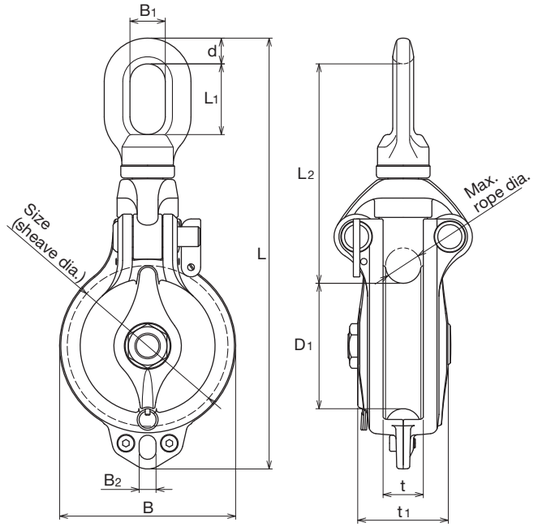
5. Product specifications



[V-Sheave type]

No.	Size (sheave dia.) (mm)	Type	Max. rope dia. (mm)	Dimensions (mm)										Hexagon wrench dia.	Bearing number	Unit weight (kg)	Working load limit (t)
				d	L	L_1	L_2	D_1	B	B_1	B_2	t	t_1				
AK1690	75	Single Sheave	16	14.5	214	38	111	59	83	19	8.5	21	45	4	6202	1.3	0.7
AK1696	100	Single Sheave	16	16	268	44	134	84	110	22	10.5	25	56	5	6304	2.6	1.6

[U-Sheave type]

No.	Size (sheave dia.) (mm)	Type	Max. rope dia. (mm)	Dimensions (mm)										Hexagon wrench dia.	Bearing number	Unit weight (kg)	Working load limit (t)
				d	L	L_1	L_2	D_1	B	B_1	B_2	t	t_1				
AK1691	100	Single Sheave	22	16	268	44	137	78	110	22	10.5	25	56	5	6304	2.6	1.6

*Material: SCS14 (equivalent to SUS316), Sheave = SCS1 (equivalent to SUS410)
Sheave pin / Swivel / Swivel pin / Toggle pin / Stopper pin = SUS304
*Although the working load limit is based on the working load limit of the bearing, it does not apply to the becket part.
*This product contains two steel bearings with rubber seals.

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Dealer

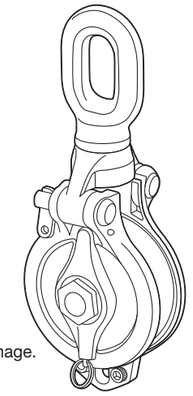
Issued June 10, 2019

ASANO Daruma Block Type PB Instruction manual

1690 MAE

Before use Important

- For proper and safe use of the product, the prevention of injury to yourself and others around you, and the prevention of damage to property, read and understand this document thoroughly before handling the product.
- After reading this document, store it in a place where it can be easily referenced.
- Have an expert plan and install equipment such as cranes that will be used with the product.
- Follow the industrial safety and health regulations and safety ordinance for cranes when handling the product.
- The product is manufactured for the purpose of hoisting or pulling heavy loads. Do not use it for any other purpose.
- The product is for professional use only. It is not for general home use.



Safety precautions

The descriptions in these “Safety precautions” and in the text are for you to follow in order to prevent injuries and property damage.

■ The danger and degree thereof resulting from incorrect handling are classified as follows.

⚠ Warning	Ignoring this indication and handling the product incorrectly may result in serious injury or death.	⚠ Caution	Ignoring this indication and handling the product incorrectly may result in minor injury or property damage.

■ The following symbols are used to indicate the descriptions for you to follow.

⃠	Describes something you must not do.	❗	Describes something you must do.

⚠ Warning

Do not use for the purpose of hoisting people or equipment with people in it.
Doing so may lead to serious injury or a fatal accident.

Do not apply loads that exceed the working load limit.
Doing so may damage the pulley, drop the hoisted load, and lead to serious injury or a fatal accident.

Do not apply impact loads.
Doing so may lead to serious injury or a fatal accident due to a broken pulley or other part, or falling hoisted loads.

Do not ride on top of hoisted loads or pulley equipment.
Doing so may lead to serious injury or a fatal accident due to falls or falling hoisted loads.

Do not use when there are people within the movement range of the hoisted load or under the pulley.
Doing so may lead to serious injury or a fatal accident.

When hoisting, stay away from the pulley, rope, and around and under the hoisted load.
Failure to do so may get your hands or body caught or you may get crushed under the falling hoisted load, lead to serious injury or a fatal accident.

Do not use the swivel for purposes such as constant rotation.
Doing so may damage the swivel, drop the hoisted load, and lead to serious injury or a fatal accident.

Do not perform modifications such as welding or cutting.
Doing so may lead to serious injury or a fatal accident due to a weakened or broken pulley.

Inspect before use and periodically.
Failure to do so will overlook abnormalities or damage to the pulley, and may lead to serious injury or a fatal accident.

Do not let the rope fixture touch the pulley.
Doing so may damage the pulley and lead to an accident of a falling hoisted load.

Attach the hoisted load so that the sheave and hoisted load fixture are in tandem.
If the load is applied to the pulley from the side, it may lead to serious injury or a fatal accident due to breakage.

After starting to hoist a load, check that the rope is in the groove of the sheave.
Failure to do so may drop the hoisted load due to rope damage, and lead to serious injury or a fatal accident.

Do not use during bad weather such as in strong winds.
Doing so may drop the hoisted load and lead to serious injury or a fatal accident.

When attaching, removing, or transporting a pulley, use slip-resistant protective gloves and perform work in a stable place.
Failure to do so may drop the pulley and lead to serious injury or a fatal accident.

⚠ Caution

Do not use while submerged such as in the sea or water.
Doing so will lead severe rotation failure or strength deterioration due to adhesion of foreign matter or corrosion.

Do not let the pulley touch sharp objects or abrasive surfaces.
Doing so will cause the pulley to weaken due to damage or abrasion.

Do not let the sheave rotate continuously at high speeds for long periods of time.
Otherwise the bearing may abrade due to frictional heat, which may cause the rotation failure of the sheave.

Use within the temperature range between -18°C and 66°C.
Using outside of this temperature range will cause rotation failure or strength deterioration.

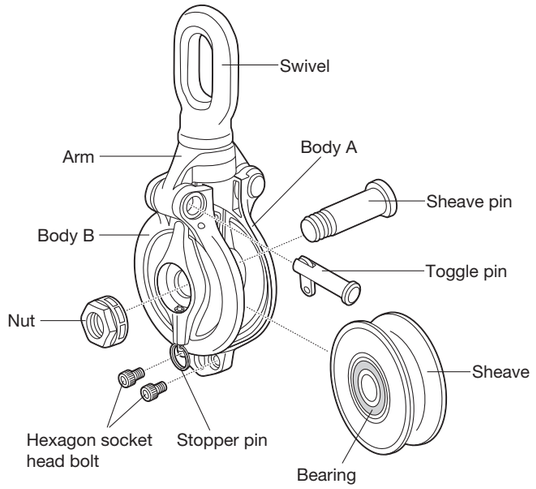
In low temperature environments, check that the sheave is not frozen before working.
Failure to do so may damage the rope from rotation failure of the sheave due to freezing.

In high temperature environments, lubricate periodically.
In high temperature environments, depletion of lubricant is severe and if the lubricant dries up, it will cause the rotation failure of the sheave or the shaft.

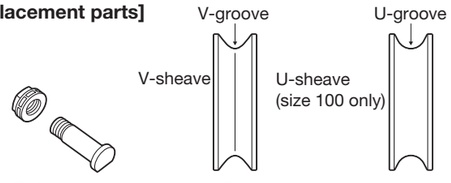
Do not use or store in the following environments.
· Places with extreme temperature changes
· Places with corrosive or acidic gas
Doing so will cause rotation failure or strength deterioration.

1. Part names

Daruma Block Type PB, Single Sheave (Size 75, 100)



[Replacement parts]



● Sheave pin ● Sheave (with bearing)

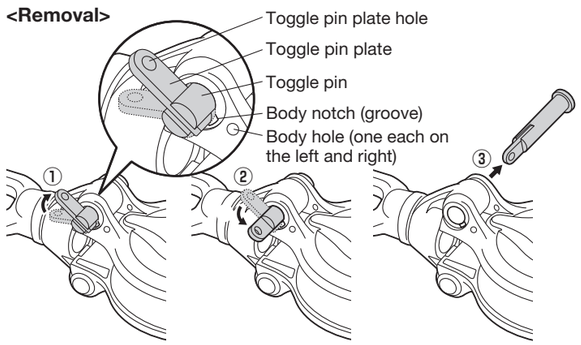
● Toggle pin ● Stopper pin

2. Removing and attaching the parts

Removing and attaching the toggle pin

● The toggle pin can be removed or attached only when the toggle pin plate is aligned with the notch (groove) of the body.

<Removal>



① Align the toggle pin plate with the groove.

② Set down the toggle pin plate as shown in the figure to make it straight.

③ Pull out the toggle pin from the body.

<Attachment>

● To attach, follow the removal procedure in reverse order.

* You can insert the toggle pin from either side because there are grooves on the left and right.

* The toggle pin plate and groove may align due to vibration. You can prevent this by tying the toggle pin plate hole and body hole with wire, etc.

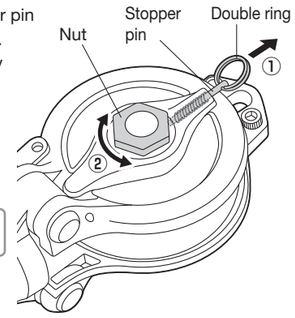
Removing and attaching the nut

● The nut is locked with the stopper pin so that it does not become loose.
* The stopper pin is released only when the double ring is pulled.

① While pulling the double ring,

② Rotate the nut with a wrench or socket wrench to remove or attach it.

Tool	Nut double face width 22 (size 75) 24 (size 100)



⚠ Caution	**Rotate the nut while pulling the double ring.** If you rotate the nut without pulling it, the stopper pin will get caught and get damaged.

Removing and attaching the sheave

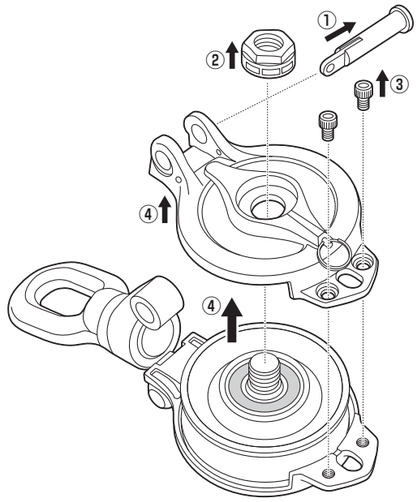
① Follow (Removing and attaching the toggle pin) to remove the toggle pin.

② Follow (Removing and attaching the nut) to remove the nut.

③ Remove the two hexagon socket head bolts with a hexagon wrench.

Tool	Hexagon wrench 4 (size 75) 5 (size 100)

④ Remove body B, remove the sheave, and replace with a new sheave.



* To attach, follow the removal procedure in reverse order.

Replacing the stopper pin

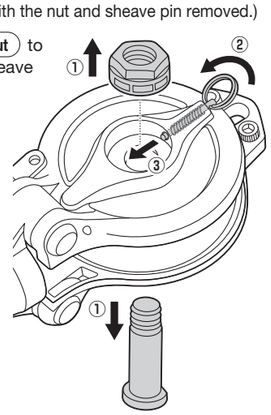
● If the double ring of the stopper pin is damaged or the spring is weakened, replace the stopper pin. (Replace it with the nut and sheave pin removed.)

① Follow (Removing and attaching the nut) to remove the nut and pull out the sheave pin.

② Rotate the double ring to remove it from the stopper pin.

③ Move the stopper pin in the direction of the arrow and take it out with the spring.
* If it is difficult to take it out, push it from the hole on the other side with a tool such as an awl.

④ While inserting and pressing the replacement stopper pin in the direction opposite of ③, attach the double ring to the stopper pin.



3. Inspection and maintenance

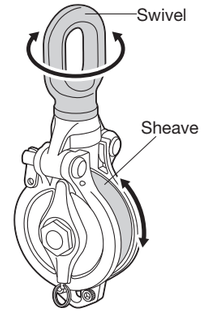
Inspection before use

⚠ Warning	**Inspect before using the pulley.** Using the product when there is a problem accelerates the damage and may lead to strength deterioration, damage to the product, or an accident of falling hoisted load.

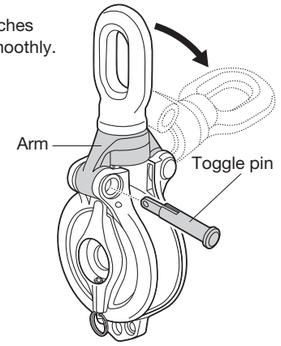
<Inspection of movable parts>

● The swivel and sheave rotate smoothly.

⚠ Caution	If rotation is poor, not centered, significantly rattles, or if rotation stops, discontinue use and replace the part or product.



● The toggle pin attaches and detaches and the arm opens and closes smoothly.

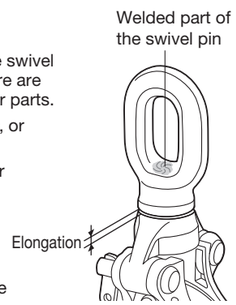


<Inspection of the nut, bolt and stopper pin>

● The nut securing the sheave pin is not loose or defective.
● The two hexagon socket head bolts are not loose or defective.
● The spring of the stopper pin is not weakened and the double ring is not damaged or defective.
*For the checking method, refer to (Removing and attaching the nut).

<Visual inspection of appearance>

● There are no cracks or corrosion in the swivel and welded part of the swivel pin. There are also no cracks or corrosion in the other parts.
● There are no bends, twists, distortions, or stretches.
● There is no excessive wear, denting, or hollowing out.
● There is no wire scratch marks on the sheave surface.
● Foreign matter or dirt is not attached.
● Casted characters on the body shall be readable.

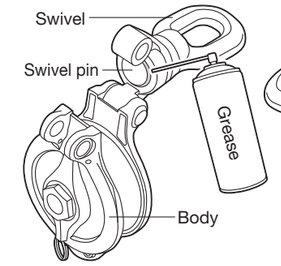


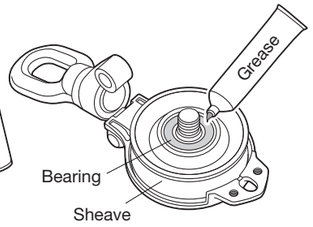
⚠ Warning	**Do not use products that are in the following conditions** **· Products that are deformed, cracked, or worn out** **· Products with signs of corrosion such as rust stains or galvanic corrosion** Doing so may lead to serious injury or a fatal accident due to falls or falling hoisted loads.
⚠ Caution	**Do not let the product touch other types of metal for long periods of time.** Doing so will cause corrosion.

Maintenance

<Applying grease (or lubricant)>

● Applying to the swivel pin and the side surfaces of the sheave





Apply grease to the gap of the swivel pin in the inner side of the body to prevent the rotation failure and abrasion of the swivel.

In order to prevent water invasion into the bearing, apply grease to the bearings on the side of the sheave.

⚠ Warning	**Do not let grease on the swivel pin dry up.** Drying up will lead to breakage of the swivel pin or the crack of the welded portion.

<Removing corrosion (rust), dirts, and foreign matter>

① For light dirt (such as hand marks, sand, or mud), wipe with a damp soft cloth or sponge, and then wipe with a neutral detergent.

② If dirt still remains, wiping with a store-bought cleaner (cleaning solution), remover, or thinner is effective.

③ If rust stains (spots of rust caused by iron particles in dirt) remain after performing ① and ②, use a store-bought rust remover.

④ If the rust cannot be removed with a store-bought rust remover, rub it off with sandpaper or an abrasive compound.

⑤ Remove foreign matter by scraping it away with sharp-tipped object such as a slotted screwdriver, and then perform ① and ②. Rub off persistently attached foreign matter with a file or abrasive compound because you may damage the product if you use excessive force.

⚠ Caution	**Wipe frequently.** Attached foreign matter such as sea water, soot, or iron particles will cause corrosion.

Periodic inspection

● Perform periodic inspection at least once a year.
● If you use the product under harsh conditions such as frequent hoisting of loads equal to the working load limit, or intense vibration or rolling, perform inspection more frequently because the parts will wear out substantially.
● For periodic inspection, inspect all of the items in (Inspection before use), perform (Maintenance), and check the dimensions of each part. If the dimensions are 10% different from the original dimensions or the dimensions in the catalog, replace the part or product.
(Refer to 5. Product specifications for the dimensions.)

⚠ Warning	**When disassembling the pulley for sheave replacement, remove it from high places and disassemble on the ground.** Failure to do so may drop the pulley and lead to serious injury or a fatal accident.
⚠ Caution	**When replacing parts, use ASANO-specified parts.** Failure to do so may result in lower functionality of the pulley due to incompatible parts.

4. In case of trouble

● If a problem occurs while using the pulley, discontinue use immediately, and check the items in 3. Inspection and maintenance.

⚠ Warning	In the unlikely event the pulley deforms or breaks and a load is hanging in midair, first take down the hoisted load, unload the pulley, and take safety measures to prevent secondary accidents.

● For inquiries about pulleys, please consult the dealer where you purchased the product.