



## HEIWA GIKEN Co., Ltd <http://www.heiwa-giken.co.jp/>

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Tel. +81-92-931-3700 Fax. +81-92-931-3701
- Affiliate company : KOUBAI Co., Ltd.

\*The specifications of the publication, the shape may change it to this catalogue without a notice by reasons of the improvement 2016.10.500

We think about people and the environment to make proposals for the future.



product guide

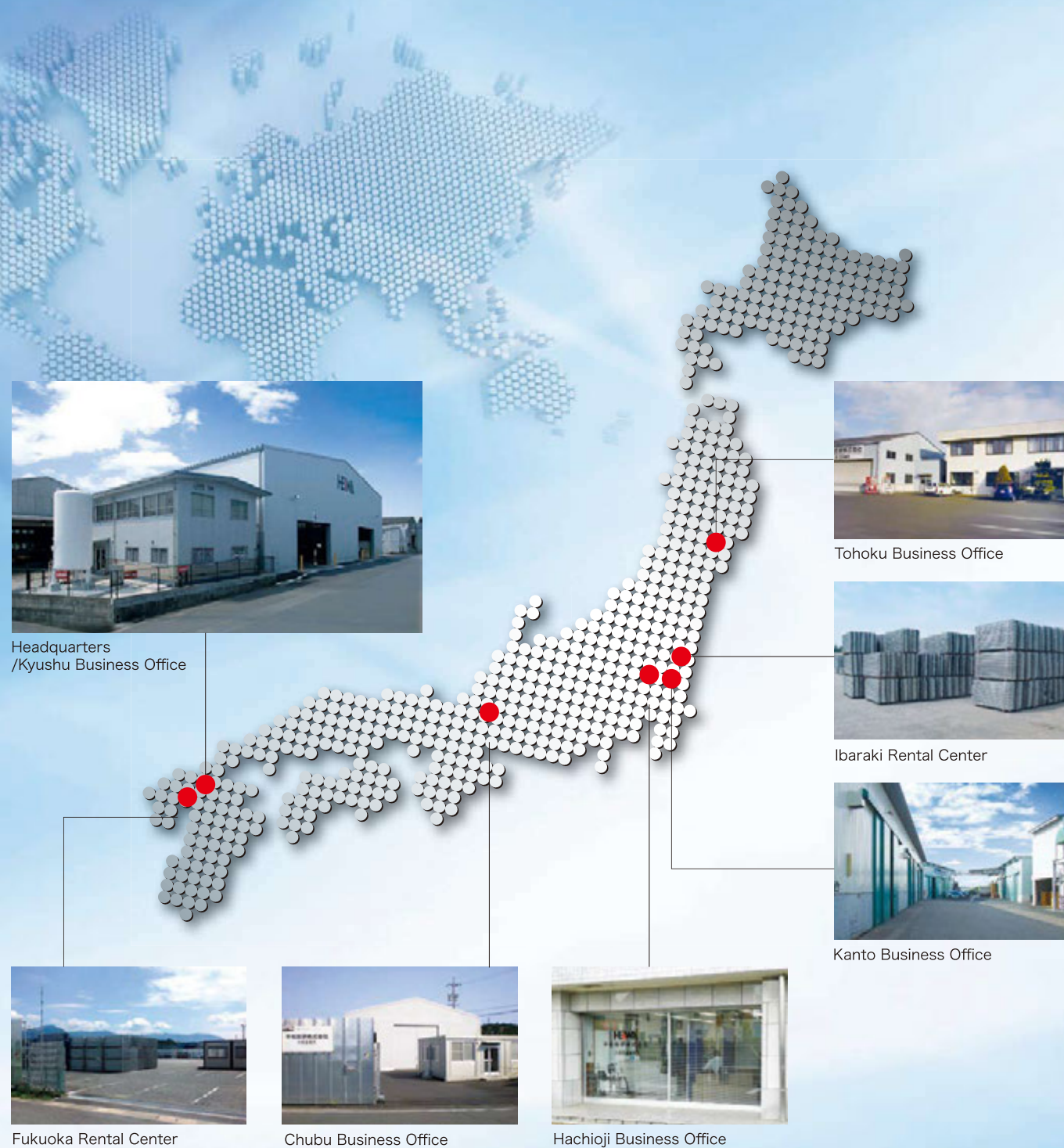
HEIWA GIKEN Co., Ltd

Qualified member of Incorporated Association of Scaffolding Industry



# Passion to the Future

Through the manufacture and sale of temporary equipment for building and civil engineering, we have been making efforts to meet the diverse needs of our customers. Now, we live a new era of technology, where the building techniques are becoming more and more advanced and diversified. In step with these advanced and diversified techniques, we are also focusing our efforts on developing higher-quality products and making environmentally-friendly products. We think about people and the environment to make proposals for the future.



## ■ Corporate Profile

Company name	HEIWA GIKEN Co., Ltd
Location	<b>■Headquarters / Kyushu Business Office</b> 13-21 Tsukijimachi, Yahatanishi-ku, Kitakyushu City, Fukuoka Prefecture 806-0001 Tel. +81-93-631-0804 Fax. +81-93-621-3558 <b>■Kanto Business Office</b> 7-1 Shibayama 2-chome, Funabashi City, Chiba Prefecture 274-0816 Tel. +81-47-468-7565 Fax. +81-47-468-7567 <b>■Hachioji Business Office</b> 2-13-8 Sennincho, Hachioji City, Tokyo 193-0835 Tel. +81-42-673-5051 Fax. +81-42-673-5052 <b>■Chubu Business Office</b> 1229, Aza-shimozawa, Oaza-minamikanai, Daiyasucho, Inabe City, Mie Prefecture 511-0283 Tel. +81-594-87-0910 Fax. +81-594-87-0911 <b>■Tohoku Business Office</b> 133 Aza-kitatake, Horiuchi, Natori City, Miyagi Prefecture 989-2412 Tel. +81-22-335-6644 Fax. +81-22-335-6645 <b>■Ibaraki Rental Center</b> 5132-2 Shishikura, Kasumigaura City, Ibaraki Prefecture 300-0121 Tel. +81-29-897-2212 Fax. +81-29-897-2213 <b>■Fukuoka Rental Center</b> 330-1 Sakado, Kasuyamachi, Kasuya-gun, Fukuoka Prefecture 811-2303 Tel. +81-92-931-3700 Fax. +81-92-931-3701
Foundation	September 1957
Incorporation	June 1962
Capital	60 million yen
President	Mikio Uchihashi
Number of employees (Japan)	213 (as of April 30, 2016)
Bank of account	The Kitakyushu Bank, Ltd. (Yahata Branch) The Bank of Fukuoka (Kurosaki Branch) The Nishi-Nippon City Bank, Ltd. (Kurosaki Branch) The Bank of Tokyo-Mitsubishi UFJ, Ltd. (Kitakyushu Branch) Sumitomo Mitsui Banking Corporation (Kitakyushu Branch) Mizuho Bank, Ltd. (Kitakyushu Branch)
Affiliate company	KOUBAI Co., Ltd.
Sale destination	About 1,500 companies in total, including general construction contractors, trading companies, and home centers
Clients	About 200 companies, including coil centers

## ■ Corporate History

1957	Heiwa Kogyosho was founded at 1-8, Kobai 3-chome, Yawatanishi-ku, Kitakyushu
1962	The company was incorporated as Heiwa Sangyo.
1974	Heiwa Sangyo bought out Yawata Plating to set up a plating department.
1975	Heiwa Sangyo was renamed as Heiwa Giken Co., Ltd.
May 1979	Heiwa Giken Co., Ltd., relocated its headquarters to the present address.
February 2004	The capital was increased from 20 million yen to 60 million yen.
August 2004	The Kanto Business Office was set up in Funabashi City, Chiba Prefecture.
August 2006	The Chubu Business Office was set up in Kuwana City, Mie Prefecture.
October 2006	The production of the Heiwa Builder (wedge scaffolds) started.
December 2007	The Osaka Business Office was set up in Osaka City, Osaka Prefecture.
February 2008	The Hachioji Business Office was set up in Hachioji City, Tokyo.
February 2009	The Chubu Business Office was relocated to the present address.
June 2009	The sale of the $\alpha$ (alpha)-type Builder started.
July 2010	The Ibaraki Rental Center was set up at 5132-2, Shishikura, Kasumigaura City, Ibaraki Prefecture.
January 2012	The Tohoku Business Office was set up in Natori City, Miyagi Prefecture.
September 2014	The Fukuoka Rental Center was set up at 330-1, Sakado, Yamachi, Kasuya-gun, Fukuoka Prefecture.



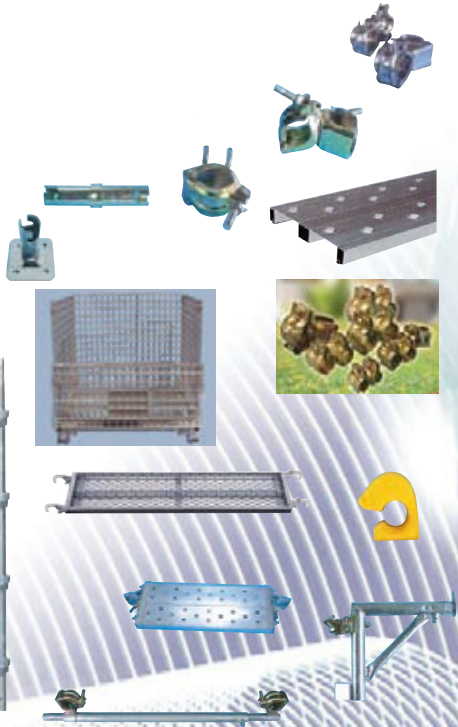
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Passion to the Future

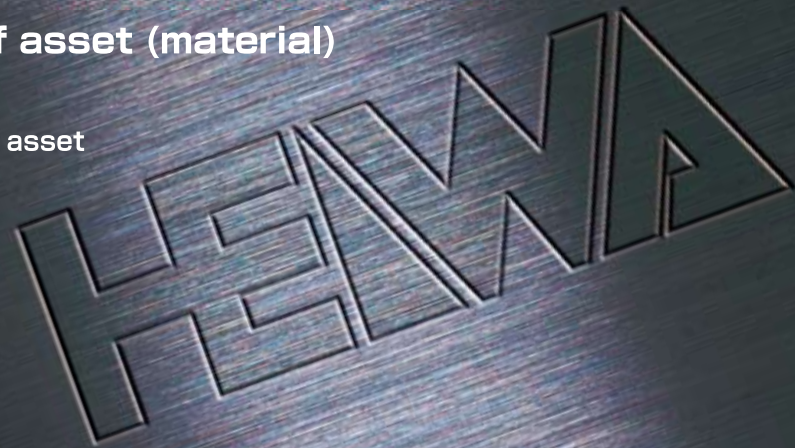


## Manual Marking Press for Pipes and Boards

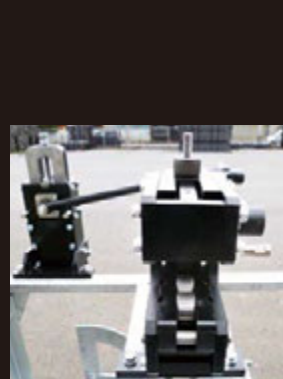
## HAND STAMPER

For thorough management of asset (material)  
protection (against theft)!

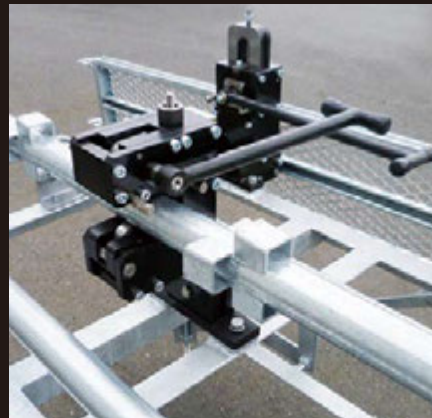
The Hand Stamper allows you to manage asset  
protection (against theft) as a strong  
supporter for management!



Stamp Your Company Name with Ease!



Stamper for pipes



Samper for footboards

## ADVANTAGE 1

A material bearing your stamped company name, if stolen, proves that it is your material. It is impossible to pare a large quantity of stamped company names off. Even if they are pared off, the pared materials in certain sections help you prove that the materials are yours as the stamped names do.

## ADVANTAGE 2

Unlike costly press stamper or stickers, the Hand Stamper can stamp names more than a million times and requires no difficult maintenance of the press or die.

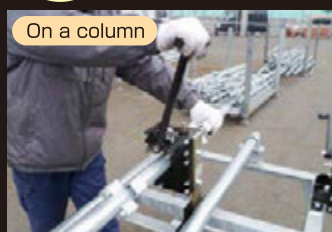
## ADVANTAGE 3

It is a manual device, which requires no electric power and is safe, unlike a press.

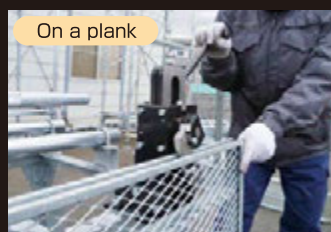
Up to eight characters can be stamped. Characters will become small in size if the number of characters increases.

Worksite

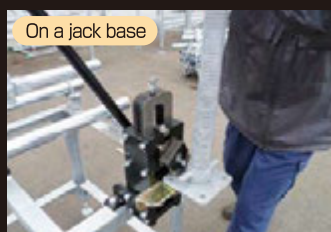
You can stamp names on frame materials under any wedge scaffold conditions.



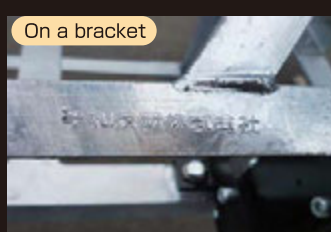
On a column



On a plank



On a jack base



On a bracket

〈Notes〉 (1) The Hand Stamper is designed for our products. If you want to use it for a product from another company, please check whether the Hand Stamper is compatible with the product in advance.  
(2) For a used material, the Hand Stamper may not be able to provide a clear stamp due to hollows or a seal adhering to the material. Please check the condition of the material before stamping.  
(3) Although the Hand Stamper is anticorrosive, avoid wetting with rainwater where possible.

## Coupler Clamps (Binding Hardware)

## φ48.6 Coupler

HCR - Right angle



■Type: 48.6 dia. × 48.6 dia.  
■Quantity per case: 30  
■Individual weight: 0.7 kg  
■Approved by the Scaffolding and Construction Equipment Association of Japan  
\*High corrosion resistant plating is also available.

HCR - Swivel



■Type: 48.6 dia. × 48.6 dia.  
■Quantity per case: 30  
■Individual weight: 0.7 kg  
■Approved by the Scaffolding and Construction Equipment Association of Japan  
\*High corrosion resistant plating is also available.

## Universal type Coupler

HKCR - Right angle



■Type: For 48.6 dia. and 42.7 dia.  
■Quantity per case: 30  
■Individual weight: 0.7 kg  
■Approved by the Scaffolding and Construction Equipment Association of Japan  
\*High corrosion resistant plating is also available.

HKCR - Swivel



■Type: For 48.6 dia. and 42.7 dia.  
■Quantity per case: 30  
■Individual weight: 0.7 kg  
■Approved by the Scaffolding and Construction Equipment Association of Japan  
\*High corrosion resistant plating is also available.

## Triple Coupler - Right angle



■Type: 48.6 dia. × 48.6 dia. × 48.6 dia.  
■Quantity per case: 20  
■Individual weight: 1.04 kg

## Triple Coupler - Swivel



■Type: 48.6 dia. × 48.6 dia. × 48.6 dia.  
■Quantity per case: 20  
■Individual weight: 1.04 kg

## 50- and 60-square Coupler - Right angle/Swivel



■Type: 50 square × 50 square Right angle/Swivel  
■Quantity per case: 20 ■60 square × 60 square Right angle ■Quantity per case: 15  
■60 square × 60 square Right angle  
■Quantity per case: 20

## Agricultural Coupler - Right angle/Swivel



■Type: 42.7 dia. × 42.7 dia.  
■Quantity per case: 30  
■Individual weight: 0.67 kg  
\*High corrosion resistant plating is also available.

## 50- and 60-square × 48.6 Coupler - Universal type/Right angle/Swivel



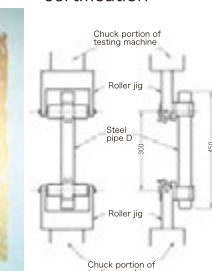
■Type: 50 square × 48.6 dia. Right angle/Swivel  
■Quantity per case: 25  
■Type: 60 square × 48.6 dia. Right angle/Swivel  
■Quantity per case: 20

## 60.5 dia. × 48.6 dia. Coupler - Right angle/Swivel



■Type: 60.5 dia. × 48.6 dia. Right angle/Swivel  
■Quantity per case: 25

■Certification  
■Inspection method and criteria for certification



■Displacement test

Type	Displacement (mm)	
	Load	Torque
Right angle	0 to 1,000 kg	350 kg·cm 450 kg·cm
Swivel	50 to 750 kg	All units 10 mm max.

■Strength test

Type	Strength (kg)	
	Average value of all units	Minimum value of all units
Right angle	more than 1600	more than 1500
Swivel	more than 1600	more than 1000

\*Refer to Precautions on page p25 before use.

## Dimer Clamp (Steel plate with high corrosion resistance plating)

HCR-SL (Dimer) Right Angle



■Type: 48.6 dia. × 48.6 dia.  
■Quantity per case: 30  
■Individual weight: 0.64 kg

HCR-SL (Dimer) Swivel



■Type: 48.6 dia. × 48.6 dia.  
■Quantity per case: 30  
■Individual weight: 0.64 kg

## Light Coupler

HKCR - Right angle



■Type: For 48.6 dia. and 42.7 dia.  
■Quantity per case: 30  
■Individual weight: 0.64 kg  
\*Approved by the Scaffolding and Construction Equipment Association of Japan

HKCR - Swivel



■Type: For 48.6 dia. and 42.7 dia.  
■Quantity per case: 30  
■Individual weight: 0.64 kg  
\*Approved by the Scaffolding and Construction Equipment Association of Japan

## Plinth Block Coupler

Product in conformity with a legal reform

- This product is best suited for retaining footboards used as baseboards.
- This coupler is available to footboards arranged in parallel.






■Type: 48.6 dia. × 42.7 dia.  
■Quantity per case: 30  
■Individual weight: 0.5 kg





## Single Couplers

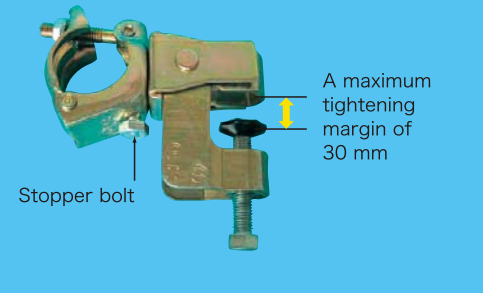
Sheet Coupler	Sheet Coupler	Chain Hanger Coupler	Net Holder
<b>HSC</b>  <ul style="list-style-type: none"> <li>Type: For 48.6 dia. and 42.7 dia.</li> <li>Quantity per case: 50</li> <li>Individual weight: 0.4 kg</li> </ul>	<b>F-HCR</b>  <ul style="list-style-type: none"> <li>Type: For 48.6 dia. and 42.7 dia.</li> <li>Quantity per case: 50</li> <li>Individual weight: 0.44 kg</li> <li>*Approved by the Scaffolding and Construction Equipment Association of Japan</li> <li>*Hook pitch: 50 mm</li> </ul>	<b>HCHA</b>  <ul style="list-style-type: none"> <li>Coupler margin: 6 to 30 mm</li> <li>Quantity per case: 20</li> <li>Individual weight: 0.8 kg</li> <li>Construction: Forging</li> <li>*Approved by the Scaffolding and Construction Equipment Association of Japan</li> </ul>	 <ul style="list-style-type: none"> <li>Coupler margin: 6 to 30 mm</li> <li>Quantity per case: 25</li> <li>Individual weight: 0.7 kg</li> </ul>
Single Coupler	Bolt-welding type NT, with SW (bolt w1/2)	Coupler for Cross Brace	Battledore Clamp
 <ul style="list-style-type: none"> <li>Type: For 48.6 dia. and 42.7 dia.</li> <li>Quantity per case: 60</li> <li>Individual weight: 0.3 kg</li> <li>Specifications: Surface plated (with or without 13 dia. hole)</li> </ul>	 <ul style="list-style-type: none"> <li>Type: For 48.6 dia. and 42.7 dia.</li> <li>Quantity per case: 50</li> <li>Bolt w1/2 x 32 mm</li> <li>Individual weight: 0.4 kg</li> </ul>	 <ul style="list-style-type: none"> <li>Type: For 48.6 dia. and 42.7 dia.</li> <li>Quantity per case: 50</li> <li>Welded (hooked-pin type) gravity lock</li> <li>Individual weight: 0.5 kg</li> </ul>	 <ul style="list-style-type: none"> <li>Type: For 48.6 dia. and 42.7 dia.</li> <li>Quantity per case: 40</li> <li>Welded (hooked-pin type) gravity lock</li> <li>Individual weight: 0.6 kg</li> <li>Screw diameter: W1/2</li> </ul>

## Mighty Catch

Withstanding vibration without horizontal shifting. A bolt that is tightened eliminates wobbles and ensures orthogonality. All components are designed safety first.

**HCCR-ML**

A single bolt for flexible control!




A maximum tightening margin of 30 mm

Stopper bolt

**【New functions】**

- A wide catch suppressing wobbles on the left and right.
- A tightening margin of 6 mm to a maximum of 30 mm.
- A wide plate to catch objects securely.

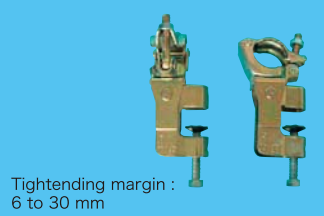

Application examples



Vertically fixed Vertically flexible Fixed in parallel Flexible in parallel

\*Front view of catch

**【Type: Fixed, swivel, vertical, and horizontal】**  
**For 48.6 dia. and 42.7 dia. ■Quantity per case: 20**  
**■Individual weight: 1.12 kg**  
 \*Approved by the Scaffolding and Construction Equipment Association of Japan

Hold Clamp	Beam Coupler
<b>HCCR-PL Fixed/Swivel</b>  <p>Tightening margin : 6 to 30 mm</p> <ul style="list-style-type: none"> <li>Type: 48.6 dia. x 48.6 dia.</li> <li>Quantity per case: 30</li> <li>Type: Vertical/Horizontal</li> <li>For 48.6 dia. and 42.7 dia.</li> <li>Quantity per case: 20 ■Individual weight: 1.02 kg</li> <li>*Approved by the Scaffolding and Construction Equipment Association of Japan</li> </ul>	<b>HCCR Fixed/Swivel</b>  <p>Tightening margin : 6 to 30 mm</p> <ul style="list-style-type: none"> <li>Type: Vertical/Horizontal</li> <li>For 48.6 dia. and 42.7 dia.</li> <li>Quantity per case: 15</li> <li>Individual weight: 1.0 kg</li> <li>Construction: Forging</li> <li>*Approved by the Scaffolding and Construction Equipment Association of Japan</li> </ul>









Slip test on mounting portion

Test method	Right angle				Parallel			
	1	2	3	Average value	1	2	3	Average value
Sample No.	1	2	3	Average value	1	2	3	Average value
Strength kg	1,220	1,600	1,540	1,460	1,820	2,010	1,790	1,870
Minimum value by certification criteria	630 kg min.							

Strength test on mounting portion

Test method	Right angle				Parallel			
	1	2	3	Average value	1	2	3	Average value
Sample No.	1	2	3	Average value	1	2	3	Average value
Strength kg	2,240	2,420	2,150	2,270	2,770	2,860	2,730	2,790
Minimum value by certification criteria	Right angle: 900 mm min.; Parallel: 1,350 kg min.							

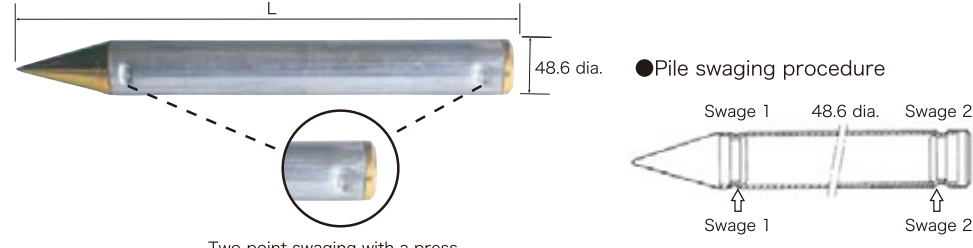
## Special Couplers

Rafter Fixing Coupler	Rafter Fixing Coupler (45) - Right angle	Rafter Fixing Coupler (45) - Parallel	Rafter Fixing Coupler (45) - Right angle/Swivel
 <ul style="list-style-type: none"> <li>Fixed/Swivel/Parallel</li> <li>Type: For 48.6 dia. and 42.7 dia.</li> <li>Quantity per case: 50</li> <li>Individual weight: 0.44 kg</li> <li>Rafter size: Free</li> </ul>	 <ul style="list-style-type: none"> <li>Type: For 48.6 dia. and 42.7 dia.</li> <li>Quantity per case: 50</li> <li>Individual weight: 0.44 kg</li> <li>Rafter size: 45 mm max.</li> </ul>	 <ul style="list-style-type: none"> <li>Type: For 48.6 dia. and 42.7 dia.</li> <li>Quantity per case: 50</li> <li>Individual weight: 0.44 kg</li> <li>Rafter size: 45 mm max.</li> </ul>	 <ul style="list-style-type: none"> <li>Type: For 48.6 dia. and 42.7 dia.</li> <li>Quantity per case: 50</li> <li>Individual weight: 0.44 kg</li> <li>Rafter size: 45 mm max.</li> </ul>
Board Fixing Coupler Type I (Parallel)	Board Fixing Coupler Type II (Parallel)	Board Fixing Coupler (for corner)	Board Fixing Coupler (both ends)
 <ul style="list-style-type: none"> <li>Type: For 48.6 dia. and 42.7 dia.</li> <li>Quantity per case: 40</li> <li>Individual weight: 0.44 kg</li> <li>Board size: 12 mm max.</li> </ul>	 <ul style="list-style-type: none"> <li>Type: For 48.6 dia. and 42.7 dia.</li> <li>Quantity per case: 40</li> <li>Individual weight: 0.44 kg</li> <li>Board size: 12 mm max.</li> </ul>	 <ul style="list-style-type: none"> <li>Type: For 48.6 dia. and 42.7 dia.</li> <li>Quantity per case: 30</li> <li>Individual weight: 0.54 kg</li> <li>Board size: 12 mm max.</li> </ul>	 <ul style="list-style-type: none"> <li>Type: For 48.6 dia. and 42.7 dia.</li> <li>Quantity per case: 30</li> <li>Individual weight: 0.54 kg</li> <li>Board size: 12 mm max.</li> </ul>

## Piles

### Pile

A single-pipe pile sufficiently applicable to simple asphalt pavements repeatedly.



Two-point swaging with a press.

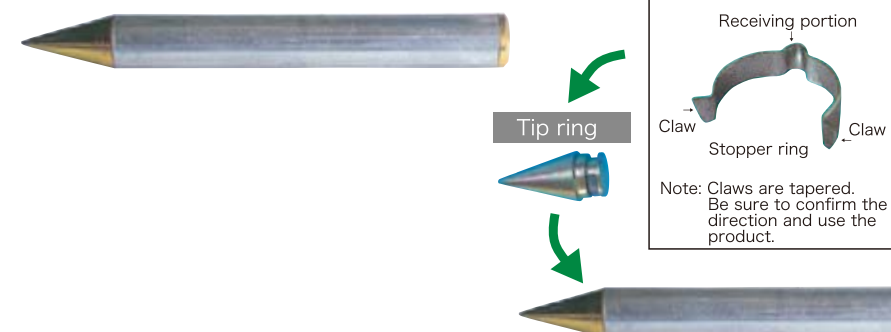
●Pile swaging procedure

Model L (mm)	Quantity per case	Individual weight (kg)
HP-10 1100	6	3.63
HP-15 1600	*	5.0
HP-20 2100	*	6.36

\*Minimum order: 6 piles

### One-touch Pile

Provided with the Stopper Ring, an epoch-making product newly developed.



Receiving portion

Tip ring

Claw

Stopper ring

Head ring

Note: Claws are tapered. Be sure to confirm the direction and use the product.

Type	Individual weight (kg)	Quantity per case
Pile (Tip/Head)	0.9 (set)	20 sets
Stopper ring	—	40 rings



## ■ Joints

### Straight Joint

HTJ-2

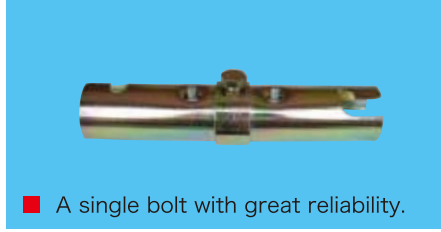


- Type: 48.6 dia.
  - Quantity per case: 30
  - Individual weight: 0.55 kg
- \*Approved by the Scaffolding and Construction Equipment Association of Japan

### Lock Joint

PAT.P

HTJ-RC



- A single bolt with great reliability.

- Type: 48.6 dia.
  - Quantity per case: 30
  - Individual weight: 0.7 kg
- This joint tightened with a single bolt prevents the rattling of single tube pipes, including lightweight single tube pipes.

### Bone Joint

CBJ



- Type: 48.6 dia.
- Quantity per case: 30
- Individual weight: 0.6 kg

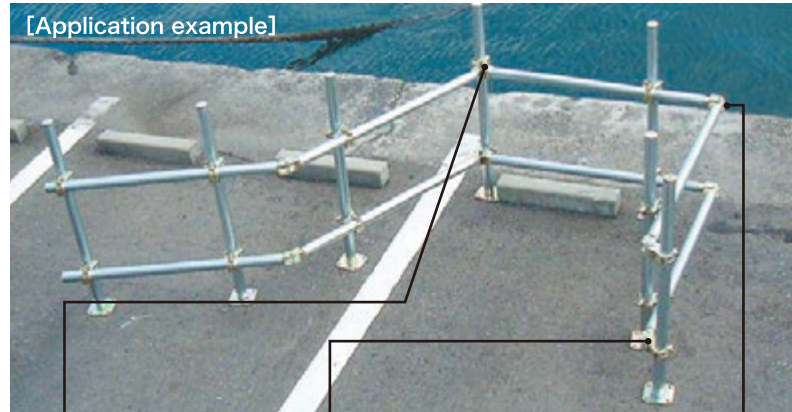
### Corner Joints

PAT.P

HCJ



- Type: 48.6 dia.
  - Range of use: 65° to 220°
  - Quantity per case: 20
  - Individual weight: 0.78 kg
- Note: Be sure to set the joint to the pin on the single tube pipe.

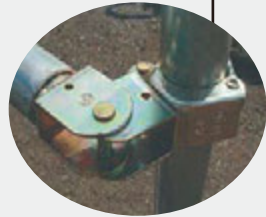


[Application example]

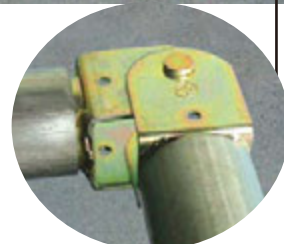
Options



Single-corner Coupler



Corner Coupler



Corner Joint

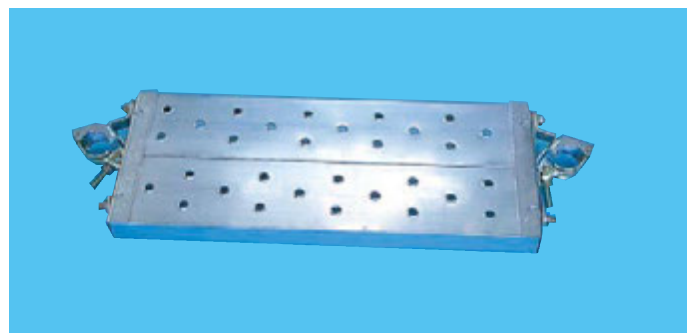
## ■ Steps

### Universal Step

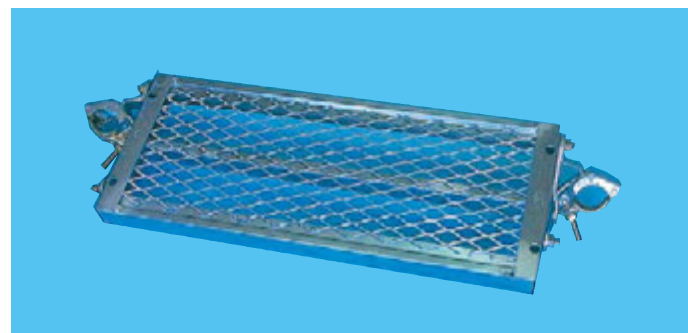
Used for civil engineering and construction sites and emergency stairs

- Provided with a four-stage angle adjustment function (for 40°, 48°, 55°, and 66°).
- Ease of assembly and ensures excellent safety, workability, storability, and economical efficiency.

Plate-type 600P



Mesh-type 600 M



## ■ Wall Connector Brackets

\*Approved by the Scaffolding and Construction Equipment Association of Japan

### Wall Connector Brackets

The completed form tells the history of the HG Wall Connector Bracket.

Each model number indicates the expansion range. (Example: The expansion range of the HG-90-112 is 900 to 1,120 mm.)

HG-90-112 Weight: 2.7 kg Quantity per case: 10

HG-70-92 Weight: 2.2 kg Quantity per case: 10

HG-50-72 Weight: 1.9 kg Quantity per case: 10

HG-33-52 Weight: 1.7 kg Quantity per case: 15

HG-24-34 Weight: 1.1 kg Quantity per case: 20

HG-19-25 Weight: 1 kg Quantity per case: 25

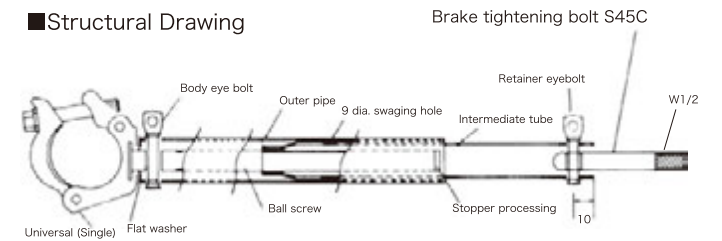
HG-16-20 Weight: 0.8 kg Quantity per case: 25

HG-14-17 Weight: 0.75 kg Quantity per case: 25

Application example



■ Structural Drawing



## ■ Brackets

### HGB Brackets

BT-1

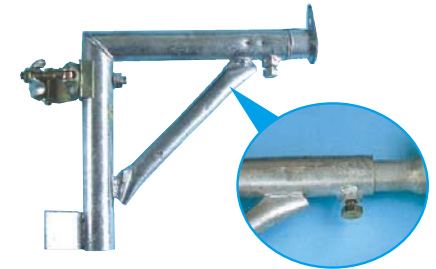


- Wedge Head Coupler with Nut
- Tip clamp (with no bolt) for telescopic brackets
- Type: Universal
- Individual weight: 0.4 kg

BT-2



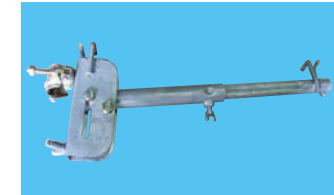
- Coupler set
- Detent clamp for telescopic brackets
- Type: Universal
- Individual weight: 0.44 kg



\*Approved by the Scaffolding and Construction Equipment Association of Japan

### Net Bracket Series Type A/Type B

Net Bracket Type A

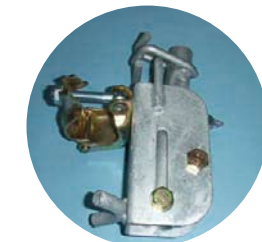


- Type: 48.6 dia. and 42.7 dia.
- Slide range: 334 to 509 mm
- Individual weight: 2.3 kg

Net Bracket Type B



- Type: 48.6 dia. and 42.7 dia.
- Slide range: 134 to 240 mm
- Individual weight: 1.8 kg



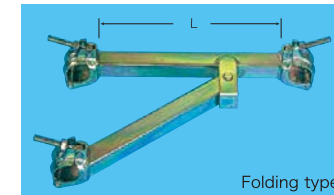
Insertion tube accommodated



Net mounted state

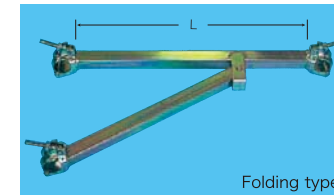
### Scaffolding Bracket

HBT-300



- Type: Universal
  - Quantity per case: 5
  - Individual weight: 2.5 kg
  - L = 30
- \*Approved by the Scaffolding and Construction Equipment Association of Japan

HBT-500



- Type: Universal
  - Quantity per case: 5
  - Individual weight: 2.7 kg
  - L = 53
- \*Approved by the Scaffolding and Construction Equipment Association of Japan



Accommodated in net



Bases

Base Plate



■Type: 48.6 dia.  
■Quantity per case: 25  
■Individual weight: 0.69 kg  
\*Approved by the Scaffolding and Construction Equipment Association of Japan

Jack Base



■Type: 34 dia. × 380L ■Quantity per case: 6  
■Individual weight: 3.3 k  
■Long jack base ■Type: 34 dia. × 600 L (not approved type) ■Individual weight: 4.7 kg  
\*Approved by the Scaffolding and Construction Equipment Association of Japan

Swivel Jack Base




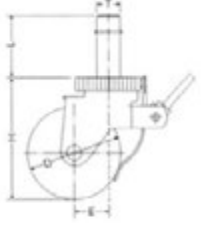
■Type: 48.6 dia.  
■Quantity per case: 20  
■Individual weight: 1.5 kg  
\*Not approved type

Swivel Jack Base


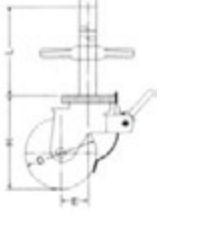


■Type: 34 dia. × 422 L  
■Quantity per case: 5  
■Individual weight: 3.6 kg  
\*Not approved type

Caster Wheels

SCJ





Model			Wheel type	Allowable load		Wheel system	Wheel width	Axle diameter	Mounting height	Shaft diameter	Shaft length	Eccentricity	Certification Number	Handle thickness
				daN	kgf	Dmm	mm	mm	Hmm	Tmm	Lmm	Emm		
SCP	130	VS	Rubber (Arc shaped)	180	183	130	38	20.0	165	36	100	40	14-09-188	
	150			200	150	42	186	36	100	45	14-09-188			
	200			250	200	45	241	36	100	58	14-09-188			
SCJ	130	VS	Rubber (Arc shaped)	180	183	130	38	20.0	196	35	355	40	14-09-188	31
	150			200	150	42	217	35	355	45	14-09-188			
	200			250	200	45	272	35	355	58	14-09-188			

■Brackets are uni-chrome finished.  
Approved by the Scaffolding and Construction Equipment Association of Japan


Others

Coupler Cover



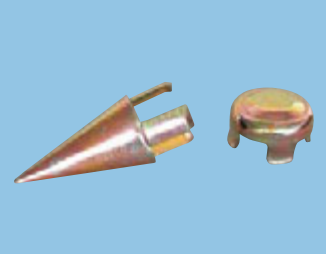
■Type: 48.6 dia.  
■Quantity per case: 100  
■Individual weight: 30 kg (per case)

Single-pipe Cap (P-cap)




■Type: 48.6 for both single tubes and D19 to D25  
■Quantity per case: 200  
■Individual weight: 3.2 kg (per case)

Pile & Tip



Tip ■Type: 48.6 for single tubes  
■Quantity per case: 120  
■Individual weight: 11.5 kg (per case)  
Tip ■Type: 48.6 for single tubes  
■Quantity per case: 120  
■Individual weight: 18.0 kg (per case)

Hook Bolt



■Type: 48.6, Size S/Size L  
■Quantity per case: 300  
■Individual weight: 20.0 kg (per case)

Scaffold Chain



Lengths of 2 m, 3 m, 4 m, and other lengths are available.

Coupler Nut



■Type: w7/16 flange nut

HEWA BUILDER Preceding Handrail Wedge Building Type

**TRIANGLE**

PAT.P

Approved by the Scaffolding and Construction Equipment Association of Japan

Provided with HEIWA's original stopper.

Ensuring a safer work environment and improved work efficiency!






Upper wedge part, opened      Upper wedge part, locked      Lower wedge part

Size	TRIANGLE 01 (Builder type)		TRIANGLE 02 (Alpha type)	
	Item code	Weight	Item code	Weight
HR-18	HASTD-18	8.0kg	HBSTD-18	8.2kg
HR-15	HASTD-15	7.3kg	HBSTD-15	7.5kg
HR-12	HASTD-12	6.3kg	HBSTD-12	6.5kg
HR-09	HASTD-09	5.5kg	HBSTD-09	5.7kg

◆◆ Benefits of BUILDER TRIANGLE

1. The upper wedge part incorporates HEIWA's original stopper function. The lock function will be activated with braces crossed, which will prevent parts from dropping out.
2. Safety belt hooks can be hung on the handrail.
3. No intermediate handrails are required in the case of setting footholds to two-stage handrails, will contribute to cost saving.
4. The product greatly reduces the required time of work on large-scale sites.
5. The product contributes to the safety of workers on construction sites that attach importance to safety first.



## Unloader for Scaffolds

# HEWA LACTOR

Patent pending

**Minimum risk!**

Mid-to-high-rise work always accompanies danger and hard labor. The HEIWA Lactor minimizes labor and the risk of danger. The HEIWA Lactor is a tool that ensures ease of scaffolding work in preparation of the forthcoming aging population with a shortage in labor force.

**Ease of scaffolding work!**

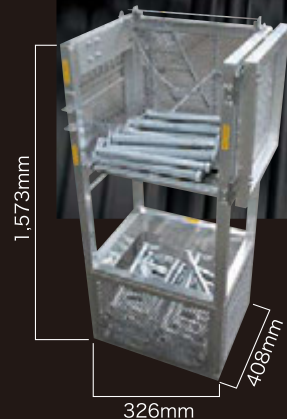
A cost reduction with an increase in work efficiency.

Provided with boxes that turn 120 degrees for an increase in load transfer efficiency.

Boxes made of aluminum provide an increased load capacity.

Double rails give the main unit stability.

In case the wire or chain breaks, the original brake prevents the Lactor from falling more than 25 mm.



### Advantages offered by the Lactor

- 1 In case the wire or chain breaks, the original brake prevents the Lactor from falling more than 25 mm!**  
In case the degraded wire or chain breaks, the HEIWA Lactor does not fall more than 25 mm (according to our test results).
- 2 Double rails give the main unit stability!**  
The HEIWA Lactor uses two rails. This structure makes the Lactor less likely to shake while it is moving up or down, providing the unloader main unit with increased stability. It also provides smooth motion, giving longer service lives to failure-prone components, such as the bearing.
- 3 According to the site situation, the box turns up to 120 degrees!**  
When the scaffold makes it difficult to take out or load a structural component, you can turn the box up to 120 degrees by pulling the lever (four-step turning).
- 4 Boxes made of aluminum provide an increased load capacity!**  
The aluminum boxes have increased the maximum allowable load to 160 kg for chain hoisting or 140 kg for wire hoisting!
- 5 The Lactor reduces costs for increased profitability!**  
The HEIWA Lactor allows four or five workers to perform construction work that usually requires 10 workers! This increases the velocity, leading to increased profitability. The Lactor is for rent, eliminating the great expense required to purchase unloaders.

Original brake

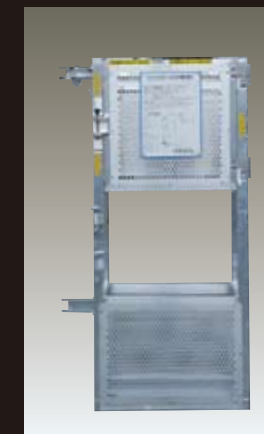
Double rails

120° rotation

Fewer workers

Increased load capacity

### Structural components used



Main unit (35 kg)



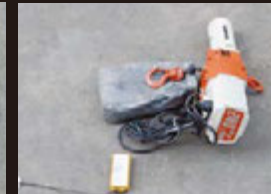
Rail (1.8 m and 13.7 kg/piece)



Rail (0.9 m and 6.1 kg/piece)



Bottom stopper (1.6 kg)



Wire hoist (25 kg)



Mini winch (8 kg)



Hoist mounting bracket (18 kg)

The Lactor uses hoists with a load capacity of less than 250 kg, which requires no application for approval or qualified workers!

However, an unloader may become dangerous equipment when used wrongly. We require you to attend a lecture class provided by us before you use the Lactor if you will use it for the first time. We would like you to adhere to the correct usage so that you can use the Lactor safely and quickly.



For work safety improvements!

For Wedge Binding Type Scaffolding

Patent pending

# HEWA Smart Asagao

Setting up a temporarily flared shield for scaffolding on a construction site involves danger, time, and extraordinary expenses. The HEIWA Smart Asagao completely solves the problem. Ensuring ultimate safety!

Ensuring ultimate safety!  
Easy! Low cost!



## Easy to construct!

Consisting of a few components, the Smart Asagao series provides significantly enhanced ease of construction. The series offers the Smart Asagao type 13 and type 18, both of which are folding types that are easily portable.

## Incomparably beautiful!

The Smart Asagao series products are significantly more beautiful than other flared shields for scaffolding consisting of single tubes and footboards.

## Ultimately safe!

The greatest danger during construction work is accidental falls! The Smart Asagao eliminates the need for workers to put their feet during construction, ensuring significantly higher safety.

## Economical!

The Smart Asagao series products are rentable, requiring no cost for purchasing a large quantity. You can rent products only when necessary.

The Smart Asagao completely frees you from the difficulty of assembling too many components!



Only these components assemble into a full-fledged Asagao!

[List of structural components] for the Smart Asagao type 13

(1) Main unit frame (folded)	22.4 kg	One
(2) Diagonal	7.0 kg	Two
(3) Diagonal support	9.0 kg	Two
(4) Corrugated FRP sheet with a 3.0 thickness	14.0 kg	Four
(5) Gap material	2.2 kg	One

The falling-object endurance test conducted by us demonstrated that the Smart Asagao is robust enough to endure even HA36 column.

The panel is not even damaged by a handrail or small component (such as a clamp).

The angled panel let falling objects drop to the scaffold side, allowing almost no objects to fall outside.



## Equipped with a blow-up prevention feature

An auto lock is provided as a feature unique to the HEIWA Smart Asagao. It automatically locks the Smart Asagao when the Smart Asagao is placed.

You can hold the product when it is a hindrance!



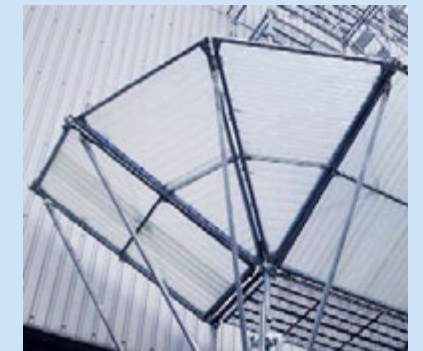
Locked



Unlocked



A variety of corner components provides a beautiful outlook!



Product name	Item code	Width × length	Total weight
Smart ASAGAO 18	HAS-1818	1800mm×1800mm	57.5kg
	HAS-1809	1800mm×900mm	41.8kg
	HAS-1806	1800mm×600mm	
	HASK-18	1800mm	51kg
Smart ASAGAO 23	HAS-2318	2300mm×1800m	68.4kg
	HAS-2309	2300mm×900mm	48.2kg
	HAS-2306	2300mm×600mm	
	HASK-23	2300mm	69kg





# SCAFFOLDING FORMWORK SYSTEM

## Feature of wedge binding scaffold

By choosing the length of a component freely, this system can perform various scaffold construction included low-rise, and mid-rise building without any construction equipment but only manpower.

Low Cost

Quick  
operation

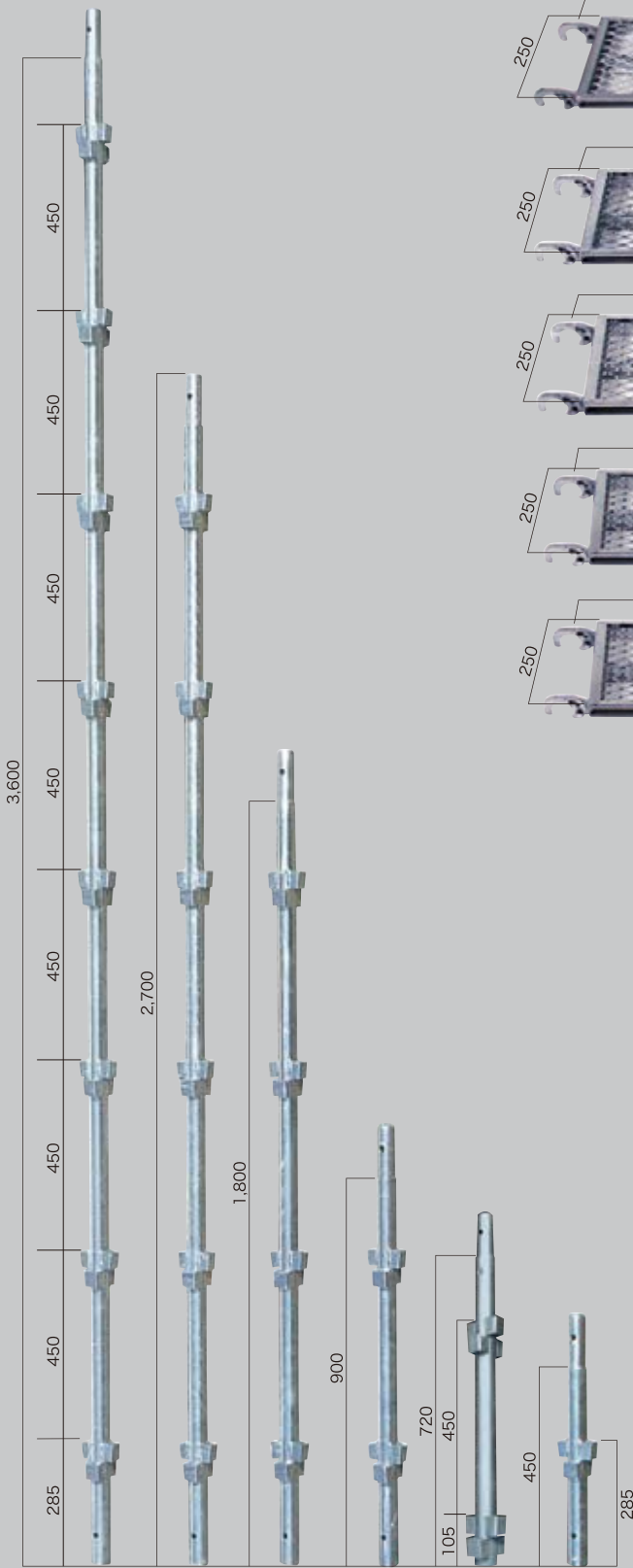
Safety

Operate with only one hammer and  
easy assemble.

All of materials are JIS standard and  
passed the test of Scaffolding and  
construction equipment Association  
of Japan.

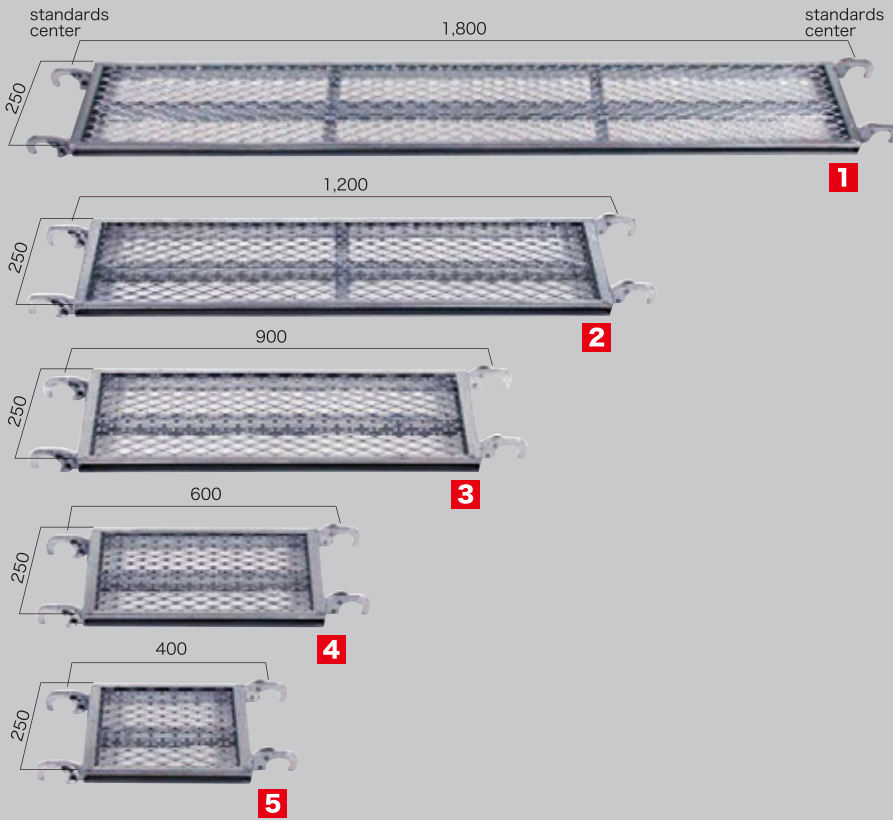
## Wedge-type Scaffolding

### Standards



1 2 3 4 5 6

### 250-mm-wide Plank with Net

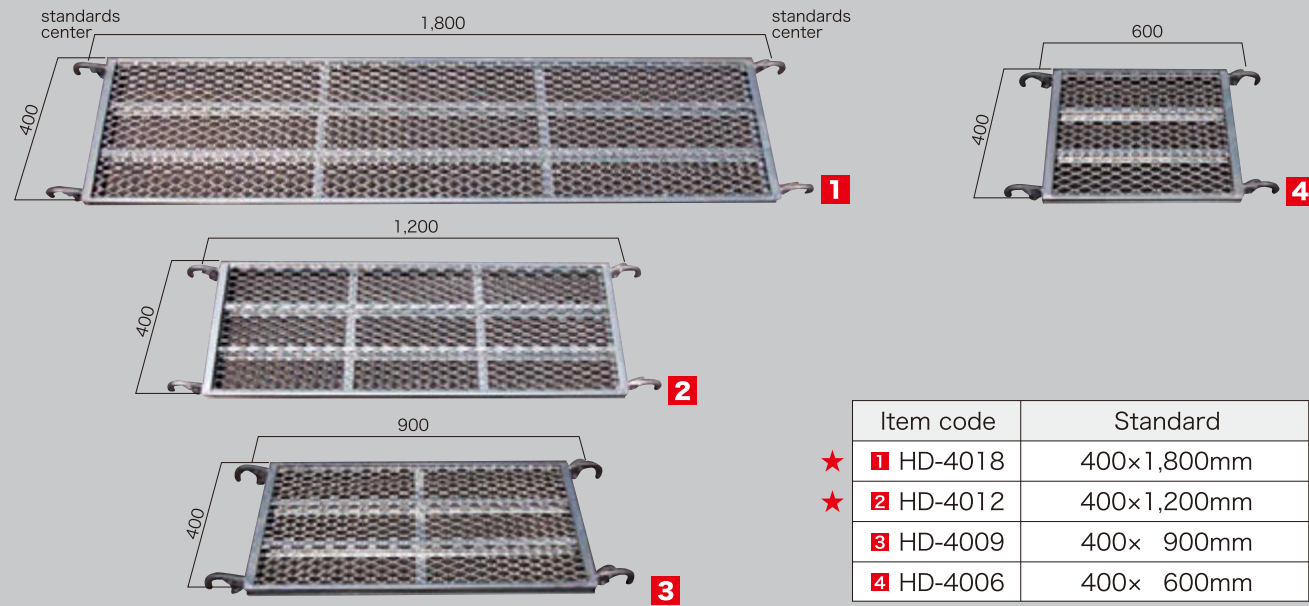


Item code	Standard	Weight
1 HD-2518	250×1,800mm	10.1kg
2 HD-2512	250×1,200mm	7.2kg
3 HD-2509	250× 900mm	5.6kg
4 HD-2506	250× 600mm	4.3kg
5 HD-2504	250× 400mm	3.3kg

Item code	Standard	Weight
1 HA-36	φ48.6×3,600mm	13.3kg
2 HA-27	φ48.6×2,700mm	10.0kg
3 HA-18	φ48.6×1,800mm	7.0kg
4 HA-09	φ48.6× 900mm	3.8kg
5 HA-072	φ48.6× 720mm	3.2kg
★ 6 HA-045	φ48.6× 450mm	2.1kg

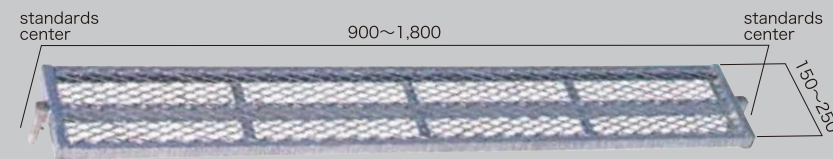


## 400-mm-wide Plank with Net



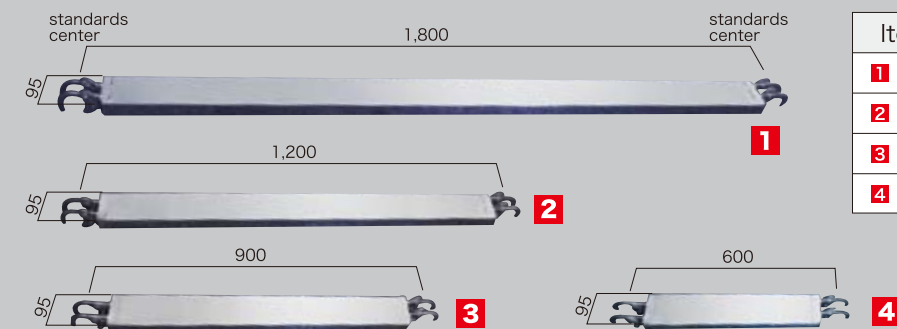
	Item code	Standard	Weight
★	1 HD-4018	400×1,800mm	14.0kg
★	2 HD-4012	400×1,200mm	10.1kg
	3 HD-4009	400× 900mm	7.8kg
	4 HD-4006	400× 600mm	5.8kg

## Center Plank with Net



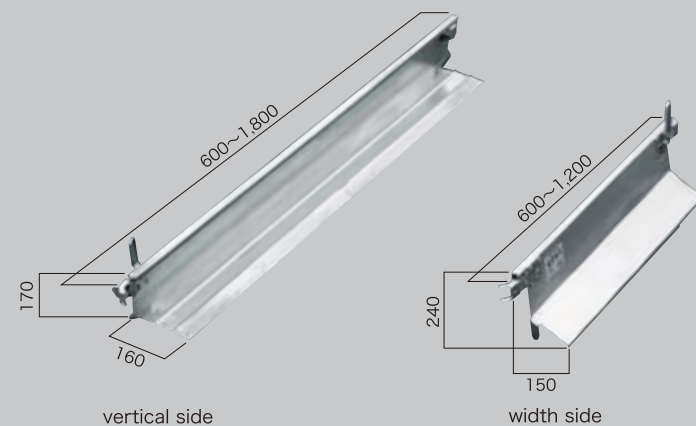
	Item code	Standard	Weight
	HDS-2518	250×1,800mm	9.6kg
	HDS-2512	250×1,200mm	6.8kg
	HDS-2509	250× 900mm	5.2kg
	HDS-1518	150×1,800mm	8.3kg
	HDS-1512	150×1,200mm	5.8kg
	HDS-1509	150× 900mm	4.4kg

## Gap-filling Material



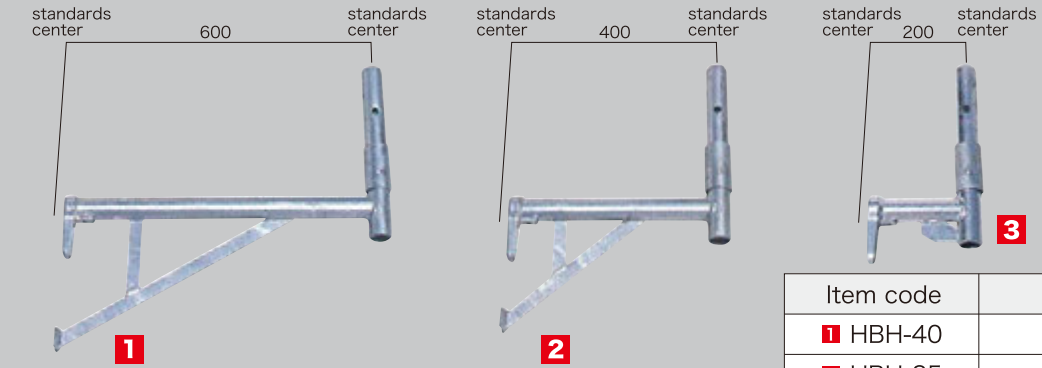
	Item code	Standard	Weight
	1 HGK-SR18	95×1,800mm	4.96kg
	2 HGK-SR12	95×1,200mm	3.56kg
	3 HGK-SR09	95× 900mm	2.82kg
	4 HGK-SR06	95× 600mm	2.00kg

## L-type Plinth Toe Board



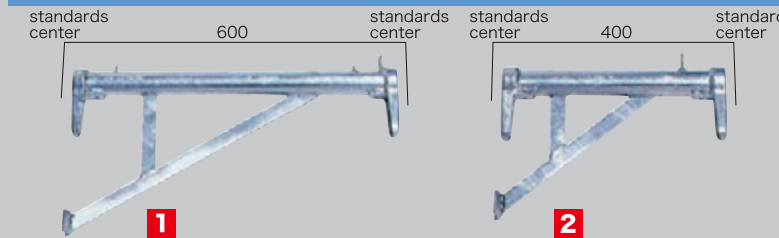
	Item code	Standard	Weight
vertical side	HL-18	1,800mm	5.8kg
	HL-15	1,500mm	4.8kg
	HL-12	1,200mm	4.0kg
	HL-09	900mm	3.1kg
	HL-06	600mm	2.3kg
width side	HLW-12	1,200mm	4.3kg
	HLW-09	900mm	3.4kg
	HLW-06	600mm	2.6kg

## Overhang Bracket



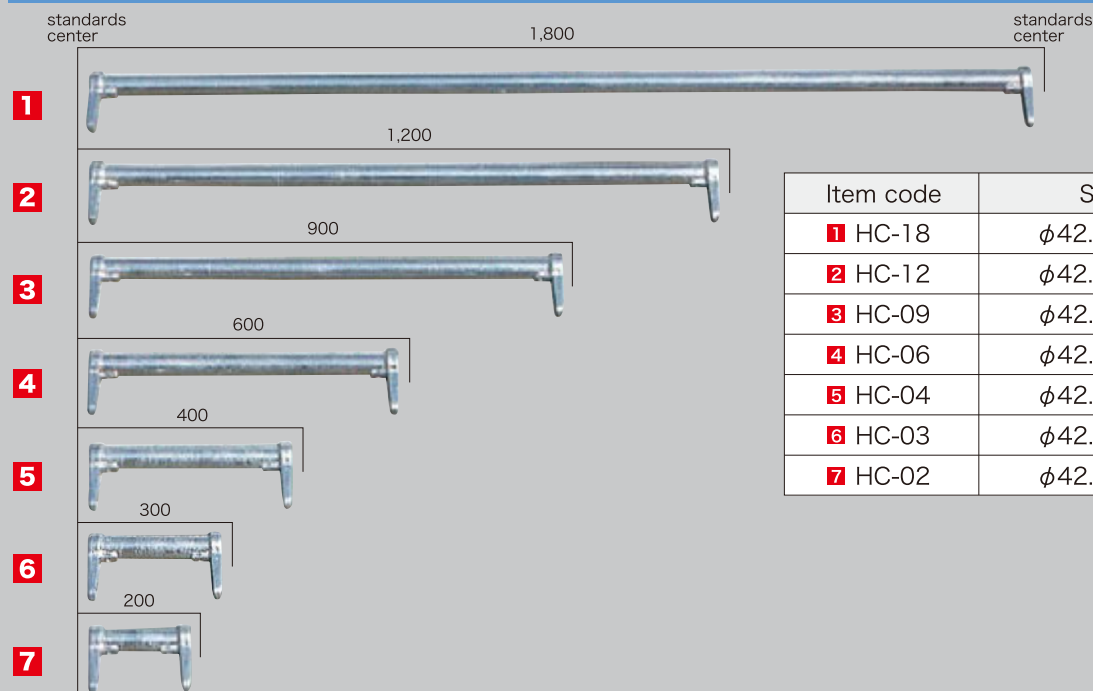
	Item code	Standard	Weight
	1 HBH-40	φ42.7×600mm	3.8kg
	2 HBH-25	φ42.7×400mm	2.9kg
	3 HBH-20	φ42.7×200mm	1.8kg

## Bracket



	Item code	Standard	Weight
	1 HB-40	φ42.7×600mm	2.7kg
	2 HB-25	φ42.7×400mm	1.9kg

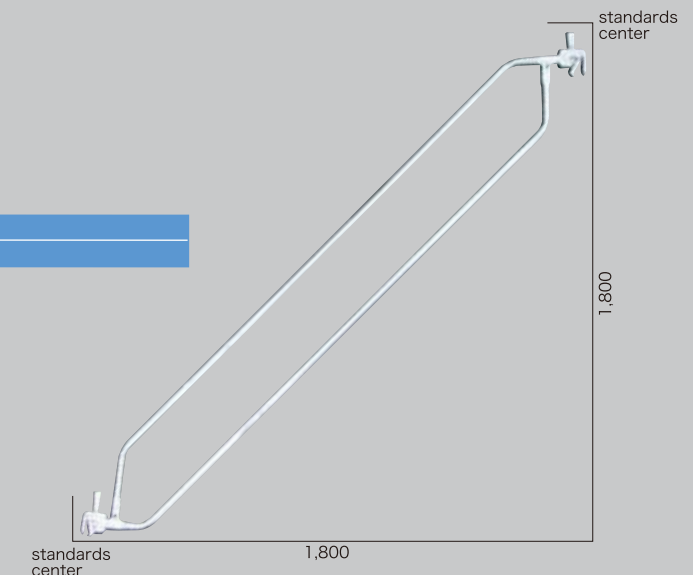
## Handrail



	Item code	Standard	Weight
	1 HC-18	φ42.7×1,800mm	4.3kg
	2 HC-12	φ42.7×1,200mm	3.3kg
	3 HC-09	φ42.7× 900mm	2.5kg
	4 HC-06	φ42.7× 600mm	1.7kg
	5 HC-04	φ42.7× 400mm	1.3kg
	6 HC-03	φ42.7× 300mm	1.1kg
	7 HC-02	φ42.7× 200mm	0.8kg

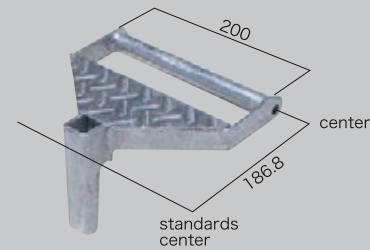
## Staircase Handrail

	Item code	Standard	Weight
	—	1,800mm	7.4kg



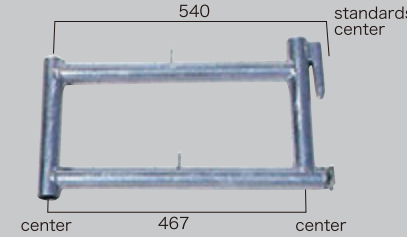


## Lifting Steps



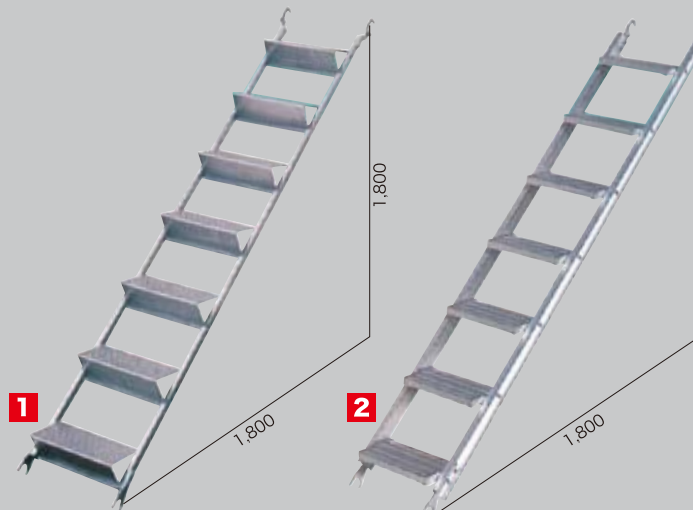
Item code	Standard	Weight
HSD-1	—	1.1kg

## Auxiliary Steps



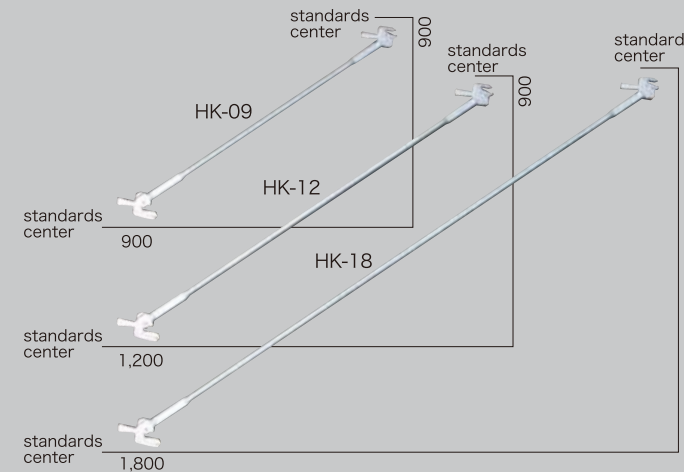
Item code	Standard	Weight
HQ-N	—	4.2kg

## Stairs



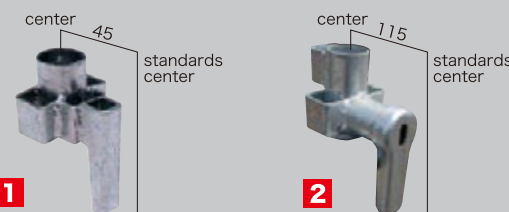
Item code	Standard	Weight
1 HH-19	Steel	18.0kg
2 HH-19AL	Aluminum	12.0kg

## Cross Brace



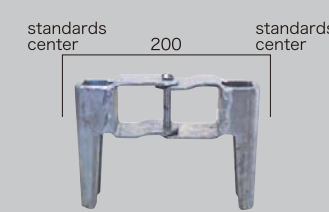
Item code	Standard	Weight
★ HK-18	φ27.2×2,520mm	3.9kg
★ HK-12	φ27.2×1,472mm	2.5kg
★ HK-09	φ27.2×1,246mm	2.2kg

## Center Adapter



Item code	Standard	Weight
1 HDS-A1	—	0.7kg
2 HDS-A2	—	1.0kg

## Universal Wedge



Item code	Standard	Weight
HSW-200	—	0.8kg

## Lock Pin (Retrofit type)



Item code	Standard	Weight
HMN-2	—	0.04kg

## Lock Pin (Prefabrication type)



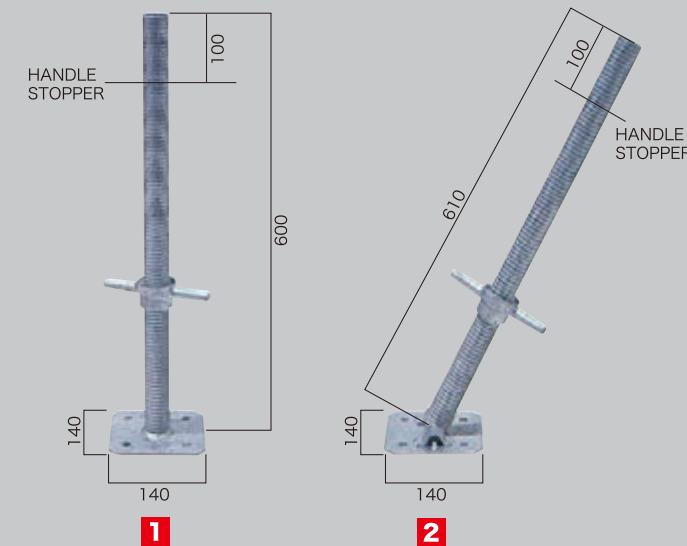
Item code	Standard	Weight
HMN-1	—	0.06kg

## Side Adapter (for narrow scaffolding)



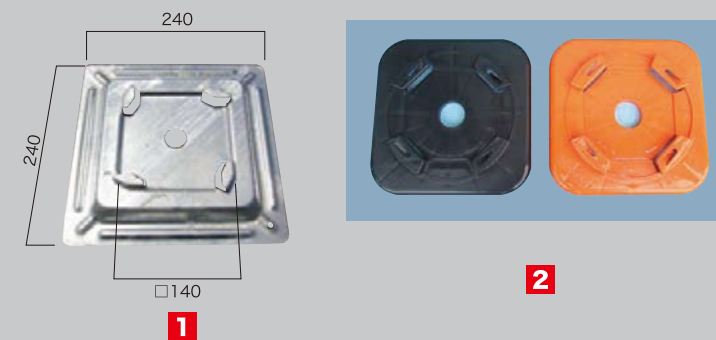
Item code	Standard	Weight
HM-120	—	0.6kg

## Pipe Jack



Item code	Standard	Weight
1 HE-6	L=600mm (Fixed)	2.8kg
★ 2 HE-6S	L=600mm (Swivel)	3.0kg

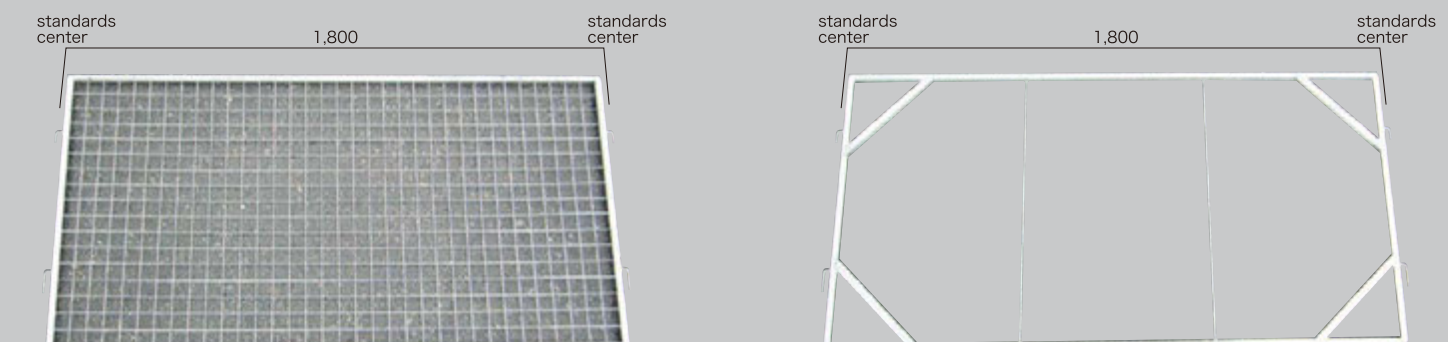
## Under Base



This product is a non-slip base that does not come off with ease and ensures high grip force and free of color migration. Made of a heat-resistant resin, the product serves as an easy-to-use, durable base indispensable to construction sheds.

Item code	Standard	Weight
1 HPB-24S	Steel	0.7kg
★ 2 HPB-24P	Plastic	0.26kg
3 L-base (plastic under base)	For Square 140mm	3.0kg

## Guard Fence

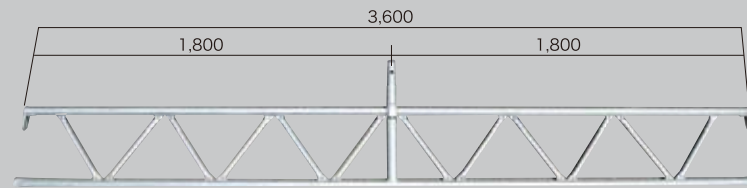


Item code	Standard	Weight
HG-A18	Pitch 1,800mm	6.7kg

Item code	Standard	Weight
★ HG-B18	Pitch 1,800mm	6.8kg

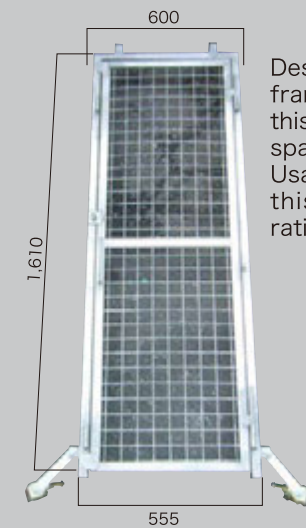


## Beam Frame



Item code	Standard	Weight
HG-36	3,600mm	28.0kg
HG-54	5,400mm	43.6kg

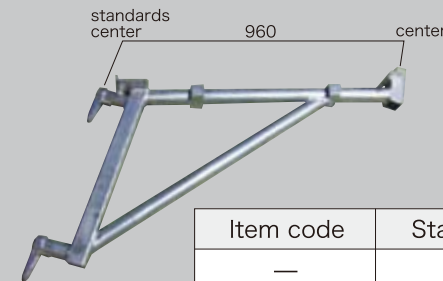
## Entry Prevention Door 6090



Designed for both of H-shaped frames and single-side applications, this product is compatible with a span between 600 and 900 mm. Usable in four different applications, this product is economical and rational.

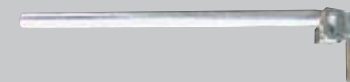
Item code	Standard	Weight
—	—	15.0kg

## Asagao



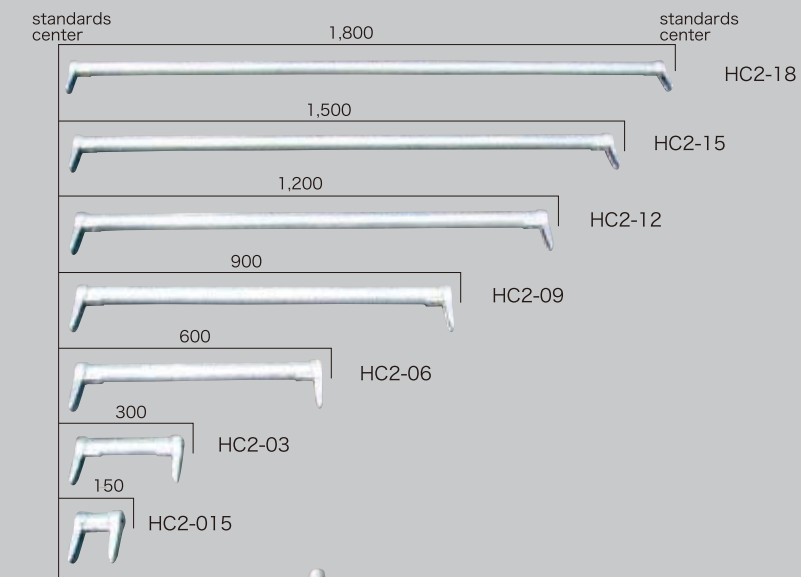
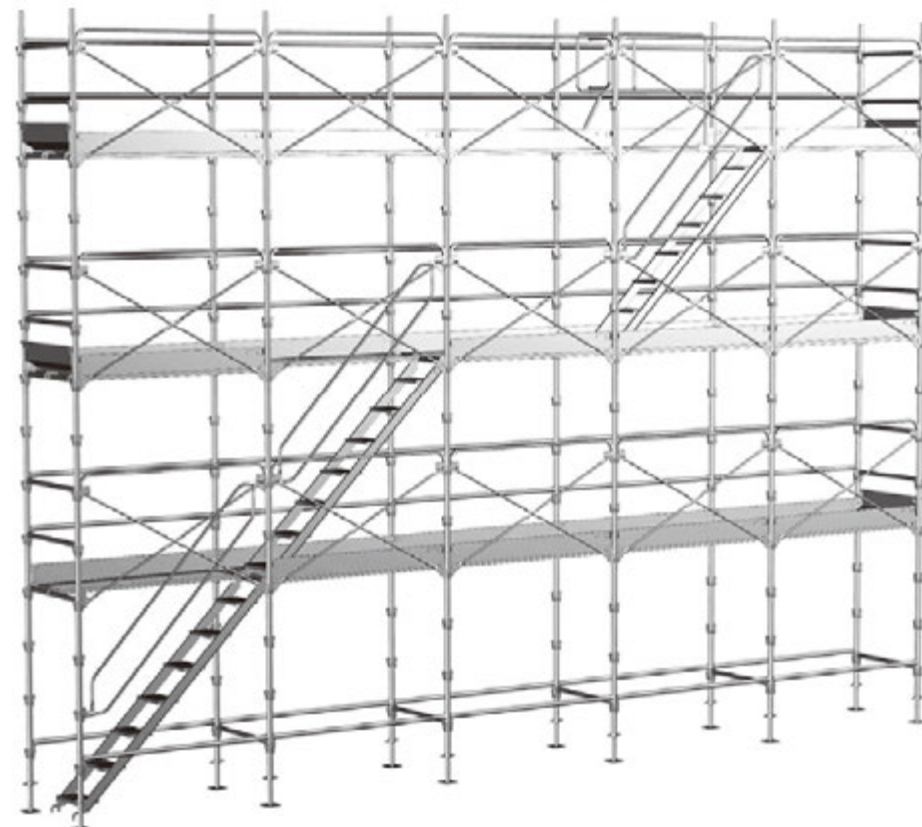
Item code	Standard	Weight
—	—	9.8kg

## Simple Entry Prevention Bar



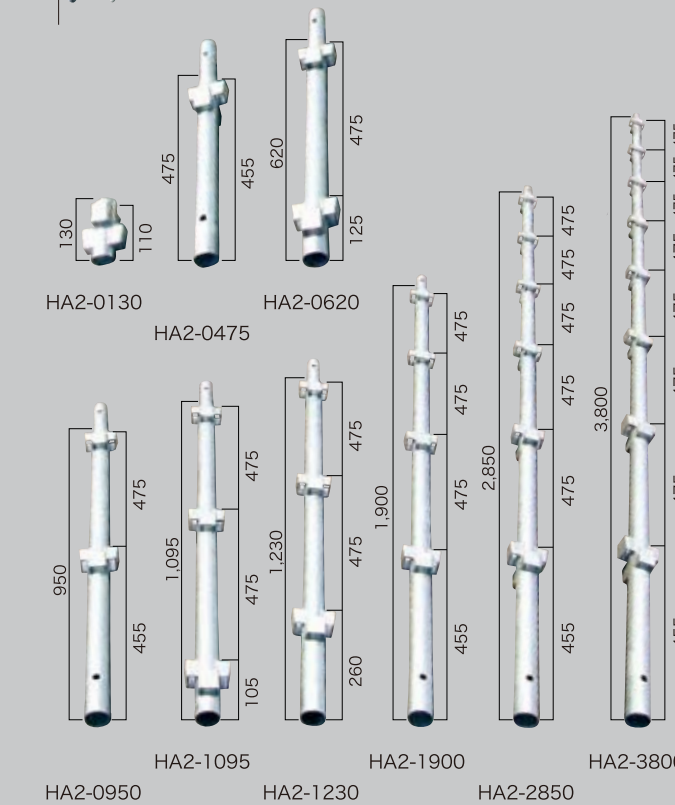
Item code	Standard	Weight
—	—	1.3kg

## Assembly Drawings (3levels×5 spans Use example)



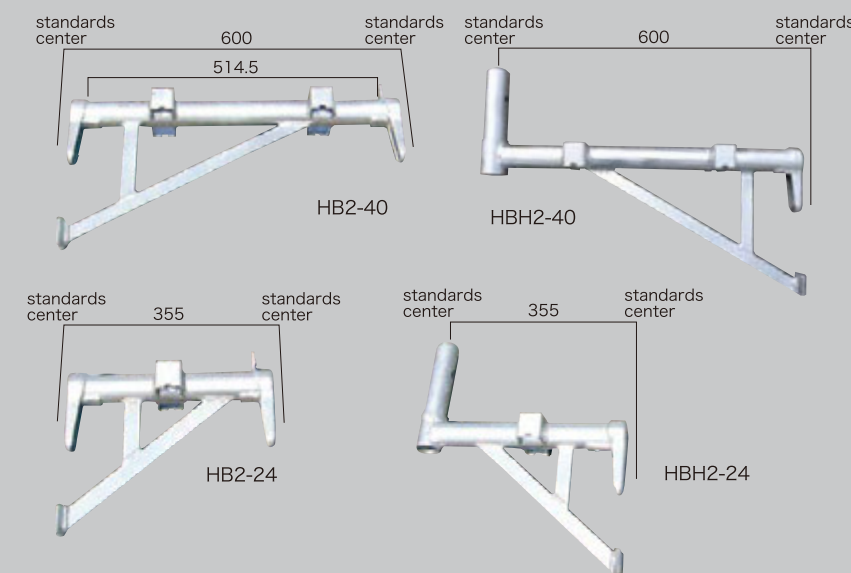
## Handrail

Item code	Standard	Weight
HC2-18	φ42.7×1,800mm	4.8kg
HC2-15	φ42.7×1,500mm	4.1kg
HC2-12	φ42.7×1,200mm	3.4kg
HC2-09	φ42.7× 900mm	2.5kg
HC2-075	φ42.7× 750mm	2.0kg
HC2-06	φ42.7× 600mm	1.7kg
HC2-03	φ42.7× 300mm	1.0kg
HC2-015	φ42.7× 150mm	0.7kg



## Standards

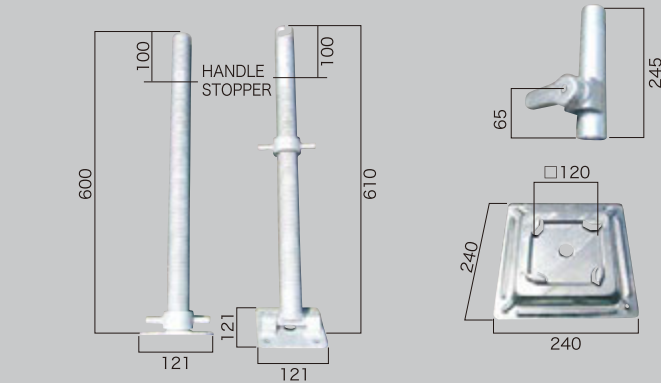
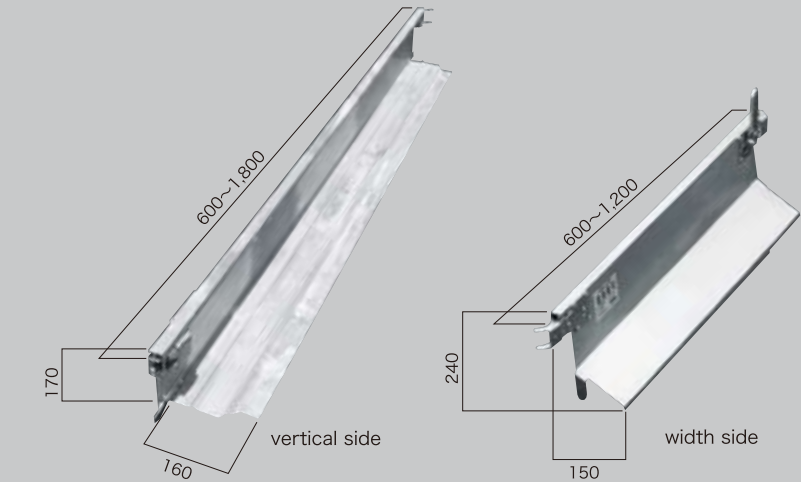
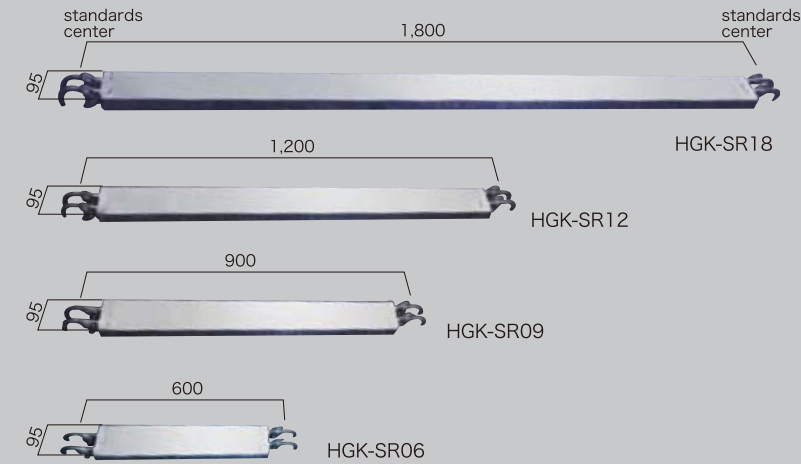
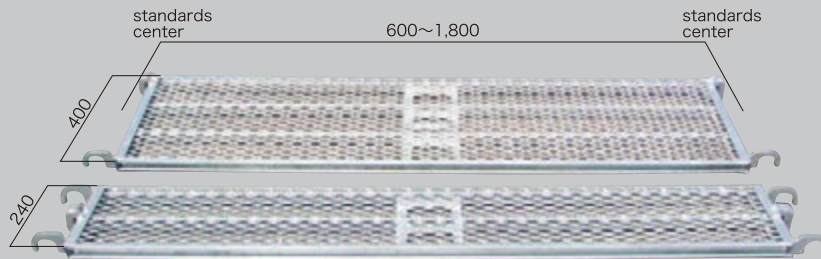
Item code	Standard	Weight
HA2-3800	φ48.6×3,800mm	14.1kg
HA2-2850	φ48.6×2,850mm	10.6kg
HA2-1900	φ48.6×1,900mm	7.1kg
HA2-1230	φ48.6×1,230mm	5.0kg
HA2-1095	φ48.6×1,095mm	4.6kg
HA2-0950	φ48.6× 950mm	3.9kg
HA2-0620	φ48.6× 620mm	3.1kg
HA2-0475	φ48.6× 475mm	2.2kg
HA2-0130	φ48.6× 130mm	0.7kg



## Various Brackets

Item code	Standard	Weight
HB2-40	φ42.7×400mm	2.9kg
HB2-24	φ42.7×240mm	1.9kg
HBH2-40	φ42.7×400mm	3.5kg
HBH2-24	φ42.7×240mm	2.2kg
HBH2-15	φ42.7×150mm	1.7kg





Plank

Item code	Standard	Weight
HD2-4018	400×1,800mm	13.0kg
HD2-4015	400×1,500mm	11.0kg
HD2-4012	400×1,200mm	8.6kg
HD2-4009	400× 900mm	6.8kg
HD2-40075	400× 750mm	6.0kg
HD2-4006	400× 600mm	5.2kg
HD2-2418	240×1,800mm	9.2kg
HD2-2415	240×1,500mm	7.9kg
HD2-2412	240×1,200mm	6.6kg
HD2-2409	240× 900mm	5.2kg
HD2-24075	240× 750mm	4.7kg
HD2-2406	240× 600mm	3.2kg

Gap-filling Material

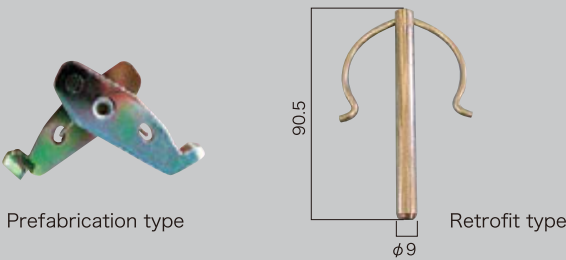
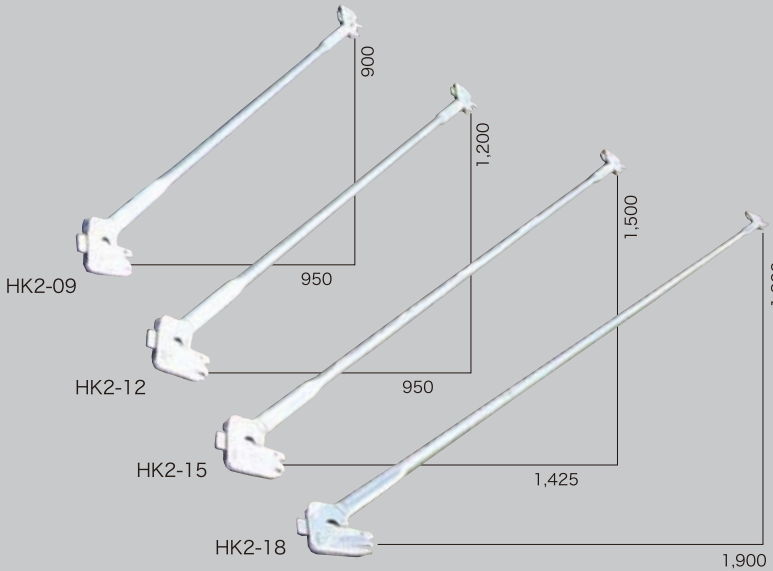
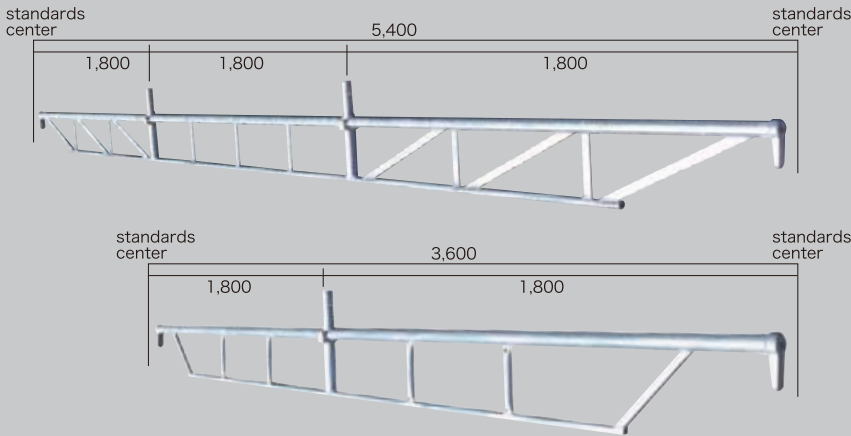
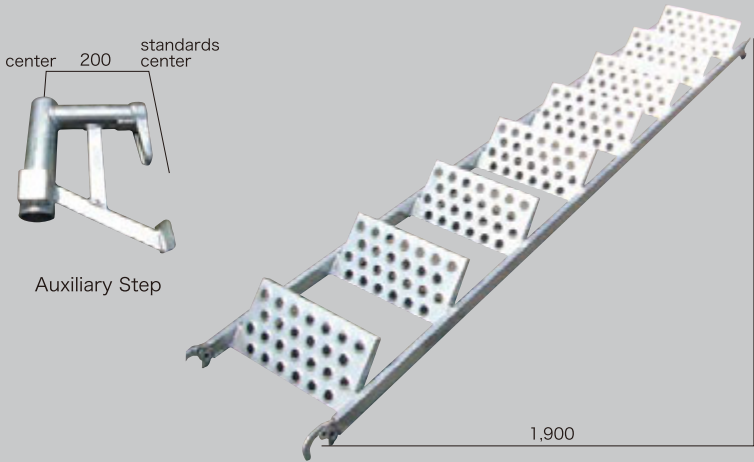
Item code	Standard	Weight
HGK-SR18	95×1,800mm	4.96kg
HGK-SR12	95×1,200mm	3.56kg
HGK-SR09	95× 900mm	2.82kg
HGK-SR06	95× 600mm	2.00kg

L-type Plinth Toe board

	Item code	Standard	Weight
	HL2-18	1,800mm	5.8kg
	HL2-15	1,500mm	4.8kg
	HL2-12	1,200mm	4.0kg
	HL2-09	900mm	3.1kg
width side	HLW-12	1,200mm	4.3kg
	HLW-09	900mm	3.4kg
	HLW-06	600mm	2.6kg

Various Jack Bases

Item code	Standard	Weight
HE2-6	Pipe Jack	2.5kg
HE2-6S	Swivel Jack	2.7kg
HE2-6P	Wall tie pipe Jack	2.3kg
HJH2-20	Jack holder	1.1kg
HPB2-24S	Steel Under base	0.8kg



Various Stairs

Item code	Standard	Weight
HH2-19	Steel stairs (8steps)	19.8kg
HH2-19AL	Aluminum stairs (8steps)	12.6kg
HQ2	Auxiliary Step	1.8kg

Beam Frame (Truss)

Item code	Standard	Weight
HG2-54	5,400mm	30.8kg
HG2-36	3,600mm	16.3kg

Cross Brace

Item code	Standard	Weight
HK2-18	φ27.2×2,592mm	4.1kg
HK2-15	φ27.2×2,043mm	3.3kg
HK2-12	φ27.2×1,502mm	2.6kg
HK2-09	φ27.2×1,282mm	2.3kg

Lock Pin

Item code	Standard	Weight
HMN-1	Prefabrication type	0.06kg
HMN-2	Retrofit type	0.04kg

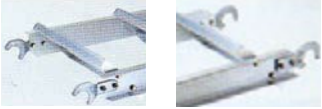


Aluminum Scaffolding Stairs

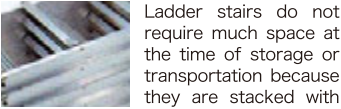
※Ladders and stepladders are also available.

Aluminum Ladder Stairs for Frames KDB

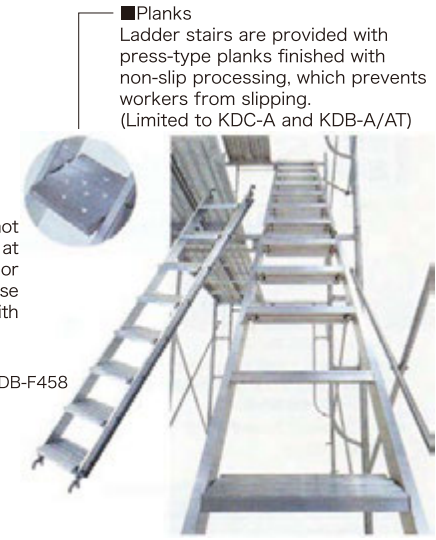
Order production



Aluminum Ladder Stairs are of bolted type, which allows the replacement of parts (gripping brackets and plans) with ease if they are damaged.



Ladder stairs do not require much space at the time of storage or transportation because they are stacked with no gaps.



■Made of aluminum alloy with preeminent corrosion resistance. Ladder stairs have excellent scrap value at the time of disposal.

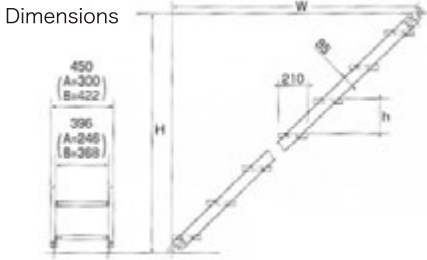
Item code	Front width mm	Plank width mm	Number of steps	Riser dimension (h) mm	Apply scaffolding dimensionmm		Mass kg
					W	H	
KDB-F457	450	396	7	246	1829	1725	12.2
KDB-F458			8	215	1829	1725	13.1
KDB-F459			9	216	1829	1955	14.2
KDB-M457			7	243	1800	1700	12.0
KDB-M458	450	396	8	212	1800	1700	12.3
KDB-F457A			7	246	1829	1725	12.2
KDB-F458A			8	215	1829	1725	13.1
KDB-M457A			7	243	1800	1700	12.0
KDB-M458A			8	212	1800	1700	12.3
KDB-F458T	450	396	8	213	1829	1725	13.1
KDB-F459T			9	212	1829	1955	14.2
KDB-M458T			8	209	1800	1700	12.3
KDB-F458AT			8	213	1829	1725	13.1
KDB-M458AT			8	209	1800	1700	12.3

\*The KDB-A is a product finished with non-slip processing. \*The KDB-T is for H-shaped frames  
\*Each product with an item code suffix including "F" is for inch-size frames and that with an item code suffix including "M" is for meter-size frames.

Plank Stairs KDC

Order production

A 300-mm-wide slim-type product.



\*Figures indicated by "A" and "B" in parentheses are KDC dimensions and KDE dimensions respectively.

Item code	Front width mm	Plank width mm	Number of steps	Riser dimension (h) mm	Apply scaffolding dimensionmm		Mass kg
					W	H	
KDC-F3077	300	246	7	246	1829	1725	10.2
KDC-M3087				253	1800	1800	10.3
KDC-F3077A				246	1829	1725	10.2
KDC-M3087A				253	1800	1800	10.3

\*The KDC-A is a product finished with non-slip processing.  
\*Each product with an item code suffix including "F" is for inch-size frames and that with an item code suffix including "M" is for meter-size frames.  
\*Models with a front width of 450 mm and those for single-side scaffolding with a front width of 420 mm are available by order.  
\*Models incorporating claws to prevent the upper and lower grip brackets from slipping out are available by order.

Single-sided Plank STCR

- The surface is provided with press-type non-slip processing.
- Both ends are provided with drip holes.
- The back is provided with non-slip rubber beads.
- Support interval: 1,800 mm



Item code	Full length m	Width mm	Thickness mm	Distance between supports (span)m	Number of support points	Mass kg
STCR-124	1.00	240	32	0.60	2-point support	1.9
STCR-224	2.00	240	32	1.60	2-point support	3.7
STCR-324	3.00	240	32	1.30	3-point support	5.5
STCR-424	4.00	240	32	1.80	3-point support	7.3

\*No custom-made products are of approved type.

Single-sided Plank STFR

- The surface is provided with press-type non-slip processing.
- Both ends are provided with drip holes.
- The back is provided with non-slip rubber beads.
- Support interval: 1,800 mm

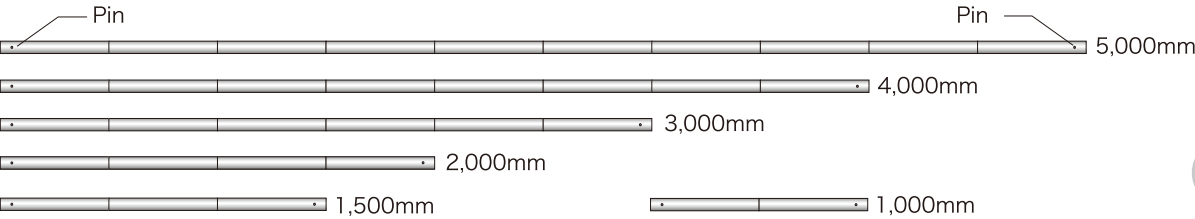


Item code	Full length m	Width mm	Thickness mm	Distance between supports (span)m	Number of support points	Mass kg
STFR-224	2.00	240	29	1.60	2-point support	4.5
STFR-324	3.00	240	29	1.30	3-point support	6.7
STFR-424	4.00	240	29	1.80	3-point support	8.9

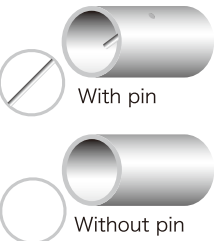
\*No custom-made products are of approved type.

Tube Pipe STK500, 48.6 dia., 2.4 t

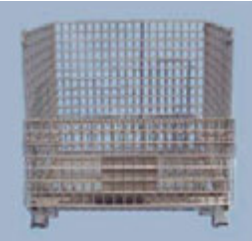
Surface treatment: Two types, i.e., electrolytic zinc plating and hot-dip galvanized types, are available with or without pins.



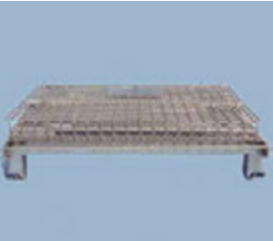
	With pin/Without pin					
Length (mm)	1,000	1,500	2,000	3,000	4,000	5,000
Weight (kg)	2.73	4.10	5.46	8.19	10.92	13.65



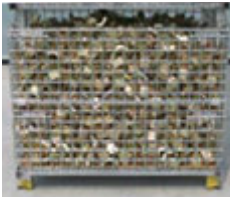
Box Pallet



Half-open state



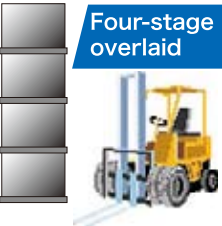
Folding state



	Outer diameter (mm)			Leg height mm	Wire diameter mm	Wire mesh pitch mm	Maximum loading capacity kg	Own weight kg	Specification
	Width	Length	Height						
HP-1-U	500	800	540	100	3.8	30×30	300	21.0	Electroplating
HP-2-U	800	1000	840	100	6.3	50×50	1,500	53.5	Electroplating
HP-2-D	800	1000	840	100	6.3	50×50	1,500	53.5	Hot-dip galvanized
HP-3-U	1000	1200	890	100	6.3	50×50	2,000	83.0	Electroplating
HP-3-D	1000	1200	890	100	6.3	50×50	2,000	83.0	Hot-dip galvanized

[Precautions]

- Pay utmost attention in order to prevent accidents if a number of products are stacked and used.
- The Box Pallet is not of lifting type. Do not lift the Box Pallet for use.
- Models of HP-3-D type provided with caster wheels are available.



Annealed Wires, Steel Scaffold Planks, and Mesh Sheets

Annealed Wires (Domestic Product)

Scaffold Planks



#8 #10 #12

25-kg coil and 50-kg coil	
Boxed wire	2.7 dia./3.1 dia.×700



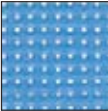
\*Approved by the Scaffolding and Construction Equipment Association of Japan

BAN-2025H	2.0M	7.2kg
BAN-3025H	3.0M	10.6kg
BAN-4025H	4.0M	14.0kg

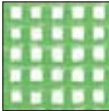
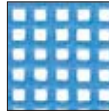
Mesh Sheets

Fire-retardant Mesh Sheets (Approved by the Scaffolding and Construction Equipment Association of Japan)

UK-333

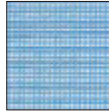


UK-777



Anti-scattering Mesh Sheets

#10000U



Performance	Flame-retardant mesh sheet			Anti-scattering mesh sheet
	Item code	UK-333	UK-777	
	Mass (g/m <sup>2</sup> )	450	420	140
	Mesh size (mm)	1	3	0.75
	Solidity ratio (φ)	0.90	0.67	0.78
Tensile strength (N/3 cm)	Vertical	2131	1843	688
	Horizontal	2050	1660	652
Stretch (mm)	Vertical	64.3	55.8	44.6
	Horizontal	65.5	56.8	45.2
Eyelet tensile strength (kN)	Vertical	136.9	102.9	30.9
	Horizontal	134.2	94.3	29.5
Eyelet tensile strength (kN)	Vertical	1.62	1.46	0.53
	Horizontal	1.66	1.32	0.55
Flame-retardant performance		Compliant	Compliant	Compliant
Applicable standard		Scaffolding and Construction Equipment Association of Japan Japanese Fire Services Act	Scaffolding and Construction Equipment Association of Japan Japanese Fire Services Act	Japanese Fire Services Act

\*The figures above are measured values, and not guaranteed figures.



Burring Swaging

Burring swaging (a patent pending) is Heiwa's unique technology developed for one of the features of coupler clamps as Heiwa's main products. Burring refers to the forming of a projecting edge on an opening. Burring is a swaging method that forms burrs in a carefully calculated size on coupler clamps to ensure the strength of the coupler clamps effectively.

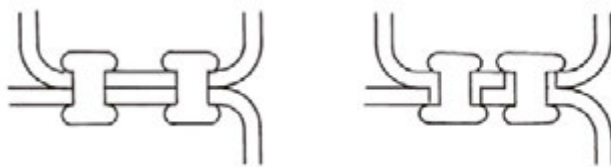


Burring punching shape

Features of burring swaging

Features of burring swaging

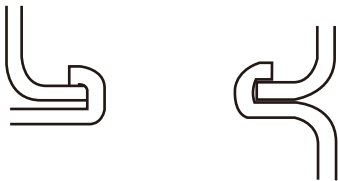
- Cross-sectional view of conventional rivet swaging
- Cross-sectional view of burring swaging



The most commonly used swaging method for right-angle couplers (Couplers - Right angle) is four-rivet-pin swaging. Four-rivet-pin swaging supports orthogonal tubing materials, thus requiring sufficient shearing resistance. The rivet pins are not sturdy enough to withstand the shearing force of a torsional load if applied, and there is a fracture risk. Burring swaging forms a cross-section to protect the rivet pins as shown in the cross-sectional view on the left-hand side, where the burring part receives the shearing force, thus reducing the shearing force applied to the rivet pins and improving the strength of the coupler as a result.

Coupler - Swivel

- Cross-sectional view of swivel burring swaging



A common swaging method for swivel couplers (Coupler - Swivel) uses pipes and dedicated rivets. A swivel coupler needs clearances where each part can move freely. An increase in the number of parts requires many more clearances. Pipe-employed swaging causes instability in the pipe cutting dimensions, thus requiring a wide allowable range. Consequently, the clearances need to be larger than those processed in any other method. This is a disadvantage of this method. Larger clearances will result in an increase in the rattling range of the couplers, which will develop into the wobbling of the tightened parts caused by the wind or vibration. On the other hand, Heiwa's burring swaging applied to swivel couplers does not use pipes or dedicated rivets, but it performs the single-side burring of the couplers, thus making it possible to minimize the size of each clearance. Burring swaging applied to a large area provides a wide contact area and high resistance against the displacement of the parts superior to that obtained from swaging using pipes and dedicated rivets. (Based on test results compared)

Shearing Force and Breaking Force on Right-angle Couplers

(A) Breaking force

(B) Shearing force

Shearing force and breaking force

Iron wire demonstrates its inherent strength against force (A) to tear off the wire. The wire, however, is cut with ease if force (B) is applied with nippers. Force (A) to tear off the wire is called breaking force and force (B) to cut off the wire is called shearing force.

Junction rivet

Coupler B

Coupler A

Junction rivet

Shearing force acting on the couplers

Couplers A and B will try to rotate in the opposite directions to each other around the junction center of the four rivets as a fulcrum if rotational force is applied to the coupler. At that time, force to cut each rivet (shearing force) will work on the rivets.

P (Load)

48.6 dia. pipe

L

The following values are obtained, provided that breaking load P applied to the tip end and that overhanging scaffolding pipe length L is 4 m:

(Conventional)

M = 7,000 kg-cm

L = 400 cm (4 m)

W = 17.5 kg

As shown above, a weight of only 17.5 kg will cause a shearing fracture of the coupler.

The direction in which the shearing force works (the center of the rivets will serve as a fulcrum).

Crescent-shaped traces will be observed on the cross-sections of the rivets if the load is applied in the direction of the arrows.

When the coupler is sheared, the progress of shearing will change in the direction based on the rivet in slowest shearing progress serving as a fulcrum.

Therefore, a state where three out of the four rivets are shared is often seen with the remaining one stopped in the middle of shearing. If a further load is applied, breaking force will work and the remaining rivet will be cut. There is a difference in cut surface shape between shearing force and breaking force. Therefore, only one of the rivets will differ in cut surface shape.

Precautions for Swivel Couplers

Swivel Coupler

Swivel couplers are swaged with a circumferential clearance between them so that they can move freely. Therefore, any tracks beyond the clearance will cause excessive force on the swaging parts as a result of the principle of leverage. In the case of performing pipe alignment, temporarily tighten the couplers first. Then tighten them firmly after the pipe positions are fixed.

Precautions 《When Using Couplers》

1

2

3

4

5

6

Make sure that at least two workers assemble or disassemble long-pipe scaffolds. It is dangerous for a single worker to assemble or disassemble them. In the case of using couplers, make sure that force applied to each coupler is within the acceptable limit of the clamp in order to ensure the safety of work. It should be noted that a coupler is of construction that cannot withstand a heavy shearing load. Therefore, always use couplers in pairs.

■Criteria of Acceptable Resistance  
(Minimum Safety Factor of Two Years  
—From Scaffolding Manual)

Permissible resistance of couplers satisfying test criteria	
Coupler - Right angle	500 kg
Coupler - Swivel	350 kg

A coupler is of construction that cannot withstand a heavy shearing load. Shearing force applied beyond expectation will break the orthogonal joint rivets if only a single side of a scaffold is secured with couplers and the force is applied to the other end of the scaffold. An excessive reduction of brackets and braces in number or the wrong assembly of them will lead to accidents. Be sure to use couplers within the performance range by fully understanding the performance limits.

It is best to use a suitable tool, such as a ratchet wrench, and apply a coupler bolt tightening torque of 250 to 350 kg-cm. If a spanner wrench is used, hold the position that is approximately 15 cm from the head of the wrench and tighten each bolt. Be careful not to hold the end of the wrench, or otherwise excessive torque (i.e., 500 to 600 kg-cm) will be applied, which may lead to rivet or bolt breakage.

Thank you for your understanding.