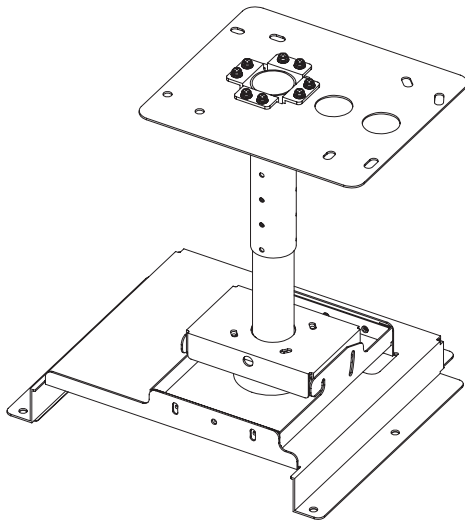


Installation Instructions

Ceiling Mount Bracket for DLP® Based Projectors (for High Ceilings)

Model No. **ET-PKD100H**



For DLP® Based Projector:
PT-D10000 / PT-DW10000

Note

PT-D10000U/PT-DW10000U PT-D10000E/PT-DW10000E	The models listed on the left side are the PT-D10000/PT-DW10000.
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Contents

Important Safety Notice	2
Product description	3
Standard installation dimensions	4
Installation	5
1. Preparing the attachment plate	5
2. Installing the attachment plate to the ceiling	6
3. Installing the brackets to the projector	7
4. Suspending the projector	8
Adjusting the installation angle	9
Attaching the drop-prevention wire	10
Specifications	Back cover

Thank you for choosing the ceiling mount bracket for Panasonic DLP® Based Projectors.

■ Only a qualified installer should install this product.

Read these instructions completely before installing this product.

These installation instructions must always be handed over to the customer.

Important Safety Notice

Dear Panasonic Customer:

This instruction booklet provides all the necessary operating information that you might require. We hope it will help you to get the most performance out of new product, and that you will be pleased with your Panasonic Ceiling Mount Bracket.

The serial number of your product may be found on its back. You should note it in the space provided below and retain this booklet in case service is required.

Model number: **ET-PKD100H**

Serial number:

Precautions with regard to safety

WARNING

Installation work should only be carried out by a qualified technician.

- If this product is not installed correctly, serious accidents may result.
- Carry out the work while following the "Installation" procedures specified in the main Installation Instructions.

Do not install in a place which is not strong enough.

- If the installation location is not strong enough, the ceiling bracket may fall down and an injury may result.

Make sure that your footing is safe and secure during installation.

- If your footing is not secure, you may fall down or drop the bracket, and an injury may result.

Make sure that the ceiling bracket is installed correctly in accordance with the structure and materials used at the installation location.

- If a mistake is made in the installation procedure, the ceiling bracket may fall down and an injury may result.

Do not loosen or remove the ceiling mount bracket screws unnecessarily.

- The projector may fall down and injury may result.

Do not set up the projector in humid or dusty places or in places where the projector may come into contact with oily smoke or steam.

- Using the projector under such conditions may result in fire, electric shocks or plastic deterioration.
The plastic deterioration may cause the falling down of the projector which is mounted in the ceiling.

CAUTION

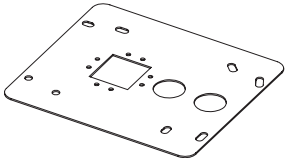
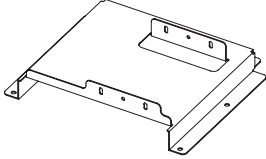
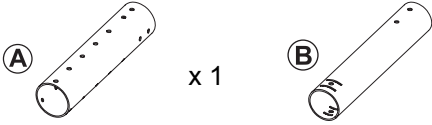
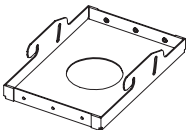

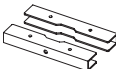
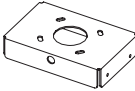







Do not install the ceiling bracket in a place which may impede projector ventilation.

- If this is not observed, fire may result.

Product description

This is a ceiling mount bracket for installing projectors.

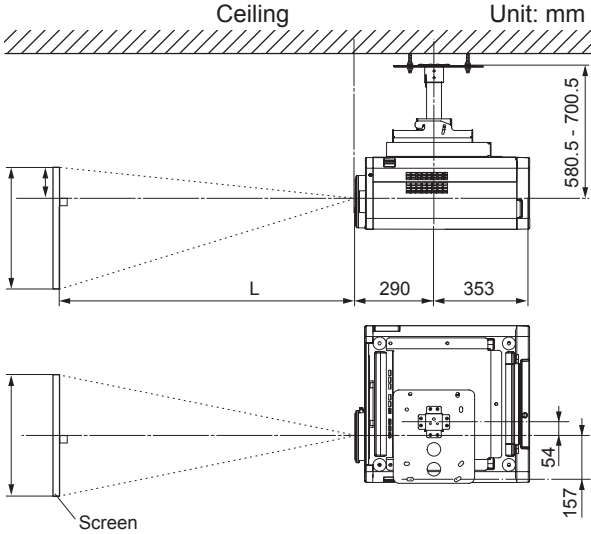
■ Components

Parts name	Form	Purpose
Attachment plate	 x 1	The attachment plate is attached to the ceiling via four ceiling mount bolts. Installation methods are different for concrete and wooden ceilings.
Projector mount bracket	 x 1	This is used to install the projector itself. It also includes a function for adjusting the rightward/leftward tilt.
Adjustment pole	 x 1 x 1	This is an adjustment pole which is installed in between the attachment plate and the projector mount bracket. It also includes a function for adjusting the distance between the ceiling and the projector itself.
Angle adjusting bracket	 x 1	This attaches to the projector mount bracket unit. It also includes a function for adjusting the up/down tilt.
Pole brace1	 x 1	This is attached to the attachment plate to secure adjustment pole (A).
Pole brace2	 x 2	This is installed to adjustment pole (B).
Pole base	 x 1	This is installed to the pole brace2.
Screws and bolts	Hex head bolt (M6x110) x 1  M6 spring washer x 1  M6 washer x 2  M6 Nut x 1  Hex head bolt, captive washer (M6x25) x 5  Hex head bolt, captive washer (M6x12) x 36 	These are used to secure the brackets to the projector.
Seal packing	 x 1	This is used to seal a clearance gap between the ceiling and the attachment plate.

- Screw tightening torques M6: 4 ± 0.5 N·m
- If products are no longer being used, they should be dismantled and removed by a qualified technician as soon as possible.
- Use a torque wrench or similar tool when tightening the bolts and nuts. Do not use electric screwdrivers or impact screwdrivers.

Standard installation dimensions

The distances and angles which relate to the projection of the picture from the projector onto the screen are shown in the table below. The projection distance measurements can be adjusted using the zoom lens. Check the projection screen while making fine adjustments.



Attention

- Install the projector such that the exhaust port on the rear side is not blocked and a clearance of more than 50 cm (19.7") is available.
- Install the projector such that a clearance of more than 30 cm (11.8") in right and left is available.

Projection distances

For the projection distances for projection lenses (optional), refer to the operating instructions "Installation" provided with the PT-D10000/PT-DW10000, or check the diagonal dimension (inch) of your screen and calculate the projection distance using the following formulas.

Units : m

Model number of projection lens	Aspect ratio	PT-D10000		PT-DW10000	
		Projection distance (L) formula		Projection distance (L) formula	
Zoom lens	ET-D75LE1	4:3	Minimum: $L=0.0307 \times \text{Screen diagonal (inch)} - 0.0760$ Maximum: $L=0.0410 \times \text{Screen diagonal (inch)} - 0.1004$		
		16:9	Minimum: $L=0.0334 \times \text{Screen diagonal (inch)} - 0.0760$ Maximum: $L=0.0446 \times \text{Screen diagonal (inch)} - 0.1004$		
	ET-D75LE2	4:3	Minimum: $L=0.0412 \times \text{Screen diagonal (inch)} - 0.0795$ Maximum: $L=0.0617 \times \text{Screen diagonal (inch)} - 0.1064$		
		16:9	Minimum: $L=0.0448 \times \text{Screen diagonal (inch)} - 0.0795$ Maximum: $L=0.0672 \times \text{Screen diagonal (inch)} - 0.1064$		
	ET-D75LE3	4:3	Minimum: $L=0.0617 \times \text{Screen diagonal (inch)} - 0.0958$ Maximum: $L=0.1031 \times \text{Screen diagonal (inch)} - 0.1216$		
		16:9	Minimum: $L=0.0672 \times \text{Screen diagonal (inch)} - 0.0958$ Maximum: $L=0.1123 \times \text{Screen diagonal (inch)} - 0.1216$		
	ET-D75LE4	4:3	Minimum: $L=0.1031 \times \text{Screen diagonal (inch)} - 0.1158$ Maximum: $L=0.1639 \times \text{Screen diagonal (inch)} - 0.1013$		
		16:9	Minimum: $L=0.1123 \times \text{Screen diagonal (inch)} - 0.1158$ Maximum: $L=0.1786 \times \text{Screen diagonal (inch)} - 0.1013$		
	ET-D75LE8	4:3	Minimum: $L=0.1640 \times \text{Screen diagonal (inch)} - 0.3862$ Maximum: $L=0.3072 \times \text{Screen diagonal (inch)} - 0.3598$		
		16:9	Minimum: $L=0.1786 \times \text{Screen diagonal (inch)} - 0.3862$ Maximum: $L=0.3346 \times \text{Screen diagonal (inch)} - 0.3598$		
	ET-D75LE6	4:3	Minimum: $L=0.0207 \times \text{Screen diagonal (inch)} - 0.0566$ Maximum: $L=0.0248 \times \text{Screen diagonal (inch)} - 0.0736$		
		16:9	Minimum: $L=0.0225 \times \text{Screen diagonal (inch)} - 0.0566$ Maximum: $L=0.0270 \times \text{Screen diagonal (inch)} - 0.0736$		
Fixed-focus lens	ET-D75LE5	4:3	$L= 0.0158 \times \text{Screen diagonal (inch)} - 0.08$		
		16:9	$L= 0.0172 \times \text{Screen diagonal (inch)} - 0.08$		
				$L= 0.0158 \times \text{Screen diagonal (inch)} - 0.0835$	

Note

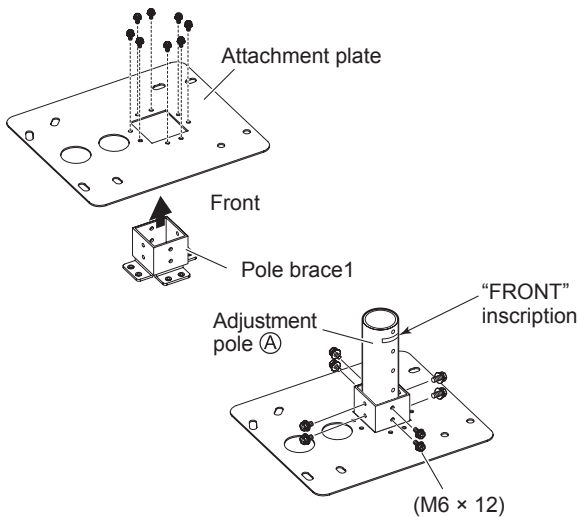
- The values obtained from the above formulas may contain slight errors.

Installation

1. Preparing the attachment plate

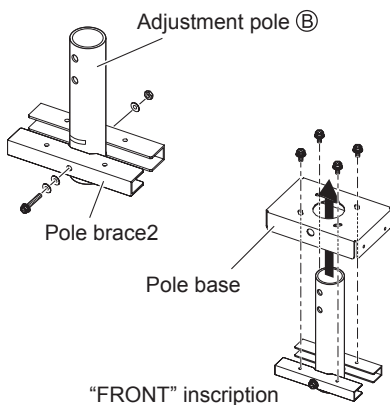
Before installing the attachment plate on the ceiling, attach the adjustment poles, pole braces, and the pole base to the attachment plate.

■ Attaching the pole brace1 and the adjustment pole ① to the attachment plate



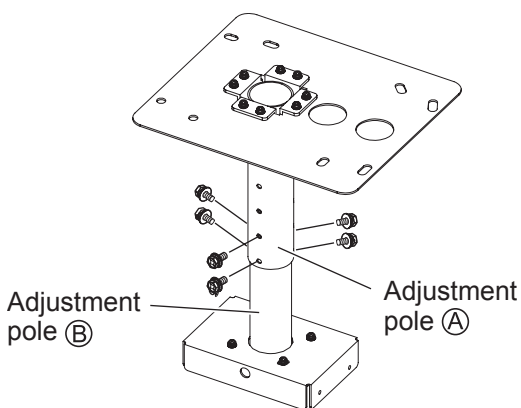
- ① Insert the pole brace1 into the center of the attachment plate and secure with 6 hex head bolts (M6 X 12).
(As for setting direction of the attachment plate and the pole brace1, refer to the left figure.)
- ② Set the adjustment pole ① in the pole brace1 so that the "FRONT" inscription on the adjustment pole ① faces front.
- ③ Install the eight accessory hex head bolts (M6 x 12) into the sides of pole brace 1 to secure adjustment pole ① to pole brace 1.

■ Attaching the pole brace2 and the pole base to the adjustment pole ②



- ① Secure pole brace 2 to adjustment pole ② with the accessory hex head bolts (M6 x 110), M6 nuts and M6 washers.
- ② Insert the adjustment pole ② into the center hole of the pole base and secure it with 4 hex head bolts (M6 X 12).

■ Joining adjustment poles ① and ②



Insert the adjustment pole ② into the adjustment pole ①, align the holes and secure the two poles with 6 hex head bolts (M6 X 12).

- Align the "FRONT" inscription on adjustment pole ② with that on adjustment pole ①.

Note

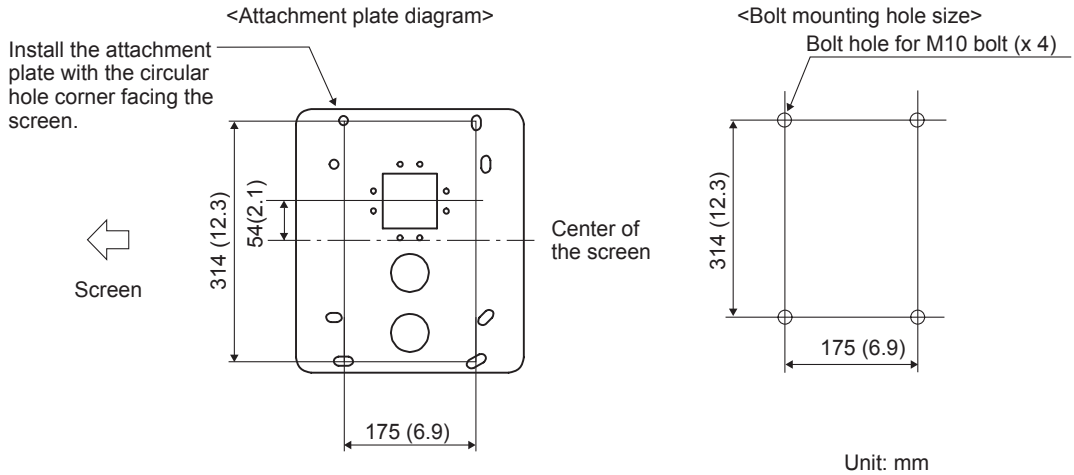
- Adjustable screw holes are provided in both adjustment poles and at spacings of 40 mm. Join the poles to each other by fitting the adjustable screw holes based on the projection distance (580.5 - 700.5 mm) on the previous page.

2. Installing the attachment plate to the ceiling

After checking the height, width and structure of the installation location while referring to “Standard installation dimensions” on page 4, determine the appropriate positions for setting up the screen and installing the projector.

■ Attachment plate mounting hole sizes and preparation

Make holes for inserting the bolts while referring to the attachment plate diagram.

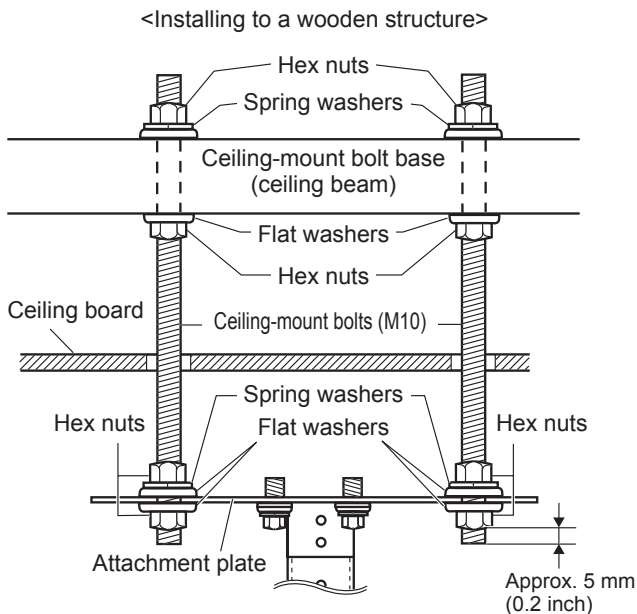


Attention

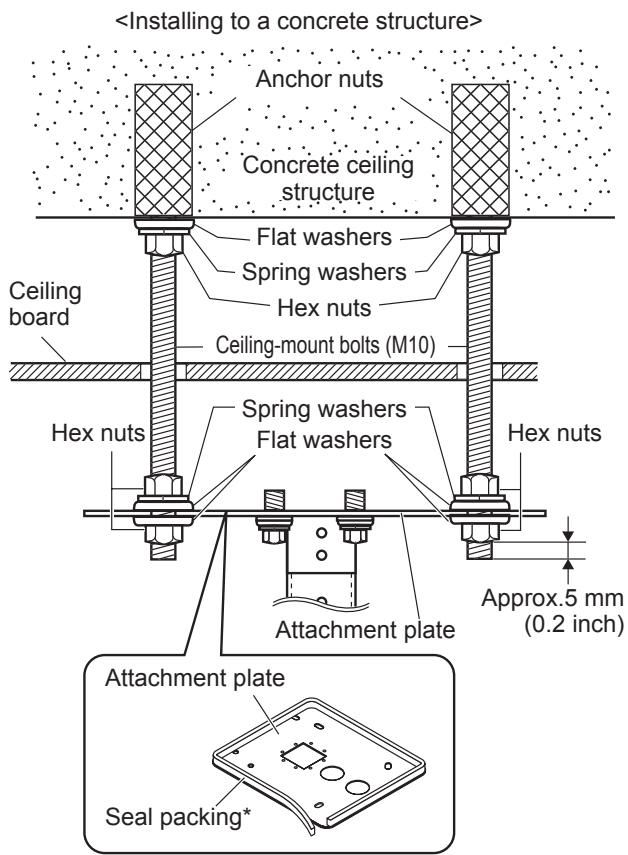
- If installing to a concrete structure, the sizes of the bolt mounting hole should match the sizes of the anchor nuts used.
- Use commercially-available ceiling-mount bolts, hex nuts, flat washers, spring washers and anchor nuts.

■ Installing the attachment plate

Depending on whether it is installed on a concrete or wooden ceiling structure, there are two different installation methods. Please carry out by the appropriate installation method which is suited to each ceiling.



- ① Drill 4 bolt through-holes in the ceiling board, with their sizes equal to that of the ceiling-mount bolt holes drilled in the attachment plate (see the figure above).
- ② Securing the ceiling-mount bolt: Check to make sure that the ceiling-mount bolt base, often the ceiling beam, is strong enough to easily bear the whole weight of the projector. If not, use reinforcement sufficient to clear the prescribed safety margin.
- ③ Temporarily secure the attachment plate to the ceiling-mount bolts (it will be permanently secured after horizontal picture skew adjustment on page 9). The threaded end of each ceiling-mount bolt should protrude by approx. 5 mm from the bottom surface of the retention nuts. Be sure to use flat and spring washers for every nut.



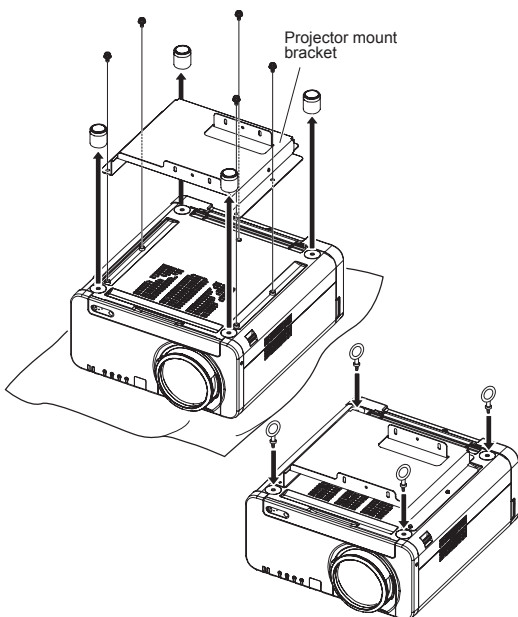
- ① Drill 4 bolt through-holes in the ceiling board, with their sizes equal to that of the ceiling-mount bolt holes drilled in the attachment plate (see page 6).
- ② Hammer anchor nuts into the concrete ceiling structure and screw the ceiling-mount bolts into the nuts.
 - When installing anchor nuts, strictly adhere to the installation instructions supplied by the manufacturer of the nuts, so they will not loosen in the concrete structure or be dislodged from the intended positions.
 - Check to make sure that the concrete ceiling structure can easily bear the whole weight of the projector. If it is found to be fragile or degraded, use steel or wooden reinforcements.
- ③ Temporarily secure the attachment plate to the ceiling-mount bolts (it will be permanently secured after horizontal picture skew adjustment on page 9). The threaded end of each ceiling-mount bolt should protrude by approx. 5 mm from the bottom surface of the retention nuts. Be sure to use flat and spring washers for every nut.

Note

- *When the distance between the ceiling and the attachment plate is 20 mm or less, it is possible to seal the clearance gap with the supplied seal packing.
- The signal cable of the projector main unit can also be run inside adjustment poles. In such a case, be sure not to damage the cord or the cable. (The inside diameter of the adjustment pole is 47 mm.)

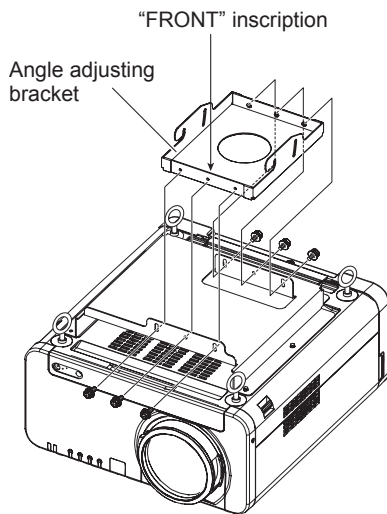
3. Installing the brackets to the projector

Install the projector (sold separately) to the various sections of the bracket by following the procedure below.



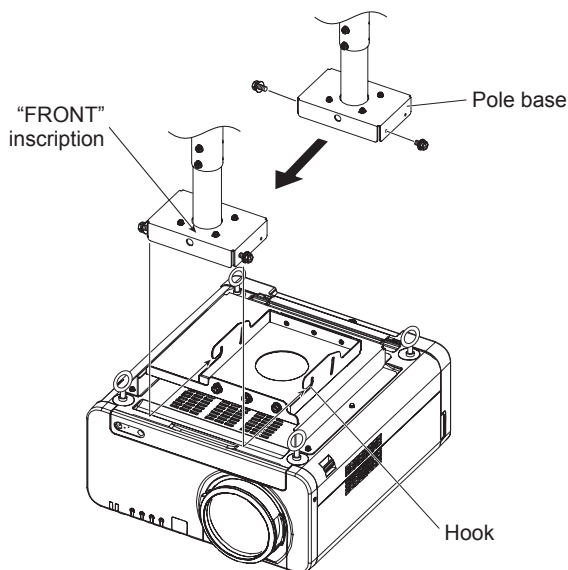
- ① Place the projector upside-down onto a piece of soft material.
- ② Secure the projector mount bracket at the bottom of the projector with 5 hex head bolts (M6 X 25) shown in the diagram on the left.
- ③ Turn the four adjustable feet counterclockwise to remove them, and then install the accessory eye bolts (M10). (The adjustable feet will be used if the projector is installed normally, so store them safely.)

Installation



- ④ Secure the angle adjusting bracket to the projector mount bracket with 6 hex head bolts (M6 X 12).

4.Suspending the projector



- ① Screw 2 hex head bolts (M6 X 12) half way into two opposite side bolt holes in the pole base, on the forward side nearest the screen.

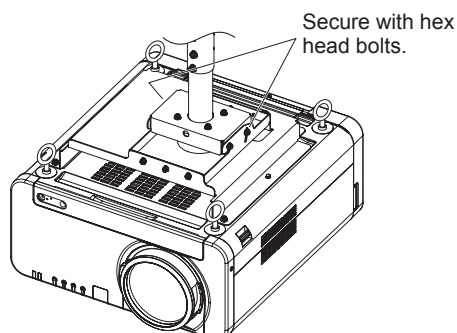
- ② Install the projector to the pole base by fitting the adjustable hook part of the angle adjusting bracket over the hex head bolts just installed in step (1) above.

Attention

- Hold the projector firmly until the hex head bolts are securely placed in the hook part of the angle adjusting bracket.

Warning

These steps must be carried out by more than 2 persons.

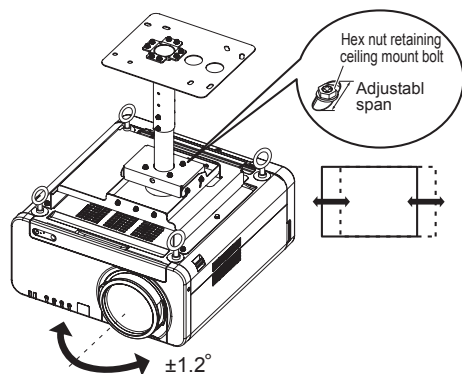


- ③ Using 2 hex head bolts (M6 X 12), secure the angle adjusting bracket to the pole base as illustrated on the left.

Adjusting the installation angle

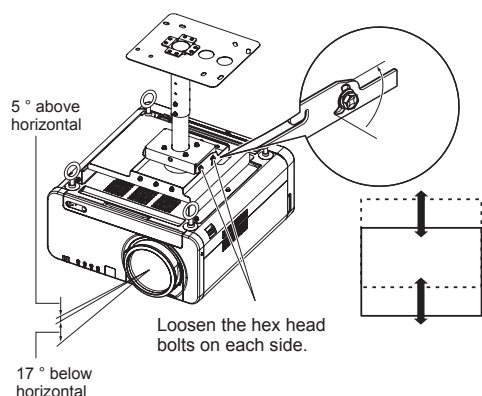
- It is possible to adjust the horizontal swing and also the horizontal and vertical tilt of the ceiling mount bracket. Adjustments should be carried out in order to make the center of the projector lens perpendicular to the surface of the projection screen.
- While referring to the operating instructions for the projector, project a picture onto the screen and then adjust the picture size and focus. After making these adjustments, adjust the ceiling mount bracket angle.

If the picture is too far to the left or right of the screen



- ① Loosen the four hex head bolts of the pole base, and then move the projector to the left or right to adjust so that the center of the pictures and the center of the screen are aligned along a vertical line.
- ② Once the picture position has been set, be sure to retighten the nuts securely.

If the picture is too far to the top or bottom of the screen

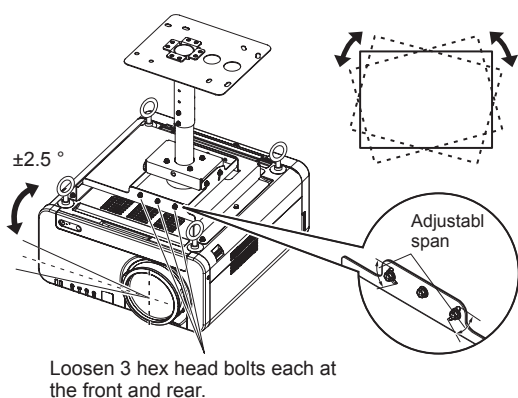


Attention

- Do not loosen too far the hex nuts that retain the angle adjusting bracket to the pole base as the projector may fall off.

- ① Loosen the 2 hex head bolts (two on each side) that attach the angle adjusting bracket to the pole base, then tilt the projector until the picture is centered on the screen.
- ② Once the picture position has been set, be sure to retighten the nuts securely.

If the picture is tilted to the left or right



Attention

- Do not loosen too far the hex nuts that attach the angle adjusting bracket to the projector mount bracket as the projector may fall off.

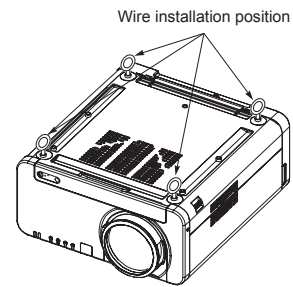
- ① Loosen the 3 hex head bolts each at the front and rear that attach the angle adjusting bracket to the projector mount bracket, and then rotate the projector around its optical axis until the picture edges are aligned with the screen frame.
- ② Once the picture position has been set, be sure to retighten the nuts securely.

Note

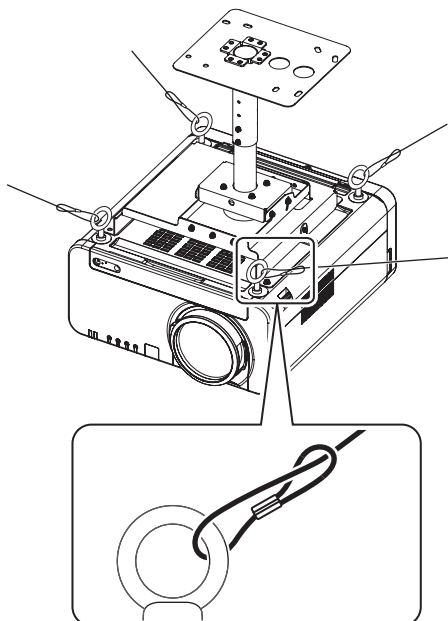
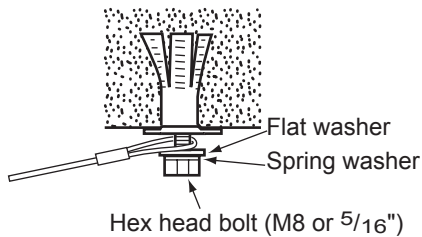
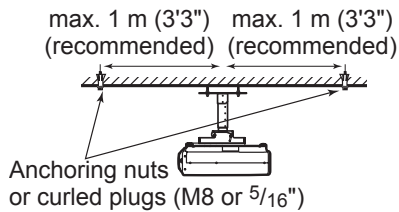
- If the picture is still distorted even after adjusting the angle of the ceiling mount bracket, the position of the projector with respect to the screen is incorrect. Check the installation dimensions while referring to "Standard installation dimensions" on page 4. Alternatively, perform the keystone correction setting at the projector.

Attaching the drop-prevention wire

Please be sure to connect wires between the ceiling mount bracket and the ceiling leading out in two directions at least, in order to prevent the projector from vibrating or falling down. (Please use the included wires.)



■ Using the accessory wire ropes at four places along a diagonal line, install the wires for preventing the projector from falling off.



- ① Install commercially-available anchoring nuts or curled plugs (M8 or 5/16") securely into the ceiling in four places (as shown in the illustration at left) so that there will be no slack in the accessory wire rope.
- ② Pass the loop of wire rope through each of the four anchoring areas, and then tighten the hex head bolts.
- ③ Loosen the screws of the locking bracket to open the bracket, place it over the eye bolts in the projector and then securely tighten the screws.
- ④ Repeat the procedure for the other wire rope.

Attention

- Pull the wire rope taut enough to ensure that the position where the images are projected will not shift around.
- If the accessory wire rope is not long enough, obtain a sufficient length of wire rope having a wire diameter of at least 1.5 mm (1/16"), and use it for the installation.

Specifications

Range of adjustment	Height(From center of projector lens to attachment plate)	581 mm - 701 mm (22.8 - 27.6 in.)
	Vertical tilt correction angle	17 ° below horizontal, 5 ° above horizontal
	Horizontal tilt correction angle	± 2.5 °
	Horizontal swing correction angle	± 1.2 °
External dimensions		Width: 536 mm (21.1 in.); Height: 416.5 - 536.5 mm(16.4 - 21.1 in.); Length: 425 mm (13.2 in.)
Weight		16.6 kg (36.6 lbs.)

Matsushita Electric Industrial Co., Ltd

Web Site : <http://www.panasonic.co.jp/global/>

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