http://www.taica.co.jp/gel-english/

() Taica Corporation

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Living, working and serving in harmony with the environment.

Identifying and tapping into possibilities in softness — with multi-faceted proprietary \mathcal{C}_{GEL} technologies and beyond for increased well-being and comfort for people around the globe. This is what Taica is all about.

Softness inherent to α_{GEL} . Softness is not just a catalyst for function or added comfort. Softness embraces and protects our lives. Softness is where we loosen up and feel relaxed. Softness, flexibility and suppleness are the basis for that soothing tenderness that brings us joy and happiness. Representing these underlying core values, essential to lively well-being, \mathcal{X}_{GEL} goes beyond mere functional material.

This understanding is at the heart of all we do, as we listen to the varying and changing needs of the user, and proactively and creatively continue to offer an enhanced level of comfort.

Excellent Cushioning and Vibration Damping Performance

CGEL's (Alpha GEL) softness allows for deflection required for shock absorption and vibration damping, providing excellent cushioning and vibration damping performance.

Superior Durability

CAGEL is highly resistant to ozone, UV rays and chemicals, making it possible to use in a variety of locations. In addition, its performance is maintained even after repeated compression.

Stable Performance Even In a Harsh Environment

CGEL's properties show little change in the -40°C (-40°F) to 200°C (392°F) range, providing stable performance.

Extremely High Safety

CIGEL's composition makes it harmless to the human body and to the environment, causing no allergies when touched, and emitting no harmful gases when burned.

Outstanding Platform for Additional Functions and Enhanced Performance

On top of the unique combination of excellent features, *CAGEL* also works as a reliable foundation for additional functions and for enhancing performance without compromising the merits softness brings.



Taica's Know-how

You can count on us for enhanced cushioning, vibration damping, tender feel, and more. Years of accumulated expertise and know-how, mastery of fine-tuning softness, designing and making optimum gel parts --- together all of these help cope with a variety of changing environments and needs of customers around the globe.

A raw egg dropped from a height of 18 m (60°) — equivalent to the sixth floor of a building — remains unbroken when caught by a sheet of $\mathcal{C}_{\textit{GEL}}$ only 2 cm (0.8") thick.

Discover Softness.



Soft & smooth feel

Shock **Absorption**

As proven through an egg-drop test in which a raw egg remains unbroken even when dropped from a height of 18m (about 60'), \mathcal{C}_{GEL} (Alpha GEL) has amazing shock absorbing capability. From sports to industrial applications, \mathcal{C}_{GEL} is the answer to various shock absorption needs.

Vibration Damping

 $\mathcal{X}_{\textit{GEL}}$ vibration insulators and bushes are ideal for light loads and microvibration. \mathcal{C}_{GEL} 's easy adjustability in shape and firmness makes vibration damping in wide frequency region from the low frequency, that had previously been very difficult, to the high frequency.

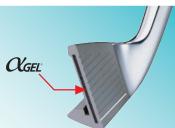
Shoe Cushioning

CAGEL protects the knee from the impact of landing, said to be three times the weight of the body. Its performance remains stable even with vigorous movement during sports.



Golf Iron

 \mathcal{X}_{GEL} embedded in the high-rebound head of a golf iron absorbs excess force from the face of the head, allowing a soft, comfortable feeling of impact while providing distance of flight.



Watch

Classifier protects precision electronic components in the watches from shock and vibration.



Courtesy of CASIO COMPUTER CO., LTD.

Business Bag

CAGEL in the laptop computer storage of the business bag keeps computers safe and secure.





Wheeled Luggage

Shock, vibration and noise can be reduced by installing *XGEL* between the luggage and wheel housing.



Helmet Cushioning (NP GEL)

The addition of a foam GEL sheet only 3 mm thick effectively absorbs shock. This makes it possible to decrease the thickness of the helmet, making it lighter, and further extending the possibilities of design.







Railroad Signal

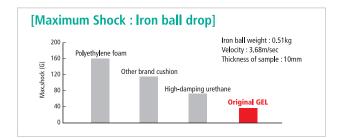




PC Board









Vacuum Pump and Compressor

CINCLE vibration insulators can absorb low frequency vibration, which is difficult to be isolated by conventional dampers such as rubber.

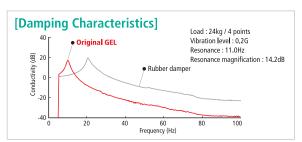
With a proven record of more than 10 years in the field, CIGEL insulators protect the device from shock and vibration, often the causes of signal malfunction.

CAGEL isolators are ideal primarily for light-load items such as PC boards. Its softness and mechanically reinforced strength allow for miniaturization of the final product and ensure long-term high performance.

Laboratory and Medical Equipment

Ciger is used in laboratory and medical equipment such as centrifuge and oxygen condensers, for vibration damping with long term reliability.

CAGEL reduces vibration of cameras mounted on drones.



Soft & Smooth Feel/ **Pressure Dispersion**

 \mathcal{X}_{GEL} (Alpha GEL) softly embraces and distributes pressure threedimensionally, minimizing repercussion. Its inherent softness and flexibility allow a nice, smooth fit to the human skin and trigger a relaxing and even soothing feel, making $\mathcal{N}_{\it GEL}$ more than just a functional material.

Reliable Platform for Additional Functions

With its natural softness and superior physical characteristics nearly intact, $\mathcal{X}_{\textit{GEL}}$ becomes a reliable, safe platform for various functions. The optimum solution is exemplified through a proven process including selecting fillers, fine-tuning softness to the needs of a customer, etc.

🔷 Pen Grip

An *Cliget* grip provides a soothing, soft feel that gently fits any fingers. It helps decrease the chance of forming calluses, even when writing for a long time, making it a highly popular item.



Supporting Breast Pad CIGEE's natural elasticity helps to fit elegantly to the body's lines.

So light that it places no burden on the body, the pad can be worn without worry. Lightweight, safe and soft, the breast pad feels like part of the body.

Bouldering Mat

CGEL layer enhances the impact absorbing characteristic and durability of the bouldering mat.



Power Tool

 $\mathcal{X}_{\textit{GEL}}$ installed grips on the power tools provide outstanding tactile impression and stable operability.



Stroller Headrest

A foam GEL, safe for prolonged contact with skin, gently embraces the baby's head and effectively disperses the pressure on the head. Its shock absorbing capacity further increases safety.

Bed Mattress

> \mathcal{C}_{GEL} helps to effectively disperse body pressure and support a natural sleeping posture, providing a comfortable sleep.

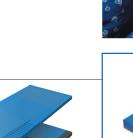






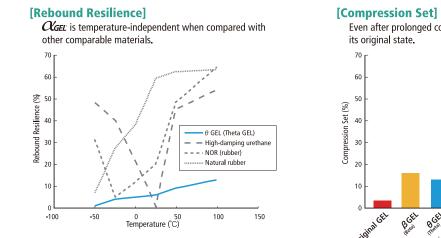






Characteristics & Specs.

Standard Products





Measurement (JIS K 6262) © Compress by 25% and maintain for 22 hours at 70°C. © Release compression and measure after 30 minutes at normal temperature.

[Physical Characteristics]

	(Physical Value					
Item ((unit)	Original GEL		$\hat{\boldsymbol{\theta}}$ - 7	θ-5	θ-6	θ-8	NP GEL	Remark	
Appea	arance	Transparent	White	Translucent	Translucent	Translucent	Translucent	Green or White		
Speci	fic Gravity	0.98	0.56	1.06	1.05	1.06	1.07	0.26		
Hardnes	Needle penetration(1/10mm)	150	100	100	55	-	-	-	JIS K 2207	
narunes	Asker C 🛛 🥹	-	-	-	-	33	52,5	-	JIS K 7312	
Tensi	e Strength (MPa)	0.03	0.14	0.23	1.17	1.58	2.35	0.32	JIS K 6251	
Elong	ation (%)	340	220	480	710	480	300	73	JIS K 6251	
Young	gʻs Modulus (kPa)	28.9	150.7	37.5	119.5	670.3	1432.6	269.5		
Speci	fic Heat (J/g•K)	1.55	1.61	1.51	1.52	1.51	1.52	1.15	DSC	
Therm	al Conductivity (W/m·K)	0.18	0.10	0.20	0.20	0,20	0.20	0.06	0	
Specific	Volume Resistance Ratio (Ω·cm)	2.1×10 ¹⁴	3.7×10 ¹²	2.9×10 ¹⁴	4.0×10 ¹⁴	3.2×10 ¹⁴	6.6×10 ¹⁴	3.8×10 ¹⁴	JIS K 6911	
Dielectr	ic Breakdown Strength (kV/mm)	16.7	17.1	16.3	15.1	18.4	18.7	3.8	JIS C 2110	
	Toluene	×	×	×	×	×	×	×		
	Acetone	×	×	×	×	×	×	×		
nce	Methano	0	×	0	0	0	0	0		
Chemical Resistance	Disti ll ed H2O	0	0	0	0	0	0	0		
l Re	Fuel Oil	×	×	×	×	×	×	×	JIS K 6258	
mice	Lubricant Oil	×	×	×	×	×	×	×	room temperature ×168h	
Che	NaCl (10%)	0	0	0	0	0	0	0		
	HCI (10%)	0	0	0	0	0	0	0		
	NaOH (5%)	0	0	0	0	0	0	0		
Norma	l Temperature Range (°C)	-40 ~ 200	-40 ~ 120	-40 ~ 200	-40 ~ 200	-40 ~ 200	-40 ~ 200	-40 ~ 200		
Norma	I Temperature Range (°F)	-40 ~ 392	-40 ~ 248	-40 ~ 392	-40 ~ 392	- 40 ~ 392	-40 ~ 392	-40 ~ 392		

Vibration Damping Vibration Insulators

Various insulators are available for loads from 2 (4.4 lb) to 300 kg (661.4 lb) with 4 points Micro-vibrations as well as light-load vibration can be damped thanks to easily deflectat

Vibration Damping **GEL Bush**

Various bushes (or mounts) are available for tiny-to-small loads from 0.2 (0.44 lb) to 32 kg with 4 points of support. While small, they also excel in shock absorption and resistance drift. Each bush should sandwich PCB and then be secured with a bolt.

Vibration Damping SN Sheet

Easy and simple to use. Place it under the device for instant and prolonged vibration da Addition and division of SN Sheets flexibly accommodates a wide range of load requirer

Shock Absorption Vibration Damping GEL Tape & GEL Chip

CAGEL's softness and high performance are also readily applicable with an adhesive in a variety of forms of tape or chip.

Shock Absorption NP GEL

Lightweight and flame retardant, NP GEL, soft foam $\mathcal{X}_{\textit{GEL}}$, is durable and weather Available for use in the -40°C (-40°F) to 200°C (392°F) range, it has low compression



With its softness intact, *Class* can be crafted to become thermal conductive, electromagnetic wave absorbent, electro conductive, etc. Soft, sticky and conformable, λ_{GEL} often exhibits performance much better than pul specifications due to close contact.

Hardness is represented by rebounding distance when the needle contacts GEL surface.
 OTM 500 (KYOTO)

[Note] Silicone oil may bleed depending upon conditions . *Low molecular siloxane is included in this product which basically composed of silicone. *Above data are measured data, not guaranteed specifications.

8

ts of support. ble <i>æger</i> .		
kg (70.55 lb) to horizontal		
lamping. ements.		
on one side		
er resistant. n set.	0	
ublished		



Vibration Insulators

[Features] · Ideal for low frequency and micro vibration due to resonance point designed to be set low.

- Wide selection to choose from: from 2 kg (4.4 lb) to 300 kg (661.4 lb).
- Pick the best fit for your application based on the load (weight).
- The published data are based on 4 points of support (usage).

	Тур	e θ						6	9-A•B			<i>θ</i> -C
								_	110			#20 M-6
Р	art No.		um Load points)	Resonance Point (Hz)	Resonance Magnification (dB)	Recommended Frequency (Hz)	h (mm)		φ12 M-4	2		
	θ-A	2.0	~ 3.2	16 ~ 15	12	23 ~	13	2		15 :	+	
	θ - B	1.6	~ 2.4	13 ~ 11	13 ~ 12	18 ~	18		GEL	h 2		GEL
	θ-C	3.2	~ 8.0	14 ~ 12	13 ~ 12	20 ~	18	2		:	+	
Bol	t materia	al : Iron wi	th trivalent c	hromate plating	1							

Type MN

Part No.	Optimum Load (kg/4 points)	Resonance Point (Hz)	Resonance Magnification (dB)	Recommended Frequency (Hz)
MN-3	8 ~ 14	12 ~ 10	12	17 ~
MN-5	14 ~ 22	11 ~ 10	14 ~ 13	16 ~
MN-7	22 ~ 34	11 ~ 10	16 ~ 15	16 ~
MN-10	34 ~ 50	11 ~ 10	20 ~ 18	16 ~

Bolt material : Iron with trivalent chromate plating

Typeθ-TW

Part No.	Optimum Load	Resonance	Resonance	Recommended
	(kg/4 points)	Point (Hz)	Magnification (dB)	Frequency (Hz)
θ-TW	50 ~ 100	10 ~ 8	20 ~ 19	14 ~

Bolt material : Iron with trivalent chromate plating

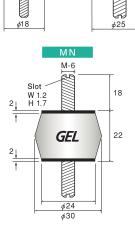
Type BG

Supported by a spring, type BG is effective for vertical vibration damping in particular.

Part No.	Optimum Load (kg/4 points)	Resonance Point (Hz)	Resonance Magnification (dB)	Recommended Frequency (Hz)	Bolt Diameter
BG-7	3.2 ~ 6.4	10 ~ 8	16 ~ 14	14 ~	M - 3
BG-8	6 ~ 16	10 ~ 8	18 ~ 16	14 ~	M - 6

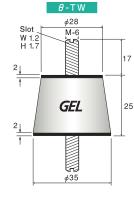
Bolt material : Brass

Spring material : SWPA with trivalent chromate plating

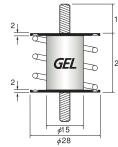


W 1.2 H 1.7

20







Type SF

For applications where a bottom plate is preferred instead of a bolt.

Part No.	Optimum Load (kg/4 points)	Resonance Point (Hz)	Resonance Magnification (dB)	Re Fre
SF-2	5 ~ 13	15 ~ 10	12 ~ 13	
SF-5	13 ~ 30	13 ~ 9	15 ~ 16	
SF-10	30 ~ 50	12 ~ 9	19 ~ 21	

Upper bolt material : Iron with trivalent chromate plating Bottom plate material : SUS304

(Rubber-coated) Type SF

· For applications where a bottom plate is preferable and there is a need for damping heavy-load vibration.

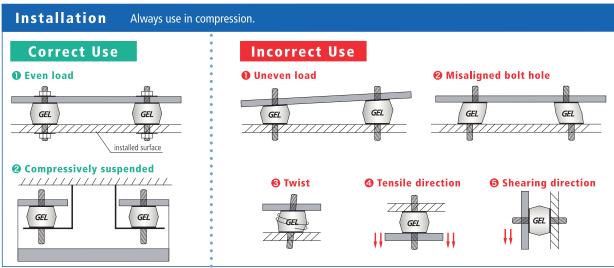
 \cdot Good for outdoor use in particular due to reinforced durability deriving from \mathcal{C}_{GEL} wrapped by bellows-type EPDM rubber.

· Stable performance	in the	-20°C	(-4°F) to	90°C	(194°F)	range.
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Part No.	Optimum Load (kg/4 points)	Resonance Point (Hz)	Resonance Magnification (dB)	Re Fre
SF-30	100 ~ 140	8 ~ 9	18 ~ 19	
SF-50	120 ~ 300	10 ~ 15	12 ~ 18	

Metal parts have a choice between following 1.and 2.

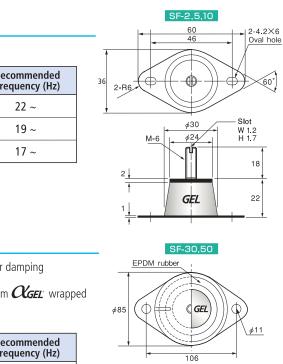
1.Upper bolt / Bottom plate material : Iron with trivalent chromate plating 2.Upper bolt / Bottom plate material : SUS304



*The height of the insulator may vary as the GEL is compressed under load. *The direction of the slot on the head of stud is not controlled.

*Do not remove the GEL burr around the edge of metal. This could cause detachment of GEL from metal.





30

GEL

¢45→ ¢76

13 ~

15 ~

GEL Bush

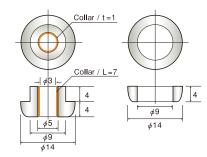


SN Sheet

[Features] · Designed to damp tiny-to-light-load and micro vibration.

- Effective for minimizing horizontal drift, using a bolt running through GEL Bush.
- Along with its shock absorbing capability, GEL Bush is ideal for light and fragile objects including PCBs (printed circuit boards).
- Available for loads from 0.2 kg (0.44 lb) to 32 kg (70.55 lb) with 4 points of support.

тур	e A			
Part No.	Optimum Load (kg/4 points)	Resonance Point (Hz)	Resonance Magnification (dB)	Recommended Frequency (Hz)
A - 1	0.5 ~ 2.5	67 ~ 35	9 ~ 10	0.5kg:95 ~ 2.5kg:50 ~
A - 2	2.5 ~ 4.0	49 ~ 37	15 ~ 16	2.5kg:70 ~ 4.0kg:55 ~



Collar / t =1

Collar / L =11

6.5

ollar / t = 0.5

Collar / L=6

φ⁶ . φ14

625

\$4

Collar material : Brass

Type B

Part No.	Optimum Load (kg/4 points)	Resonance Point (Hz)	Resonance Magnification (dB)	Recommended Frequency (Hz)
B - 1	4 ~ 15	49 ~ 23	15 ~ 17	4kg:70 ~ 15kg:35 ~
B - 2	15 ~ 32	38 ~ 20	19 ~ 23	15kg:40 ~ 32kg:25 ~

Collar material : Brass

Type S

Part No.	Optimum Load	Resonance	Resonance	Recommended
	(kg/4 points)	Point (Hz)	Magnification (dB)	Frequency (Hz)
S	0.2 ~ 0.75	64 ~ 42	7 ~ 9	0.2kg:90 ~ 0.75kg:60 ~

Collar material : Brass

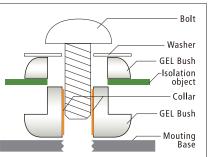
% These data were obtained with 1.2mm -thick PCB sandwiched for type A, 1.5mm for type B, and 1.0mm for type S. * Recommended frequency depends on loads.

* Since this product is very soft and easily damaged, please handle with care.

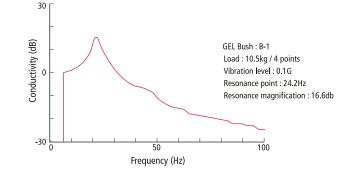
[Notes] • Tighten the bolt all the way to the collar.

- · Usable bolts are M3 or smaller for type A, M4 or smaller for type B, and M3 or smaller for type S.
- \cdot Use a washer equal to or bigger than the diameter of the upper portion of GEL Bush.
- * Collar inside the GEL Bush can be removed for use.

[Installation]



[Damping Characteristics]



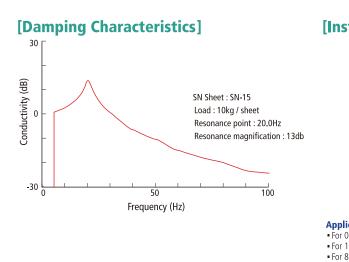
[Features] · Add more or divide SN Sheet flexibly for a wide range of load requirements.

· Just place it under the device. Removable anytime.

Stable with small resonance magnification ar

Part No.	Optimum Load (kg/1 Sheet)	Resonance Point (Hz)	Resonance Magnification (dB)	Recommended Frequency (Hz)	Deflection (mm)	Color
SN-2	0.5 ~ 2	27 ~ 21	6	38 ~	1.4 ~ 3.0	yellow
SN-5	2 ~ 5	29 ~ 23	8	40 ~	1.5 ~ 2.5	green
SN-15	5 ~ 15	26 ~ 18	13	37 ~	1.1 ~ 2.2	orange
SN-50	15 ~ 50	22 ~ 15	20 ~ 18	30 ~	0.7 ~ 2.0	blue

[Notes] • Place SN Sheet (or portions of them) so that the vibrating object becomes stable. • Place SN Sheet so that the load of the vibrating object is spread evenly on the projections. • Placing a flat plate on the top surface of SN Sheet helps. • Remove the protective PET film from the bottom face before use.





Optimum Load

Each of our vibration damping products is designed to work best for a certain range of weight (optimum load). Select the best one based on the load of the vibrating object. Optimum load assumes 4 points of support (one sheet for SN Sheet). **Resonance Point** (Hz) Resonance point is the frequency at which the object reaches maximum vibration when it is externally vibrated on a vibration

damping product. Resonance point is determined by the spring constant of the vibration damping products and the weight of the vibrating object.

Resonance Magnification (dB)

Resonance magnification is the ratio, at resonance point, of the vibration amplitude with the vibration damping products to that without them. The vibrating object will vibrate at about twice the amplitude at 6dB, at about five times at 14dB, and at about ten times at 20dB, compared to when no vibration damping products are used.

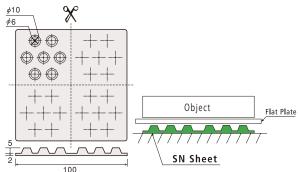
Recommended Frequency (Hz)

For effective vibration damping, the frequency of the vibrating object needs to be at least $\sqrt{2}$ the resonance point. Recommended frequency is defined as the range above this frequency. Select the best one based on the frequency of the vibrating object.



nd	little	horizontal	distortion.
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[Installation]



Application guideline:

• For 0.3 kg load, add a plate to exceed 0.5 kg or use at least three squares of the divided SN-2. • For 10 kg load, use a sheet of SN-15 as it is or at least three squares of the divided SN-15. • For 80 kg load, use 2 sheets of SN-50.

GEL Tape & GEL Chip



AGEL (Lambda GEL)

[Features] · Simple and easy solution for vibration isolation and shock absorption with adhesive on one side.

- · Wide selection to choose from based on width and thickness.
- · Very easy and effective solution for shock absorption and vibration damping where
- no space is allowed for insulators or bushes.
- Wide temperature range from -40°C (-40°F) to 100°C (212°F).

GEL Tape

C	E 1	CL	
U	EL	U	110

Item	W (mm) × L (mm) × T (mm)
GT-1	$10 \times 1,000 \times 1$
GT-2	$20 \times 1,000 \times 1$
GT-3	10 × 1,000 × 2
GT-4	20 × 1,000 × 2
GT-5	10 × 1,000 × 3
GT-6	20 × 1,000 × 3

Item	W (mm) × L (mm) × T(mm)
GC-1	10 × 10 × 3
GC-2	10 × 10 × 5
GC-3	15 × 15 × 3
GC-4	15 × 15 × 5
GC-5	15 × 15 × 10
GC-6	20 × 20 × 3
GC-7	20 × 20 × 5
GC-8	20 × 20 × 10

1	
20 × 1,000 × 3	GC-6
	GC-7
	GC-8

* Each item is delivered in min. 25 pcs / sheet

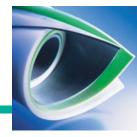
[Notes] • Before use, remove dust from the object.

• Attach with even pressure after removing the separation liner paper.

• Apply sufficient pressure to securely attach PSA (pressure-sensitive adhesive).

• Powder is applied to the surface of GEL.





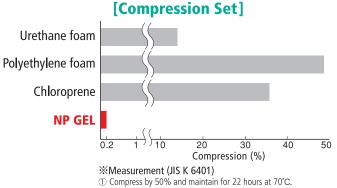
[Features] · Lightweight and highly durable foamed type.

- · With low compression set, performance of NP GEL is maintained even after repeated compression.
- Highly flame retardant and operable in the -40°C (-40°F) to 200°C (392°F) range.
- Good for outdoor use because it is highly resistant to weather and ozone.

Item	W (mm) × L (mm) × T (mm)
Green	450 × 2,000 × 3
White	300 × 1,000 × 6

[Note]

• Powder is applied to the surface for 3mm thick.

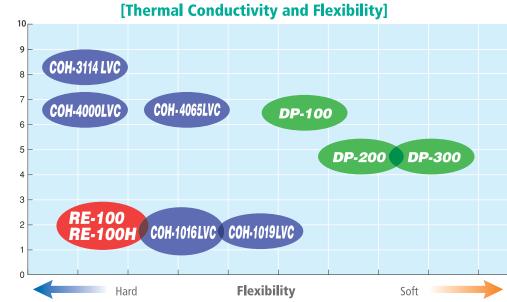


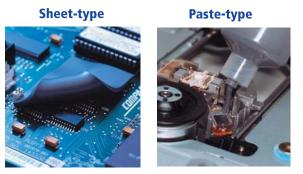
② Release compression and measure after 30 minutes at normal temperature.

- **[Features]** · λ_{GEL} (Lambda GEL) is α_{GEL} -based functional material for thermal conductivity, electromagnetic absorption and electric insulation.
 - · Soft, sticky and conformable, λ_{GEL} often exhibits performance much better than
 - published specifications due to close contact.

[COH series] Sheet-type thermal conductive GEL [DP series] Paste-type thermal conductive GEL [RE series] Sheet-type thermal conductive + electromagnetic absorbent GEL

· Refer to the separate brochures for details of the λ_{GEL} series.





[Note] Under certain conditions such as hard-pressed use, silicone oil may bleed.

[Notes]

tests

(W/m • K) Our

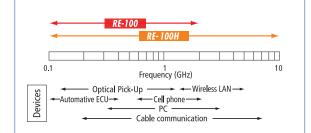
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- To the best of our knowledge, the information and statements on this brochure are believed to be true and reliable; however, the PRODUCTS described herein are sold WITHOUT ANY GUARANTEE OR WARRANTY INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSES since the application and conditions of each use vary and change, and are beyond the control of manufacturer and seller(s). The customers and users of the PRODUCTS shall assume the responsibility for determining the suitability of the PRODUCTS based on their tests and for whatever risks and liability associated with the use of the PRODUCTS. NEITHER MANUFACTURER NOR SELLER(S) SHALL BE LIABLE EITHER IN TORT OR CONTRACT OR ANY OTHER CAUSE FOR ANY KIND OF LOSS OF PROFITS OR DAMAGE, INCIDENTAL, DIRECT, OR CONSEQUENTIAL, ARISING OUT OF OR IN CONNECTION WITH THE USE OF OR THE INABILITY TO USE THE PRODUCTS.
- It is highly recommended that users would not use the products shown in the brochure in medical applications, particularly for implantation use
- The users shall be aware of the fact that silicone oil could bleed from alpha-gel. It is therefore that any user should be responsible for conducting reliability test in advance before delivering the products in the market.
- The Silione-gel contains low molecular siloxane, which could be volatile.
- The powder is applied on the surface of the GEL to reduce the tackiness temporarily and does not guarantee its effect.

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[Frequency Range]



X-ON Electronics

Largest Supplier of Electrical and Electronic Components

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 75-69211-3P
 75-69214-6P
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