

INNOVATOR OF ENERGY ABSORPTION



TRUE-TRUST

COMPANY PROFILE



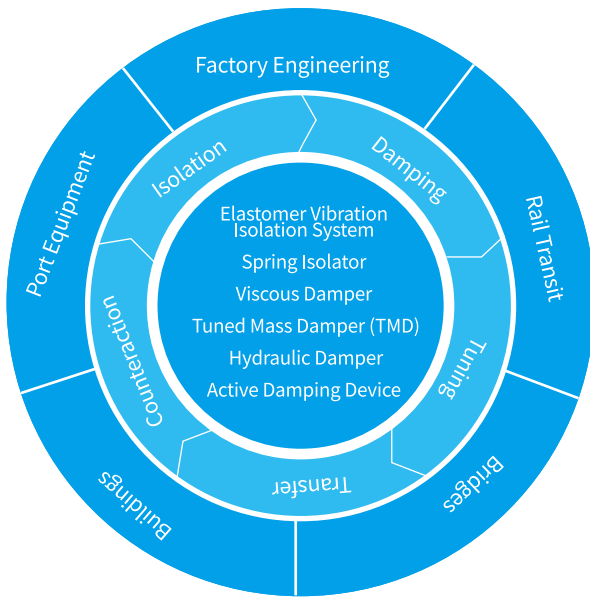
Corporate Vision:

To become a heritage-worthy company that continuously creates value for customers.

Corporate Mission:

Science & technology create value;
science & technology change lives.

Shanghai TruTrust Electromechanical Technology Co.,Ltd.(Stock Code: 300462.SEE,a listed company on the Shanghai Equity Exchange) is a high-tech achievement transformation enterprise specializing in the R&D and manufacturing of damping energy absorption products and polymer composite new materials. It was recognized as a National High-Tech Enterprise in 2022 and awarded the title of "Specialized and Sophisticated SME"(Specialization, Refinement, Differentiation,and Innovation)in 2024. As an innovator in the field of damping energy absorption,the company has long been committed to breaking through bottlenecks in environmental friendliness,cost-effectiveness,and performance of traditional products through breakthroughs in materials science and engineering technology,providing efficient,low-carbon,and advanced solutions for engineering safety and environmental protection.



TruTrust Customized Solution Portfolio

- **Safety:** Personnel, Facilities & Environment
- **Availability:** Manufacturing, Installation & Construction
- **Service Life:** Amortization of Capital Investment

TruTrust offers a full range of vibration control technologies for various fields, providing optimal solutions for every vibration problem. Vibration control is gaining increasing attention due to safety, environmental, and economic considerations. Buildings and equipment are subject to uncontrolled vibrations during their service life, which can cause damage. Uncontrolled vibrations and shock loads generate fatigue and high stresses, leading to severe damage to structures and equipment.

Consequences of Uncontrolled Vibration (High Extra Costs)

- Repair of damaged components
- Equipment downtime
- Routine maintenance
- Environmental & workplace safety hazards

Common Sources of Vibration Issues

- Mechanical equipment: engines, steam turbines, pumps
- Impact loads, turbulence, incident flow & pressure pulsation in piping systems
- External loads: wind, live loads, seismic activity
- Urban rail transit systems

TruTrust is dedicated to helping clients eliminate unnecessary vibration across the following sectors, delivering optimal solutions for every vibration problem.

- Industrial Equipment Engineering
- Rail Transit
- Bridges
- Buildings & Real Estate
- Port Machinery & Equipment

ISOLATION

Technical Background >>

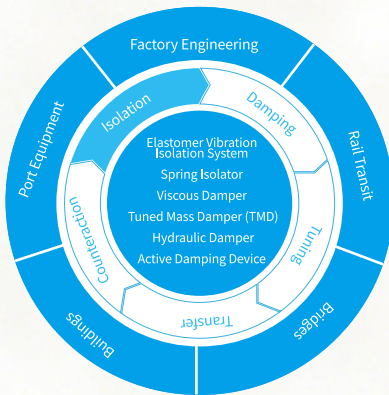
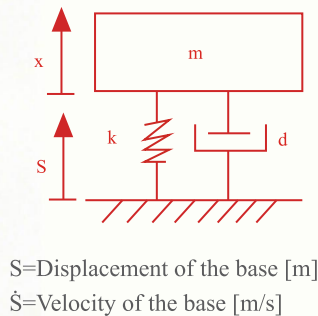


Figure 1



Controlling vibration by isolation means preventing energy from the vibration source (exciter) from being transferred to the isolated system. Because energy transfer is reduced, the isolated system vibrates with smaller amplitude compared to the non isolated case.

Figure 1 shows a simple and clear model for discussing vibration isolation. The model is a damped oscillator connected to an excited base. The excited base is the fixed base in Figure 1 that is subjected to forced vibration. The following differential equation defines the motion of the mass:

$$m\ddot{x} + d\dot{x} + kx = d\dot{s} + ks = F(s,t)$$

Under harmonic base excitation, the solution closely approaches that of the basic physical model discussed earlier. The amplitude amplification function is:

$$V = \frac{\sqrt{1 + (2D \frac{f_E}{f_0})^2}}{\sqrt{(1 - \frac{f_E}{f_0})^2 + 2D \frac{f_E}{f_0}^2}}$$

Application Range >>

Spring Isolators

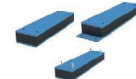
Spring isolators can be used to solve a wide range of vibration isolation problems. A typical industrial application is base isolation for heavy equipment such as punch presses and forging hammers. Power plants also use spring isolators to isolate coal mills, diesel and natural gas engines, gas turbines, pumps, and condensers. In addition, spring isolators are used to prevent vibration from equipment that generates vibration (vibration sources), such as compressors and fans, from being transmitted to the environment.

Spring isolators are also used to isolate the isolated system from vibrations induced by the environment (receiving-end isolation). For example, base isolation is applied to structures such as critical equipment or buildings to avoid vibrations caused by live loads.

Elastomeric Vibration Isolation Systems

In many applications, elastomeric vibration isolation systems are the most effective solution for vibration isolation. A typical case is isolating emergency generators installed on the rooftops of high-rise buildings such as hospitals (isolating the vibration source). In the event of a power outage, the generator will immediately start emergency power supply. During startup and operation, the elastomeric isolation system must ensure its vibration isolation performance, so that the operating vibration of the generator is not transmitted to the building and does not affect the normal operation of medical devices and laboratory equipment. Elastomeric isolation systems are also commonly used to isolate entire houses or buildings from external excitations (receiving-end isolation). For elevator equipment widely installed in buildings, during the starting and braking of the traction machine, this product can be used to isolate vibrations from small rooms housing high-sensitivity products or measuring equipment to entire concert halls, such as vibrations caused by adjacent railway tracks. Another broad application is isolating production equipment such as machine tools. By using small quasi-elastomeric vibration isolation devices, a simple and cost-effective vibration isolation solution can be provided.

Product Description	Product Image	Model	Support Plate Dia. (mm)	Mounting Hole Dia. (mm)	Static Height (mm)	Max Load (N)	Min. Height (mm)	Min. Load (N)	Max. Height (mm)	Remarks
Single Spring Isolator		CXSP18001F~CXSP18008F	80	12	71	1645~3895	50~55	410~1430	65	
		CXSP19501F~CXSP19509F	95	12	117	1645~3895	50~55	410~1430	65	
Adjustable Height Single Spring Isolator		CXSP18001A~CXSP18008A	80	12	91~101	1465~3,895	70~80	~75~85	410~1,430	Adjustment Bolt M12
		CXSP19501A~CXSP19509A	95	12	145~153	750~12,120	93~103	~119~129	90~2,970	Adjustment Bolt M16
Double Spring Isolator		CXSP29001F~CXSP29008F	90	12	71	2920~7,790	50~55	822~2,880	65	
		CXSP21001F~CXSP21009F	100	12	117	1300~24,240	74~93	180~5,940	140	
Pre loaded Double Spring Isolator		CXSP21201A~CXSP21209A	120	12	117	1300~24,240	74~93	180~5,940	111	
Four Spring Isolator		CXSP41701F~CXSP41708F	170	12	71	15860~15,570	50~55	1650~5,760	65	
		CXSP41951F~CXSP41959F	195	12	117	2600~48,480	74~93	355~11,960	140	
Pre loaded Four Spring Isolator		CXSP42201A~CXSP42209A	220	12	117	2600~48,480	74~93	355~11,960	111	

Product Description	Product Image	Model	Section Width (mm)	Section Height (mm)	Steel Plate Thick. (mm)	Max Load (N)	Weight per dm length (kg)
Elastomer Isolator (8 variants)		CXRS04020N	40	20	5	350	0.35
		CXRS04035N~CXRS04050N	40	35~50	10	300~200	0.69~0.75
		CXRS05035N~CXRS05070N	50	35~70	10	400~250	0.89~1.08
		CXRS07030N~CXRS07080N	70	30~80	10	650~350	1.18~1.56
		CXRS10045N~CXRS10090N	100	45~90	15	800~500	2.47~2.96
		CXRS15060N~CXRS15010N	150	60~100	15	920~760	4.03~4.69
		CXRS20070N~CXRS20011N	200	70~110	15	1,600~1,240	6.08~6.96

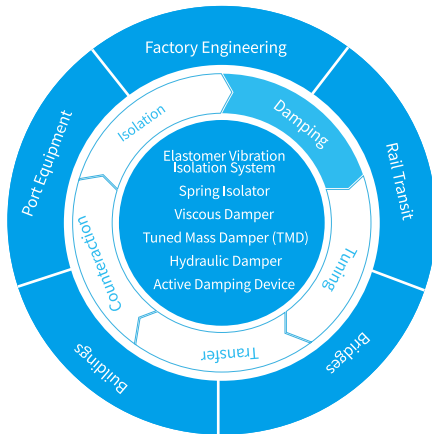
Six Advantages

- Effectively reduce vibration of buildings and structures, and mitigate structural noise emissions.
- When vibration and noise cannot be further reduced at the source, their harmful impacts can be greatly attenuated along the transmission path.
- Two height specifications with free heights of 71 mm and 117 mm respectively.
- Cast carbon steel structure.
- Anti-corrosion galvanized treatment.
- Optional longer-lasting anti-corrosion treatment solutions.

(Note: Only partial specifications are displayed on the page. Please contact us for full specifications, and non-standard customization is accepted.)



DAMPING



Technical Background »

To control vibration by reducing the energy of the vibrating system, damping devices are used to dissipate energy (Figure 1). Unlike isolation, here the system first responds to the vibration – that is, energy has been transferred from the source to the isolated system. However, because of the damping device, part of the vibration kinetic energy is converted into heat or other forms, thus reducing the vibration amplitude.

When the vibration frequency falls within the system's natural frequency f range (Figure 2), i.e., resonance occurs, damping is the only effective method to control vibration.

By increasing the damping coefficient, the amplitude at that frequency can be significantly reduced. The variation of the amplitude amplification function is shown in Figure 3.

The design requirement for damping elements is to ensure they can effectively dissipate energy within this frequency range.

Unlike vibration isolation, damping technology is particularly suitable for retrofitting projects to control vibration. Viscous dampers are a typical product of damping devices, which can be easily added to already installed piping systems.

Figure 1

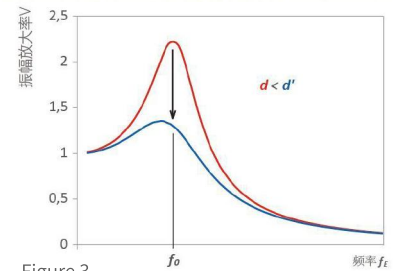
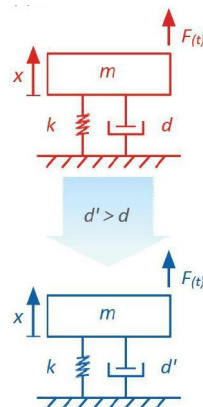


Figure 3

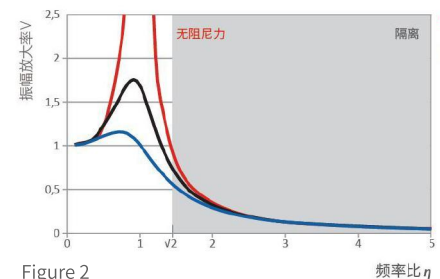


Figure 2

Application Scope »

Viscous dampers can be used to solve various vibration problems. One typical application is for mechanical equipment vibration. In any case where the vibration source cannot be isolated, damping can serve as an effective method to control the vibration level of the equipment within an acceptable range. Another application is damping impact loads, such as those from large forging hammers. In this case, the damping device must absorb a large amount of momentum in a very short time to enable the system to recover as quickly as possible, so that it can withstand the next operation of the forging hammer with minimal recovery time.

Viscous dampers can also be used in conjunction with spring isolators, for example, in the base isolation of engines, which can reduce the size of the base. Typically, when an engine starts, the engine will continuously accelerate to reach its operating frequency.

Spring isolators ensure the isolation of the turbine base from the surrounding environment at the operating frequency. In fact, the natural frequency of the system composed of the turbine, engine, base, and spring isolators is much lower than the operating frequency.

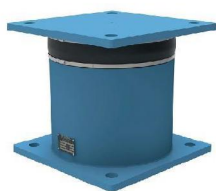
Therefore, during the acceleration process of machinery such as diesel engines from zero frequency to the operating frequency after startup, the system may reach its natural frequency, i.e., the resonance frequency range. At this point, viscous damping equipment is required to suppress the system vibration.



Viscous Damper

Effectively reduces vibration of buildings and structures by converting it into internal thermal energy dissipation. It is suitable for mitigating vibration during machining processes and equipment vibration. A variety of working media are available to adapt to different operating environments and load conditions.

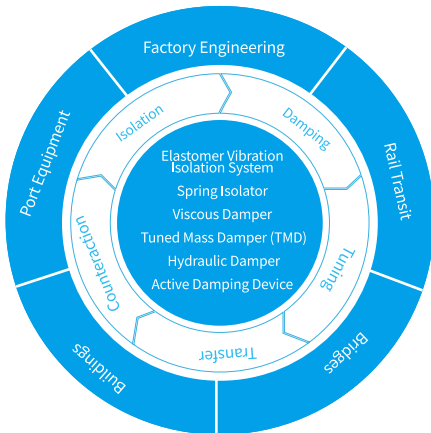
Model	Overall Height (mm)	Mounting Base Size (mm)	Mounting Hole Dist. (mm)	Mounting Hole Dia. (mm)	Self Weight (kg)
CXVD14401T	240	175	125	14	9
CXVD14402T	240	195	145	14	11
CXVD14403T	240	210	160	14	14
CXVD14404T	240	260	200	18	23
CXVD14405T	280	315	245	22	42
CXVD14406T	320	375	290	26	70
CXVD14407T	335	400	310	26	90
CXVD14408T	350	435	330	33	103
CXVD14409T	390	490	365	39	165
CXVD14410T	405	510	395	39	203
CXVD23301T	270	220	150	18	17
CXVD23302T	270	260	190	18	26
CXVD23303T	290	310	230	24	50
CXVD23304T	290	390	300	28	85
CXVD23305T	300	500	390	42	157
CXVD23306T	380	540	430	42	154
CXVD25501T	390	235	180	18	28
CXVD25502T	390	300	230	24	42
CXVD25503T	410	360	270	28	85
CXVD25504T	410	430	340	28	125
CXVD25505T	490	540	420	42	216
CXVD25506T	500	650	540	42	393



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DAMPER PRODUCTS



TMD: Tuned Mass Damper >>

Technical Background: A special method to reduce the amplitude of a vibrating system is to connect it to another vibrating system, namely a Tuned Mass Damper (TMD). By adjusting its properties such as mass, damping coefficient, and stiffness, the energy of the original system can be effectively transferred to this device (Figure 1). As a result, the TMD vibrates while the vibration of the original system is significantly attenuated (Figure 2). The vibrational energy of the original system is absorbed by the TMD. When the original system vibrates at its natural frequency, the passive TMD is designed to effectively absorb energy, with the absorption level depending on the initial damping of the original system. Damping elements of the TMD, such as viscous dampers or eddy current dampers, enable the TMD to function over a wide frequency range. TMD is highly suitable for retrofitting projects as it can be easily installed on vibrating structures without requiring anchor points.

Figure 1

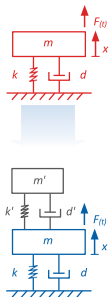
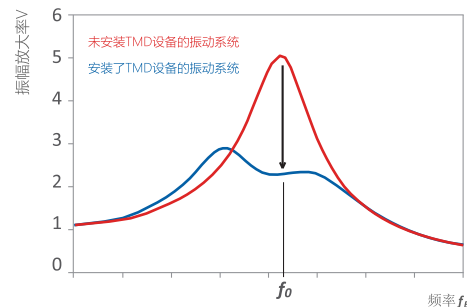


Figure 2



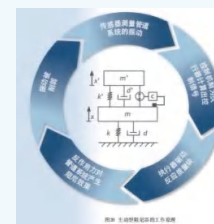
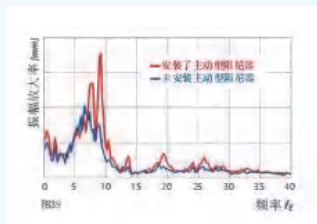
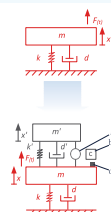
Application Scope: From industrial plants to civil engineering, TMDs can be used in many industrial fields. A typical application in industrial plants is controlling the vibration of pipeline systems in thermal power plants and the vibration of industrial plants caused by rotary pumps. In civil engineering, a typical application is controlling the vibration of high-rise buildings and towers caused by wind forces. Another application is controlling the vibration of wind turbine generators caused by blade rotation. These diverse vibration control problems demonstrate that TMDs usually require special design for specific application scenarios.

AMD: Active Vibration Control >>

Technical Background: A very special vibration control technology, distinct from traditional methods, involves connecting an active system to the original system (Figure 3). This active system integrates built-in sensors and actuators to counteract the vibration of the original system. The superposition of vibrations from both systems significantly attenuates the initial vibration of the original system. Unlike TMDs, active dampers can be adjusted to adapt to continuously changing excitation frequencies. This product is also highly suitable for retrofitting projects, especially for pipeline system vibration issues, as it can be easily installed on pipeline systems and effectively reduce vibration with a relatively small mass.

Figure 3

- a: Actuator
- b: Controller
- c: Sensor



Application Scope: Suitable for scenarios where the vibration system needs to be controlled while vibrating at various frequencies, such as the different frequencies generated by factory equipment under different operating conditions.

Tuned Mass Damper (TMD)

It has no impact on the stiffness of the main structure and is mainly used to solve problems of excessive structural vibration that are not suitable or cannot be addressed by increasing structural stiffness. For example, it can significantly reduce vertical and horizontal vibrations of structures such as pedestrian overpasses, large cantilevers, long-span floors, high-rise and tall buildings (e.g., wind power towers, transmission towers, TV towers). With proper design, such problems can almost always be solved by TMD with high efficiency.



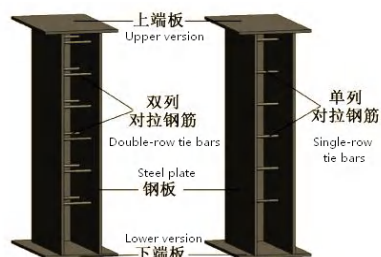
Active-Passive Hybrid Tuned Mass Damper (APTMD)

APTMD adds an active control system on the basis of TMD to achieve precise control, with higher efficiency than TMD. Its functions and applicable scenarios are similar to TMD, requiring regular maintenance and relatively high cost.



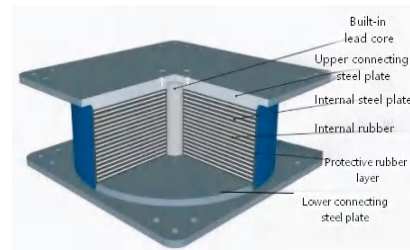
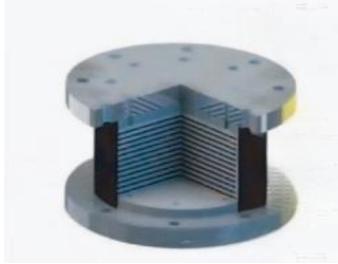
Buckling-Restrained Wall (BRW)

It has small lateral stiffness, can provide damping, features flexible layout, and does not affect doors and windows. Generally, it can be fully embedded in partition walls without affecting the architectural appearance, and cannot dissipate energy under wind loads..



Rubber Bearing

It has moderate vertical stiffness, can provide good damping, and features flexible installation positions. It may affect the structural height, usually can be hidden in beam-column joints without affecting the building function, and cannot dissipate energy independently under earthquake action.



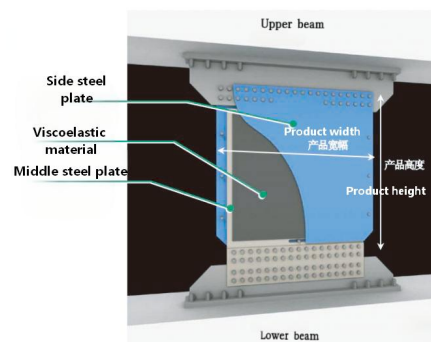
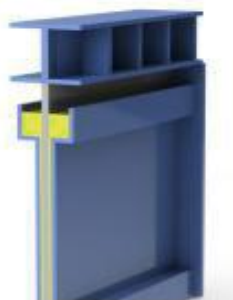
Viscous Friction Damper (VFD)

It has high energy dissipation efficiency, does not affect the stiffness of the main structure, requires regular maintenance, and can dissipate energy under wind loads.



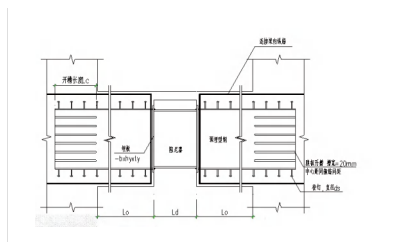
Viscoelastic Damping Wall (VEW)

It has small lateral stiffness, can provide damping, features flexible layout, and does not affect doors and windows. Generally, it can be fully embedded in partition walls without affecting the architectural appearance, and can dissipate energy under wind loads.



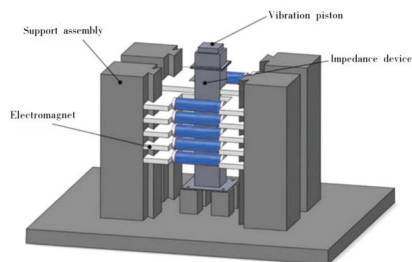
Coupling Beam Damper (CBD)

It is mainly used to replace ordinary concrete coupling beams, improving the energy dissipation capacity of coupling beams while providing damping for the main structure. It has high energy dissipation efficiency, does not affect the architectural appearance, and cannot dissipate energy under wind loads.



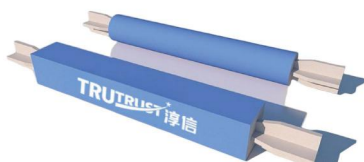
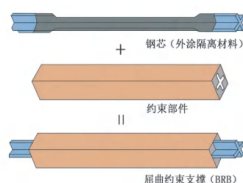
Magnetorheological Fluid Damper (MRFD)

The magnetorheological fluid damper is an intelligent semi-active damping device that changes the damping force in real time by adjusting the magnetic field strength, and is widely used in the field of seismic control. Its core lies in the rheological properties of magnetorheological (MR) fluid: under the action of an external magnetic field, the fluid can transform from a free-flowing state to a semi-solid state within milliseconds, enabling rapid adjustment of the damping force. Due to its fast response speed, adjustable damping force, and high reliability, this product is applied to precision instrument vibration isolation, bridge seismic reduction, automotive suspension systems, etc.



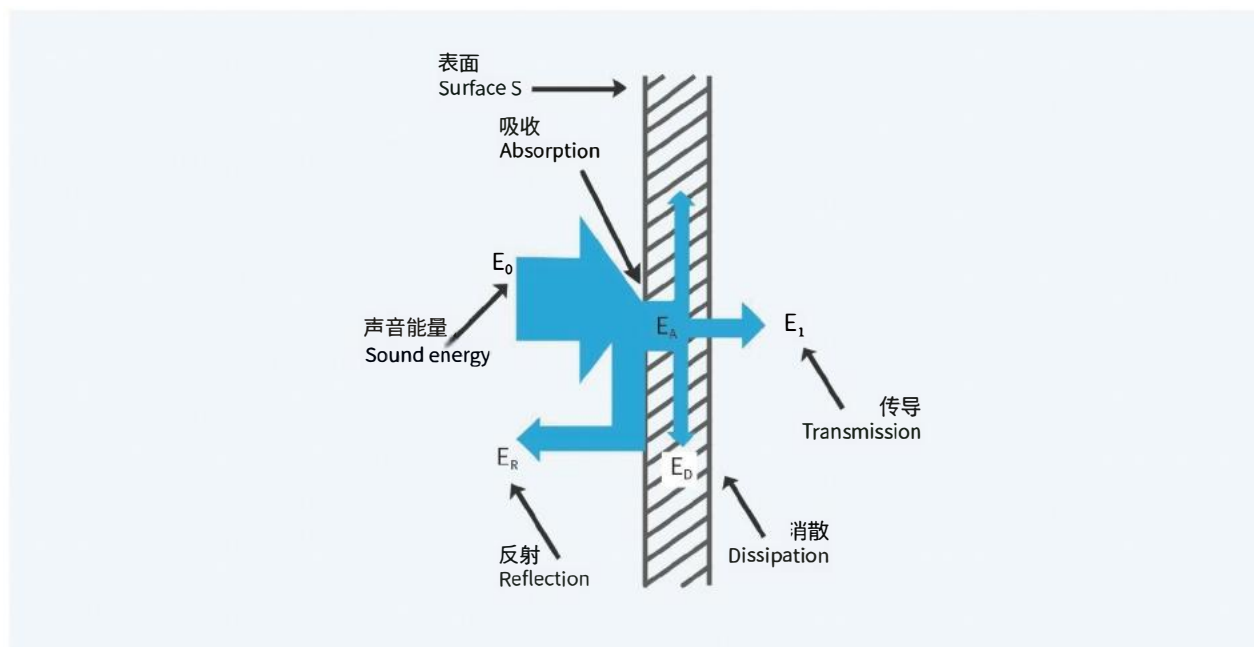
Buckling-Restrained Brace (BRB)

It has large lateral stiffness, can provide damping, features flexible layout, and may affect doors and windows. Generally, it can be embedded in partition walls without affecting the architectural appearance, and cannot dissipate energy under wind loads.



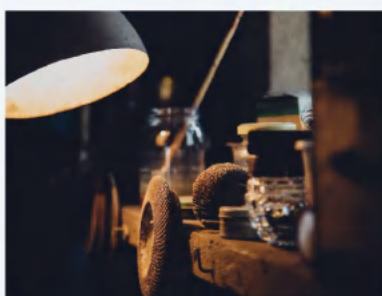
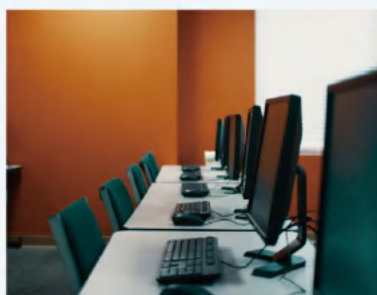
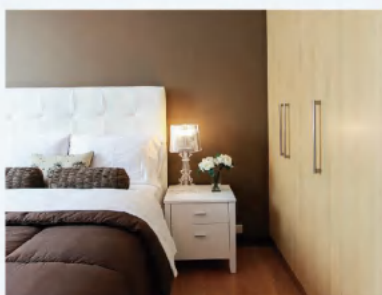
NOISE CONTROL

Technical Background »

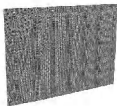
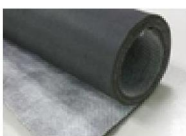


Application Scope »

Widely used for sound insulation and noise reduction in various scenarios, including the construction industry, residential bedrooms, factories, mechanical rooms, conference halls, multi-function halls, KTV bars, offices, and other similar places.



Product Specifications »

No.	Name	Picture	Product Features	Technical Parameters
1	All-Weather Sound Insulation/Acoustic Absorption Pad		Chemical fiber surface layer structure, waterproof and dustproof surface, ozone and UV resistance, fire-resistant rock wool filling with light weight, easy installation, suitable for mobile scenarios	Maximum delivery length: 4 m Unit weight: 5.5 kg / m ²
2	Sound Insulation/Acoustic Absorption Pad		Conformable adhesive material, can eliminate noise from carriages, door panels, shells, base plates and environment. Self-adhesive material is easy to install without special tools. This multi-functional pad reduces environmental noise, vibration noise and friction noise. It is easy to cut and can be trimmed to fit various blanked shapes.	Size: 500 X 500 mm Thickness: 1.78 mm
3	Sound Insulation Pad		Chemical fiber surface layer structure, waterproof and dustproof surface, ozone and UV resistance, fire-resistant rock wool filling with light weight, easy installation, suitable for mobile scenarios	Five thickness options: 1.2mm, 2mm, 3mm, 4mm, 5mm Noise insulation performance: 20-40dB 10m roll delivery

Threaded Connection Sound Insulating Machine Feet »

	Support Base Diameter	Base Height	Mounting Hole Width	Mounting Hole Length	Mounting Hole Center Distance	Total Base Width	Mounting Plate Thickness	Max. Load Capacity	Top Thread
	Ø mm	mm	mm	mm	mm	mm	mm	N	
	83	36	11.5	15	110	135	3	2,300	M10
	92	34	10	15	123	150	3	3,000	M10
	106	41	13	19	143	175	4	4,200	M12
	150	54	14	18	182	218	4	10,000	M16

Technical Background: The threaded connection composite machine foot provides an effective and firm vibration reducing and noise isolating product for machinery. Particularly suitable for outdoor applications. Made of high quality EPDM and electroplated steel. It firmly supports the machine and resists dynamic forces in both vertical and horizontal directions. Its natural frequency is approximately 25 Hz, suitable for bench and mobile equipment, devices or components such as motors, machine tools, woodworking machinery, vibrating screens, roller mills, pumps, compressors, air conditioning and ventilation equipment, etc. (Note: mounting screws are not included in standard products.)

Rubber Sound Isolating Machine Feet »

	Max. Load Capacity	Rubber Diameter	Mounting Diameter	Foot Height	Height Adjustment Range	Screw	Total Height (Including Thread)
	N	Ø mm	Ø mm	mm	mm		mm
	5,000	80	60	45	12	M12×1.5	86
	11,000	120	60	45	15	M16×1.5	80
	21,000	160	70	56	20	M20×1.5	125
	40,000	200	70	68	20	M20×1.5	122

Technical Background: provides an economical sound isolating machine foot for equipment installation, capable of resisting dynamic forces in all directions. Effectively isolates vibration and noise, while the installation height can be precisely adjusted. Special rubber resists general acid/alkali corrosion and offers excellent oil resistance. Includes adjusting screw with nuts.



ELEVATOR BUFFER

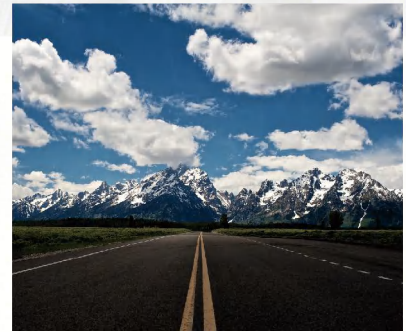
Sustainable Development Concept



Low resource consumption, low cost, simplified processing



Environmental friendliness, strong weather resistance, elimination of surface treatment processes

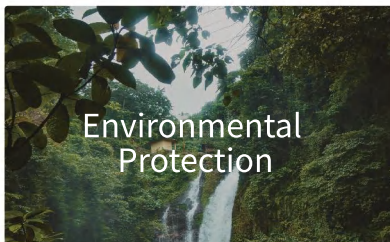


Lightweight design, easy transportation, easy installation

Covers Five of the Six National Prioritized Industries



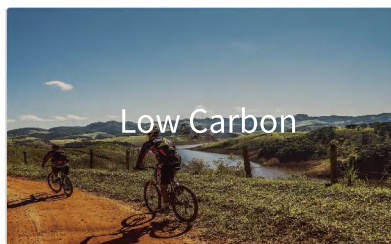
Safety



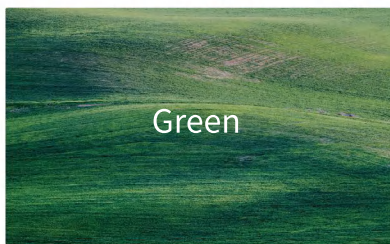
Environmental Protection



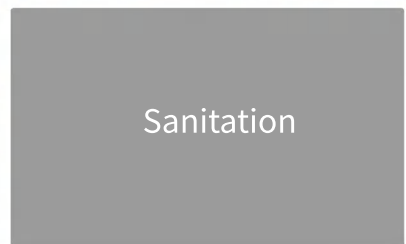
Energy Saving



Low Carbon



Green



Sanitation



Product Advantages

Cost-Effective Elevator Hydraulic Buffers

Long Service Life	Full Lifecycle Environmental Protection	Waterproof & Corrosion Resistant	Logistics Cost Reduction
Operating temperature range: -40°C to 200°C Stable service life: >50 years	No environmentally harmful surface treatments (e.g., galvanizing, blackening) required Eco-friendly throughout the entire industrial chain (materials; processing; transportation; installation; use; recycling)	Internal corrosion-resistant surface withstands strong acid and alkali corrosion Waterproof and resistant to water immersion; performance remains unaffected after water exposure (when switch protection level requirements are met)	Lightweight: 1/5 the weight of traditional products, enabling instant shipping and e-commerce compatibility Oil-shipped (fully sealed) with compact packaging size
Shorter Delivery Time	Easy Installation	Hassle-Free Maintenance	Sustainability
Short processing cycle Simplified manufacturing process Low processing difficulty	Adjustable placement angle in the elevator pit Lightweight and easy to handle	Fully sealed structure with no oil consumption No on-site oil filling required; maintenance-free—no need to adjust the vertical position of the striking rod after each switch operation No daily maintenance required; equipped with a moisture-proof and waterproof cover	Reduces labor consumption Aligns with sustainable development principles Simplified manufacturing process

Product Specifications

Type	Stroke H (mm)	Free Height H1 (mm)	Rated Speed (m/s)	Allowable Mass (kg)
CXOB1 75/80	80	310	≤1.0	600-3500
CXOB1 75/160	160	515	≤1.5	600-3500
CXOB1 75/175	175	550	≤1.6	600-3500
CXOB1 75/210	210	610	≤1.75	600-3500





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