

SUS BKK

ZF
Zero Frame



Polish the rigidity
with traditional
techniques.

A close-up photograph of a metal structure, likely a window frame or door, showing a joint where two pieces of metal meet. A small screw is visible on the right side of the joint. The background is dark, and the metal has a brushed finish.

Shrink fit to form
a rigid joint.



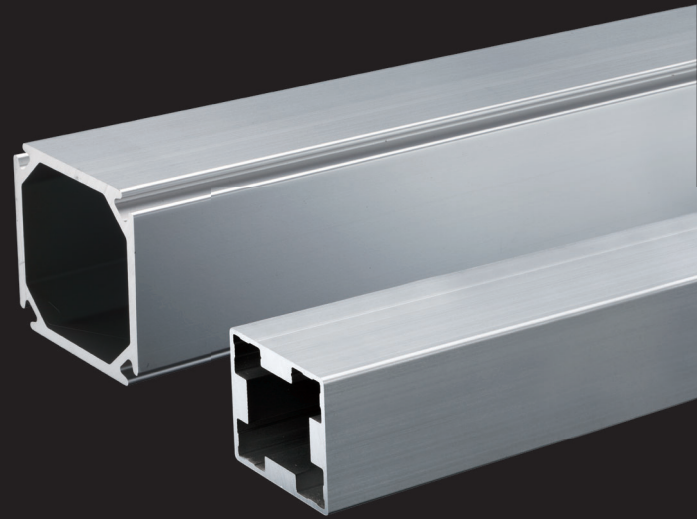


ZF *Zero Frame*

**A new aluminum frame
with extreme rigidity**

Exceeding the limits of aluminum frames

High rigidity aluminum structural material ZF series which realizes the rigidity of the joint that exceeds the conventional wisdom of aluminum frame by the new fastening method of the insertion and the joint that makes full use of shrink fitting and plugging techniques. In addition, we also support customers with a line-up product that meets the performance required to support machinery, including undercarriage and supplementary joints. For example, efficiently support a load of several tons by a beam that has evolved into a rectangular shape or a corner joint that holds the frame with multiple claws like a hawk catch a prey. The well-thought-out configuration, such as the anchor bracket that holds the gantry by the wedge effect and takes advantage for the enlarged load device. Furthermore, this catalog not only provides the strength of products, but also offers a convenient proposal as a dedicated new item used for mounting door parts. SUS proposes ZF as the best solution to the problems that occur in machinery. We will challenge new possibilities of aluminum frames together with box frame BF series which without groove and ideal for a clean environment.



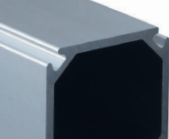
Features of this catalog

1. Lineup which also can be used with difficult application.

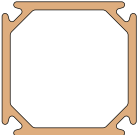
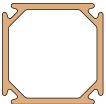

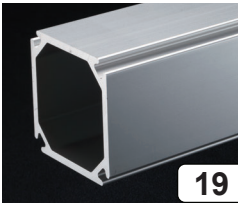
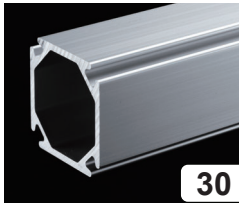
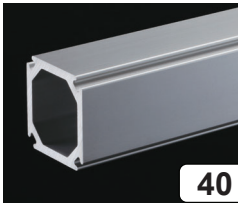






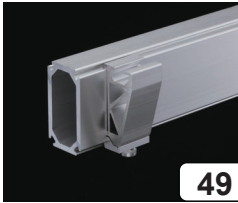





- ① High-rigidity aluminum structural material ZF developed for stand.
- ② Box frame BF is without groove that is ideal for sites such as medical and foods.

2. Increased new items of ZF series that can be used easier.

- ① Added new frame and accessory that are ideal for devices which required accuracy of top plate.
- ② New door parts, easy to install with specify items.
- ③ Expanded the base frames that can be selected according to the required width.
- ④ Suitable for clean environment because of the groove with seal at the four sides of the frame.



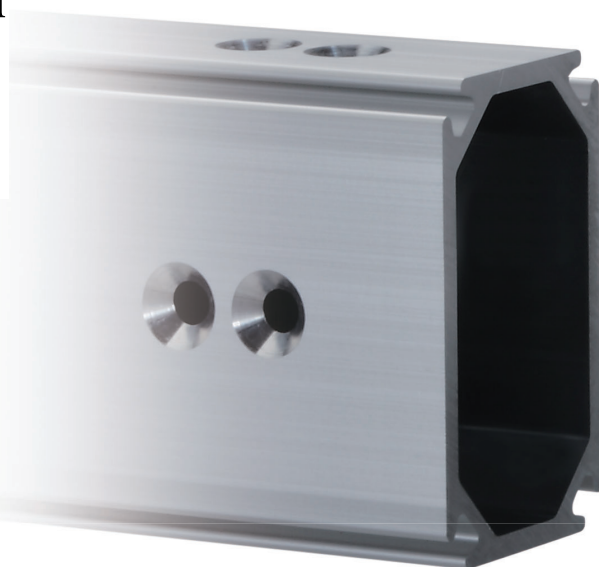
ZF Aluminum Frames and Parts

Category	<div>ZF80</div> <div><div>Outside dimension 80 mm</div><div>Page 18</div></div> <div>Recommended for main frame of robot stand.</div>	<div>ZF60</div> <div><div>Outside dimension 60 mm</div><div>Page 29</div></div> <div>A medium-sized series with high rigidity and easy handling.</div>	<div>ZF40</div> <div><div>Outside dimension 40 mm</div><div>Page 39</div></div> <div>Suitable for small devices. Smart minimal size.</div>
01 Frames	 <div>19</div>	 <div>30</div>	 <div>40</div>
02 Joint	  <div>21</div>	  <div>32</div>	  <div>42</div>
03 Accessories			 <div>49</div>
04 Foot	 <div>28</div>	 <div>38</div>	 <div>50</div>
05 Common Parts	 	51~	

Data • Index	Technical Data	Example	Strength	Assembly Method	56~
	Environment				69~
	Index				70~

Achieves both high rigidity and convenience by combination of traditional techniques and aluminum

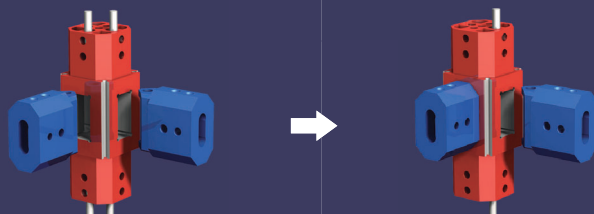
In order to overturn the conventional wisdom that the frame of mechanical devices is iron, SUS released the high-rigidity aluminum structural material ZF in year 2015. We realized that the rigidity device stand is required to bear the weight and vibration, so we pursued and applied the advantage of aluminum frame which easy to assemble and have high expandability to answer this requirement. The traditional fastening method has been reviewed by starting from first step. It took time about 5 years to develop until it can be achieved high rigidity of frame jointing and have been devised in various way right now.



Point of High Rigidity 1

Shrink-fit technique for rigid joint

When a load is applied to a conventional aluminum frame, the joints will be deformed more than the frame. Therefore, the development of rigid joints was indispensable to ensure the rigidity of the gantry. ZF joint adopted the "shrink-fitting" technique that has been used for a long time in iron. Taking advantage of the characteristics of aluminum, which has a large coefficient of thermal expansion, the parts that make up the joint are tightened together.



The joint is made by combining between parts heated 160 °C (red) and parts cooled to -60 °C (blue).

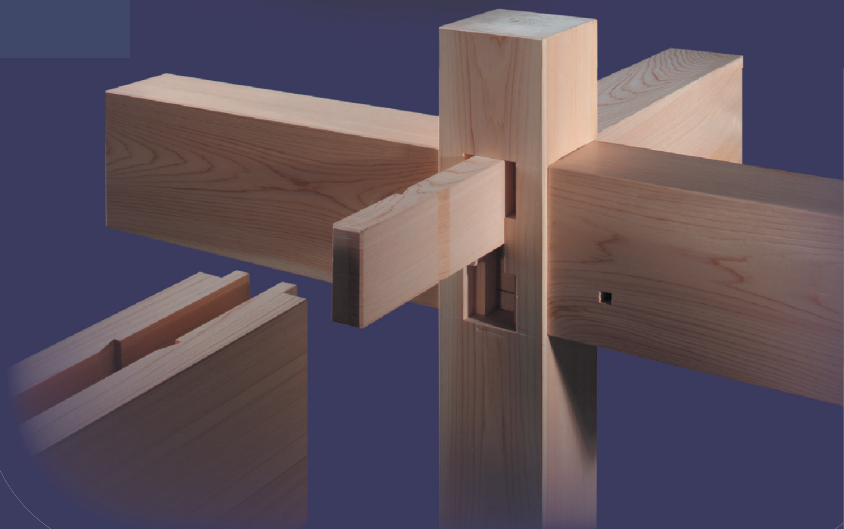
The parts shrink and expand as they return to room temperature, joining each other. In addition, pierce the pins from top and bottom to build a strong structure.



Point of High Rigidity 2

Joining method by traditional wood technique

ZF adopts the fastening method by inserting the rigid joint to frame, and then fixing with bolt. This is an idea from the traditional Japanese wooden techniques. It is a method of joining woods at right angles or diagonally without using adhesives or nails by utilizing the stickiness and flexibility of wood fibers. We focused on the characteristics of aluminum, which has softness and stickiness similar to wood, and then applied it so far.

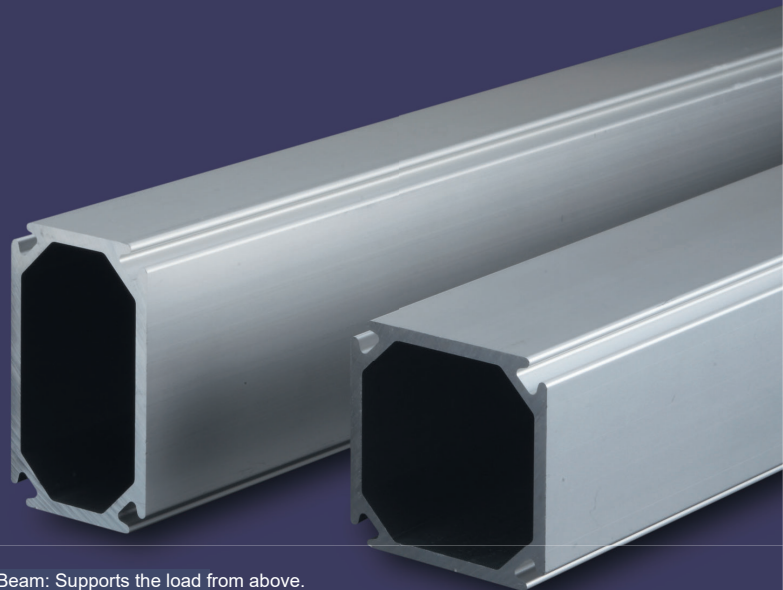




Point of High Rigidity **3**

Frame cross section pursuing its role as a structural material

The word "structural material" used by SUS as a product name for aluminum frames which is an architectural term. It refers to columns and beams that bear the force applied to the structure such as loads. ZF, we focused on the different roles between columns and beams, and reviewed the cross-sectional shape of the frame from the conventional product. By specializing in each role, the rigidity of the frame is also ensured.



Beam: Supports the load from above.

Pillar: Dispel the power from all sides.

It's the ideal of robot stand which is highly rigid frame that resist to vibration and load.

ZF is specially use for base stand, which realized that the rigidity device stand is required to bear the weight and vibration, so we persued and applied the advantage of aluminum frame which easy to assemble and has high expandability. Its performance has been highly evaluated by global industrial robot maker, and it has been adopted in standard packages. We are continuing to develop frames and parts, opening up a new market for robot base stand using aluminum frame.



Parallel link robot stand (All-in-one package jointly developed with ABB Co., Ltd.)

[We would like to standardize the equipment stand that is indispensable when introducing industrial robots, and provide it as an all-in-one package which is not only robot, but also peripheral devices such as conveyor.] which is request of ABB Co., Ltd. Therefore, engineers of ABB and SUS developers collaborated to study and create the completed set included robot and base stand called "IRB 360 Flex Picker All-in-One Package". Offer the aluminum frame, which is easy to assemble and remove, flexibly responds to future layout changes.



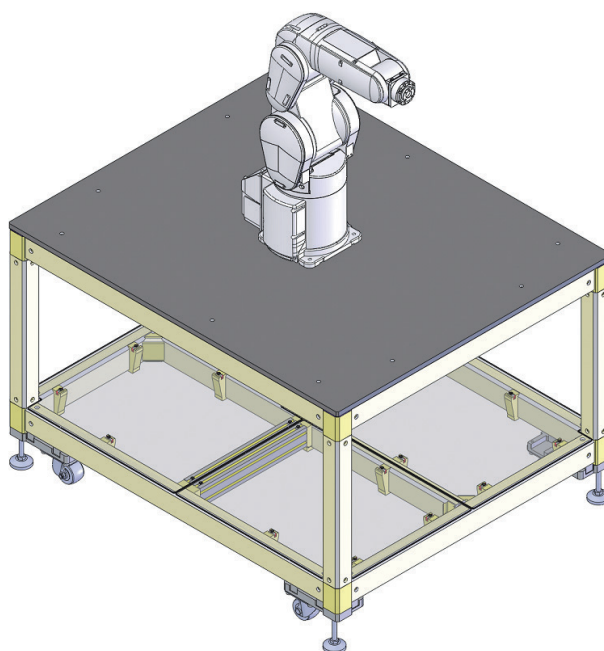
ZF is used for the structural material that supports mainly, and SF is used for mounting the door and conveyor. It also supports height adjustment suited to the site.

Articulated robots stand

ZF mounts are also widely used in highly versatile articulated robots. By using a base plate with a T-groove for the top plate, it is possible to flexibly divert the stand when changing the layout, and it is also ideal for use with a testing machine.



SUS booth in International Robot Exhibition 2017.

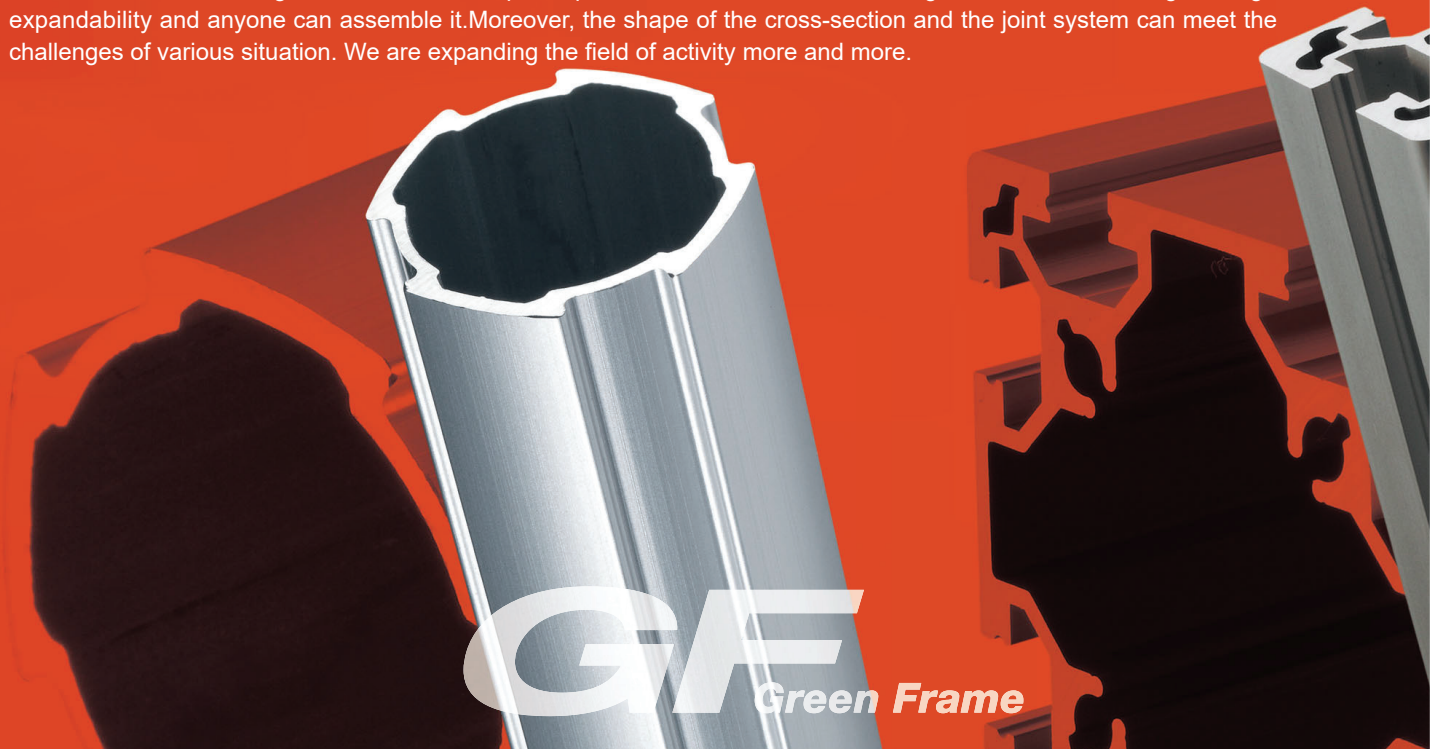


Only with Aluminum

Material and Shape

SUS's aluminum frame has an excellent corrosion resistance and durability, which is made by applying the anodized surface treatment to the extruded aluminum material.

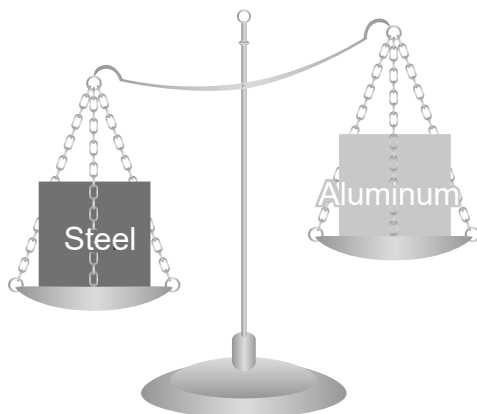
Due to the bolt fastening which does not require specialized skills such as welding, it take the advantage in high expandability and anyone can assemble it. Moreover, the shape of the cross-section and the joint system can meet the challenges of various situation. We are expanding the field of activity more and more.



Lightweight

1/3 the Mass of Steel

Taking aluminum's relative density into account, SUS developed a lightweight, yet rigid frame with a carefully designed cross-sectional shape. This innovation reduces the overall weight of equipment and enables improvements. By using these frames for moveable racks, chuters, and trolleys, the burden on workers can be greatly reduced and line changes can be carried out with ease even after installation.

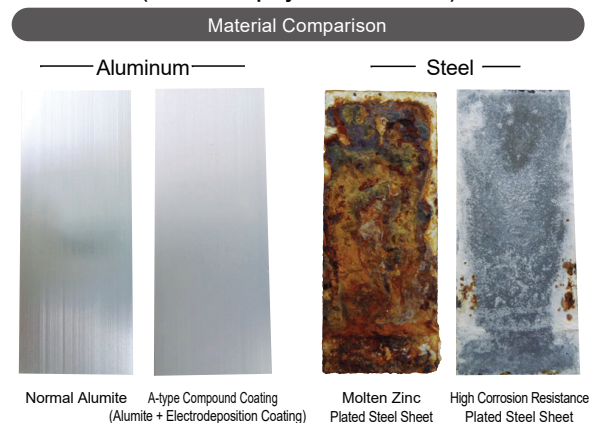


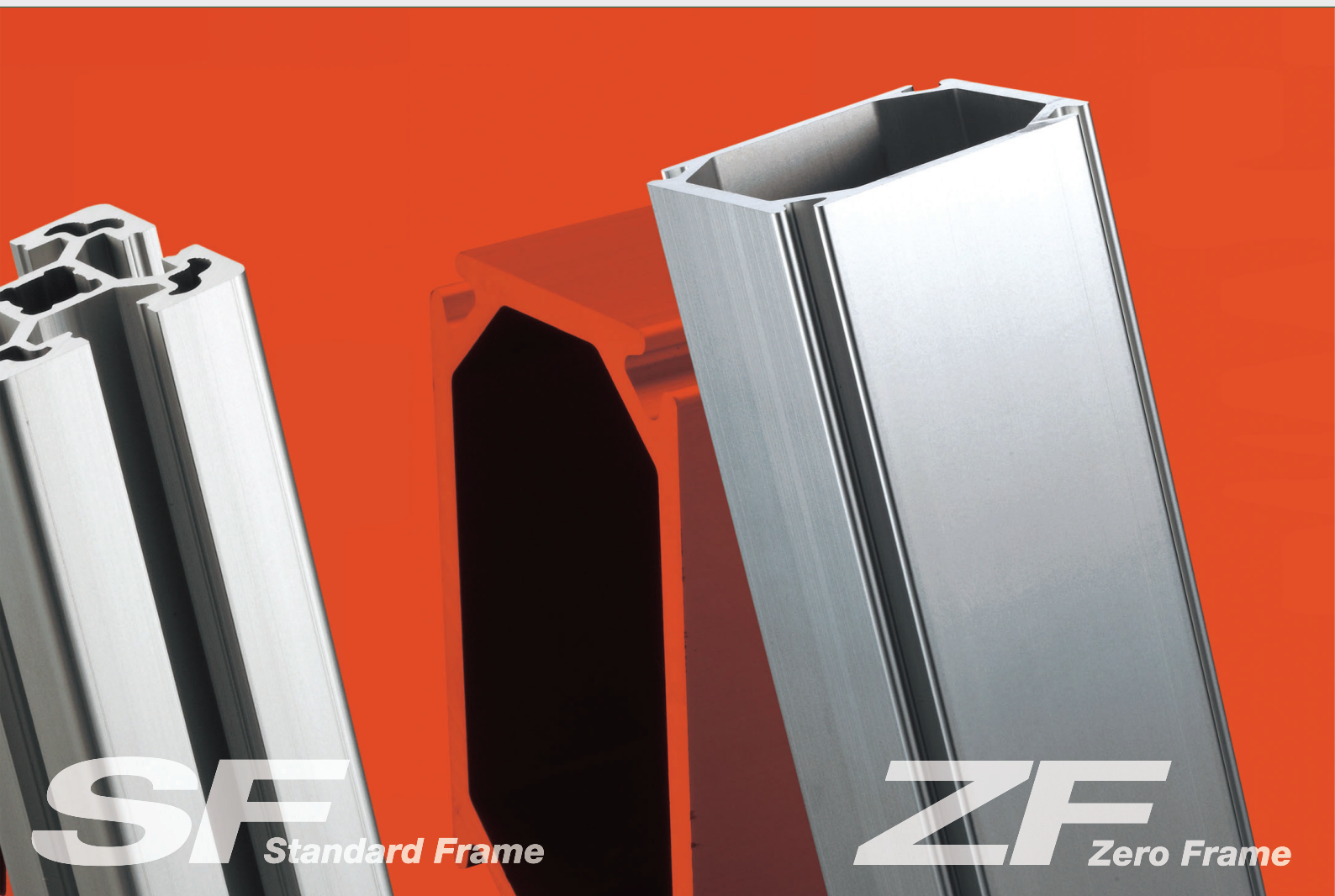
Resistant To Rust

High Corrosion Resistance

The anodized layer of 9 μm or more on the frames provides excellent resistance to corrosion and weather. The aluminum on the surface of the frame reacts with oxygen to form an oxide layer which does not peel off like paint and actually suppresses the buildup of foreign particles. Because the surface does not easily scratch or stain, the aluminum frames contribute to a more hygienic operating environment while maintaining a sleek aesthetic.

Corrosion Test Comparing Aluminum and Steel (Salt Water Spray Test: 1000 Hours)





Environmentally Friendly

Environmental Protection and Responsibility

Aluminum enjoys a particularly high degree of recyclability compared to other metals. Recently, it has gained attention as a resource that can reduce environmental impact. The electricity needed to refine recycled metals is only 3% of that needed to refine new ones. Not only frame, but also other parts such as bracket and connector that most of them use aluminum by considering the effective use of resources.

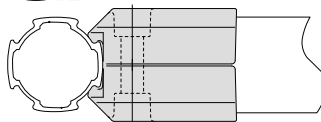


Bolt Fastening

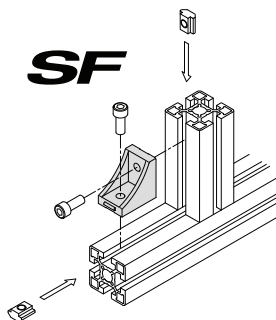
Easy to Assemble and Disassemble and Highly Reusable

Because bolts are used to fasten frames together, structures can be disassembled and reassembled as needed. GF structures can also be expanded to match the available work space or altered to suit new purposes. Relocating a unit becomes a simple task by breaking it down into a few smaller parts. Green Frame promotes the reuse of materials, minimizing waste.

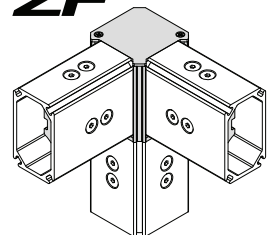
GF



SF

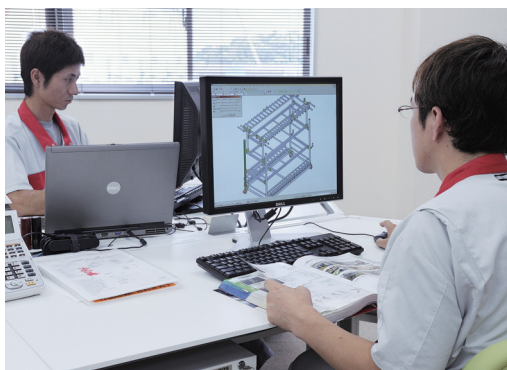


ZF

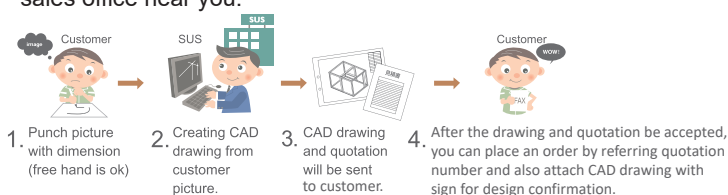


Service & Support

Design Support Service



SUS provides design support services to assist our customers. Just provide SUS with a simple sketch showing your structure's desired dimensions and we will create a CAD drawing, select the necessary parts, and submit a quotation - all at the same time. In addition to this service, SUS also offers a free 3D drawing software, Unit Design. This simple program lets anyone design their own structure in Green Frame or Standard Frame. For more details, please contact the SUS sales office near you.



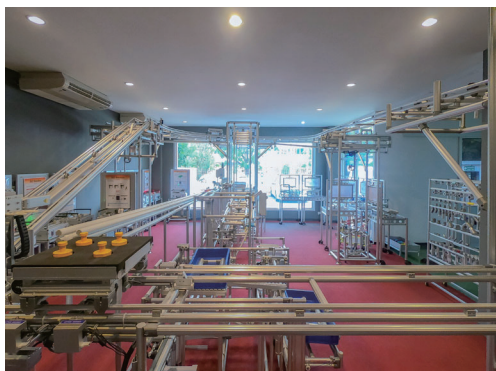
Assembly Delivery Service



SUS is one of the first companies in the industry to launch an assembly and shipping service. Our professional technical staff stationed at our manufacturing bases will respond promptly and precisely to your request. Please indicate "Assembly Required" in your request for quotation and order. SUS will reply to you with CAD drawings and assembly estimates. We encourage you to make full use of our experience and skill as expert manufacturers.



Showroom Information



Amata City Chonburi Showroom



Rangsit Showroom



Pinthong Showroom

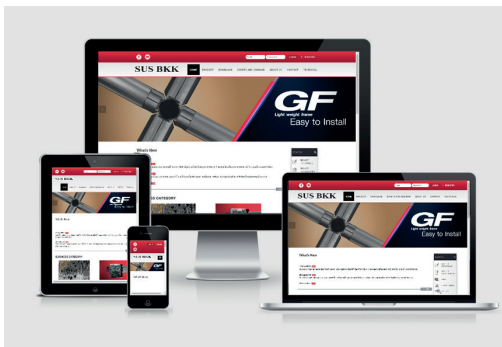
Application Seminar



Since the first “SUS Application Seminar” started in 2010, we got a good response from customers. This lecture is easy to understand both for the beginner through the person who has an experience or knowledge. In this seminar, we prepared application which is the structure use GF aluminum frame, accessory and other aluminum product. Please be invited to come and experience the advantage of SUS aluminum products with its lightweight, rigidity and flexibility of GF.



SUS BKK Website



SUS BKK website has gathered information of over 2,000 SUS products, along with CAD data of SUS's product is available to download for support our customer who use our product. In addition, catalog, magazine and Karakuri video which are always updated and can be downloaded now.

<http://www.susbkk.co.th/>

How to use the catalog

Common category Page (Major Classification)
Frame Size

Common Category Page
(Sub-classification)

Category Information

Below the "Major Classification" by series
such as ZF-80/60/40, "Sub-classification"
such as frames/joints are arranged.

An icon is also shown for each of the
"Sub-categories".

Major
Classification

Sub-
classification

ZERO FRAME

ZF-40

Joint

ZF 80

Frame

Joint

Foot

ZF 60

Frame

Joint

Foot

ZF 40

Frame

Joint

Accessory

Foot

ZF Common Parts


Door parts

Base Frame

ZF Processing

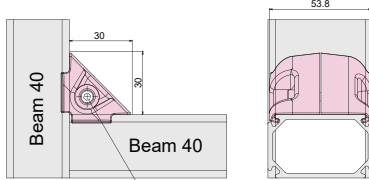
ZF Technical Data

ZF Corner Joint 40 H



• Used for joining the long side of ZF Beam 40.

Name	ZF Corner Joint 40 H (Stainless)
Item No.	ZFJ-440S



Hexagon Socket Head Cap Screw M6 x 35
(Hexagon Socket Head Cap Screw M6 x 35 Stainless)

• Tightening Torque: 10.8 N · m

Material/Technical Data


Material : Aluminum Diecast

Bolt: Iron / Stainless

Mass : 49g

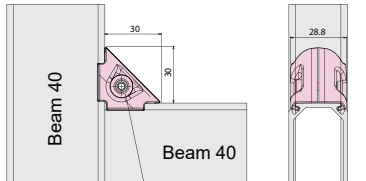
Environment: RoHS10 Compliant

ZF Corner Joint 40 V



• Used for join the short side of the ZF Beam 40.

Name	ZF Corner Joint 40 V (Stainless)
Item No.	ZFJ-443S



Hexagon Socket Head Cap Screw M6 x 16
(Hexagon Socket Head Cap Screw M6 x 16 Stainless)

• Tightening Torque: 10.8 N · m

Material/Technical Data


Material : Aluminum Diecast

Bolt: Iron / Stainless

Mass : 32g

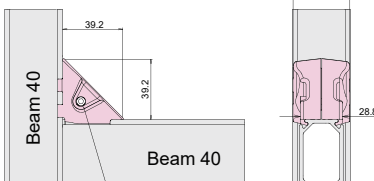
Environment: RoHS10 Compliant

ZF Corner Joint 40 PB



• Used for joining ZF Beam 40 and ZF Pillar 40.

Name	ZF Corner Joint 40 PB (Stainless)
Item No.	ZFJ-446S



Hexagon Socket Head Cap Screw M6 x 20
(Hexagon Socket Head Cap Screw M6 x 20 Stainless)

• Tightening Torque: 10.8 N · m

Material/Technical Data

Material : Aluminum Diecast

Bolt: Iron / Stainless

Mass : 57g

Environment: RoHS10 Compliant

Ordering Method Example

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Order Example

Item No. or Product Name Quantity

ZFJ-440S pcs

■ Regarding the notation of RoHS compliant products

According to the publication of revised RoHS directives, our products are, from July 22, 2019, targeted of 10 substances compared to the 6 substances before revision. Please refer to P.69 for details of RoHS directive.

RoHS10 Compliant

Products confirmed that revised RoHS directives are followed. Can continuously be used as RoHS compliance products after July 22, 2019.

RoHS6 Compliant

Conform to former RoHS directives (restricted 6 substances) only. Or products that are investigated for conformity to revised RoHS directives.

Common Category Page (Major Classification)
Frame Size

Related Item (Reference Page)

80

60

40

Processing List
[→ P.57](#)

Technical Data
[→ P.59](#)

Product Name
(Major Classification)

Picture of Product

• **Name**
Specifiable dimensions and colors are also listed.

• **Item No.**
-
3 digits-3 digits (or 4 digits)
This code indicates each product.

Joint

● Used for joining ZF Pillar 40 and SF frame.

Name	ZF-SF Adapter Pillar 40 (Stainless) Kit
Item No.	ZFK-450
※ZF-SF Adapter Pillar 40 does not have a stainless kit.	

■ **Kit Contents**

- ZF-SF Adapter Pillar 40 x 1
- ZF-SF Adapter Fixed Piece 40 x 1
- Hexagon Socket Head Cap Screw (M6x10) x 1
- TG Joint Kit 4045 x 1

■ **Compatible SF Frame**

SF2-40・40 (1F/2F/3F/2H)
SF-40・40 (1F/2F/3F/2H)
※ Please refer to "SF Aluminum Structural Material Catalog" for SF frame.

■ **Material/Technical Data**

Material : Extruded Aluminum
Bolt: Iron
Mass : 80g
Environment : RoHS10 Compliant

ZF-SF Adapter Beam 40

● Used for joining ZF Beam 40 (long side) and SF frame.

Name	ZF-SF Adapter Beam 40 (Stainless) Kit
Item No.	ZFK-451
※ZF-SF Adapter Beam 40 does not have a stainless kit.	

■ **Kit Contents**

- ZF-SF Adapter Beam 40 x 1
- ZF-SF Adapter Fixed Piece 40 x 1
- Hexagon Socket Head Cap Screw (M6x15) x 1
- TG Joint Kit 4045 x 1

■ **Compatible SF Frame**

SF2-40・40 (1F/2F/3F/2H)
SF-40・40 (1F/2F/3F/2H)
※ Please refer to "SF Aluminum Structural Material Catalog" for SF frame.

■ **Material/Technical Data**

Material : Extruded Aluminum
Bolt: Iron
Mass : 102g
Environment : RoHS10 Compliant

Design Support Service
[→ P.14](#)

Assembled Delivery Service
[→ P.14](#)

Application Seminar
[→ P.15](#)

RoHS
[→ P.69](#)

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Service Guide

■ **Product drawing data**

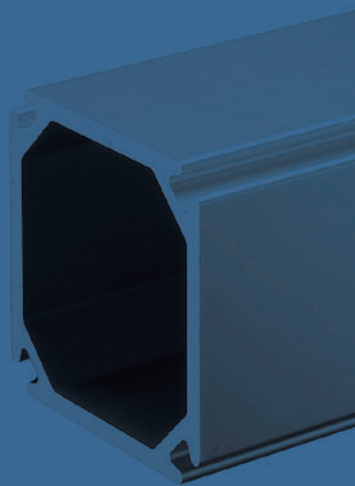
You can download product drawing data from SUS BKK website.

■ **Change of catalog contents**

Contents on this catalog subjected to change without notice due to the product improvement. For the product discontinued on the catalog due to the change, correction, misprinted or stop production, please check on the website.

URL: <http://www.susbkk.co.th/>

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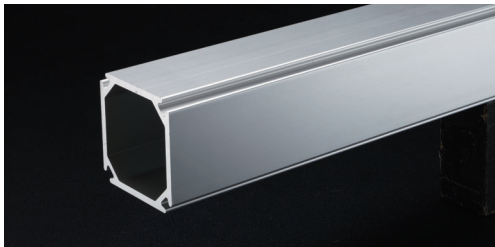


ZERO FRAME

ZF-80

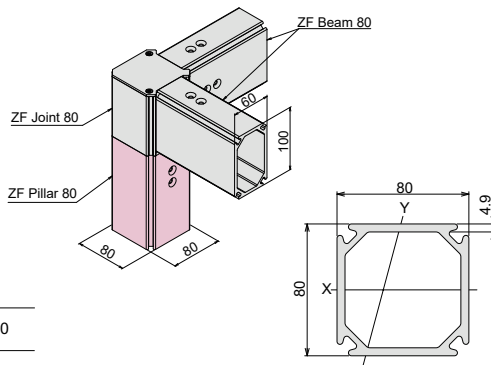
Frame

ZF Pillar 80



- It is a frame used as a pillar for the housing.

Name	ZF Pillar 80 Fixed Length (*Effective length L = 4000mm)	ZF Pillar 80 L=50~4000
Item No.	ZFF-802	ZFF-804



Material/Technical Data

Material: A6N01SS-T5

Alumite Treatment

Environment: RoHS10 Compliant

Resistance Value:

$10^{9-10}\Omega$ (Antistatic Level)

Section Secondary Moment:

$I_x = 130.19 \times 10^4 \text{mm}^4$

$I_y = 130.19 \times 10^4 \text{mm}^4$

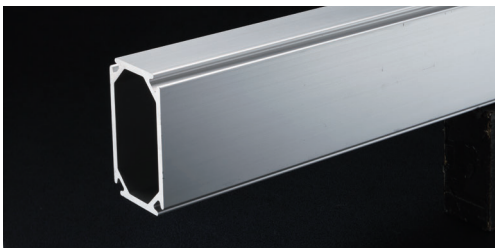
Section Coefficient:

$Z_x = 32.55 \times 10^3 \text{mm}^3$

$Z_y = 32.55 \times 10^3 \text{mm}^3$

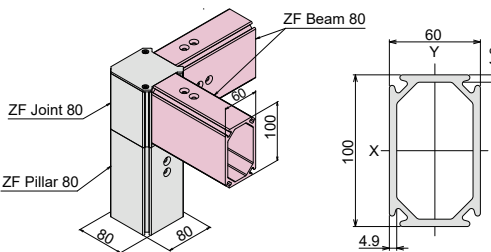
Mass Unit: 4.00kg/m

ZF Beam 80



- It is a frame used as a beam for the housing.

Name	ZF Beam 80 Fixed Length (*Effective length L = 4000mm)	ZF Beam 80 L=50~4000
Item No.	ZFF-812	ZFF-814



Material/Technical Data

Material: A6N01SS-T5

Alumite Treatment

Environment: RoHS10 Compliant

Resistance Value:

$10^{9-10}\Omega$ (Antistatic Level)

Section Secondary Moment:

$I_x = 182.91 \times 10^4 \text{mm}^4$

$I_y = 78.63 \times 10^4 \text{mm}^4$

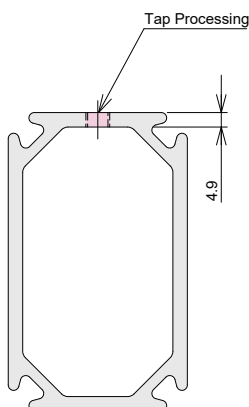
Section Coefficient:

$Z_x = 36.58 \times 10^3 \text{mm}^3$

$Z_y = 26.21 \times 10^3 \text{mm}^3$

Mass Unit: 4.01kg/m

Frame Side Tapping



ZF80 Pillar・Beam Tapable Size (Reference)

Tap Size	Tap Processing
M3	Direct tap
M4	Direct tap
M5	Direct tap
M6	Direct tap
M8	Use of Helisert 1D
M10 or more	Unavailable

※Refer the ZF processing list (P57~) for frame processing.

ZF 80

Frame

Joint

Foot

ZF 60

Frame

Joint

Foot

ZF 40

Frame

Joint

Accessory

Foot

ZF Common Parts

Door parts

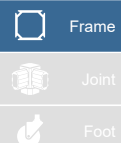
Base Frame

ZF Processing

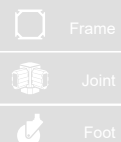
ZF Technical Data

Frame

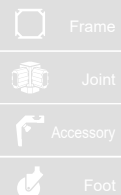
ZF 80



ZF 60



ZF 40



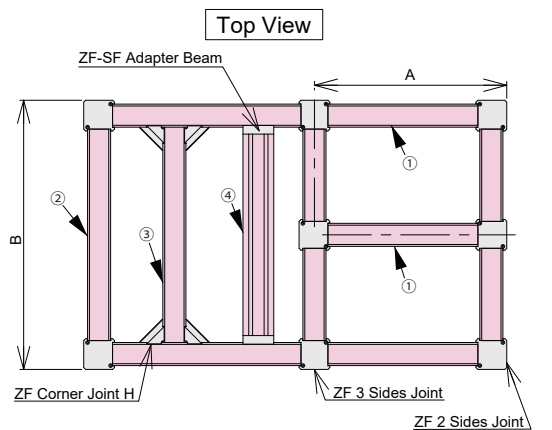
ZF Common Parts



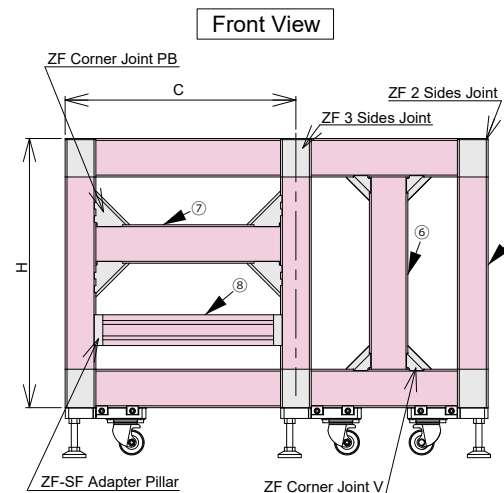
ZF Processing

ZF Technical Data

Frame Dimension Guide

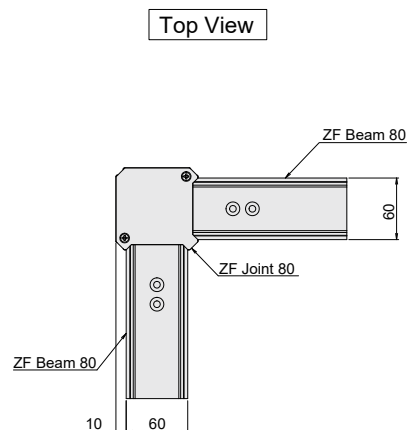


Frame Type	Frame Length
1 ZF Beam	A-110
2 ZF Beam	B-150
3 ZF Beam	B-140
4 SF Frame	B-176

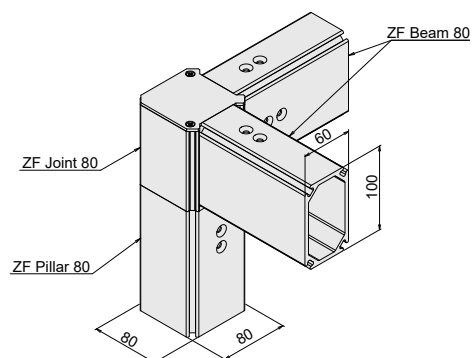


Frame Type	Frame Length
5 ZF Pillar	H-200
6 ZF Beam	H-200
7 ZF Beam	C-120
8 SF Frame	C-156

ZF Joint Mounting Method



Because the shape of Pillar and Beam are different, there is a step between the Pillar (Joint) and the Beam.



※ It is necessary to make countersink on the frame for joint mounting. Please refer ZF processing list. (P57~).

Joint

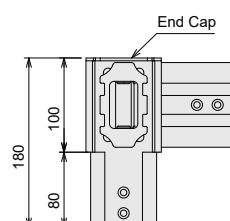
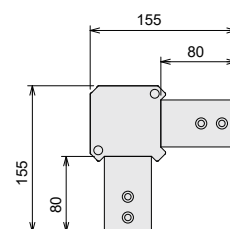
Common
Specification Environment : RoHS10 Compliant

ZF 2 Sides Joint 80 U ①



※The images show typical items of this series.

Name	ZF 2 Sides Joint 80 U (Stainless) Kit
Item No.	ZFK-870S
Kit contents	<ul style="list-style-type: none"> ● Joint x 1 ● Hexagon Socket Head Cap Screw M8 x 15 Stainless 12 pcs
Material/ Technical Data	Material: Extruded Aluminum (Body) Stainless (Bolt) Aluminum (Cap) Mass: 2.30 Kg



ZF 80

Frame

Joint

Foot

ZF 60

Frame

Joint

Foot

ZF 40

Frame

Joint

Accessory

Foot

ZF Common Parts

Door parts

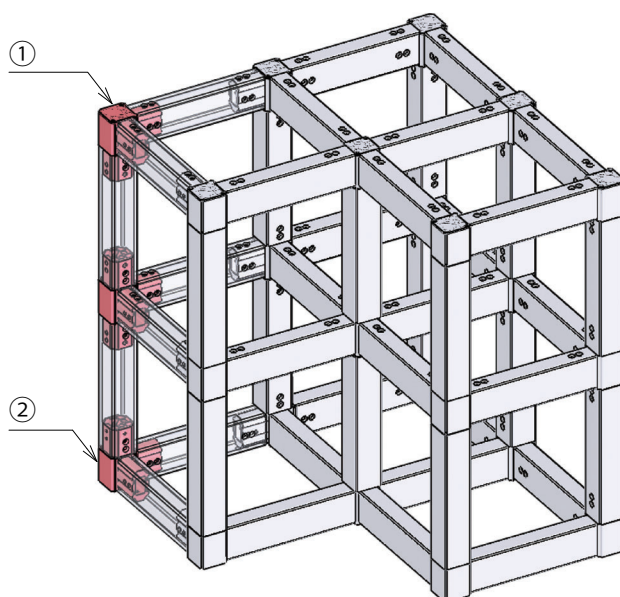
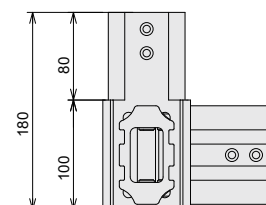
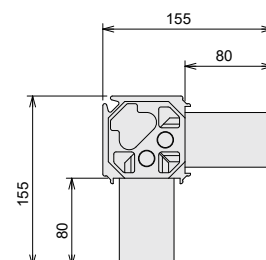
Base
Frame ZF
ProcessingZF
Technical Data

ZF 2 Sides Joint 80 L ②



※The images show typical items of this series.

Name	ZF 2 Sides Joint 80 L (Stainless) Kit
Item No.	ZFK-872S
Kit contents	<ul style="list-style-type: none"> ● Joint x 1 ● Hexagon Socket Head Cap Screw M8 x 15 Stainless 12 pcs
Material/ Technical Data	Material: Extruded Aluminum (Body) Stainless (Bolt) Aluminum (Cap) Mass: 2.28 Kg



Joint

ZF
80

Frame

Joint

Foot

ZF
60

Frame

Joint

Foot

ZF
40

Frame

Joint

Accessory

Foot

ZF
Common
Parts

Door parts

Base
Frame

ZF
Processing

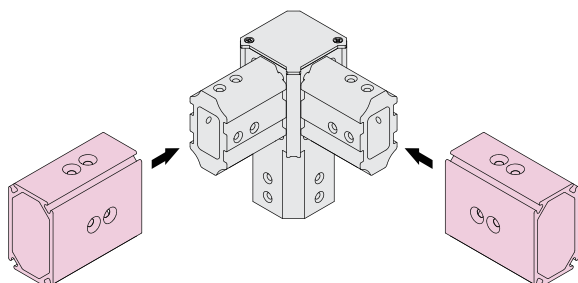
ZF
Technical Data

Joint Assembly Method

Insert the joint into ZF frame with countersink processing, then mounting by flat head screw.

The joint is tapped on multiple sides, but only two sides are used for fastening.

Tightening Torque : 10.8 N • m



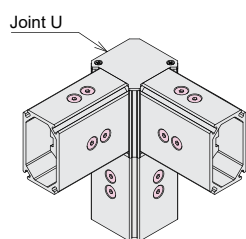
※ For the bolt fastening position of joint each type, please see the below diagram.

It is a recommended position for achieving surface accuracy.

※ We recommended the bolt fastening by the order from top to bottom, and then side surface.

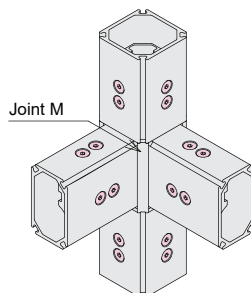
The Side for Fastening

【Joint U for Top of Stand】



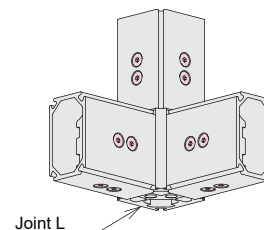
Screw fastening position:
upper side, inside of stand

【Joint M for Middle of Stand】



Screw fastening position:
upper side, inside of stand

【Joint L for Bottom of Stand】



Screw fastening position:
upper side, inside of stand

Step for Stand Structural Assembly

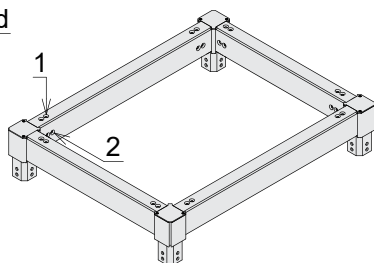
① Assemble the top and bottom of stand structural separately.

※ Tighten the bolt by step 1. Top and bottom 2. Inside of structural.

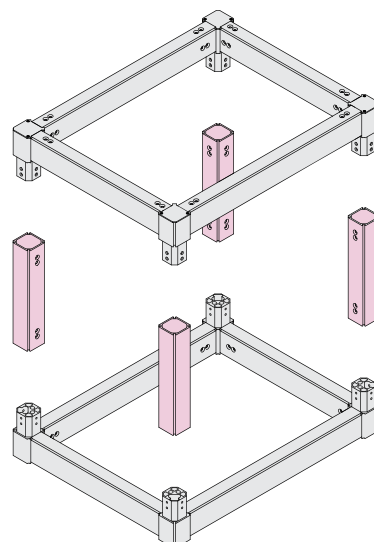
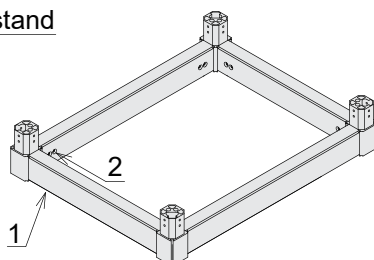
② Insert the ZF pillar with countersink into the joint to assemble the top and bottom structural, and then tightening the countersink bolt.

※ Recommended bolt position: Inside of structural

Top of stand



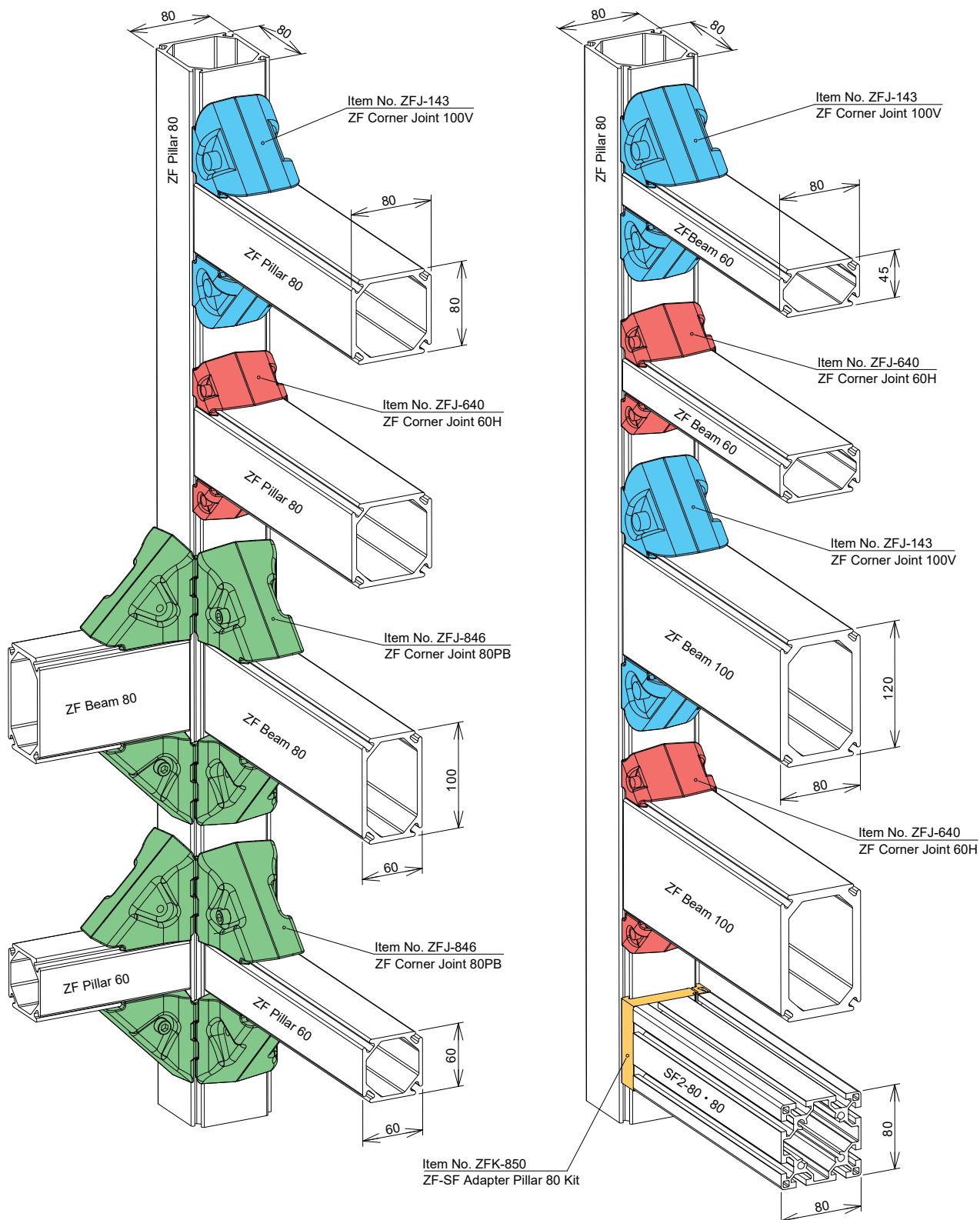
Bottom of stand



Joint

ZF Corner Joint / ZF-SF Adapter Mounting Pattern

ZF Pillar 80

ZF
80

Frame

Joint

Foot

ZF
60

Frame

Joint

Foot

ZF
40

Frame

Joint

Accessory

Foot

ZF
Common
Parts

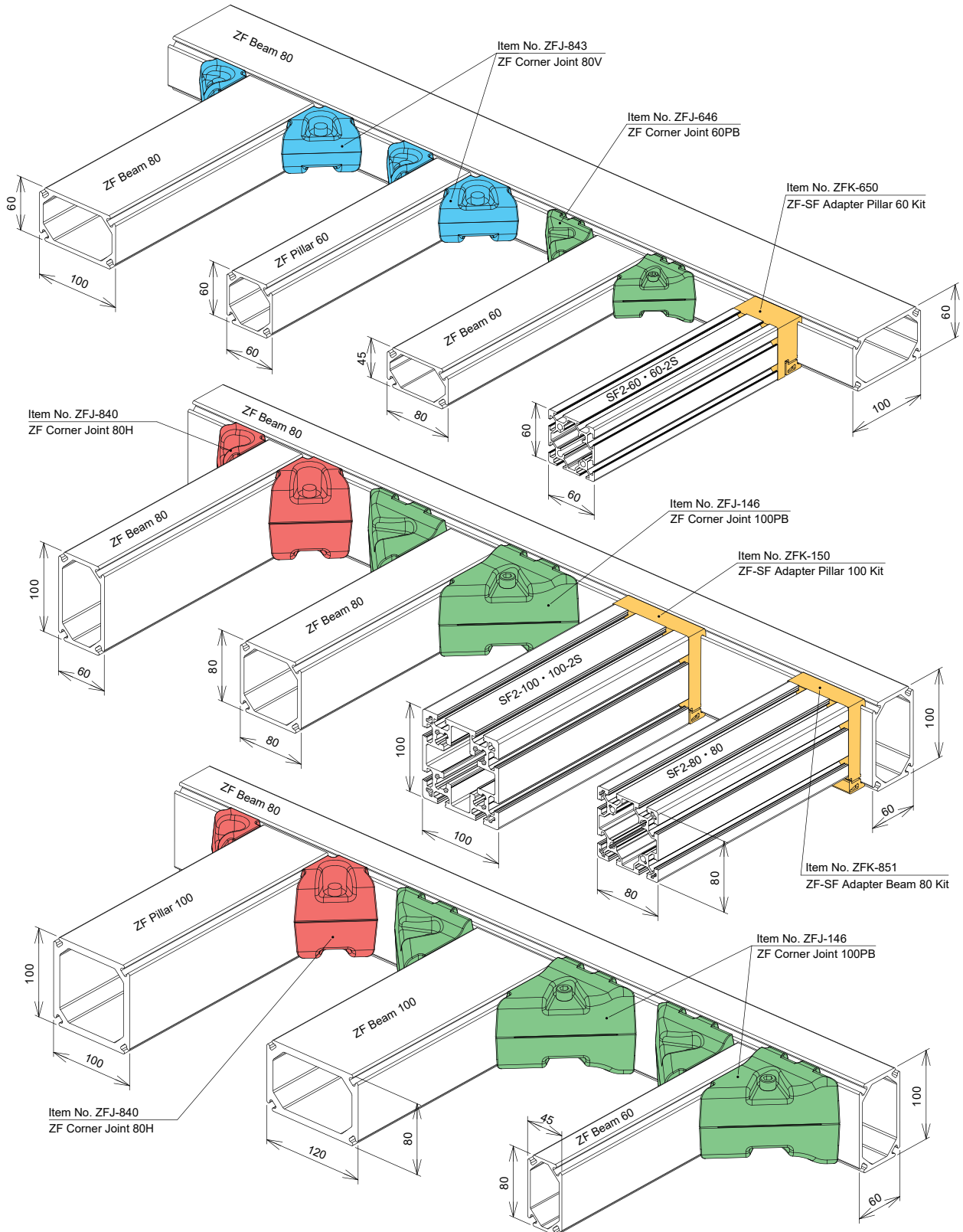
Door parts

Base
Frame ZF
ProcessingZF
Technical Data

Joint

ZF Corner Joint / ZF-SF Adapter Mounting Pattern

ZF Beam 80





Processing
List
→ P.57



Technical
Data
→ P.59

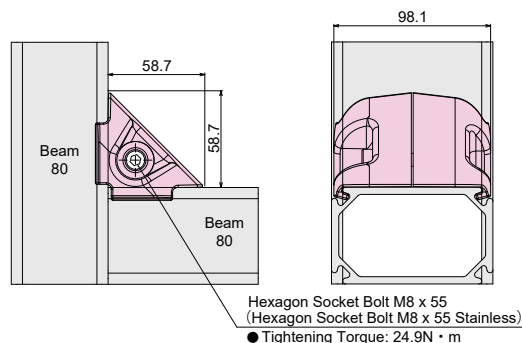
Joint

ZF Corner Joint 80H



- Use for joining with frames width 100 mm.

Name	ZF Corner Joint 80H (Stainless)
Item No.	ZFJ-840S



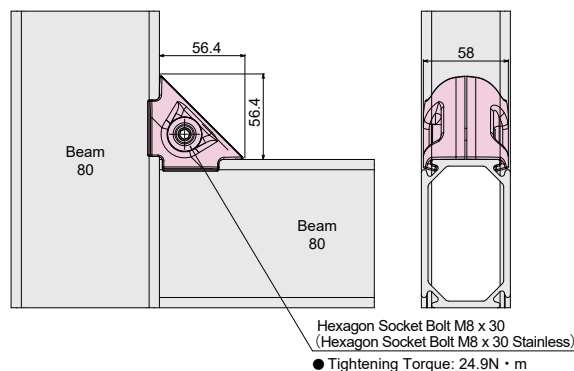
■ **Material/Technical Data**
Material : Aluminum Diecast
 Bolt: Iron/Stainless
Mass : 271g
Environment: RoHS10 Compliant

ZF Corner Joint 80V



- Use for joining with frames width 60 mm.

Name	ZF Corner Joint 80V (Stainless)
Item No.	ZFJ-843S



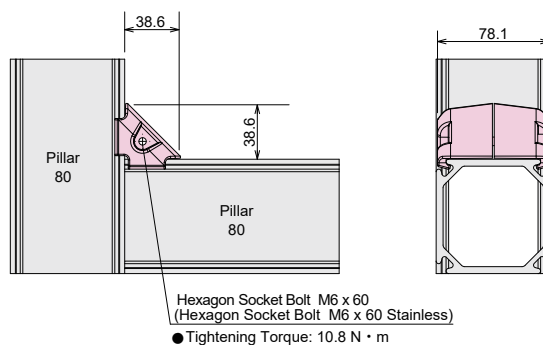
■ **Material/Technical Data**
Material : Aluminum Diecast
 Bolt: Iron/Stainless
Mass : 180g
Environment: RoHS10 Compliant

ZF Corner Joint 60 H



- Use for joining with frames width 80 mm.

Name	ZF Corner Joint 60 H (Stainless)
Item No.	ZFJ-640S



■ **Material/Technical Data**
Material : Aluminum Diecast
 Bolt: Iron/Stainless
Mass : 110g
Environment: RoHS10 Compliant

ZF 80

Frame

Joint

Foot

ZF 60

Frame

Joint

Foot

ZF 40

Frame

Joint

Accessory

Foot

ZF Common Parts

Door parts

Base Frame

ZF Processing

ZF Technical Data



Design Support Service
→ P.14



Assembled Delivery Service
→ P.14



Application Seminar
→ P.15



RoHS
→ P.69

Joint

ZF
80

Frame

Joint

Foot

ZF
60

Frame

Joint

Foot

ZF
40

Frame

Joint

Accessory

Foot

ZF
Common
Parts

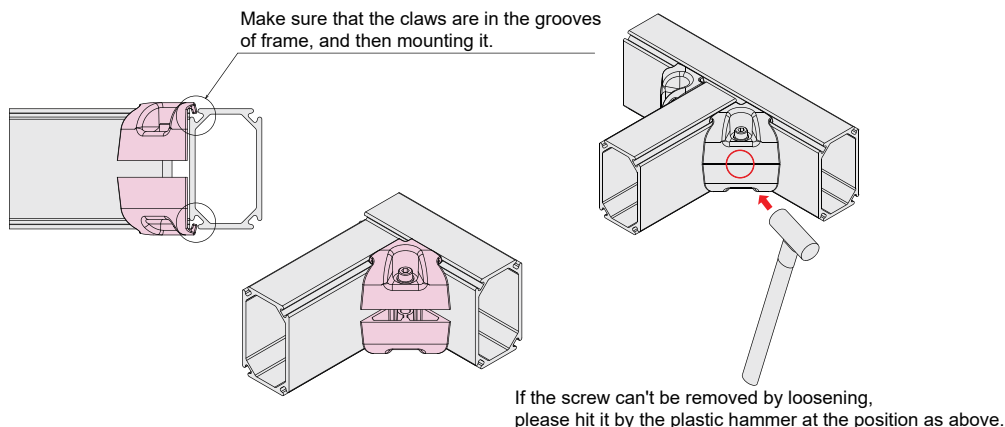
Door parts

Base
Frame

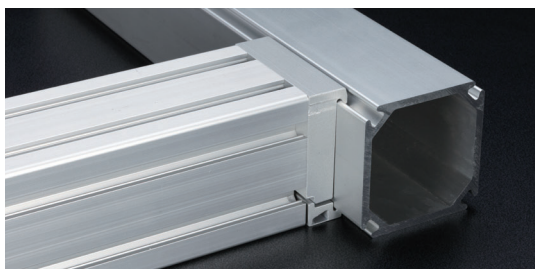
ZF
Processing

ZF
Technical Data

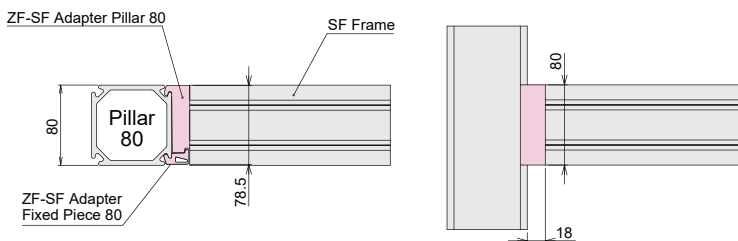
ZF Corner Joint Mounting Method



ZF-SF Adapter Pillar 80



● Used for joining ZF Pillar 80 and SF Frame.



Kit Contents

- ZF-SF Adapter Pillar 80 x 1
- ZF-SF Adapter Fixed Piece 80 x 1
- Hexagon Socket Head Cap Screw (M8 x 18) x 4 (M8 x 12) x 2
- The (Stainless) kit has stainless bolts

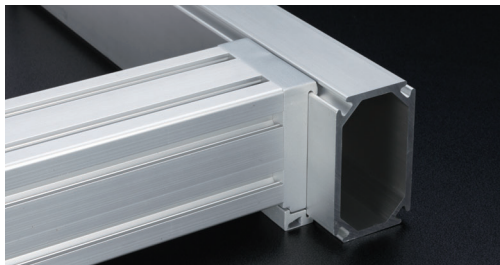
Compatible SF Frame

SF2-80 • 80 (1F/2F)
SF-80 • 80 (1F/2F/H)
※ Please refer to "SF Aluminum Structural Material Catalog" for SF frame.

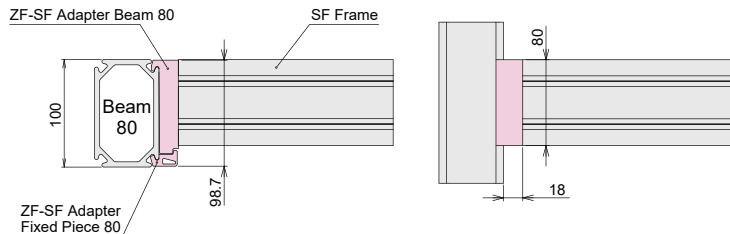
Material/Technical Data

Material: Extruded Aluminum
Bolt: Iron/Stainless
Mass: 349g
Environment: RoHS10 Compliant

ZF-SF Adapter Beam 80



● Used for joining ZF Beam 80 (long end) and SF Frame.



Kit Contents

- ZF-SF Adapter Beam 80 x 1
- ZF-SF Adapter Fixed Piece 80 x 1
- Hexagon Socket Head Cap Screw (M8 x 18) x 4 (M8 x 12) x 2
- The (Stainless) kit has stainless bolts

Compatible SF Frame

SF2-80 • 80 (1F/2F)
SF-80 • 80 (1F/2F/H)
※ Please refer to "SF Aluminum Structural Material Catalog" for SF frame.

Material/Technical Data

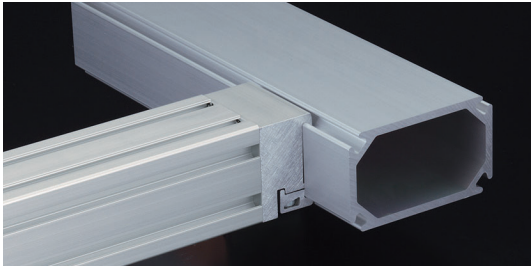
Material: Extruded Aluminum
Bolt: Iron/Stainless
Mass: 425g
Environment: RoHS10 Compliant

Name	ZF-SF Adapter Pillar 80
Item No.	ZFK-850S

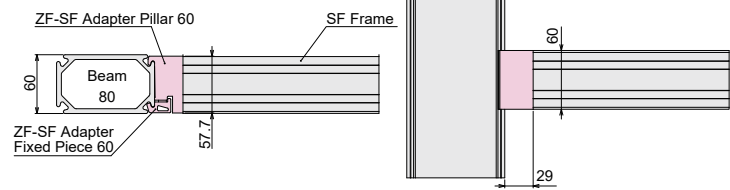
Name	ZF-SF Adapter Beam 80
Item No.	ZFK-851S

Joint

ZF-SF Adapter Pillar 60



- Used for joining ZF Beam 80 (short end) and SF Frame.


**ZF
80**

Frame

Joint

Foot

**ZF
60**

Frame

Joint

Foot

**ZF
40**

Frame

Joint

Accessory

Foot

**ZF
Common
Parts**

Door parts

Base
Frame ZF
ProcessingZF
Technical Data

Name	ZF-SF Adapter Pillar 60
Item No.	ZFK-650S

■ Kit Contents

- ZF-SF Adapter Pillar 60 x 1
- ZF-SF Adapter Fixed Piece 60 x 1
- Hexagon Socket Head Cap Screw (M8 x 20) x 4
(M8 x 18) x 2
- The (Stainless) kit has stainless bolts

■ Compatible SF Frame

SF2-60 • 60 • 2S (1F/2F)
SF-60 • 60 • 2S (1F/2F/H)

※ Please refer to "SF Aluminum Structural
Material Catalog" for SF frame.

■ Material/Technical Data

Material: Extruded Aluminum

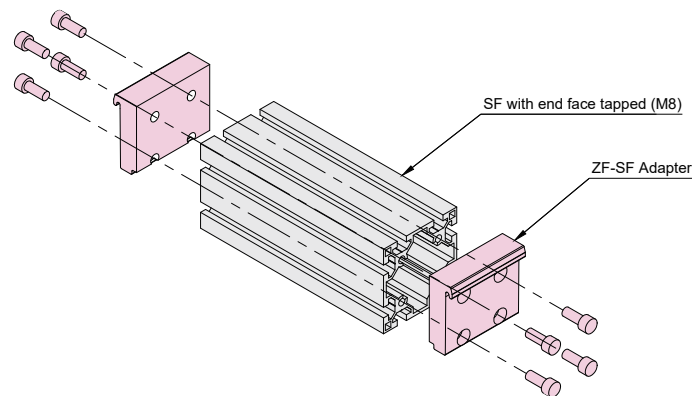
Bolt: Iron/Stainless

Mass: 298g

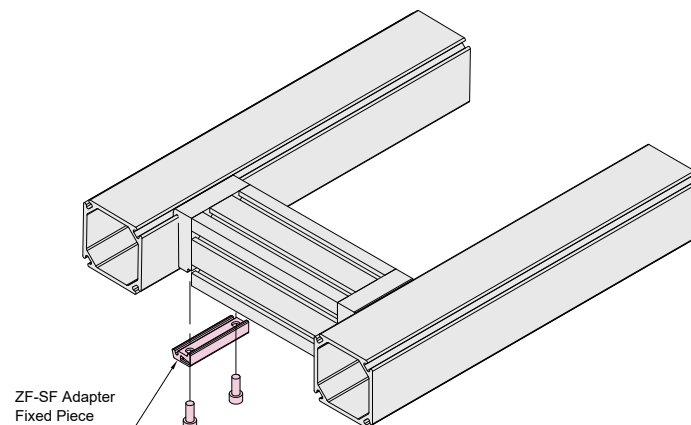
Environment: RoHS10 Compliant

ZF-SF Adapter Mounting Method

- ① Attach ZF-SF adapter to the SF with end face tapped



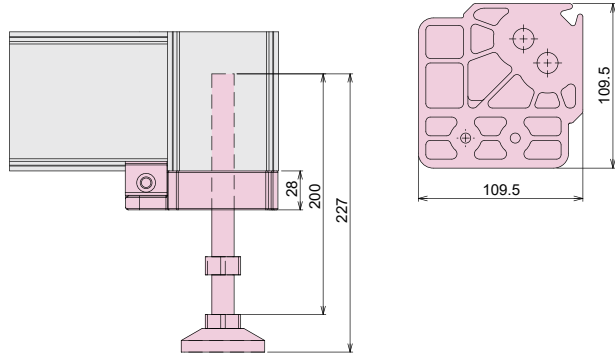
- ② Hook the SF which attached ZF-SF adapter to ZF frame, then attach with ZF-SF Adapter Fixed Piece.



Foot

ZF 80

ZF Adjuster 80



※ R and L are different (R in the figure)

Name	ZF Adjuster 80 Kit R (L)
Item No.	ZFK-860R (ZFK-860L)

Kit contents

- ZF Adjuster Plate x 1
- Fixed Piece x 4
- Hexagon Socket Head Bolt (M9x20) x 4
- Adjuster (M16 x 200) x 1

Material/Technical Data

Material : Aluminum Diecast

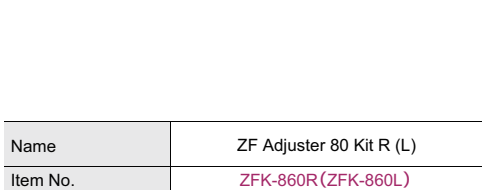
Bolt • Adjuster : Iron

Mass : 1.1kg

Load Capacity : 40,000N/4 pcs

Environment: RoHS10 Compliant

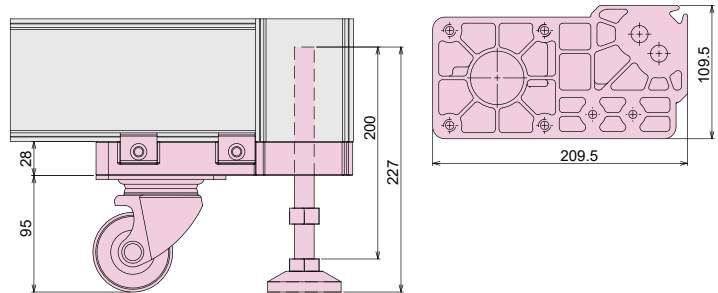
ZF 60



ZF 40



ZF Adjuster Caster



※ R and L are different (R in the figure)

Name	ZF Adjuster Caster 80 Kit R (L)
Item No.	ZFK-861R (ZFK-861L)

Kit contents

- ZF Adjuster Caster Plate x 1
- Fixed Piece x 6
- Hexagon Socket Head Bolt (M8x20) x 6
- Adjuster (M16 x 200) x 1
- Caster
- Hexagon Socket Head Bolt (M10 x 20) x 4

Material/Technical Data

Material : Aluminum Diecast

Adjusters • Casters • Bolts : Iron

Mass : 2.9kg

Load Capacity : 19,200N/4 pcs

Environment: RoHS10 Compliant

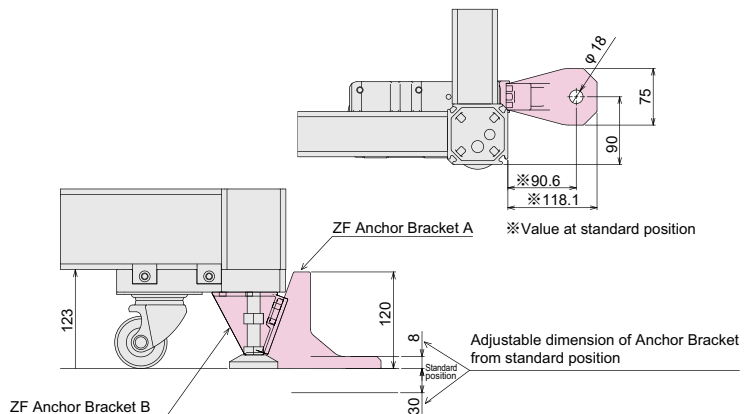
ZF Common Parts



ZF Processing

Name	ZF Anchor Bracket Kit
Item No.	ZFK-003

ZF Anchor Bracket



ZF Anchor Bracket B

Kit contents

- ZF Anchor Bracket A x 1
- ZF Anchor Bracket B x 1
- Hexagon Socket Head Bolt (M8 x 15) x 2
- Hexagon Socket Head Bolt (M8 x 30) x 2
- Flat Washer (M8) x2 (For long hole)

Material/Technical Data

Material : SCS13

Bolt • Washer: Iron

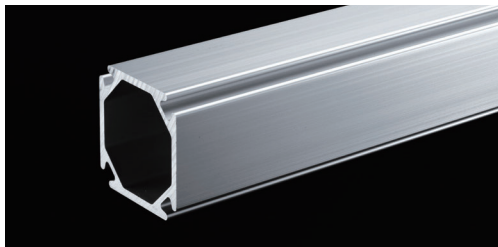
Mass : 1.54kg

Environment: RoHS10 Compliant

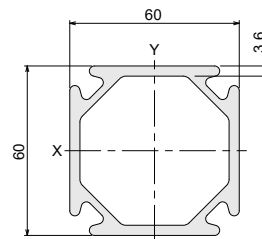
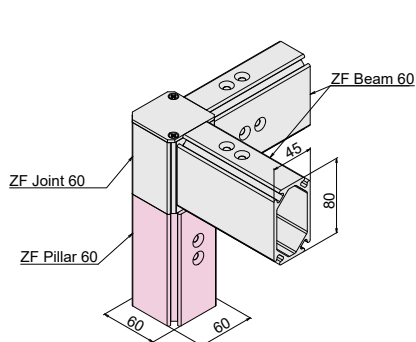
ZERO FRAME
ZF-60

Frame

ZF Pillar 60



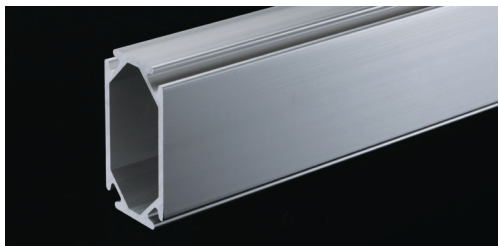
- It is a frame used as a pillar for the housing.



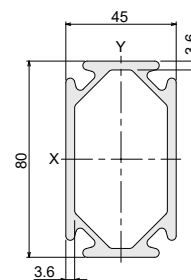
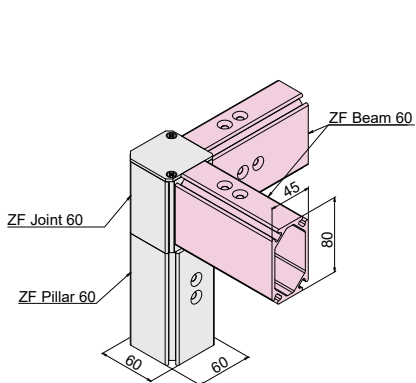
Name	ZF Pillar 60 Fixed Length (※Effective length L = 4000mm)	ZF Pillar 60 L=50~4000
Item No.	ZFF-602	ZFF-604

Material/Technical Data
Material : A6N01SS-T5
 Alumite Treatment
Environment: RoHS10 Compliant
Resistance Value:
 $10^{9-10}Q$ (Antistatic Level)
Section Secondary Momentum:
 $I_x = 42.09 \times 10^4 \text{mm}^4$
 $I_y = 42.09 \times 10^4 \text{mm}^4$
Section Coefficient:
 $Z_x = 14.03 \times 10^3 \text{mm}^3$
 $Z_y = 14.03 \times 10^3 \text{mm}^3$
Mass Unit: 2.43kg/m

ZF Beam 60



- It is a frame used as a beam for the housing.

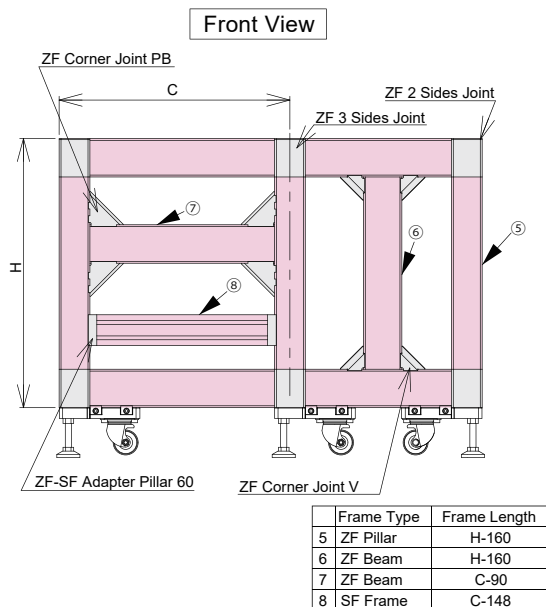
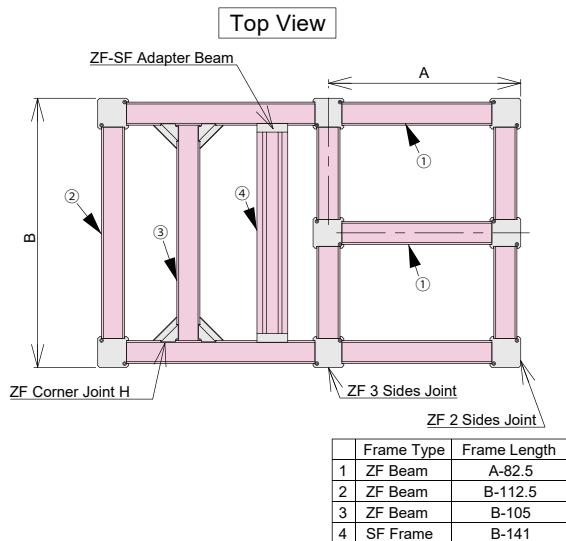


Name	ZF Beam 60 Fixed Length (※Effective length L = 4000mm)	ZF Beam 60 L=50~4000
Item No.	ZFF-612	ZFF-614

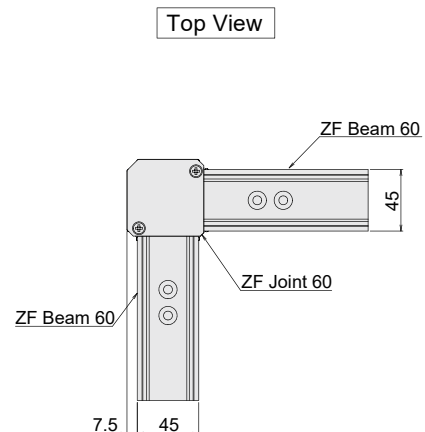
Material/Technical Data
Material : A6N01SS-T5
 Alumite Treatment
Environment: RoHS10 Compliant
Resistance Value:
 $10^{9-10}Q$ (Antistatic Level)
Section Secondary Momentum:
 $I_x = 71.57 \times 10^4 \text{mm}^4$
 $I_y = 26.26 \times 10^4 \text{mm}^4$
Section Coefficient:
 $Z_x = 17.89 \times 10^3 \text{mm}^3$
 $Z_y = 11.67 \times 10^3 \text{mm}^3$
Mass Unit: 2.53kg/m

Frame

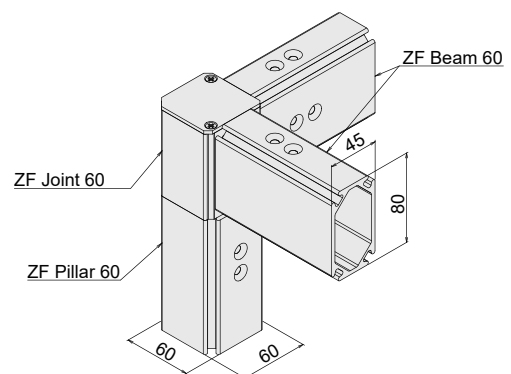
Frame Dimension Guide



ZF Joint Mounting Method

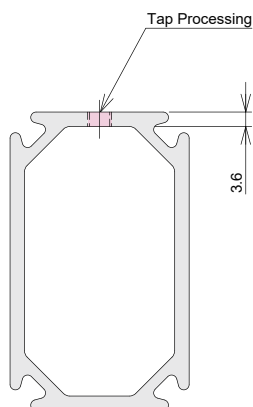


Because the shape of Pillar and Beam are different, there is a step between the Pillar (Joint) and the Beam.



※ It is necessary to make countersink on the frame for joint mounting. Please refer ZF processing list. (P57~).

Frame Side Tapping



ZF60 Pillar・Beam Tapable Size (Reference)

Tap Size	Tap Processing
M3	Direct tap
M4	Direct tap
M5	Use of Helisert 1D
M6	Use of Helisert 1D
M8 or more	Unavailable

※ Refer the ZF processing list (P57~) for frame processing.

ZF
80

Frame

Joint

Foot

ZF
60

Frame

Joint

Foot

ZF
40

Frame

Joint

Accessory

Foot

ZF
Common
Parts

Door parts

Base
Frame

ZF
Processing

ZF
Technical Data

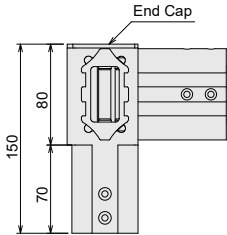
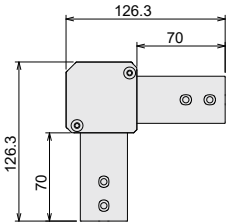
Joint

Common Specification Environment : RoHS10 Compliant

ZF 2 Sides Joint 60 U ①

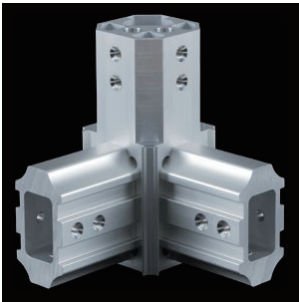


Name	ZF 2 Sides Joint 60 U (Stainless) Kit
Item No.	ZFK-670S
Kit contents	<ul style="list-style-type: none"> ● Joint x 1 ● Hexagon Socket Head Cap Screw M6 x 12 Stainless 12 pcs
Material/ Technical Data	Material: Extruded Aluminum (Body) Stainless (Bolt) Aluminum (Cap) Mass: 1.01 Kg

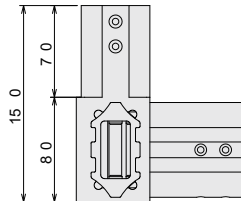
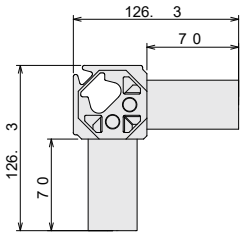


※The images show typical items of this series.

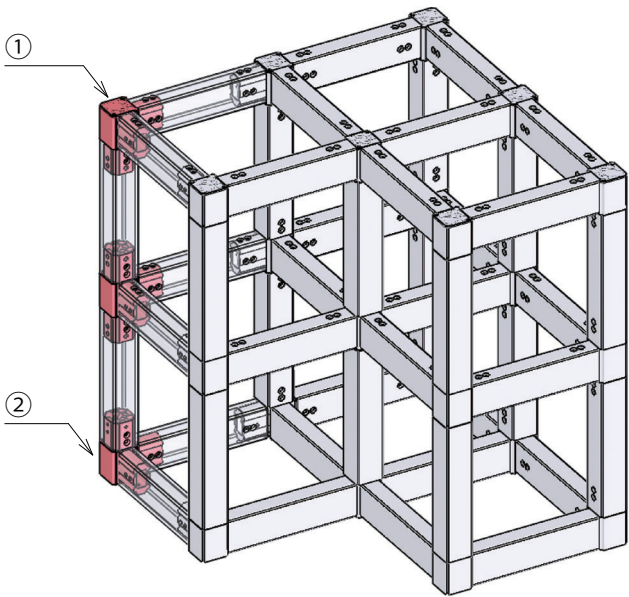
ZF 2 Sides Joint 60 L ②



Name	ZF 2 Sides Joint 60 L (Stainless) Kit
Item No.	ZFK-672S
Kit contents	<ul style="list-style-type: none"> ● Joint x 1 ● Hexagon Socket Head Cap Screw M6 x 12 Stainless 12 pcs
Material/ Technical Data	Material: Extruded Aluminum (Body) Stainless (Bolt) Mass: 1.00 Kg



※The images show typical items of this series.



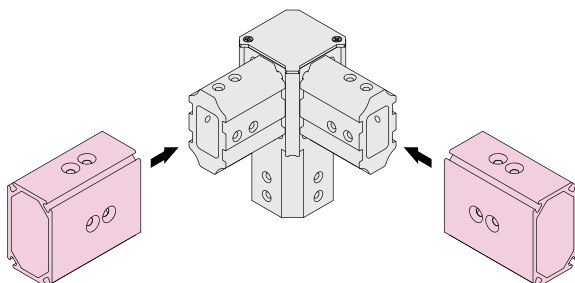
Joint

Joint Assembly Method

Insert the joint into ZF frame with countersink processing,
then mounting by flat head screw.

The joint is tapped on multiple sides, but only two sides are used for fastening.

Tightening Torque : 7.4 N • m



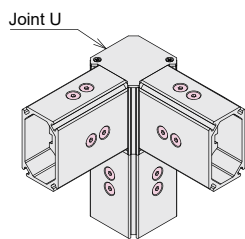
※ For the bolt fastening position of joint each type, please see the below diagram.

It is a recommended position for achieving surface accuracy.

※ We recommended the bolt fastening by the order from top to bottom, and then side surface.

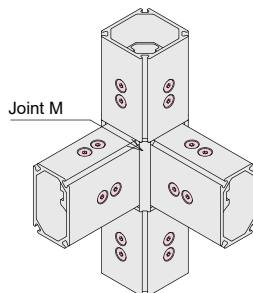
The Side for Fastening

【Joint U for Top of Stand】



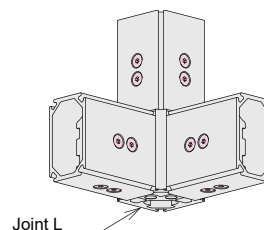
Screw fastening position:
upper side, inside of stand

【Joint M for Middle of Stand】



Screw fastening position:
upper side, inside of stand

【Joint L for Bottom of Stand】



Screw fastening position:
upper side, inside of stand

Step for Stand Structural Assembly

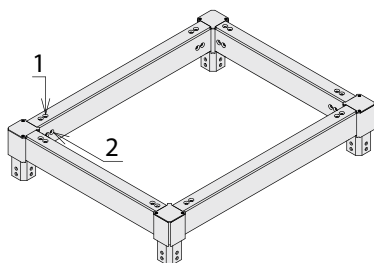
① Assemble the top and bottom of stand structural separately.

※ Tighten the bolt by step 1. Top and bottom 2. Inside of structural.

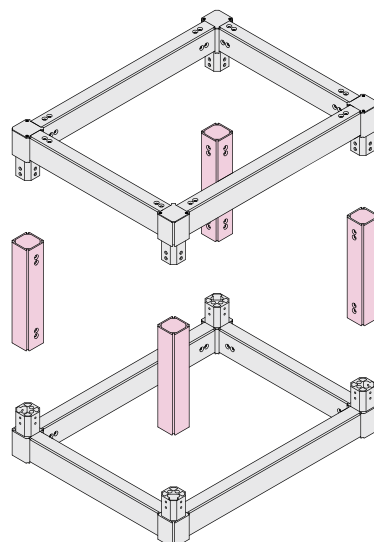
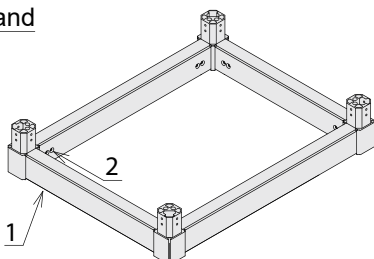
② Insert the ZF pillar with countersink into the joint to assemble the top and bottom structural, and then tightening the countersink bolt.

※ Recommended bolt position: Inside of structural

Top of stand



Bottom of stand



ZF Pillar

ZF
80

Frame

Joint

Foot

ZF
60

Frame

Joint

Foot

ZF
40

Frame

Joint

Accessory

Foot

ZF
Common
Parts

Door parts

Base
Frame

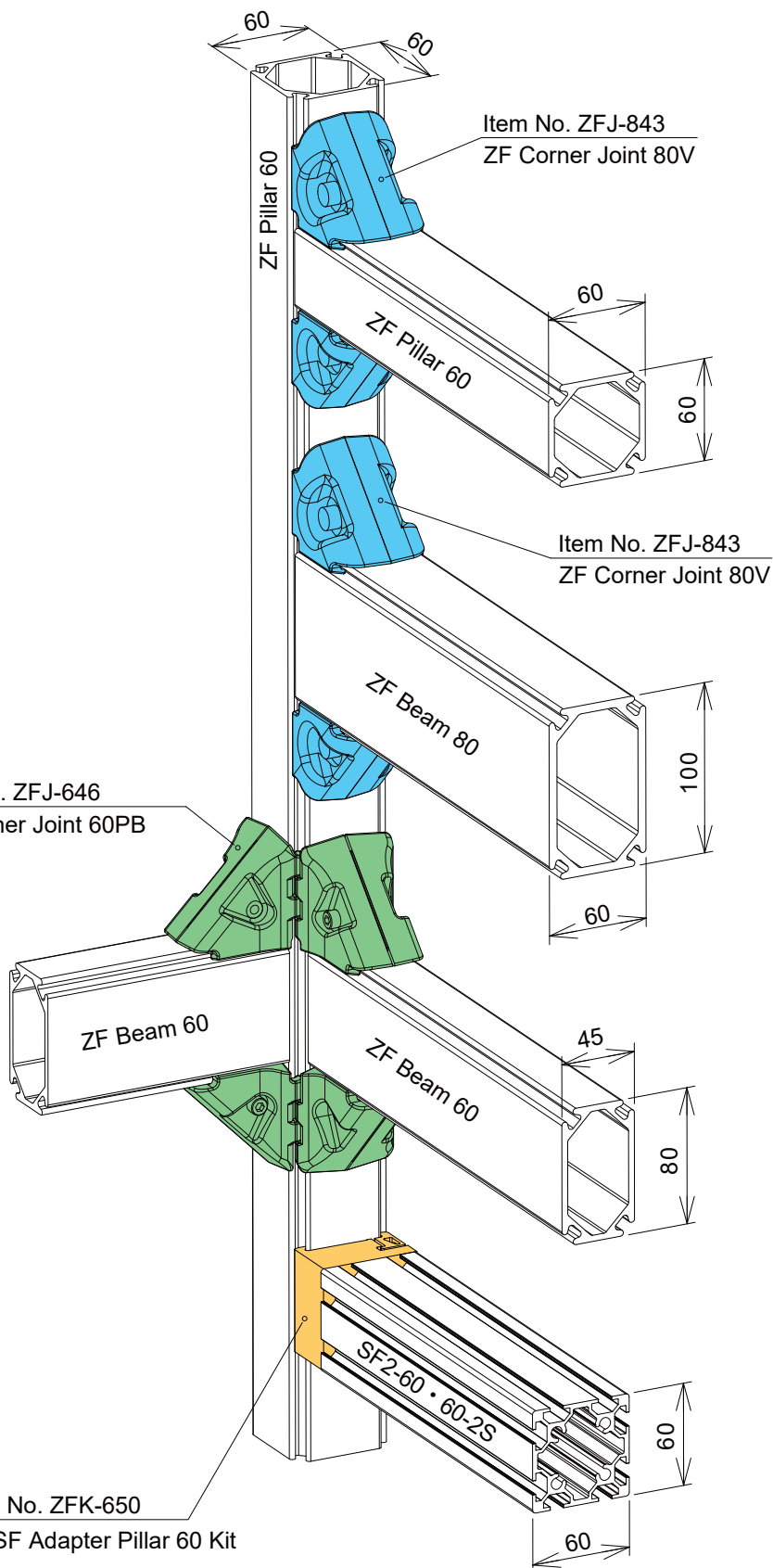
ZF
Processing

ZF
Technical Data

Joint

ZF Corner Joint / ZF-SF Adapter Mounting Pattern

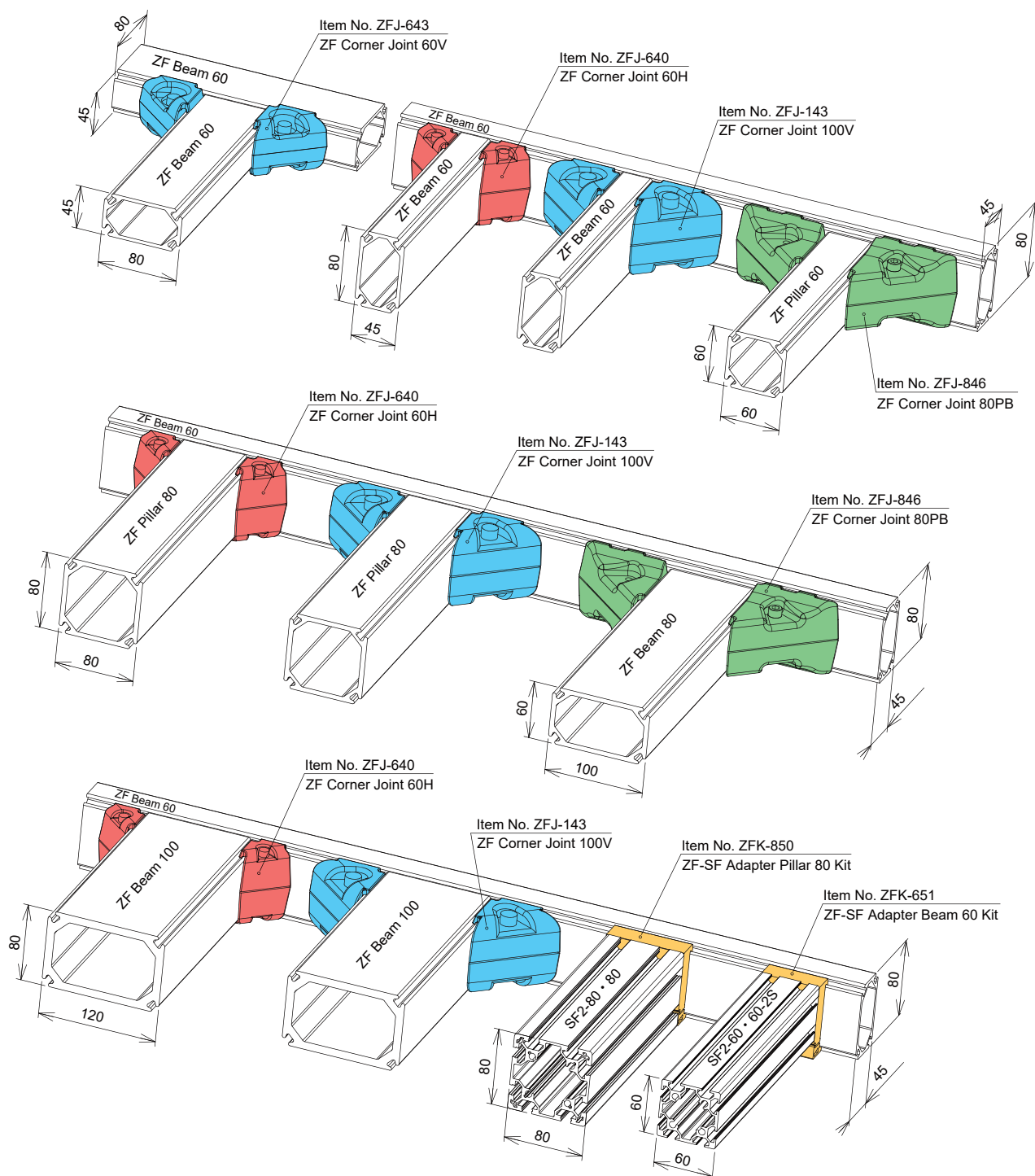
ZF Pillar 60



Joint

ZF Corner Joint / ZF-SF Adapter Mounting Pattern

ZF Beam 60

ZF
80

Frame

Joint

Foot

ZF
60

Frame

Joint

Foot

ZF
40

Frame

Joint

Accessory

Foot

ZF
Common
Parts

Door parts

Base
Frame ZF
ProcessingZF
Technical Data

Joint

ZF
80

Frame

Joint

Foot

ZF
60

Frame

Joint

Foot

ZF
40

Frame

Joint

Accessory

Foot

ZF
Common
Parts

Door parts

Base
Frame

ZF
Processing

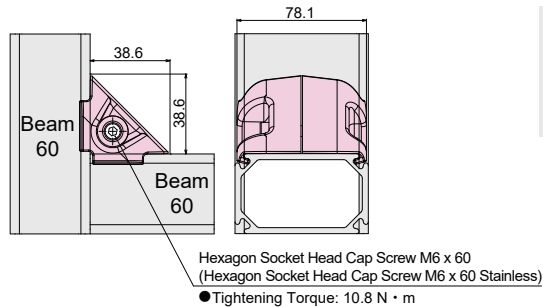
ZF
Technical Data

ZF Corner Joint 60 H



● Use for joining with frames width 80 mm.

Name	ZF Corner Joint 60 H (Stainless)
Item No.	ZFJ-640S



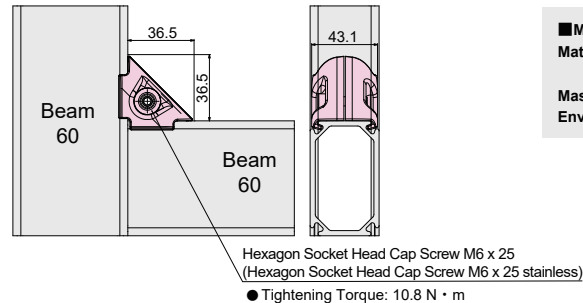
■ **Material/Technical Data**
Material : Aluminum Diecast
Bolt : Iron/Stainless
Mass : 110g
Environment : RoHS10 Compliant

ZF Corner Joint 60 V



● Use for joining with frames width 45 mm.

Name	ZF Corner Joint 60 V (Stainless)
Item No.	ZFJ-643S



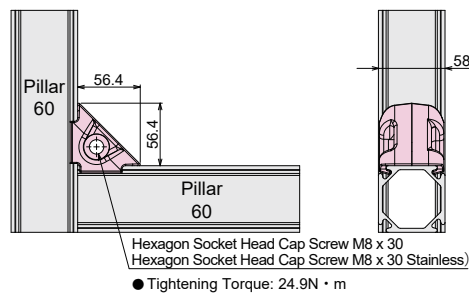
■ **Material/Technical Data**
Material : Aluminum Diecast
Bolt : Iron/Stainless
Mass : 72g
Environment : RoHS10 Compliant

ZF Corner Joint 80V



● Use for joining with frames width 60 mm.

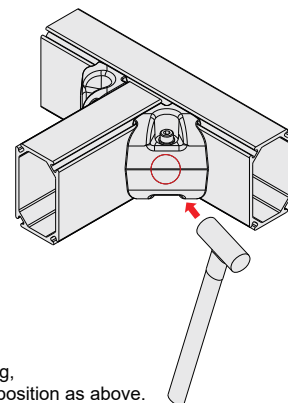
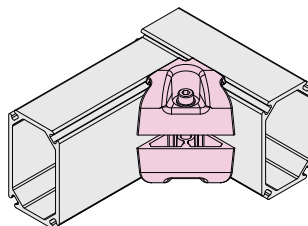
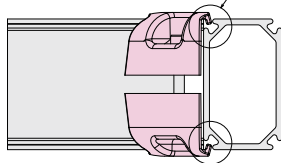
Name	ZF Corner Joint 80V (Stainless)
Item No.	ZFJ-843S



■ **Material/Technical Data**
Material : Aluminum Diecast
Bolt : Iron/Stainless
Mass : 180g
Environment : RoHS10 Compliant

ZF Corner Joint Mounting Method

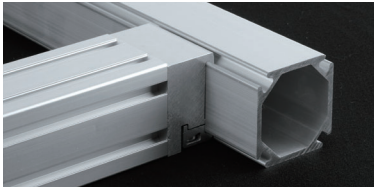
Make sure that the claws are in the grooves of frame, and then mounting it.



If the screw can't be removed by loosening, please hit it by the plastic hammer at the position as above.

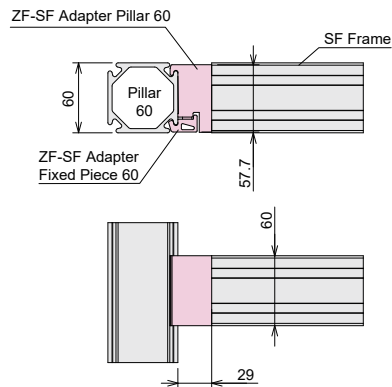
Joint

ZF-SF Adapter Pillar 60



- Used for joining ZF Beam 80 (short end) and SF frame.

Name	ZF-SF Adapter Pillar 60 (Stainless) Kit
Item No.	ZFK-650S



Material/Technical Data

Material: Extruded Aluminum
Bolt: Iron/Stainless
Mass: 302g
Environment: RoHS10 Compliant

Kit Contents

- ZF-SF Adapter Pillar 60 x 1
- ZF-SF Adapter Fixed Piece 60 x 1
- Hexagon Socket Head Cap Screw (M8 x 20) x 4 (M8 x 18) x 2
- The (Stainless) kit has stainless bolts

Compatible SF Frame

SF2-60 · 60 · 2S (1F/2F)
 SF-60 · 60 · 2S (1F/2F/H)
 ※ Please refer to "SF Aluminum Structural Material Catalog" for SF frame.

ZF 80

Frame

Joint

Foot

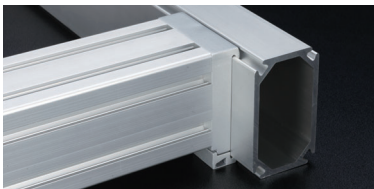
ZF 60

Frame

Joint

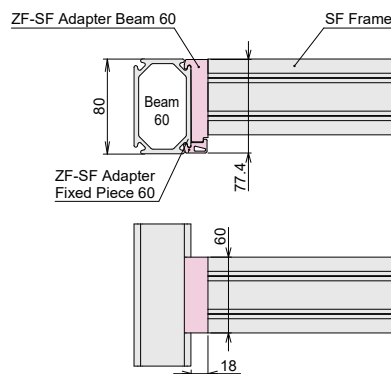
Foot

ZF-SF Adapter Beam 60



- Used for joining ZF Beam 60 (long end) and SF Frame.

Name	ZF-SF Adapter Beam 60 (Stainless) Kit
Item No.	ZFK-651S



Material/Technical Data

Material: Extruded Aluminum
Bolt: Iron/Stainless
Mass: 262g
Environment: RoHS10 Compliant

Kit Contents

- ZF-SF Adapter Pillar 60 x 1
- ZF-SF Adapter Fixed Piece 60 x 1
- Hexagon Socket Head Cap Screw (M8x20) x 4 (M8x12) x 2
- The (Stainless) kit has stainless bolts

Compatible SF Frame

SF2-60 · 60 · 2S (1F/2F)
 SF-60 · 60 · 2S (1F/2F/H)
 ※ Please refer to "SF Aluminum Structural Material Catalog" for SF frame.

ZF 40

Frame

Joint

Accessory

Foot

ZF Common Parts

Door parts

Base Frame

ZF Processing

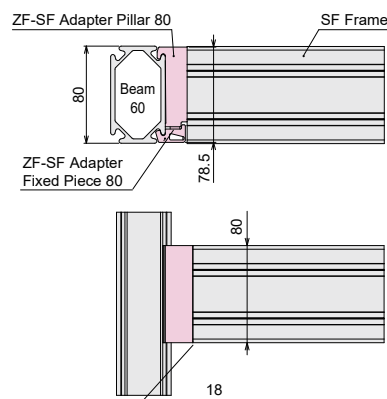
ZF Technical Data

ZF-SF Adapter Pillar 80



- Used for joining ZF Pillar 80 and SF frame.

Name	ZF-SF Adapter Pillar 80 (Stainless) Kit
Item No.	ZFK-850S



Material/Technical Data

Material: Extruded Aluminum
Bolt: Iron/Stainless
Mass: 349g
Environment: RoHS10 Compliant

Kit Contents

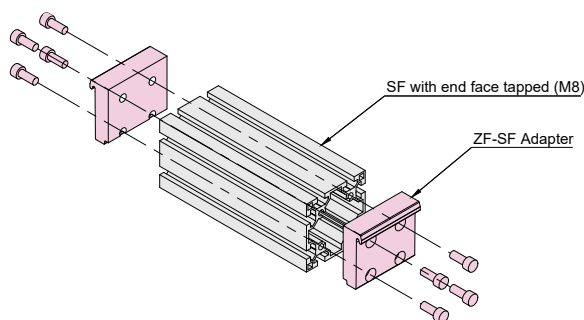
- ZF-SF Adapter Pillar 80 x 1
- ZF-SF Adapter Fixed Piece 80 x 1
- Hexagon Socket Head Cap Screw (M8x18) x 4 (M8x12) x 2
- The (Stainless) kit has stainless bolts

Compatible SF Frame

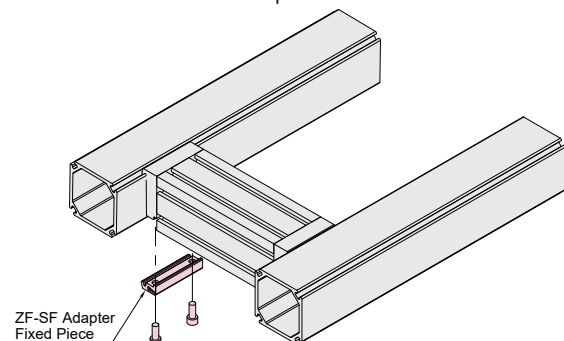
SF2-80-80 (1F/2F)
 SF-80-80 (1F/2F/H)
 ※ Please refer to "SF Aluminum Structural Material Catalog" for SF frame.

ZF-SF Adapter Mounting Method

- ① Attach ZF-SF adapter to the SF with end face tapped

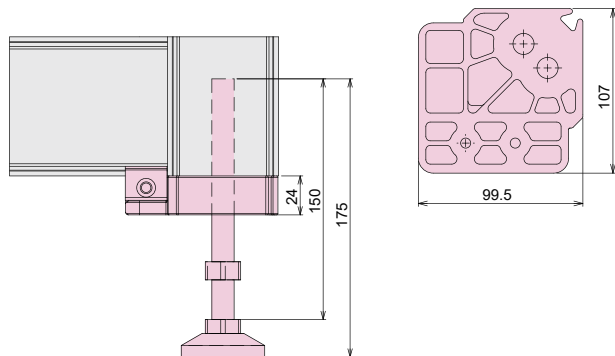
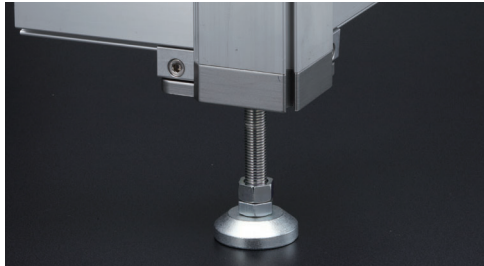


- ② Hook the SF which attached ZF-SF adapter to ZF frame, then attach with ZF-SF Adapter Fixed Piece.



Foot

ZF Adjuster 60



※ R and L are different (R in the figure)

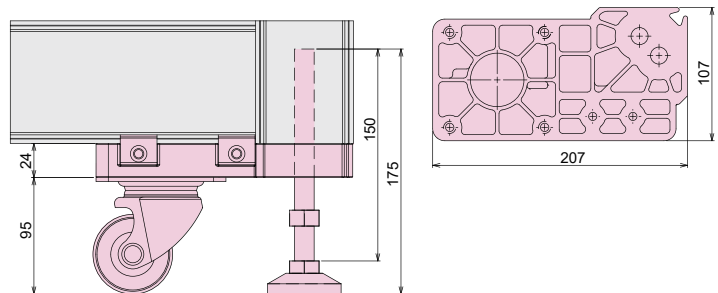
Kit contents

- ZF Adjuster Plate x 1
- Fixed Piece x 4
- Hexagon Socket Head Cap Screw (M6x12) x 4
- Adjuster (M12 x 150) x 1

Material/Technical Data

Material : Aluminum Diecast
Bolt • Adjuster: Iron
Mass : 0.8kg
Load Capacity : 30,000N/4 pcs
Environment: RoHS10 Compliant

ZF Adjuster Caster 60



※ R and L are different (R in the figure)

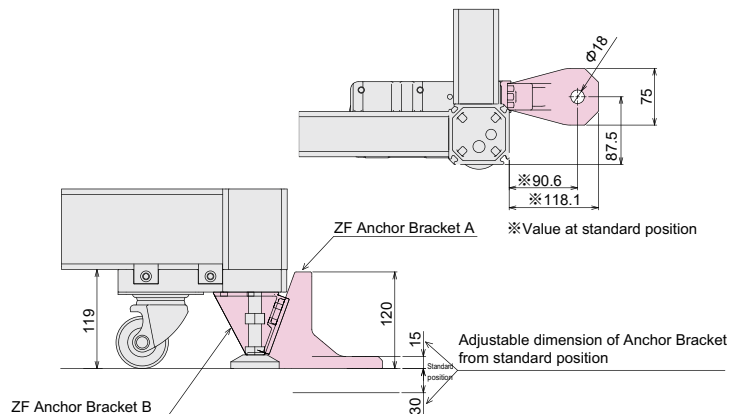
Kit contents

- ZF Adjuster Caster Plate x 1
- Fixed Piece x 6
- Hexagon Socket Head Cap Screw (M6x12) x 6
- Adjuster (M12x150) x 1
- Caster
- Hexagon Socket Head Cap Screw (M10 x 20) x 4

Material/Technical Data

Material : Aluminum Diecast
Adjusters • Casters • Bolts: Iron
Mass : 2.5kg
Load Capacity : 19,200N/4 pcs
Environment: RoHS10 Compliant

ZF Anchor Bracket



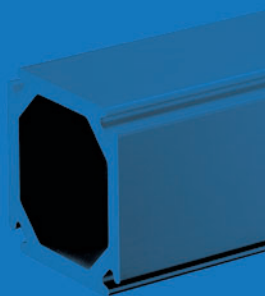
Kit contents

- ZF Anchor Bracket A x 1
- ZF Anchor Bracket B x 1
- Hexagon Socket Head Cap Screw (M8 x 15) x 2
- Hexagon Socket Head Cap Screw (M8 x 30) x 2
- Flat Washer (M8) x2 (For long holes)

Material/Technical Data

Material : SCS13
Bolt • Washer: Iron
Mass : 1.54kg
Environment: RoHS10 Compliant

Name	ZF Anchor Bracket Kit
Item No.	ZFK-003

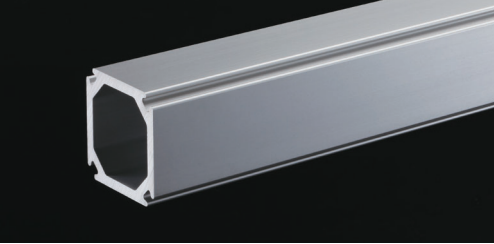


ZERO FRAME

ZF-40

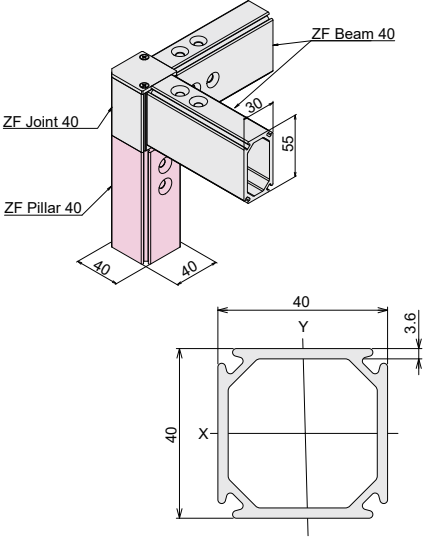
Frame

ZF Pillar 40



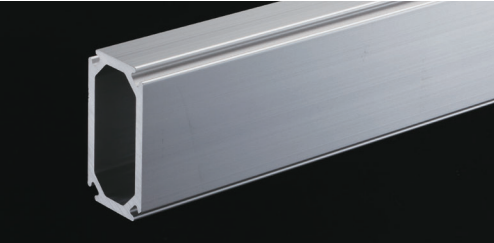
- It is a frame used as a pillar for the housing.

Name	ZF Pillar 40 Fixed Length (※Effective length L = 4000mm)
Item No.	ZFF-402



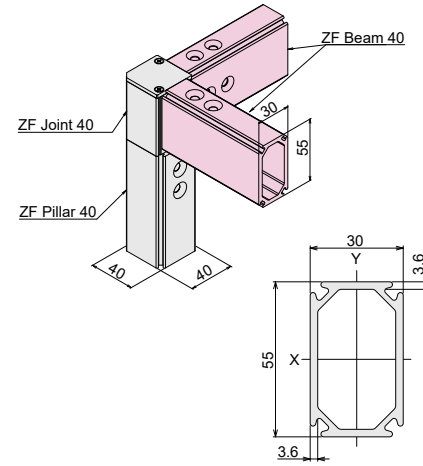
Material/Technical Data
Material: A6N01SS-T5 Alumite Treatment
Environment: RoHS10 Compliant
Resistance Value: 10 ⁹ ~10 ¹⁰ Ω (Antistatic Level)
Section Secondary Momentum: I _x = 10.74 × 10 ⁴ mm ⁴ I _y = 10.74 × 10 ⁴ mm ⁴
Section Secondary Momentum: Z _x = 5.37 × 10 ³ mm ³ Z _y = 5.37 × 10 ³ mm ³
Mass Unit: 1.43 kg/m

ZF Beam 40



- It is a frame used as a beam for the housing.

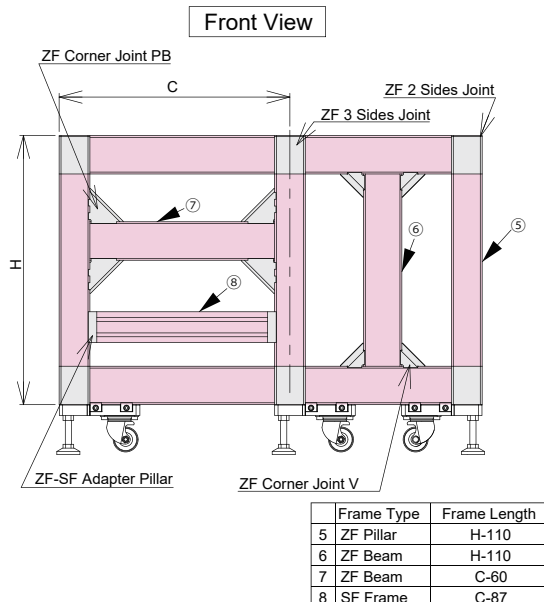
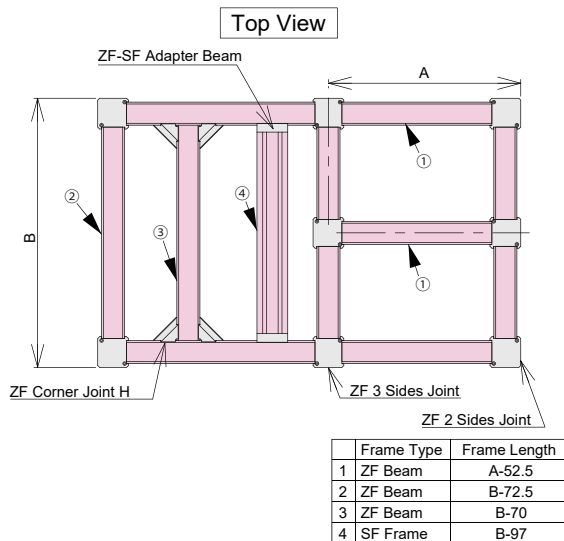
Name	ZF Beam 40 Fixed Length (※Effective length L = 4000mm)
Item No.	ZFF-412



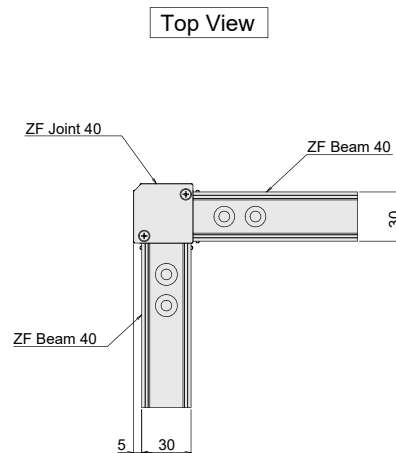
Material/Technical Data
Material: A6N01SS-T5 Alumite Treatment
Environment: RoHS10 Compliant
Resistance Value: 10 ⁹ ~10 ¹⁰ Ω (Antistatic Level)
Section Secondary Momentum: I _x = 18.30 × 10 ⁴ mm ⁴ I _y = 6.79 × 10 ⁴ mm ⁴
Section Coefficient: Z _x = 6.65 × 10 ³ mm ³ Z _y = 4.53 × 10 ³ mm ³
Mass Unit: 1.45 kg/m

Frame

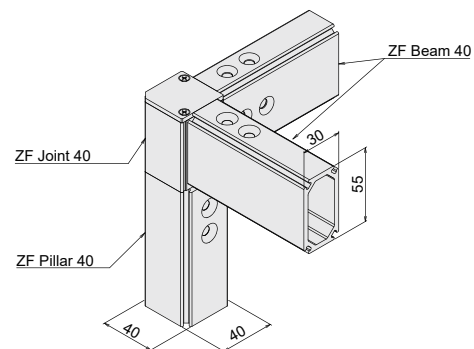
Frame Dimension Guide



ZF Joint Mounting Method

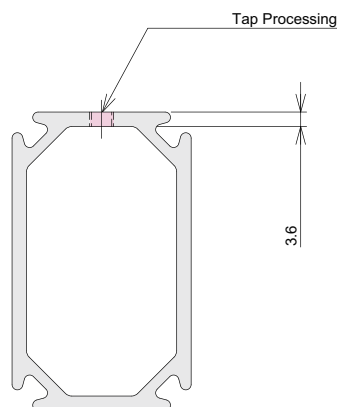


Because the shape of Pillar and Beam are different, there is a step between the Pillar (Joint) and the Beam.



※It is necessary to make countersink on the frame for joint mounting. Please refer ZF processing list. (P57~).

Frame Side Tapping



ZF40 Pillar・Beam Tapable Size (Reference)

Tap Size	Tap Processing
M3	Direct tap
M4	Direct tap
M5	Use of Helisert 1D
M6	Use of Helisert 1D
M8 or more	Unavailable

※Refer the ZF processing list (P57~) for frame processing.

ZF
80

Frame

Joint

Foot

ZF
60

Frame

Joint

Foot

ZF
40

Frame

Joint

Accessory

Foot

ZF
Common
Parts

Door parts

Base
Frame ZF
ProcessingZF
Technical Data

Joint

Common Specification Environment : RoHS10 Compliant

ZF 80

Frame

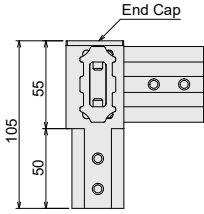
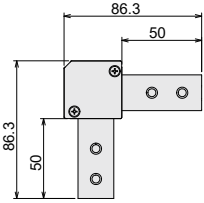
Joint

Foot

ZF 2 Sides Joint 40 U ①



Name	ZF 2 Sides Joint 40 U (Stainless) Kit
Item No.	ZFK-470S
Kit contents	● Joint x 1 ● Hexagon Socket Head Cap Screw M6 x 12 Stainless 12 pcs
Material/ Technical Data	Material: Extruded Aluminum (Body) Stainless (Bolt) Aluminum (Cap) Mass: 0.38 Kg



ZF 60

Frame

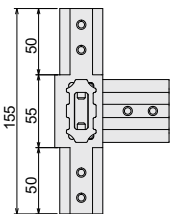
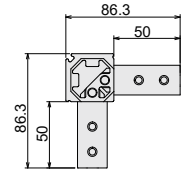
Joint

Foot

ZF 2 Sides Joint 40 M ②



Name	ZF 2 Sides Joint 40 M (Stainless) Kit
Item No.	ZFK-471S
Kit contents	● Joint x 1 ● Hexagon Socket Head Cap Screw M6 x 12 Stainless 16 pcs
Material/ Technical Data	Material: Extruded Aluminum (Body) Stainless (Bolt) Mass: 0.45 Kg



ZF 40

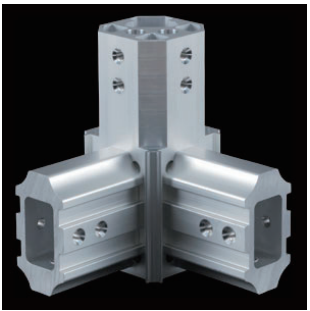
Frame

Joint

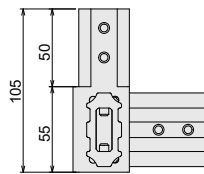
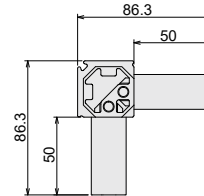
Accessory

Foot

ZF 2 Sides Joint 40 L ③



Name	ZF 2 Sides Joint 40 L (Stainless) Kit
Item No.	ZFK-472S
Kit contents	● Joint x 1 ● Hexagon Socket Head Cap Screw M6 x 12 Stainless 12 pcs
Material/ Technical Data	Material: Extruded Aluminum (Body) Stainless (Bolt) Mass: 0.37 Kg



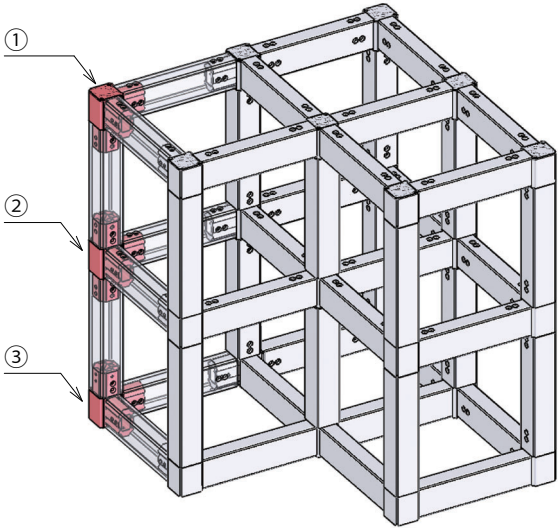
ZF Common Parts

Door parts

Base Frame

ZF Processing

ZF Technical Data





Processing
List
→ P.57



Technical
Data
→ P.59

Joint

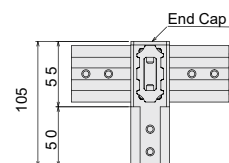
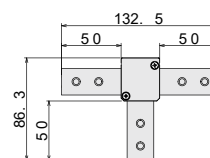
Common
Specification

Environment : RoHS10 Compliant

ZF 3 Sides Joint 40 U ④



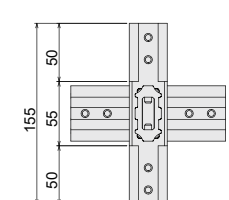
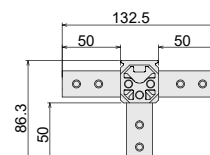
Name	ZF 3 Sides Joint 40 U (Stainless) Kit
Item No.	ZFK-473S
Kit contents	<ul style="list-style-type: none"> ● Joint x 1 ● Hexagon Socket Head Cap Screw M6 x 12 Stainless 16 pcs
Material/ Technical Data	Material: Extruded Aluminum (Body) Stainless (Bolt) Aluminum (Cap) Mass: 0.46Kg



ZF 3 Sides Joint 40 M ⑤



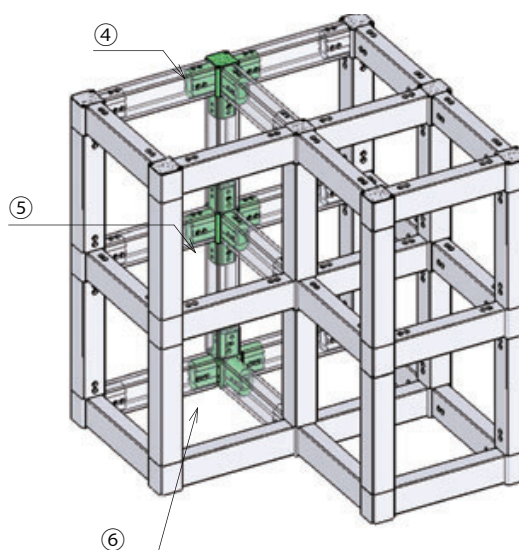
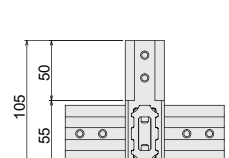
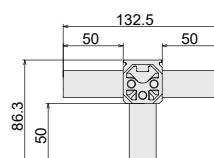
Name	ZF 3 Sides Joint 40 M (Stainless) Kit
Item No.	ZFK-474S
Kit contents	<ul style="list-style-type: none"> ● Joint x 1 ● Hexagon Socket Head Cap Screw M6 x 12 Stainless 20 pcs
Material/ Technical Data	Material: Extruded Aluminum (Body) Stainless (Bolt) Mass: 0.54 Kg



ZF 3 Sides Joint 40 M ⑥



Name	ZF 3 Sides Joint 40 L (Stainless) Kit
Item No.	ZFK-475S
Kit contents	<ul style="list-style-type: none"> ● Joint x 1 ● Hexagon Socket Head Cap Screw M6 x 12 Stainless 16 pcs
Material/ Technical Data	Material: Extruded Aluminum (Body) Stainless (Bolt) Mass: 0.46 Kg



ZF
80

Frame

Joint

Foot

ZF
60

Frame

Joint

Foot

ZF
40

Frame

Joint

Accessory

Foot

ZF
Common
Parts

Door parts

Base
Frame

ZF
Processing

ZF
Technical Data



Design Support Service
→ P.14



Assembled Delivery Service
→ P.14



Application Seminar
→ P.15



RoHS
→ P.69

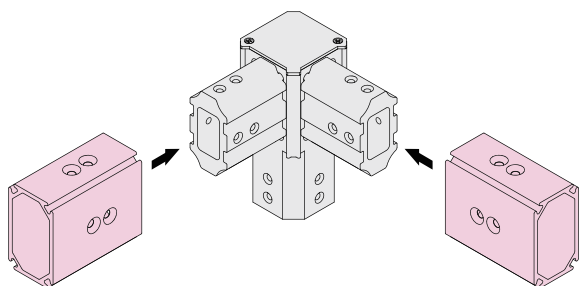
Joint

Joint Assembly Method

Insert the joint into ZF frame with countersink processing, then mounting by flat head screw.

The joint is tapped on multiple sides, but only two sides are used for fastening.

Tightening Torque : 7.4 N • m



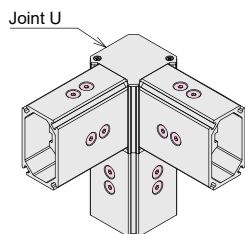
※ For the bolt fastening position of joint each type, please see the below diagram.

It is a recommended position for achieving surface accuracy.

※ We recommended the bolt fastening by the order from top to bottom, and then side surface.

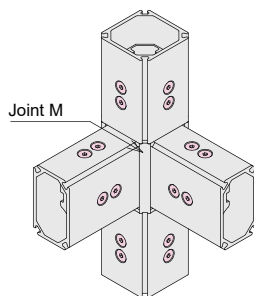
The Side for Fastening

【Joint U for Top of Stand】



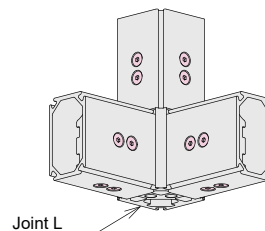
Screw fastening position:
upper side, inside of stand

【Joint M for Middle of Stand】



Screw fastening position:
upper side, inside of stand

【Joint L for Bottom of Stand】



Screw fastening position:
upper side, inside of stand

Step for Stand Structural Assembly

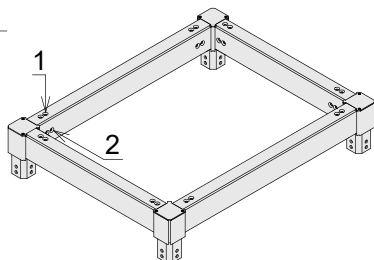
① Assemble the top and bottom of stand structural separately.

※ Tighten the bolt by step 1. Top and bottom 2. Inside of structural.

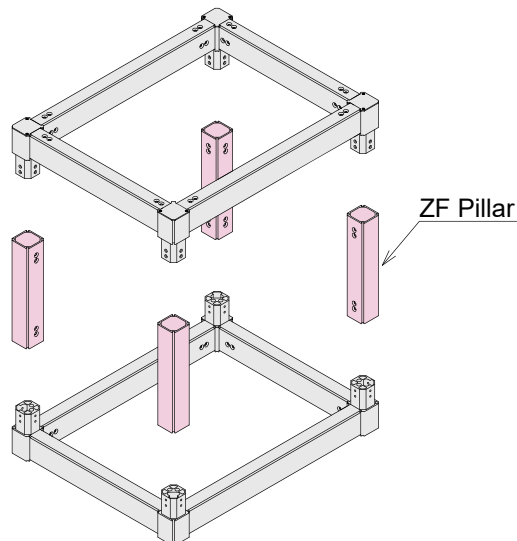
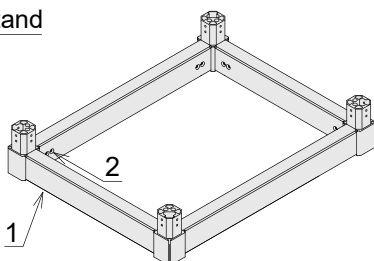
② Insert the ZF pillar with countersink into the joint to assemble the top and bottom structural, and then tightening the countersink bolt.

※ Recommended bolt position: Inside of structural

Top of stand



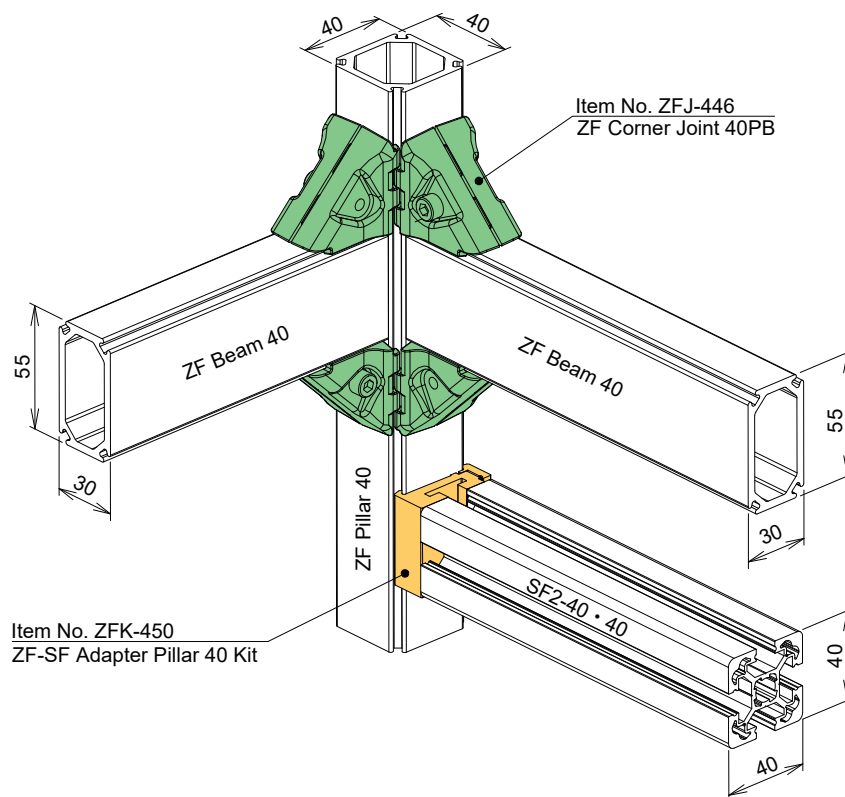
Bottom of stand



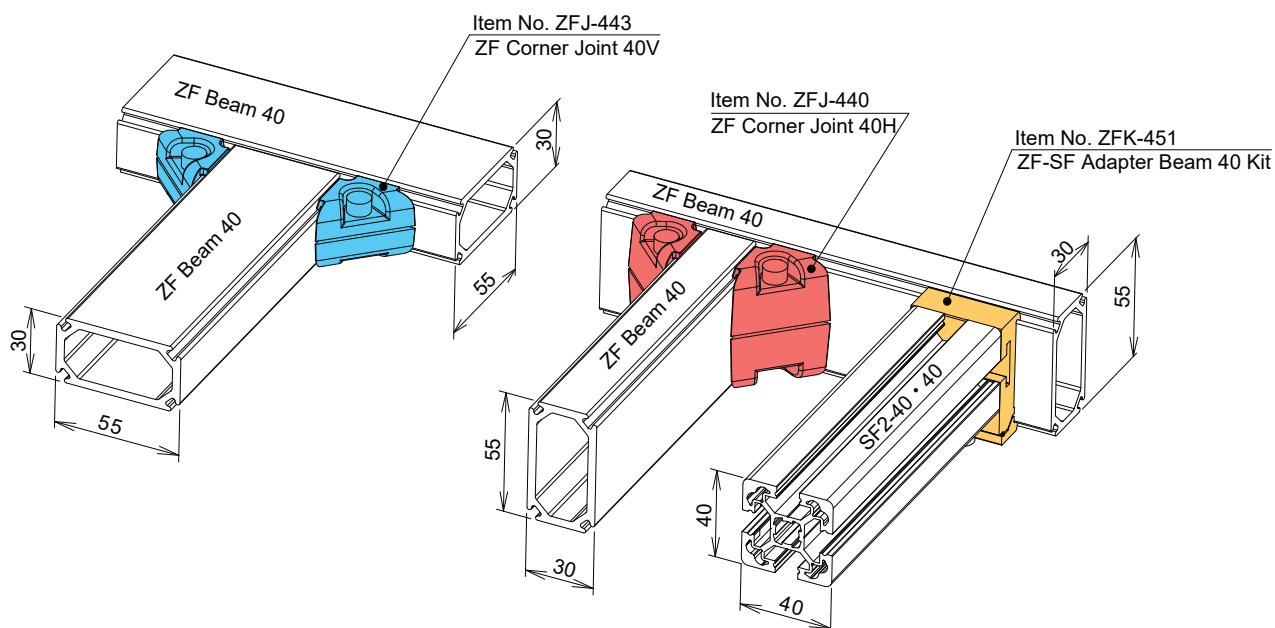
Joint

ZF Corner Joint / ZF-SF Adapter Mounting Pattern

ZF Pillar 40



ZF Beam 60

ZF
80

Frame

Joint

Foot

ZF
60

Frame

Joint

Foot

ZF
40

Frame

Joint

Accessory

Foot

ZF
Common
Parts

Door parts

Base
Frame ZF
ProcessingZF
Technical Data

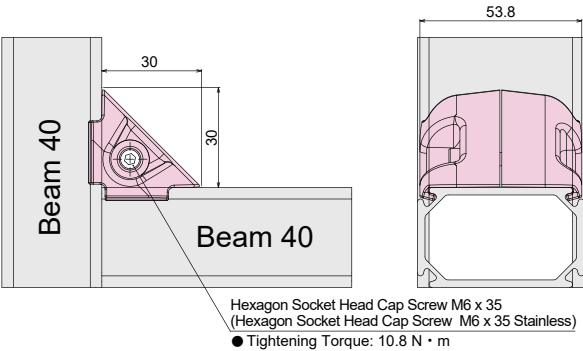
Joint

ZF Corner Joint 40 H



- Used for joining the long side of ZF Beam 40.

Name	ZF Corner Joint 40 H (Stainless)
Item No.	ZFJ-440S



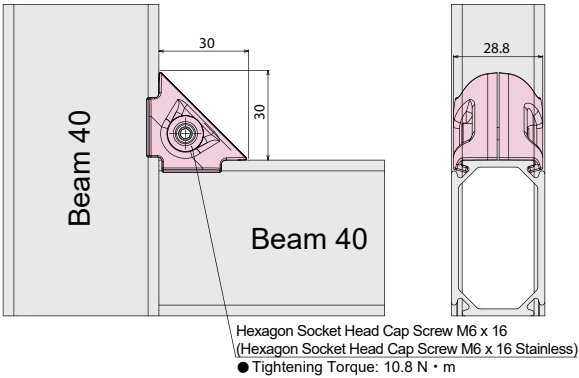
■Material/Technical Data
Material : Aluminum Diecast
 Bolt: Iron / Stainless
Mass : 49g
Environment: RoHS10 Compliant

ZF Corner Joint 40 V



- Used for join the short side of the ZF Beam 40.

Name	ZF Corner Joint 40 V (Stainless)
Item No.	ZFJ-443S



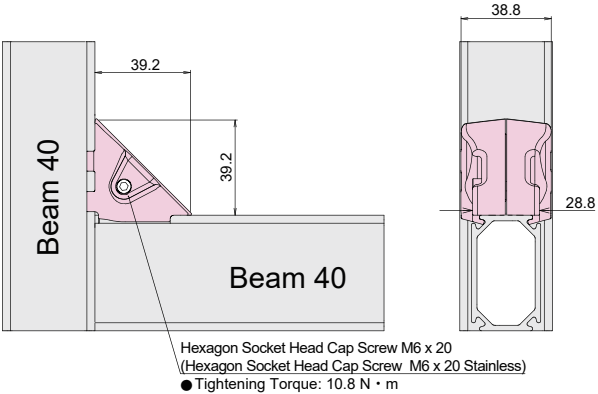
■Material/Technical Data
Material : Aluminum Diecast
 Bolt: Iron / Stainless
Mass : 32g
Environment: RoHS10 Compliant

ZF Corner Joint 40 PB



- Used for joining ZF Beam 40 and ZF Pillar 40.

Name	ZF Corner Joint 40 PB (Stainless)
Item No.	ZFJ-446S



■Material/Technical Data
Material : Aluminum Diecast
 Bolt: Iron / Stainless
Mass : 57g
Environment: RoHS10 Compliant

Joint

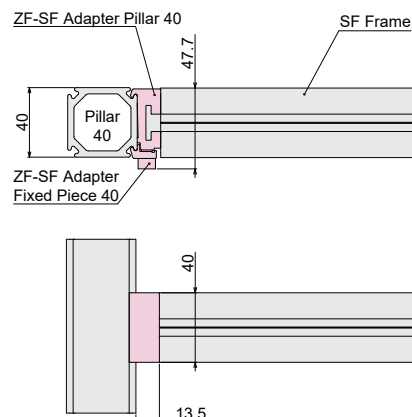
ZF-SF Adapter Pillar 40



- Used for joining ZF Pillar 40 and SF frame.

Name	ZF-SF Adapter Pillar 40 (Stainless) Kit
Item No.	ZFK-450

※ZF-SF Adapter Pillar 40 does not have a stainless kit.



■Kit Contents

- ZF-SF Adapter Pillar 40 x 1
- ZF-SF Adapter Fixed Piece 40 x 1
- Hexagon Socket Head Cap Screw (M6x10) x 1
- TG Joint Kit 4045 x 1

■Compatible SF Frame

SF2-40 • 40 (1F/2F/3F/2H)
SF-40 • 40 (1F/2F/3F/2H)
※ Please refer to "SF Aluminum Structural Material Catalog" for SF frame.

■Material/Technical Data

Material : Extruded Aluminum
Bolt: Iron
Mass : 80g
Environment: RoHS10 Compliant

ZF
80

Frame

Joint

Foot

ZF
60

Frame

Joint

Foot

ZF
40

Frame

Joint

Accessory

Foot

ZF
Common
Parts

Door parts

Base
Frame ZF
ProcessingZF
Technical Data

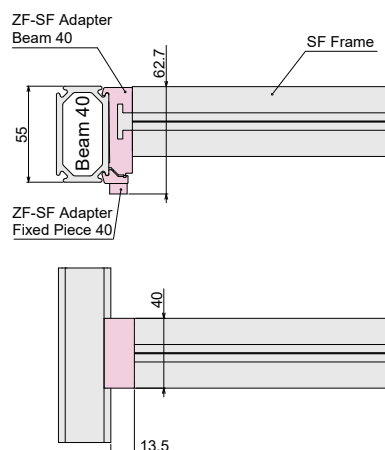
ZF-SF Adapter Beam 40



- Used for joining ZF Beam 40 (long side) and SF frame.

Name	ZF-SF Adapter Beam 40 (Stainless) Kit
Item No.	ZFK-451

※ZF-SF Adapter Beam 40 does not have a stainless kit.



■Kit Contents

- ZF-SF Adapter Beam 40 x 1
- ZF-SF Adapter Fixed Piece 40 x 1
- Hexagon Socket Head Cap Screw (M6x15) x 1
- TG Joint Kit 4045 x 1

■Compatible SF Frame

SF2-40 • 40 (1F/2F/3F/2H)
SF-40 • 40 (1F/2F/3F/2H)
※ Please refer to "SF Aluminum Structural Material Catalog" for SF frame.

■Material/Technical Data

Material : Extruded Aluminum
Bolt: Iron
Mass : 102g
Environment: RoHS10 Compliant

Joint

ZF
80



Frame



Joint



Foot

ZF
60



Frame



Joint



Foot

ZF
40



Frame



Joint



Accessory



Foot

ZF
Common
Parts



Door parts

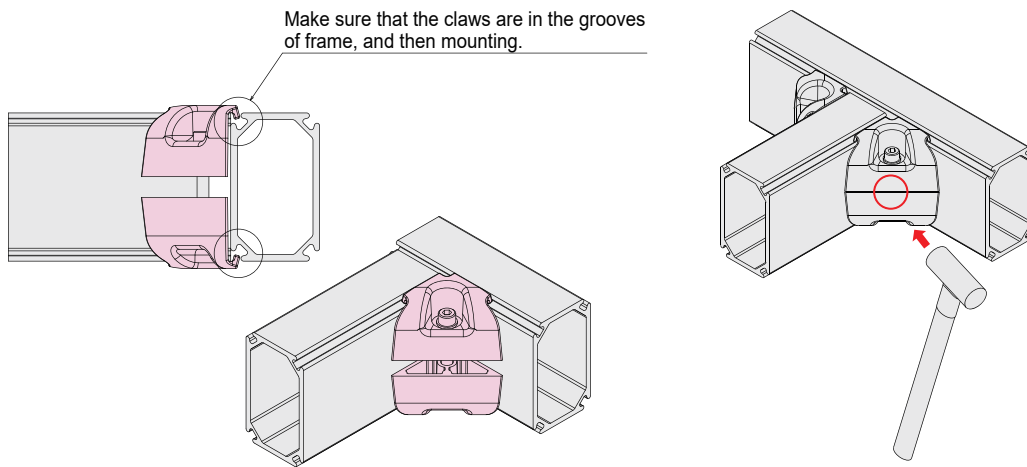


Base
Frame

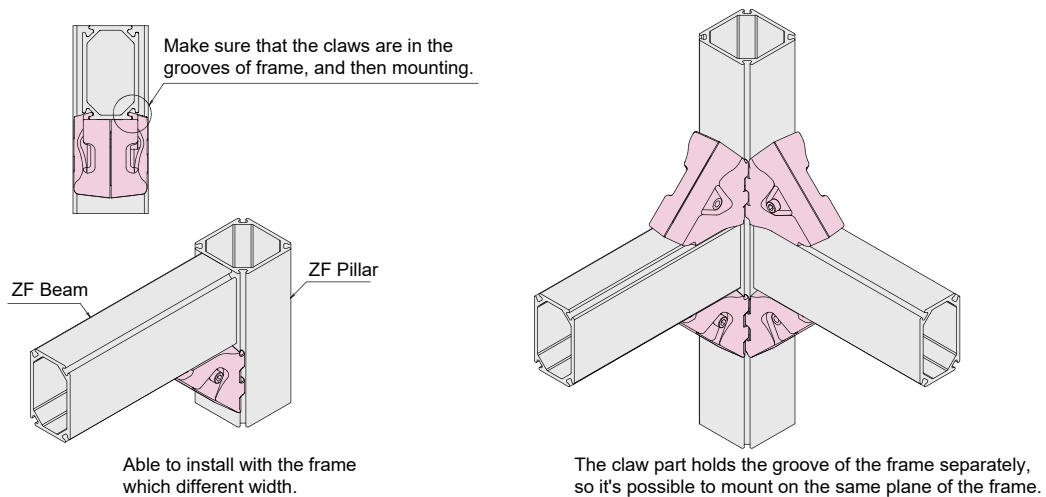
ZF
Processing

ZF
Technical Data

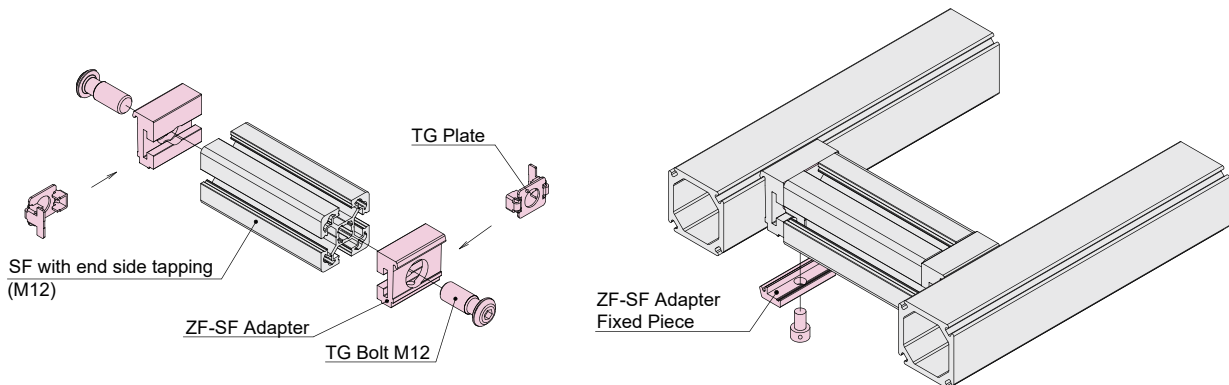
ZF Corner Joint 40 Mounting Method



ZF Corner Joint 40PB Mounting Method

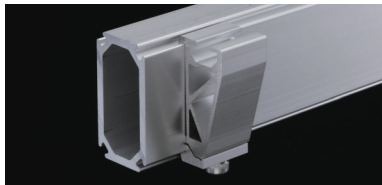


ZF-SF Adapter 40 Mounting Method



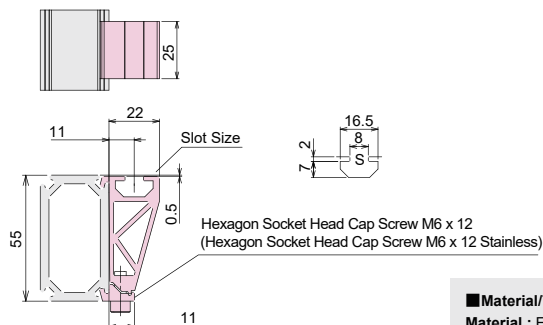
Accessory

ZF T Slot Side 40 (Stainless)



- Nuts (S size) can be used.
Can be mounted on ZF Beam 40 (long end).

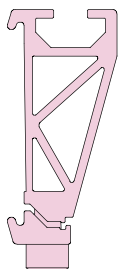
Name	ZF T Slot Side 40 (Stainless)
Item No.	ZFA-410S



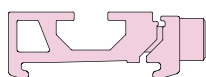
Material/Technical Data
Material : Extruded Aluminum
Bolt: Iron / Stainless
Mass : 36g
Environment: RoHS10 Compliant

ZF40 Accessory Mounting Point

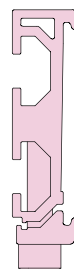
① T Slot Side



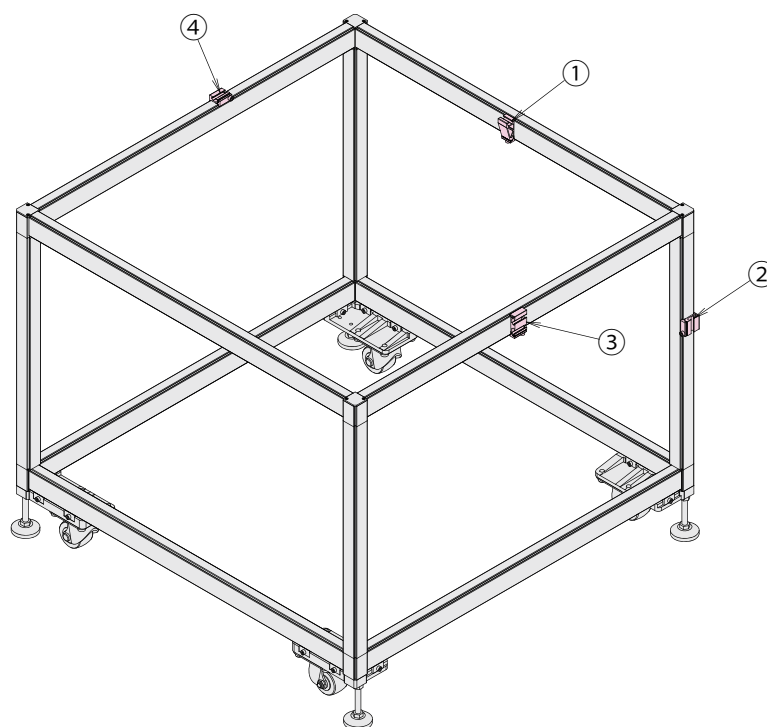
② T Slot Top Pillar



③ T Slot Top Beam A



④ T Slot Top Beam B



ZF
80

Frame

Joint

Foot

ZF
60

Frame

Joint

Foot

ZF
40

Frame

Joint

Accessory

Foot

ZF
Common
Parts

Door parts

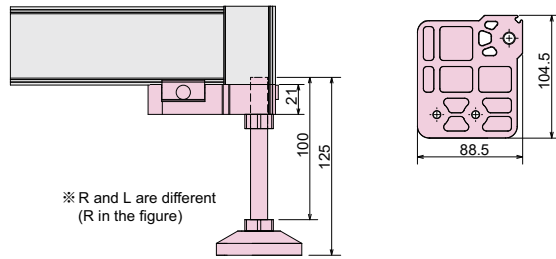
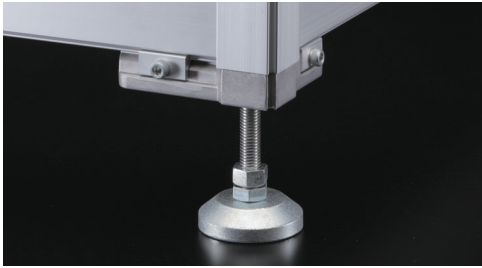
Base
Frame

ZF
Processing

ZF
Technical Data

Foot

ZF Adjuster 40



Name	ZF Adjuster 40 Kit R (L)
Item No.	ZFK-460R (ZFK-460L)

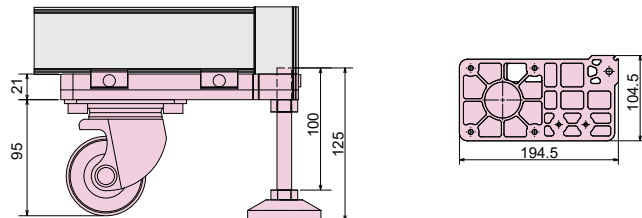
Kit Contents

- ZF Adjuster Caster Plate x 1
- Fixed Piece x 4
- Hexagon Socket Head Cap Screw (M6x14) x 4
- Adjuster (M12x100) x 1

Material/Technical Data

Material : Aluminum Diecast
Adjuster • Caster • Bolt : Iron
Mass : 0.7kg
Load Capacity : 9,600N/4 pcs
Environment: RoHS10 Compliant

ZF Adjuster Caster 40



Name	ZF Adjuster Caster 40 Kit R (L)
Item No.	ZFK-461R (ZFK-461L)

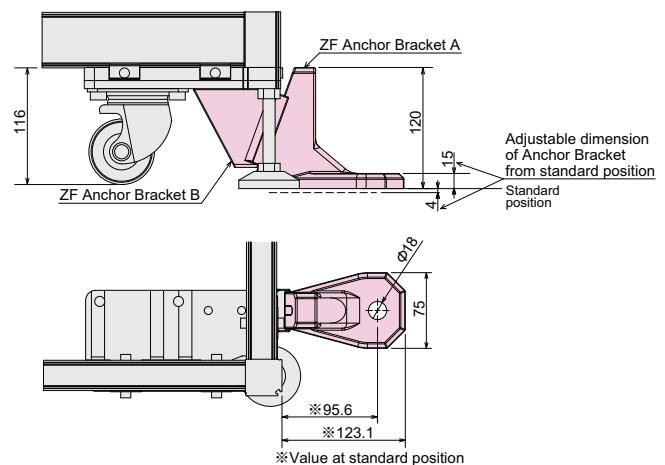
Kit Contents

- ZF Adjuster Caster Plate x 1
- Fixed Piece x 6
- Hexagon Socket Head Cap Screw (M6x14) x 6
- Hexagon Socket Head Cap Screw (M10x16) x 4
- Adjuster (M12x100) x 1
- Caster

Material/Technical Data

Material : Aluminum Diecast
Adjuster • Caster • Bolt : Iron
Mass : 2.1kg
Load Capacity : 19,600N/4 pcs
Environment: RoHS10 Compliant

ZF Anchor Bracket



Name	ZF Anchor Bracket Kit
Item No.	ZFK-003

Kit Contents

- ZF Anchor Bracket A x 1
- ZF Anchor Bracket B x 1
- Hexagon Socket Head Cap Screw (M8 x 15) x 2
- Hexagon Socket Head Cap Screw (M8 x 30) x 2
- Flat Washer (M8) x2 (For long holes)

Material/Technical Data

Material : SCS13
Bolt • Washer : Iron
Mass : 1.54kg
Environment: RoHS10 Compliant

ZERO FRAME

ZF

Common Parts

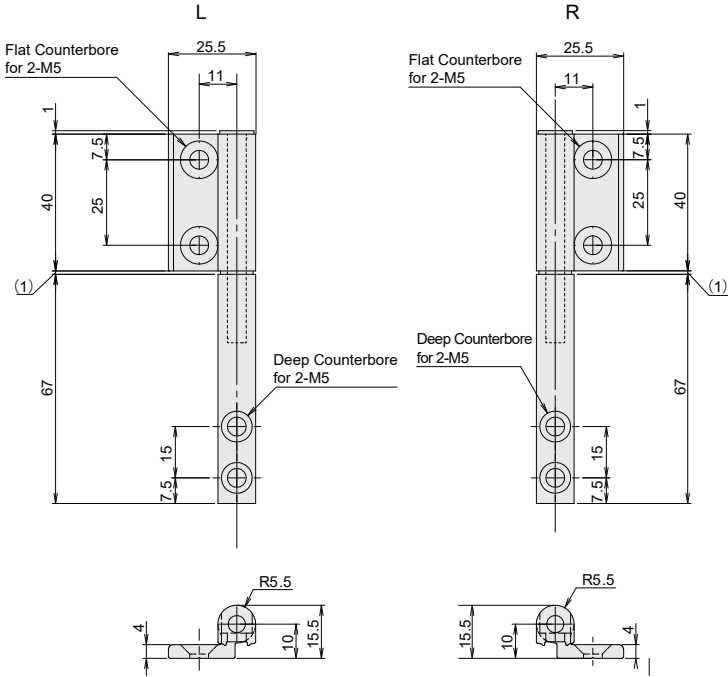
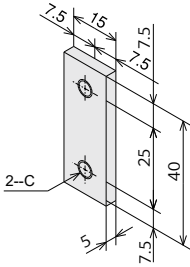
Door Parts

ZF Hinge L/R (for ZF Frame Outside) ※Able to Insert and Remove



● The door can be installed outside of the stand frame.

Aluminum Plate Nut for Flat Hinge SS

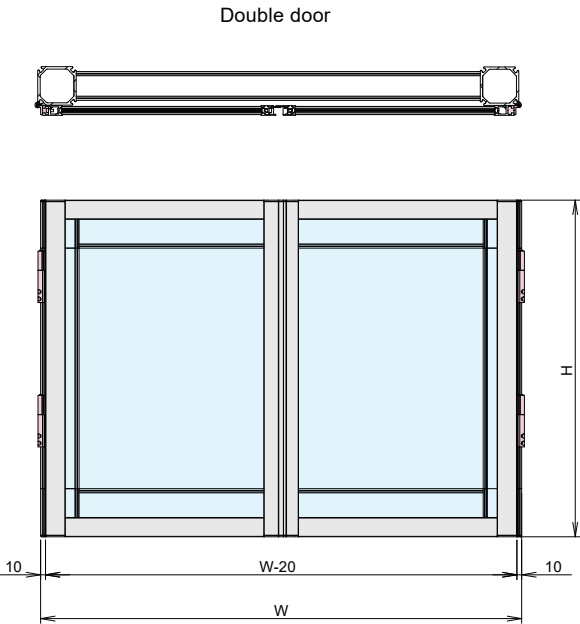
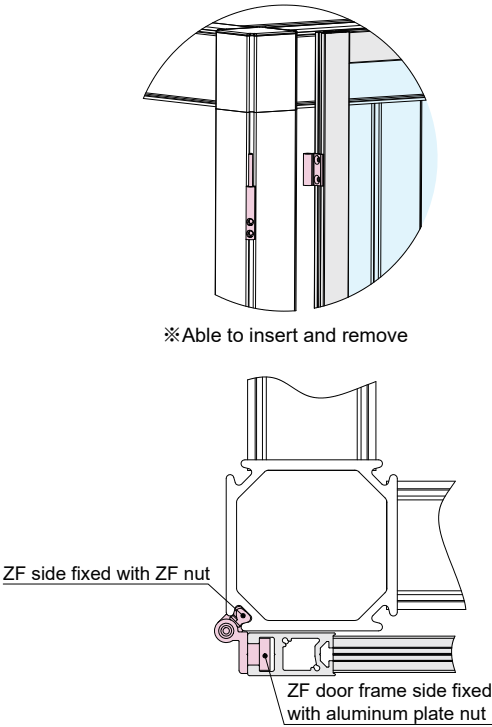


Name		Item No.	Estimated Load (N/Piece)	Mass (g)
ZF Hinge L (for ZF Frame Outside) 60.80.100	Single Item	ZFA-048	49	39.4
	Kit	ZFK-048		60.3
ZF Hinge R (for ZF Frame Outside) 60.80.100	Single Item	ZFA-049		39.4
	Kit	ZFK-049		60.3

- Kit Contents
- ZF Hinge R (for ZF Frame Outside) x 1
 - Cross-recessed Fat Head Bolt (M5 x 15) x 2
 - Hexagon Socket Head Cap Screw (M5×10) x2
 - Aluminum Plate Nut for Fat Hinge SS x 1
 - ZF Nut (M5) x 2

- Material/Technical Data
- Material : Extruded Aluminum
- Bolt・Nut : Iron
- Aluminum Plate Nut : Aluminum
- Environment: RoHS10 Compliant

ZF Hinge Installation Guide



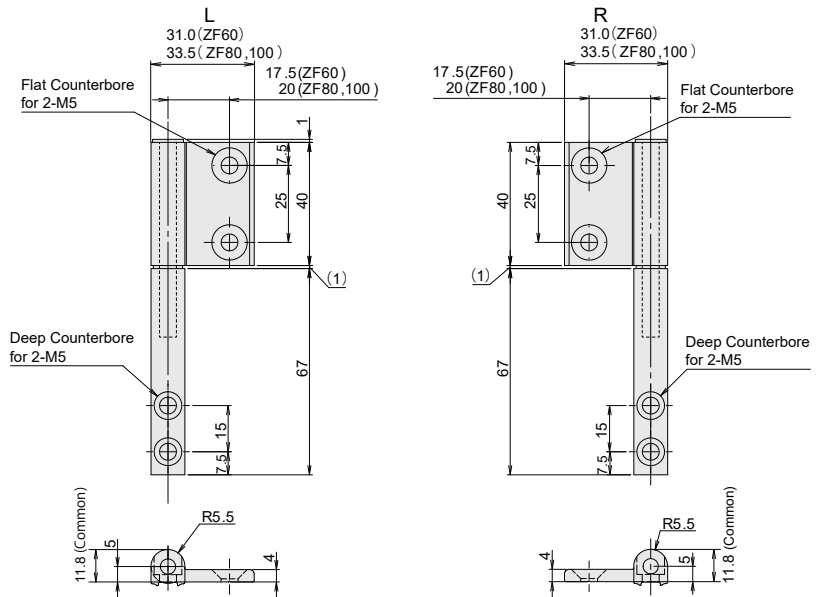


Door Parts

ZF Hinge L/R (for ZF Frame Inside) ※Able to Insert and Remove



- The door can be installed inside of the stand frame.



Name		Item No.	Estimated Load (N/Piece)	Mass (g)
ZF Hinge L (for ZF Frame Inside) 60	Single Item	ZFA-045	49	39.3
	Kit	ZFK-045		60.4
ZF Hinge R (for ZF Frame Inside) 60	Single Item	ZFA-046		39.3
	Kit	ZFK-046		60.4
ZF Hinge L (for ZF Frame Inside) 80,100	Single Item	ZFA-04B		39.4
	Kit	ZFK-04B		60.3
ZF Hinge R (for ZF Frame Inside) 80,100	Single Item	ZFA-04C	49	39.4
	Kit	ZFK-04C		60.3

Kit Contents

- ZF Hinge for L (R) Panel x 1
- Cross-recessed Fat Head Bolt (M5 x 15) x 2
- Hexagon Socket Head Cap Screw (M5x10) x 2
- ZF Nut (M5) x 2
- Aluminum Plate Nut for Fat Hinge SS x 1

Material/Technical Data

Material : Extruded Aluminum
Bolt · Nut : Iron
Aluminum Plate Nut : Aluminum
Environment: RoHS10 Compliant

ZF
80

Frame

Joint

Foot

ZF
60

Frame

Joint

Foot

ZF
40

Frame

Joint

Accessory

Foot

ZF
Common
Parts

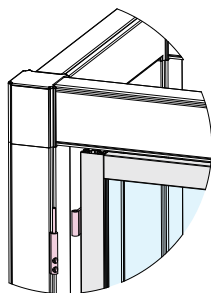
Door parts

Base
Frame

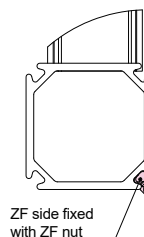
ZF
Processing

ZF
Technical data

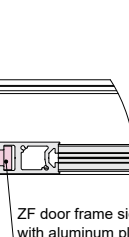
ZF Hinge Installation Guide



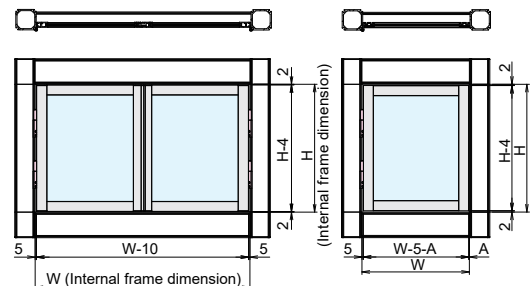
※Able to insert and remove



ZF side fixed with ZF nut



ZF door frame side fixed with aluminum plate nut



Dimension guide when making frame door

Wmm	200~329	330~699	700 or more
Amm	3	2.5	2

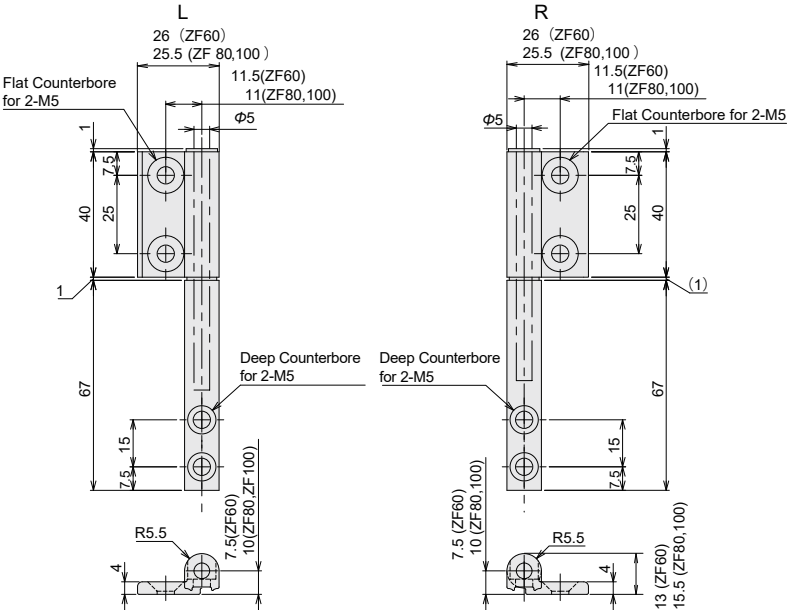


Door Parts

ZF Hinge L/R (for ZF Frame Outside) ※Able to Insert and Remove



● Panel (t=5) can be installed as a door.

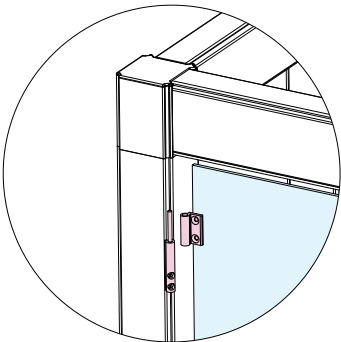


Name		Item No.	Estimated Load (N/Piece)	Mass (g)
ZF Hinge L (for ZF Frame Outside) 60.80.100	Single Item	ZFA-048	49	39.4
ZF Hinge R (for ZF Frame Outside) 60.80.100	Single Item	ZFA-049		39.4

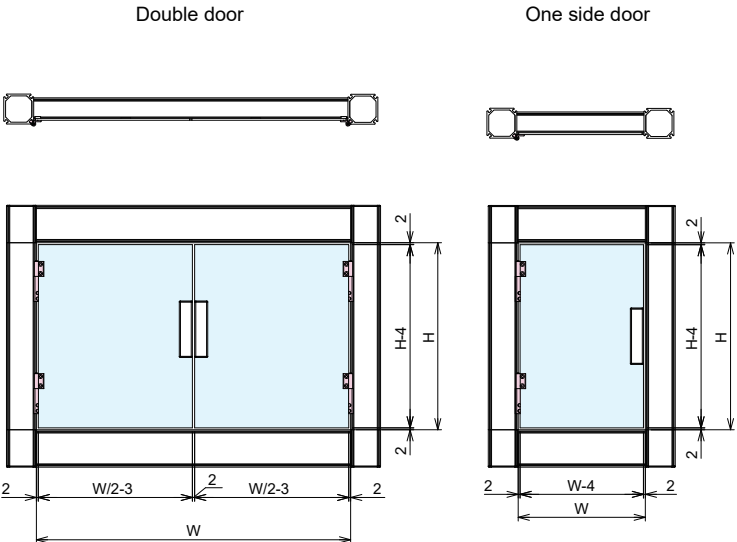
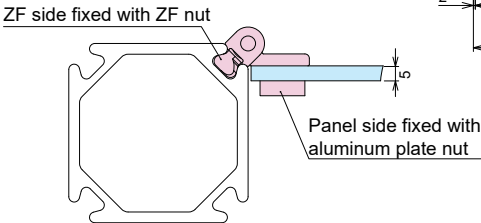
- Kit Contents
- ZF Hinge L/R (for Panel Door) x1
 - Cross-recessed Fat Head Bolt (M5 x 15) x 2
 - Hexagon Socket Head Cap Screw (M5 x 10) x2
 - Aluminum Plate Nut for Flat Hinge SS x 1
 - ZF Nut (M5) x 2

■ Material/Technical Data
 Material : Extruded Aluminum
 Bolt・Nut : Iron
 Aluminum Plate Nut : Aluminum
 Environment: RoHS10 Compliant

ZF Hinge Installation Guide and Panel Size Guide



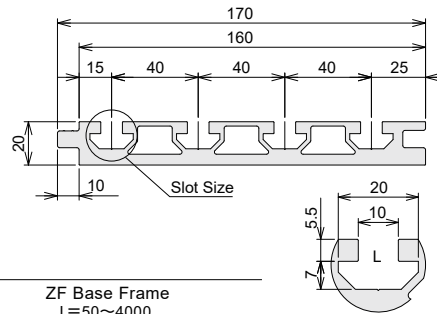
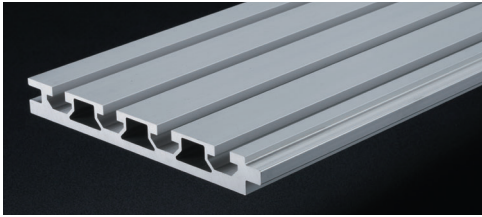
※Able to insert and remove





Base Frame

ZF Base Frame



Name	ZF Base Frame Fixed Length (Effective Length L=4000mm)	ZF Base Frame L=50~4000
Item No.	ZFF-002	ZFF-004

Material/Technical Data

Material : A6N01SS-T5

Alumite Treatment

Environment: **RoHS10** Compliant

Resistance Value:

$10^9 \sim 10^{\infty} \Omega$ (Antistatic Level)

Section Secondary Moment:

$I_x = 7.58 \times 10^4 \text{ mm}^4$

$I_y = 463.93 \times 10^4 \text{ mm}^4$

Section Coefficient:

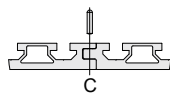
$Z_x = 6.51 \times 10^3 \text{ mm}^3$

$Z_y = 53.48 \times 10^3 \text{ mm}^3$

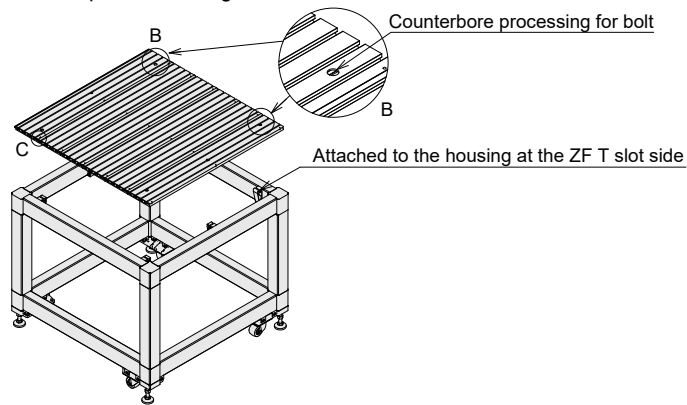
Mass Unit: 4.76kg/m

Sample Use of ZF Base Frame

- Example of connection method
Frames fit together
Secure with pins if necessary



- Sample of mounting method



ZF
80

Frame

Joint

Foot

ZF
60

Frame

Joint

Foot

ZF
40

Frame

Joint

Accessory

Foot

ZF
Common
Parts

Door parts

Base
Frame

ZF
Processing

ZF
Technical data



ZERO FRAME

ZF

**Processing List
Technical Data**

ZF Frame Processing Code

Order Example

Item No. or Product Name

Length (mm)

Processing Code

Quantity

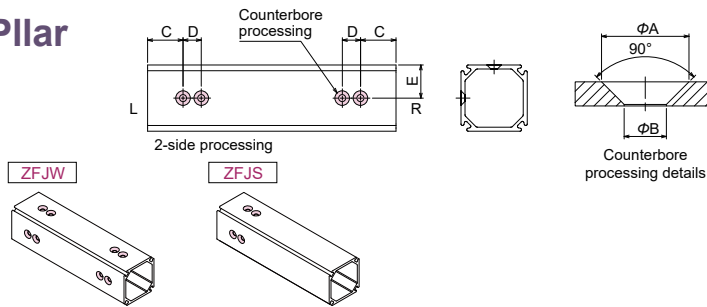
ZF Pillar 40

L=800

ZFJW

☐ pcs

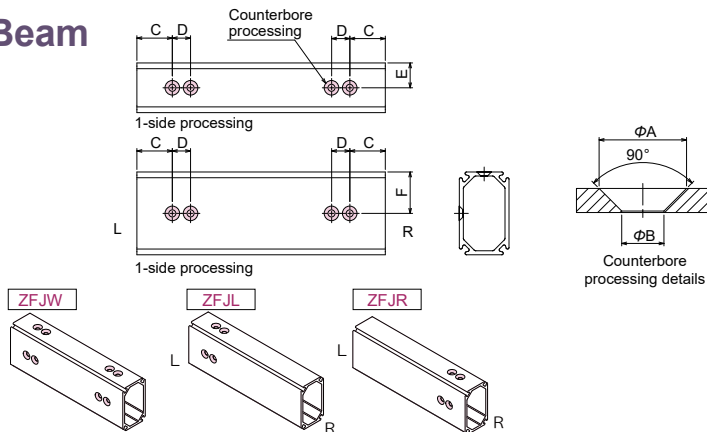
ZF Pillar



ZF Pillar Processing Dimension (mm)

Size	ΦA	ΦB	C	D	E
40 Series	13.4	6.5	19	19	20
60 Series	13.4	6.5	39	19	30
80 Series	17.6	8.5	43	22	40
100 Series	23.5	10.5	54	29	50

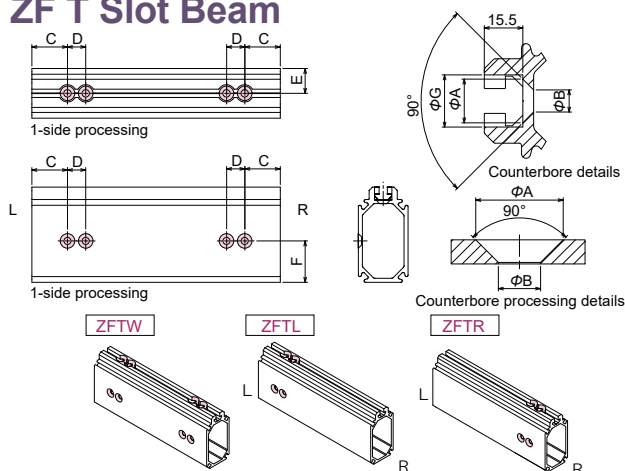
ZF Beam



ZF Beam Processing Dimensions (mm)

Size	ΦA	ΦB	C	D	E	F
40 Series	13.4	6.5	19	19	15	27.5
60 Series	13.4	6.5	39	19	22.5	40
80 Series	17.6	8.5	43	22	30	50
100 Series	23.5	10.5	54	29	40	60

ZF T Slot Beam



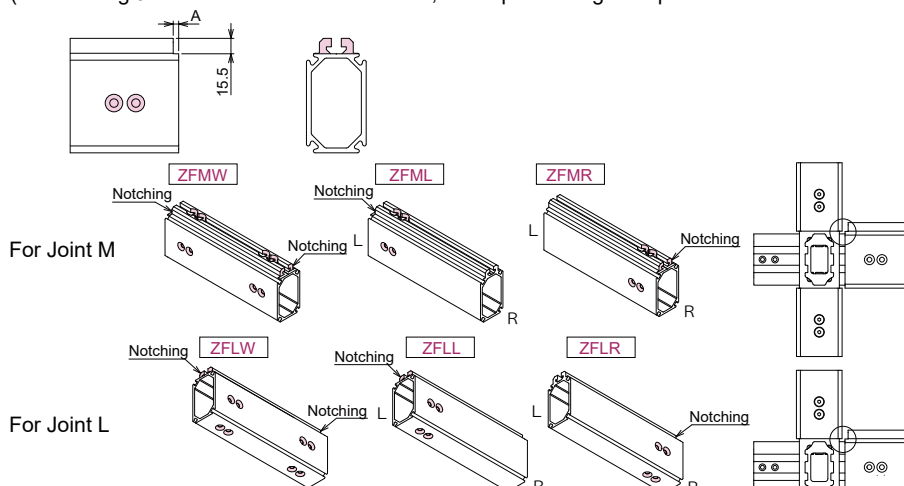
ZF T Slot Beam Processing Dimensions (mm)

Size	ΦA	ΦB	C	D	E	F	ΦG
40 Series	13.4	6.5	19	19	15	27.5	17
60 Series	13.4	6.5	39	19	22.5	40	17
80 Series	17.6	8.5	43	22	30	50	21
100 Series	23.5	10.5	54	29	40	60	26

ZF T Slot Beam Hole Processing + Notch Processing

(When using Joint M and L with T Slot Beam, notch processing is required to avoid interference with the pillars.)

Size	A
40 Series	4.3
60 Series	4.3
80 Series	5.5
100 Series	8.8



Design Support Service
→ P.14



Assembled Delivery Service
→ P.14



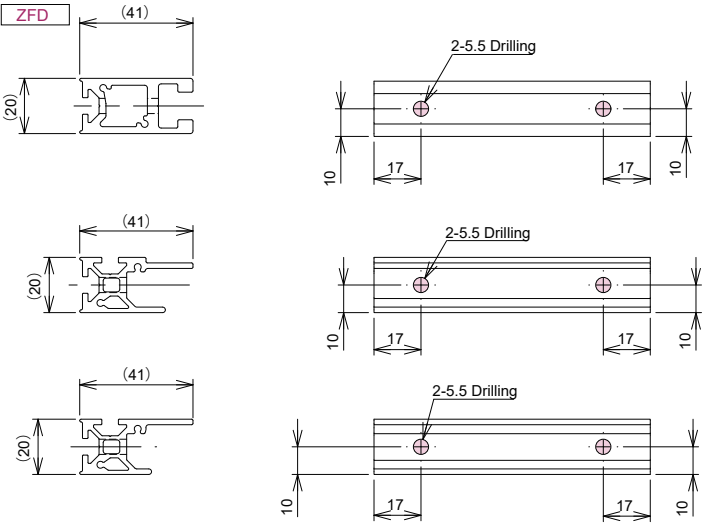
Application Seminar
→ P.15



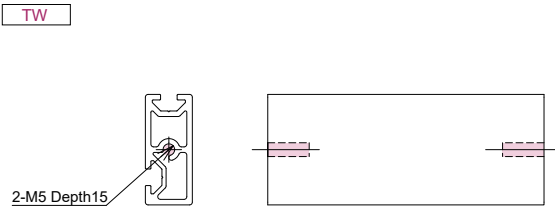
RoHS
→ P.69

Door Frame Processing Code

ZF Door Frame Processing



ZF Door Frame End Face Tapping



Frame Processing List

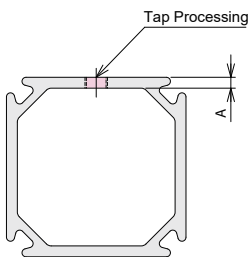
Please specify by drawing when you request the frame processing below.

Item No. or Product Name Length (mm) Processing Code

Order Example ZFF-804 L=800 Special

Processing Name	Processing Contents	Note
Drilling	In case A<20 and other than above	Please specify by drawing.
	In case A≥20	
High Accuracy Cut (HC)	A=0.5	Standard cutting size tolerance
	A=0.2~0.4 (L≤1000mm)	Please specify by drawing.
Nonstandard Size Cutting	Cut the dimension of 30mm≤A<50mm	The cutting size which less than 50mm is applicable.
Notching Processing	AXB≤900mm ²	Please specify by drawing.
	L≤100mm	
	100mm<L≤200mm	
	900mm ² <AXB≤2700mm ²	
	L≤100mm	
	100mm<L≤200mm	
	2700mm ² <AXB	
Side Tapping	Frame side tapping	Please specify by drawing. (See below)
	Helisert	

Frame Side Tapping

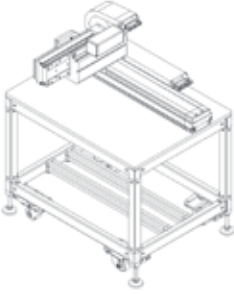
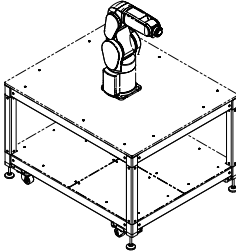
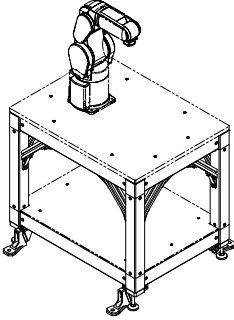
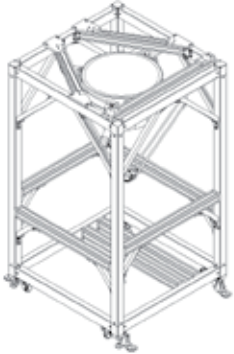
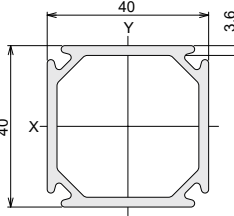
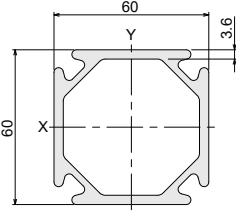
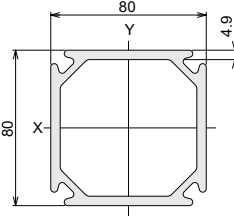
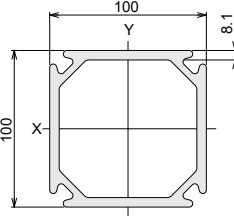
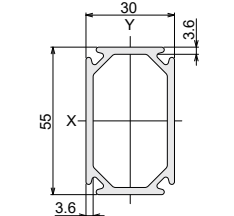
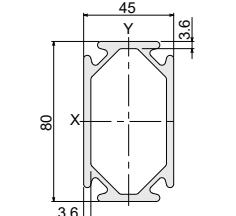
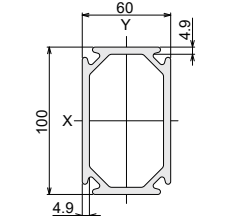
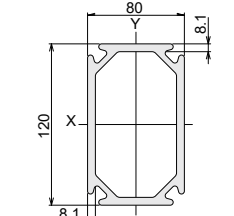
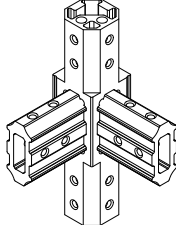
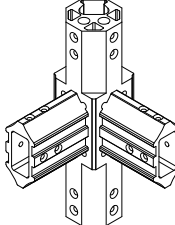
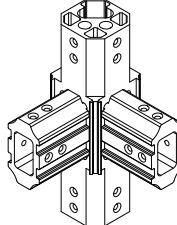
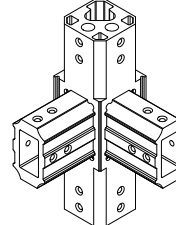
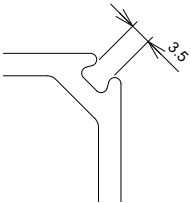
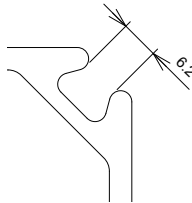


ZF Pillar Beam Tapable Size (Reference)

Frame Size	ZF40	ZF60	ZF80	ZF100
A (mm)	3.6	3.6	4.9	8.1
Tap Size	M3	Direct tap	Direct tap	Direct tap
	M4	Direct tap	Direct tap	Direct tap
	M5	Use of Helisert 1D	Use of Helisert 1D	Direct tap
	M6	Use of Helisert 1D	Use of Helisert 1D	Direct tap
	M8	Unavailable	Unavailable	Use of Helisert 1D
	M10 or more	Unavailable	Unavailable	Unavailable

Technical Data

ZF Frame Size Selection Table

Employment Case					
Frame Series		40	60	80	100
Frame	Pillar	 lx : $10.74 \times 10^{-4} \text{ mm}^4$ ly : $10.74 \times 10^{-4} \text{ mm}^4$ Mass Unit: 1.43kg/m	 lx : $42.09 \times 10^{-4} \text{ mm}^4$ ly : $42.09 \times 10^{-4} \text{ mm}^4$ Mass Unit: 2.43kg/m	 lx : $130.19 \times 10^{-4} \text{ mm}^4$ ly : $130.19 \times 10^{-4} \text{ mm}^4$ Mass Unit: 4.00kg/m	 lx : $388.43 \times 10^{-4} \text{ mm}^4$ ly : $388.43 \times 10^{-4} \text{ mm}^4$ Mass Unit: 7.78kg/m
	Beam	 lx : $18.30 \times 10^{-4} \text{ mm}^4$ ly : $6.79 \times 10^{-4} \text{ mm}^4$ Mass Unit: 1.45kg/m	 lx : $71.57 \times 10^{-4} \text{ mm}^4$ ly : $26.26 \times 10^{-4} \text{ mm}^4$ Mass Unit: 2.53kg/m	 lx : $182.91 \times 10^{-4} \text{ mm}^4$ ly : $78.63 \times 10^{-4} \text{ mm}^4$ Mass Unit: 4.01kg/m	 lx : $534.42 \times 10^{-4} \text{ mm}^4$ ly : $272.29 \times 10^{-4} \text{ mm}^4$ Mass Unit: 8.09kg/m
Joint		 Mass Unit: 0.45kg (For 2 Sides Joint M)	 Mass Unit: 1.22kg (For 2 Sides Joint M)	 Mass Unit: 2.76kg (For 2 Sides Joint M)	 Mass Unit: 5.45kg (For 2 Sides Joint M)
Groove Shape		 ZF Nut cannot be used	 ZF Nut can be used		

ZF
80

Frame 

Joint 

Foot 

ZF
60

Frame 

Joint 

Foot 

ZF
40

Frame 

Joint 

Accessory 

Foot 

ZF
Common
Parts

Door parts 

Base
Frame 

ZF
Processing

ZF
Technical data



Design Support Service
→ P.14



Assembled Delivery Service
→ P.14



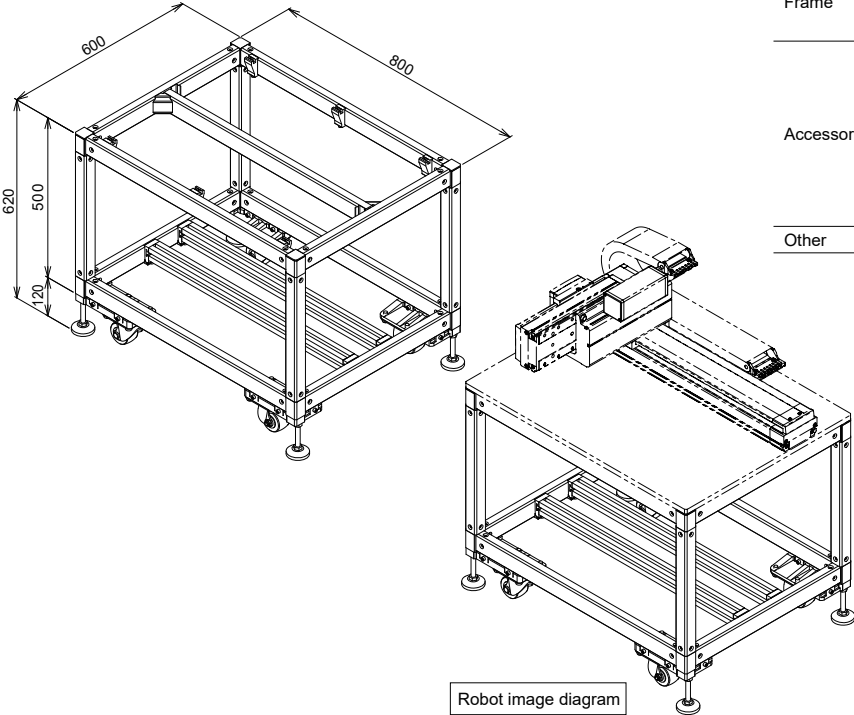
Application Seminar
→ P.15



RoHS
→ P.69

Reference Example

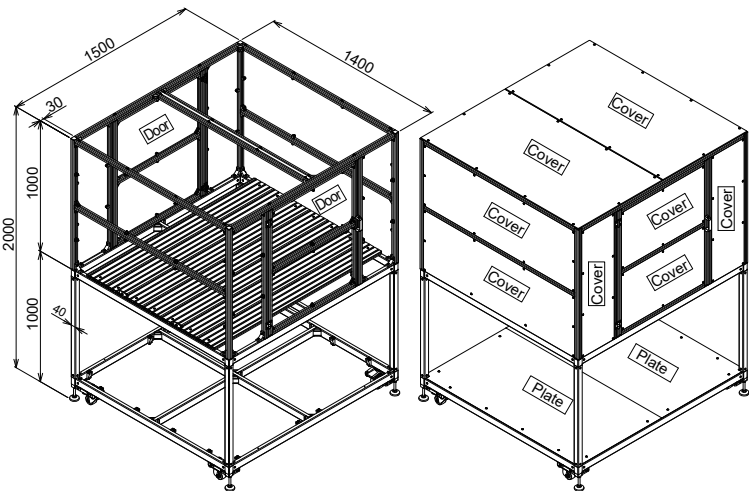
ZF40 Series
Cartesian Robot Stand



External Size
W800×D600×H620

Product Type	Part Name	Quantity
Frame	ZF Beam 40	9
	ZF Pillar 40	4
	SF2-40・40	3
	ZF 2 Sides Joint U Kit	4
Accessory	ZF 2 Sides Joint L Kit	4
	ZF-SF Adapter Beam 40 Kit	4
	ZF Adjuster Caster 40 Kit L	2
	ZF Adjuster Caster 40 Kit R	2
	ZF Corner Joint 40 H	4
	ZF T Slot Side 40	6
Other	Nut・Anti-Slip Cap	12

ZF40 Series
Equipment Stand

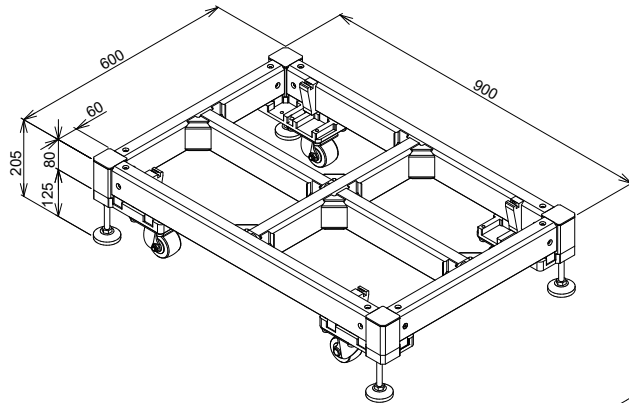


External Size
W1400×D1500×H2000

Product Type	Part Name	Quantity
Frame	ZF Beam 40	14
	ZF Pillar 40	4
	SF2-30・30	25
	Base Frame	7
Accessory	ZF 2 Sides Joint 40 Kit L U	8
	ZF Adjuster Caster Kit L R	4
	ZF Corner Joint H	24
	T Slot Side 40	30
	D Bracket S Kit (With Tap)	44
	S Blind Bracket S	4
	Frame Cap N 3030	12
	Flat Hinge S Kit	4
	Handle B type	2
	MG Bracket S-S Kit	4
	Hard Bracket SP	12
	Angle Bracket SP	4
	Cover Holder S with Cap	44
	SUS Plate	2
Panel	Cover PET Transparent t 5	14
Other	Nut・Bolt・Anti-Slip Cap	270

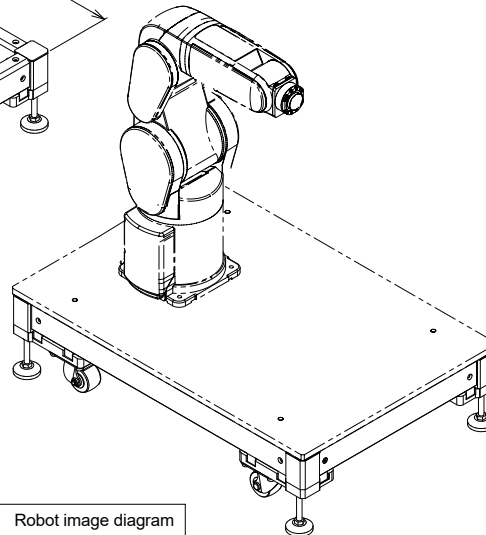
Reference Example

ZF60 Series Stand for Multiple Joints Robot



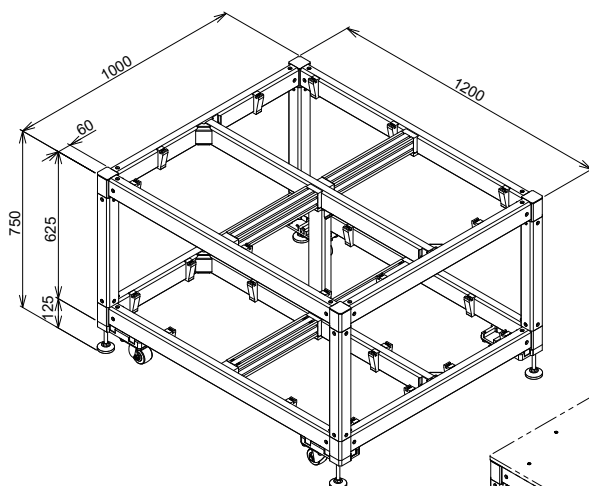
External Size W900×D600×H205

Product Type	Part Name	Quantity
Frame	ZF Beam 60	7
	ZF 2 Sides Joint 60U Special	4
Accessory	ZF Corner Joint 60 H	12
	ZF Adjuster Caster 60 Kit L R	4
	ZF T Slot Side 60	4
Other	Nut • Anti-Slip Cap	40



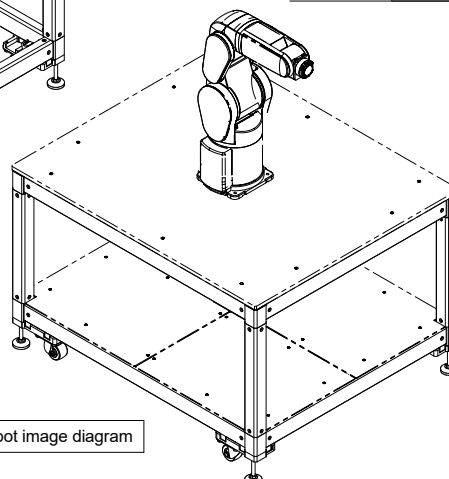
Robot image diagram

ZF60 Series Stand for Multiple Joints Robot



External Size W1200×D1000×H750

Product Type	Part Name	Quantity
Frame	ZF Beam 60	11
	ZF Pillar 60	4
	SF2-60 • 60 • 2S	4
Accessory	ZF 2 Sides Joint 60U Kit	4
	ZF 2 Sides Joint 60L Kit	4
	ZF Corner Joint 60 H	8
	ZF Corner Joint 60 V	4
	ZF Adjuster Caster 60 Kit L R	4
	ZF-SF Adapter Beam 60 Kit	8
	ZF T Slot Side 60	26
Other	Nut • Anti-Slip Cap	68



Robot image diagram

ZF 80

Frame

Joint

Foot

ZF 60

Frame

Joint

Foot

ZF 40

Frame

Joint

Accessory

Foot

ZF Common Parts

Door parts

Base Frame

ZF Processing

ZF Technical data



Design Support Service
→ P.14



Assembled Delivery Service
→ P.14



Application Seminar
→ P.15



RoHS
→ P.69

Reference Example

ZF
80

Frame

Joint

Foot

ZF
60

Frame

Joint

Foot

ZF
40

Frame

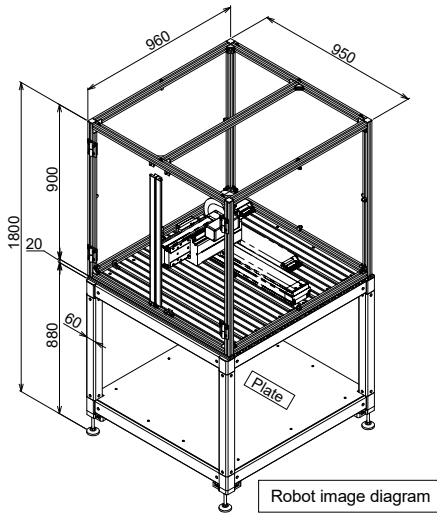
Joint

Accessory

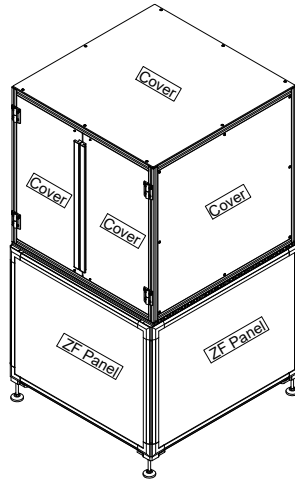
Foot

ZF
Common
Parts

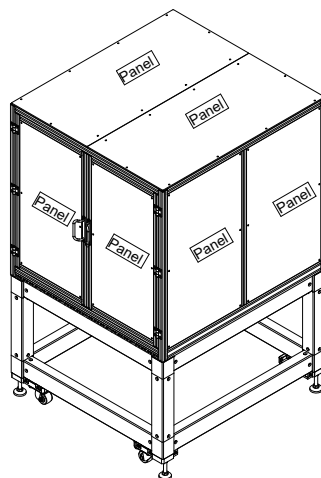
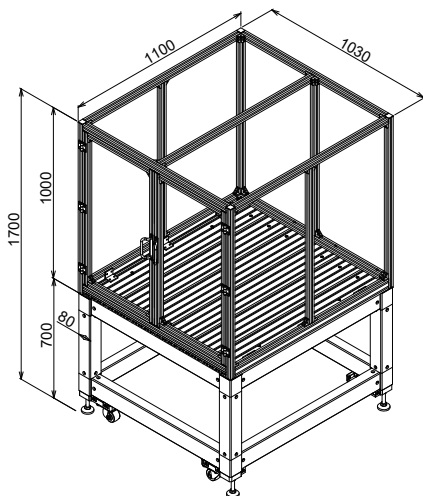
Door parts

Base
FrameZF
ProcessingZF
Technical dataZF60 Series
Cartesian Robot Stand

Robot image diagram

External Size
W950×D960×H1800

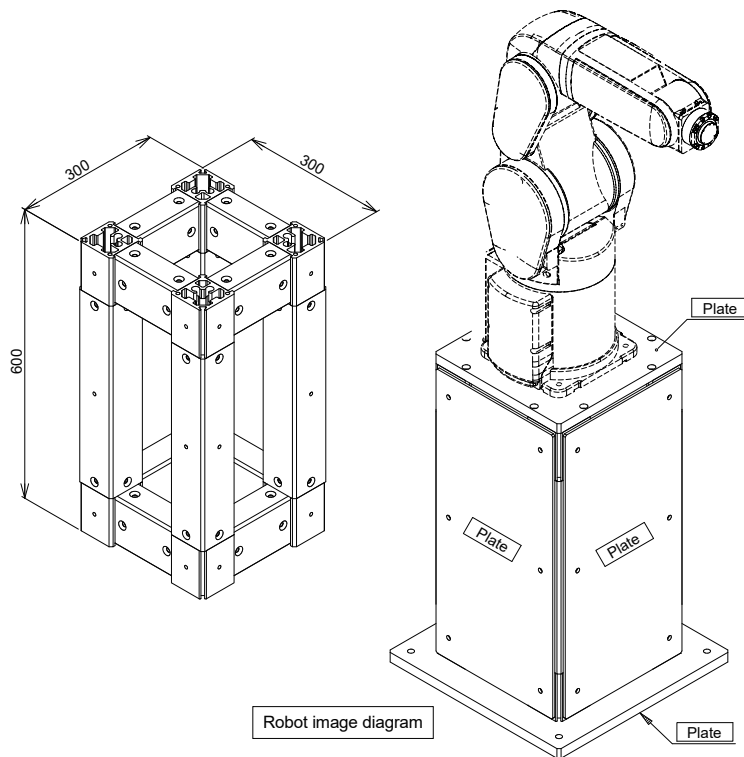
Product Type	Part Name	Quantity
Frame	ZF Beam 60	10
	ZF Pillar 60	4
	SF2-30・30	13
	ZF Base Frame	6
Accessory	ZF 2 Sides Joint 60 Kit L U	8
	ZF Adjuster Kit L R	4
	ZF Corner Joint 60 H	8
	ZF T Slot Side 60	26
	D Bracket S Kit (With Tap)	24
	Frame Cap N30・30	4
	Angle Bracket S	6
	Slip-Joint Hinge S L R	4
	Pull Rail (Top and Bottom Cap)	2
	Magnet Catch J	4
	Cover Holder S with Cap	12
	ZF Panel	4
Panel	Plate	1
	Panel Door	2
	Cover PET Transparent t5	4
Other	Nut・Bolt・Anti-Slip Cap	222

ZF80 Series
Cartesian Robot StandExternal Size
W1030×D1100×H1700

Product Type	Part Name	Quantity
Frame	ZF Beam 80	11
	ZF Pillar 80	4
	ZF Base Frame	6
	SF2-30・30	2
	SF-K・30・30	20
Accessory	SF-K・30・60	2
	ZF 2 Sides Joint 80 U Kit	4
	ZF 2 Sides Joint 80 L Kit	4
	ZF Corner Joint 80 H	12
	ZF T Slot Side 80	16
	ZF Adjuster Caster 80 Kit L R	4
	Frame Cap N30・30 (Light Gray)	12
	D Bracket S with Tap Kit	45
	Flat Bar 30 T=10	2
	Angle 4040 T=5	6
	Flat Hinge S Kit	6
	Handle G Type	2
	Handle G Mounting Plate	2
	Cover Support L6 S Kit	8
	Cover Holder S with Cap	16
	MG Bracket S-S Kit	4
Panel	Cover PET Transparent t5	10
Other	Nut・Bolt・Anti-Slip Cap	248

Reference Example

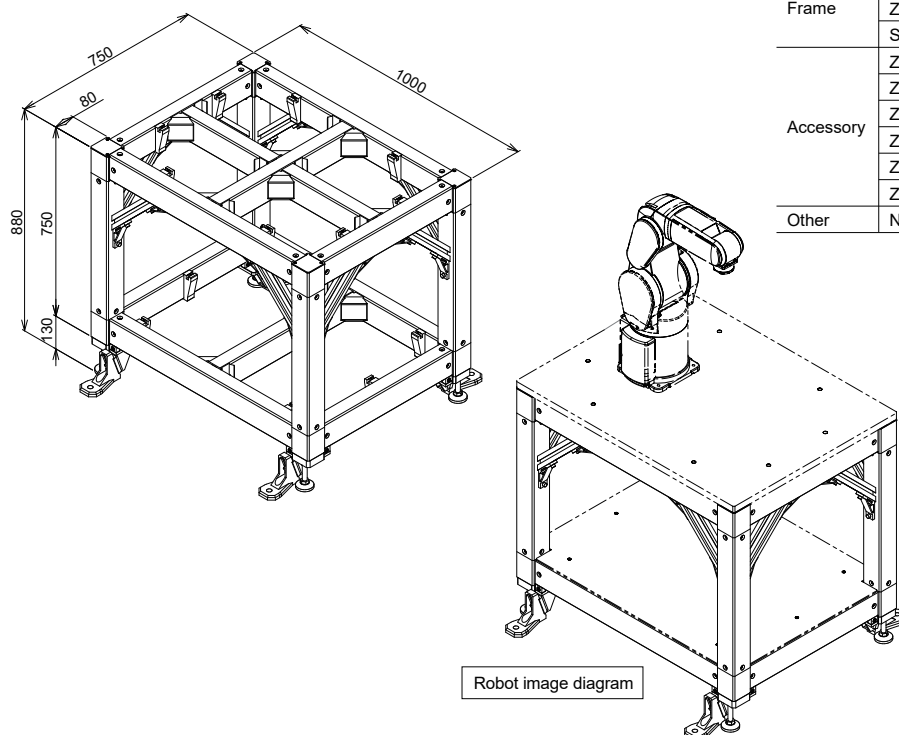
ZF80 Series Stand for Multiple Joints Robot



External Size W300×D300×H600

Product Type	Part Name	Quantity
Frame	ZF Beam 80	8
	ZF Pillar 80	4
Accessory	ZF 2 Sides Joint 80 L	8
Panel	Plate	6
Other	Bolt	136

ZF80 Series Stand for Multiple Joints Robot



External Size W1000×D750×H880

Product Type	Part Name	Quantity
Frame	ZF Beam 80	12
	ZF Pillar 80	4
	SF2-40 · 40 DSW	8
Accessory	ZF 2 Sides Joint 80 U Kit	4
	ZF 2 Sides Joint 80 L Kit	4
	ZF Corner Joint 80 H	16
	ZF Adjuster 80 Kit L R	4
	ZF Anchor Bracket Kit	4
	ZF T Slot Side 80	14
Other	Nut · Anti-Slip Cap	28

ZF 80

Frame

Joint

Foot

ZF 60

Frame

Joint

Foot

ZF 40

Frame

Joint

Accessory

Foot

ZF Common Parts

Door parts

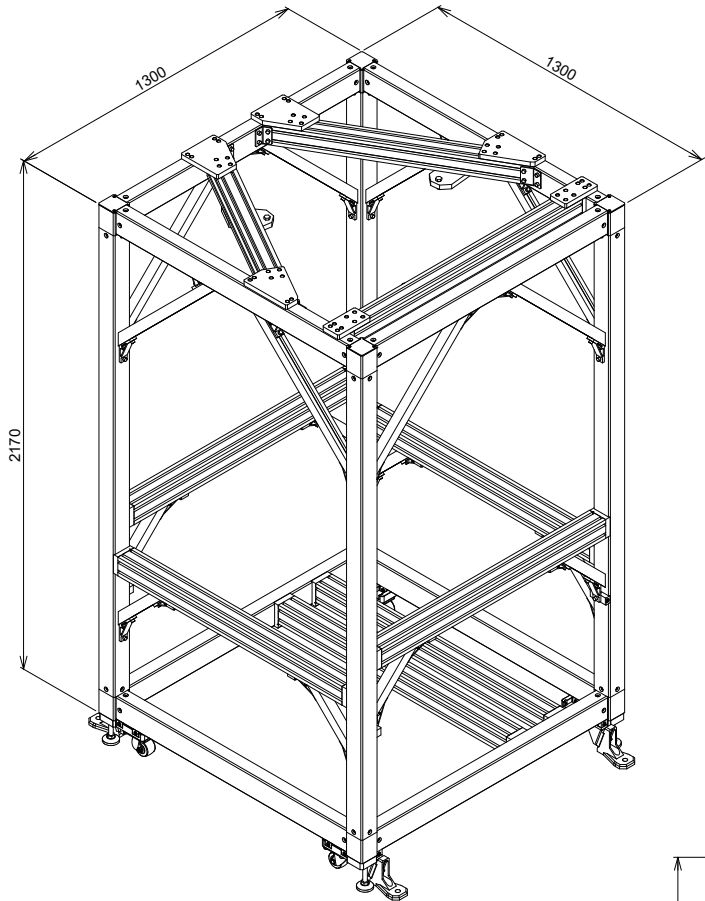
Base Frame

ZF Processing

ZF Technical data

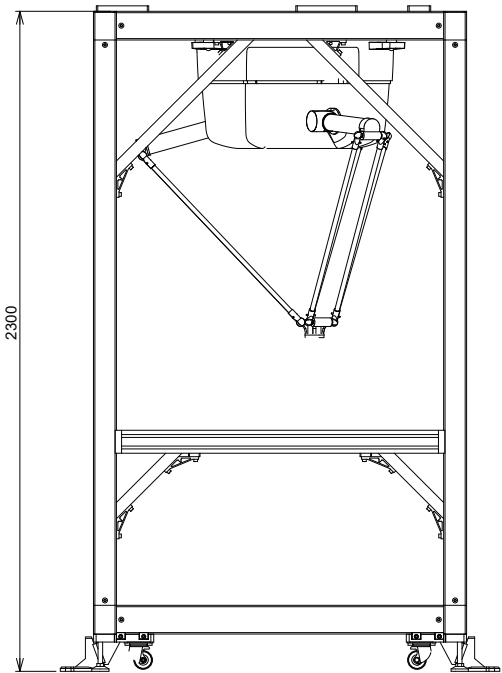
Reference Example

ZF80 Series Parallel Link Robot Stand



External Size W1300×D1300×H2300

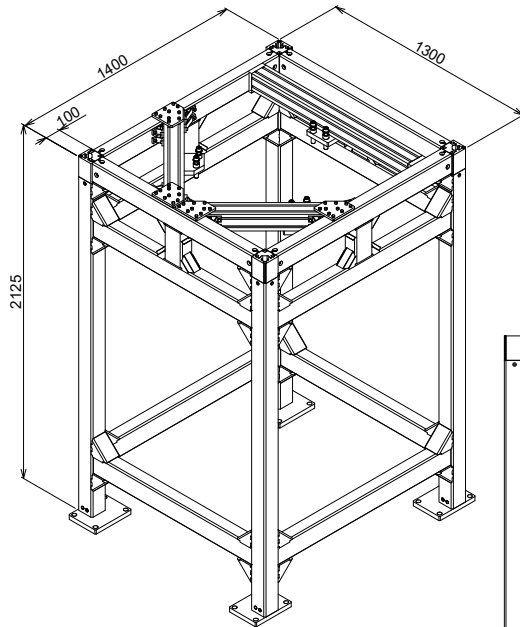
Product Type	Part Name	Quantity
Frame	ZF Beam 80	8
	ZF Pillar 80	4
	SF2-40.40.2H	4
	SF2-40.40.3F	12
	Flat Bar 75 T=12	8
	SF2-80.80	9
Accessory	ZF 2 Sides Joint 80 L Kit	4
	ZF 2 Sides Joint 80 U Kit	4
	ZF-SF Adapter Beam 80 Kit	6
	ZF-SF Adapter Pillar 80 Kit	8
	ZF Adjuster Caster 80 Kit L R	4
	ZF Anchor Bracket Kit	4
	ZF T Slot Pillar 80 Beam 100 B	4
	Hard Bracket L DE45	4
	Hard Bracket L DE135	28
Other	Plate • Bolt • Nut	



Robot image diagram

Reference Example

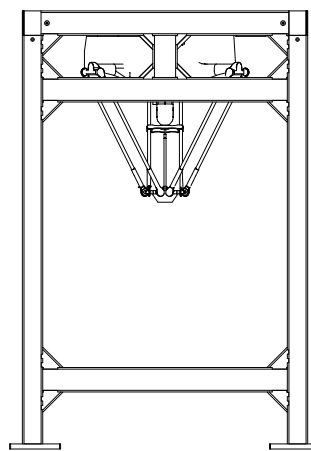
ZF100 Series Parallel Link Robot Stand



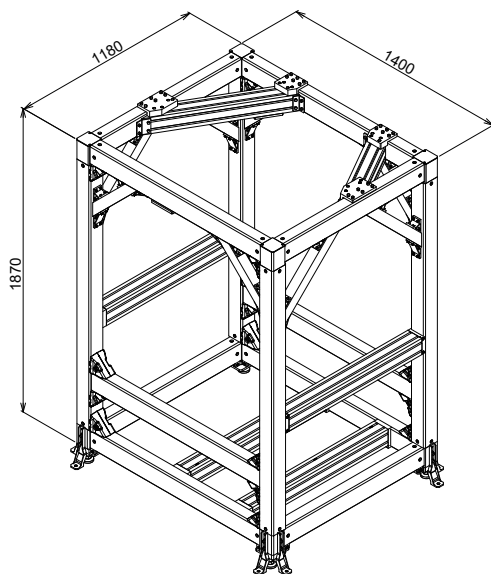
Robot image diagram

External Size W1400×D1300×H2125

Product Type	Part Name	Quantity
Frame	ZF Beam 100	16
	ZF Pillar 100	4
	SF2-100.100.2S	3
	ZF 2 Sides Joint 100 L	4
Accessory	ZF-SF Adapter Beam 100 Kit	2
	ZF Corner Joint 100 PB	40
	ZF Corner Joint 100 V	16
	Hard Bracket G100 Kit	1
	Hard Bracket L DE45	8
Other	Hard Bracket L DE135	4
	Plate • Bolt • Nut	



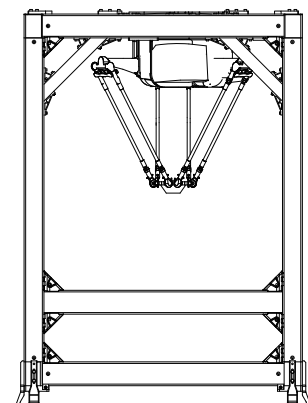
ZF100 Series Parallel Link Robot Stand



Robot image diagram

External Size W1400×D1180×H1870

Product Type	Part Name	Quantity
Frame	ZF Pillar 100	4
	ZF Beam 100	10
	SF2-100.100.2S	6
	BF-60 • 60	8
Accessory	ZF 2 Sides Joint 100U Kit	4
	ZF 2 Sides Joint 100L Kit	4
	ZF Corner Joint 100 PB	16
	ZF-SF Adapter Pillar 100 Kit	4
	ZF-SF Adapter Beam 100 Kit	4
	ZF Adjuster 100 Kit L R	4
	Anchor Bracket	8
	Hard Bracket S3060 • DE45	16
	Hard Bracket S3060 • DE135	12
Other	Plate • Bolt • Nut	



ZF
80

Frame

Joint

Foot

ZF
60

Frame

Joint

Foot

ZF
40

Frame

Joint

Accessory

Foot

ZF
Common
Parts

Door parts

Base
Frame

ZF
Processing

ZF
Technical data

Reference Example

ZF
80

Frame

Joint

Foot

ZF
60

Frame

Joint

Foot

ZF
40

Frame

Joint

Accessory

Foot

ZF
Common
Parts

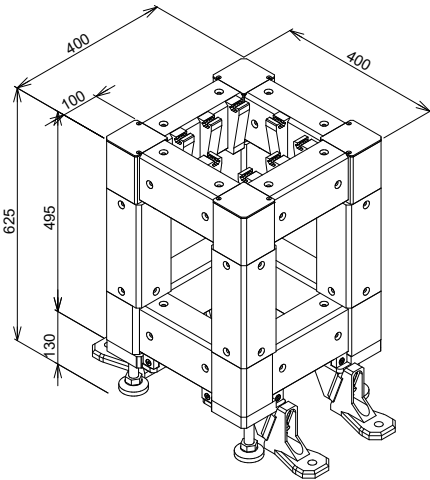
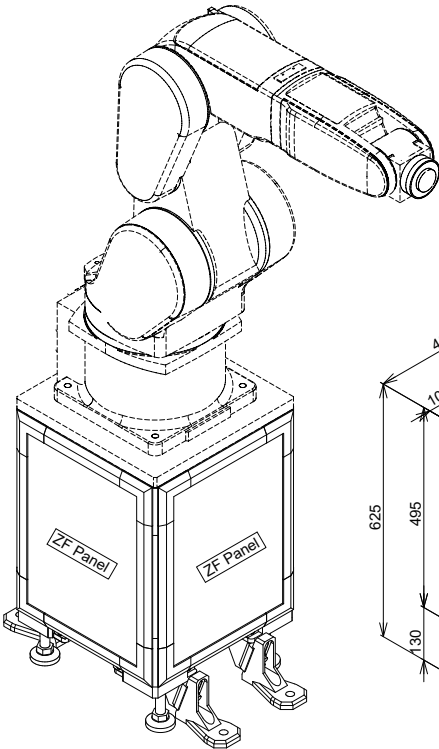
Door parts

Base
Frame

ZF
Processing

ZF
Technical data

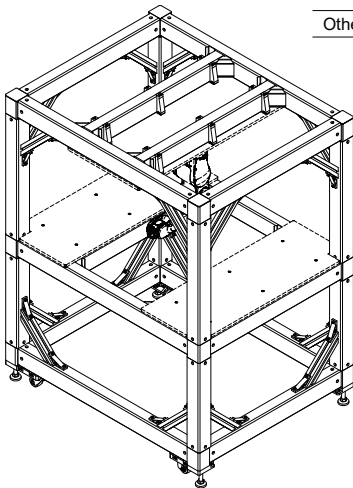
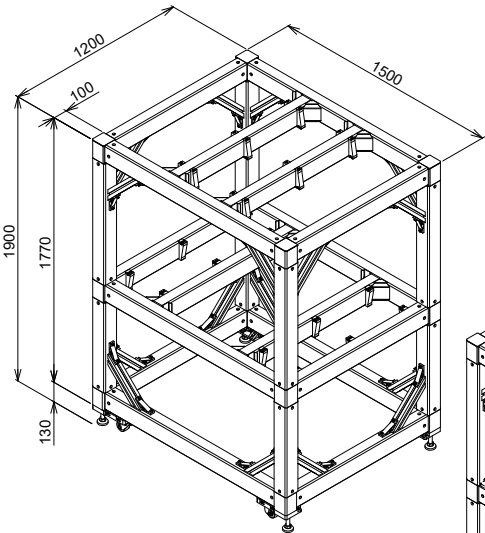
ZF100 Series
Stand for Multiple Joints Robot



External Size
W400×D400×H625

Product Type	Part Name	Quantity
Frame	ZF Beam 100	8
	ZF Pillar 100	4
Accessory	ZF 2 Sides Joint 100 L Kit	4
	ZF 2 Sides Joint 100 U Kit	4
	ZF Adjuster 100 Kit L R	4
	ZF Anchor Bracket Kit	4
	ZF T Slot Side 100	8
Panel	ZF Panel 100	4
Other	Nut • Anti-Slip Cap	16

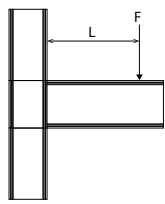
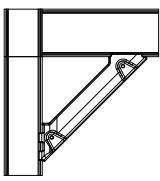
ZF100 Series
Equipment Stand

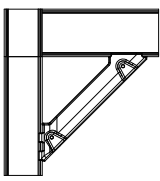


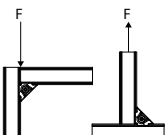
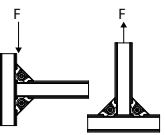
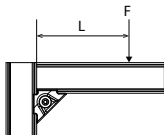
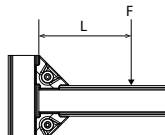
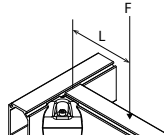
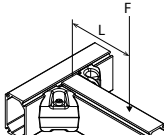
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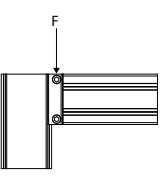
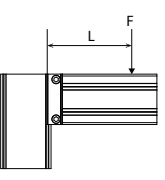
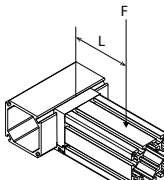
Product Type	Part Name	Quantity
Frame	ZF Beam 100	16
	ZF Pillar 100	8
	SF2-50・50・1S	16
Accessory	ZF 2 Sides Joint 100 L Kit	4
	ZF 2 Sides Joint 100 U Kit	4
	ZF 2 Sides Joint 100 M Kit	4
	ZF Corner Joint 100 H	16
	ZF Adjuster Caster 100 Kit L R	4
	ZF T Slot Side100	24
	Hand Bracket L・DE135	32
Other	Nut • Bolt • Anti-Slip Cap	144

ZF Joint • Parts Allowable Load Guide

(Moment : N·m)		(Moment : N·m)	
Joint		Joint + Stay Connector	
	Frame Size		Moment
	40		100
	60		210
	80		360
	100		810

(Moment : N·m)	
Joint + Stay Connector	
	Frame Size
	40
	60
	80
	100

		(Slide : N, Moment : N·m)					
Corner Joint							
		Both directions have the same value	Both directions have the same value				
Frame Size	Type	Slide, Pull-out ①	Slide, Pull-out ②	Moment ①	Moment ②	Moment ③	Moment ④
40	H	480	1090	40	90	40	80
	V						
	PB						
60	H	560	1090	100	200	100	180
	V						
	PB						
80	H	1100	2350	170	350	100	240
	V						
	PB						
100	H	2430	8700	400	800	240	490
	V						
	PB						

(Slide : N, Moment : N·m)			
ZF-SF Adapter Pillar Beam			
	Frame Size	Slide	Moment ①
	40	1510	50
	60	3110	150
	80	3110	260
	100	3110	600

ZF 80

Frame 


Joint 

Foot 

ZF 60

Frame 

Joint 

Foot 

ZF 40

Frame 

Joint 

Accessory 

Foot 

ZF Common Parts

Door parts 

Base Frame 

ZF Processing

ZF Technical data



Design Support Service
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Assembled Delivery Service
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Application Seminar
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RoHS
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ZF Joint · Parts Allowable Load Guide

ZF 80

- Frame
- Joint
- Foot

(Slide : N, Moment : N·m)

T Slot Side		
Frame Size	Slide	Pull-out
40	1180	1240
60	1560	3320
80	2150	4950
100	2170	5580

(Slide : N, Moment : N·m)

T Slot Top Pillar Top Beam A Top Beam B		
Frame Size	Slide	Pull-out
40	1080	3510
60	1180	4230
80	1830	5490
100	1830	5490

ZF 60

- Frame
- Joint
- Foot

ZF 40

- Frame
- Joint
- Accessory
- Foot

(Slide : N, Moment : N·m)

T Slot SS S SS W			
Frame Size	Slide	Pull-out ①	Pull-out ②
Common	190	1310	370

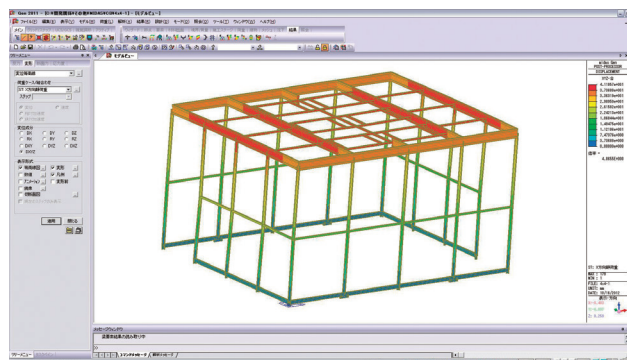
ZF Common Parts

- Door parts
- Base Frame

Structural Analysis Proposal Service

ZF Processing

ZF Technical data



We propose the optimal frame and configuration based on strength analysis included the robot's behavior.

Green Procurement

1. Purpose

The purpose of this document is to clearly state prohibited substances designated by laws and ordinances as well as managed substances which are limited in their volume of use, and procure products and services with a lower environmental burden for materials that compose SUS Corporation products and for chemical substances included in these products.

2. Scope of Application

2.1 Scope of Application to Products

- 1) Products designed, manufactured, and sold by SUS Corporation.
- 2) Products commissioned for design and manufacturing to a third party and sold with the SUS Corporation trademark by SUS Corporation.
- 3) Products purchased from another corporation, incorporated into another product and sold as a finished product by SUS Corporation.
- 4) Products which have been commissioned for design and manufacturing by a third party to SUS Corporation.
(Excluding parts and materials designated by the third party.)

2.2 Scope of Application to Parts and Materials

This includes parts, materials, and other items used in products included in "2.1 Scope of Application of Products" above.
These parts and materials are as follows.

- 1) Semi-finished goods (assembly parts including functional units, modules, circuit board assemblies, etc.)
- 2) Parts (electric parts, component parts, screws, semiconductor devices, printed circuit boards, etc.)
- 3) Accessories for using devices (electric cables, harnesses, AC adapters, etc.)
- 4) Component materials of secondary materials (adhesive tape, solder material, bonding agent, etc.) used in the product
- 5) Documents such as instruction manuals
- 6) Packing materials, packing parts, etc. (bags, cushioning, sheets, wrapping, cardboard, tape, cable ties, labels, printer ink, paint, etc.)

3. For regulated substances which are subject to SUS Corporation green procurement standards, see the list on the SUS Corporation homepage.
<http://www.sus.co.jp/procurement/>

RoHS

RoHS, short for "2002/95/EC (Directive on the restriction of the use of certain hazardous substances in electrical equipment)", is a directive regarding the use of specified hazardous substances in electrical and electronic equipment promulgated by the European Union Council & Parliament directive on January 27, 2003.

In principle RoHS prohibits the use of lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB), and polybrominated diphenyl ethers (PBDE) (maximum permissible concentrations are 0.01% by weight for cadmium, and 0.1% by weight for the other 5 substances), and it was enforced in July 2006.

Several items concerning target products and application exclusions were revised by the June 8, 2011 European Union Council & Parliament directive "2011/65/EU (Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment <recast>).

Description on RoHS Compliance Products

According to the publication of revised RoHS directives, our products are, from July 22, 2019, targeted of 10 substances compared to the 6 substances before revision.

RoHS10 Compliance Products • • Products confirmed that revised RoHS directives are followed. Can continuously be used as RoHS compliance products after July 22, 2019.

RoHS6 Compliance Products • • Conform to former RoHS directives (restricted 6 substances) only.
Or products that are investigated for conformity to revised RoHS directives.

REACH SVHC

REACH is a regulation on the registration, evaluation, authorization, and restriction of chemicals in the European Union (EU) which was voted on by the European Council in December 2006 and after being published in the official gazette, came into force in June 2007. The name of the regulation is an acronym for "Registration, Evaluation, Authorization, and Restriction of Chemicals". REACH mandates that manufacturers and importers register and evaluate their products when manufacturing or importing chemicals in the EU, and requires relevant authorities to make restrictions, such as giving permission for substances of very high concern (SVHC) or prohibiting substances of even greater risk. Entities that do not fulfill the obligations required by REACH cannot manufacture or launch chemicals within the EU. SVHCs are periodically added as "candidates for authorization", and ultimately it is expected that approximately 1,000 chemical substances will be covered by the year 2020.

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[illegible][illegible]

Office & Group Company

■ Sales Office

System Upgrade Solution BKK Co., Ltd.

URL: <http://www.susbkk.co.th>

Head Office

700/71 Moo 5, T.Klongtamru, A.Muang, Chonburi 20000

Factory: tel. +66-3845-7069~71, fax. +66-3845-7072

Sales Direct: tel. +66-3846-5775~6, fax. +66-3846-8297

Rangsit Factory & Sales Branch

9/231 - 9/234 Moo 5, Phaholyothin Rd., T.Klong Nueng,

A.Klong Luang, Pathumthani 12120

Factory: tel. +66-2516-3631~4, fax. +66-2516-3635

Sales Direct: tel. +66-2516-2747~9, fax. +66-2516-4388

Pinthong Factory & Sales Branch

Pinthong 3 Industrial Estate 219/34 Moo 6, T.Bowin,

A.Sriracha, Chonburi 20230

Factory: tel. +66-3811-9307~8, fax. +66-3811-9309

Sales Direct: tel. +66-3811-0532~3, fax. +66-3811-9309

Lamphun Sales Branch

199,199/1-3 Moo 4, T.Banklang, A.Muang, Lamphun 51000

tel. +66-5355-2769, fax. +66-5355-2769

■ Group Company

[Head Office/Japan]

SUS Corporation

6F, S-patio Bldg. 14-25 Minami-cho, Suruga-ku, Shizuoka-shi,
Shizuoka 422-8067, Japan

tel. +81-54-202-2000, fax. +81-54-202-2002

[Thailand]

Standard Units Supply (Thailand) Co., Ltd.

Head office and factory

299 Moo 10, T.Banthi, A.Banthi, Lamphun 51180, Thailand

tel. +66-5356-9999, fax. +66-5356-9950~1

[Singapore]

SUS (Singapore) Pte. Ltd.

19 Tannery Road 347730, Singapore

tel. +65-6842-4348, fax. +65-6842-3646

[China]

SUS (Suzhou) Co., Ltd.

Block 25A# Industrial Workshop, Chuangtou industrial area,

Suzhou Industrial Park, Suzhou 215122, China

tel. +86-512-82253336, fax. +86-512-82253339

[Vietnam]

Standard Units Supply Vietnam Company Limited

Workshop X6, Hai Thanh Leasing workshop area, Hai Thanh Ward,

Duong Kinh District, Hai Phong city, Vietnam

tel. +84-2253-632-403, fax. +84-2253-632-405

[India]

Standard Units Supply (India) Pvt. Ltd.

43/1 Padasalai Street, Ayanambakkam, Chennai - 600095, Tamil Nadu, India

tel. fax. +91-44-49524482

[Philippines]

Standard Units Supply Philippines Corporation

Building R1-D Lot 13 Phase 1B First Philippine Industrial Park Special Economic
Zone 1 Tanauan City 4232,

Batangas Province, Philippines

tel. +63-43-430-0290~0299

[Myanmar]

SUS Myanmar Co., Ltd.

Block 1C/11, Yadanar Street, Nawadday Garden Housing,

Hlaingtaryar Township, Yangon, Myanmar

tel. +95-996-078-7111

[America]

SUS America, Inc.

1822 Brummel Ave, Elk Grove Village, Illinois 60007

tel. +1-847-350-1525 fax. +1-847-350-1531

FA Catalog

GF Aluminum Pipe
Structure Catalog



SF•AZ Aluminum Frame
Structure Catalog



SiO




System Upgrade Solution BKK Co., Ltd.

Head Office

700/71 Moo 5, T.Klonglamru, A.Muang, Chonburi 20000

Tel: +66-3845-7069~71, Fax: +66-3845-7072

 SystemUpgradeSolutionBKK

www.susbkk.co.th



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