

Features of Soundproof Materials / Vibration Absorption Materials

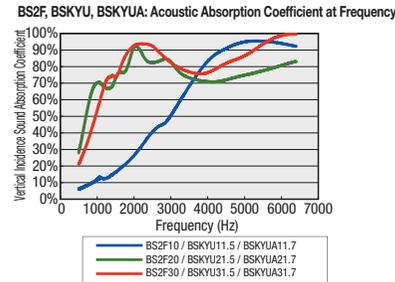
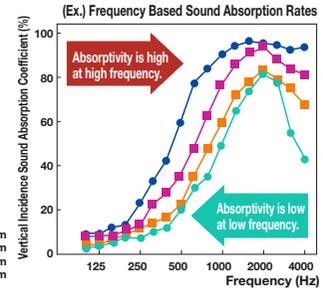
Overview

Sound proofing parts and vibration absorption parts are roughly divided to the following 3 types.

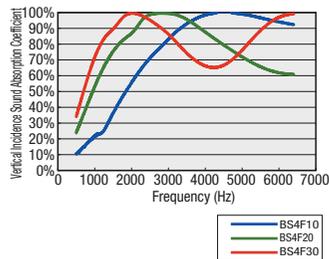
	Sound Insulation	Sound Absorption	Vibration Control
Properties	By applying Law of Mass Theory, sound transmission is cut off and reflected by increasing the mass of material (surface density).	Sound reflection can be decreased by absorbing airborne sound and converting it into thermal energy.	Reduces sound generation by attenuating vibration of an object resulting from sound transmission.
How to Use	Insulates sound by surrounding the sound source by sound insulation material. Sealing the sound source is ideal to achieve high sound insulation effect.	Absorbs sound by surrounding the sound source by sound absorption material. High sound proofing effect can be achieved by using in combination with sound insulation material.	Reduces sound generation by attaching to the sound source, etc. Effective for reducing chattering sound of peripheral equipment such as sound source, sheet metal and housings.
App. Example (Illustrated Characteristics)			

Selection Example and Characteristics of Materials

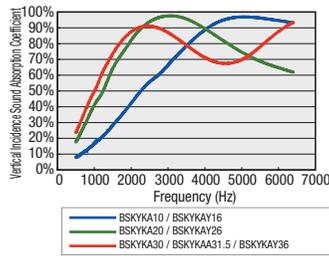
Sound absorption material is suitable for the absorption of high frequency sound, but it cannot absorb low frequency sound. For the low frequency sound, the vibration absorption material is a better choice.



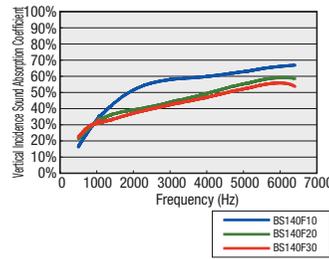
BS4F: Frequency Based Sound Absorption Rates



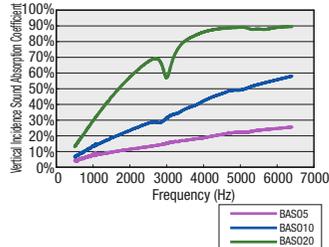
BSKYKA, BSKYKAA, BSKYKAY: Frequency Based Sound Absorption Rates



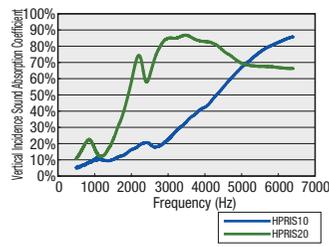
BS140F: Frequency Based Sound Absorption Rates



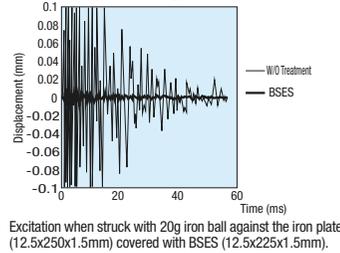
BASO: Frequency Based Sound Absorption Rates



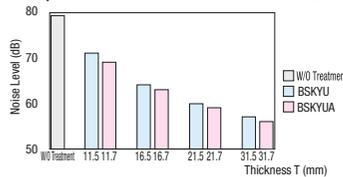
HPRI: Frequency Based Sound Absorption Rates



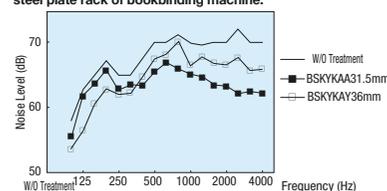
Vibration Decreasing Effect by BSES



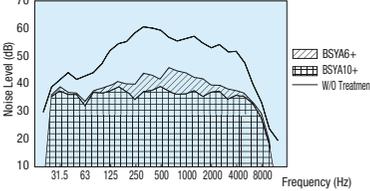
Comparison between BSKYU and BSKYUA at 20°C



Noise level when BSKYKAA and BSKYKAY are attached on a steel plate rack of bookbinding machine.



Effect when BSYA is attached on a steel pipe



Type	Material	Sound Insulation	Sound Absorption	Vibration Control	Heat Resistance	Properties	Page
BS2F BS2FS FBS2F FBS2FS	Urethane Foam	-	○	-	70	Lightweight and economical sound absorption material for various applications.	P471 P473
BS4F BS4FS FBS4F FBS4FS	Urethane Foam (Surface Coated)	-	○	-	70	Urethane coating is applied to BS2FS. Excels in maintainability and suitable for parts where dirt often adheres. More effective for mid-frequency range than BS2FS.	P471 P473
BSKYKA FBSKYKA	Urethane Foam (Surface Coated) Hole Machining	-	○	-	70	Hole machining is applied to BS4FS to increase the sound absorption performance.	P471 P473
BS140F BS140FS FBS140F FBS140FS	Urethane Foam	-	○	△	70	Sound absorption sponges with vibration control ability. Inferior in sound absorption to the products above, however high surface density and specific gravity enable both sound absorption and vibration control simultaneously.	P471 P473
BSYA FBSYA	Butyl Rubber	○	-	△	130	Sound insulation material with high surface density cutting off and reflecting sound. High specific gravity enables vibration control effect.	P471 P473
BSES BSESAB FBSSES	Vinyl Acetate	△	-	○	70	Vibration absorption material attenuating vibration by being attached to the vibrating objects. Has lower surface density than BSYA and is suitable for installation on the walls and ceilings.	P471 P473
BSESAB	Vinyl Acetate + Aluminum	△	-	◎	70	Constrained layer (Aluminum) is installed in BSES improving attenuation. Achieves high vibration control effect.	P471
BSKYU FBSKYU	Urethane Foam + Vinyl Acetate	△	○	○	70	Product combining BS2FS with BSES. Saves time to combine sound absorption material and vibration absorption material. Sound proofing effect can be obtained by using only this product.	P471 P473
BSKYUA	Urethane Foam + Vinyl Acetate + Aluminum	△	○	◎	70	Product combining BS2FS with BSESAB. Sound absorption effect and high vibration control can be obtained by using only this product.	P471
BSKYKAA FBSKYKAA	Urethane Foam (Surface Coated) + Vinyl Acetate	△	○	○	70	Product combining BSKYKA with BSESAB. Superior in maintainability and sound absorption to BSKYU and effective for mid-frequency range.	P471 P473
BSKYKAY FBSKYKAY	Urethane Foam (Surface Coated) + Butyl Rubber	○	○	△	70	Product combining BSKYKA with BSYA. Has higher specific gravity than BSKYKAA and excels in sound insulation effective for high frequency range.	P471 P473
BASO	Melamine Resin Foam	-	○	-	150	Sound absorption material with heat resistance up to 150°C. Very lightweight and excels in heat insulation.	P476
HPRI	Polyimide Foam	-	○	-	400	High heat resistance with glass transition temperature of 400°C. Has excellent properties such as heat insulation and heat retention.	P475