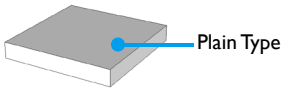
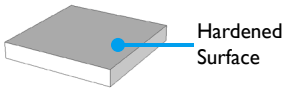
ALPHACOOL – THE COOLING COMPANY

Alphacool Eisschicht 11 W/mK

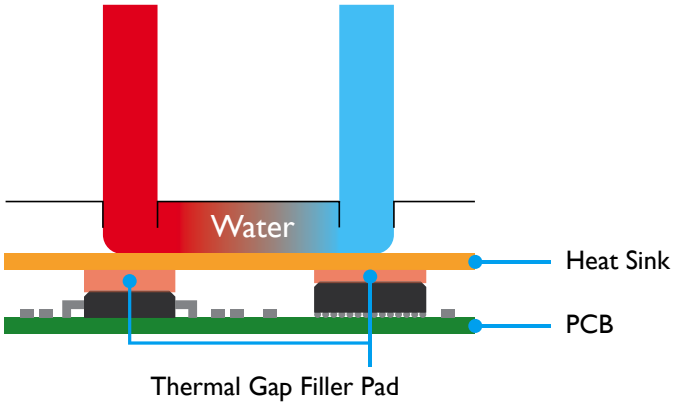
Features

Highly Conformable and High Heat Conducting Gel Materials.
Eisschicht 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	Chracteristics	Constructions
Alphacool Eisschicht 11 W/mK	Silicone compound with double sticky surfaces and Thermal Conductivity of XR-e material is 11.0W/m-K by using GHP (6.2W/m-K by using Hot Disk)	 Plain Type
Alphacool Eisschicht 11 W/mK - 0.5mm	Silicone compound as above XR-e plus additional hardening of the top surface to facilitate handling and installation during complex assemblies	 Hardened Surface

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

Unit: K-cm²/W (K-in²/W)

Compression Force	0.5mmT	1.0mmT	1.5mmT
100kPa (14.5psi)	1.1 (0.17)	1.6 (0.24)	2.3 (0.35)
300kPa (43.5psi)	0.9 (0.14)	1.4 (0.22)	2.0 (0.32)
500kPa (72.5psi)	0.9 (0.13)	1.3 (0.21)	1.9 (0.29)

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Typical Properties

Properties		unit	XR-m		Test method
Physical Properties	Color	-	Light Gray		Visual
	Specific Gravity	-	3.4		ASTM D 792
	Hardness Highest Value	Shore OO (ASKER C)	72 (42)		ASTM D2240 (ISO 7619)
	Tensile Strength	MPa (psi)	0.2 (29.0)		ASTM D 412
	Elongation	%	20		ASTM D 412
	Tear Strength	N/mm (ppi)	1.0 (5.7)		ASTM D 624
Electrical Properties	Volume Resistivity	Ohm-m	$1.0x10^{11}$		ASTM D257
	Breakdown Voltage	kV/mm (volts/mil)	18 (457)		ASTM D 149
	Dielectric Strength	kV/mm (volts/mil)	14 (336)		ASTM D 149
	Dielectric Constant	-	50Hz	-	ASTM D 150
			1kHz	7.5	
			1MHz	7.2	
	Dissipation Factor	-	50Hz	-	ASTM D 150
			1kHz	0.018	
			1MHz	0.008	
Thermal Properties	Thermal Conductivity	W/m-K	11.0 by GHP		ASTM D 5470
			6.2 by Hot Disk		ISO/CD 22007-2
	Useful Temperature	°C (°F)	-40 to +150 (-40 to +302)		-
	Low molecular Siloxane	wt%	D_4 to D_{20} Total	0.0032 or less	Gas Chromotography
	Flame Retardant	UL94	V-0		UL94

Compression Force

Unit: N/6.4cm² (psi)

Compression Ratio	0.5mmT	1.0mmT	1.5mmT
10%	64 (14.5)	88 (19.9)	80 (18.1)
20%	278 (63.0)	263 (59.6)	228 (51.7)
30%	478 (108.3)	502 (113.7)	468 (106)
40%	712 (161.3)	794 (179.9)	735 (166.5)
50%	989 (224.1)	1114 (252.4)	1016 (230.2)
Sustain 50%	821 (186.0)	624 (141.4)	597 (135.3)

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Durability

Test Property	Unit	70°C		150°C	
		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°C / 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 tempereature

-40°C = -40°F
60°C = 140°F
70°C = 158°F
125°C = 227°F
150°C = 302°F

- Specimen: XR-e

Types and Configurations

Series	Product Name	Thickness	Sheet Size
Alphacool Eisschicht 11W/mK (Sarcon XR-He)	11W/mK (Sarcon XR-He)	0.5mm ± 0.15	100x100x0,5mm 2x 120x20x0,5mm
Alphacool Eisschicht 11W/mK (Sarcon XR-e)	11W/mK (Sarcon XR-e)	1.0mm ± 0.20	100x100x1mm 2x 120x20x1mm
		1.5mm ± 0.20	100x100x1,5mm 2x 120x20x1,5mm

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

- Properties of the products may be revised due to some changes for improving performance.
- 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.
- Beforeusing,asafetymustbeevaluatedandverifiedbythepurchaser.
- 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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