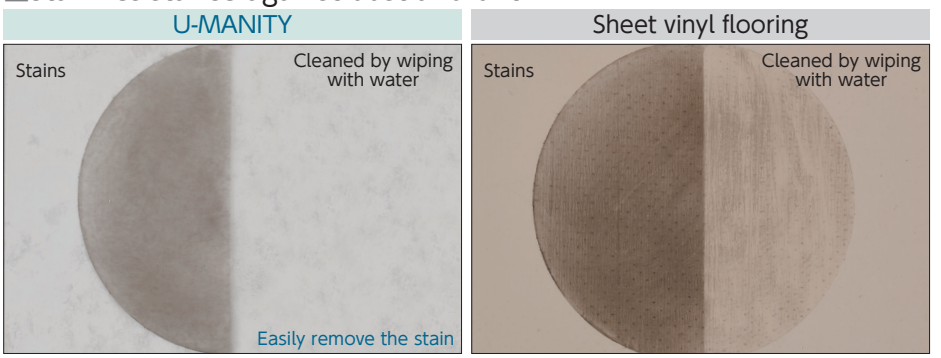
Stain resistance

"Easy Cleaning" reduces Maintenance cost

■Stain resistance against dust and dirt.

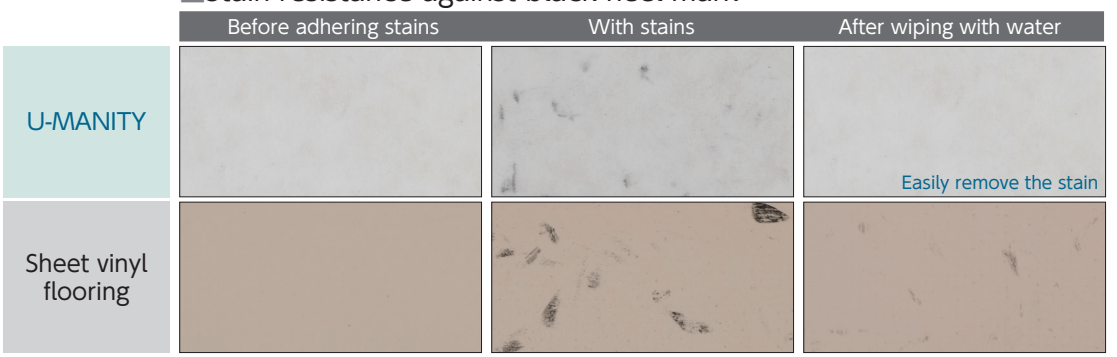


The detail of the contamination test

■Testing method

Put the stain substances on the floor material, Wipe the stain substances by nonwoven fabric with water after drying them and observe the dirt condition of the specimens.

■Stain resistance against black heel mark



The detail of the Drum-type heel mark test

■In accordance with JIS K 3920　Black heel mark resistance

At first, paste the test pieces to the respective inner surfaces of the hexagonal column-shaped drum and rotate the rotary drum with a black rubber piece to stick a black heel mark to the test pieces.

After that, wipe the stain substances by nonwoven fabric with water after drying them and observe the dirt condition of the test pieces.

For heavy traffic area, stain resistant floor covering is needed.

Dust contamination and black heel mark need to be considered for the heavy traffic area. According to the result shown above, we can recommend that AC Floor is suitable for those area such as public space, medical and facility welfare. Also the maintenance cost can be reduced for its stain resistant performance.

Antibacterial property

Suitable for facilities which require the prevention of infection

■Antibacterial Performance

Bacteria 1	Bacteria 2	Bacteria 3
effective	effective	effective

Some consideration needs to be given for infection aspects in the facility for sick people and elderly people and children.

※Due to Pharmaceutical and Medical Device Act in Japan, specific bacteria names are not indicated.

Testing method

Outline of the Antibacterial test
In accordance with JIS Z 2801 Antibacterial tes

■Testing method

Inoculate the suspension of the bacteria onto the sample surface and cover the covering film to coat uniformly and measure the number of live bacteria after 24 hours of incubation.

According to the JIS standard, when the value is more than 2.0,　the product has useful antibacterial property.

Chemical resistance

Suitable for medical facilities using pharmaceutical products

Spilling the liquid drugs sometimes cause an abnormal discoloration of a floor covering in the facilities such as medical welfare facility, nursing facility and infirmary. In case those liquid are spilt on the floor, It is important to wipe them out immediately, and also important to install the chemical resistant floor covering in order to prevent the discoloration and the deterioration of the floor covering.

■Change of color and luster due to chemicals

Classification	Chemicals	Chemical centration (%)	U-MANITY		Sheet vinyl flooring	
			color	luster	color	luster
inorganic acid	sulfuric acid	50	A	A	A	A
	nitric acid	61	D	A	C	B
	hydrochloric acid	37	A	A	C	B
organic acid	acetic acid	99	A	B	C	C
	citric acid	SAT	A	A	A	A
alkali	ammonia water	28	A	A	A	B
	sodium hydroxide	30	A	B	A	B
chlorate	potassium permanganate	7.5	D	A	D	A
organic solvent	MEK(methyl ethyl ketone)	–	A	A	A	B
	THF(tetrahydrofuran)	–	A	A	A	C
bactericide/ disinfectant/ reagent	formalin	–	A	A	A	A
	povidone iodine	–	D	A	D	A
	cresol	–	C	D	A	C
	hydrogen peroxide water	–	A	A	A	A
	mercurochrome	–	C	A	C	A
	mordant for hematoxylin	–	C	A	B	A
	chlorhexidine gluconate	–	A	A	A	A
antiseptic	ethanol for disinfection	80	A	A	A	B
	neutral detergent	–	A	A	A	A
	oxygen bleach	–	A	A	A	A
	sodium hypochlorite	–	A	A	A	B
	benzalkonium chloride	–	A	A	A	B

※All the date are actual test results and are not guaranteed values

Testing method

■Outline of the test
In accordance with JIS A 1454

■Testing method
At first, drop the liquid reagent of 2ml on the floor material surface, cover them with a watch glass and wipe the surface of them after 24 hours. And observe the condition of the specimens after drying.

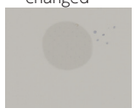
※The extent of a change is different depending on the floor covering and its color tone

※If the chemicals contain dyestuff, there is the possibility of the coloration to the floor covering.

■Evaluation criteria

A:no change　B:slightly changed

C:clearly changed　D:eroded



Dynamic load resistance

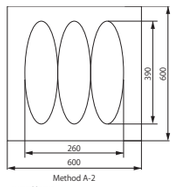
Achieves both of moving load resistance and softness

■Caster resistant test

floor covering	thickness (mm)	adhesive	the abnormality outbreak time	the situation of the abnormality
U-MANITY 2.8mm	2.8	CEMENT EP20	3 hours	foam layer destruction
U-MANITY 3.5mm	3.5	CEMENT EP20	4 hours	foam layer destruction
U-MANITY 6.0mm	6.0	CEMENT EP20	5 hours	foam layer destruction
Sheet vinyl flooring	2.0	CEMENT EP20	1 hour	swelling

Generally thicker and softer floor covering tends to have weaker moving load resistance. However as shown above test chart, AC Floor has equivalent moving load resistance to 2mm floor covering, with which enable you to have no inconvenience for caster usage.

※All the date are actual test results and are not guaranteed values



Testing method

■Outline of the test
In accordance with JIS A 1454
Caster resistant test

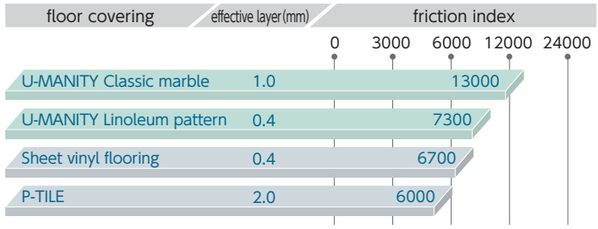
■Testing method
Caster resistant test shall be performed based on Method A-2(load 2000N)
Method A-2 is the way to draw swivel locus in the following figure.

Wear Resistance

U-MANITY has equal to or better wear resistant performance than common vinyl sheet flooring.

U-MANITY also has good wear resistance, adding to its high design property and maintaining appearance performance. With those characteristics, it is suitable for the heavy traffic area such as hospital entrance.

■Comparison of wear resistance

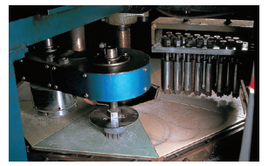


※All the date are actual test results and are not guaranteed values

Testing method

■Outline of the test
In accordance with JIS A 1454 a polymer-lined floor covering material wear resistant test

■Testing method
Drop sand on the test piece, rotate rotating disk 1000 times (1rpm) with using the following tools (in the order of friction steel plate, friction brush and rivet) and measure the change of the thickness.

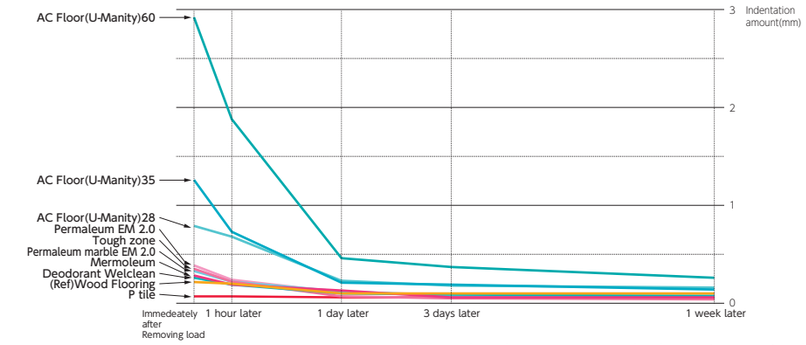


Recovering property of indentation

Though U-MANITY is soft floor covering, an open cell structure enable to recover from indentation.

After prolonged exposure to heavy goods such as furniture and beds, these indentations may remain on the floor after movement and may feel unsightly. Performance for this trail can be expressed in terms of residual indentation. In general, soft flooring materials tend to have a tendency to have the residual indentation, and as a countermeasure against this, it is also effective to select flooring materials that have little residual indentation, and to disperse loads by using flooring materials that are difficult to observe due to the colors of the flooring materials, or by using a board on the floor to reduce load pressure.

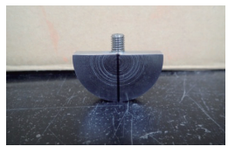
■Indentation recovery property of our floor materials.



※The value above is measured value, not guaranteed value.

TEST METHOD

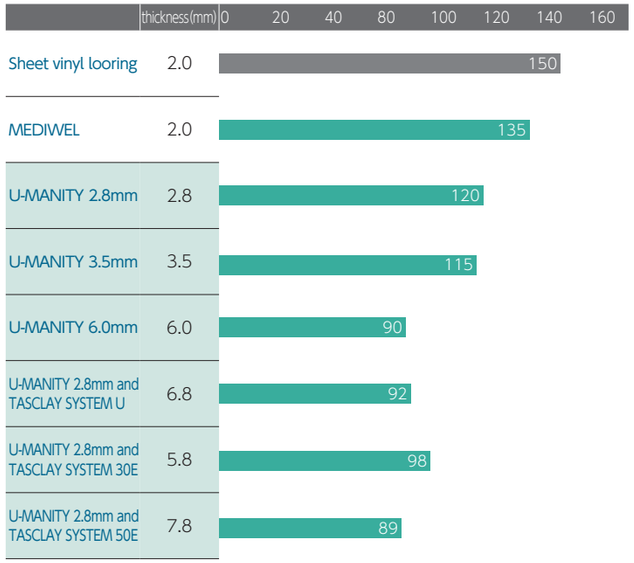
25kg load is applied to floor material surface for 7 days with a jig (a diameter of 50mm and a width of 8mm),which is assumed as a caster of furniture. Then after removing the load, the amount of indentation recovery is measured.



Shock absorb performance

U-MANITY contributes to the user's safety by minimizing the impact when people fall down to the flooring.

■impact acceleration at the time of falling down (G value)

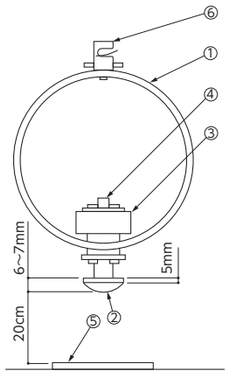


Testing method

■Outline of the test
In accordance with JIS A 6519 floor hardness test

■Testing method
Falling down the head model (3.85kg, accelerometer indicated) from 20cm height to measuring point covered by rubber panel, to measure maximum acceleration when it crashes.
From that figure we calculate the hardness(G) from the impact.

■Apparatus for measuring floor hardness



number	name
①	steel frame (outer diameter 216.3mm/ thickness 8.2mm/width 40mm)
②	steel head (curvature radius 25mm/ diameter 50mm)
③	weight(1.34kg)
④	accelerometer
⑤	rubber plate (thickness 8mm/durometer A hardness 37/size 300×150mm)
⑥	hanging metal fitting

■The characteristic by using G value excluding safety

low ← G value → high

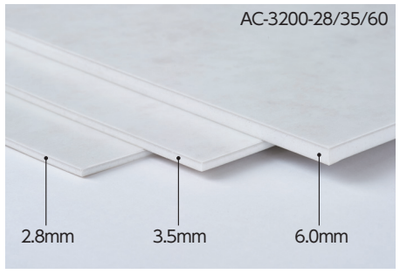
hardly feels fatigue even if walking for a long time
feel no pain even if going down one knee
relatively higher heat insulation
no tapping sound when walking

good smoothness for casters
indentation hardly generated

※All the date are actual test results and are not guaranteed values

It is important to choose the right flooring to the right place, considering about shock absorption etc.

Generally, it is considered that physical strength decline by age begins from feet. Old people with muscle decline tends to walk with sliding steps, with which they might stumble against little gap or step. That may cause falling down and bone fracture.
Considering with a safety in the facility, we should concern not only the accessibility but also shock absorption function about flooring.
Shock absorption index is expressed as "G value", shock and acceleration value of falling down. If G value is smaller, the floor is safer. However the flooring with small G value tends to be thicker and softer, less comfortable for caster moving. Therefore it is important to consider what kind of function is required the most.



If shock absorption is the most important, please choose Tajima U-manity which has form-back layer, 2.8/3.5/6.0mm thickness available.

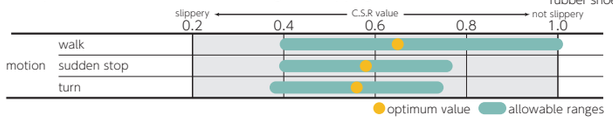
Slip Resistance

Proper slip resistance leads to user's safty

The condition of being dry and the condition of being dusty is different for each slip resistance of floor. Suitable slip resistance is preferable even if dry or not.

■Optimum value and allowable ranges of slippage (with shoes on)

B-1 Optimum value and allowable ranges of slippage (Rubber shoes) ※In case of wearing rubber shoes



B-2 Measurement result of slippage (In case of wearing rubber shoes)

Sheet vinyl flooring	2.0	0.49	0.81
MEDIWEL	2.0	0.43	0.80
U-MANITY 2.8mm	2.8	0.42	0.83
U-MANITY 3.5mm	3.5	0.42	0.82
U-MANITY 6.0mm	6.0	0.45	0.83
U-MANITY 2.8mm and TASCLAY SYSTEM 30E	5.8	0.47	0.80
U-MANITY 2.8mm and TASCLAY SYSTEM 50E	7.8	0.42	0.80
U-MANITY 2.8mm and TASCLAY SYSTEM U	6.8	0.40	0.80
Marmoleum	2.5	0.47	0.77
Tapis Select Plus	6.5	0.69	0.80
P-TILE	2.0	0.46	0.75

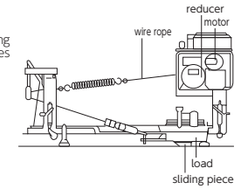
wet and dusty / dry

※All the date are actual test results and are not guaranteed values

Testing method

■Outline of the test
In accordance with JIS A 1454 a polymer-lined floor covering material test

■Testing method
Using O-Y-PSM test machine, Put sliding piece at the bottom of the base step, set 80kg deadweight on it, leave it for particular time. Then O-Y-PSM pulls it to diagonally upward(upper 18°with tensile load 785N/sec), measure Maximum tensile load index. Its result/deadweight capacity = slip resistant index



※785N/sec = when 60kg man walks faster, the deadweight on one foot is about 785N/sec.

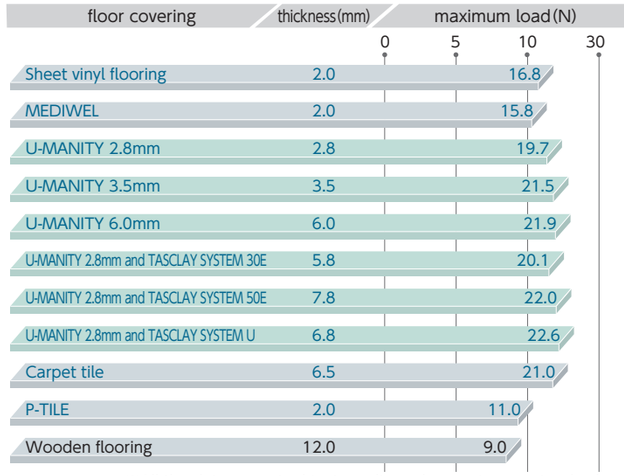
◆Water and dust(mixture)
:Water / dust for testing(1st div.) / dust for testing(7th div.) = 20/9/1
Splashed it 400g/m2 (Compliance with JIS Z 8901 method)

Performance of wheelchair moving

It is important to keep a balance between the safety and the convenience of the user.

Wheelchair can easily move on a hard floor, while not easily on soft floor. It is important to use proper floor covering, depending on the installation site requirement of safety and mobility.

■The measurement result of the movement performance of a wheelchair



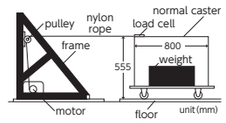
※All the date are actual test results and are not guaranteed values

Blue letters in the table above stand for our company's products.

Testing method

■Outline of the test
Measure maximum loading capacity at the time of moving wheelchair with using normal caster tensile machine (Use the Research of Tokyo Institute of Technology as a reference)

■Testing method
Using below machine with a constant speed motor, measure Maximum Loading Capacity.
From its index, calculate Maximum loading capacity of regular wheelchair(weight: 18kg/ wheel size: front 180mm(d) / rear 610mm(d) / width 25mm) with 60kg person.



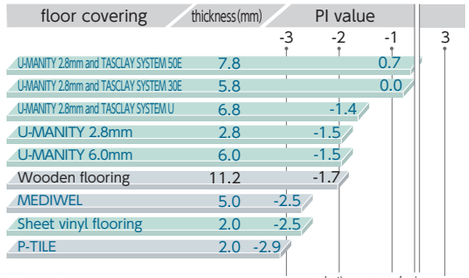
■Spec of standard caster
number of wheel : 4
length between front tire to rear : 535mm×500mm
wheel radius : 37.5mm
wheel width : 26.0mm
wheel material : Nylon Shore A 99(Hard)
caster weight : 45.0kg (loaded evenly)

The pain during kneeling down on the knees

Alleviates the pain during kneeling down on the knees, Makes people feel more comfortable

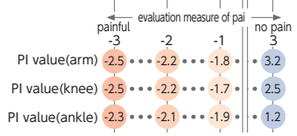
You can select your favorite size among three types of thickness of U-MANITY by referring to PI value. And you can also select TASCLAY SYSTEM in case that you require high PI value and low pain.

■The measurement result of PI value



※All the date are actual test results and are not guaranteed values

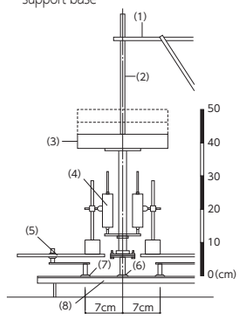
■Relationship between Pain felt by human and PI value



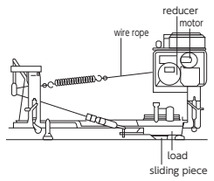
Testing method

■Outline of the test
Measure PI value with using the following device

■Testing method
■Measuring method of relative displacement
(1)support arm
(2)shaft
(3)weight(12kg)
(4)displacement gage
(5)displacement gage support base
(6)loading plate (diameter 4cm)
(7)supporting leg
(8)test sample



■Testing method

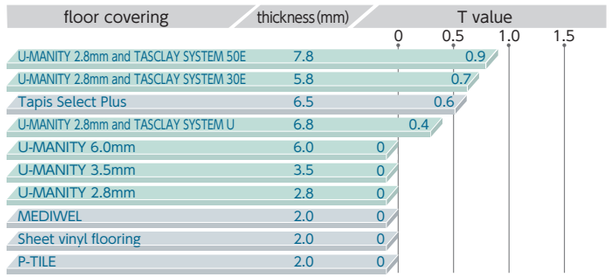


Relationship between floor hardness and fatigue feeling

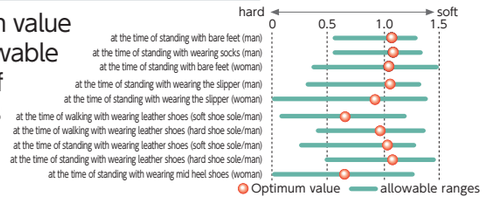
Selecting proper soft floor covering enables you to mitigate the fatigue caused by standing work.

Foot step feeling and tired feeling differ depending on the floor hardness, though there are also individual difference. Hard floor covering can cause the more fatigue for those who keep standing long period during their work. From T Value, shown below chart, you can assume the fatigue feeling caused by hardness of flooring.

■The measurement result of T value



■Optimum value and allowable ranges of hardness

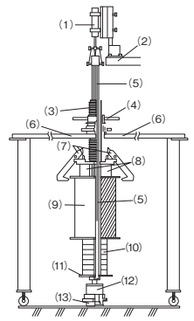


Testing method

■Outline of the test
Measure T value of each floor covering

■Testing method
With using the following device, put a weight of 40kg weight on the rubber spring, measure T value of each floor covering material during falling. The lower left graph stands for relationship T value and human sense.

■Apparatus for measuring floor hardness
(1)displacement converter
(2)mounting seat of displacement converter
(3)mounting seat of hanging weight
(4)upper and lower handle
(5)shaft
(6)support frame
(7)drop preventing safety device for hanging weight
(8)electromagnet
(9)hanging weight
(10)rubber spring
(11)supporting plate
(12)load converter
(13)loading plate



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Heat insulation

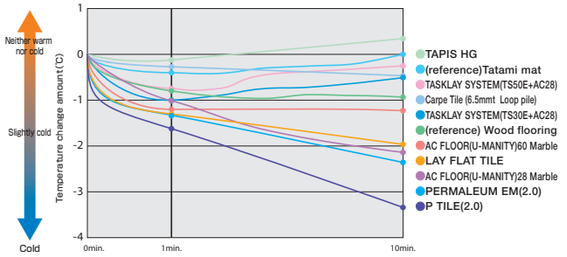
U-MANITY can mitigate to feel cold and improve heating efficiency. Also effective against dew condensation.

U-MANITY, which has foamed layer, is characterized to be excellent in heat resistance and heat insulation. It is recommended to be used in the areas where many people sit on the floor such as rehabilitation room and living room. Furthermore, U-MANITY has high effect against dew condensation.

■Measurement of temperature change of flooring material through simulated foot

TEST METHOD

(Increase of cold feeling of floor is measured based on temperature change of simulated foot by heat flow rate of the floor material. Mesured by Nihon University Building Materials Laboratory.)



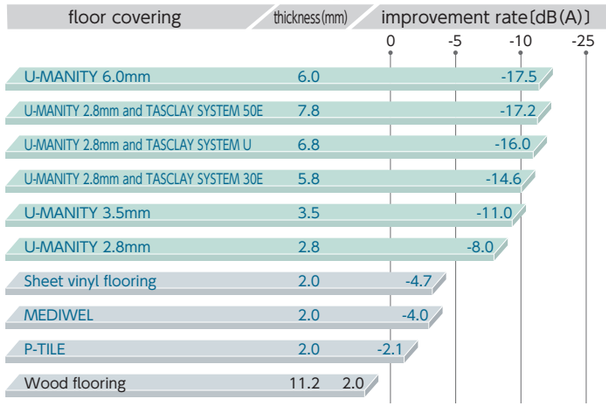
The measurement is performed using a simulated foot that contains a heater and thermocouple and is filled with agar. While keeping the inside and the surface temperature of the simulated foot constant, the simulated foot is put and left on a test piece. Then after 10 minutes the temperature change of the simulated foot is measured.

Insulate sound

U-MANITY, which has foamed layer, can insulate the sound of footsteps.

Soft vinyl sheet with foamed layer like U-MANITY has high effect against tapping sound when walking. We can find the tendency of sound generation from drop test of iron ball.

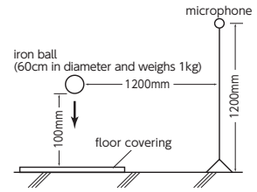
■The measurement result of sound improvement rate for each floor covering



※All the date are actual test results and are not guaranteed values

Testing method

■Testing method
Drop an iron ball (60cm in diameter and weighs 1kg) from a height of 10cm to a floor material and Measure a collision sound by using a microphone set at a location that is spaced 120cm away from the floor material. Improvement rate is calculated from the difference between that the measurement value of the floor slab and the measurement value of the test piece.



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