αGEL

Vibration Control

Solutions for Vibration Control

Performance and durability never possible with rubber

Taica

αGEL damping solutions bring out the maximum potential of your products

6 Features

Feature.01

High Performance Damping

αGEL displays exceptional damping functionality (Loss Factor: tanδ). Its softness and pliability give αGEL this great vibration damping and vibration control performances.

Feature.02

Low Frequencies Low Loads

αGEL products offer solutions for both small, sensitive parts and large-scale heavy machinery. αGEL excels in protecting parts from low frequency vibrations and effectively reduces vibrations at a wide range of frequencies.

Feature.06

Damping Simulation

Utilizing the Nonlinear Finite Element Analysis (FEA), we analyze and predict vibration.

Feature.03

Ultra Soft Silicone Material

αGEL is a silicone-based material that combines softness and durability with a very low compression set. It can be used at a wide range of temperatures (-40℃～+200℃), resulting in unrivaled long-term reliability.

Feature.05

Vibration Control Design Know-how

We employ over 30 years of experience in the field of vibration control to offer you solutions with a customized size, hardness, and damping profile.

Feature.04

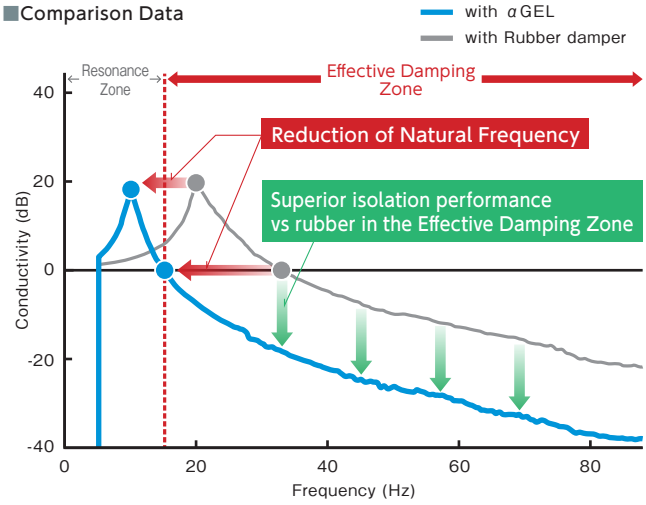
Outstanding Durability

Compared to rubber or foam materials, αGEL shows superb durability against weathering, ozone, UV and various chemicals.

Damping Performance

αGEL reduces the natural frequency of your model, where damping can be achieved starting at very low frequencies. Damping characteristics are superb compared to Rubber damper.

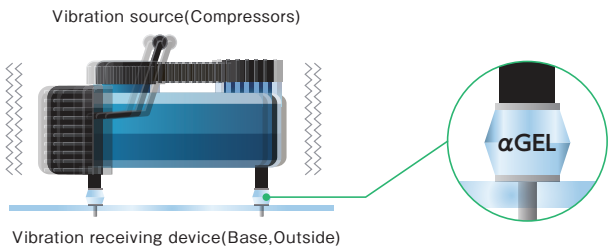
■Comparison Data



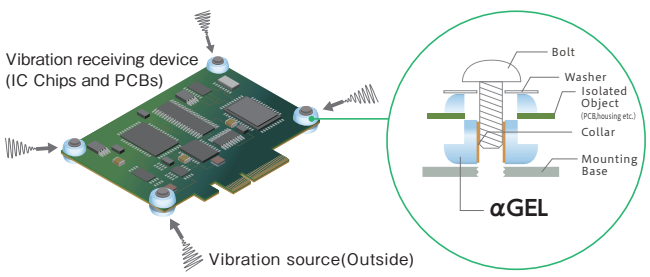
Application Example

By inserting αGEL between a vibration source and adjoining equipment/components, vibration transmission is reduced. This protects the equipment/components and also reduces noise.

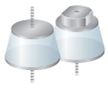
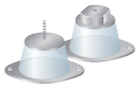
■Protection from Internal vibration



■Protection from External vibration



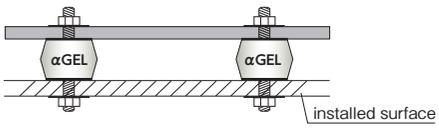
Product Categories

Product Type		Characteristics	Metal Fittings				Optimum Load(kg/4 points)
			Male threads	Female threads	Plate type	Hole size	0kg 1kg 10kg 100kg 1000kg
θ type (THETA)		Conical frustum shape. Copes with various loads by changing size and hardness	✓	✓	✓	M4-M6	[0.3~30kg] [50~100kg]
MN type		Combination of conical frustums. Copes with various loads by changing size and hardness	✓	✓	–	M6	[2~60kg]
BG type		αGEL – Spring Combo. Strength against vertical vibration.	✓	✓	–	M3-M6	[3.2~16kg]
SF type		Unitized with a bottom plate	✓	✓	✓	M-6 4.2×6mm (Oval hole)	[2~50kg]
SF Type (Rubber-coated)		Rubber encapsulated. Fit for outdoor usage.	✓	✓	✓	M10 ϕ11.5mm	[100~300kg]
Bushing Type		Usage with thru-bolts minimizing horizontal vibration.				ϕ3-ϕ4mm	[0.2~32kg]
SN Sheet type		Usage just by laying beneath your product. Very easy setup.					[0.5~50kg]

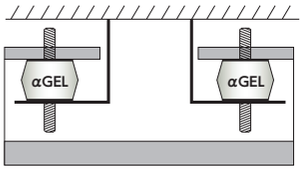
Installation Always use in compression.

Correct Use

❶Even load

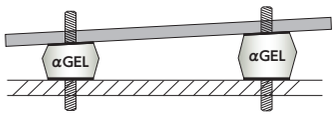


❷Compressively suspended In tensile direction

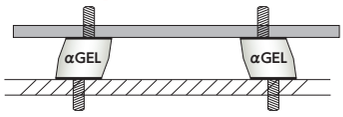


Incorrect Use

❶Uneven load



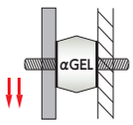
❷Misaligned bolt hole



❸Twist

❹Tensile direction

❺Shearing direction

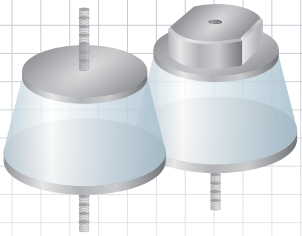


※The height of the insulator may vary as the gel is compressed under load.
※The direction of the slot on the head of stud is not controlled.
※Do not remove the burrs of the gel around the edge of metal. This could cause detachment of gel from metal.

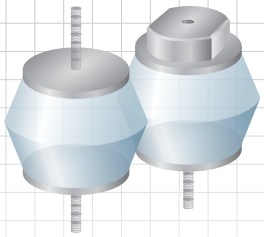
【Notes】

- 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.
- The seller or manufacturer shall not be responsible for any defects to the supplied product, unless it is proven that the supplied product has defects attributed to the intent or negligence of the manufacturer. If that is the case a replacement product shall be provided.
- The seller or manufacturer shall not be responsible for any recommendations, proposals and suggestions or matters not stated in this catalogue, unless otherwise agreed in writing and signed by duly authorized representatives of the seller or manufacturer.
- The customer shall be legally responsible for the import and export of the products of Taica Corporation. Please inform yourself about the laws and regulations of the relevant countries regarding import and export prior to your purchase.

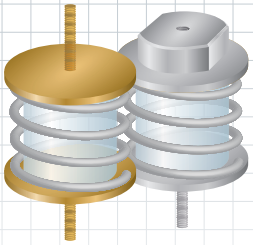
Insulators



[θ (THETA) type]



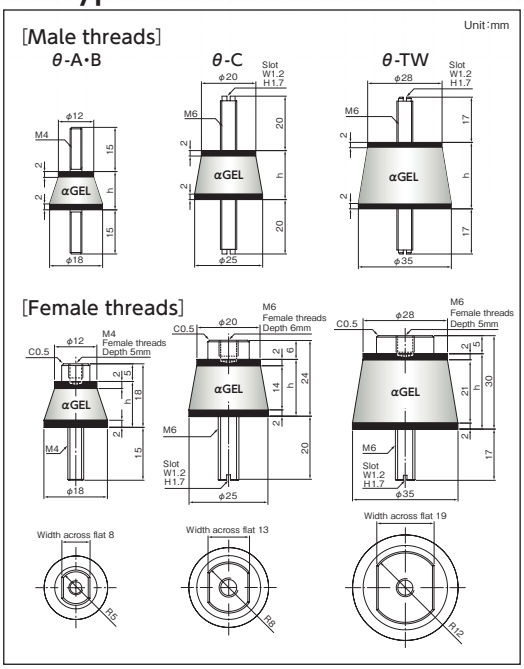
[MN type]



[BG type]

Product Details

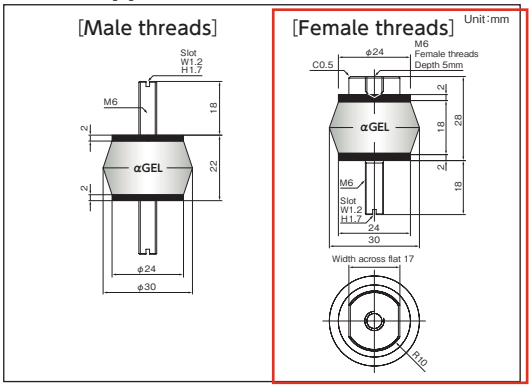
θ type Male / Female threads



Part No.	Optimum Load (kg/4 points)	Resonance Point(Hz)	Resonance Magnification(dB)	Recommended Frequency range(Hz)	h (mm)
θ-A	2 ~ 3.2	16 ~ 15	12	23 ~	13
θ-A-7	0.3 ~ 0.9	21 ~ 16	6 ~ 8	25 ~	13
θ-A-5	1 ~ 5	26 ~ 16	9 ~ 11	25 ~	13
θ-A-6	5 ~ 15	20 ~ 12	16 ~ 19	20 ~	13
θ-A-8	10 ~ 30	18 ~ 11	20 ~ 24	18 ~	13
θ-B	1.6 ~ 2.4	13 ~ 11	13 ~ 12	18 ~	18
θ-C	3.2 ~ 8	14 ~ 12	13 ~ 12	20 ~	18
θ-TW	50 ~ 100	10 ~ 8	20 ~ 19	14 ~	25

[Male] Upper / Bottom bolt material : Iron with trivalent chromate plating or SUS304
[Female] Upper / Bottom bolt material : SUS304

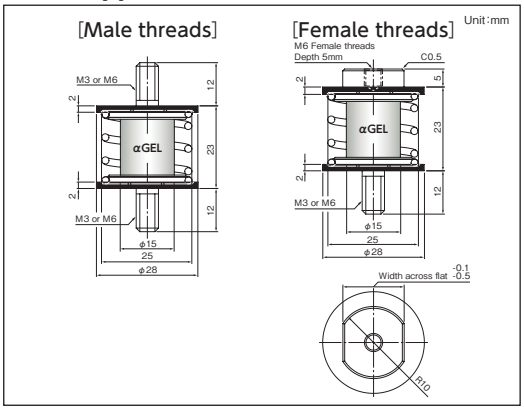
MN type Male / Female threads



Part No.	Optimum Load (kg/4 points)	Resonance Point(Hz)	Resonance Magnification(dB)	Recommended Frequency range(Hz)
MN-1	2 ~ 7	18 ~ 11	12 ~ 13	17 ~
MN-2	3 ~ 9	17 ~ 11	9 ~ 10	17 ~
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 ~
MN-25	40 ~ 60	10 ~ 8	21 ~ 23	14 ~

[Male] Upper / Bottom bolt material : Iron with trivalent chromate plating or SUS304
[Female] Upper / Bottom bolt material : SUS304

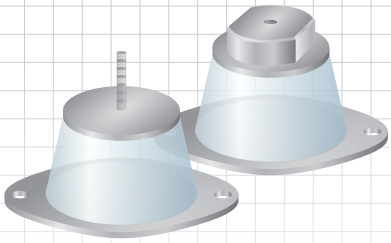
BG type Male / Female threads



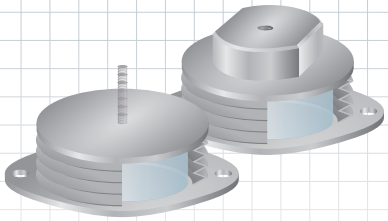
Part No.	Optimum Load (kg/4 points)	Resonance Point(Hz)	Resonance Magnification(dB)	Recommended Frequency range(Hz)	Bolt Diameter
BG-7	3.2 ~ 6.4	10 ~ 8	16 ~ 14	14 ~	M-3
BG-8	6 ~ 16	10 ~ 8	18 ~ 16	14 ~	M-6

[Male] Upper / Bottom bolt material : Iron with trivalent chromate plating or SUS304
Spring material : SWPA with trivalent chromate plating
[Female] Upper / Bottom bolt material : SUS304
Spring material : SWPA with trivalent chromate plating

Insulators [Bottom plate type]



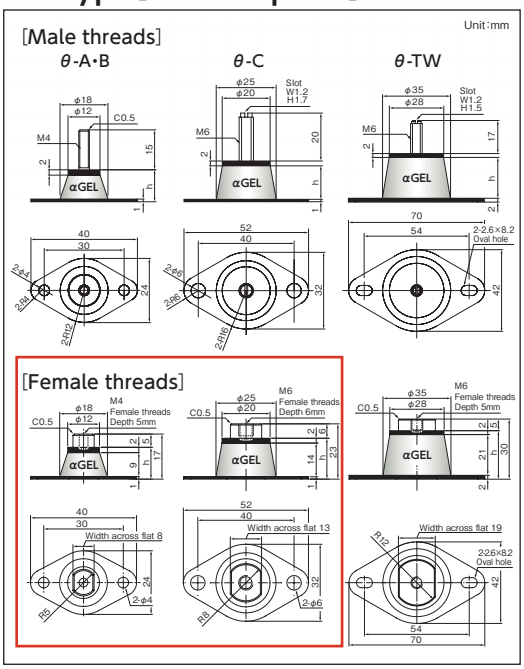
[θ (THETA) type / SF type]



[SF type (Rubber-coated)]

Product Details

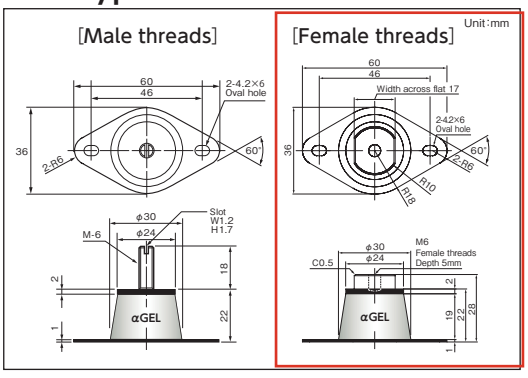
θ type [Bottom plate] Male / Female threads



Part No.	Optimum Load (kg/4 points)	Resonance Point(Hz)	Resonance Magnification(dB)	Recommended Frequency range(Hz)	h (mm)
θ-A	2 ~ 3.2	16 ~ 15	12	23 ~	12
θ-B	1.6 ~ 2.4	13 ~ 11	13 ~ 12	18 ~	17
θ-C	3.2 ~ 8	14 ~ 12	13 ~ 12	20 ~	17
θ-TW	50 ~ 100	10 ~ 8	20 ~ 19	14 ~	25

[Male] Upper bolt material : Iron with trivalent chromate plating or SUS304
Bottom plate material : SUS304
[Female] Upper bolt material : SUS304 Bottom plate material : SUS304

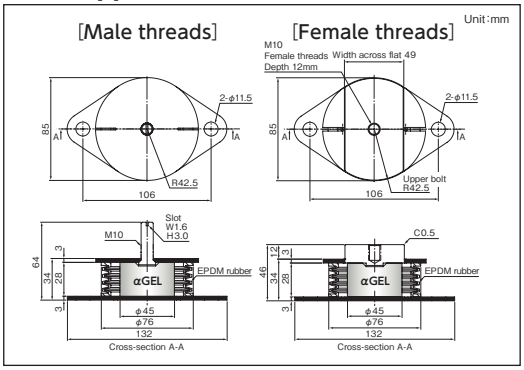
SF type Male / Female threads



Part No.	Optimum Load (kg/4 points)	Resonance Point(Hz)	Resonance Magnification(dB)	Recommended Frequency range(Hz)
SF-0	2 ~ 9	19 ~ 10	12 ~ 13	16 ~
SF-1	3 ~ 11	17 ~ 10	9 ~ 10	16 ~
SF-2	5 ~ 13	15 ~ 10	12 ~ 13	22 ~
SF-5	13 ~ 30	13 ~ 9	15 ~ 16	19 ~
SF-10	30 ~ 50	12 ~ 9	19 ~ 21	17 ~

[Male] Upper bolt material : Iron with trivalent chromate plating or SUS304
Bottom plate material : SUS304
[Female] Upper bolt material : SUS304 Bottom plate material : SUS304

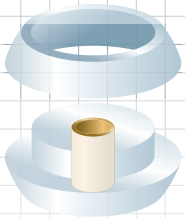
SF type (Rubber-coated) Male / Female threads



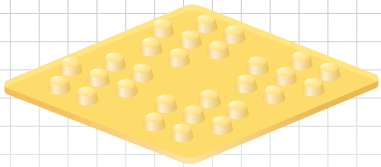
Part No.	Optimum Load (kg/4 points)	Resonance Point(Hz)	Resonance Magnification(dB)	Recommended Frequency range(Hz)
SF-30	100 ~ 140	9 ~ 8	18 ~ 19	13 ~
SF-50	120 ~ 300	15 ~ 10	12 ~ 18	15 ~

[Male] Upper bolt / Bottom plate material : Iron with trivalent chromate plating or SUS304
[Female] Upper bolt / Bottom plate material : SUS304

Gel Bush/SN Sheet



[Gel Bush]



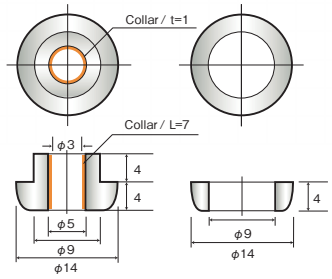
[SN Sheet]

Product Details

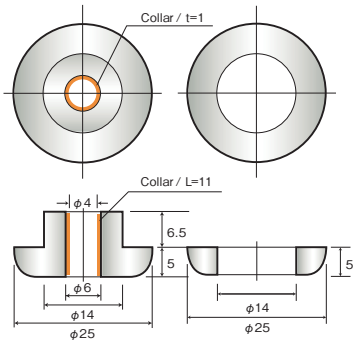
Gel Bush

Unit:mm

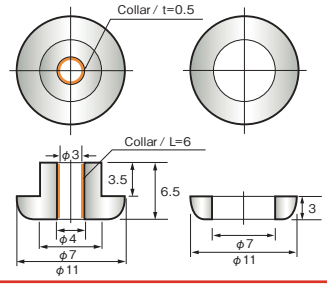
[A type]



[B type]



[S type]

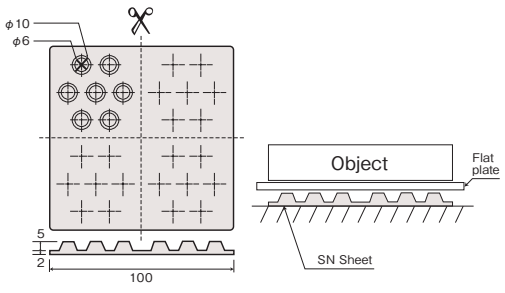


Part No.	Optimum Load (kg/4 points)	Resonance Point(Hz)	Resonance Magnification(dB)	Recommended Frequency range(Hz)
A-0	0.2 ~ 0.8	73 ~ 39	5 ~ 7	0.2Kg:112 ~ / 0.8Kg:62 ~
A-1	0.5 ~ 2.5	67 ~ 35	9 ~ 10	0.5Kg:95 ~ / 2.5Kg:50 ~
A-2	2.5 ~ 4	49 ~ 37	15 ~ 16	2.5Kg:70 ~ / 4Kg:55 ~
A-3	5 ~ 20	56 ~ 29	19 ~ 21	5Kg:83 ~ / 20Kg:45 ~
B-0	0.6 ~ 2	43 ~ 27	5 ~ 7	0.6Kg:66 ~ / 2Kg:42 ~
B-0.5	2 ~ 9	45 ~ 27	8 ~ 10	2Kg:68 ~ / 9Kg:42 ~
B-1	4 ~ 15	49 ~ 23	15 ~ 17	4Kg:70 ~ / 15Kg:35 ~
B-2	15 ~ 32	38 ~ 20	19 ~ 23	15Kg:55 ~ / 32Kg:25 ~
S	0.2 ~ 0.75	64 ~ 42	7 ~ 9	0.2Kg:90 ~ / 0.75Kg:60 ~
S-5	0.6 ~ 1	58 ~ 38	2 ~ 4	0.6kg:81 ~ / 1kg:53 ~
S-6	3.5 ~ 4.5	40 ~ 31	4 ~ 8	3.5kg:55 ~ / 4.5kg:43 ~
S-8	10 ~ 14	30 ~ 28	12 ~ 13	10kg:43 ~ / 14kg:39 ~

Collar material : Brass or SUS303

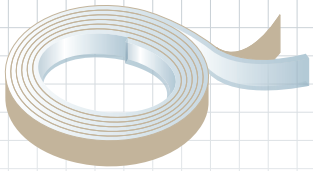
SN Sheet

Unit:mm

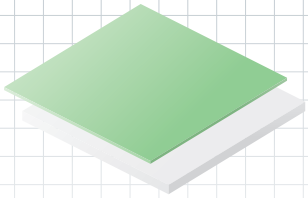


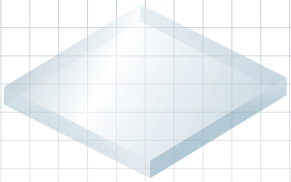
Part No.	Optimum Load (kg/4 points)	Resonance Point(Hz)	Resonance Magnification(dB)	Recommended Frequency range(Hz)	Deflection (mm)	Color
SN-2	0.5 ~ 2	27 ~ 21	6	38 ~	1.4 ~ 3	yellow
SN-5	2 ~ 5	29 ~ 23	8	40 ~	1.5 ~ 2.5	green
SN-15	5 ~ 15	26 ~ 18	13	37 ~	1.1 ~ 2.2	orange
SN-50	15 ~ 50	22 ~ 15	20 ~ 18	30 ~	0.7 ~ 2	blue

Others


[Gel Tapes]


[Gel Chips]

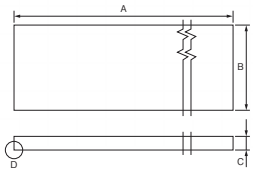

[Foam type Gel(NP Gel)]

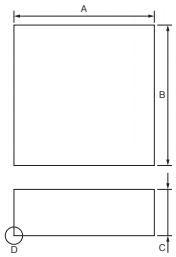

[Gel Sheet(θ(THETA) series)]

Product Details

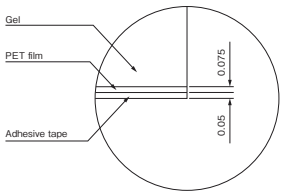
Gel Tapes/Gel Chips

[Gel Tapes(GT)] [Gel Chips(GC)] Unit:mm





[Section D details(NTS)]



Unit:mm

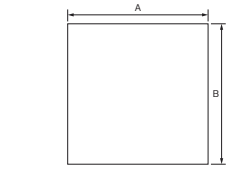
Part No.	A	B	C
GT-1	1,000	10	1
GT-2	1,000	20	1
GT-3	1,000	10	2
GT-4	1,000	20	2
GT-5	1,000	10	3
GT-6	1,000	20	3

Part No.	A	B	C
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

※θ-5GEL is used. One-side with power. One-side with adhesive tape.
※GC type: Each item is delivered in 25pcs/sheet.

Foam type Gel(NP Gel)/Gel Sheet(θ series)

Unit:mm



Unit:mm

Part No.	A	B	C
NP Gel(Green)	450	2,000	3
NP Gel(White)	300	1,000	6

※Powder is applied to the surface for 3mm thick material.

Part No.	A	B	C
θ-7	250 or 500	250 or 500	0.5~30
θ-5	250 or 500	250 or 500	0.5~30
θ-6	250 or 500	250 or 500	0.5~30
θ-8	250 or 500	250 or 500	0.5~30

※Options:GEL/with PET Film/with Adhesive Tape/with Powder/Nontacky

【Physical Characteristics】

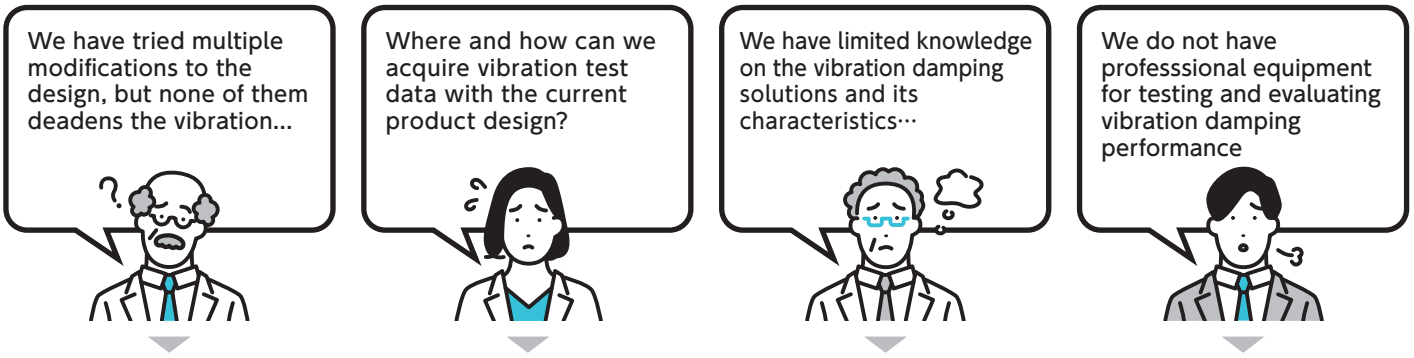
Item(unit)		Characteristics					Remark
		θ-7	θ-5	θ-6	θ-8	NP Gel	
Appearance		Translucent	Translucent	Translucent	Translucent	Green or White	
Specific Gravity		1.06	1.05	1.06	1.07	0.26	
Hardness	Needle penetration(1/10mm) ❶	100	55	–	–	–	JIS K 2207
	Asker C ❷	–	–	33	52.5	–	JIS K 7312
Tensile Strength(MPa)		0.23	1.17	1.58	2.35	0.32	JIS K 6251
Elongation(%)		480	710	480	300	73	JIS K 6251
Young's Modulus(kPa)		37.5	119.5	670.3	1432.6	269.5	
Specific Heat(J/g·K)		1.51	1.52	1.51	1.52	1.15	DSC
Thermal Conductivity(W/m·K)		0.20	0.20	0.20	0.20	0.06	❸
Specific Volume Resistance Ratio(Ω·cm)		2.9×10^{14}	4.0×10^{14}	3.2×10^{14}	6.6×10^{14}	3.8×10^{14}	JIS K 6911
Dielectric Breakdown Strength(kV/mm)		16.3	15.1	18.4	18.7	3.8	JIS C 2110
Chemical Resistance	Toluene	×	×	×	×	×	JIS K 6258 room temperature ×168h
	Acetone	×	×	×	×	×	
	Methanol	○	○	○	○	○	
	Distilled H_2O	○	○	○	○	○	
	Fuel Oil	×	×	×	×	×	
	Lubricant Oil	×	×	×	×	×	
	NaCl(10%)	○	○	○	○	○	
	HCl(10%)	○	○	○	○	○	
	NaOH(5%)	○	○	○	○	○	
Operating temperature range(℃)		−40~+200	−40~+200	−40~+200	−40~+200	−40~+200	

❶ Hardness is represented by the depth of the needle going into the gel.
❷Rubber Hardness Meter. Hardness is represented by rebounding distance when the needle contacts the surface of the gel.
❸ QTM 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.

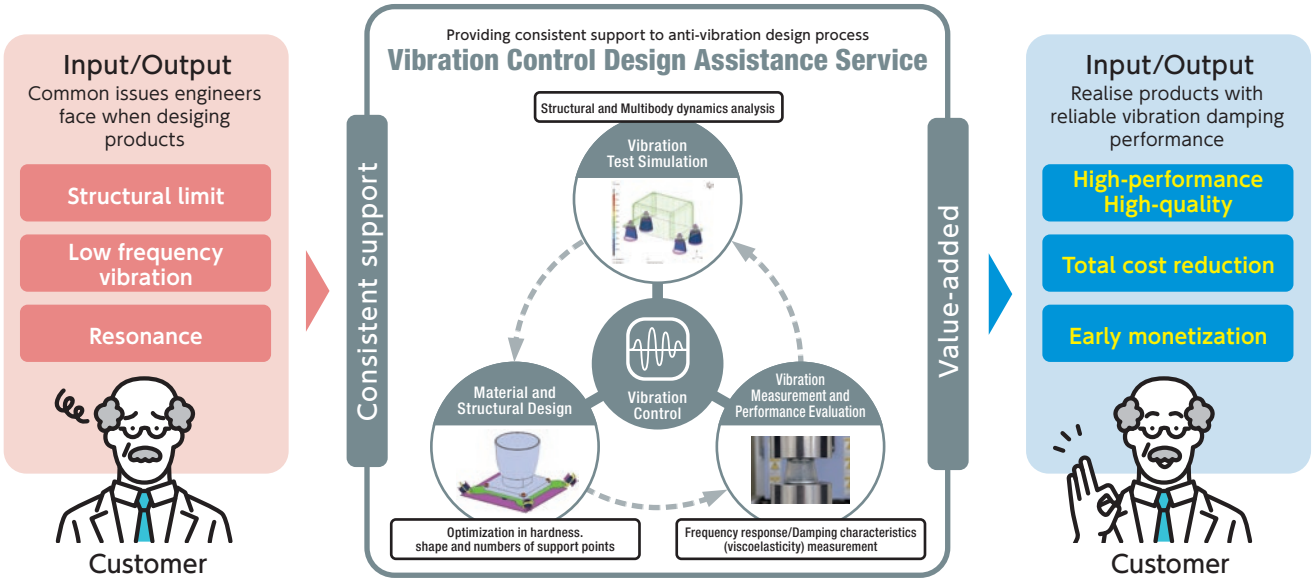
Vibration Control Design Assistance Service

We employ over 30 years of experience in the field of vibration control and our strong and creative team of engineers provide the optimum vibration damping design for your products.

Have you ever faced challenges or issues in vibration isolation design like below?



Providing the best-in-class solutions with the reliable design approach by the vibration isolation experts



Service Details

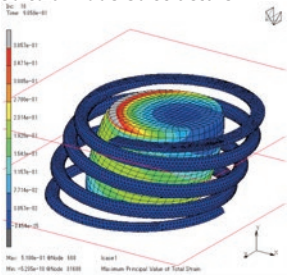
As a development partner for vibration isolation design, we provide total support for vibration test simulation, material and structural design, vibration measurement and performance evaluation. We invite you to utilize the knowledge and technical know-how we have accumulated over the years in vibration isolation for your product development.

SERVICE.1

Vibration Test Simulation

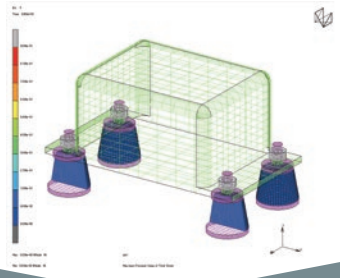
Structural Analysis Simulation

Structural analysis is a method of calculating and quantitatively analyzing deformation and stress when loads are applied to a modeled structure.



Multibody Dynamics Analysis Simulation

Multibody dynamics analysis is a method of analyzing the interaction and positional relationship of each component in a multi-component model based on the equations of motion (position, velocity, acceleration, etc.).



Benefits and Features

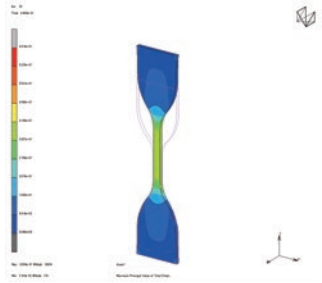
- Reduce reworks (errors in the design stage and repeated verification of prototypes on actual equipment) that occurs during conventional verification, thereby reducing total development costs (both cost and time). Contributes to early monetization by shortening the development period.

SERVICE.2

Material and Structural Design

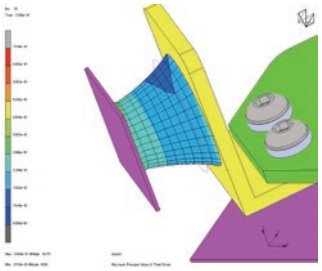
Material Design

Gel hardness, damping characteristics, product form factors can be customized based on technical and application requirements.



Structural Design

We can design the vibration damper exclusive for your product and application, while optimizing the surrounding structure.



Benefits and Features

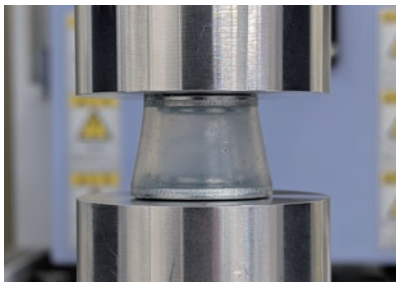
- We are able to provide optimal material design with the know-how we have accumulated over the years based on our extensive knowledge and experience in vibration isolation and our vast array of material parameters.

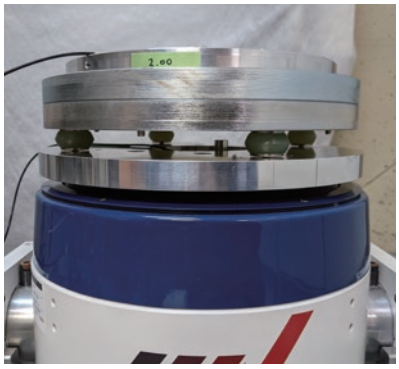
SERVICE.3

Vibration Measurement and Performance Evaluation

Vibration Measurement and Performance Evaluation

Various measurements such as reproducibility tests, vibration measurements, and physical property evaluations can be performed.





Vibration Shaker (Max. Loading Mass: 100kg)

Benefits and Features

- We can flexibly respond to customer needs and provide total support for vibration isolation design by using the data obtained from these tests for vibration isolation simulation and material and structural design.

Service Flow

Depending on the content of your consultation, we will respond flexibly and will propose a solution tailored to your needs.

STEP 1	STEP 2	STEP 3	STEP 4	STEP 5	STEP 6	STEP 7	STEP 8	STEP 9
Inquiry	Meeting (online) Confirmation of the request and requirement	Setting Goals	Detailed proposal of services	Submission of the quote	Agreement on service details	Execution of services	Service completion	Follow-up service

Vibration Control Design Assistance Service Contact Us

Taica Corporation / Multifunctional Materials Division

TEL.+81-3-6367-6624

https://taica.co.jp/gel/en/ Search

Taica

Taica Corporation / Multifunctional Materials Division

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2024.08

2024
Taica Corporation

New Product Release Notification (Preliminary)
Vibration Control Products

Dear Valued Customers,

This letter serves as a preliminary notification that Taica Corporation is releasing new products in its Vibration Control solutions. We will make a separate announcement at its official release.

New Part Numbers:

Insulator θ (THETA) Type (Upper: Male Thread / Bottom: Male Thread):
θ-A-7-MM / θ-A-5-MM / θ-A-6-MM / θ-A-8-MM

Insulator θ Type (Upper: Female Thread / Bottom: Male Thread):
θ-A-FM / θ-A-7-FM / θ-A-5-FM / θ-A-6-FM / θ-A-8-FM / θ-B-FM / θ-C-FM / θ-TW-FM

Insulator θ Type (Upper: Female Thread / Bottom: Plate) :
θ-A-FP / θ-A-7-FM / θ-A-5-FM / θ-A-6-FM / θ-A-8-FM / θ-B-FP / θ-C-FP / θ-TW-FP

Insulator MN Type (Upper: Male Thread / Bottom: Male Thread):
MN-1-MM / MN-2-MM / MN-25-MM

Insulator MN Type (Upper: Female Thread / Bottom: Male Thread):
MN-1-FM / MN-2-FM / MN-3-FM / MN-5-FM / MN-7-FM / MN-10-FM / MN-25-FM

Insulator BG Type (Upper: Female Thread / Bottom: Male Thread):
BG-7-FM / BG-8-FM

Insulator SF Type (Upper: Male Thread / Bottom: Plate):
SF-0-MP / SF-1-MP

Insulator SF Type (Upper: Female Thread / Bottom: Plate):
SF-0-FP / SF-1-FP / SF-2-FP / SF-5-FP / SF-10-FP

Insulator SF Type (Rubber-coated) (Upper: Female Thread / Bottom: Plate):
SF-30-FP / SF-50-FP

Gel Bush Type:
A-0 / A-3 / B-0 / B-0.5 / S-5 / S-6 / S-8

Please kindly contact us if you have any further questions, require additional information or need further assistance concerning the replacement materials.

Contact information

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