

FIBERGLAS™ 700 SERIES BOARD TYPES 703 AND 705 FIBERGLASS INSULATION

Types 703 and 705 Series Insulation Boards are made of inorganic glass fibers with a thermosetting resin binder and formed into semi-rigid or rigid rectangular boards. Types 703 and 705 are available unfaced and with factory applied FRK or poly encapsulated ASJ Max facings. Both facings are vapor retarders and provide a neat, finished appearance in mechanical applications.

Features

- Save and reduce heat transfer, with low operating costs
- FRK facing is an aluminum foil jacket exterior with fiberglass reinforcement over a rigid kraft paper which is cleanable and doesn't support mold or mildew growth
- ASJ Max is an all-service jacket with a polymer-film exterior surface that is smooth, durable, cleanable, wrinkle-resistant, resists water staining, and doesn't support mold or mildew growth[1]
- Resists damage and maintains structural integrity and efficiency
- Efficiently reduces sound transmission
- 703 and 705 are lightweight, resilient, and easy to handle and fabricate on the job site

Standards, Codes Compliance

- ASTM C612, Mineral Fiber Block & Board Thermal Insulation, Types IA, IB — Types 703 and 705
- ASTM C795, Thermal Insulation for Use Over Austenitic Stainless Steel[1]
- ASTM C1136, Flexible Low Permeance Vapor Retarders for Thermal Insulation, Type I: ASJ Max; Type II: FRK
- Nuclear Regulatory Commission Guide 1.36, Non-Metallic Thermal Insulation
- Does not contain the fire retardant decabrominated diphenyl ether (decaBDE)
- CAN/CGSB-51.10 — Type I, Class I — Type 703
- NFPA 90A and 90B
- California Insulation Quality Standards CA-T052

1 Preproduction qualification testing complete and on file. Chemical analysis of each production lot required for total conformance. Certification needs to be specified at time of order.

Applications

- Type 703 — Semi-rigid boards for use on mechanical equipment, heating and air conditioning ductwork, and walls and ceilings.
- Type 705 — A high-strength rigid board for use on chillers, other mechanical equipment, walls and ceilings, and heating and air conditioning ductwork. Areas where finished appearance is important and high abuse resistance is required.

Physical Properties

PROPERTY	TEST METHOD	VALUE	
Density (size dependent)	ASTM C303	Type 703: 3.0 pcf (48 kg/m^3) Type 705: 6.0 pcf (96 kg/m^3)	
Operating Temperature Range[2]	ASTM C411	0 to 450°F (-18 to 232°C)	
Water Vapor Sorption	ASTM C1104	<5% by weight at 120°F (49°C), 95% R.H.	
Fungi Resistance	ASTM C1338	Meets requirements	
Compressive Strength (minimum) at 10% deformation at 25% deformation	ASTM C165	703 Board 25 lb/ft2 (1197 Pa) 90 lb/ft2 (4309 Pa)	705 Board 200 lb/ft2 (9576 Pa) —
JACKETING	**TEST METHOD**	**VALUE**	
Jacket Temperature Limitation	ASTM C1136	-20°F to 150°F (-29°C to 66°C)	
Jacket Permeance	ASTM E96, Proc. A	ASJ Max 0.01 perm FRK 0.02 perm	
Burst Strength (minimum)	ASTM D774/ D774M	ASJ Max 100 psi FRK 40 psi	
CORROSION RESISTANCE	**TEST METHOD**	**VALUE**	
Corrosion to Steel	ASTM C1617	Meets Requirements	
Stress Corrosion Evaluation on external stress corrosion cracking tendency of austenitic stainless steel	ASTM C795 and ASTM C692[1]	Meets Requirements	
Chemical Analysis for Cl-, Fl-, Na+, SiO3	ASTM C795 and ASTM C871[1]	Results fall within acceptability limits	
FIRE	**TEST METHOD**	**VALUE**	
Surface Burning Characteristics[3]	UL 723, ASTM E84, and CAN/ULC S102	Faced Flame Spread Index 25 Smoke Developed Index 50 Unfaced Flame Spread Index 5 Smoke Developed Index 5	

2 Maximum thickness at 450˚F (232˚C) — 703 and 705: 4" (102 mm).

3 The surface burning characteristics of these products have been determined in accordance with UL 723, ASTM E84, and CAN/ULC-S102. Values are reported to the nearest 5 rating.

Thermal Conductivity

ASTM C177

MEAN TEMP °F	k BTU • IN/HR • FT² • °F		MEAN TEMP °C	λ W/m • °C	
	703	705		703	705
50	0.21	0.22	10	0.030	0.032
75	0.23	0.23	25	0.033	0.034
100	0.24	0.25	50	0.036	0.037
150	0.27	0.27	75	0.040	0.041
200	0.30	0.30	100	0.045	0.045
250	0.34	0.33	125	0.050	0.049
300	0.38	0.37	150	0.055	0.053

Thermal Performance

ASTM C680 (Type 703)

THICKNESS		OPERATING TEMPERATURE, °F (°C)									
		250 (121)		300 (149)		350 (177)		400 (204)		450 (232)	
IN	mm	HL	ST	HL	ST	HL	ST	HL	ST	HL	ST
1.0	25	27	98	42	106	57	114	75	123	95	133
1.5	38	19	93	29	99	40	105	52	112	66	119
2.0	51	15	90	22	95	31	100	40	105	50	111
2.5	64	12	88	18	92	25	196	32	101	41	106
3.0	76	10	87	15	91	21	194	27	198	34	102
3.5	89	9	86	13	89	18	192	23	196	30	199
4.0	102	8	86	11	88	16	191	21	194	26	197

The above table provides approximate heat loss values (HL), Btu/hr•ft², and surface temperatures (ST), °F, for flat surfaces. Values are based on horizontal heat flow, vertical flat surface, 80°F ambient temperature, still air, and ASJ Max facing. To convert heat loss values to W/m2, multiply values by 3.15. To convert surface temperatures, use the formula: °C = (°F-32)/1.8. For similar information using other assumptions, contact your Owens Corning representative.

700 Series R-Values at 75° F Mean

PRODUCT	NOMINAL R-VALUE AT THICKNESS				
	1-IN.	1.5-IN.	2-IN.	2.5-IN.	3-IN.
703	4.3	6.5	8.7	10.9	13.0
705	4.3	6.5	8.7	10.9	13.0

To determine R-value at other thickness or other temperatures on the Thermal Conductive Table above, use the following calculation:

$$\frac{\text{Thickness}}{\text{k-value}} = \text{R-value}$$

Sound Absorption Coefficients

ASTM C423; Mounting:
Type A — Material placed against a solid backing

PRODUCT TYPE	THICKNESS		OCTAVE BAND CENTER FREQUENCIES, Hz						
	IN.	mm	125	250	500	1000	2000	4000	NRC
703 Unfaced	1"	25.00	0.05	0.26	0.63	0.88	0.97	0.94	0.70
	2"	51.00	0.15	0.71	1.14	1.16	1.02	1.00	1.00
	3"	76.00	0.34	1.09	1.25	1.15	1.05	1.00	1.15
	4"	100.00	0.56	1.26	1.22	1.11	1.07	0.96	1.15
705 Unfaced	1"	25.00	0.08	0.24	0.73	1.06	1.06	0.95	0.75
	2"	51.00	0.18	0.86	1.16	1.16	1.03	0.97	1.05
	3"	76.00	0.45	1.12	1.15	1.10	1.04	1.00	1.10
	4"	100.00	0.60	1.10	1.09	1.12	1.05	0.91	1.10
703 FRK	1"	25.00	0.14	0.71	0.83	0.79	0.47	0.21	0.70
	2"	51.00	0.39	0.61	1.01	0.88	0.51	0.32	0.75
705 FRK	1"	25.00	0.14	0.59	0.26	0.78	0.53	0.35	0.55
	2"	51.00	0.42	0.35	0.85	0.65	0.46	0.36	0.60
703 ASJ Max	1"	25.00	0.08	0.81	0.80	0.68	0.38	0.15	0.65
	2"	51.00	0.38	0.57	1.00	0.68	0.33	0.17	0.65
705 ASJ Max	1"	25.00	0.08	0.61	0.20	0.70	0.51	0.34	0.50
	2"	51.00	0.44	0.27	0.75	0.59	0.42	0.20	0.50

Availability

Types 703 and 705 insulations are available in[4]:

- Width Dimensions: 45"–49" (1,143.0 mm–1,244.6 mm)
- Length Dimensions: 24"–121" (609.6 mm–3,073.4 mm)
- Thickness:
  - 703: ¾"–4" (19.05 mm–101.6 mm)
  - 705: ½"–2½" (12.7 mm–63.5 mm)

4 Minimum order requirements and lead-times contingent upon size. Contact your local area sales manager for details.

703 Board Transportation

703 Board FRK faced and unfaced; complies to following transportation test:

- ASTM E162, Surface Flammability of Materials Using a Radiant Heat Energy Source
- ASTM E662, Specific Optical Density of Smoke Generated by Solid Materials
- BSS 7238, Test Method for Smoke Generation by Materials on Combustion

Certifications and Sustainable Features

- Certified by SCS Global Services to contain an average of 53% recycled glass content, 31% pre-consumer, and 22% post-consumer (SCS-RC-02066).
- Environmental Product Declaration (EPD) has been certified by SCS Global Services (SCS-EPD-10297).
- Health Product Declaration® (HPD).

CERTIFIED RECYCLED CONTENT™ SCS GLOBAL SERVICES
AVERAGE 53% RECYCLED CONTENT
22% POST-CONSUMER
31% PRE-CONSUMER

Environmental and Sustainability

Owens Corning is a worldwide leader in building material systems, insulation, and composite solutions, delivering a broad range of high-quality products and services. Owens Corning is committed to driving sustainability by delivering solutions, transforming markets, and enhancing lives. More information can be found at www.owenscorning.com.

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Pub. No. 10021736-H. Printed in U.S.A. August 2026.
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