

**Company Profile** 

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Management We pursue employee's happiness of both physically and psychologically and contribute to community through Principle development of business. **Company Policy** Our company is united to manufacture and sell products meeting customers' requests with all our heart. Company overview Trade name Establishment Capital Representative director **Business** outline Associated companies Main customer

## Greetings from the Representative

## We are determined to make the best use of inventiveness to satisfy customers.

YUEI CASTER has been dedicated to produce casters since its establishment in 1977.

Although caster is an inconspicuous product, it is a necessary product. All staff have been trying hard to keep improving skills, make the best use of inventiveness and make creative jobs. We are determined to make customers happy and become an indispensable company by producing new products.

YUEI CASTER Co.,Ltd.
October 1977
80 million yen
Kota Ojima
Design, production and sales of caster and relevant products
YUEI CASTER(SHANGHAI)CO.,LTD. OJIMA Co. Ltd.
Canon KYOCERA KONNICA MINOLTA DAIHATSU MOTOR TOYOTA MOTOR Panasonic Hitachi Fuji XEROX MORI SEIKI ROHM

Representative director

Hota Gina

# **Company Profile**

## All staff are united to satisfy customers' requests.



# Sales department

## **Proposal ability**

Our manufacturing department, sales department and engineering department are united to propose products meeting specifications and applications provided by customers with a great deal of enthusiasm.

## Footwork

All sales offices in Japan cooperate and quickly deliver a caster meeting customers' requests.

## **Quick response**

We quickly respond to inquiries from customers so as not to make customers wait for the response regarding selection and delivery date of a caster.



# Manufacturing department

# High response capability with in-house production

We improve the rate of in-house production to meet customers' requests and make process production including mold making, part processing and assembly work.

## Establishment of production system

We have established the production system that can support detailed order, such as small lot size and quick delivery.

## Just-in-time system

We have built the just-in-system to receive and deliver products through carefully thought-out plan and production management based on cooperation with affiliated companies.

## **Thorough 5S activities**

We thoroughly carry out 5S (Seiri (Tidiness), Seiton (Orderliness), Seiso (Cleanliness), Seiketsu (Standardization), and Shitsuke (Discipline) in the plant for safety management.



# Development department

## Advanced product development

We develop and sell next-generation casters through original technique in order to meet customers' diverse and advanced requests.

# Challenging to new materials and new structures

We always obtain most-advanced information, adopt new materials, device new mechanisms, make improvements in order to keep providing high-quality casters.

## Thorough performance testing

We carry out thorough performance testing based on strict control criteria in order to provide reliable products to customers.



# Management department

## Healthy management

We build solid management foundation by making all staff participate in management in order to make customers do business with us comfortably.

# Building the quality assurance system

We are certified according to ISO9001 and ISO-14001, improve quality to provide high quality and eco-friendly products and carry out chemical substances management.

## Human resources development

We develop professionals of caster by enhancing the education system and develop spiritually rich people by self-realization through work.

## 1. Structure of Caster and Names of Parts

A caster is mounted to an object in order to carry or move the object easily. Mounting a caster to a object is easy and casters can be used for various purposes.



# **2. Types of Stoppers**

- Single stopper: ... This is the stopper used for only locking rotation of a wheel.
- Spirally fixing type: This is the stopper used for only locking rotation of the revolving portion.
- Double stopper: … This is the stopper used for locking rotation of a wheel and rotation of the revolving portion at the same time.
- \* There is a type equipped with both single stopper and revolution fixing type.

## **3. Structure of the Revolving Portion**

### Single thrust bearing type

\* Single bearing structure is used for giving priority to cost.



## **Double thrust bearing type**

\* Smooth rotation is realized by adopting the double bearing structure.

Industrial casters J series, J2 series and SUS-J2 series



#### Small casters (double bearing) SJ series, S series, E series, L series, SA series, H series, SUS-SJ series, SUS-S series, SUS-E series, SUS-H series



## 4. Types of Mounting Methods

## **Plate Type**

Holes for mounting a caster are provided on the mounting base. Mount the caster using screws and bolts as illustrated in the figure. \* Please make sure to use all mounting holes.





# Screw-in Type

Since a thread is provided on the stem, mount a caster by screwing the caster on the stem. After lightly screwing a caster by hand, mount the caster by tightening the hexagonal part using a dedicated flat wrench as illustrated in the figure. At that time, drive screws firmly to the end. \* If screws are not screwed in to the end, allowable load may be reduced.



# Insertion Type (Rubber Pipe Type)

Since a rubber pipe is provided on the stem, a caster can be mounted by inserting it into a pipe, etc. After inserting the caster, tighten the hexagonal part using a flat wrench as illustrated in the figure and inflate the rubber pipe. At that time, insert the pipe firmly to the end. \* If the pipe is not inserted to the end, allowable load may be reduced.



# **Angle Type**

A caster can be easily mounted to the angle using screws and bolts. Make sure to firmly insert the angle to inside of the mounting bracket to make the bracket close contact with the angle. At last, fix the mounting holes and the holes on the angle, and then mount a caster using screws and bolts.

\* If the angle is not inserted to the end of the inside of the mounting bracket, allowable load may be reduced.



### Dedicated wrenches for mounting casters

Double open-end flat wrench



Product number	A(mm)	B(mm)
19 × 21 wrench	19	21
21 × 23 wrench	21	23





Single open-end flat wrench

/	
	J
<u>_</u> +_∠	

Product number	A(mm)
14 flat wrench	14
17 flat wrench	17
30 flat wrench	30

## **5. Description of Various Wheels**

#### Chart of general characteristics of materials used for wheels

	Rubber	Nylon	Urethane	Elastomer	Phenol	MC nylon	Polycarbonate
Elasticity	O	×	0	0	×	×	×
Compression set	0	O	0	$\bigtriangleup$	O	O	O
Abrasion resistance	0	O	O	$\bigtriangleup$	0	O	O
Weather resistance	$\bigtriangleup$	O	0	O	O	O	O
Oil resistance (machine oil)	×	O	O	×	O	O	O
Resistance to gasoline	×	O	O	×	O	O	O
Water resistance	O	0	$\bigtriangleup$	O	0	0	0
Resistance to chemicals (weak acid, alkali)	0	O	×	O	O	O	(
Heat resistance (°C )	70	70	70	70	120	120	120
Low temperature resistance (°C )	-30	-20	-30	-30	-40	-40	-40

\* Only material is general characteristic. Since materials are affected by working conditions and environment of caster products, please use this list as guidelines for selecting and determining materials.

\* For urethane, characteristics of thermoplastic urethane are described.

#### **Characteristics of wheels**

## Rubber Wheels \* (including B) indicates wheels equipped with bearing.



Rubber wheels are widely used and provide elasticity and provide good traveling performance on uneven road surface. In addition, rubber wheels are cheaper than urethane wheels.

 $\bigcirc$  : Excellent  $\bigcirc$  : Good

 $\triangle$  : Acceptable  $\times$  : Not acceptable

A traveling mark is likely to be remained on floor surface while running and rubber wheels may be deformed if load is applied for extended period of time.



Wheel symbol	Wheel name	Features
R RH	Rubber wheels	This is a standard wheel in which rubber is integrated.
W	Rubber wheel with steel plate wheel assembly (including B)	This is a standard wheel in which the wheel assembly portion is made of steel plate. Since a commercial bearing is used, rotation of a wheel is good.
WP	Rubber wheel with steel plate wheel assembly	The wheel assembly potion is made of steel plate. By using a resin bush at the bearing portion, this wheel provides cost effectiveness even though traveling performance is degraded compared with normal bearings.
WB	Rubber wheel with steel plate wheel assembly (including B)	The wheel assembly potion is made of steel plate. Since a commercial bearing is used, rotation of a wheel is good. Also, rattle between the body and a wheel is eliminated, rattling of a wheel while traveling is reduced.
WF	Rubber wheel with steel plate wheel assembly (including B)	The wheel assembly potion is made of steel plate. Since a deep-groove bearing is used, rotation of a wheel is excellent and rotating sound is reduced.
NR (*1)	Rubber wheel with nylon wheel assembly	Since the wheel assembly portion is made of resin, this wheel is lighter than the wheel type in which rubber is integrated.
NR (*2) • NWR	Rubber wheel with nylon wheel assembly (including B)	Since the wheel assembly portion is made of resin, this wheel is lighter than the wheel type made of steel plate. Since a commercial bearing is used, rotation of a wheel is good.
NRB	Rubber wheel with nylon wheel assembly (including B)	Since the wheel assembly portion is made of resin, this wheel is lighter than the wheel type in which rubber is integrated. Since a deep-groove bearing is used, rotation of a wheel is good.
AW Rubber wheel with aluminum wheel assembly (including B)		The wheel assembly portion is made of aluminum die-casting and provides ex- cellent durability. Since a deep-groove bearing is used, rotation of a wheel is good.

## Nylon wheel \* (including B) indicates wheels equipped with bearing.



This material keeps resistance to chemicals, such as weak acid and alkali. Wear caused by running is least likely to occur and deformation is least likely to occur even if load is applied for extended period of time. Since this material provides high rigidity, this material is weak to strong shock and running sound is large on uneven road surface.



Wheel symbol	Wheel name		
N(*1)	Nylon wheel	This is a general nyl molding.	
N(*2)	Nylon wheel (in- cluding B)	This wheel is forme Since a deep-groov is good.	
NB	Nylon wheel (in- cluding B)	This wheel is forme Since a deep-groov is good.	
BN	Nylon wheel	This is a black nylor molding.	
MC	MC nylon wheel	This wheel is forme comparison with ny load resistance and wheel provides exco	
	MC nylon wheel (including B)	lower temperature. Since a needle bear likely to be affected	
MCE	MC nylon wheel (conductivity)	This wheel is form comparison with r load resistance an wheel provides ex lower temperature	
MCE	MC nylon wheel (including B) (conductivity)	Since a needle bea likely to be affecte In comparison with electric conductive caused by static e	
CNP	Reinforced nylon wheel	This wheel is forme	
GIND	Reinforced nylon wheel(including B)	higher shock resista	
GFB	Reinforced nylon wheel (including B)	This wheel is forme comparison with ny load resistance and Since a deep-groov less likely to be deg	

# **5. Description of Various Wheels**

## Urethane Wheels \* (including B) indicates wheels equipped with bearing.



These wheels provide high load bearing and durability in which wear is less likely to occur while moving. Also, these wheels provide resistance to oil, such as gasoline and general machine oil. However, these wheels may deteriorate if these wheels are placed in water or humid environment for long period of time.



Wheel symbol	Wheel name	Features	
UW	Urethane wheel with steel plate wheel assembly (including B)	The wheel assembly potion is made of steel plate. Since a commercial bearing is used, rotation of a wheel is good.	
UWB	Urethane wheel with steel plate wheel assembly (including B)	The wheel assembly potion is made of steel plate. Since a deep-groove bearing is used, rotation of a wheel is good. Also, rattle between the body and a wheel is eliminated, rattling of a wheel during running is reduced.	
UWF	Urethane wheel with steel plate wheel assembly (including B)	The wheel assembly potion is made of steel plate. Since a deep-groove bearing is used, rotation of a wheel is excellent and rotating sound is reduced.	
UR	Urethane wheel with nylon wheel assembly	The wheel potion is made of resin. This is a general ure- thane wheel in wheels having small wheel diameter.	
UHF	Urethane wheel with nylon wheel assembly (including B)	The wheel potion is made of resin. Since a deep-groove bearing is used, rotation of a wheel is excellent and rotating sound is reduced.	
NU	Urethane wheel with nylon wheel assembly	The wheel potion is made of resin. This wheel is equipped with a wheel cover.	
SUE	Urethane wheel with antistatic nylon wheel assembly (including B)	The wheel potion is made of resin. This wheel is equipped with a wheel cover. In comparison with standard wheels, this wheel is less electric conductive and absorption of dust and dirt caused by static electricity is prevented. Since a deep-groove bearing is used, traveling performance is improved and rotating sound is reduced.	
GU	Urethane wheel with nylon wheel assembly (including B)	Since the wheel assembly portion is made of resin, this wheel is lighter than the wheel type made of steel plate. Since a commercial bearing is used, rotation of a wheel is good.	

## Other Wheels \* (including B) indicates wheels equipped with bearing.



W syi	heel mbol	Wheel name	
	EL	Elastomer wheel	The wheel assem this wheel is light This wheel provid of a rubber wheel, mance even on u Also, traveling ma
EI	LSB	Elastomer wheel (including B)	The wheel assem this wheel is light This wheel provic of a rubber whee formance even o Also, traveling ma Since a deep-gro is excellent and r
s	EL	Elastomer wheel (including B)	The wheel assem this wheel is light This wheel provic of a rubber whee formance even o Also, traveling ma Since a deep-gro is excellent and r
1	PB	Phenol wheel (including B)	This wheel is forr materials provide to occur even if l time. This material kee acid and alkali an Double ball beari is used, rotation o
P	C-C	Polycarbonate wheel (transparent)	This wheel is forr This wheel provid corrosion resistar characterized by
P	C-R	Polycarbonate wheel (Red)	This wheel is forr This wheel provid corrosion resistar characterized by
P	C-G	Polycarbonate wheel (Green)	This wheel is forr This wheel provid corrosion resistar characterized by

#### Features

nbly potion is made of resin; therefore

des elasticity, which is equivalent to that , and provides excellent traveling perforineven road surface.

ark is less likely to remain on floor surface.

nbly potion is made of resin; therefore

des elasticity, which is equivalent to that el, and provides excellent traveling peron uneven road surface.

ark is less likely to remain on floor surface. pove bearing is used, rotation of a wheel rotating sound is reduced.

nbly potion is made of resin; therefore

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ark is less likely to remain on floor surface. pove bearing is used, rotation of a wheel rotating sound is reduced.

med by resin integration molding. Since high rigidity, deformation is least likely load is applied for extended period of

eps high resistance to chemicals, such as nd provides excellent heat resistance. ing (  $\phi$  50 only) • Since a needle bearing of wheel is less likely to be degraded.

med by resin integration molding. des excellent resistance to chemicals, ince and wear resistance. This wheel is transparent appearance.

med by resin integration molding. des excellent resistance to chemicals, ince and wear resistance. This wheel is red semitransparent appearance.

med by resin integration molding. des excellent resistance to chemicals, nce and wear resistance. This wheel is green semitransparent appearance.

# About Quality

## **1. Introduction of Product Testing**

Lever type running performance testing machine



#### Manufactured by us

Running durability of a caster (mainly, wheel and revolving portion) is evaluated. This test is done by applying allowable load to a caster and make the caster run on a drum made of steel having projections at a fixed distance and at a regular speed.

### Direct driven type running performance testing machine



#### Manufactured by us

Running durability of a caster (mainly, wheel and revolving portion) is evaluated. In addition, vertical vibration (vibration acceleration) of a stand when a caster climbs over a projection.

### Drop hammer-type impact testing machine



#### Manufactured by us

This test is used for evaluation impact on a caster. This test is performed by continuing free fall of a weight from the predetermined height until an error occurs while measuring the overall height of a caster and deformation amount of a wheel.

Universal tensile and compression stress testing machine



#### Manufactured by IMADA SEISAKUSHO CO., LTD. SDW-9902-SH

This test is measured by measuring strain amount when load is applied and measuring estimate data regarding withstanding load performance. There are two types of tests. One is the destruction test in which load is applied until the object is destructed and another is the static load test in which a predetermined load is applied for a predetermined time period.

### Turn starting force tester



#### Manufactured by us

This is the test used for evaluating revolving performance of a universal wheel. This test is done by placing a wheel at an angle of 90° to the traveling direction to measure startability at the traveling direction while load is applied.

### Rotation performance testing machine



#### Manufactured by us

This test is used for evaluating rotation startability of a wheel. This test is performed by placing a caster on the testing surface and then gradually increasing weight using a pull cord, which is parallel to the testing surface, and a pulley. Then, startability of a wheel is measured when the wheel makes a half turn.

## **2. Chemicals Contained in Products**

## About RoHS directive [DIRECTIVE 2002/95/EC]

The official name of this directive is "Restriction Of the use of certain Hazardous Substances in electrical and electronic equipment" and this directive restricts use of certain hazardous substances contained in electrical and electronic equipment that was enforced in European Union in July 2006.

After enforcement of this directive, electrical and electronic equipment sold in EU member nations are prohibited not to contain substances to be restricted exceeding the threshold concentration with some exceptions.

Substances to be restricted	Threshold*1
Cadmium and its chemical compound	100ppm
Hexavalent chromium and its chemical com- pound	1000ppm
Lead and its chemical compound	1000ppm* 2
Mercury and its chemical compound	1000ppm
Polybrominated biphenyls	1000ppm
Polybrominated diphenyl ethers	1000ppm
	1000ppm = 0.1 wt%

- \*1 Threshold is the threshold limit value of concentration in a homogeneous material.
- \*2 Some products manufactured by us have parts in which one of items exempted from RoHS directive is used (lead as an alloying element in steel containing up to 0.35% lead by weight, aluminum containing up to 0.4% lead by weight and as a copper alloy containing up to 4% lead by weight, and free-cutting steel containing a maximum of 0.35wt% of lead in steel materials exceeding 0.1wt% of lead concentration).
- \*3 As for contents of JIG (Joint Industry Guide), refer to the web page of JGPSSI (Japan Green Procurement Survey Standardization Initiative) (http://www.db.co.jp/jeita eps/green/green-TOP.html).

As for supporting status of confirmation of chemicals contained in our products (RoHS directive, JIG [Joint Industry Guide]\*3 and others) and request for survey of chemical substances contained in our products, please contact our branches, business office and sales representatives.



# About Quality

## **3. Cautions for Using Casters**

### **1** Application

Casters are designed to be intermittently used by humans in order to facilitate transfer of items.

### 2. Selection of casters and use conditions

#### (1) Allowance load

The value that human can easily move an object on a flat floor surface is described as allowable load in the catalog. (\*excluding casters supporting towing) Select the appropriate caster according to total load applied on the caster. However, load may be applied to 3 pieces of casters even though 4 pieces of caters are used; therefore upper limit of total movable load can be calculated with the following formula.

#### When using 4 pieces of casters Allowable movable load = Allowable load of one piece of caster $x 4 \times 0.8$

 Expression of power is daN. 1daN = 1ON  $\Rightarrow$  1.02kgf(1kgf  $\Rightarrow$  9.8N = 0.98daN)

#### (2) Using speed

Casters shall run on flat floor surface at room temperature, and casters shall be used within the range on the following table. (Do not use casters continuously if heat is generated.)

Wheel diameter	Using speed
100mm or less	2km/h or lower
100mm or higher	4km/h or lower

\*Excluding casters supporting towing

#### (3) Use conditions

• Normally, use casters in doors and at room temperature.

Do not use casters in special environment susceptible to high temperature, low temperature, high humidity, acid, alkali, salt content, solvent, oil, sea water, chemicals, etc. Products may be damaged. Please contact us when using a cater in special environment. When temporarily stopping rotation of a caster, please use a stopper.

### 3 Precautions for mounting a caster

- (1) Combine casters that are the same series.
- (2) Mount swivel casters in such a manner that the rotation axis is vertical.
- (3) Mount fixed casters in such a manner that casters become parallel each other.
- (4) Tighten the mounting bolt firmly so as not become loose. For a screw-in type caster, check optimum torque before tightening a caster.
- (5) Be sure to set the stopper to OFF when mounting a caster equipped with a stopper.
- \* If a caster is mounted while the stopper is set to ON, the braking portion may be damaged.

### 4. Precautions for use

- Tire mark may remain on floor.
- Do not apply load exceeding allowable load.
- Put a load in such a manner that load is evenly applied to each caster
- For fixed caster, do not apply excessive force at right rotation angle of a wheel.
- Do not use casters in such a manner that impact is applied.
- Do not use casters on significantly uneven surface.
- Do not tow casters by use of a trailer, etc. \*Excluding casters supporting towing
- Be sure to wear shoes when operating the stopper.
- Do not move the caster forcibly while the stopper is applied.
- Do not apply excessive force and strong impact on the stopper.
- Do not leave the caster while the stopper is applied on an inclined surface.

In the case of leaving the caster on the inclined surface, use the wheel stopper.

- Do not operate the stopper while the caster is moving.
- Be sure to check that the stopper is released when moving a caster
- Do not modify casters.
- \* We assume no responsibility whatsoever for any accidents or failure resulting from modification.

### 5. Inspection, maintenance and replacement

- (1) Perform inspection and maintenance regularly in order to prevent accident and use a caster for a lengthy period.
- (2) Check the following items regularly.
  - Tightening portion of a caster
  - · Breakage, rupture and deformation of a caster
  - Looseness of axle
- (3) If products have defects, such as deterioration and breakage, replace defective products immediately. (Do not replace part of products.)
- (4) If the revolving portion or wheel portion catches foreign substance, remove the substance immediately. Otherwise, poor rotating movement may occur.
- ★ If you have any questions, contact branch or sales office prior to using a caster.

\*Casters manufactured by us conform to JIS B 8923: 1999.

# Do not use casters under the following conditions.

## Matters that lead to breakage of casters



#### Load shall be applied according to allowable load.

If load exceeding allowable load is applied, a caster may be damaged and its performance may be degraded.



#### Do not move the caster forcibly while the stopper is applied. The stopper part may be damaged.



Do not strike the stopper part with a hammer or step on the stopper part hardly. The stopper part may be damaged.



Do not use a caster under special environment susceptible to high temperature, low temperature and high humidity. etc.

Breakage or performance degradation of a caster may occur.

#### Do not use casters when towing with wheels.



A caster may be damaged and damaged caster may cause accident or injury.

(\*Excluding casters supporting towing)

## Matters that lead to physical injury

### Be sure to avoid eccentric loading.

Eccentric loading is very dangerous because you may lose your balance and stumble.





#### Do not drop a caster or apply shock to a caster.

The life of a caster may be shortened and and the caster may be damaged.



### For fixed wheel, do not apply excessive force at right rotation angle of a wheel.

The bracket may be deformed, and performance of a caster may be degraded.



### Do not use casters on significantly uneven surface.

The life of a caster may be shortened.



When mounting a screw-in type caster, be sure to tighten the caster at the hexagonal part on the stem using a wrench.



### Do not leave the caster while the stopper is applied on an inclined surface.

Leaving casters on an inclined surface since casters may start moving suddenly. Breakage or performance degradation of casters may occur.



### Do not get on an object to which a caster is installed. such as a carrier.

Getting on an object to which a caster is installed is very dangerous and you may get injured or die.