

Protect people and equipment from earthquakes to provide safety and security.

**Resists scale 7\* earthquakes**

\*on Japanese seismic scale.

Reference: The 818 Gal Kobe earthquake was a scale 7 quake

**Check out our videos!**

N-Grip product and instruction videos are on YouTube!



N-Grip Product Video



N-Grip Instruction Video



▪ Model No.: NAJV90-M20-190-130

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▪ Model No.: NAJV90-M20-160

We took a gel with both solid and liquid properties and added super adhesiveness and elasticity to create the mat used in this product.

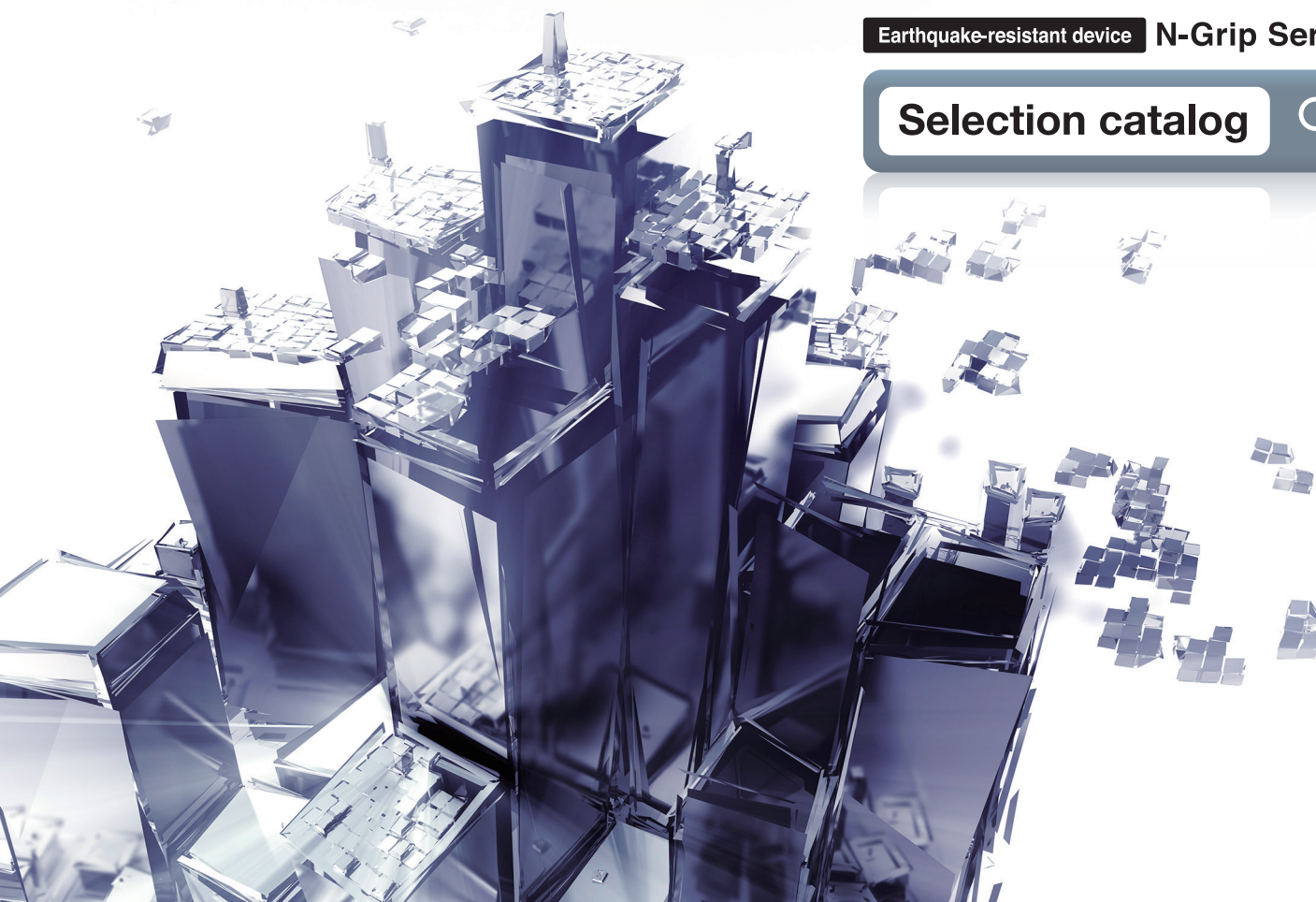
For  
equipment

For  
office fixtures

**N GRIP**  
From NITTOKU CUSTOMER SERVICE

Earthquake-resistant device N-Grip Series

Selection catalog





## N-Grip Selection Criteria

### Characteristics

- Easy installation/removal • Doesn't damage floors ■ Can be washed and reused
- -20°C to 75°C compatible for wide-range use ■ Avg. 10 year life expectancy

### Earthquake resistance calculations

We conduct our own calculations based on equipment size, weight, center of gravity, floor environment, and the 2014 Guidelines for Earthquake-Resistant Design and Construction for Building Equipment. In addition, our standards assume ground accelerations of 800 Gal\* and a safety factor of at least 1.3. \*The Kobe Earthquake recorded 818 Gal.

### Proven earthquake resistance

A test conducted at the Disaster Prevention Research Institute at Kyoto University using appropriate mat dimensions based on earthquake resistance calculations proved resistance against scale 7 tremors. The N-Grip used on Nittoku equipment also cleared scale 7 tremors in an earthquake simulation vehicle test.

### Hardware design

The hardware is designed to fit under equipment without sticking out, with appropriate mat dimensions based on earthquake resistance calculations. (Hardware may still stick out depending on the equipment.)

**If standard hardware doesn't fit** ▶ If our standard hardware does not fit your equipment or devices, we can run customer-specific calculations and design hardware to produce custom hardware.

### Floor type

The product can be used without a problem on general floor types such as coated floors and vinyl tile. It cannot be used on carpet or non-stick, low-friction materials such as Teflon.

### N-Grip evaluation

■ **Earthquake-resistance test:** Conducted at the Disaster Prevention Research Institute at Kyoto University. Cleared scale 7 tremors at Kobe-equivalent 818 Gal (horizontal) and 332 Gal (vertical) acceleration

■ **Adhesion test:** 35 N/cm<sup>2</sup> (tensile), 25 N/cm<sup>2</sup> (shear)\*

\*Typical values derived under standard conditions during in-company tests (30 minutes adhesion stabilization at 20% compression rate, then apply pull load of 500 mm/min).

■ **Ideal for off-gas (VOC) cleanrooms:** VOC quantity = undetected (@23°C x 24 hours) toluene, xylene, non-silicone, etc

■ **Hydrolysis resistance test:** Left at 80°C and 90% humidity for 14 days in a temperature and humidity test chamber. Results: No visible change, no rigidity or adhesion problems.

■ **Accelerated weathering test:** Done to test for the effect of UV exposure on deterioration and physical properties. UV dose: 255 w/m<sup>2</sup> for 7 days > no change

■ **RoHS Compliant**



## ▶ About N-Grip material

### Main features of the earthquake resistant mat



■ Material: Urethane elastomer ■ Compatible temperatures: -20°C to 75°C

■ Life expectancy: 10years ■ Tensile strength: 35.5 N/cm<sup>2</sup> • Shear strength: 25 N/cm<sup>2</sup>  
(SUS304: depends on adhesion surface material)

■ Test

(Mat effectiveness tested using a seismic response simulator at the Disaster Prevention Research Institute at Kyoto University.)

■ Evaluation (JSDFE 2014 New Technology related to Defense Facility Engineering)

■ Possible unfavorable floor conditions (water, oil, dust, etc.):

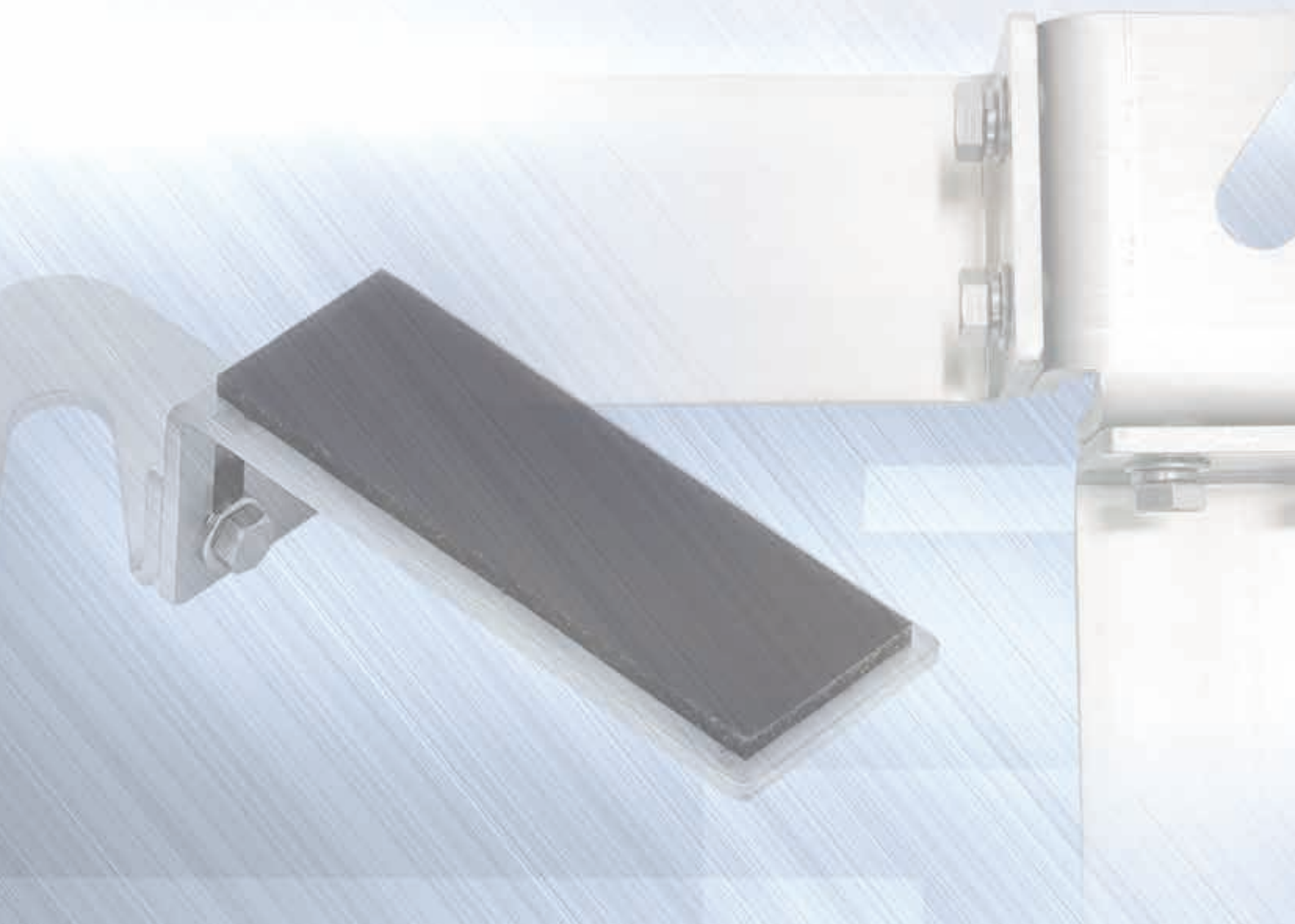
Safety factor can be checked using earthquake resistant calculations and remedied with primer as necessary.

■ 800 Gal earthquake resistant design specification (scale 7 on the Japanese seismic scale)

■ Ensures a safe operating environment with no hardware sticking out

## ▶ About N-Grip hardware

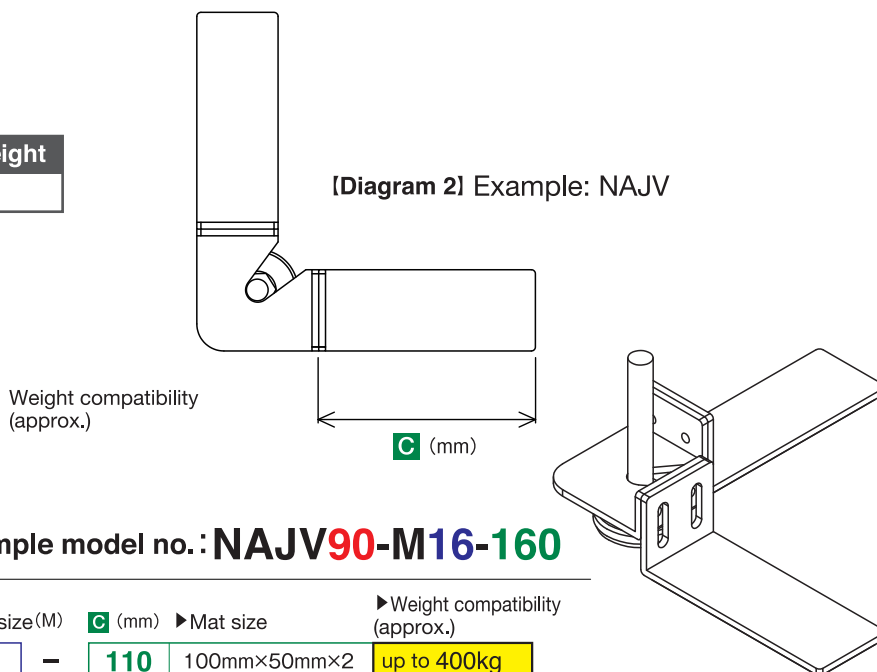
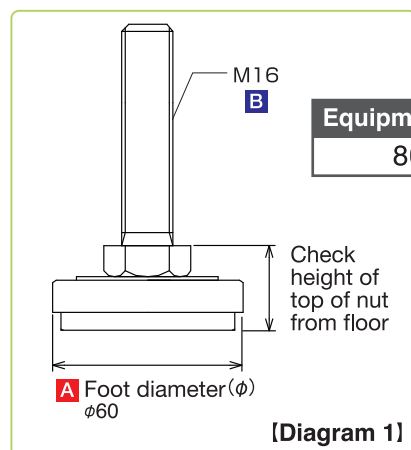
All N-Grip products are made with stainless steel (SUS304) that has better rust resistance compared to iron, with excellent durability, heat resistance, chemical resistance, and corrosion resistance.



## ► Understanding N-Grip model numbers

To select the appropriate product by model number, please refer to Diagram 1 see the relevant sections on the equipment adjuster. In addition, please refer to Diagram 2 to see the section that determines weight compatibility.

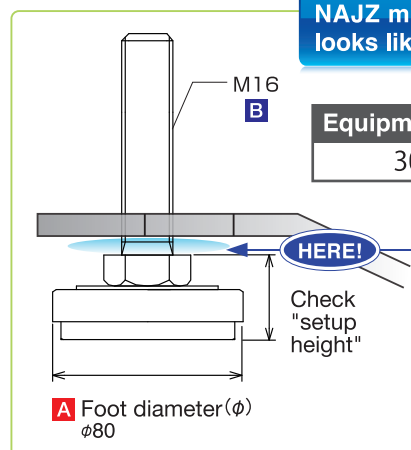
### Example



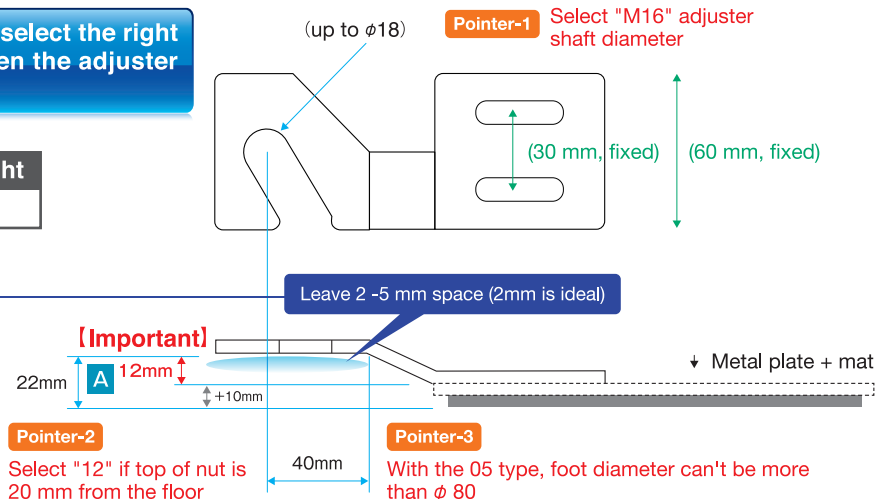
Model No. **A** - M **B** - **C** Example model no.: **NAJV90-M16-160**

	<b>A</b> Foot diameter(φ)	<b>B</b> Thread size(M)	<b>C</b> (mm)	► Mat size	► Weight compatibility (approx.)
NAJV	<b>90</b> up to φ85	<b>-M</b> <b>12</b> <b>16</b> <b>20</b>	<b>110</b>	100mm×50mm×2	up to 400kg
	<b>100</b> up to φ95		<b>160</b>	150mm×50mm×2	up to 1,000kg
	<b>120</b> up to φ115		<b>180</b>	170mm×50mm×2	up to 1,500kg
			<b>210</b>	200mm×50mm×2	up to 2,000kg

### Example



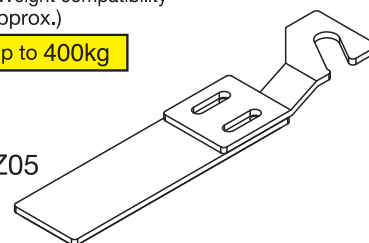
Pointers to help select the right NAJZ model when the adjuster looks like this:



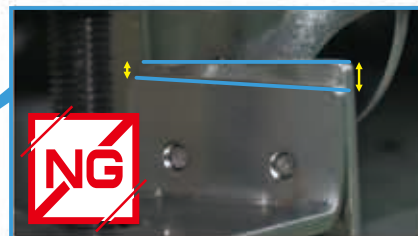
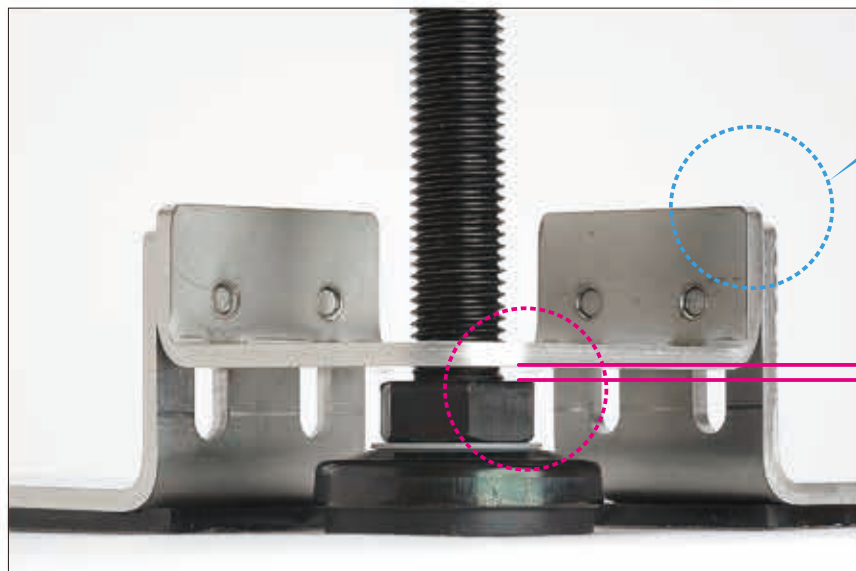
Model No. **A** - M **B** - **C** Example model no.: **NAJZ0512-M16-210-60**

	<b>A</b> Setup height(mm)	<b>B</b> Thread size(M)	<b>C</b> (mm)	► Mat size	► Weight compatibility (approx.)
NAJZ05	<b>12</b> 17-20mm	<b>-M</b> <b>12</b> <b>16</b> <b>20</b>	<b>210-60</b>	200mm×50mm×1枚	up to 400kg
	<b>16</b> 21-24mm				
	<b>18</b> 23-26mm				
	<b>20</b> 25-28mm				
	<b>22</b> 27-30mm				
	<b>26</b> 31-34mm				

[Diagram 3] Example: NAJZ05



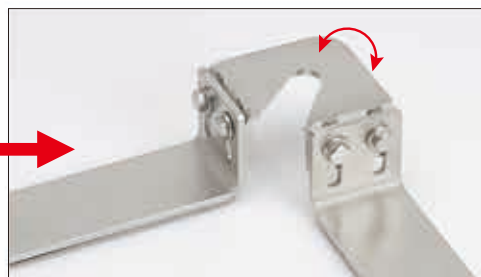
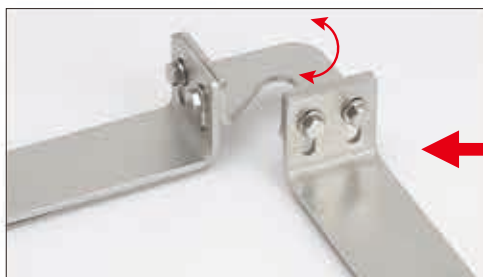
## ► Precautions for installing the N-Grip



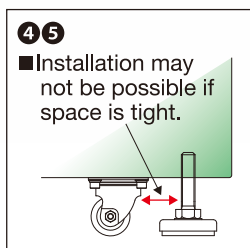
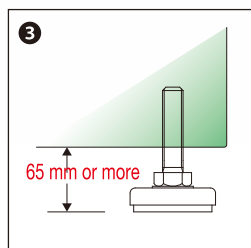
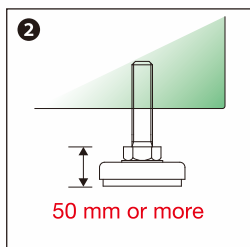
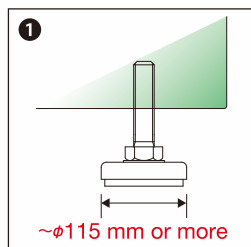
■ Make sure the top of the metal parts are level.

■ We recommend keeping a space of 2-5 mm above the top of the nut.

Can also be used  
flipped over



### The NAJV cannot be used if any one of the below apply:



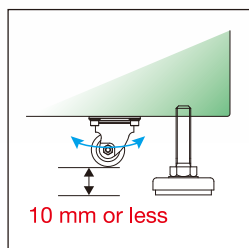
① When the adjuster diameter is  $\phi 115$  mm or more.

② When the top of the nut is 50 mm or more from the floor.

③ When the bottom of the equipment is 65 mm or less from the floor.

④ When a caster is in the way.

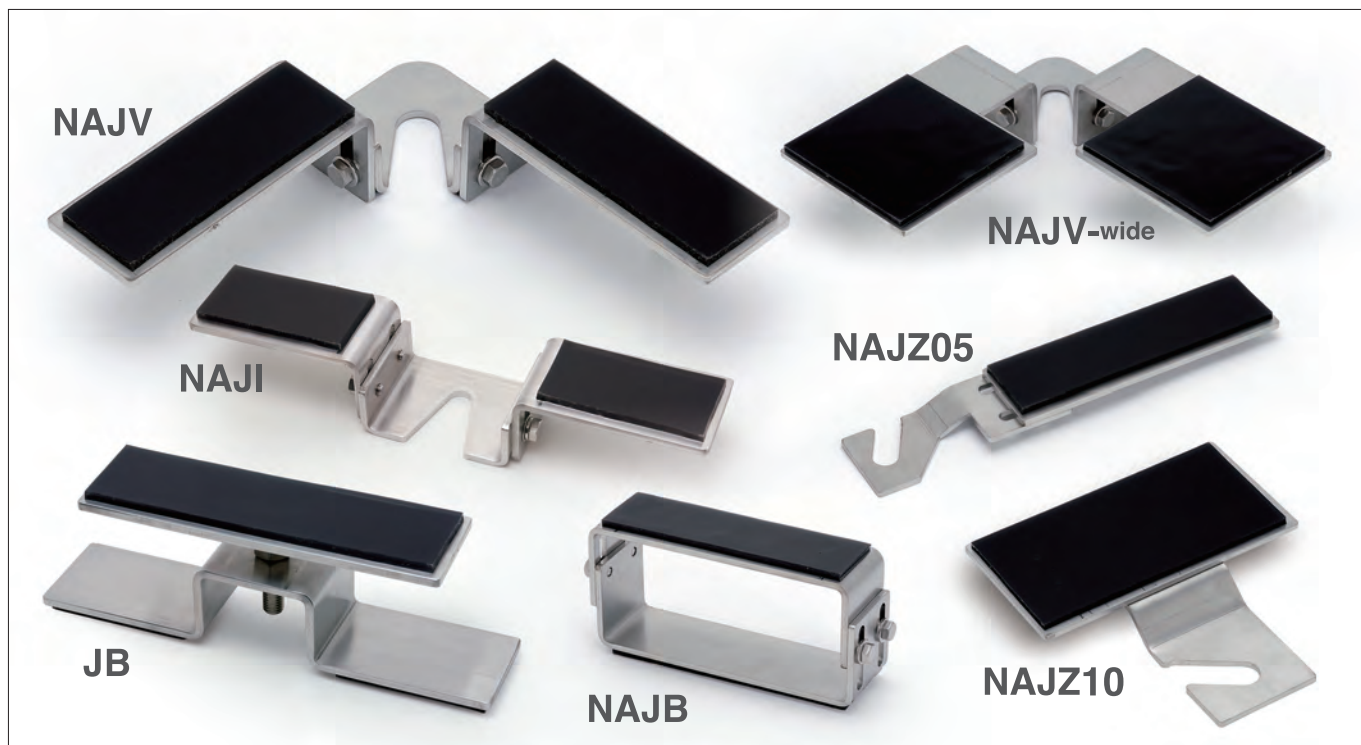
⑤ When adjusters are too close together.



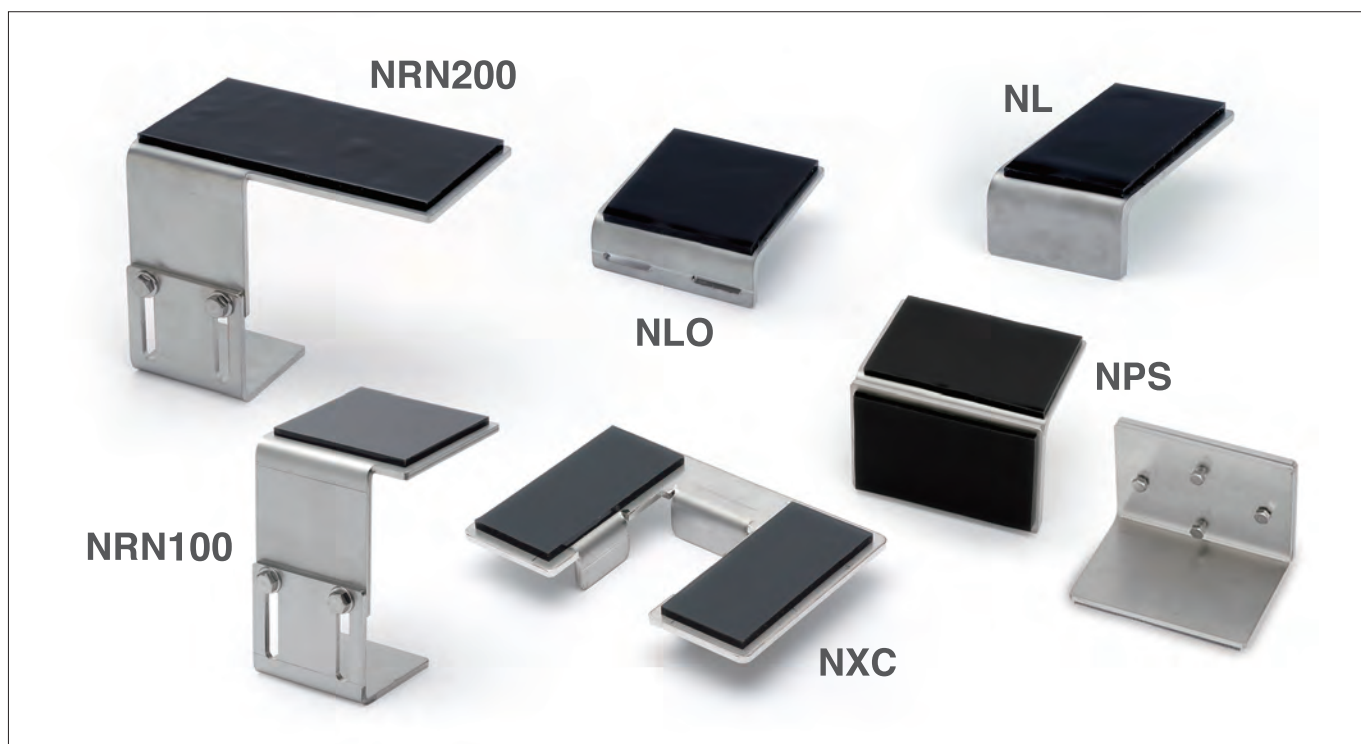
■ Can be installed if caster rotates.

■ If the caster is in the way, please leave a space 10 mm or more from the floor.

Lineup for equipment



Lineup for office fixtures






**Model No. NAJV A - M B - C**

 Example model no.: **NAJV90-M16-160**

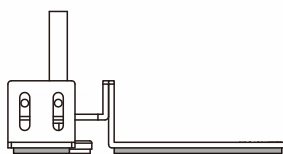
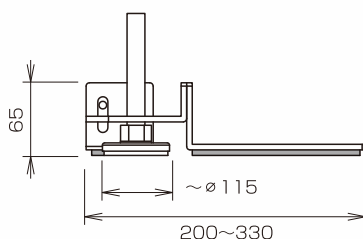
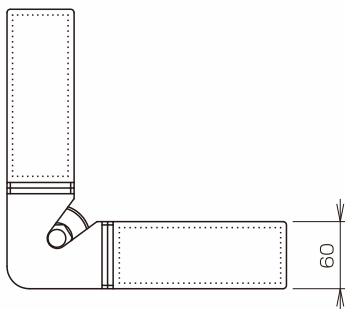
A Foot diameter (φ)		-M	B Thread size (M)	-C	Mat size		(approx.)		
NAJV	90		up to φ85		12	110		100mm×50mm×2	up to 400kg
	100		up to φ95		16	160		150mm×50mm×2	up to 1,000kg
	120		up to φ115		20	180		170mm×50mm×2	up to 1,500kg
						210		200mm×50mm×2	up to 2,000kg

(Mat size depends on equipment dimensions and weight.)

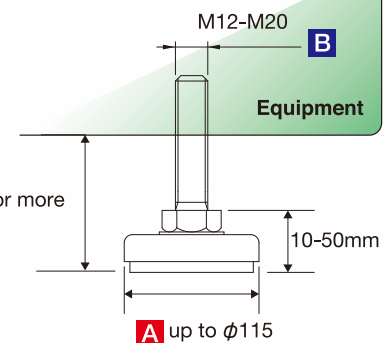
(Please refer to the chart on the left when placing an order.)

Selecting the right NAJV model: For example, select (90) for adjusters with a foot diameter up to φ85, (16) for thread size M16, and (160) mm base metal parts for weight compatibility of up to 1,000 kg.

### Detailed dimensions



### [Compatible height]



### Example of use



# NAJV-wide

## Adjuster fastening model: wide type


**Model No. NAJV A -M B - C**

 Example model no.: **NAJV90-M16-190-130**

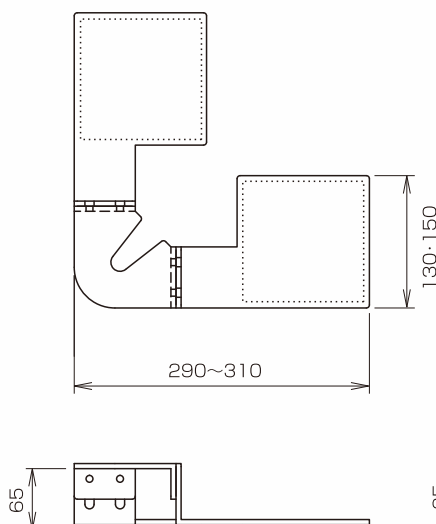
A Foot diameter(φ)		B Thread size (M)		C (mm)	► Mat size	► Weight compatibility (approx.)	
NAJV	100	up to φ95	-M	16	190-130	120mm×120mm×2	up to 3,000kg
	120	up to φ115		20	190-150	140mm×140mm×2	up to 4,000kg

(Mat size depends on equipment dimensions and weight.)

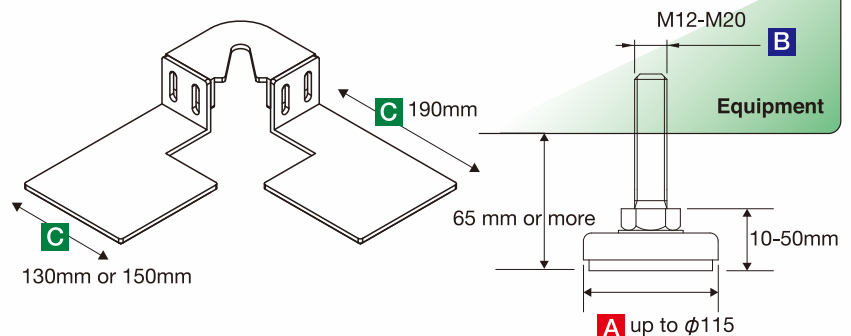
(Please refer to the chart on the left when placing an order.)

 Selecting the right NAJV model: For example, select (100) for adjusters with a foot diameter up to φ95, (16) for thread size M16, and (190-130) size base metal parts for weight compatibility of up to 3,000 kg.

### Detailed dimensions



### [Compatible height]



### Example of use






**Model No. NAJI A -M B - C**
**Weight compatibility (approx.) is for 4-point installation.**

 Example model no.: **NAJI90-M16-160**

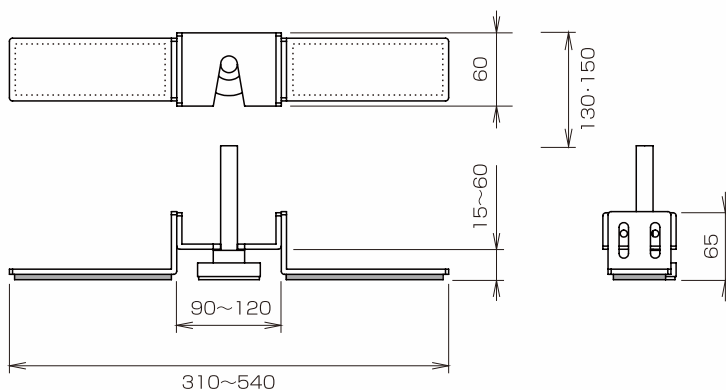
(Mat size depends on equipment dimensions and weight.)

(Please refer to the chart on the left when placing an order.)

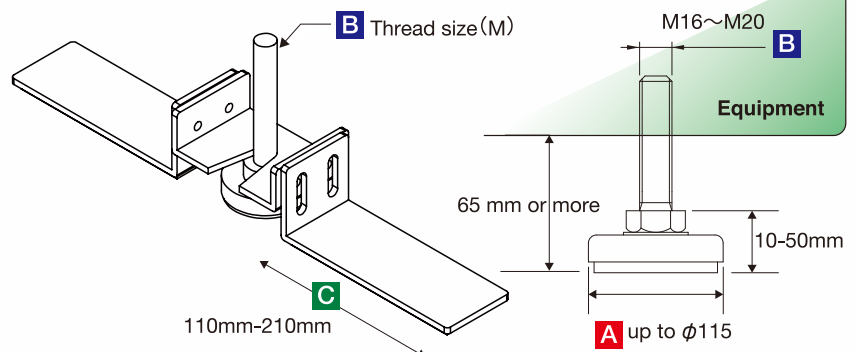
NAJI	A Foot diameter(φ)	-M	B Thread size (M)	-	C (mm)	Mat size	Weight compatibility (approx.)
	90		16		110	100mm×50mm×2	up to 400kg
	100		20		160	150mm×50mm×2	up to 1,000kg
	120				180	170mm×50mm×2	up to 1,500kg
					210	200mm×50mm×2	up to 2,000kg

Selecting the right NAJI model: For example, select (90) for adjusters with a foot diameter up to φ75, (16) for thread size M16, and (160) mm base metal parts for weight compatibility of up to 1,000 kg.

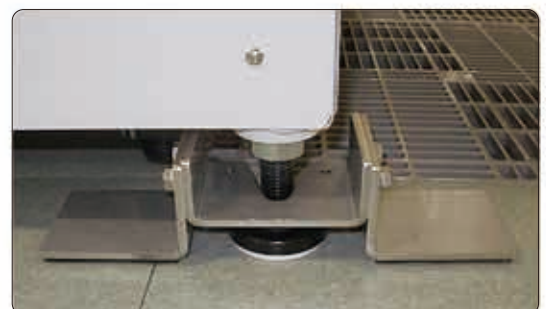
### Detailed dimensions



### [Compatible height]



### Example of use



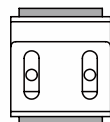
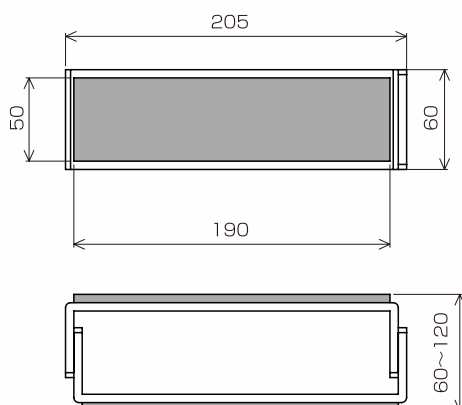
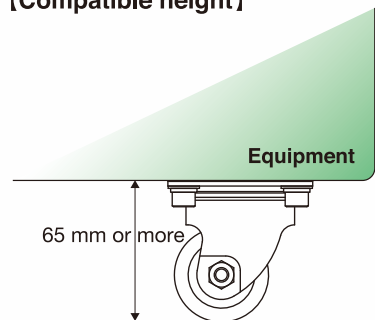
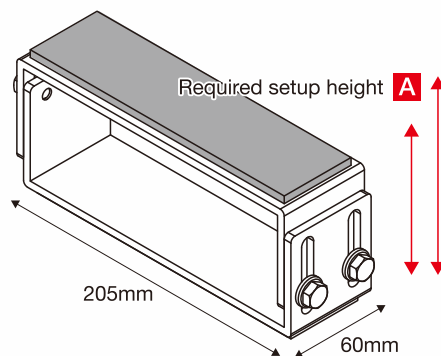
**Model No. NAJB A****Weight compatibility (approx.) is for 2-point installation.**Example model no.: **NAJB80-120**

(Mat size depends on equipment dimensions and weight.)

(Please refer to the chart on the left when placing an order.)

Selecting the right NAJB model:  
For example, select **(80-120)** for equipment that needs to be set 90 mm above the floor.

	A Foot diameter(φ)	▶ Mat size	▶ Weight compatibility (approx.)
<b>NAJB</b>	<b>60-80</b> (60-80 mm setup height)	195mm×50mm×2	up to 200kg
	<b>80-120</b> (80-120 mm setup height)		

**Detailed dimensions****[Compatible height]****Example of use**

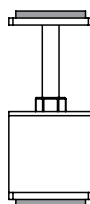
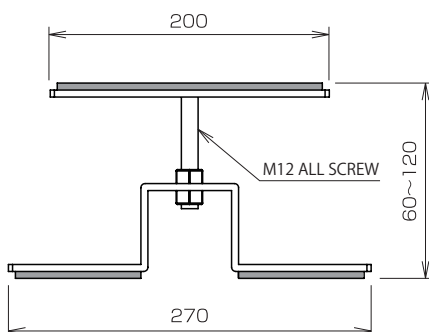
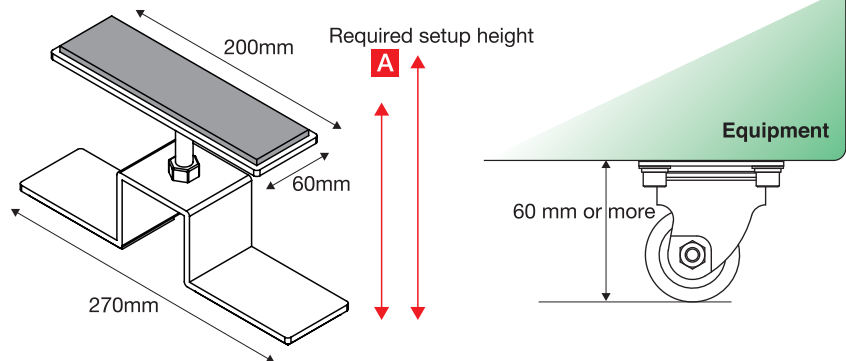
**Model No. JB A****Weight compatibility (approx.) is for 2-point installation.**Example model no.: **JB70-100**

(Mat size depends on equipment dimensions and weight.)

(Please refer to the chart on the left when placing an order.)

Selecting the right JB model:  
 For example, select **(70-100)** for equipment that needs to be set 90 mm above the floor.

JB	A Setup height (mm)	Mat size (approx.)	
	60-80 (60-80 mm setup height)	190mm×50mm×1 90mm×50mm×2	up to 200kg
	70-100 (70-100 mm setup height)		
	90-120 (90-120 mm setup height)		

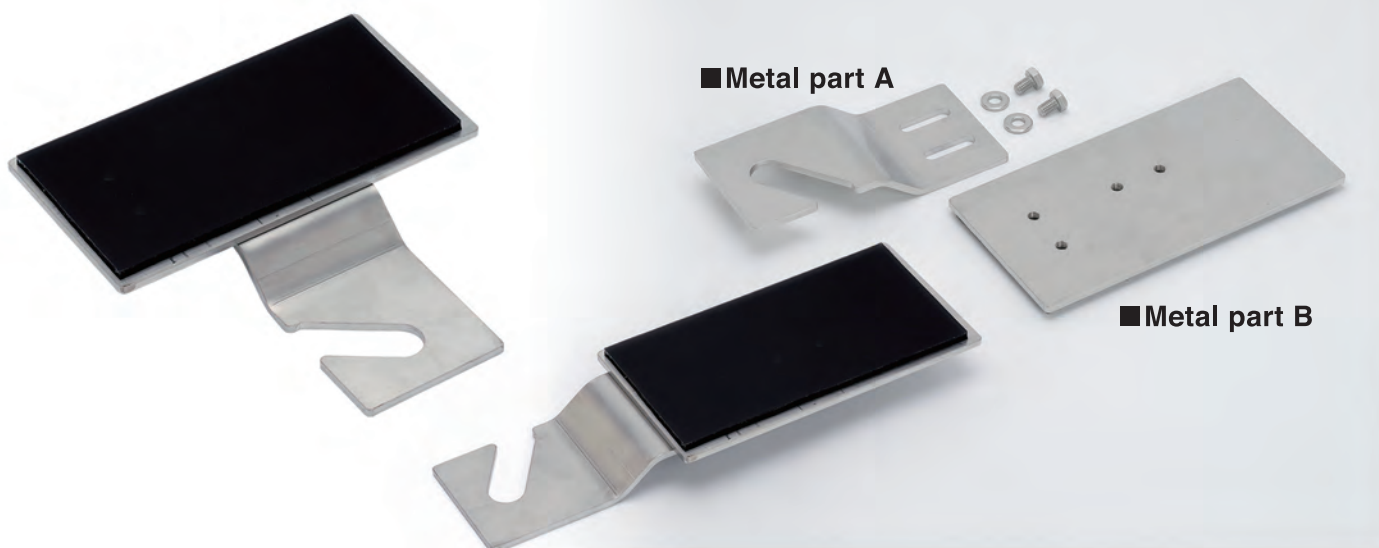
**Detailed dimensions****[Compatible height]****Example of use**



# NAJZ10

## Jack up fastening type

Use this type if casters are set close to the adjusters.



**Model No. NAJZ10** **A** - **M** **B** - **C**

Example model no.: **NAJZ10****12**-**M16**-**210-110**

**Weight compatibility (approx.) is for 4-point installation.**

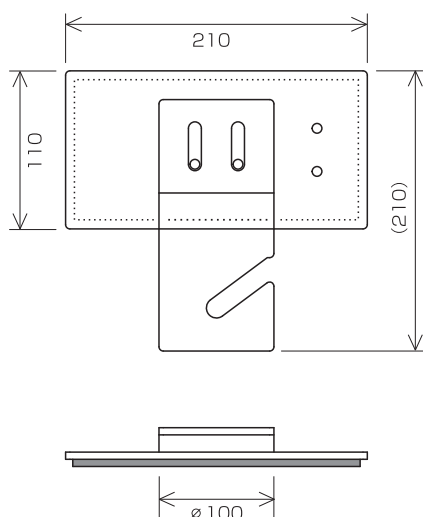
(Mat size depends on equipment dimensions and weight.)

(Please refer to the chart on the left when placing an order.)

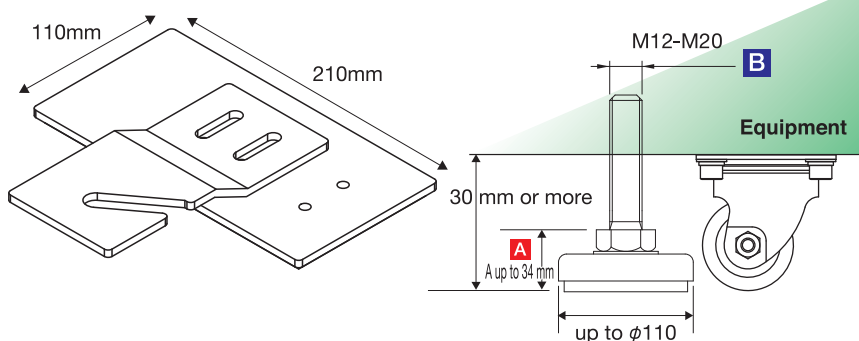
NAJZ10	A Foot diameter(φ)		-M	B Thread size (M)		-C (mm)	▶ Mat size	▶ Weight compatibility (approx.)
	12	17-20mm		12				
	16	21-24mm		16				
	18	23-26mm		20				
	20	25-28mm						
	22	27-30mm						
	26	31-34mm						

Selecting the right NAJZ10 model: For example, select (12) for a setup height of 20 mm, (16) for thread size M16, and (210-110) size base metal parts for weight compatibility of up to 800 kg.

### Detailed dimensions



### [Compatible height]



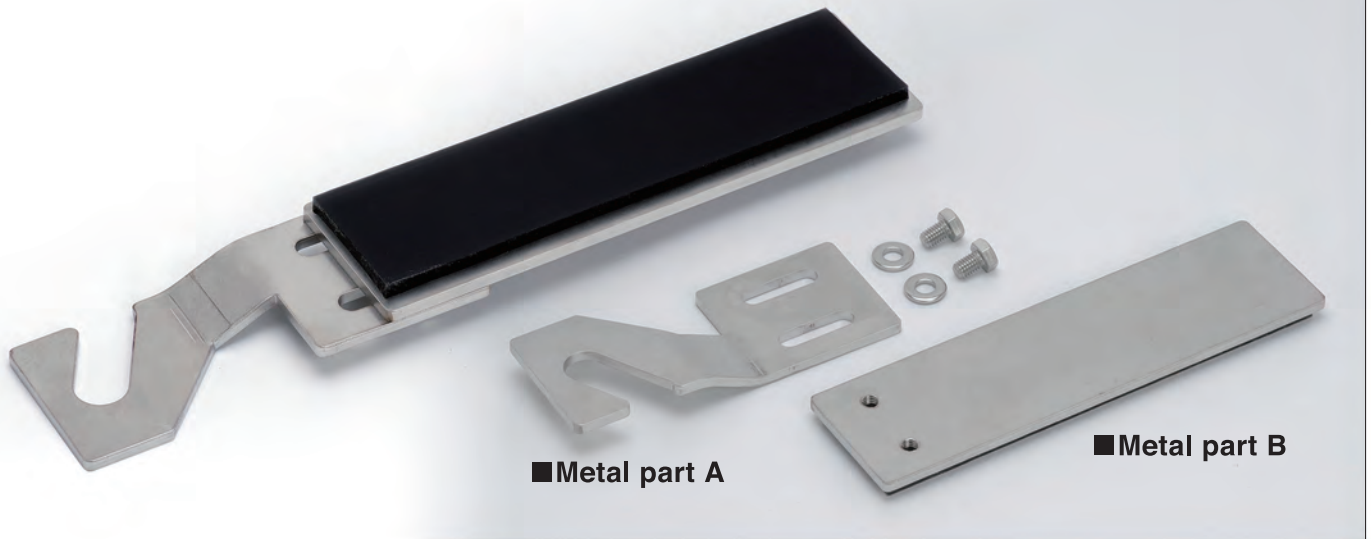
### Example of use



# NAJZ05

## Jack up fastening type

Use this type if casters are set close to the adjusters.



Model No. **NAJZ05** **A** - **M** **B** - **C**

Example model no.: **NAJZ05****12**-**M16**-**210**-**60**

Weight compatibility (approx.) is for 4-point installation.

(Mat size depends on equipment dimensions and weight.)

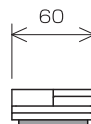
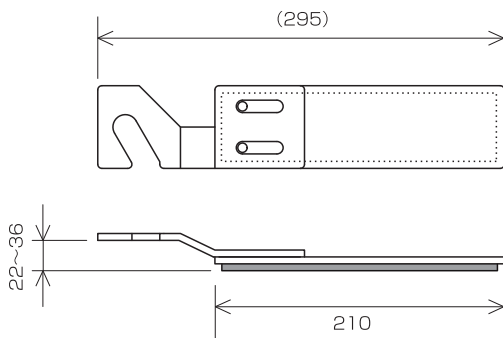
(Please refer to the chart on the left when placing an order.)

	<b>A</b> Foot diameter (φ)		<b>B</b> Thread size (M)		<b>C</b> (mm)	► Mat size	► Weight compatibility (approx.)	
<b>NAJZ10</b>	<b>12</b>	17-20mm	<b>-M</b>	<b>12</b>	<b>-</b>	<b>210-60</b>	200mm×50mm×1	<b>up to 400kg</b>
	<b>16</b>	21-24mm		<b>16</b>				
	<b>18</b>	23-26mm		<b>20</b>				
	<b>20</b>	25-28mm						
	<b>22</b>	27-30mm						
	<b>26</b>	31-34mm						

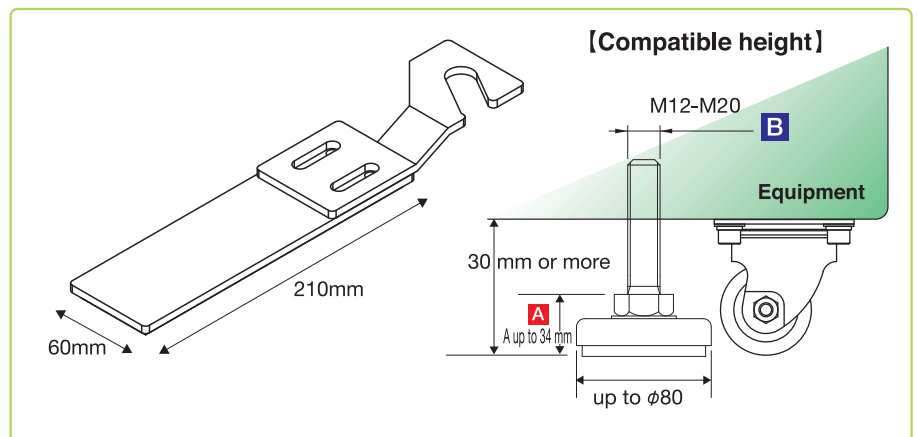
Selecting the right NAJZ05 model: For example height of 20 mm, (16) for thread size M16, and parts for weight compatibility of up to 800 kg.

Selecting the right NAJZ05 model: For example, select (12) for a setup height of 20 mm, (16) for thread size M16, and (210-60) size base metal parts for weight compatibility of up to 800 kg.

### Detailed dimensions



### Example of use



# NRN100

For shelves with legs

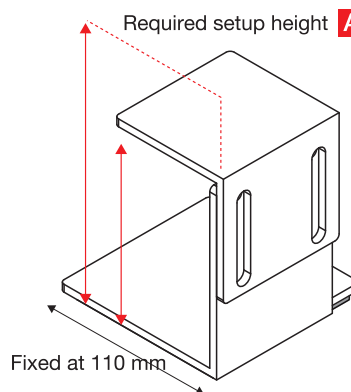
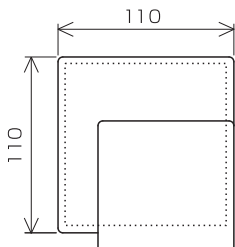
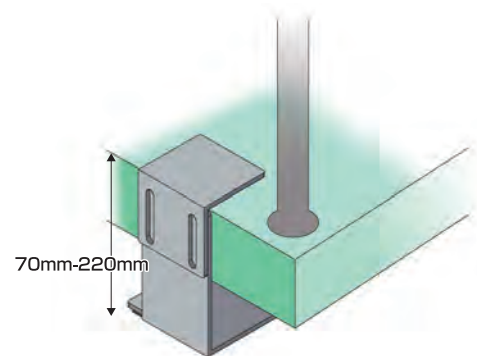
**Model No. NRN100 A****Weight compatibility (approx.) is for 4-point installation.**Example model no.: **NRN100-130-180**

(Mat size depends on equipment dimensions and weight.)

(Please refer to the chart on the left when placing an order.)

Selecting the right NRN100 model:  
For example, select **(130-180)**  
to set 150 mm above the floor.

NRN100-	A Foot diameter(φ)	Mat size	Weight compatibility (approx.)
	<b>70-120</b> (70-120 mm setup height)	100mm×100mm×1	up to 400kg
	<b>110-160</b> (100-160 mm setup height)		
	<b>130-180</b> (130-180 mm setup height)		
	<b>170-220</b> (170-220 mm setup height)		

**Detailed dimensions****[Compatible height]****Example of use**



# NRN200

For shelves with legs



(Please note that there are separate Left and Right versions of the NRN200.)

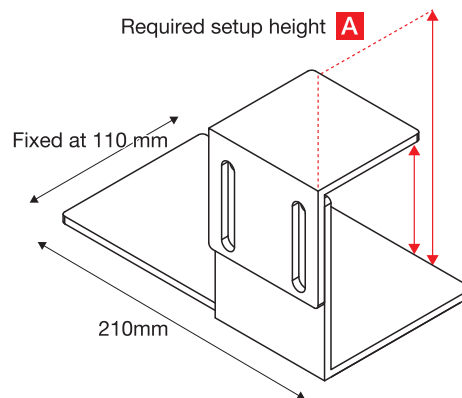
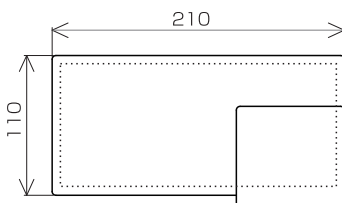
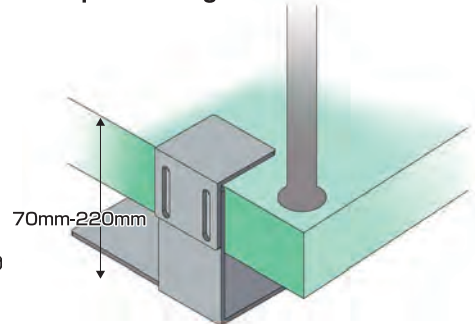
**Model No. NRN200- A - B****Weight compatibility (approx.) is for 4-point installation.**Example model no.: **NRN200-130-180-R**

(Mat size depends on equipment dimensions and weight.)

(Please refer to the chart on the left when placing an order.)

Selecting the right NRN200 model:  
For example,  
select **(130-180)** to set 150 mm  
above the floor,  
in either an **R** or **L** orientation.

NRN200-	<b>A</b> Foot diameter(φ)	▶ Mat size	<b>B</b> ▶ Orientation	▶ Weight compatibility (approx.)
	<b>70-120</b> (70-120 mm setup height)	200mm×100mm×1	<b>R</b>	up to 800kg
	<b>110-160</b> (110-160 mm setup height)		<b>L</b>	
	<b>130-180</b> (130-180 mm setup height)			
	<b>170-220</b> (170-220 mm setup height)			

**Detailed dimensions****[Compatible height]****Example of use**

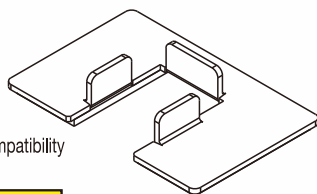
# NXC/NLO

## Fixed type



holds casters in place)

Weight compatibility (approx.) is for 4-point installation.

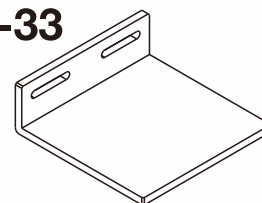
**Model No. NXC**

► Mat size

45mm×100mm×2

► Weight compatibility  
(approx.)

up to 200kg

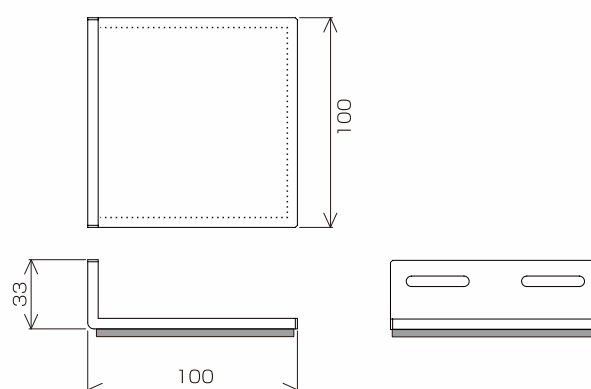
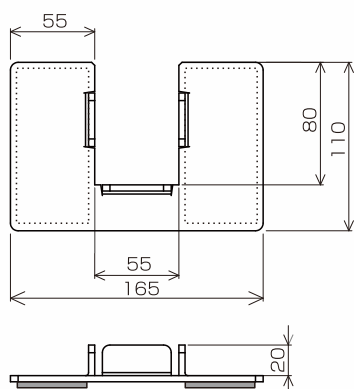
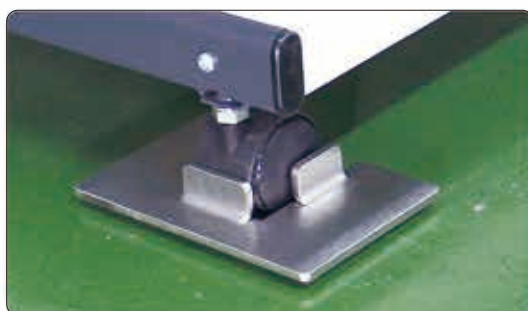
**Model No. NLO1010-33**

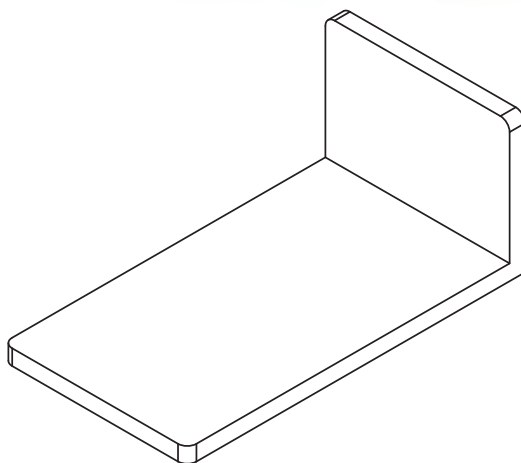
► Mat size

90mm×90mm×1

► Weight compatibility  
(approx.)

up to 300kg

**Detailed dimensions****Example of use****NXC****NLO**



Weight compatibility (approx.) is for 4-point installation.

**Model No. NL60-110-40**

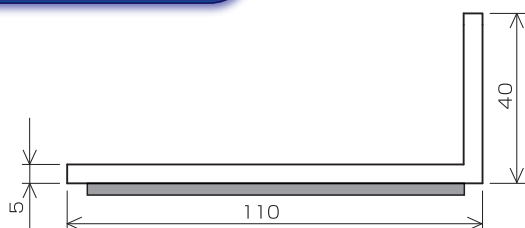
► Mat size

50mm×100mm×1

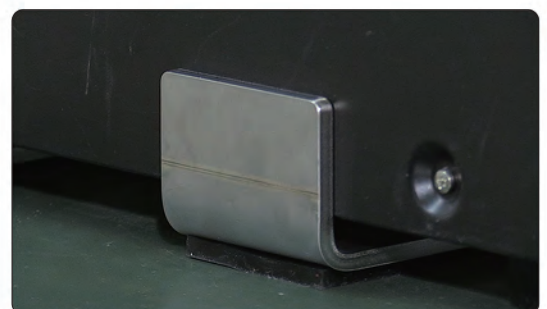
► Weight compatibility  
(approx.)

up to 150kg

**Detailed dimensions**



**Example of use**





# NPS130-90

# NPS200-80

Fixed type



Weight compatibility (approx.) is for 4-point installation.

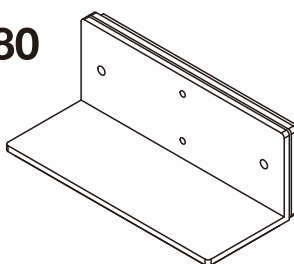
## Model No. NPS200-80

▶ Mat size

80mm×190mm×2

▶ Weight compatibility  
(approx.)

up to 400kg



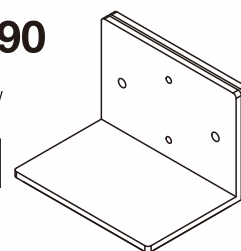
## Model No. NPS130-90

▶ Mat size

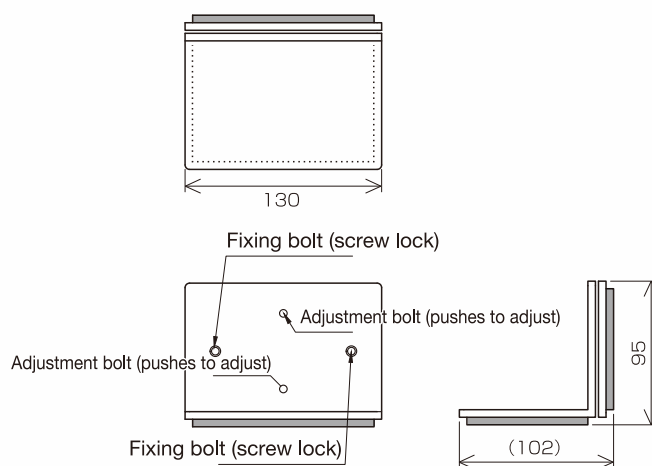
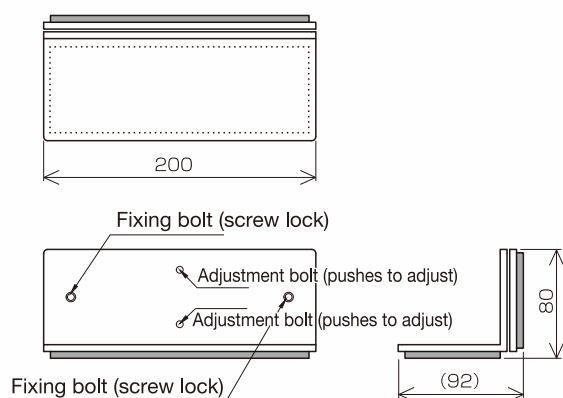
80mm×120mm×2

▶ Weight compatibility  
(approx.)

up to 400kg



### Detailed dimensions



### Example of use



NPS200-80



NPS130-90



### Safety precautions for use

• Be careful not to cut your hands when opening products. • Make sure the adhesion surface is flat before applying gel mats. Use the support plate for optimum performance on bumpy surfaces which may cause the product to have reduced adhesiveness. • Wipe away any grime, moisture, or oil from the adhesion surface. • The product cannot be used on water-repellent surfaces. • No harmful materials are used in these products, but never put them in your mouth. • Products may change color over time, but this should not affect performance. • When installing, put equal pressure on all sections of the mat. • Do not use the products to hang objects. • Never stack gel mats on top of each other. • Prolonged use in tough environments may shorten product life expectancy. • During removal, peel away the product slowly. The adhesive surface may come away with the product depending on its material. • These products are intended to keep earthquake damage to a minimum. Nittoku Engineering assumes no responsibilities for any accidental breakage or earthquake damage due to the use of our products.



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