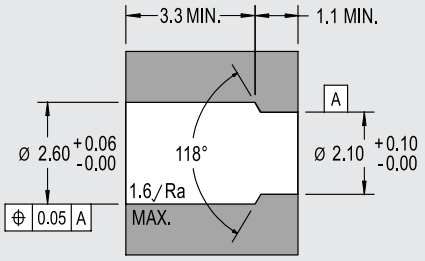


(Unscreened)

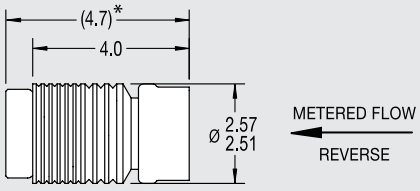
IMH ORIFICE SCREENED FORWARD FLOW



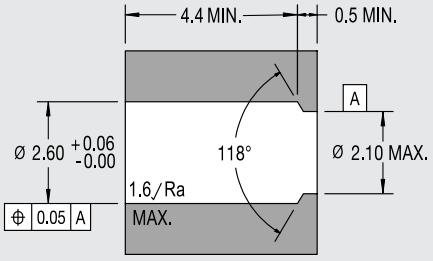
INSTALLATION HOLE SCREENED FORWARD FLOW



IMH ORIFICE SCREENED REVERSE FLOW



INSTALLATION HOLE SCREENED REVERSE FLOW



** LOA before installation.*

All dimensions in millimeters, except where noted.

PART NUMBERS – METERED FLOW DIRECTION		NOMINAL LOHM†	
FORWARD	REVERSE	RATE ± 5%	SCREENED
RIGF2553080S	RIGR2553080S	8000	Yes – 40 micron
RIGF2553100S	RIGR2553100S	10000	Yes – 40 micron
RIGF2553120S	RIGR2553120S	12000	Yes – 40 micron
RIGF2553150S	RIGR2553150S	15000	Yes – 40 micron
RIGF2553200S	RIGR2553200S	20000	Yes – 40 micron
RIGF2553250S	RIGR2553250S	25000	Yes – 40 micron
RIGF2553300S	RIGR2553300S	30000	Yes – 40 micron
RIGF2553400S	RIGR2553400S	40000	Yes – 40 micron
RIGF2553450S	RIGR2553450S	45000	Yes – 40 micron

THE LEE COMPANY – IMH GROUP
22 PEQUOT PARK, WESTBROOK, CT 06498

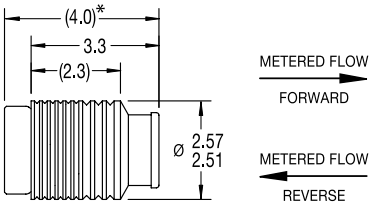
Tel: 860-399-6281
Fax, Order Entry: 860-399-7058
Fax, Technical Information: 860-399-7037
Web: www.leeimh.com

PDS 95 8/08

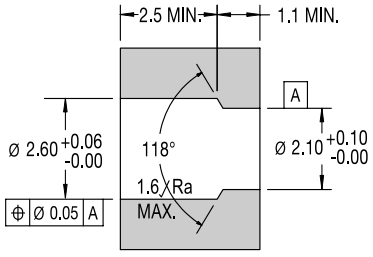
Innovation in Miniature

LEE IMH 2.5mm INSERT STYLE ORIFICE (for gases)

IMH ORIFICE UNSCREENED



INSTALLATION HOLE UNSCREENED



* *LOA before installation.*

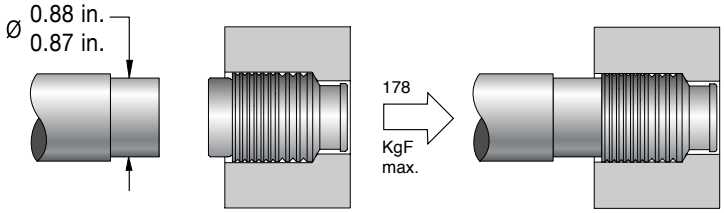
PART NUMBERS METERED FLOW DIRECTION		NOMINAL LOHM†	
FORWARD	REVERSE	RATE ± 5%	SCREENED
RIGF2551012S	RIGR2551012S	1200	No
RIGF2551015S	RIGR2551015S	1500	No
RIGF2551020S	RIGR2551020S	2000	No
RIGF2551025S	RIGR2551025S	2500	No
RIGF2551030S	RIGR2551030S	3000	No
RIGF2551040S	RIGR2551040S	4000	No
RIGF2551050S	RIGR2551050S	5000	No
RIGF2551060S	RIGR2551060S	6000	No

† *The Lohm is a measure of flow resistance.*

All dimensions in millimeters, except where noted.

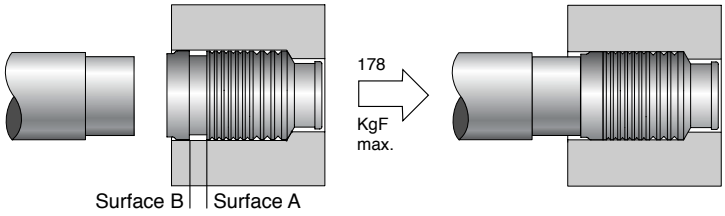
SIMPLE TO INSTALL

UNSCREENED AND SCREENED REVERSE



Insert the IMH orifice into a drilled installation hole. Seal and lock in place by driving in the expander pin. Installation tool can bottom on valve body with no consequence. Exposed ends of pin and insert will be flush to within +0.25mm (+0.010") above flush of each other. Lee Installation Tool Part Number CCRT0029354S is available.

SCREENED FORWARD



Insert the IMH orifice into a drilled installation hole. Seal and lock in place by driving in the screened expander pin. Surface A and B will be flush within +0.25mm (+0.010") of each other. Lee Installation Tool Part Number CCRT0029354S is available.

LOHMS LAWS (gases)

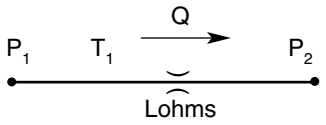
The Lohm Laws are a simple system of defining the fluid resistance of Lee Components. Just as the OHM is used in the electrical industry, we can use the "Liquid Ohm", or "Lohm" to quantify the restriction of hydraulic or pneumatic components.

The Lohm has been selected so that a 100 Lohm restriction will permit a flow of 250 standard liters per minute of nitrogen at a temperature of 59°F, and an upsteam pressure of 90 psia discharging to atmosphere.

The Lohm Laws extend the definition of Lohms for gas flow at any pressure and temperature, and with any gas. The formulas work well for all gases because they are corrected for the specific gas, and for the flow region and incompressibility of low pressure gases.

$$L = \frac{K\, f_T\, P_1}{Q} \qquad \text{(Sonic region) i.e. } P_1/P_2 \geq 1.9$$

$$L = \frac{2\, K\, f_T \sqrt{\Delta P\, P_2}}{Q} \qquad \text{(Subsonic region) i.e. } P_1/P_2 < 1.9$$



GAS FLOW – UNITS CONSTANT "K"

To eliminate the need to convert pressure and flow parameters into specific units such as "psia" and "std L/min.", the table below lists values of the Units Constant "K", which is used in the Gas Flow Lohm Formulas:

VOLUMETRIC FLOW UNITS							
Abs. Pres	psia			bar		kPa	mm.Hg
Flow	SLPM	SCFM	in³/min	SLPM	SCFM	SLPM	mL/min
He	771	27.2	47 100	11 200	395	112	14 900
N_2	276	9.73	16 800	4 000	141	40.0	5 330
Air	271	9.56	16 500	3 930	139	39.3	5 230
O_2	257	9.08	15 700	3 730	132	37.3	4 970
CO_2	213	7.52	13 000	3 090	109	30.9	4 110

For more information on Lohms, visit us at www.TheLeeCo.com or contact your Lee Sales Engineer.

NOMENCLATURE

- L = Lohms
- K = Units Constant – Gas (see chart left)
- f_T = Temperature correction factor
- P_1 = Upstream absolute pressure
- P_2 = Downstream absolute pressure
- Q = Gas flow rate
- $\Delta P = P_1 - P_2$

1. Compute the P_1/P_2 pressure ratio.
2. Select the correct formula for the flow region.
3. Look up the value of "K" for the gas.
4. Determine the temperature correction factor, " f_T".
   f_T = 1.0 @ room temperature (70°F)

$$f_T = \sqrt{\frac{530}{T\,(°F) + 460}}$$

5. Use the formula to solve for the unknown.

Tel: 860-399-6281
Fax, Order Entry: 860-399-7058
Fax, Technical Information: 860-399-7037
Web: www.leeimh.com