Fujipoly Data Sheet

SARCON® XR-e series

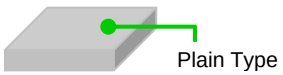
High Performance Gap Filler Type

FEATURES

Highly Conformable and High Heat Conducting gel materials.

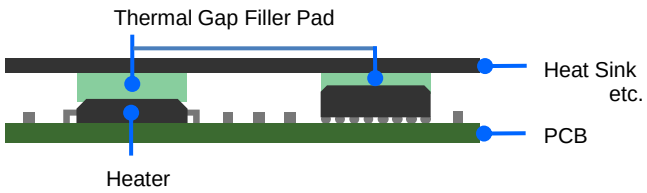
SARCON® Thermal Gap Filler Pads are highly conformable and high heat conducting gel materials in a versatile sheet form. They easily fit and adhere to most all shapes and sizes of components, including protrusions and recessed areas.

CONSTRUCTIONS

Series	Characteristics	Constructions
SARCON® XR-e	Silicone compound with double sticky surfaces and Thermal Conductivity of XR-e material is 11.0W/m-K by using ASTM D5470 modified*1 (6.2W/m-K by using Hot Disk)	 Plain Type
SARCON® XR-He	Silicone compound as above XR-e plus additional hardening of the top surface to facilitate handling and installation during complex assemblies	 Hardened Surface

*1) Thermal Conductivity ; Measured by using ASTM D5470 modified, refer to Fujipoly Test method FTM P-3030.

RECOMMENDED APPLICATION



In areas where space between surface is uneven or varies and where surface textures are a concern regarding efficient thermal transfer, the supple consistency of Gap Filler Pad is excellent for filling air gaps and uneven surfaces.

THERMAL RESISTANCE

XR-e

Unit : K-cm^2/W (K-in^2/W)

Compression Force	1.0mmT	1.5mmT	2.0mmT
100kPa /14.5psi	1.6 (0.24)	2.3 (0.35)	3.1 (0.48)
300kPa /43.5psi	1.4 (0.22)	2.0 (0.32)	2.7 (0.42)
500kPa /72.5psi	1.3 (0.21)	1.9 (0.29)	2.4 (0.36)

XR-He

Compression Force	0.3mmT	0.5mmT	1.0mmT	1.5mmT	2.0mmT
100kPa /14.5psi	0.8 (0.13)	1.1 (0.17)	1.7 (0.26)	2.3 (0.36)	3.1 (0.47)
300kPa /43.5psi	0.7 (0.11)	0.9 (0.14)	1.5 (0.23)	2.1 (0.33)	2.8 (0.44)
500kPa /72.5psi	0.6 (0.09)	0.9 (0.13)	1.4 (0.21)	1.9 (0.30)	2.7 (0.41)

Test method: Fujipoly Test method, FTM-P3050 by TIM Tester 1300 which is ASTM D5470 equivalent
- Specimen Area; DIA.33.0mm (1.30in)

TYPICAL PROPERTIES

Properties		unit		XR-e		Test method	Specimen
Physical Properties	Color	-		Light Gray		Visual	-
	Specific Gravity	-		3.4		ASTM D792	A
	Hardness Highest Value	Shore OO (ASKER C)		72 (42)		ASTM D2240 (ISO 7619)	B
	Tensile Strength	MPa (psi)		0.2 (29.0)		ASTM D412	A
	Elongation	%		20		ASTM D412	A
	Tear Strength	N/mm (ppi)		1.0 (5.7)		ASTM D624	A
Electrical Properties	Volume Resistivity	Ohm-m		$1.0x10^{11}$		ASTM D257	C
	Breakdown Voltage	kV/mm (volts/mil)		18 (457)		ASTM D149	C
	Dielectric Strength	kV/mm (volts/mil)		14 (336)		ASTM D149	C
	Dielectric Constant	-	50Hz	-		ASTM D150	A
			1kHz	7.5			
			1MHz	7.2			
	Dissipation Factor	-	50Hz	-		ASTM D150	A
			1kHz	0.018			
			1MHz	0.008			
Thermal Properties	Thermal Conductivity	W/m-K		11.0	by ASTM D5470	ASTM D 5470*1	-
				6.2	by Hot Disk	ISO/CD 22007-2	
	Useful Temperature	℃ (°F)		-40 to +150 (-40 to +302)		-	-
	Low molecular Siloxane	wt%		D_4 to D_{20} Total	0.0032 or less	Gas Chromatography	-
	Flame Retardant	-		V-0		UL 94	-

• Specimen A: 2mmT Specimen B: 60mmW x 120mmL x 20mmT • Specimen C: 120mmW × 120mmL × 1mmT

*1) Thermal Conductivity ; Measured by using ASTM D5470 modified, refer to Fujipoly Test method FTM P-3030.

COMPRESSION FORCE

XR-e

Unit : N/6.4cm^2 (psi)

Compression Ratio	1.0mmT	1.5mmT	2.0mmT
10%	88 (19.9)	80 (18.1)	77 (17.5)
20%	263 (59.6)	228 (51.7)	200 (45.3)
30%	502 (113.7)	468 (106)	431 (97.6)
40%	794 (179.9)	735 (166.5)	666 (150.9)
50%	1114 (252.4)	1016 (230.2)	935 (211.8)
Sustain 50%	624 (141.4)	597 (135.3)	570 (129.1)

XR-He

Compression Ratio	0.3mmT	0.5mmT	1.0mmT	1.5mmT	2.0mmT
10%	44 (10.0)	64 (14.5)	68 (15.5)	124 (28.1)	158 (35.9)
20%	214 (48.6)	278 (63.0)	379 (85.8)	436 (98.8)	485 (109.8)
30%	392 (88.9)	478 (108.3)	687 (155.6)	770 (174.5)	821 (186.0)
40%	583 (132.2)	712 (161.3)	992 (224.8)	1080 (244.7)	1150 (260.5)
50%	796 (180.3)	989 (224.1)	1278 (289.5)	1411 (319.7)	1480 (335.3)
Sustain 50%	711 (161.1)	821 (186.0)	1011 (229.0)	757 (171.5)	634 (143.6)

Test method: Measured by ASTM D575-91 for reference

• Specimen Area; DIA.28.6mm (1.13in) • Platen Area; DIA. 28.6mm (1.13in) • Sustain 50%: Sustain 50% at 1 minute later

• Compression Velocity; 5.0mm/minute

DURABILITY

Test Property	Unit	70℃		150℃	
		Initial	After 1,000hrs	Initial	After 1,000hrs
Specific Gravity	-	3.4	3.4	3.4	3.4
Hardness	ASKER C	50	65	50	84
Breakdown Voltage	kV/mm	18	19	18	19
Thermal conductivity	W/m-K	11	11	11	11

Test Property	Unit	60℃/90%RH	
		Initial	After 1,000hrs
Specific Gravity	-	3.4	3.4
Hardness	ASKER C	50	60
Breakdown Voltage	kV/mm	18	19
Thermal Conductivity	W/m-K	11	11

reduced temperature
60℃ = 140°F
70℃ = 158°F
150℃ = 302°F

•Specimen : XR-e • Thermal Conductivity ; Measured by using ASTM D5470 modified, refer to Fujipoly Test method FTM P-3030.

TYPES AND CONFIGURATION

Series	Product Name	Thickness	Sheet Size
SARCON® XR-e	100X-e	1.0mm ± 0.20mm	300mm × 200mm (Recommended Usable Size: 290mm×190mm)
	150X-e	1.5mm ± 0.20mm	
	200X-e	2.0mm ± 0.30mm	
SARCON® XR-He	30X-He	0.3mm ± 0.06mm	50mm × 50mm
	50X-He	0.5mm ± 0.15mm	300mm × 200mm (Recommended Usable Size: 290mm×190mm)
	100X-He	1.0mm ± 0.20mm	
	150X-He	1.5mm ± 0.20mm	
	200X-He	2.0mm ± 0.30mm	

HANDLING NOTES

- It is recommended to use the material in up to 30% of compression ratio. Using the material beyond the recommended compression rate may result in excessive silicone oil exudation.
- It is recommended to compress the material with the equal ratio on the whole surface. Partial excessive stress may also result in excessive silicone oil exudation.

WARRANTY STATEMENT

- Fujipoly has been utilizing Hot Disk method and TIM Tester method since Fujipoly defined them as Fujipoly standard.
- Properties of the products may be revised due to some changes for improving performance.
- Fujipoly Test method FTM-P3030 based on ASTM D5470 and ASTM C177 (GHP) method.
- Properties values in this document are not specification or guaranteed.
- This product is made of silicone, and silicone oil may exude from the product.
- This product is made of silicone, and low molecular siloxane may vaporize depending on operating conditions.
- The product is designed, developed, and manufactured for general industrial use only. Never use for medical, surgical, and/or relating purposes. Never use for the purpose of implantation and/or other purposes by which a part of or whole product remains in human body.
- Before using, a safety must be evaluated and verified by the purchaser.
- Contents described in the document do not guarantee the performances and qualities required for the purchaser's specific purposes. The purchaser is responsible for pre-testing the product under the purchaser's specific conditions and for verifying the expected performances.
- Statements concerning possible or suggested uses made herein may not be relied upon, or be constructed, as a guaranty of no patent infringement.
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