

**DESCRIPTION**

Micro-Lok HP fiberglass pipe insulation is a high-performance insulation made from biosoluble glass fibers bonded with a thermosetting resin and produced in 36" (0.92 m) lengths. Micro-Lok HP insulation is used to insulate standard iron pipe, plastic pipe and copper tubing. The 3' (0.92 m) sections are available plain or with a factory-applied vapor-barrier jacket. The all-service (ASJ) vapor-retarder jacket includes a longitudinal, self-sealing closure lap. The jacket system is adhered to each fiberglass section using a specially formulated adhesive to ensure jacket securement.

The factory-installed tape system permits installation at ambient temperatures down to 20°F (-7°C) and will not soften or separate when exposed to high ambient temperatures and humidity.

**USES**

Micro-Lok HP fiberglass pipe insulation is suitable for installation over hot, cold, concealed and exposed piping systems with operating temperatures up to 850°F (454°C). Weather-protective jacketing is required for outdoor applications. Pipes operating below ambient temperatures require all joints to be sealed with the factory-applied, self-seal lap and butt strips. Micro-Lok HP is UL listed and labeled over plastic pipes for air plenum applications when used at 1.0" thickness or greater.

**PHYSICAL PROPERTIES**

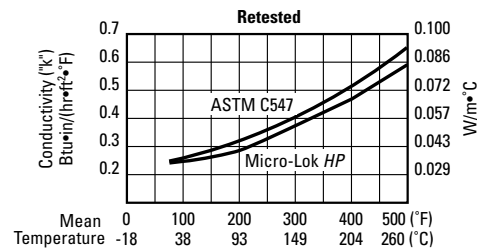
Service Temp. Range (ASTM C411)	0°F to 850°F (-18°C to 454°C)
Moisture Sorption	<5% by weight
Corrosivity (ASTM C1617)	<5 ppm chloride standard
Shrinkage (ASTM C356)	None
Microbial Growth (ASTM C1338)	Does not promote microbial growth
Surface Burning Characteristics	Composite FHC 25/50 per ASTM E84, NFPA 255, CAN/ULC S102.2
Limited Combustibility	NFPA 90A and 90B
Jacketing	ASTM C1136 (Type I & II)
Water Vapor Permeance (ASTM E96 – Procedure A)	0.02 perms max.
Burst Strength (ASTM D774)	55 lbs/in <sup>2</sup> (4.6 Kg/cm <sup>2</sup> )
Tensile Strength (ASTM D828)	45 lbs./in. (7.9N/mm) width min. (MD) 30 lbs./in. (5.23N/mm) width min. (CD)

**SPECIFICATION COMPLIANCE**

- ASTM C547 Type I (Replaces HH-I-558B, Form D, Type III, Class 12, Class 13 up to 850°F [454°C])
- ASTM C585 – Dimension Standard
- ASTM C1136 (Jacketing) (Replaces HH-B-100B, Type I & II)
- MIL-DTL-32585 Type 1, Form 4, Facing A ([unjacketed only](#))
- MIL-I-22344D, MIL-PRF-22344E
- Coast Guard/IMO Approved 164.109/56/0 (plain, unjacketed only – excluding 7/8 x 1/2 [22 mm x 13 mm], 1/2 x 1/2 [13 mm x 13 mm])
- Bureau of Household Goods and Services CA-T1039 (CO)
- Firestop Assemblies: Meets requirement for jacketed fiberglass pipe insulation product density at or above 3.5 pcf.
- ASTM E84, CAN ULC S102.2 – 25/50 listed and labeled Intertek testing laboratories, listed and labeled Underwriter Laboratories
- NRC 1.36, ASTM C795, MIL-I-24244C, MIL-DTL-24244D\*

\*When ordering material to comply with these specifications a statement of that fact must appear on the purchase order. Specific lot testing will be conducted and a certification of compliance can be provided.

**Operating Temperature Limits:** 0°F to 850°F (-18°C to 454°C)


**THERMAL CONDUCTIVITY ("K") \***


Mean Temperature	°F	75	100	200	300	400	500
°C		24	38	93	149	204	260
<b>Btu•in/(hr•ft<sup>2</sup>•°F)</b>		0.23	0.24	0.28	0.34	0.44	0.55
<b>W/m•°C</b>		0.034	0.035	0.040	0.049	0.063	0.079

\* Apparent thermal conductivity values are determined by applying procedures dictated per ASTM C1045 on test data obtained using ASTM Test Method C335. All values are based on nominal manufacturing and testing parameters, are subject to normal variation, and are not guaranteed for specification purposes or otherwise.

**SUSTAINABLE BUILDING ATTRIBUTES**

Manufacturing Location	Defiance, Ohio (43512)	
Recycled Content (glass only)	41%	
Recycled Content (total product)	28%	
Volatile Organic Compounds (ASTM D5116)	Total	0.22 g/l
(Analysis ASTM D6196 & ASTM D5197)		
Fiberglass Pipe Insulation	Formaldehyde	0.009 ppm
	Aldehydes	0.043 ppm
Volatile Organic Compounds (Calculated)	Total	<49 g/l
Self-Sealing Lap & Butt Strips		

**SUSTAINABLE BUILDING CERTIFICATIONS**

GREENGUARD®	Certified
GREENGUARD® GOLD	Certified
LEED® Credits	To see LEED info call technical support
LEED-NC	



**SIZE AVAILABILITY**

Insulation Thickness		Iron Pipe Size Range		Copper Tubing Size Range		Notes:
in.	mm	in.	mm	in.	mm	
½	13	½-6	13-152	⅝-4½ <sup>§</sup>	16-105	*2½" and 23" IPS not available in this insulation thickness.
1	25	½-24	13-610	⅝-6⅞	16-156	**22" and 23" IPS not available in this insulation thickness.
1½	38	½-24	13-610	⅝-6⅞	16-156	†21", 22" and 23" IPS not available in this insulation thickness.
2	51	½-24	13-610	1⅞-6⅞	29-156	
2½	64	1-24	25-610	1⅞-6⅞	35-156	
3	76	1-24	25-610	1⅞-6⅞	35-156	
3½	89	1½-24*	38-610	-	-	††19" IPS not available in this insulation thickness.
4	102	3-24**	76-610	-	-	
4½	114	3-24†	76-610	-	-	§3⅝" CTS not available in this insulation thickness.
5	127	3-20††	76-508	-	-	

**ACOUSTIC - INSERTION LOSS**

Insertion loss data for Johns Manville pipe insulation acoustic treatments tested per ASTM E1222

Frequency	1-in Micro-Lok HP	1-in Micro-Lok HP with Zeston PVC (20 mil)	1-in Micro-Lok HP with MLV (1 psf)	2-in Micro-Lok HP	2-in Micro-Lok HP with Zeston PVC (20 mil)	2-in Micro-Lok HP with MLV (1 psf)
Hz	dB	dB	dB	dB	dB	dB
315	2	1	10	1	0	12
400	2	4	13	0	8	17
500	3	5	14	1	10	19
630	5	11	21	6	14	21
800	7	13	20	8	15	22
1000	9	19	25	13	20	29
1250	10	20	28	14	22	31
1600	13	24	33	17	26	37
2000	15	27	35	20	29	39
2500	17	29	36	21	30	38
3150	19	30	36	23	32	40
4000	20	29	36	26	34	41
5000	22	30	36	29	34	38

**ACOUSTIC - TRANSMISSION LOSS**

Transmission loss data and sound transmission class (STC) for Johns Manville pipe insulation acoustic treatments tested per ASTM E90

Frequency	1-in Micro-Lok HP	1-in Micro-Lok HP with Zeston PVC (20 mil)	1-in Micro-Lok HP with MLV (1 psf)	2-in Micro-Lok HP	2-in Micro-Lok HP with Zeston PVC (20 mil)	2-in Micro-Lok HP with MLV (1 psf)
Hz	dB	dB	dB	dB	dB	dB
125	4	7	15	6	8	15
250	4	7	18	6	8	20
500	4	11	23	7	15	29
1000	7	19	32	12	25	38
2000	14	25	38	20	32	45
4000	21	29	44	30	38	51
STC	8	16	28	12	19	31

**QUALIFICATIONS FOR USE**

A sufficient thickness of insulation must be used to keep the maximum surface temperature of Micro-Lok HP insulation below 150°F (66°C). In addition, at operating temperatures above 500°F (260°C), Micro-Lok HP pipe insulation must be applied in a thickness ranging from 2" (51 mm) minimum to 6" (152 mm) maximum.

During initial heat-up to operating temperatures above 350°F (177°C), an acrid odor and some smoke may be given off as the organic binders used in the fiberglass pipe insulation begin to decompose. When this occurs, caution should be exercised to ventilate the area well. This loss of binder does not directly affect the thermal performance of the pipe insulation, but the compressive strength and resiliency of the product are reduced. For applications with excessive physical abuse or vibration at high temperatures, consult your local Insulation Systems Market Development Manager for alternate material recommendations.

**CHILLED WATER SYSTEMS**

For chilled water systems, see [3-Part Specification, MECH-261](#).

**APPLICATION RECOMMENDATIONS\*****MICRO-LOK HP PIPE INSULATION AND BUTT STRIPS**

1. Do not apply Micro-Lok HP insulation if air temperature is below 20°F (-7°C) or above 130°F (54°C) due to the effect of temperature on tape performance. We recommend stapling when application falls outside this temperature range.

When stapling, we recommend mastic be applied over staples to prevent moisture penetration.

2. If stored below 20°F (-7°C) or above 130°F (54°C), insulation cartons should stand within the recommended temperature range for 24 hours prior to application.

3. Once release paper is removed, both adhesive and lap must be kept free of dirt and water, and the lap sealed immediately.

4. When adhered, the lap and butt strips must be pressurized by rubbing firmly with a plastic squeegee or the back of a knife blade to ensure positive closure.

*\*For complete application recommendations and installation instructions, see MECH-261 InsulSpec Specifications.*



**Johns Manville**  
717 17th St.  
Denver, CO 80202  
800-654-3103  
[www.JM.com](http://www.JM.com)

**North American Sales Offices,  
Insulation Systems****Eastern Region and Canada**

P.O. Box 158  
Defiance, OH 43512  
800-334-2399  
Fax: 419-784-7866

**Western Region**

P.O. Box 5108  
Denver, CO 80217  
800-368-4431  
Fax: 303-978-4661

Technical specifications as shown in this literature are intended to be used as general guidelines only. Please refer to the Safety Data Sheet and product label prior to using this product. The physical and chemical properties of Micro-Lok HP listed herein represent typical, average values obtained in accordance with accepted test methods and are subject to normal manufacturing variations. They are supplied as a technical service and are subject to change without notice. Any references to numerical flame spread or smoke developed ratings are not intended to reflect hazards presented by these or any other materials under actual fire conditions. Check with your customer service representative for current information.

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