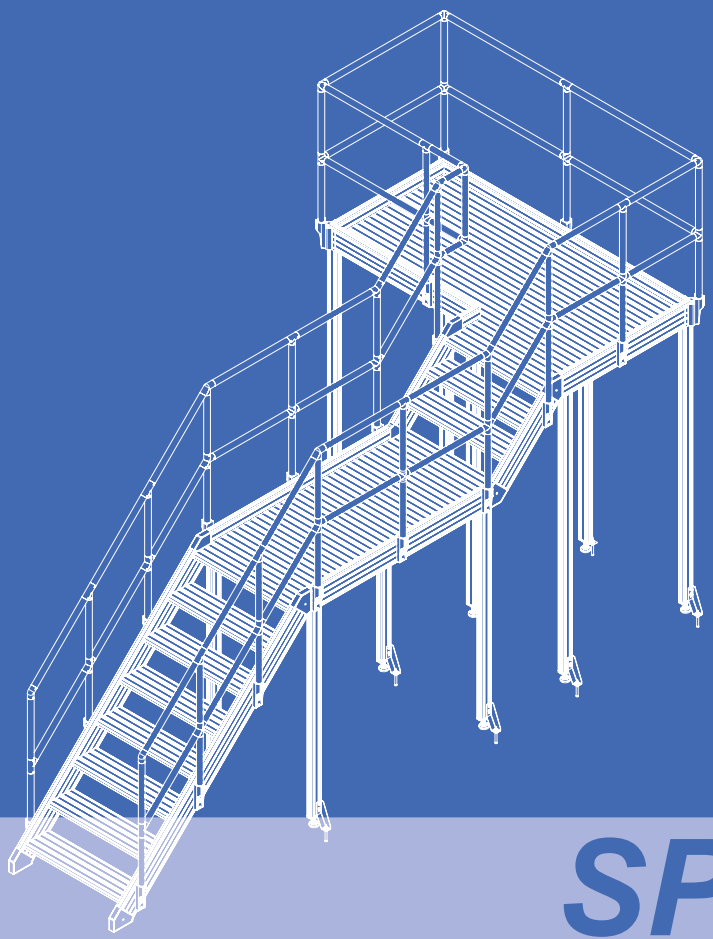
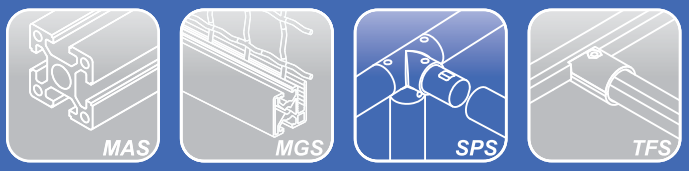


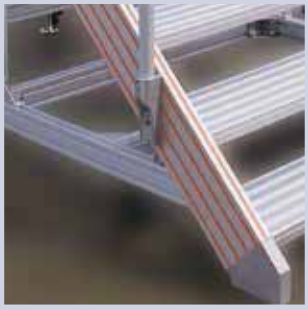
SPS

Stair and Platform System








Stair and Platform System (SPS) is widely used for machinery handrail, equipment overpass bridge, or maintenance/visiting platform etc. The connector in SPS is designed with internal fastening mechanism(Patent product) and the fastening between the connector and the tube can be realized by fastening the screw. No machining need to be done for the tube and the system is very easy and convenient to use.

A Aluminum Tube

Aluminum tube Φ40mm for column of handrail and guardrail.

P. S-10

C Strut Profile

For frame and support of step and platform.

P. S-11~12

B Step Profile

For step Ladder or to build the platform with profile put in parallel.

P. S-10

D Tube Connector

To build the handrail and guardrail. Various connection for different demands.

P. S-14~21

E Stair Joint

For connection between step unit and platform unit.

P. S-22

G Side Base

For fixation of handrail and guardrail.

P. S-27

F Clamp

For connection between step profiles and connection between step profile and frame profile.

P. S-24

H Angle Plate

For the connection between side base and frame profile at the 90° corner of the platform.

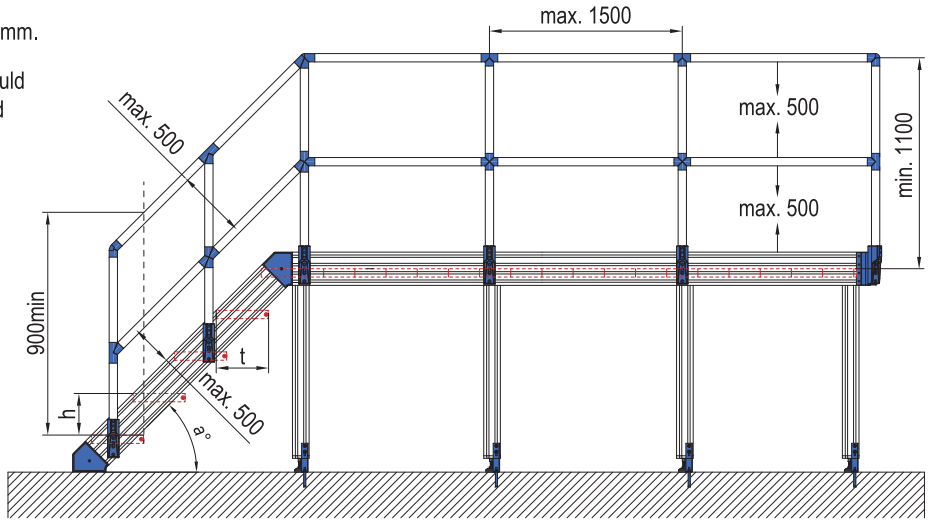
P. S-25

Stair and Platform System (SPS)

The SPS is suitable for many indoor and outdoor applications from the simplest railings to complicated stairs and working platforms without any extra machining. Connection is realized effortlessly by simply tightening clamping screw.

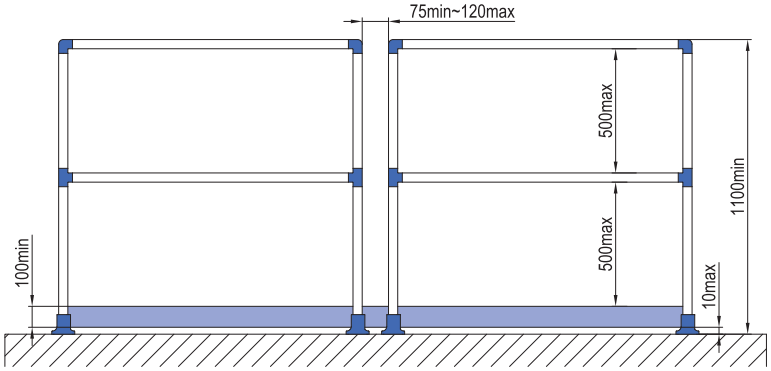
Safety Requirement of Stair and Platform

- Depth of step t not less than 80mm.
- Vertical distance between steps h not more than 250mm.
- The distance between steps in the same section should be the same. The distance between the first step and the ground level can be max. 15% less than the distance between other steps.
- The net width of the step should be not less than 600mm. The standard width is 800mm. The width should be increased to 1000mm where the people come across on the step.
- The increasing height of each stair section should be not more than 3000mm.
- a is for the angle of the stair. The standard angle is as 30º, 45º and 60º.



Safety Requirement of Guardrail

- The guardrail is required where the platform height is more than 500mm or the platform passes the dangerous area.
- The guardrail is required on at least one side of the step.
- The distance between two posts can`t be more than 1500mm.
- The vertical distance of two guardrail can`t be more than 500mm and the total height of the guardrail can`t be less than 1100mm.
- The guardrail interruption, if any, is better to be 75~120mm.
- The kick plate is optional to be installed at both sides of platform to avoid the falling of goods.



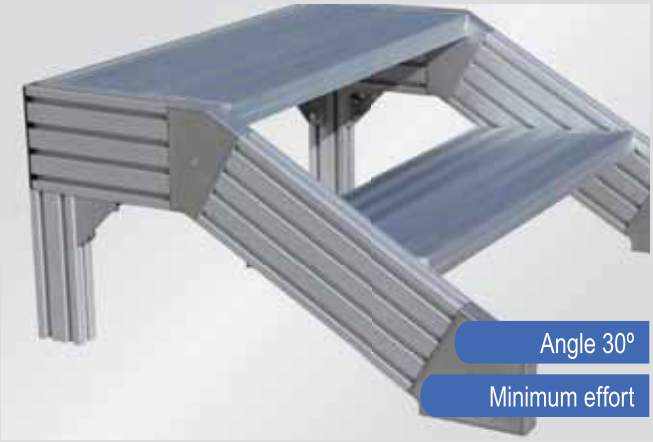
Products Index

Step Unit

Composition of Step Unit
Side frame: PG40 40x120mm and 40x160mm strut profile with standard slots. It matches with all MAS accessories to realize the industrial requirement of max. modulization and flexible assembly
Step tread: Step profile with anti-skid lines, which avoid the potential skid due to the step. The step protection profile will be added at the inner front side of the step according to different safety requirements, which improves the safety level of the step and platform.

The stair angles are divided into 30º, 45º and 60º according to spacing and ease or difficulty of climbing requirement. The width of step and the max. height of each section of stair differ as well. See P. S-23 for detail.

Product introduction



Angle 30°

Minimum effort required for 30° stair. The stair allows the user to climb the stair without too much force, which is suitable for the area where people transfer the material or use the stair frequently.
Advantage: Minimum effort
Disadvantage: High cost, low space use rate, enough space is required for installation.

Angle 45°

The 45° stair requires low cost but with good performance and high space use rate. The equal angle makes beautiful industrial facility. The quantity of the step is suggested to be max. 18pcs to realize the best height.
Advantage: Beautiful, high performance, suitable for most of area
Disadvantage: Not the most economic, climb with difficulty

Angle 60°

The 45° stair realizes the optimum space use rate. It is a good solution when the installation space is limited or the stair isn`t used frequently.
Advantage: Low cost, high space use rate, suitable to be maintenance stair
Disadvantage: Climb with difficulty

Platform Unit

Composition of Platform Unit
Side frame: Same as step unit, PG40 40x120mm and 40x160mm strut profile with standard slots. It matches with all MAS accessories to build the platform in any dimensions.
Platform plane: 100mm and 150mm standard width step profiles. The profiles can be fixed with the clamp to form the platform at any length and width. The anti-skid lines on the surface avoid the potential skid due to the step. The kick plate avoid the danger of object dropping and reduce the gap between the platform and handrail/guardrail, which increases the safety protection level for the people work on the platform.

Product introduction

Loading capacity

The platform floor is composed of step profile and aluminum clamp. The step profile is high strength aluminum which will form a compatible surface with the strut profile and the loading capacity will obviously improved.

Safety and reliability

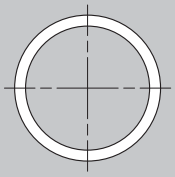
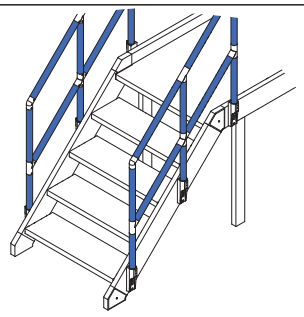
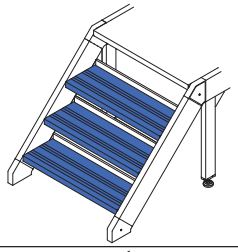
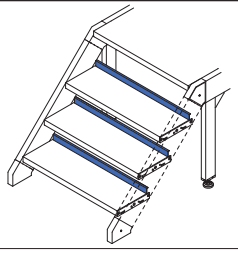
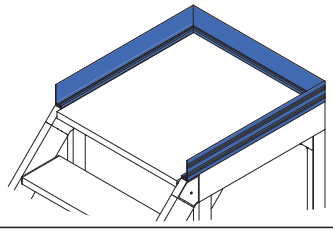
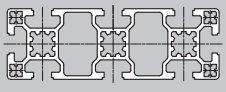
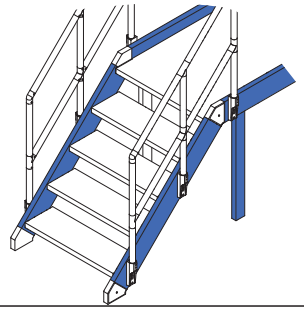
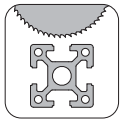
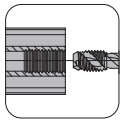
The guardrail is structured by Φ40mm aluminum tube. The design of closed frame forms the continuous guardrail. The flat surface at the connection part of tube and connectors avoid the potential danger to the operator.

Unlimited possibilities

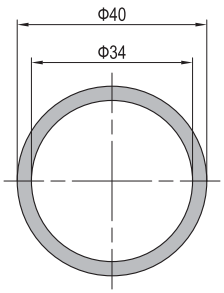
The combination of the step profile and strut profile increase the possibility of application. The system is compatible with most of MAS components which could expand system functionality.

Selection Reference of Standard Unit

Tube and Extruded aluminum profile as per GB5237-2008, surface satin anodized.
Standard length of delivery profile is 5800mm.

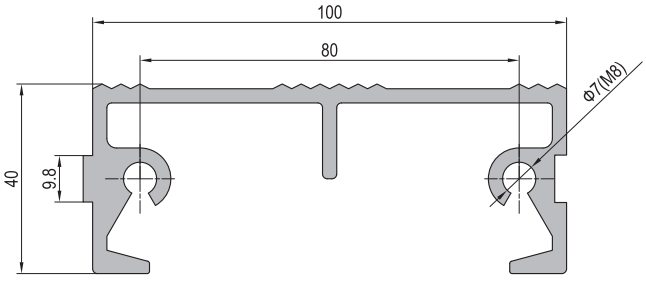
Aluminum Tube Φ40x3 	To build the guardrail, Φ40mm. The design of closed frame effectively avoid the damage to the fingers.	
Step Profile 	To build the step ladder and working platform and be fixed by clamp to form the platform in any dimensions.	
Step Protection Profile 	To be used in the inner front side of the step ladder to increase the safety level.	
Footrail Profile 	To avoid the object falling from the platform.	
Strut Profile PG40 	To build the frame support of step and working platform.	
Machining Symbol	 Drilling	 Angle cutting	 Thread tapping

Aluminum Tube Φ40x3



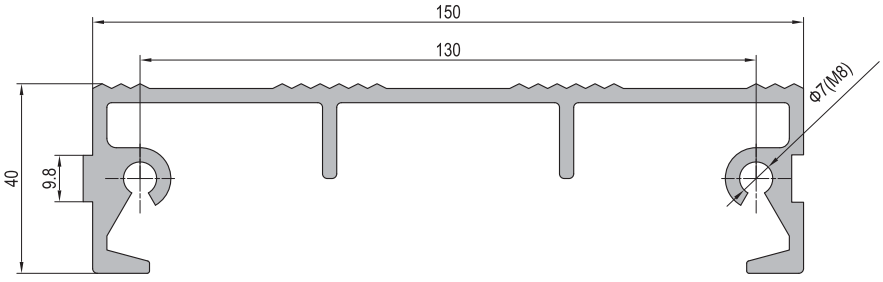
Description	Moment of Inertia Ix(cm^4)	Moment of Inertia Iy(cm^4)	Moment of Resistance Wx(cm^3)	Moment of Resistance Wy(cm^3)	Mass (kg/m)	Part No.
Aluminum Tube Φ40x3	6.0	6.0	3.0	3.0	1.0	SPS.AT40.03

Step Profile 40x100



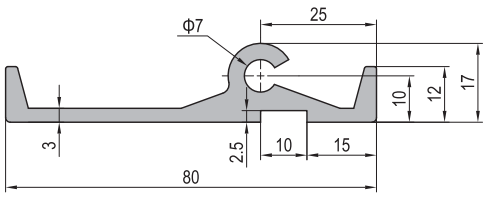
Description	Moment of Inertia Ix(cm^4)	Moment of Inertia Iy(cm^4)	Moment of Resistance Wx(cm^3)	Moment of Resistance Wy(cm^3)	Mass (kg/m)	Part No.
Step Profile 40x100	13.2	128.6	6.6	25.7	2.4	SPS.SP40.100

Step Profile 40x150



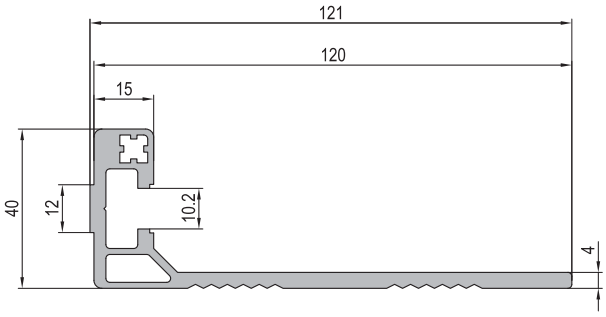
Description	Moment of Inertia Ix(cm^4)	Moment of Inertia Iy(cm^4)	Moment of Resistance Wx(cm^3)	Moment of Resistance Wy(cm^3)	Mass (kg/m)	Part No.
Step Profile 40x150	15.4	342	7.7	45.6	2.9	SPS.SP40.150

Step Protection Profile New!



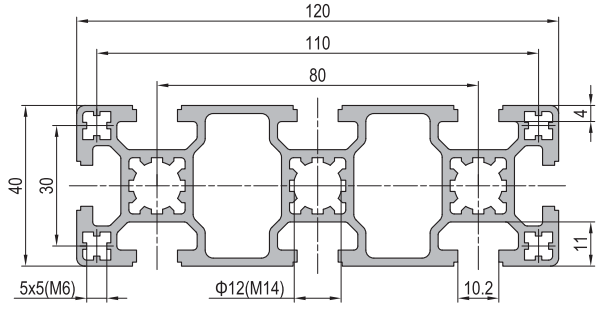
Description	Moment of Inertia Ix(cm^4)	Moment of Inertia Iy(cm^4)	Moment of Resistance Wx(cm^3)	Moment of Resistance Wy(cm^3)	Mass (kg/m)	Part No.
Step Protection Profile	0.7	24.5	1.2	6.1	1.2	SPS.SS40.80

Footrail Profile 40x120 New!



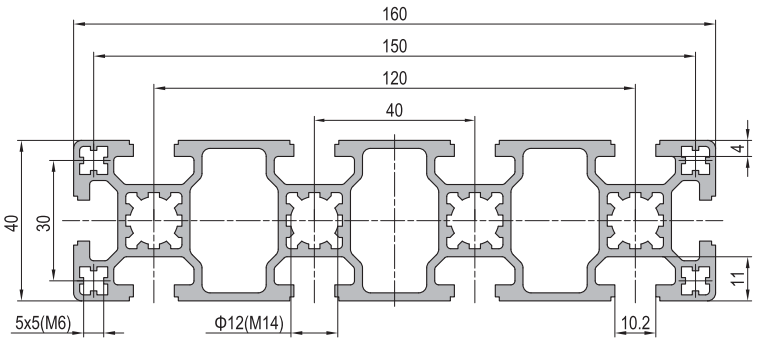
Description	Moment of Inertia Ix(cm^4)	Moment of Inertia Iy(cm^4)	Moment of Resistance Wx(cm^3)	Moment of Resistance Wy(cm^3)	Mass (kg/m)	Part No.
Footrail Profile 40x120	6.9	122.4	3.5	20.4	1.85	SPS.SS40.120

Strut Profile PG40 40x120 8 slots



Description	Moment of Inertia Ix(cm^4)	Moment of Inertia Iy(cm^4)	Moment of Resistance Wx(cm^3)	Moment of Resistance Wy(cm^3)	Mass (kg/m)	Part No.
Strut Profile PG40x120 8 slots	24.1	194.8	12.1	32.5	3.8	1.11.40.040120.08

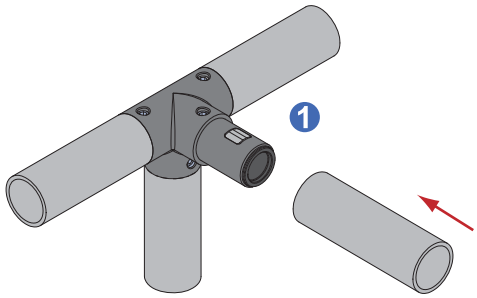
Strut Profile PG40 40x160 10 slots



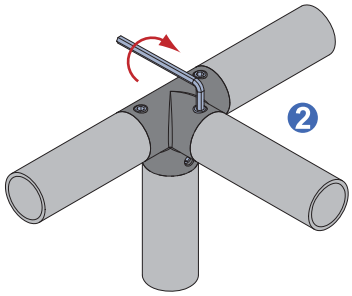
Description	Moment of Inertia Ix(cm^4)	Moment of Inertia Iy(cm^4)	Moment of Resistance Wx(cm^3)	Moment of Resistance Wy(cm^3)	Mass (kg/m)	Part No.
Strut Profile PG40x160 10 slots	31.6	435.7	15.8	54.5	4.8	1.11.40.040160.10

Tube Connector

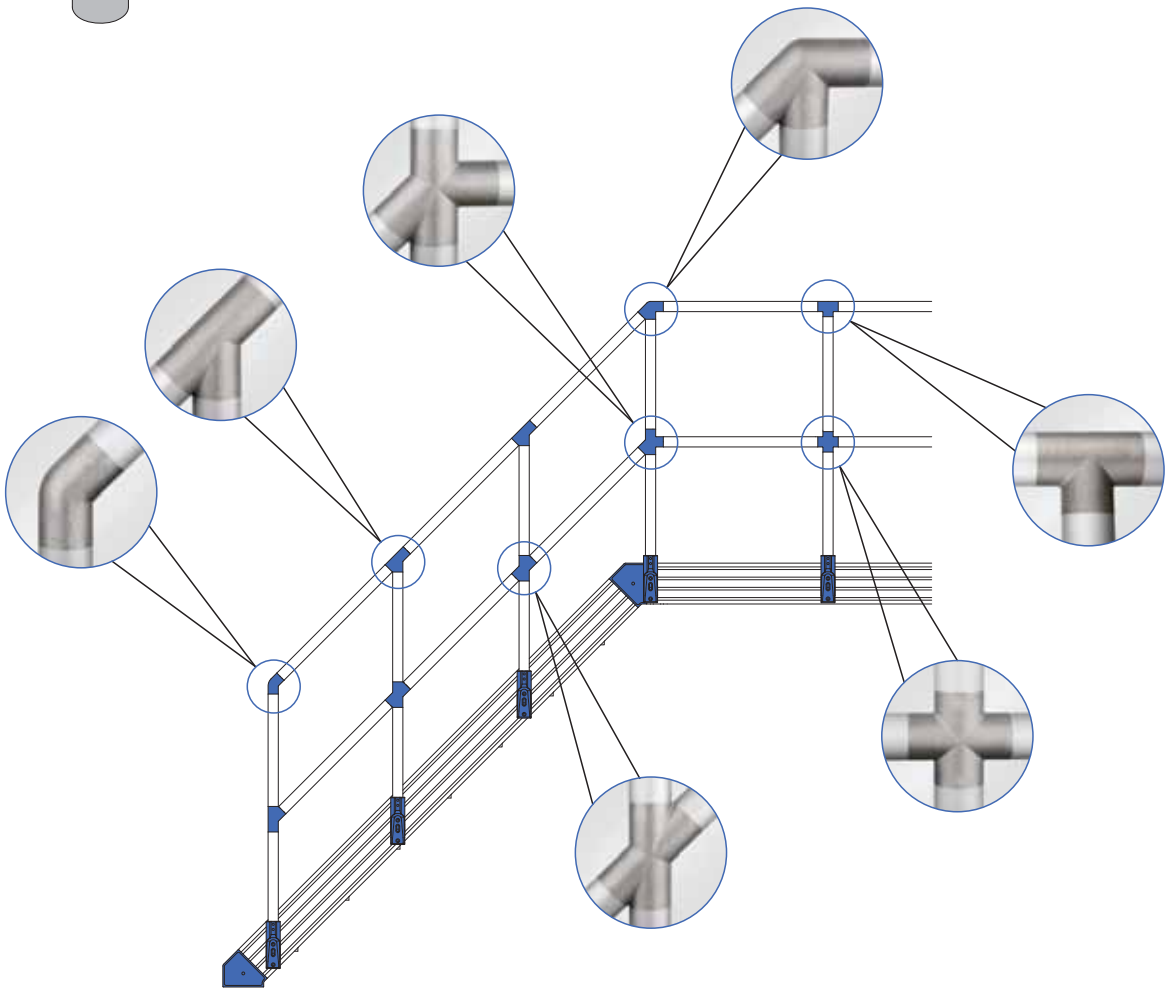
Tube Connectors use special internal locking system which connects the tubes by simply fastening screws without any extra machine work.



Tube Connectors use special internal locking

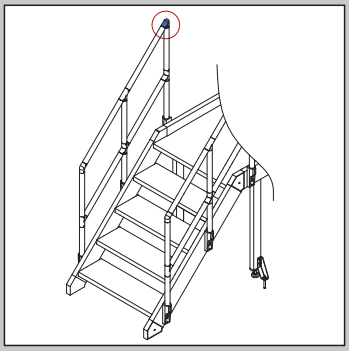


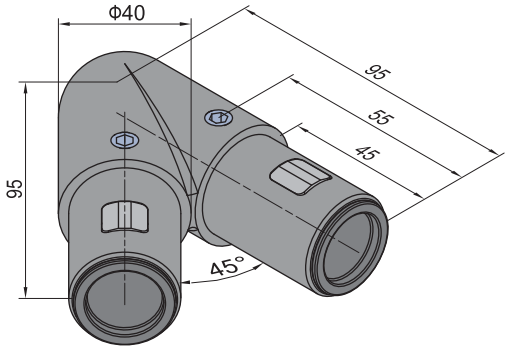
Tube Connectors use special internal lockings



V Connector

Material: diecast aluminum polished finish surface

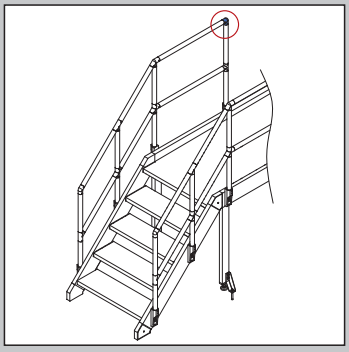


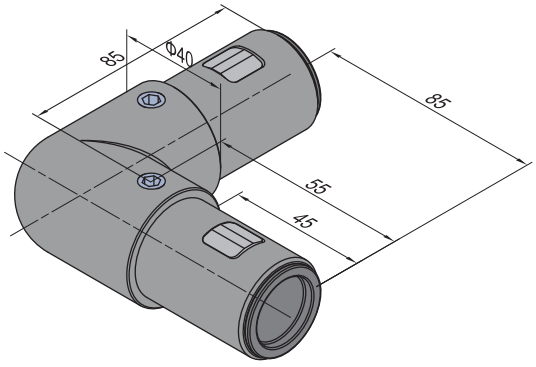


Description	Mass (g)	Part No.
V Connector	550	SPS.JC40.V

L Connector

Material: diecast aluminum polished finish surface

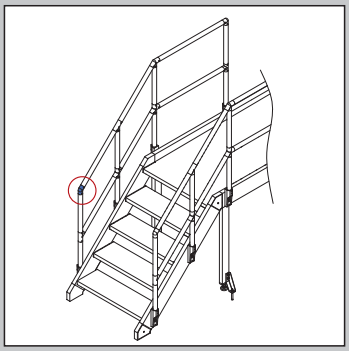


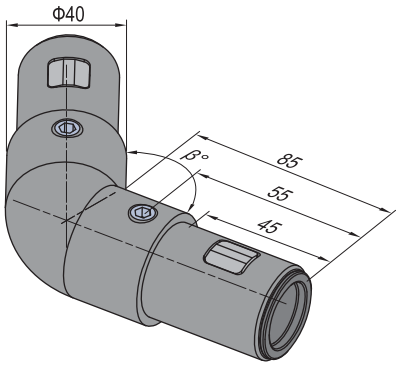


Description	Mass (g)	Part No.
L Connector	518	SPS.JC40.L

Angle Connector

Material: diecast aluminum polished finish surface

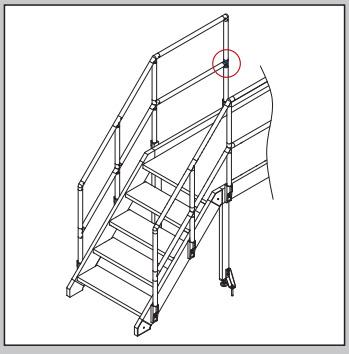


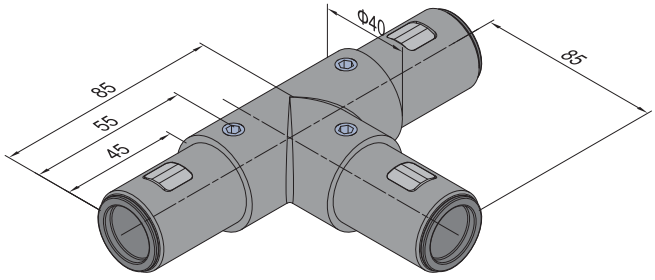


Description	β°	Mass (g)	Part No.
120° Connector	120°	521	SPS.JC40.A120
135° Connector	135°	523	SPS.JC40.A135
150° Connector	150°	525	SPS.JC40.A150

T Connector

Material: diecast aluminum polished finish surface

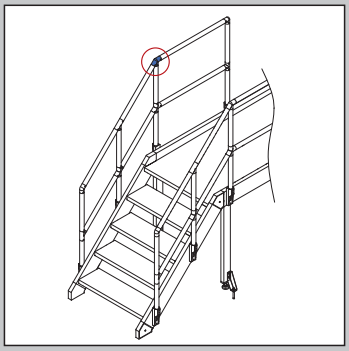


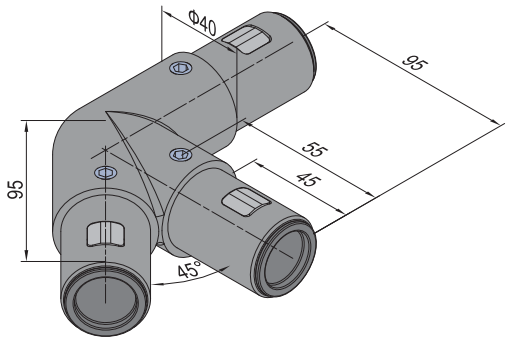


Description	Mass (g)	Part No.
T Connector	728	SPS.JC40.T

45°L Connector (Left)

Material: diecast aluminum polished finish surface

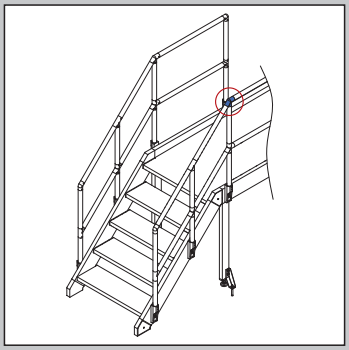


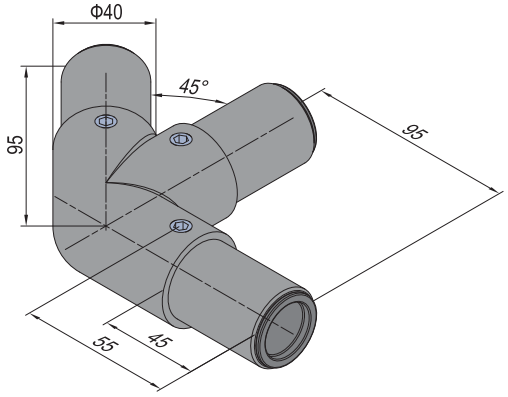


Description	Mass (g)	Part No.
45°L Connector (Left)	728	SPS.JC40.A45L.L

45°L Connector (Right)

Material: diecast aluminum polished finish surface

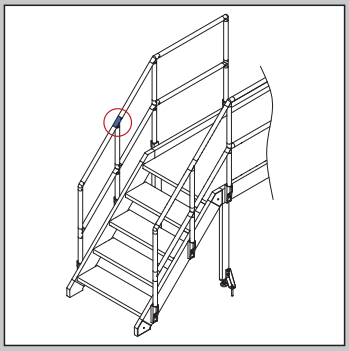


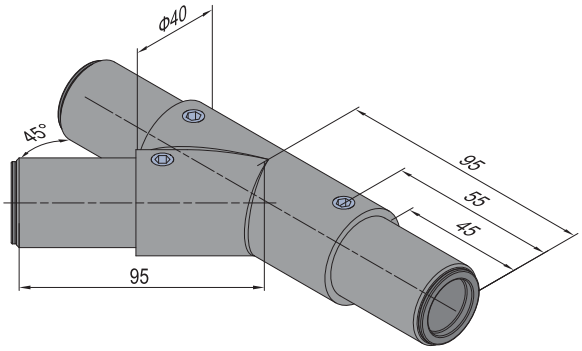


Description	Mass (g)	Part No.
45°L Connector (Right)	728	SPS.JC40.A45L.R

45°Y Connector (Left)

Material: diecast aluminum polished finish surface

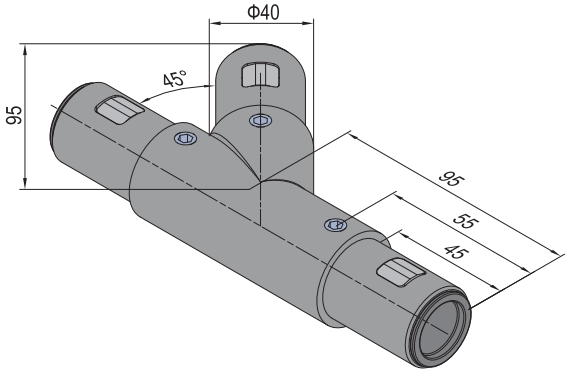




Description	Mass (g)	Part No.
45°Y Connector (Left)	801	SPS.JC40.A45Y.L

45°Y Connector (Right)

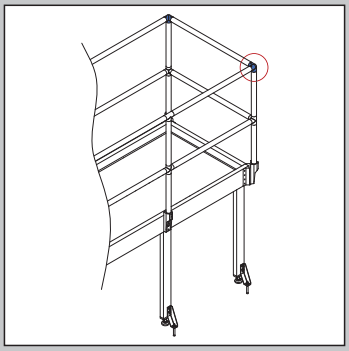
Material: diecast aluminum polished finish surface

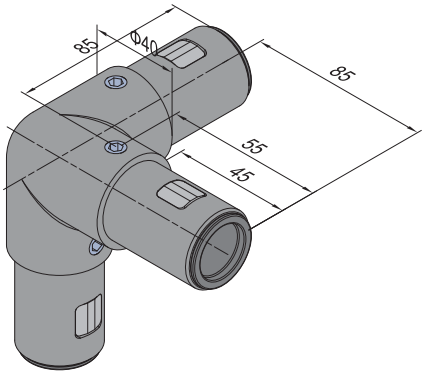


Description	Mass (g)	Part No.
45°Y Connector (Right)	801	SPS.JC40.A45Y.R

90°L Connector

Material: diecast aluminum polished finish surface

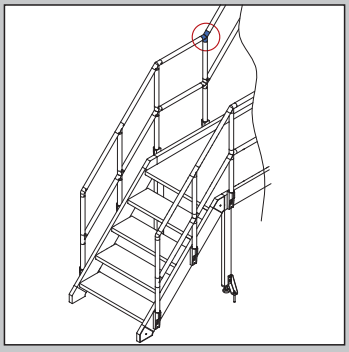


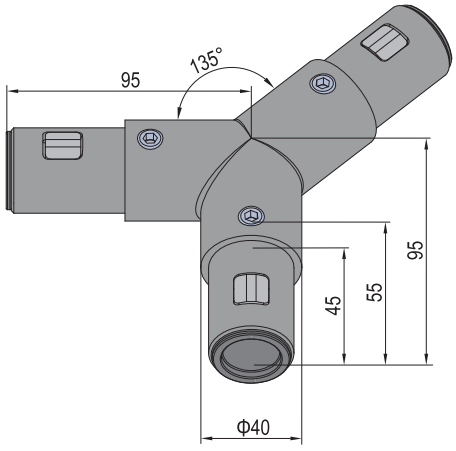


Description	Mass (g)	Part No.
90°L Connector	723	SPS.JC40.A90L

135°L Connector

Material: diecast aluminum polished finish surface

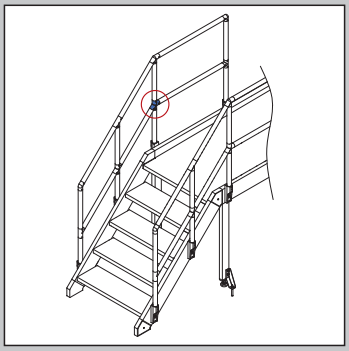


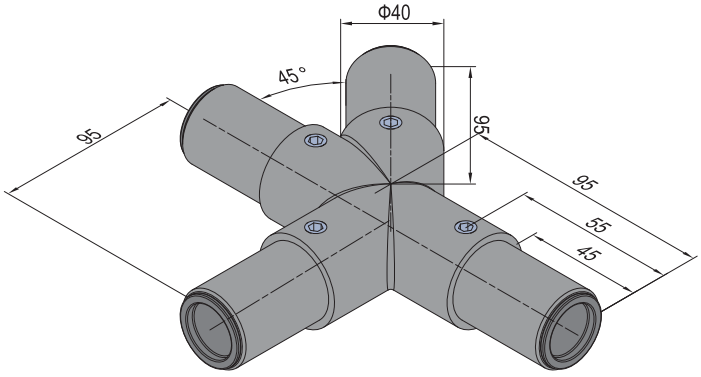


Description	Mass (g)	Part No.
135°L Connector	814	SPS.JC40.A135L

45°T Connector (Left)

Material: diecast aluminum polished finish surface

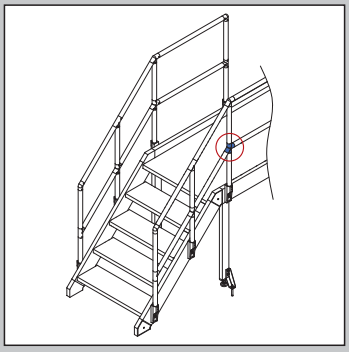


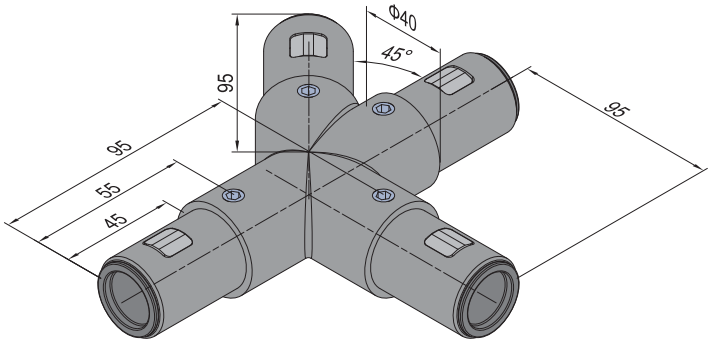


Description	Mass (g)	Part No.
45°T Connector (Left)	1037	SPS.JC40.A45T.L

45°T Connector (Right)

Material: diecast aluminum polished finish surface

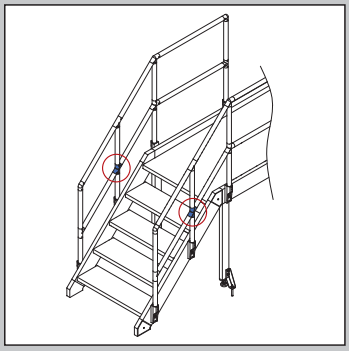


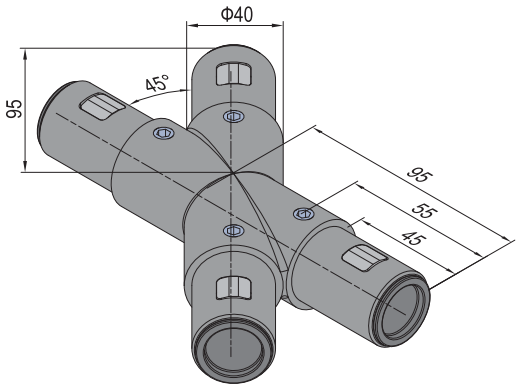


Description	Mass (g)	Part No.
45°T Connector (Right)	1037	SPS.JC40.A45T.R

X Connector

Material: diecast aluminum polished finish surface

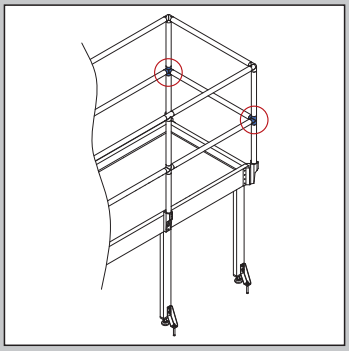


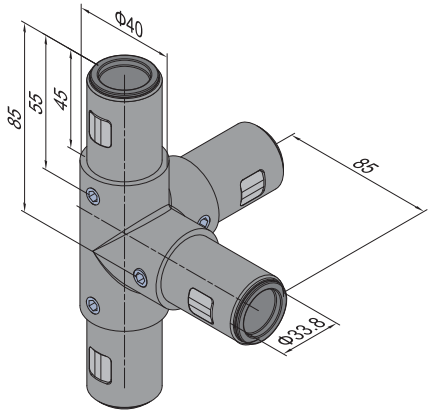


Description	Mass (g)	Part No.
X Connector	1012	SPS.JC40.X

90°T Connector

Material: diecast aluminum polished finish surface

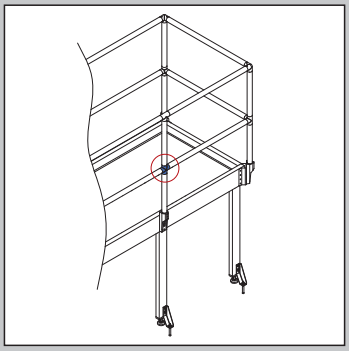


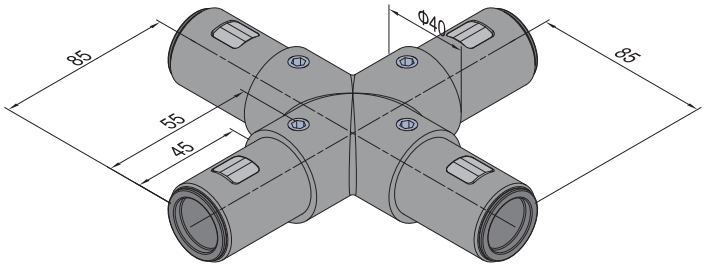


Description	Mass (g)	Part No.
90°T Connector	934	SPS.JC40.A90T

Cross Connector

Material: diecast aluminum polished finish surface



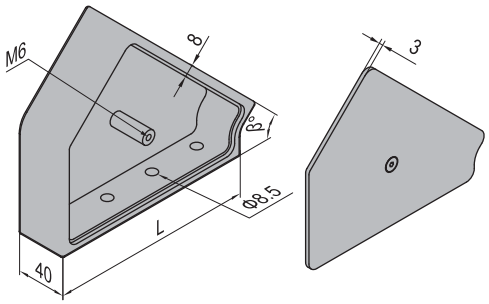


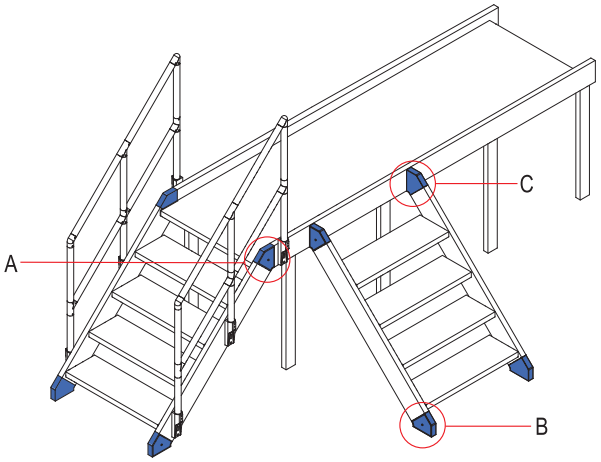
Description	Mass (g)	Part No.
Cross Connector	932	SPS.JC40.C

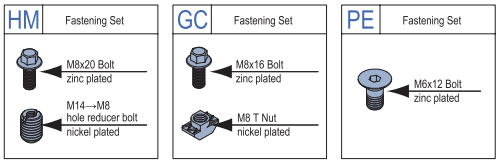
Stair Joint

For connection between 40x120mm and 40x160mm profile step frame and platform frame .

Material: diecast aluminum polished finish surface

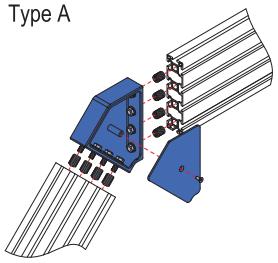




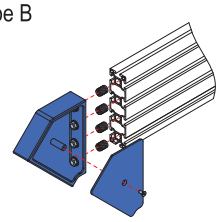


Description	L (mm)	β°	Fastening Set	Mass (g)	Part No.
30° Stair Joint-Type A	120	30°	6xHM+1xPE	803	SPS.SJ40.30A.40120 New!
	160		8xHM+1xPE	1135	SPS.SJ40.30A
30° Stair Joint-Type B	120		3xHM+1xPE	710	SPS.SJ40.30B.40120 New!
	160		4xHM+1xPE	1010	SPS.SJ40.30B
30° Stair Joint-Type C	120		3xHM+3xGC+1xPE	785	SPS.SJ40.30C.40120 New!
	160		4xHM+4xGC+1xPE	1147	SPS.SJ40.30C
45° Stair Joint-Type A	120	45°	6xHM+1xPE	878	SPS.SJ40.45A.40120 New!
	160		8xHM+1xPE	1044	SPS.SJ40.45A
45° Stair Joint-Type B	120		3xHM+1xPE	785	SPS.SJ40.45B.40120 New!
	160		4xHM+1xPE	932	SPS.SJ40.45B
45° Stair Joint-Type C	120		3xHM+3xGC+1xPE	860	SPS.SJ40.45C.40120 New!
	160		4xHM+4xGC+1xPE	1068	SPS.SJ40.45C
60° Stair Joint-Type A	120	60°	6xHM+1xPE	1005	SPS.SJ40.60A.40120 New!
	160		8xHM+1xPE	1495	SPS.SJ40.60A
60° Stair Joint-Type B	120		3xHM+1xPE	912	SPS.SJ40.60B.40120 New!
	160		4xHM+1xPE	1370	SPS.SJ40.60B
60° Stair Joint-Type C	120		3xHM+3xGC+1xPE	1158	SPS.SJ40.60C.40120 New!
	160		4xHM+4xGC+1xPE	1507	SPS.SJ40.60C

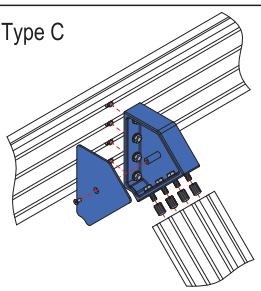
Type A



Type B



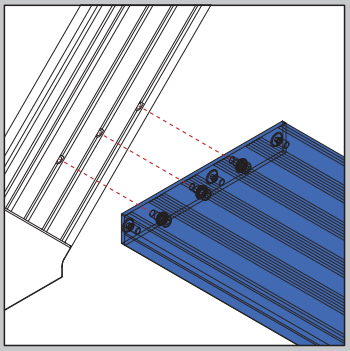
Type C

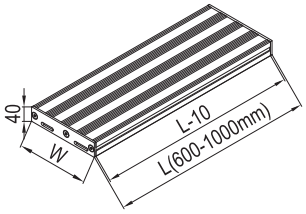


Step Ladder **New!**

Cut from 40x100mm and 40x150mm step profiles, with anti-skid lines and to be fixed by clamp.

Material: aluminum



Step Ladder	Angle of Ladder	Strut Profile	W (mm)	L (mm)	Mass (g)	Part No.
	Angle 30º 	40x120	250	800	4727	SPS.SL250.40120
		40x160	300		5188	SPS.SL300.40160
	Angle 45º 	40x120	200		4183	SPS.SL200.40120
		40x160	250		4727	SPS.SL250.40160
	Angle 60º 	40x120	150		2570	SPS.SL150.40120
		40x160	200		4183	SPS.SL200.40160

Note:1. Offer per set (including the clamps and fasteners).

2. The length could be customized according to customer`s requirement (600~1000mm)

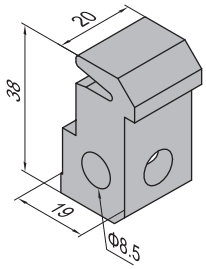
ex: SPS.SL250.40160 - 1000
- 1000 → L=1000mm
- SPS.SL250.40160 → Part No.

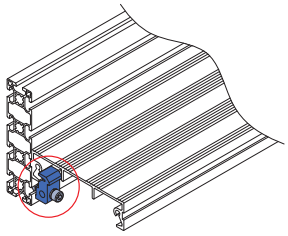
Clamp

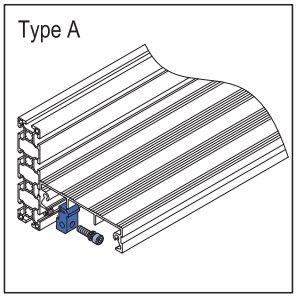
For connection between step profiles to build the platform with profiles put in parallel (Suggest to install every 300mm).

Material: aluminum

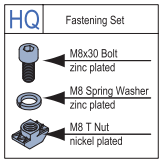
Clamp Type A



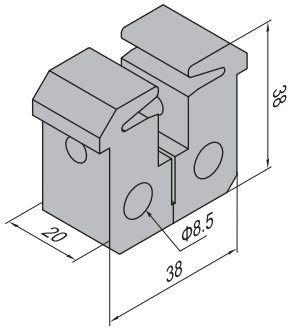


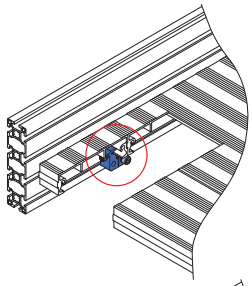


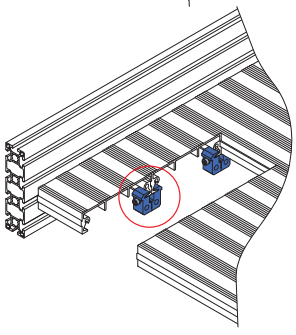
Description	Fastening Set	Mass (g)	Part No.
Clamp Type A	1xHQ	52	SPS.CL40.A

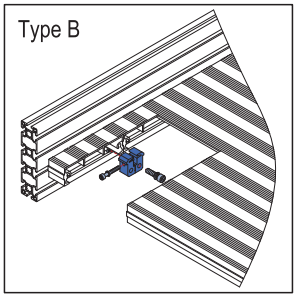


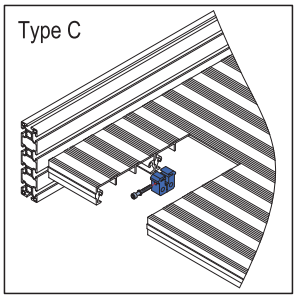
Clamp Type B/C



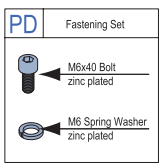


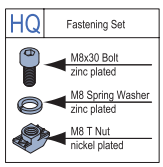






Description	Fastening Set	Mass (g)	Part No.
Clamp Type B	1xPD+1xHQ	70	SPS.CL40.B
Clamp Type C	1xPD	68.5	SPS.CL40.C New!

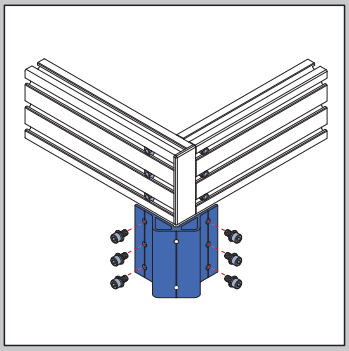


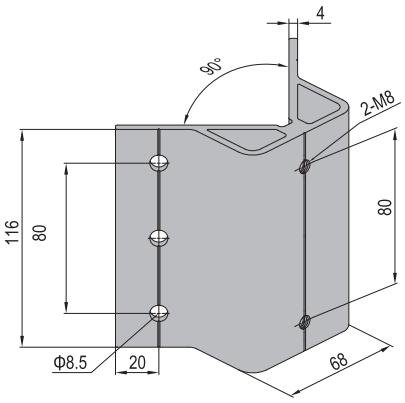


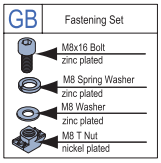
Angle Plate-40x120 New!

For the connection between handrail and frame profile of 40x120mm at the 90° corner of the platform.

Material and Color: aluminum, nature anodized





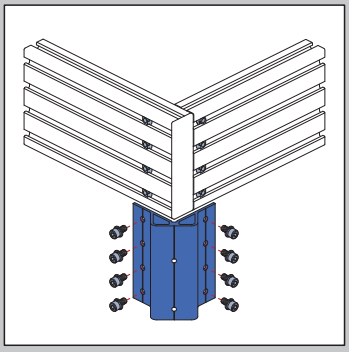


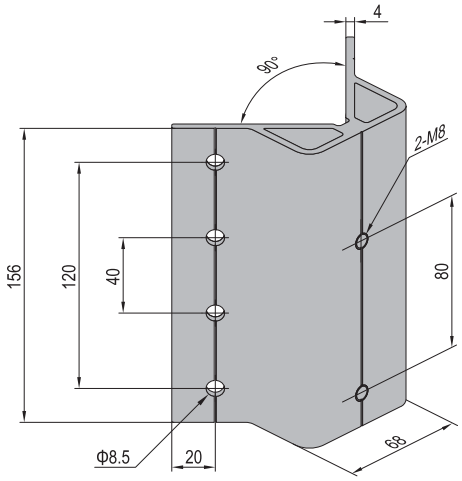
Description	Fastening Set	Mass (g)	Part No.
Angle Plate-40x120	6xGB	504	SPS.AP40.120

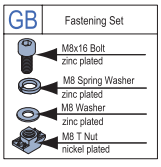
Angle Plate-40x160 New!

For the connection between handrail and frame profile of 40x160mm at the 90° corner of the platform

Material and Color: aluminum, nature anodized





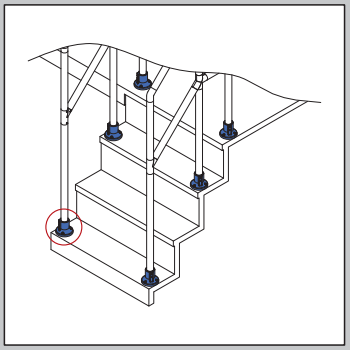


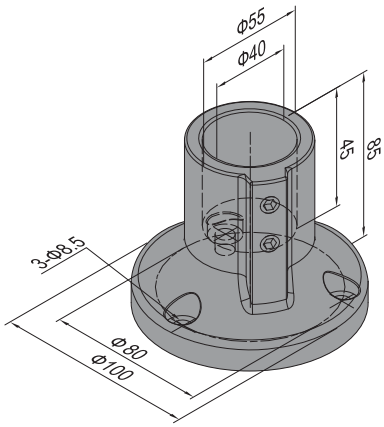
Description	Fastening Set	Mass (g)	Part No.
Angle Plate-40160	8xGB	920	SPS.AP40.160

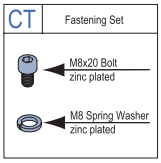
Round Base

For fixation of handrail or guardrail on the platform, floor and wall.

Material: diecast aluminum polished finish surface





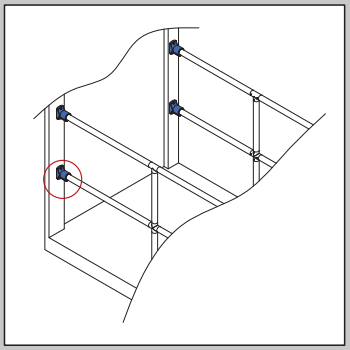


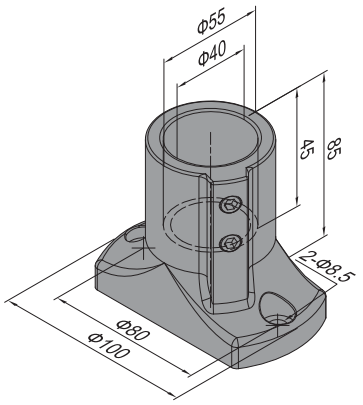
Description	Fastening Set	Mass (g)	Part No.
Round Base	3xCT	635	SPS.BA40.R

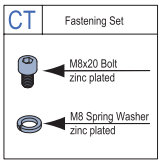
T Base

For fixation of handrail or guardrail on the platform, floor and wall.

Material: diecast aluminum polished finish surface





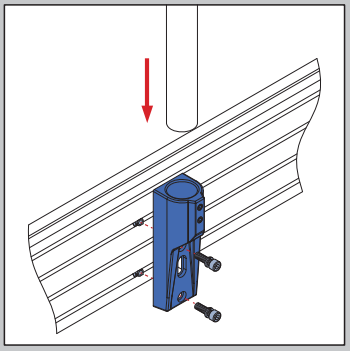


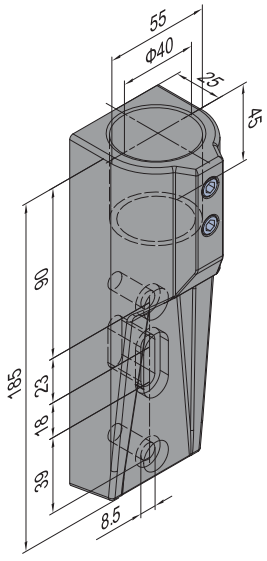
Description	Fastening Set	Mass (g)	Part No.
T Base	2xCT	491	SPS.BA40.T

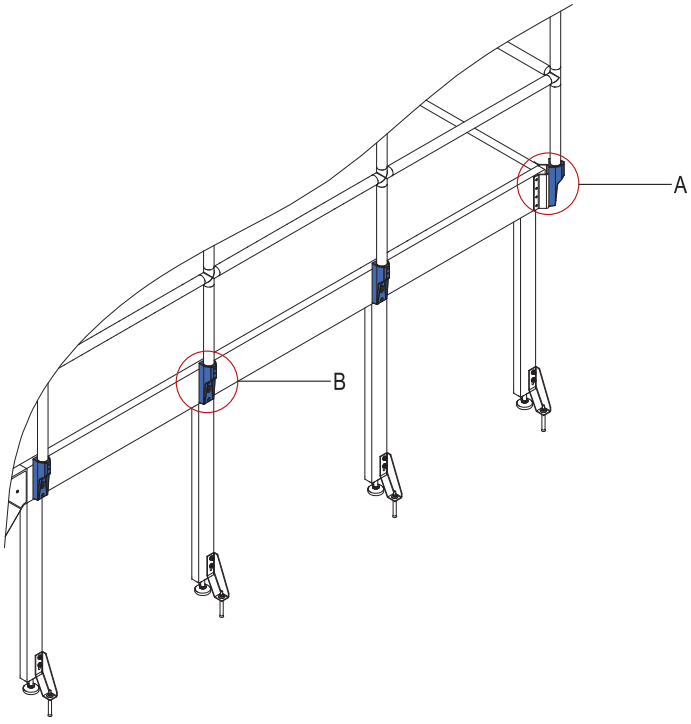
Side Base

For fixation of handrail or guardrail on the platform frame.

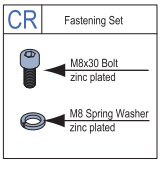
Material: diecast aluminum polished finish surface

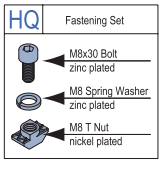






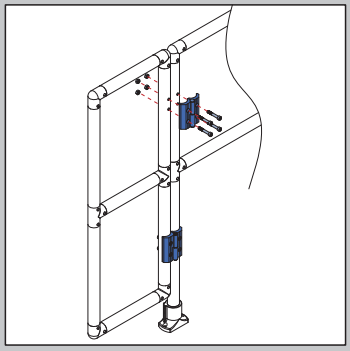
Description	Fastening Set	Mass (g)	Part No.
Side Base-A (with top thread)	2xCR	781	SPS.BA.S
Side Base-B (with top thread)	2xHQ	813	SPS.BA.S.ST

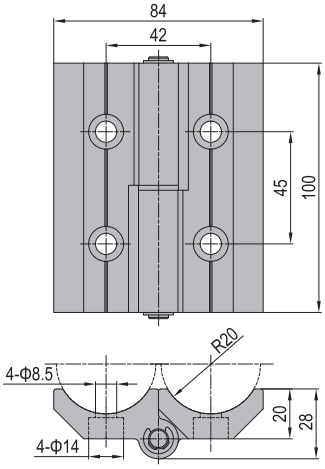


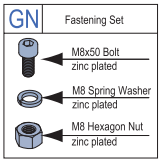


Guardrail Hinge New!

Material: aluminum anodized



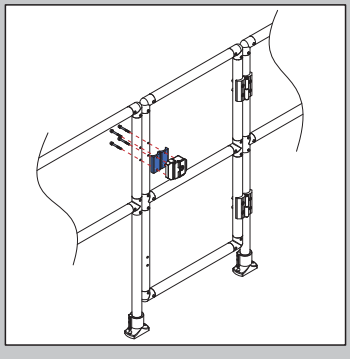


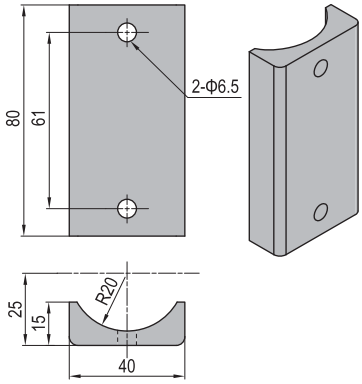


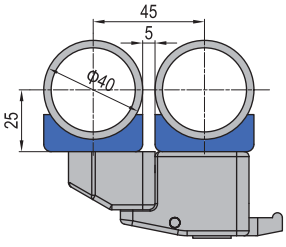
Description	Fastening Set	Mass (g)	Part No.
Guardrail Hinge	4xGN	458	SPS.GH40

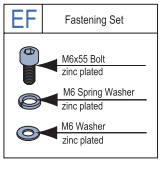
Lock Adapter New!

Material: 6063-T5 anodized (cutting end not anodized)









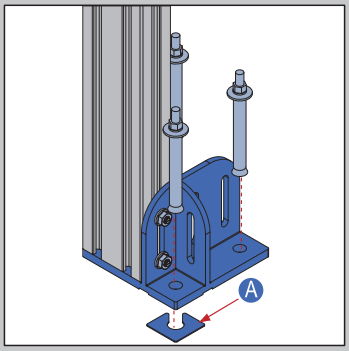
Description	Fastening Set	Mass (g)	Part No.
Lock Adapter	2xEF	107	SPS.LA40
Lock (pcs)		690	7.31

Note:Including special nuts.

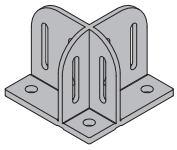
Base Plate

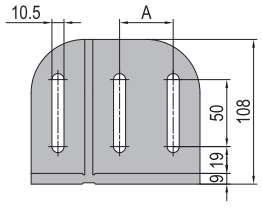
To support strut profile at the bottom. Expansion bolts chocked into floor can offer a high stability.

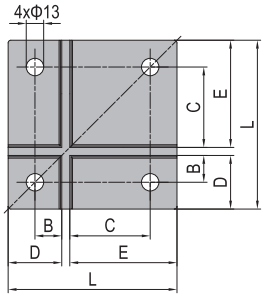
Material and Color: diecast steel with surface corrosion resist treated grey

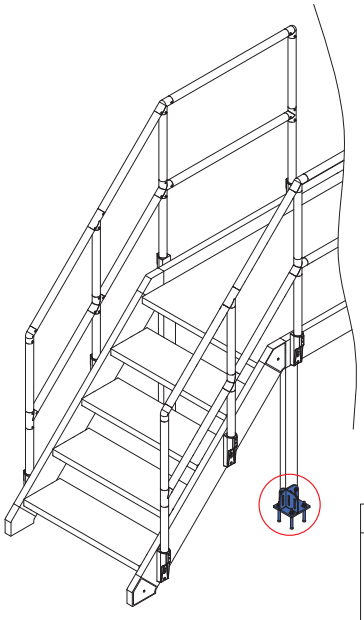


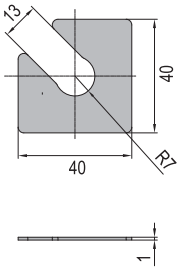
Ⓐ Base Plate Gasket
To adjust the degree of vertical profile and uneven ground.

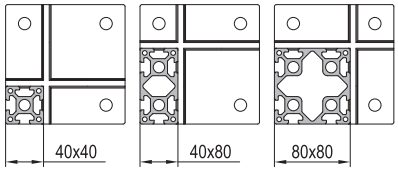


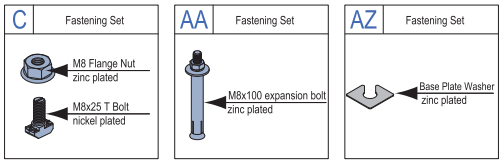










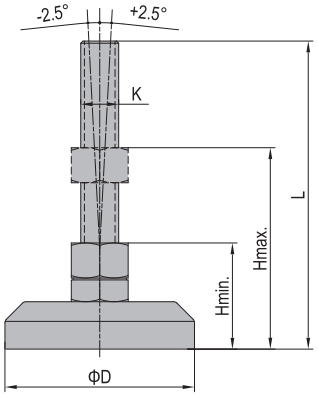


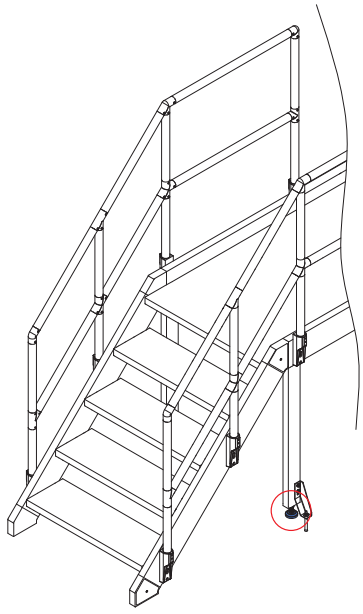
Description	L (mm)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	Fastening Set	Mass (g)	Part No.
Base Plate-4080 (pcs)	126	40	20	60	40	80	2xAZ	1930	5.11.4080
Base Plate-4080 (set A)							4xC+3xAA+2xAZ	2240	5.11.4080.STA
Base Plate-4080 (set B)							6xC+3xAA+2xAZ	2290	5.11.4080.STB
Base Plate-4080 (set C)							8xC+3xAA+2xAZ	2340	5.11.4080.STC
Base Plate Gasket Ⓐ								9	5.11.01

Pivot Foot

To support structure where gradual height adjustment is needed, the pivot foot has a small swiveling angle to fit slightly uneven floor. The connection between the pivot base and the spindle can be released with a tool.

Material: zinc plated steel/stainless steel



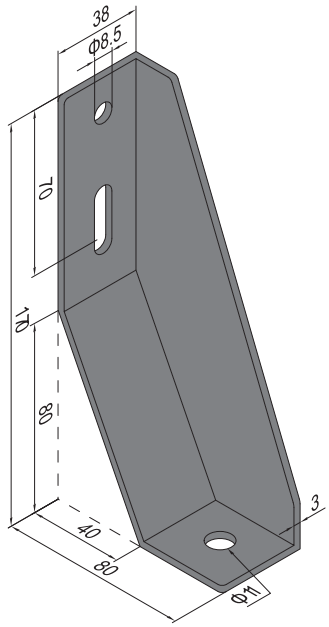


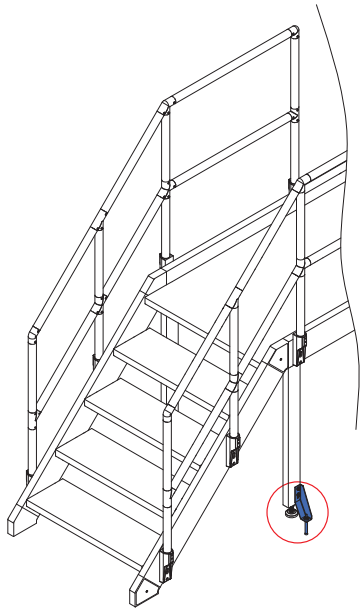
Description	D (mm)	KxL (mm)	H min. (mm)	H max. (mm)	Max. Static Load	Mass	Part No.
Pivot Foot-Zinc Plate Steel	60	M16x158	45	120	20000	596	5.24.60.16.160
		M20x178	50	130	25000	796	5.24.60.20.180
	80	M16x158	45	120	20000	780	5.24.80.16.160
		M20x178	50	130	25000	945	5.24.80.20.180
Pivot Foot-Stainless Steel	60	M16x158	45	120	20000	600	5.24.60.16.160.SS
		M20x178	50	130	25000	803	5.24.60.20.180.SS
	80	M16x158	45	120	20000	785	5.24.80.16.160.SS
		M20x178	50	130	25000	950	5.24.80.20.180.SS

Base Angle

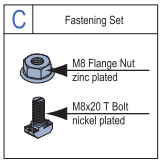
To improve stability of structure supported by leveling foot.

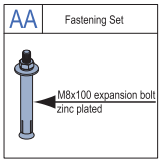
Material: steel, black electrophoresis





Description	Fastening Set	Mass (g)	Part No.
Base Angle-Left (pcs)		346	5.51.L
Base Angle-Left (set)	2xC+1xAA	473	5.51.L.ST
Base Angle-Right (pcs)		346	5.51.R
Base Angle-Right (set)	2xC+1xAA	473	5.51.R.ST
Base Angle-L+R (pair)		692	5.51.P
Base Angle-L+R (set)	4xC+2xAA	946	5.51.P.ST

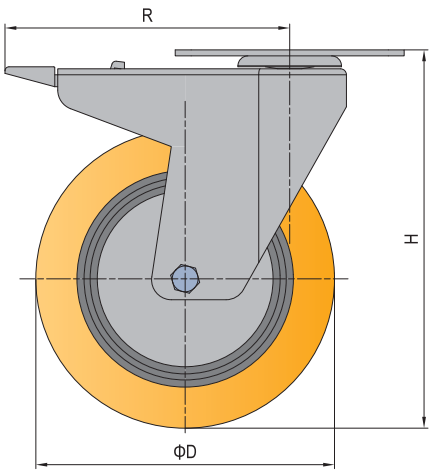


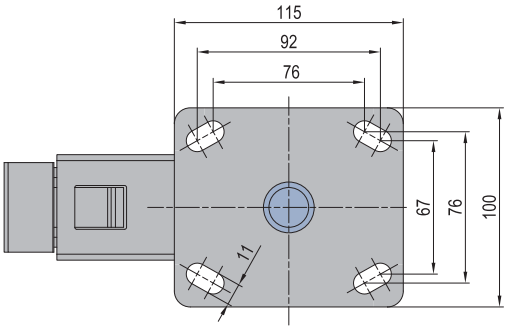


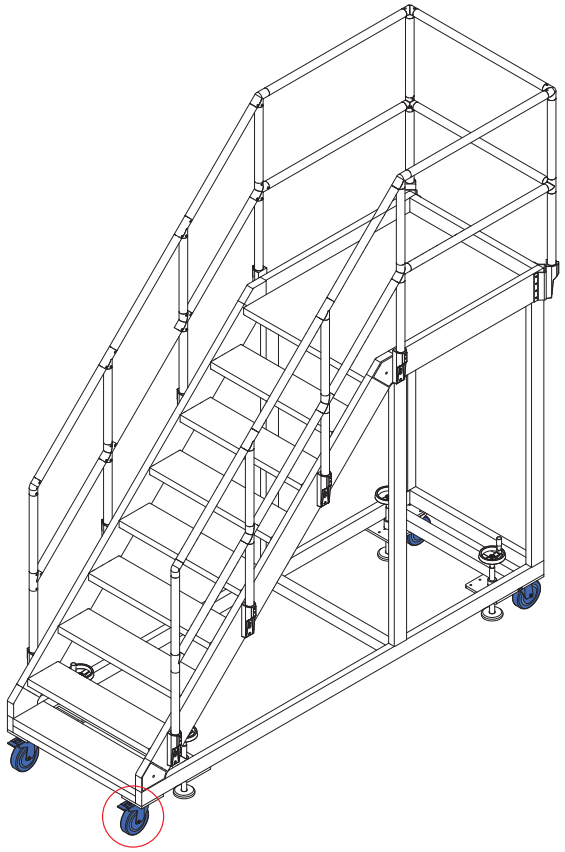
Castor-Heavy Duty New!

For large scale and frequent move working stair and with high load capacity.

Material: wheel - PU base - zinc plated steel





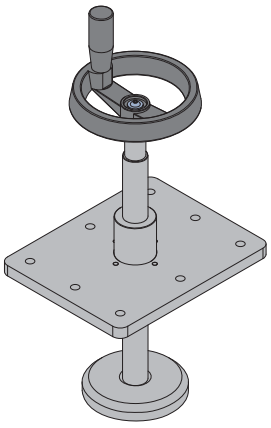


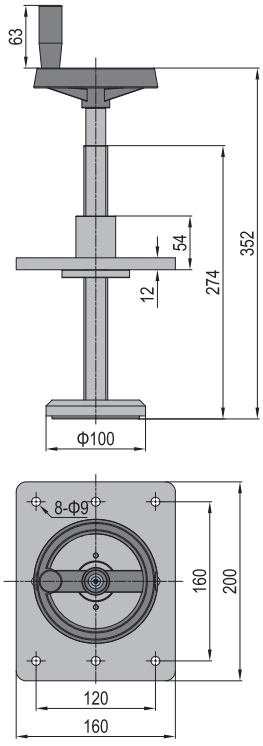
Description	Wheel Width (mm)	D	R	H	Load (N)	Mass (kg)	Part No.
Castor-Heavy Duty	45	125	139	164	2900	2.64	SPS.CH40.125
		150	143	190	3500	2.94	SPS.CH40.150

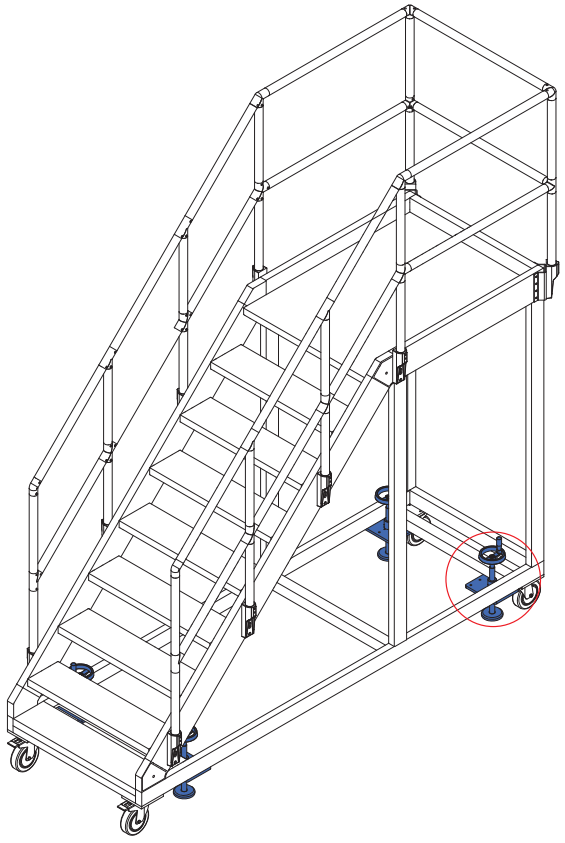
Hand Drive Support New!

For large scale platform and movable working stair for adjustment of height and with high load capacity.

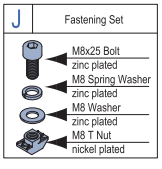
Material: zinc plated steel







Description	Fastening Set	Mass (kg)	Part No.
Hand Drive Support	6xJ	5.35	SPS.HD40



Inquiry List of SPS

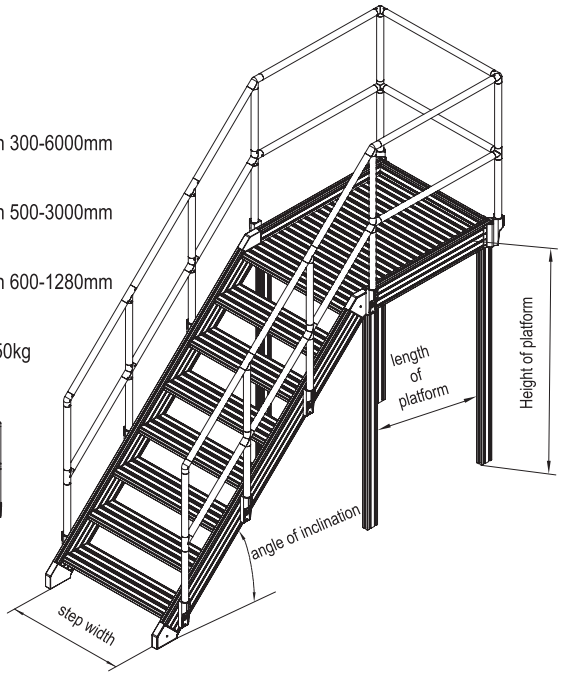
Date		Page
M	D	/

Company				Contact	
Address				Department	
Tell		Fax		Email	

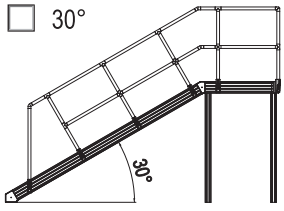
Stair and platform system is mainly composed of step profiles and flexible handrails allowing a complete modular design. It is compatible with the components from Modular Assembly Systems due to its flexibility, three pitches of 30°, 45° and 60° are available to satisfied different request.

Basic technical data of platform:

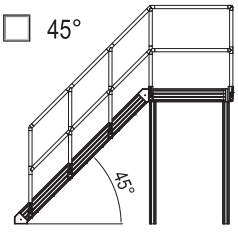
Length of platform (mm)		Recommended value should be between 300-6000mm
Width of platform (mm)		Recommended value should be between 500-3000mm
Usable width of step (mm)		Recommended value should be between 600-1280mm
Load capacity of step (kg)		Recommended value should be within150kg



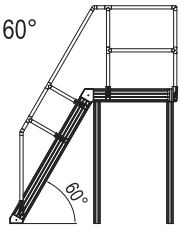
☐ 30°



☐ 45°

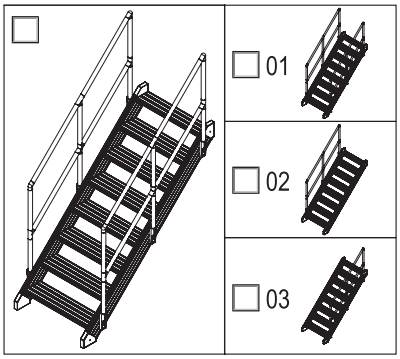


☐ 60°

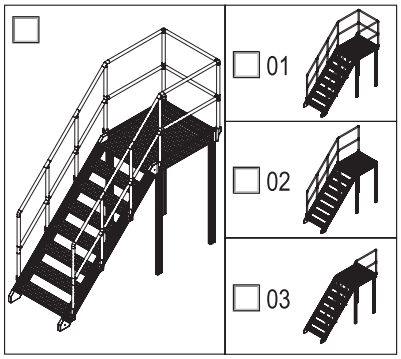


Handrail of stair and platform:

Stairs



Stair and Platform



Bridge