



Point-Supported Glass Curtain Wall Typical Product Catalogue



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Surface Finish



Mirror



Satin



Sandblasting



Electroplating

Material & Standard

I . Material

- The casting stainless steel products:
 - Common Material: CF8,CF8M(ASTM A743/A743M)
 - Optional Material: CD3MN(ASTM A890/A890M)
 - Non-standard Material: Other requested casting stainless steel material which are similar to CF8,CF8M
- The stainless steel products(sheet/tube/bar etc.):
 - Common Material: 304,316(ASTM A276/A276M, ASTM A666, ASTM A269/A269M)
 - Optional Material: 2205(ASTM A276/A276M, ASTM A666, ASTM A269/A269M)
 - Non-standard Material: Other requested material which are similar to 304,316

3. Material Description:

Point-fixed glass curtain wall fittings, exposed as a bare outside products, are mainly made of the stainless steel with bright appearance and good corrosion resistance.KIN LONG is a supplier of high-end glass curtain wall fittings. Most of the products are made of high-end stainless steel. The typical material are austenitic stainless steel 316,CF8M and duplex stainless steel 2205,CD3MN.

316 and 2205 are the stainless steel grades based on American standard which be applicable for profiles (sheet,tube,bar). Especially the material 316 is high-end and commonly used all over the world. It has excellent mechanical properties and corrosion resistance capacity to meet the demands of most projects. It is mostly common used material for point-fixed products currently, but it is not recommended to use in the worse environment area such as swimming pools, seaside. In these cases,high duplex stainless steel 2205 can be selected.

Material stainless steel 2205 has the advantages compared with stainless steel 316 as following:

- 1) Yield strength is 2 times higher than common austenitic stainless steel. Having enough ductility and toughness to forming to. With the same bearing force, the accessories shape will smaller and more exquisite when take the duplex stainless steel .
- 2) Compared with the austenitic stainless steel, it has bigger yield strength, higher material utilization ratio, making for saving the material.
- 3) Compared with the austenitic stainless steel, which has the similar alloy content, its surface homogeneous corrosion, pitting corrosion and intergranular corrosion are super excellence and can apply to wicked surroundings.
- 4) Having the superior anti-stress corrosion cracking (SCC) ability, generally, it won't lead to stress corrosion cracking (the using temperature is lower than its critical temperature) when being in the chloride ion environment (seaside, natatorium).
- 5) Material 2205 coefficient of linear expansion is close to carbon steel and reinforced concrete. When taking as prestressing force rod, the thermal stress will not effect too much beyond action of thermal difference. (At present, there haven't the dual phase steel wire and the rod mainly means tension rod.)
- 6) No needs preheating before welding. No need heating treatment after welding. It can weld with carbon steel. Most of the point-fixed glass fittings select the precision casting process because of the diversity appearance. Due to the different manufacturing process between casting milling and rolling,KIN LONG selects the CF8M and CD3MN to produce spider with casting process , while the material 316 and 2205 can not be so perfect to present corrosion performance to use for casting process .

Corrosion resistance of stainless steel is mainly formed by surface passivation film and promoting the electrode potential from the iron-chromium alloy, therefore the production process of the stainless steel should include the heat treatment to make the alloy composition uniform. Any kind of scratch and damage on the surface should be avoided. To keep the corrosion resistance of stainless steel,please note the following :

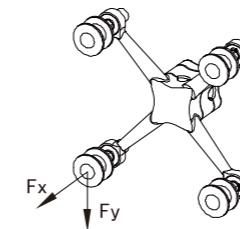
- Heat treatment should be carried out after casting according to requirements
- Stainless steel grades should be selected reasonably according to the environment
- Selecting the smooth surface treatment
- Taking product protection during the installation
- The design and application of the product should be avoided foulingand water accumulation.
- Regularly cleaning to avoid the dirty

II . Product Executive Standard

Products Series	Executive Standard
Spider,Routel	<i>Point Supporting Device for Architectural Glass</i> JG/T 138-2010
Clamp	<i>Point Supporting Device for Architectural Glass</i> JG/T 138-2010
Strut Bar	<i>Stainless Steel Strut Bar</i> DB44/T 1053-2012
Stainless Steel Tension Cable	<i>Stainless Steel Tension Cable</i> YB/T 4294-2012
Stainless Steel Strand	<i>Stainless Steel Wire Strand</i> GB/T 25821-2010
Stainless Steel Swaged Anchor	<i>Swaged Fitting of Steel Strand for Curtain</i> JG/T 201-2007
Stainless Steel Tension Rod	<i>Steel Tension Rod Member for Building</i> JG/T 389-2012
Suspension Clamp	<i>The Support Device of Suspended Glass Curtain Wall</i> JG 139-2001

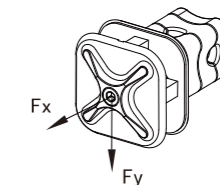
Common Calculation Formula

I .Calculation of radial and axial load for model selection



$$n_x = 4$$

$$n_y = 2$$



$$n_x = 1$$

$$n_y = 1$$

1. The Weight of The Glass Panel

$$G_k = T \times B \times H \times \rho$$

- G_k —The weight of the glass panel(N);
- T —The valid thickness of the glass(mm);
- B — The width of the glass(m);
- H —The height of the glass(m);
- ρ — The gravity density of the glass(Default: 25.6);

2.Radial Force

$$F_y = 1.2G_k/n_y$$

- F_y —The radial force for a single point(N);
- G_k —The weight of the glass panel(N);
- n_y —y Number of force bearing point in y direction, see attached drawing for details;

3.Axial Force

$$F_x = q \times B \times H / n_x$$

- F_x —The axial force for a single point(N);
- q —Even distributed design value of the load on the glass panel,mainly supposed to be the wind load (N/m²) ;
- B —The width of the glass(m);
- H —The height of the glass(m);
- n_x — x Number of force bearing point in x direction, see attached drawing for details;

II . Calculation for tightening torque of squeezing cable bolt (Deduced by *Mechanical Design Handbook*)

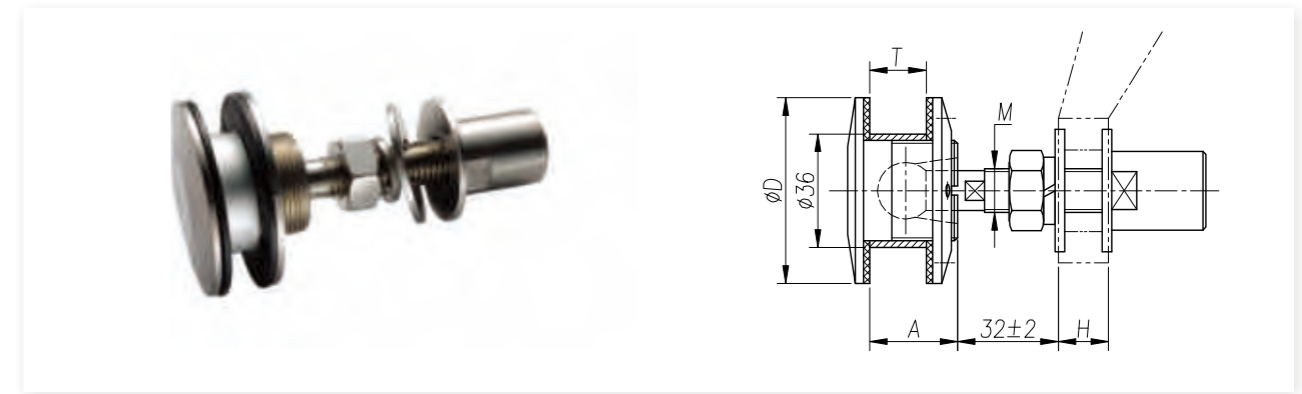
$$T = 1.3fd/n$$

- In formula T —Tightening torque of single bolt(N • mm)
- f —The friction force that accessory load at the project node(N)
- d —Nominal diameter of squeezing cable bolt(mm)
- n —Number of squeezing cable bolt

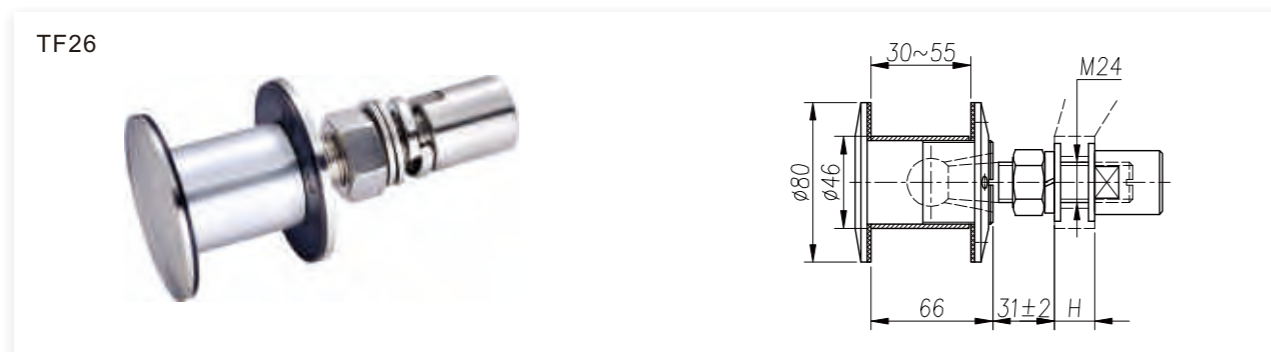
Flat Cap Routel



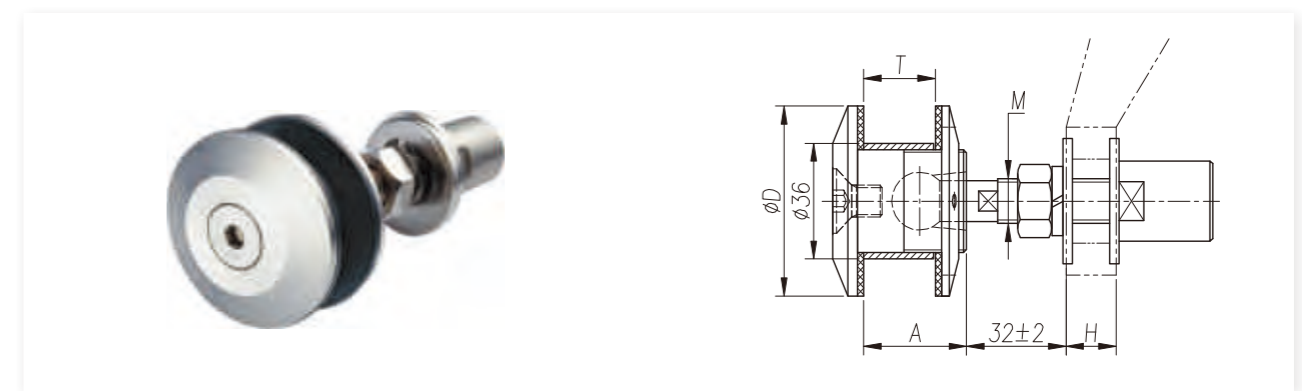
Size Model	A	M	T	H	The Available Rotation Angle	The Recommended Value of Load Capacity (N)	Main material: 316, 304	
							Fx ≤	Fy ≤
ATF11	45	M12	8-18	—	±5°		3000	1500
ATF12	53	M12	18-26	—	±5°		3000	1500
ATF13	69	M14	26-40	—	±5°		3500	2000
ATF14	78	M16	40-46	—	±5°		4000	2500



Size Model	A	D	M	T	H	The Available Rotation Angle	The Recommended Value of Load Capacity (N)	Main material: 316, 304	
								Fx ≤	Fy ≤
TF11(TF11A)	28	59	M14	8-18	—	±5°(±10°)		4500	2000
TF12(TF12A)	36	59	M14	18-26	—	±5°(±10°)		4500	2000
TF13(TF13A)	50	59	M16	26-40	—	±5°(±10°)		6000	2500
TF14(TF14A)	56	59	M18	30-46	—	±5°(±10°)		6500	2800
TF21(TF21A)	32	70	M16	8-22	—	±5°(±10°)		6000	2500
TF22(TF22A)	40	70	M16	22-30	—	±5°(±10°)		6000	2500
TF23(TF23A)	50	70	M16	30-40	—	±5°(±10°)		6000	2500
TF24(TF24A)	61	70	M18	30-50	—	±5°(±10°)		6500	2800
TF2E55	66	70	M18	25-55	—	±5°		6500	2800



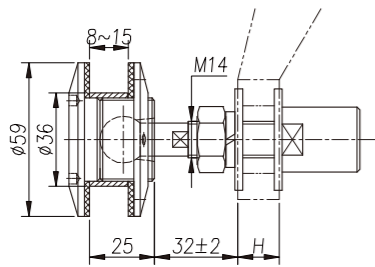
The Recommended Value of Load Capacity (N)	Model	Main material: 316, 304		The Available Rotation Angle
		Fx ≤	Fy ≤	
	TF25	7000	3500	±5°
	TF26	7500	5000	±5°



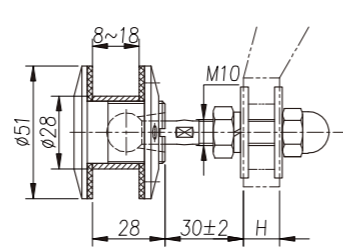
Note: For exterior installation routel, when bolt-socket countersunk head crew be installed, suggest filling in screw fastening glue.

Size Model	A	D	M	T	H	The Available Rotation Angle	The Recommended Value of Load Capacity (N)	Main material: 316, 304	
								Fx ≤	Fy ≤
TF32	33	59	M14	15-23	—	±5°		4500	2000
TF33	50	59	M16	23-40	—	±5°		6000	2500
TF34	56	59	M18	30-46	—	±5°		6500	2800
TF35	50	70	M16	30-40	—	±5°		6000	2500
TF36	61	70	M18	30-50	—	±5°		6500	2800

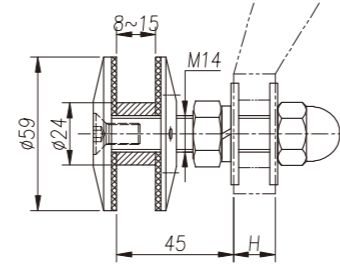
TF31



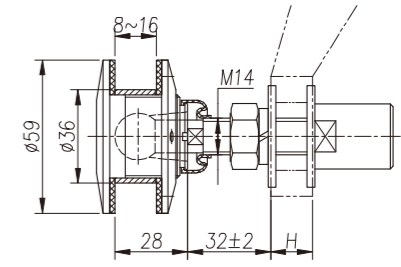
TF41



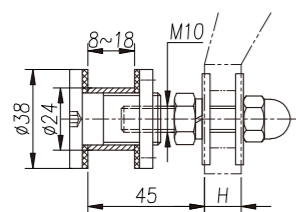
TF44



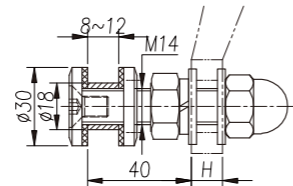
TF51



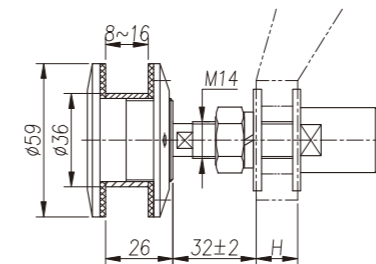
TF42



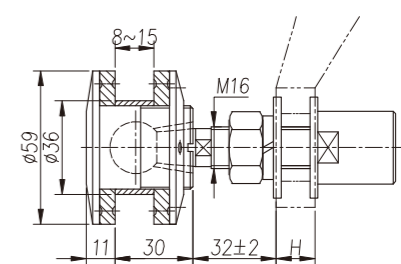
TF43



TF52



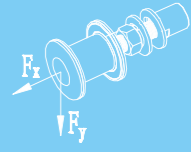
TF53



Note: For exterior installation route, when bolt-socket countersunk head crew be installed, suggest filling in screw fastening glue.

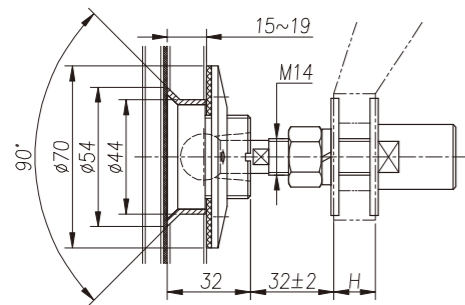
The Recommended Value of Load Capacity (N)	Model	Main material: 316, 304		The Available Rotation Angle	
		Fx ≤	Fy ≤		
	TF31	4500	2000	±5°	
	TF41	2500	1200	±5°	
	TF42	2500	1200	—	
	TF43	4500	2000	—	

Note: For exterior installation route, when bolt-socket countersunk head crew be installed, suggest filling in screw fastening glue.

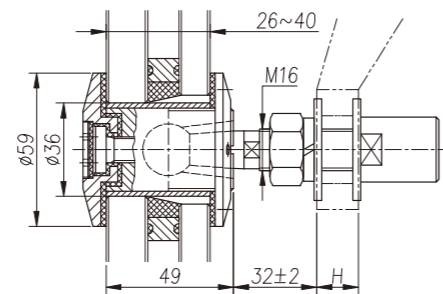
The Recommended Value of Load Capacity (N)	Model	Main material: 316, 304		The Available Rotation Angle	
		Fx ≤	Fy ≤		
	TF44	4500	2000	—	
	TF51	4500	2000	±5°	
	TF52	4500	2000	±5°	
	TF53	6000	2500	±5°	

Flat Cap Water Anti-seepage Routel

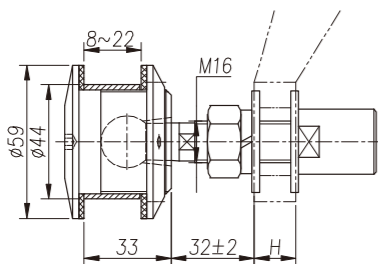
TF54



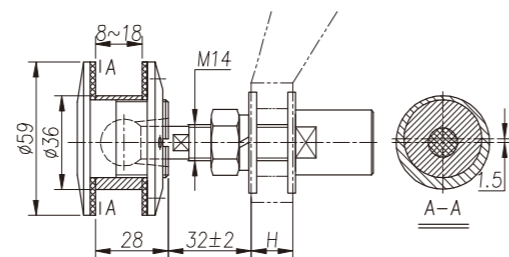
TF55



TF56



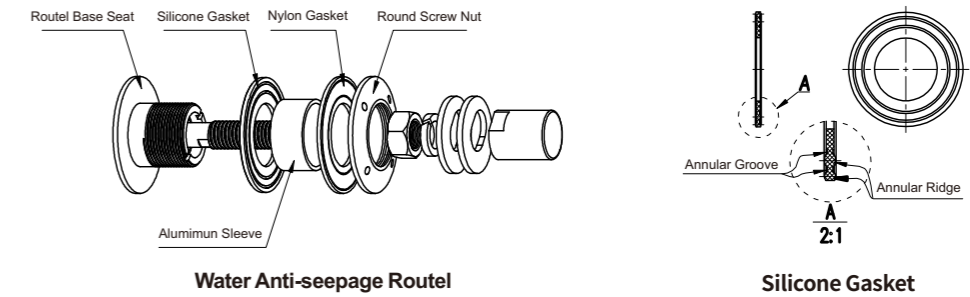
TF57



Product function:

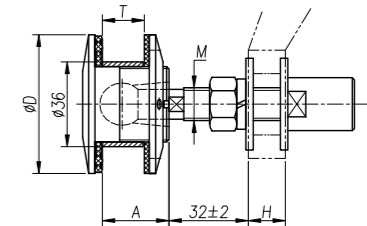
1. The appearance and function are same as existed standard routel.
2. The routel adopts special structure, soft and strong weathering resistance silicone gasket. No need to fill in the glue to realize the waterproof function.
3. Silicone gasket has strong weathering resistance and universality, which can realize the exchange with existed standard routel accessories.
4. This product is our patent product.

Product structure:



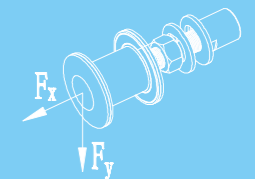
The fore part of water anti-seepage routel is a special structural silicone gasket. During the installation, the silicone gasket will be out of shape through pushing and squeezing. Then it can realize seal and water anti-seepage.

Product parameter

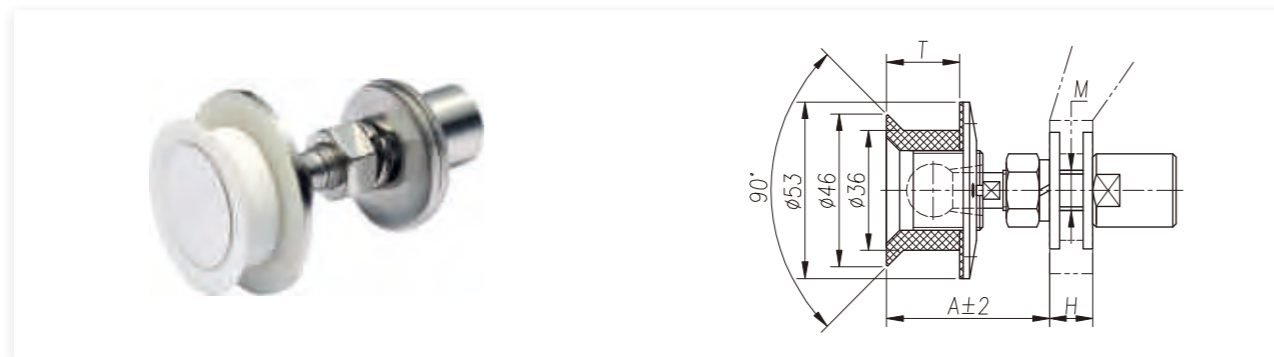


The Recommended Value of Load Capacity (N)	Model	Main material: 316, 304		The Available Rotation Angle
		F _x <	F _y <	
	TF54	4500	2000	±5°
	TF55	6000	2500	±5°
	TF56	6000	2500	±5°
	TF57	4500	2000	±5°

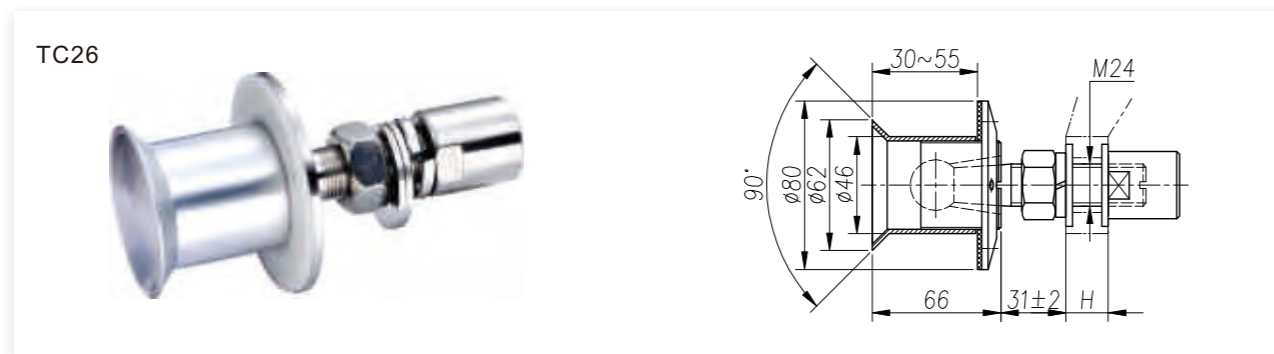
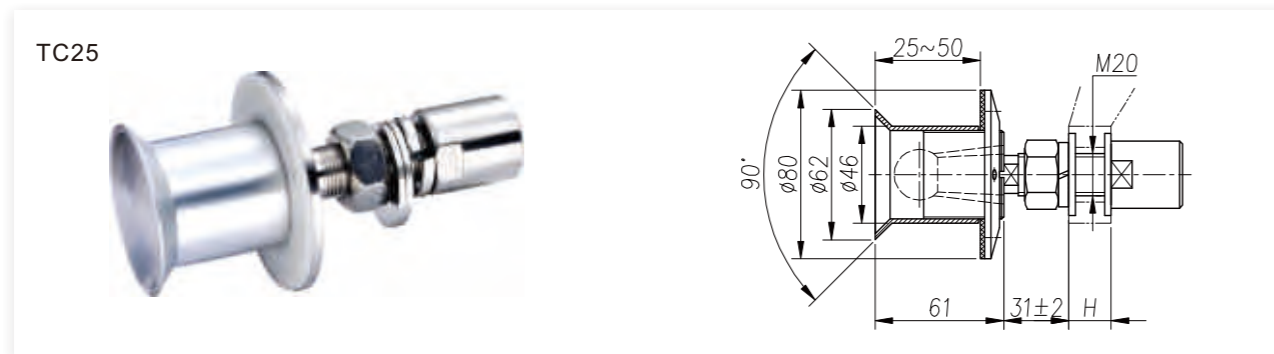
Size Model	A	D	M	T	H	The Available Rotation Angle	The Recommended Value of Load Capacity (N)	Main material: 316, 304	
								F _x <	F _y <
F-TF11(F-TF11A)	27	59	M14	8-18	—	±5°(±10°)	The Recommended Value of Load Capacity (N)	4500	2000
F-TF12(F-TF12A)	35	59	M14	18-26	—	±5°(±10°)		4500	2000
F-TF13(F-TF13A)	49	59	M16	26-40	—	±5°(±10°)		6000	2500
F-TF14(F-TF14A)	55	59	M18	30-46	—	±5°(±10°)		6500	2800
F-TF21(F-TF21A)	31	70	M16	8-22	—	±5°(±10°)		6000	2500
F-TF22(F-TF22A)	39	70	M16	22-30	—	±5°(±10°)		6000	2500
F-TF23(F-TF23A)	49	70	M16	30-40	—	±5°(±10°)		6000	2500
F-TF24(F-TF24A)	60	70	M18	30-50	—	±5°(±10°)		6500	2800
F-TF32	32	59	M14	15-23	—	±5°		4500	2000
F-TF33	49	59	M16	23-40	—	±5°		6000	2500
F-TF34	55	59	M18	30-46	—	±5°		6500	2800
F-TF35	49	70	M16	30-40	—	±5°		6000	2500
F-TF36	60	70	M18	30-50	—	±5°		6500	2800



Countersunk Routel

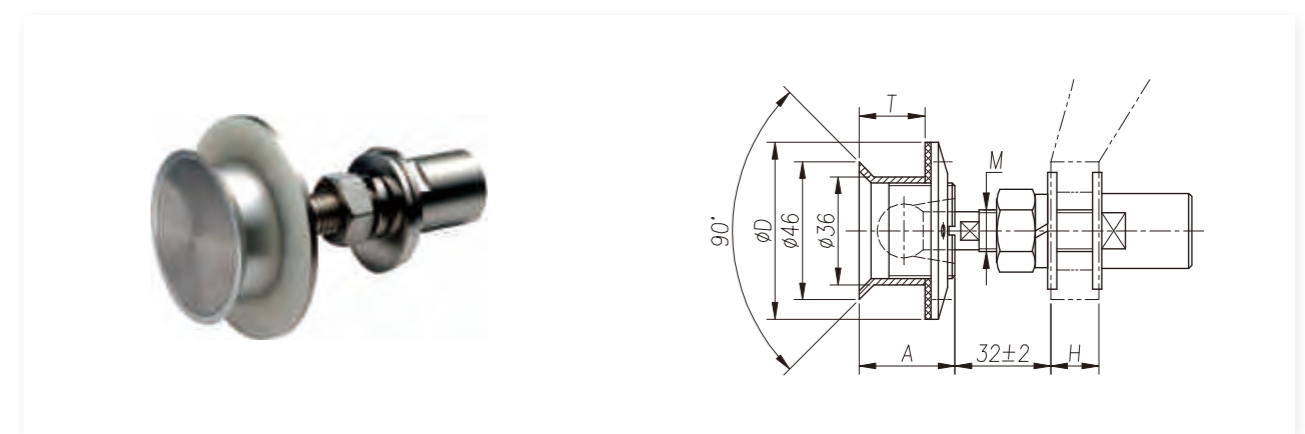


Size Model	A	M	T	H	The Available Rotation Angle	The Recommended Value of Load Capacity (N)	Main material: 316, 304	
							Fx ≤	Fy ≤
ATC11	49	M12	8-22	—	±5°		3000	1500
ATC12	56	M12	22-30	—	±5°		3000	1500
ATC13	69	M14	30-40	—	±5°		3500	2000
ATC14	78	M16	40-46	—	±5°		4000	2500

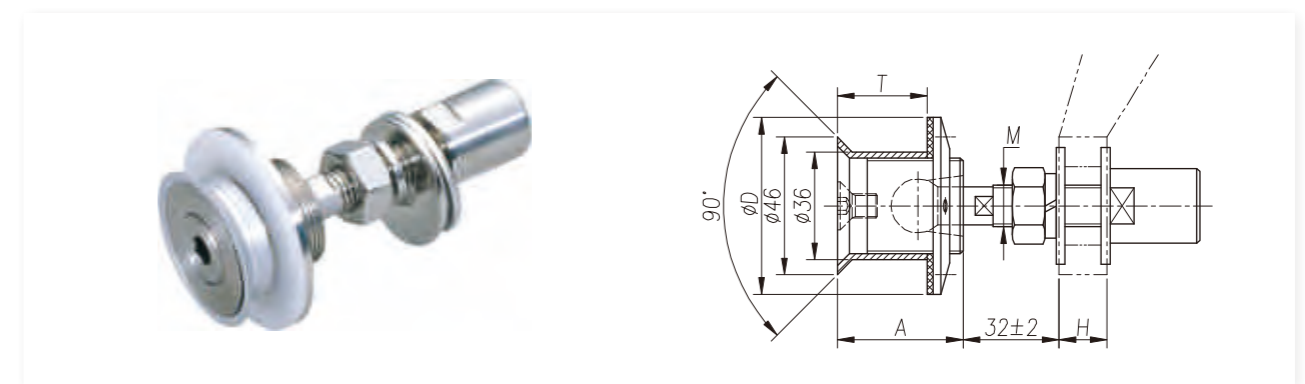


Note: For routel TC25, TC26, single glass panel thickness ≥ 12mm

The Recommended Value of Load Capacity (N)	Model	Main material: 316, 304		The Available Rotation Angle
		Fx ≤	Fy ≤	
	TC25	7000	3500	±5°
	TC26	7500	5000	±5°



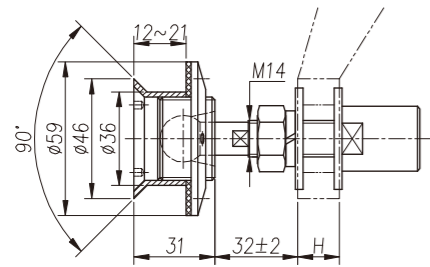
Size Model	A	D	M	T	H	The Available Rotation Angle	The Recommended Value of Load Capacity (N)	Main material: 316, 304	
								Fx ≤	Fy ≤
TC11(TC11A)	32	59	M14	8-22	—	±5°(±10°)		4500	2000
TC12(TC12A)	40	59	M14	22-30	—	±5°(±10°)		4500	2000
TC13(TC13A)	50	59	M16	30-40	—	±5°(±10°)		6000	2500
TC14(TC14A)	56	59	M18	30-46	—	±5°(±10°)		6500	2800
TC21(TC21A)	32	70	M16	8-22	—	±5°(±10°)		6000	2500
TC22(TC22A)	40	70	M16	22-30	—	±5°(±10°)		6000	2500
TC23(TC23A)	50	70	M16	30-40	—	±5°(±10°)		6000	2500
TC24(TC24A)	56	70	M18	30-46	—	±5°(±10°)		6500	2800



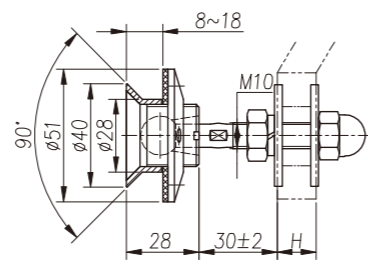
Note: For exterior installation routel, when bolt-socket countersunk head crew be installed, suggest filling in screw fastening glue.

Size Model	A	D	M	T	H	The Available Rotation Angle	The Recommended Value of Load Capacity (N)	Main material: 316, 304	
								Fx ≤	Fy ≤
TC32	42	59	M14	15-32	—	±5°		4500	2000
TC33	50	59	M16	30-40	—	±5°		6000	2500
TC34	56	59	M18	30-46	—	±5°		6500	2800
TC35	50	70	M16	30-40	—	±5°		6000	2500
TC36	56	70	M18	30-46	—	±5°		6500	2800

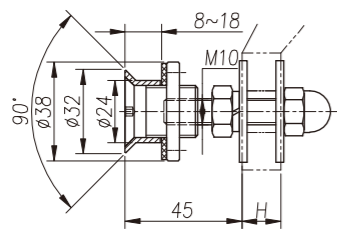
TC31



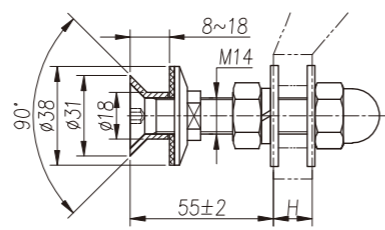
TC41



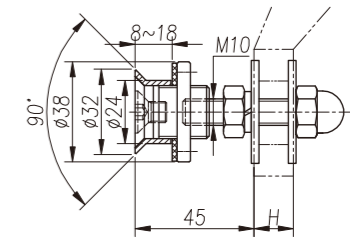
TC42



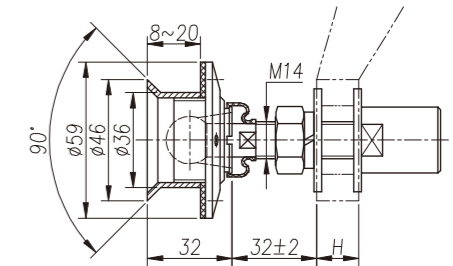
TC43



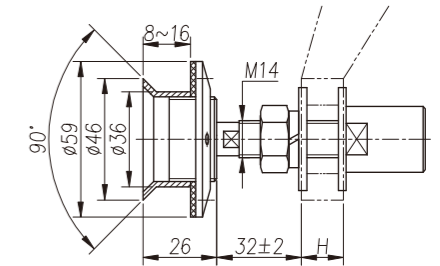
TC44



TC51

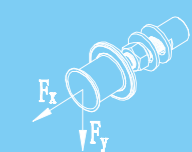


TC52



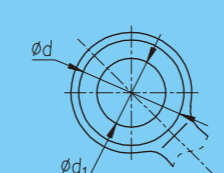
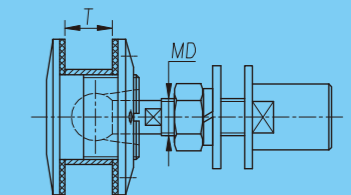
Note: For exterior installation route, when bolt-socket countersunk head crew be installed, suggest filling in screw fastening glue.

The Recommended Value of Load Capacity (N)	Model	Main material: 316, 304		The Available Rotation Angle
		F _x <	F _y <	
	TC44	2500	1200	—
	TC51	4500	2000	±5°
	TC52	4500	2000	±5°

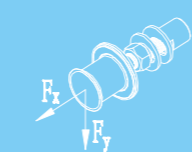


Selection description for aluminium spacer (sleeve) and eccentric washer

Specification of eccentric washer	Length L of aluminium spacer(sleeve)
(d-1)X(D+0.5) D=diameter of screw	L≤T-0.5(Selecting odd number for L, e.g.11.5,13.5,15.5)
Eg: If T=17.52,d=40,D=14,then the specification of eccentric gasket is (40-1)X(14+0.5),that is 39X14.5; Aluminum spacer length L=15.5	

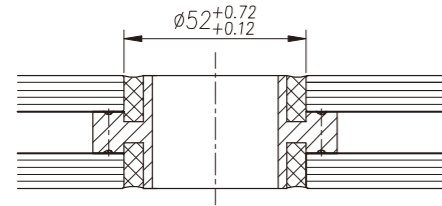



The Recommended Value of Load Capacity (N)	Model	Main material: 316, 304		The Available Rotation Angle
		F _x <	F _y <	
	TC31	4500	2000	±5°
	TC41	2500	1200	±5°
	TC42	2500	1200	—
	TC43	4500	2000	—

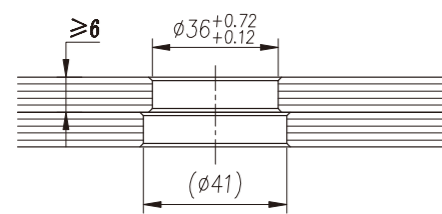


Glass Drilling Illustration

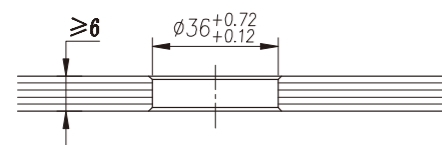
Suitable for: TF23, TF24, TF35, TF36



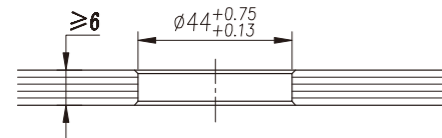
Suitable for: TF11~TF13, TF21~TF23
TF31~TF35, TF51~TF52, TF55, TF57



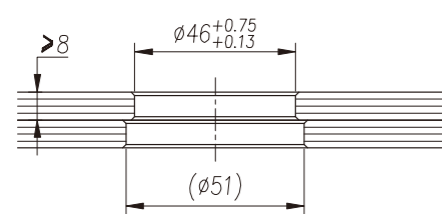
Suitable for: TF11, TF12, TF21, TF22, TF31
TF32, TF51~TF52, TF57



Suitable for: TF56



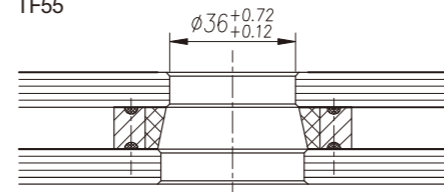
Suitable for: TF25, TF26



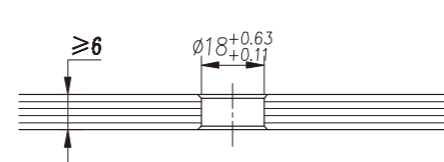
Note:

1. The above drilling dimension is only for reference;
2. Considering the potentially manufacturing error for laminated glass, different diameter of the two panels is recommended.

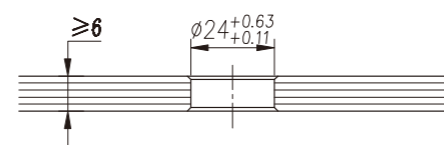
Suitable for: TF13, TF14, TF23, TF24, TF33~TF36
TF55



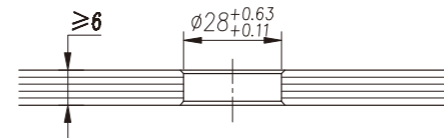
Suitable for: TF43



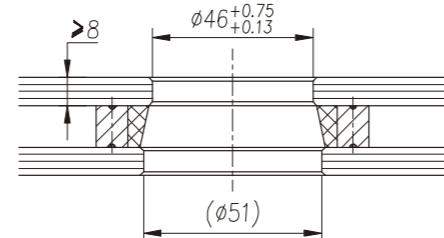
Suitable for: TF42, TF44



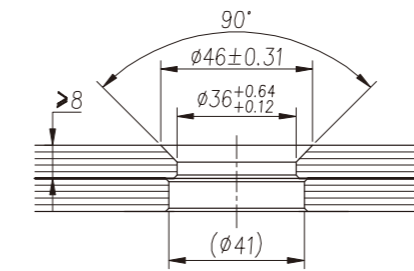
Suitable for: TF41



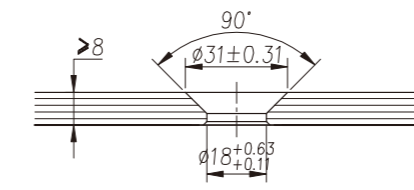
Suitable for: TF25, TF26



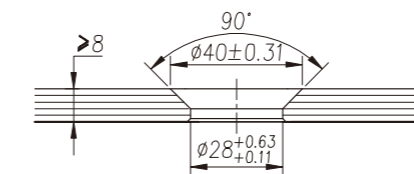
Suitable for: TC11~TC13, TC21~TC23
TC31~TC33, TC35, TC51



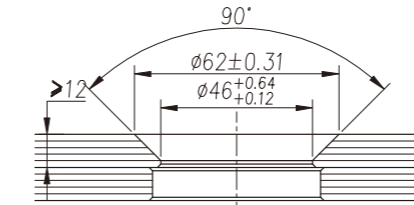
Suitable for: TC43



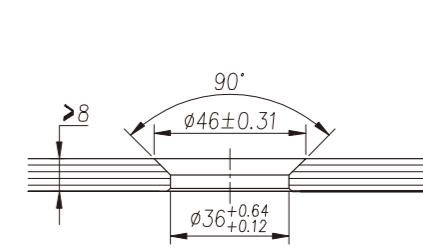
Suitable for: TC41



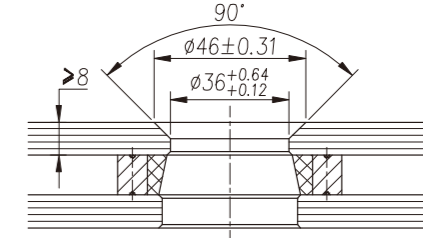
Suitable for: TC25, TC26



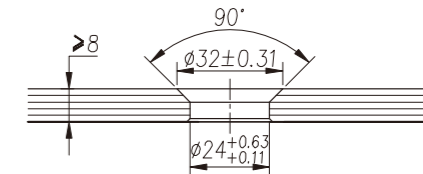
Suitable for: TC11, TC21, TC31, TC32
TC51, TC52



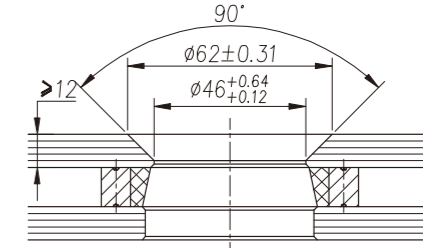
Suitable for: TC13, TC14, TC22~TC24
TC32~TC36



Suitable for: TC42, TC44



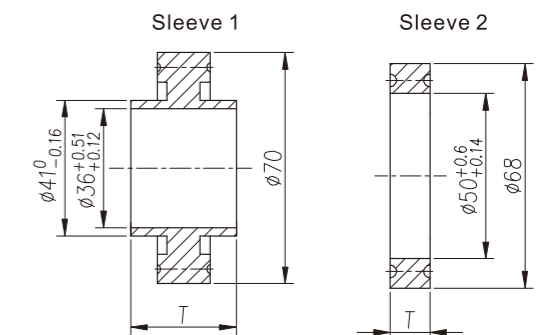
Suitable for: TC25, TC26



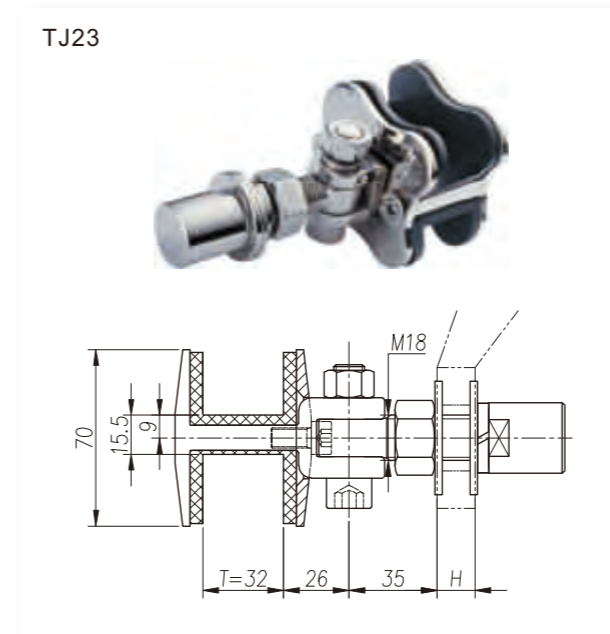
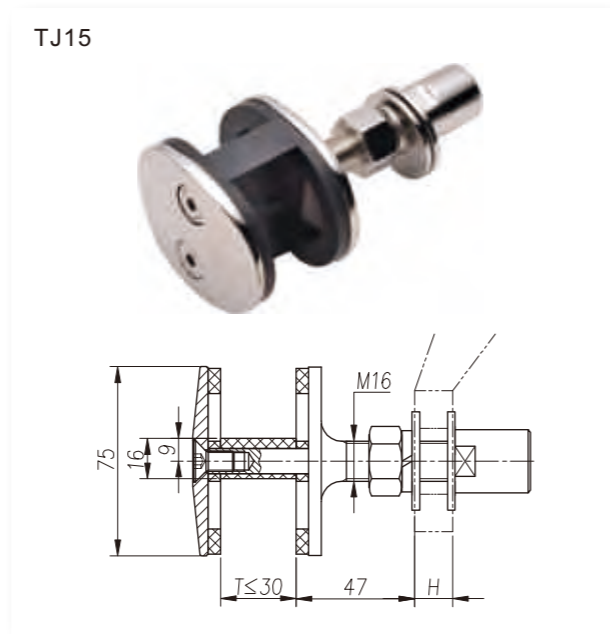
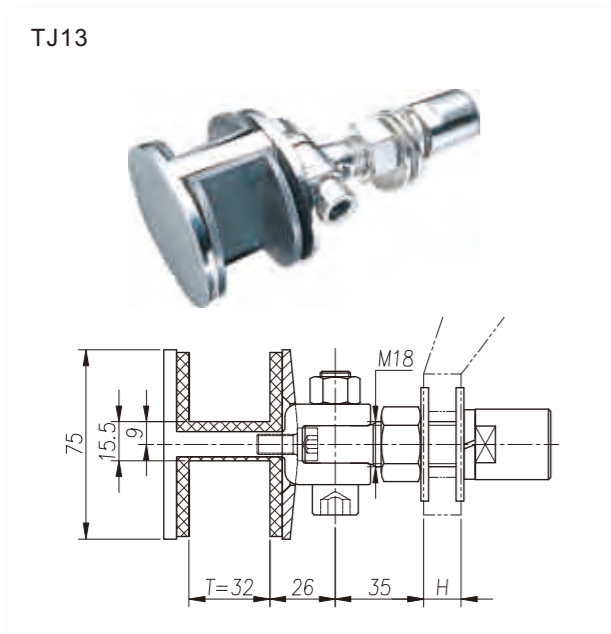
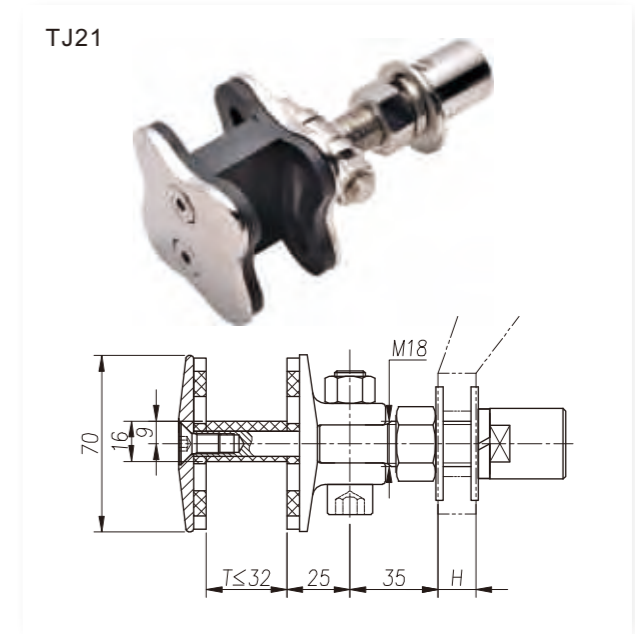
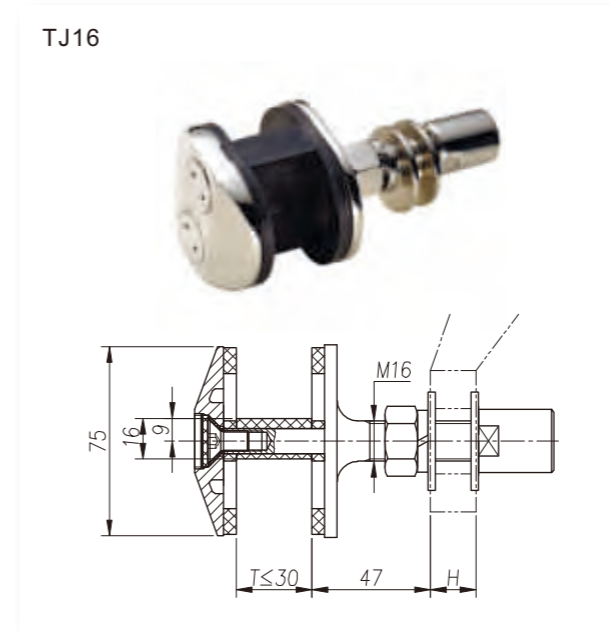
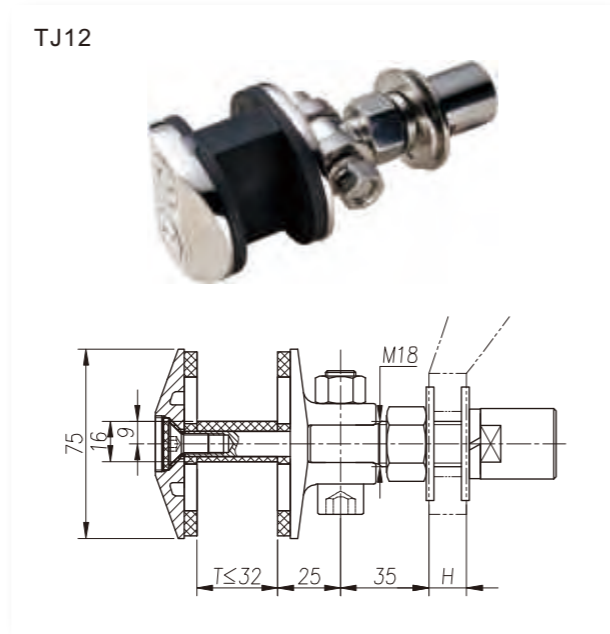
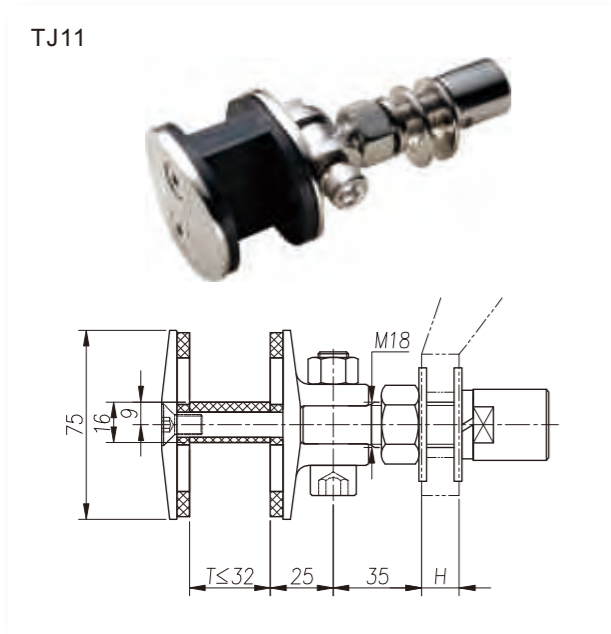
Note:

1. The above drilling dimension is only for reference;
2. Considering the potentially manufacturing error for laminated glass, different diameter of the two panels is recommended.

Alu.Sleeve for Insulating Glass Unit



Routel



Note: For exterior installation routel, when bolt-socket countersunk head crew be installed, suggest filling in screw fastening glue.

The Recommended Value of Load Capacity (N)	Model	Main material: CF8M, CF8	
		F _x ≤	F _y ≤
	TJ11	6000	2500
	TJ12	6000	2500
	TJ13	6000	2500
	TJ15	6000	2000

Note: For exterior installation routel, when bolt-socket countersunk head crew be installed, suggest filling in screw fastening glue.

The Recommended Value of Load Capacity (N)	Model	Main material: CF8M, CF8	
		F _x ≤	F _y ≤
	TJ16	6000	2000
	TJ21	6000	2500
	TJ23	6000	2500
	TJ25	6000	2000

Connector

Size Model	A	B	C	M	D	L	Note
Z11	30	12	45	M12	18	90	DIN912 Bolt
AZ15	36	11	42	M18	36	90	

Size Model	M	L
Z12	M14	90
Z13	M16	90
Z15W	M18	90

Size Model	A	M	L
Z15	48	M18	90
Z15L1	69	M18	90
Z16	54	M20	90
Z16L	74	M20	90

Size Model	A	B	M	D	D1	L
Z35	48	11	M18	46	36	72
Z36	54	11	M20	46	36	72
Z37	80	20	M24	63	42	72

Size Model	M	L
Z38	M30X1.5	50

Size Model	M	L
Z45	M10	100

Size Model	A	M	L
Z15(53)	48	M18	90
Z16(53)	54	M20	90

Size Model	A	L
Z17	80	120
Z17L	100	120

Size Model	A	M	L
Z124E	50	M12	72

Size Model	M	L
Z51	M18	113

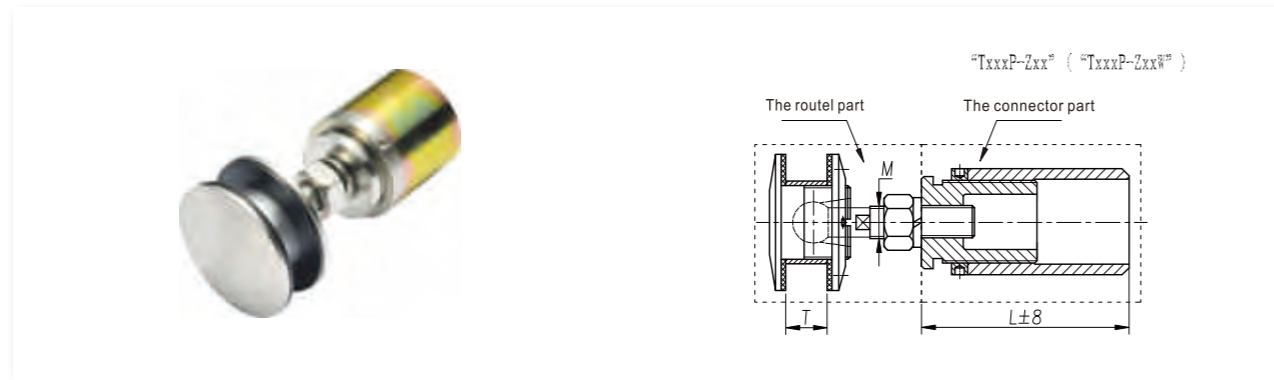
Size Model	M	L
Z65	M16	130

Size Model	M	L
Z66	M14	90

Note: The basic surface treatment of outer screw barrel is spraying or color galvanized, which is only used as anti-rust treatment during the short period storage and transportation. Another anti-rust measure should be adopted after the site welding.

Note: The basic surface treatment of outer screw barrel is spraying or color galvanized, which is only used as anti-rust treatment during the short period storage and transportation. Another anti-rust measure should be adopted after the site welding.

P-Z Series

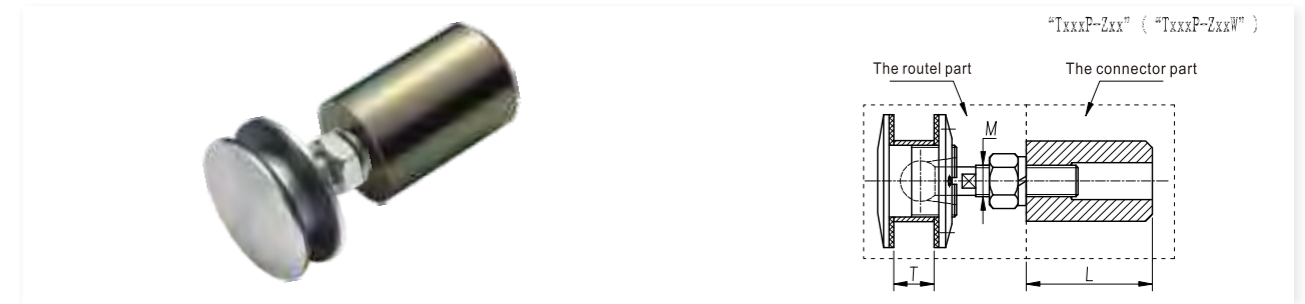


FP-Z	The routil part	T	M	The connector part	M	L	$F_x \leq (N)$	$F_y \leq (N)$	Model
	TF12P	18-26	M14	Z12	M14	90	4500	2000	TF12P-Z12
	TF14P	30-46	M18	Z15W	M18	90	6500	2800	TF14P-Z15W
	TF21P	8-22	M16	Z13	M16	90	6000	2500	TF21P-Z13
	TF22P	22-30	M16	Z13	M16	90	6000	2500	TF22P-Z13
	TF23P	30-40	M16	Z13	M16	90	6000	2500	TF23P-Z13
	TF24P	30-50	M18	Z15W	M18	90	6500	2800	TF24P-Z15W
	TF31P	8-15	M14	Z12	M14	90	4500	2000	TF31P-Z12
	TF32P	15-23	M14	Z12	M14	90	4500	2000	TF32P-Z12
	TF33P	23-40	M16	Z13	M16	90	6000	2500	TF33P-Z13
	TF34P	30-46	M18	Z15W	M18	90	6500	2800	TF34P-Z15W
	TF35P	30-40	M16	Z13	M16	90	6000	2500	TF35P-Z13
	TF36P	30-50	M18	Z15W	M18	90	6500	2800	TF36P-Z15W

CP-Z	The routil part	T	M	The connector part	M	L	$F_x \leq (N)$	$F_y \leq (N)$	Model
	TC01P	8-22	M14	Z12	M14	90	4500	2000	TC11P-Z12
	TC12P	22-30	M14	Z12	M14	90	4500	2000	TC12P-Z12
	TC13P	30-40	M16	Z13	M16	90	6000	2500	TC13P-Z13
	TC14P	30-46	M18	Z15W	M18	90	6500	2800	TC14P-Z15W
	TC21P	8-22	M16	Z13	M16	90	6000	2500	TC21P-Z13
	TC22P	22-30	M16	Z13	M16	90	6000	2500	TC22P-Z13
	TC23P	30-40	M16	Z13	M16	90	6000	2500	TC23P-Z13
	TC24P	30-46	M18	Z15W	M18	90	6500	2800	TC24P-Z15W
	TC31P	12-21	M14	Z12	M14	90	4500	2000	TC31P-Z12
	TC32P	15-32	M14	Z12	M14	90	4500	2000	TC32P-Z12
	TC33P	30-40	M16	Z13	M16	90	6000	2500	TC33P-Z13
	TC34P	30-46	M18	Z15W	M18	90	6500	2800	TC34P-Z15W
	TC35P	30-40	M16	Z13	M16	90	6000	2500	TC35P-Z13
	TC36P	30-46	M18	Z15W	M18	90	6500	2800	TC36P-Z15W

JP-Z	The routil part	T	M	The connector part	M	L	$F_x \leq (N)$	$F_y \leq (N)$	Model
	TJ15P	0-30	M16	Z13	M16	90	6000	2000	TJ15P-Z13
	TJ16P	0-30	M16	Z13	M16	90	6000	2000	TJ16P-Z13
	TJ25P	0-30	M16	Z13	M16	90	6000	2000	TJ25P-Z13

Note: 1. Standard length of connector: L=90mm;
 2. The basic surface treatment of outer screw barrel of the connector part is spraying or color galvanized, which is only used as anti-rust treatment during the short period storage and transportation. Another anti-rust measure should be adopted after the site welding.



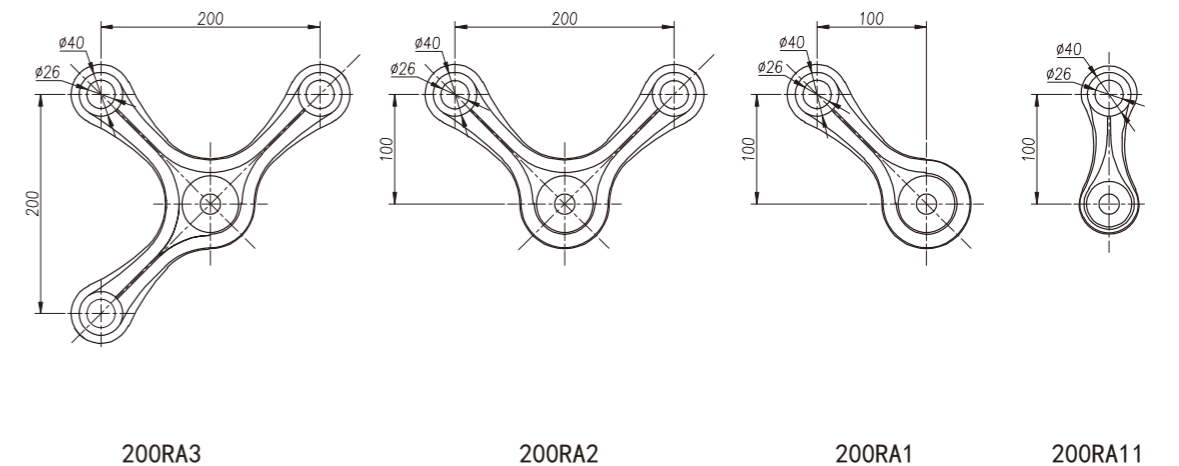
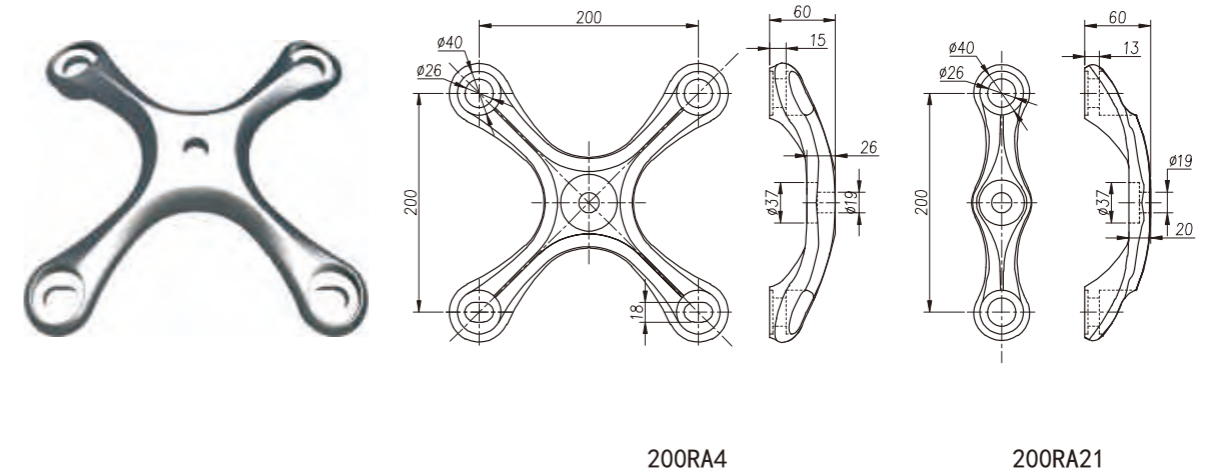
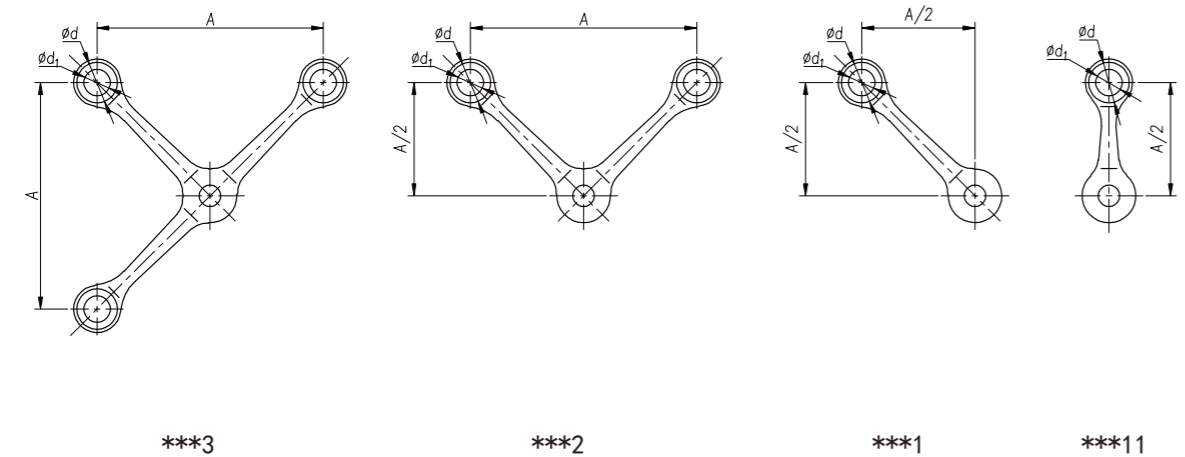
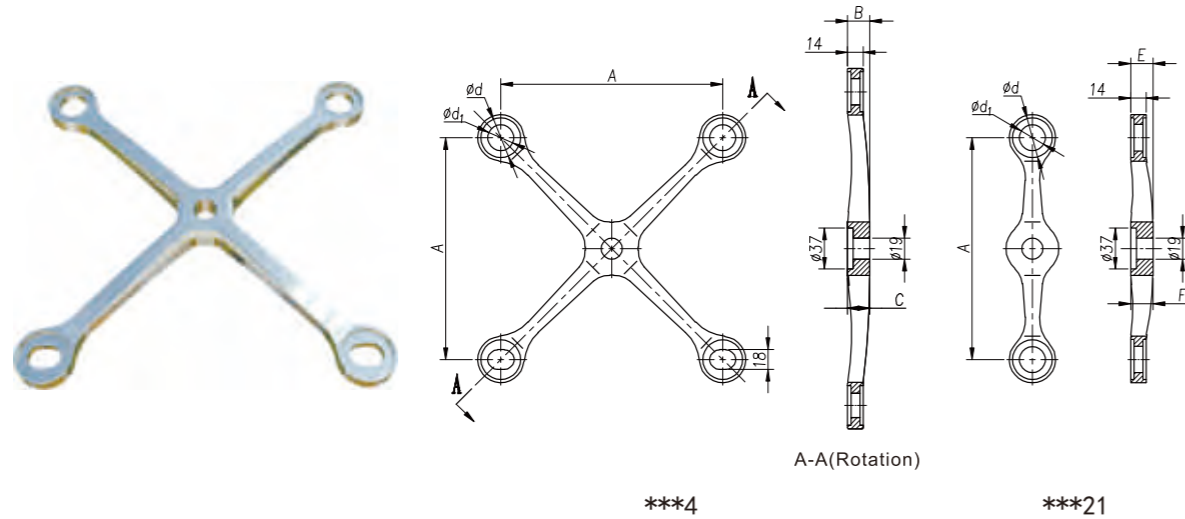
FP-Z	The routil part	T	M	The connector part	M	L	$F_x \leq (N)$	$F_y \leq (N)$	Model
	ATF11P	8-18	M12	Z31	M12	72	3000	1500	ATF11P-Z31
	ATF12P	18-26	M12	Z31	M12	72	3000	1500	ATF12P-Z31
	ATF13P	26-40	M14	Z32	M14	72	3500	2000	ATF13P-Z32
	ATF14P	40-46	M16	Z33	M16	72	4000	2500	ATF14P-Z33
	TF11P	8-18	M14	Z32	M14	72	4500	2000	TF11P-Z32
	TF12P	18-26	M14	Z32	M14	72	4500	2000	TF12P-Z32
	TF13P	26-40	M16	Z33	M16	72	6000	2500	TF13P-Z33
	TF14P	30-46	M18	Z35W	M18	72	6500	2800	TF14P-Z35W
	TF21P	8-22	M16	Z33	M16	72	6000	2500	TF21P-Z33
	TF22P	22-30	M16	Z33	M16	72	6000	2500	TF22P-Z33
	TF23P	30-40	M16	Z33	M16	72	6000	2500	TF23P-Z33
	TF24P	30-50	M18	Z35W	M18	72	6500	2800	TF24P-Z35W
	TF31P	8-15	M14	Z32	M14	72	4500	2000	TF31P-Z32
	TF32P	15-23	M14	Z32	M14	72	4500	2000	TF32P-Z32
	TF33P	23-40	M16	Z33	M16	72	6000	2500	TF33P-Z33
	TF34P	30-46	M18	Z35W	M18	72	6500	2800	TF34P-Z35W
	TF35P	30-40	M16	Z33	M16	72	6000	2500	TF35P-Z33
	TF36P	30-50	M18	Z35W	M18	72	6500	2800	TF36P-Z35W

CP-Z	The routil part	T	M	The connector part	M	L	$F_x \leq (N)$	$F_y \leq (N)$	Model
	ATC11P	8-22	M12	Z31	M12	72	3000	1500	ATC11P-Z31
	ATC12P	22-30	M12	Z31	M12	72	3000	1500	ATC12P-Z31
	ATC13P	30-40	M14	Z32	M14	72	3500	2000	ATC13P-Z32
	ATC14P	40-46	M16	Z33	M16	72	4000	2500	ATC14P-Z33
	TC01P	8-22	M14	Z32	M14	72	4500	2000	TC11P-Z32
	TC12P	22-30	M14	Z32	M14	72	4500	2000	TC12P-Z32
	TC13P	30-40	M16	Z33	M16	72	6000	2500	TC13P-Z33
	TC14P	30-46	M18	Z35W	M18	72	6500	2800	TC14P-Z35W
	TC21P	8-22	M16	Z33	M16	72	6000	2500	TC21P-Z33
	TC22P	22-30	M16	Z33	M16	72	6000	2500	TC22P-Z33
	TC23P	30-40	M16	Z33	M16	72	6000	2500	TC23P-Z33
	TC24P	30-46	M18	Z35W	M18	72	6500	2800	TC24P-Z35W
	TC31P	12-21	M14	Z32	M14	72	4500	2000	TC31P-Z32
	TC32P	15-32	M14	Z32	M14	72	4500	2000	TC32P-Z32
	TC33P	30-40	M16	Z33	M16	72	6000	2500	TC33P-Z33
	TC34P	30-46	M18	Z35W	M18	72	6500	2800	TC34P-Z35W
	TC35P	30-40	M16	Z33	M16	72	6000	2500	TC35P-Z33
	TC36P	30-46	M18	Z35W	M18	72	6500	2800	TC36P-Z35W

JP-Z	The routil part	T	M	The connector part	M	L	$F_x \leq (N)$	$F_y \leq (N)$	Model
	TJ15P	0-30	M16	Z33	M16	72	6000	2000	TJ15P-Z33
	TJ16P	0-30	M16	Z33	M16	72	6000	2000	TJ16P-Z33
	TJ25P	0-30	M16	Z33	M16	72	6000	2000	TJ25P-Z33

Note: 1. Connector standard length L=72
 2. The basic surface treatment of outer screw barrel of the connector part is spraying or color galvanized, which is only used as anti-rust treatment during the short period storage and transportation. Another anti-rust measure should be adopted after the site welding.

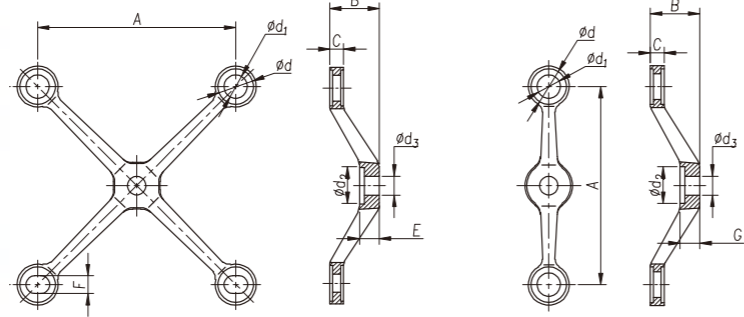
Spider



Note: Spider model is consisted of Series number+Arm Code like GZ250XFD4, GZ250XFD21 and so on.

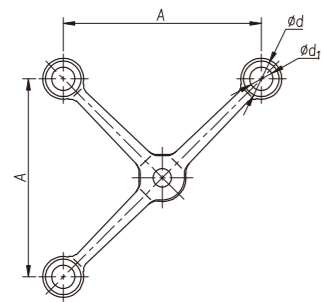
Model	Size							The Recommended Value of Load Capacity (N)	Material: CF8M,CF8		Material: CD3MN		
	A	B	C	d	d ₁	E	F		F _x ≤	F _y ≤	F _x ≤	F _y ≤	
GZ200XFB Series	200	20	20	36	24	20	20	2000	1000	2600	1300		
GZ250XFD Series	250	24	24	40	26	21	21	2500	1500	3300	2000		

The Recommended Value of Load Capacity (N)	Model	Material: CF8M,CF8		Material: CD3MN		
		F _x ≤	F _y ≤	F _x ≤	F _y ≤	
	200RA Series	3000	2000	—	—	

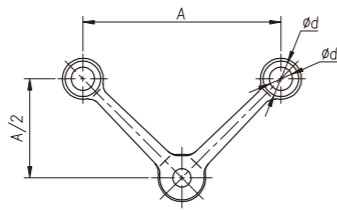


***A4

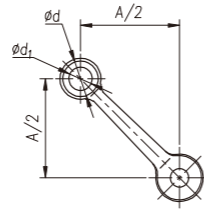
***A21



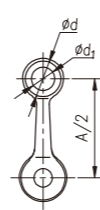
***A3



***A2



***A1

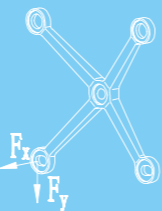


***A11

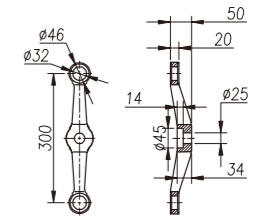
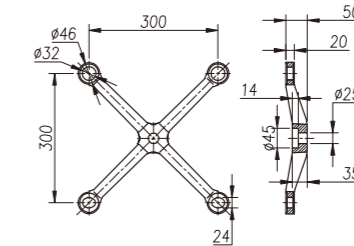
Note: The model of spider consists of series number+ arm code like A160A4, A160A21 and so on.

Size Model	A	B	C	d	d ₁	d ₂	d ₃	E	F	G	Material:CF8M,CF8		Material:CD3MN	
											F _x <	F _y <	F _x <	F _y <
A160A Series	160	40	10	26	16	19	13	16	12.5	16	1500	800	—	—
A200A Series	200	40	12	36	24	37	19	20	18	18	2000	800	—	—
200A Series	200	50	14	36	24	37	19	20	18	20	2000	1000	2600	1300
A220A Series	220	50	12	36	26	37	19	21	18	19	2000	1000	—	—
B220A Series	220	50	10	36	26	37	19	18	18	18	1500	800	—	—
220A Series	220	50	12	36	26	37	19	23	18	20	2000	1200	2600	1600
C220A Series	220	50	18	36	26	37	19	28	18	26	4000	2500	—	—
D220A Series	220	50	20	36	26	37	21	28	20	28	5000	3500	—	—
A250A Series	250	50	12	40	26	37	19	22	18	20	2000	1200	—	—
B250A Series	250	50	10	36	26	37	19	20	18	20	1500	800	—	—
250A Series	250	50	14	40	26	37	19	25	18	22	2500	1500	3300	2000
C250A Series	250	50	17	40	26	37	19	27	18	27	4000	2500	—	—
D250A Series	250	50	20	40	26	37	21	30	20	30	5000	3500	—	—
A300A Series	300	50	16	40	26	37	21	28	18	28	2500	1500	—	—
300A Series	300	50	18	40	26	37	21	32	18	26	3000	2000	3900	2600

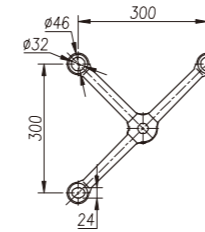
The Recommended Value of Load Capacity (N)



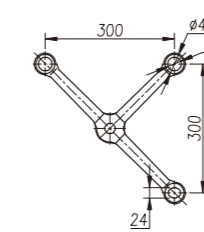
C300A4



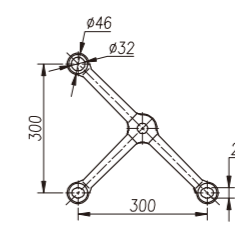
C300A21



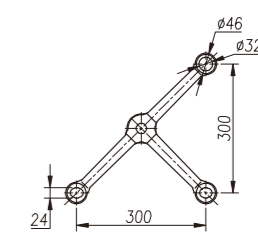
C300A31



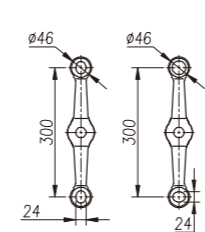
C300A32



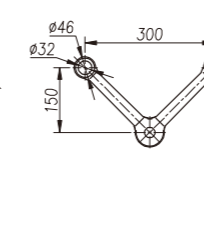
C300A33



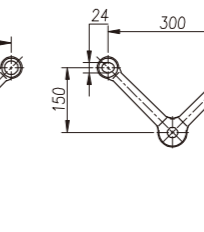
C300A34



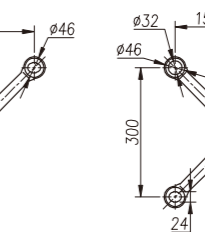
C300A22



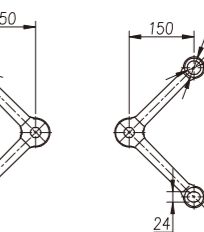
C300A27



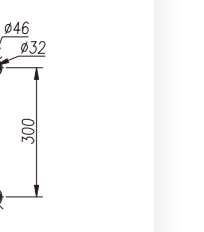
C300A2



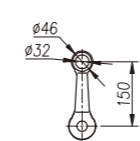
C300A24



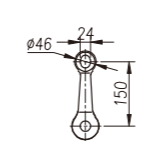
C300A25



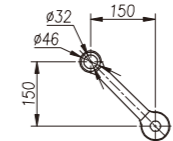
C300A26



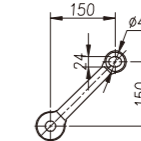
C300A11



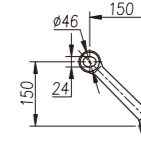
C300A12



C300A1



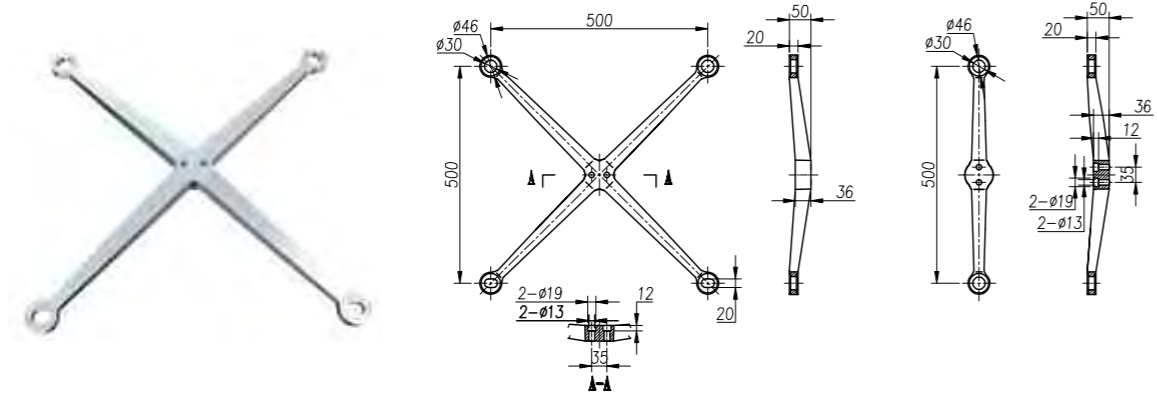
C300A15



C300A16

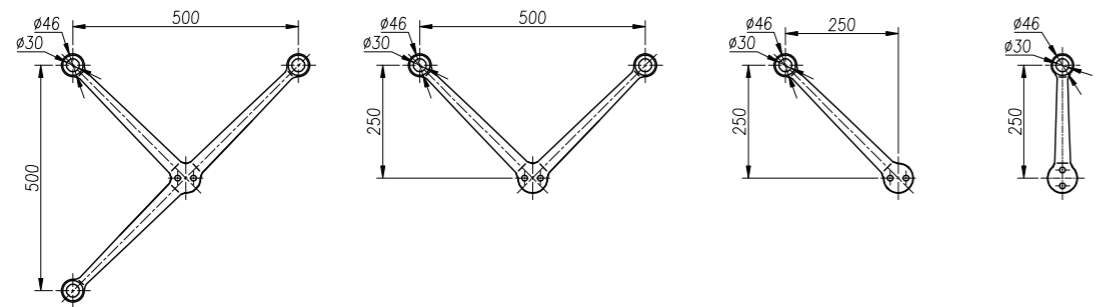
The Recommended Value of Load Capacity (N)	Model	Material: CF8M,CF8		Material: CD3MN	
		F _x <	F _y <	F _x <	F _y <
	C300A Series	6000	4000	—	—

Note: When the radial load < 3500N, the eccentric washer can meet the requirement of load capacity. When the radial load > 3500N, then need to use oblate hole of spider to bear.



GZ500XFG4

GZ500XFG21

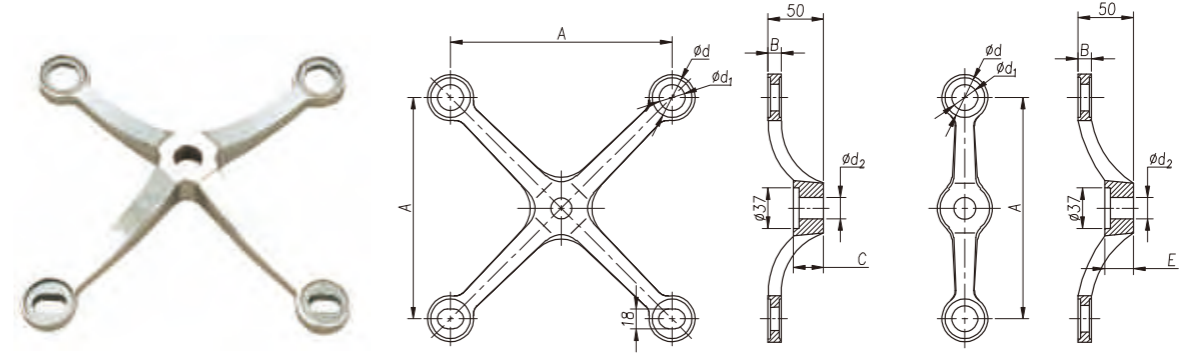


GZ500XFG3

GZ500XFG2

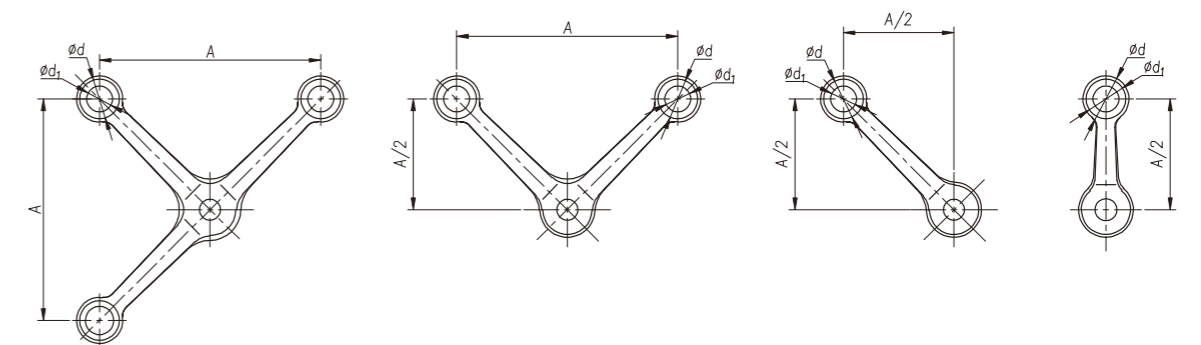
GZ500XFG1

GZ500XFG11



***B4

***B21



***B3

***B2

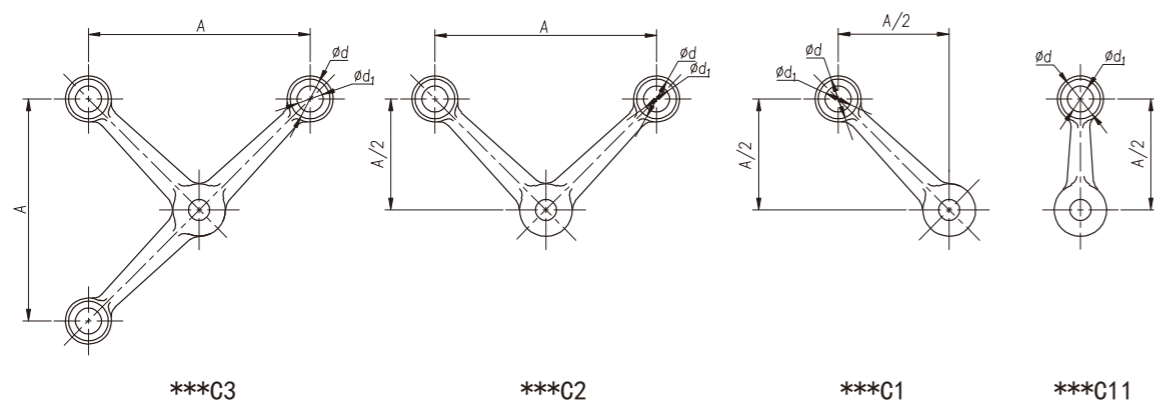
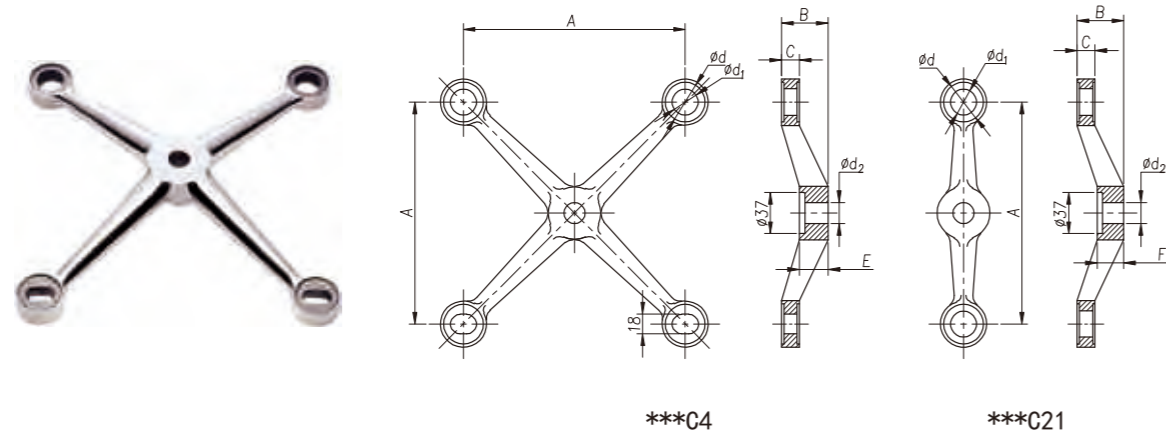
***B1

***B11

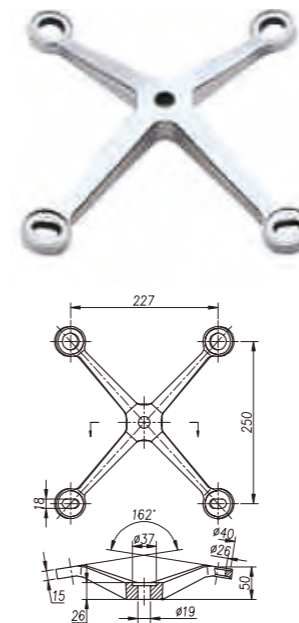
Note: The model of spider consists of series number+ arm code like 220B4, 220B21 and so on.

The Recommended Value of Load Capacity (N)	Model	Material: CF8M,CF8		Material: CD3MN		
		Fx <	Fy <	Fx <	Fy <	
	GZ500XFGSeries	5000	3000	—	—	

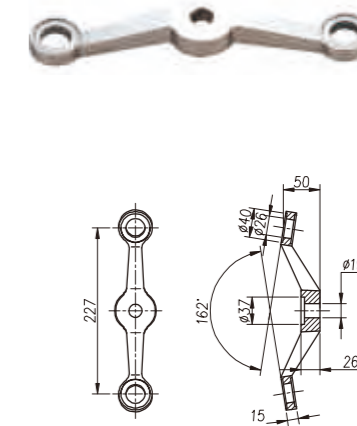
Size Model	A	B	C	d	d ₁	d ₂	E	The Recommended Value of Load Capacity (N)	Material: CF8M,CF8		Material: CD3MN		
									Fx <	Fy <	Fx <	Fy <	
200B Series	200	12	27	36	24	19	26	2000	1000	2600	1300		
220B Series	220	13	27	36	24	19	27				1600		
250B Series	250	16	26	40	26	19	24	2500	1500	3300	2000		
300B Series	300	18	32	40	26	21	26	3000	2000	3900	2600		



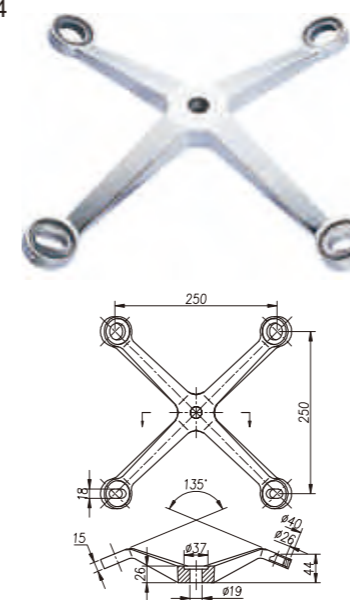
250AA4



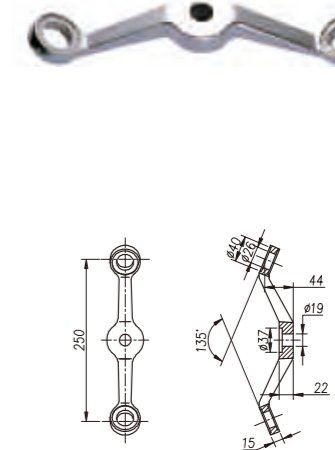
250AA21



250AB4



250AB21

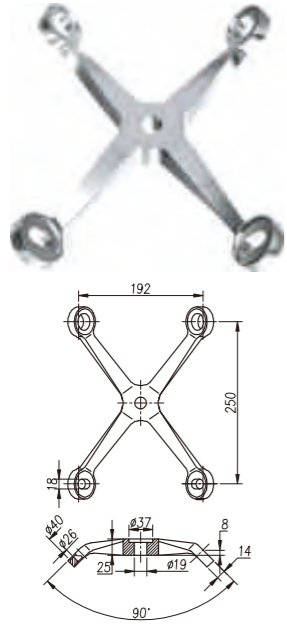


Note: The model of spider consists of series number+ arm code like 250C4, 250C21 and so on.

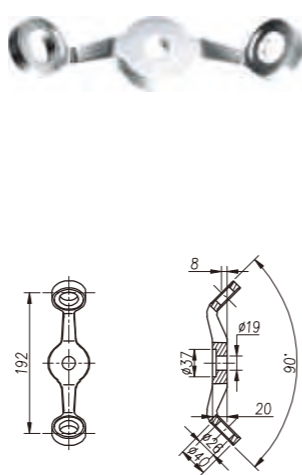
Model	Size	A	B	C	d	d ₁	d ₂	E	F	The Recommended Value of Load Capacity (N)	Material: CF8M,CF8		Material: CD3MN	
											F _x <	F _y <	F _x <	F _y <
200C Series	200	42	16	36	24	19	26	24		2000	1000	2600	1300	
250C Series	250	50	18	40	26	19	32	26		2500	1500	3300	2000	
300C Series	300	50	20	40	26	21	38	32		3000	2000	3900	2600	

The Recommended Value of Load Capacity (N)	Model	Material: CF8M,CF8		Material: CD3MN	
		F _x <	F _y <	F _x <	F _y <
	250AA4	2500	1500	3300	2000
	250AA21				
	250AB4				
250AB21					

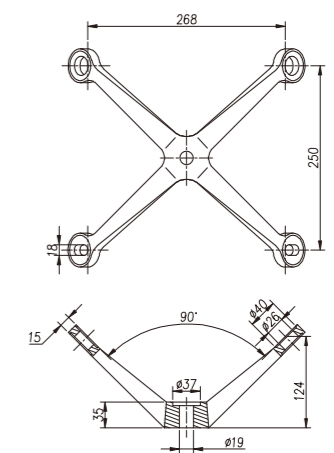
250AC4



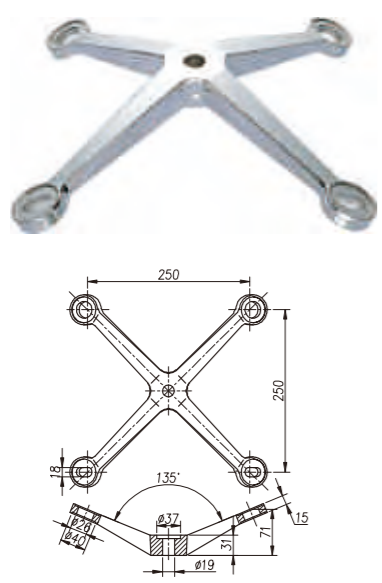
250AC21



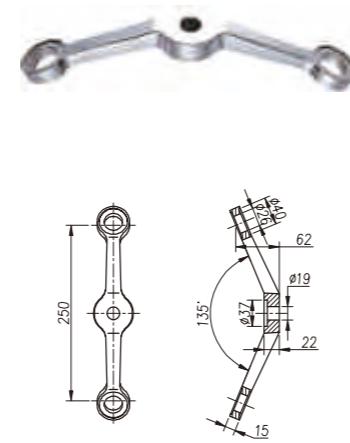
250AE4



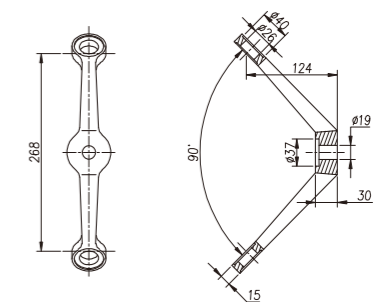
250AD4



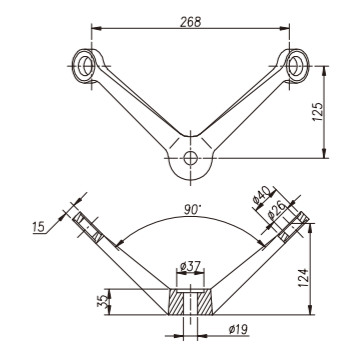
250AD21



250AE21

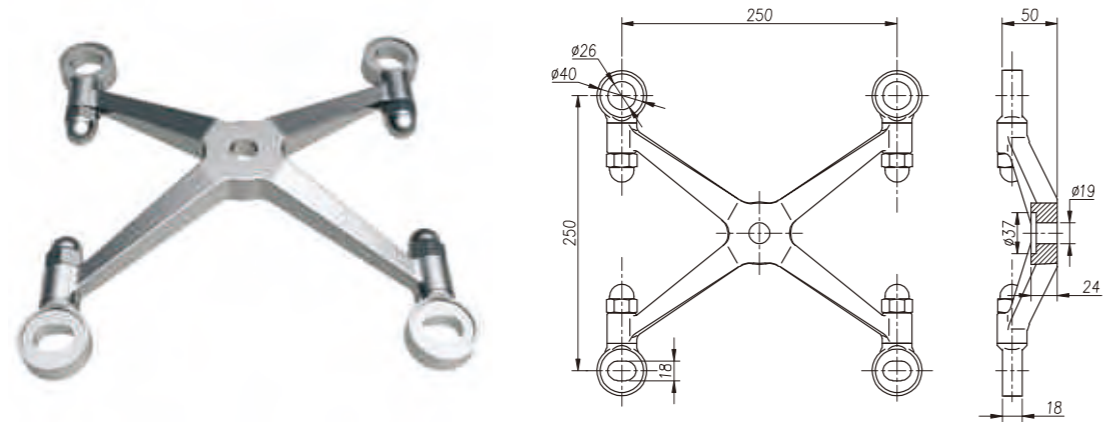


250AE2

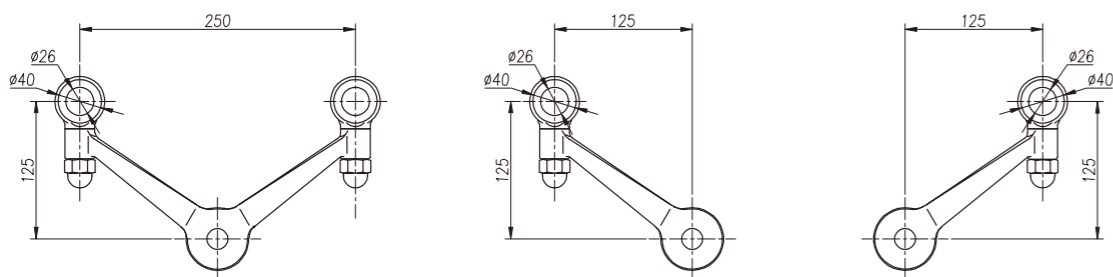


The Recommended Value of Load Capacity (N)	Model	Material: CF8M,CF8		Material: CD3MN		
		Fx <	Fy <	Fx <	Fy <	
	250AC4	2500	1500	3300	2000	
250AC21						
250AD4						
250AD21						

The Recommended Value of Load Capacity (N)	Model	Material: CF8M,CF8		Material: CD3MN		
		Fx <	Fy <	Fx <	Fy <	
	250AE4	2500	1500	3300	2000	
250AE21						
250AE2						



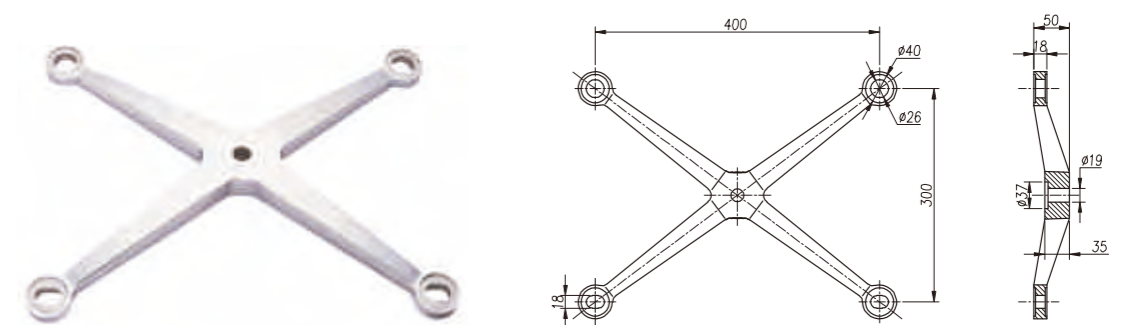
250K4



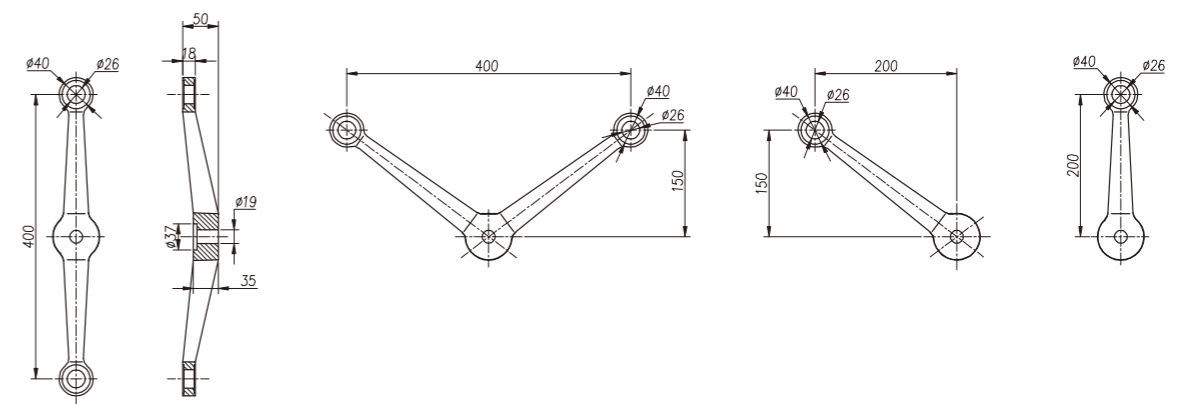
250K2

250K1

250K12



3040B4



3040B21

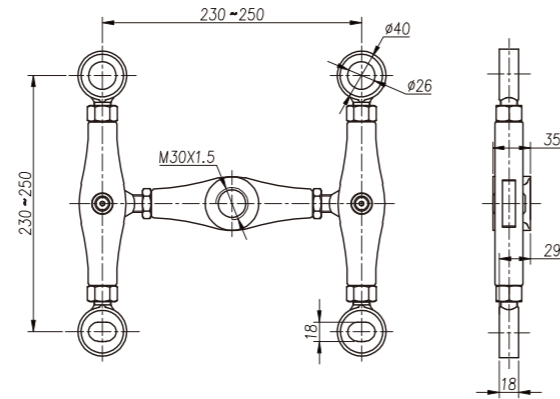
3040B2

3040B1

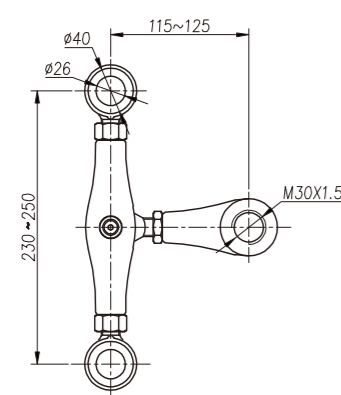
3040B11

The Recommended Value of Load Capacity (N)	Model	Main material: CF8M, CF8		Main material: CD3MN		
		Fx <	Fy <	Fx <	Fy <	
	250K Series	2500	1500	3300	2000	

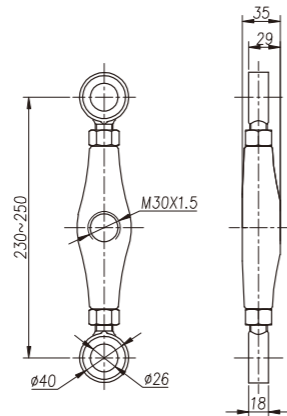
The Recommended Value of Load Capacity (N)	Model	Material: CF8M, CF8		Material: CD3MN		
		Fx <	Fy <	Fx <	Fy <	
	3040B系列	4000	2000	5000	2600	



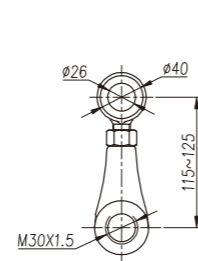
250HA4



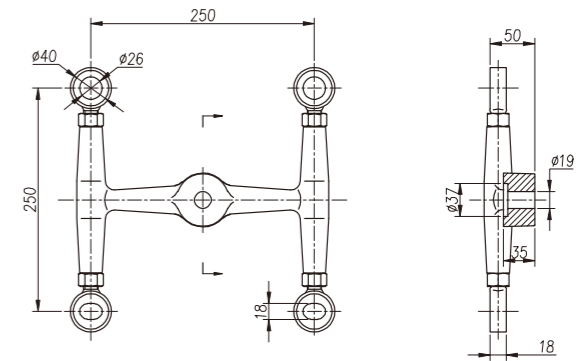
250HA25



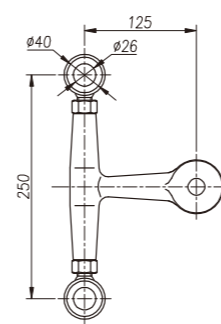
250HA21



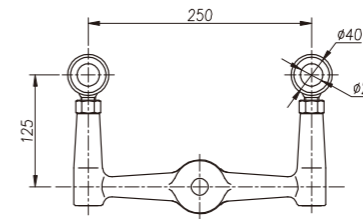
250HA11



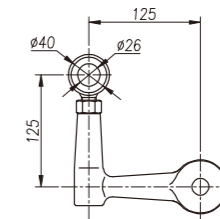
250HE4



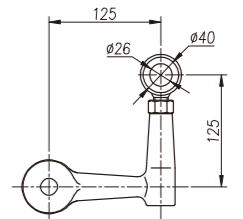
250HE25



250HE2



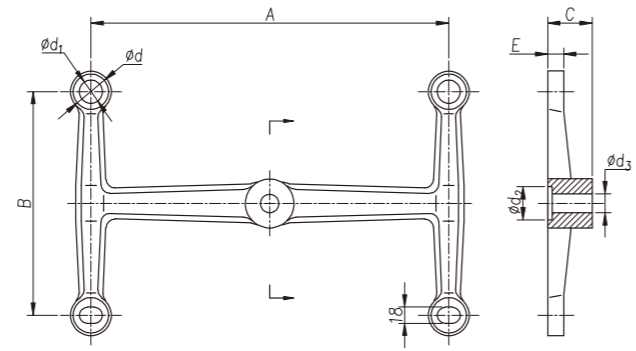
250HE1



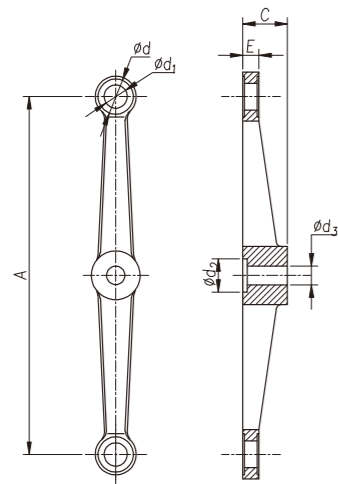
250HE12

The Recommended Value of Load Capacity (N)	Model	Main material: CF8M, CF8		Main material: CD3MN		
		Fx <	Fy <	Fx <	Fy <	
	250HA Series	2500	1500	3300	2000	

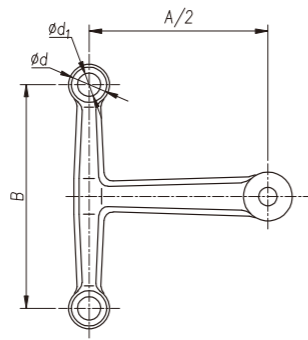
The Recommended Value of Load Capacity (N)	Model	Main material: CF8M, CF8		Main material: CD3MN		
		Fx <	Fy <	Fx <	Fy <	
	250HE Series	2500	1500	3300	2000	



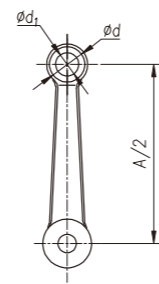
***4



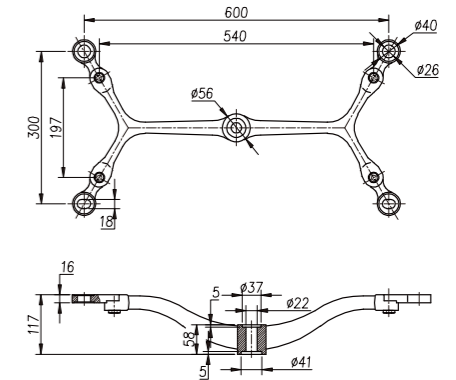
***21



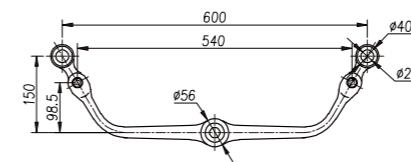
***25



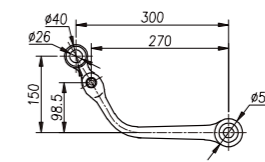
***11



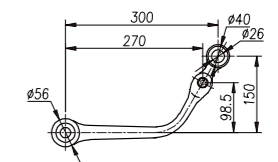
3060A4



3060A2



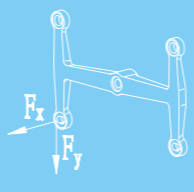
3060A1



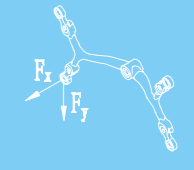
3060A12

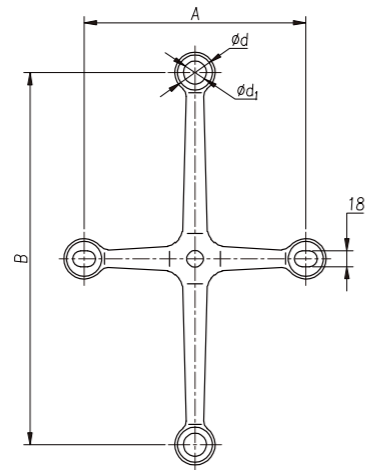
Note: The model of spider consists of series number+ arm code like 2540HA4, 2540HA21 and so on.

Size Model	A	B	C	d	d_1	d_2	d_3	E	The Recommended Value of Load Capacity (N)	Material: CF8M,CF8		Material: CD3MN				
										$F_x \leq$	$F_y \leq$	$F_x \leq$	$F_y \leq$			
A3060H Series	600	300	40	40	26	37	19	16	4000	1800	—	—				
2540HA Series	400	250	50	40	26	37	21	18					2000	2600		
3060HA Series	600	300	60	46	30	45	25	18					6500	2500	8000	3200
4080HA Series	800	400	80	50	32	45	25	20					3500	3500	4500	4500

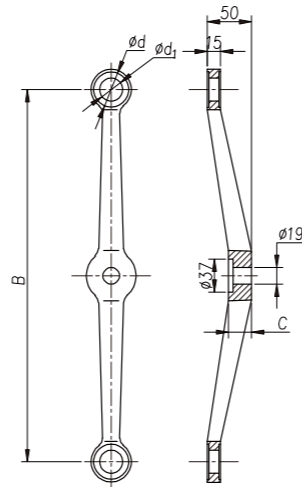


The Recommended Value of Load Capacity (N)	Model	Main material: CF8M, CF8		Main material: CD3MN	
		$F_x \leq$	$F_y \leq$	$F_x \leq$	$F_y \leq$
	3060A Series	3500	1500	4500	2000

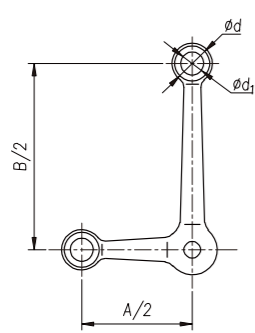




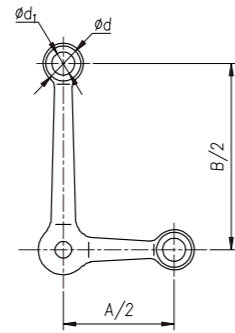
***TA4



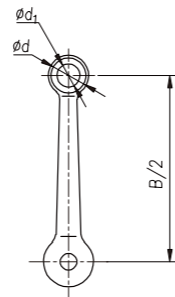
***TA21



***TA23



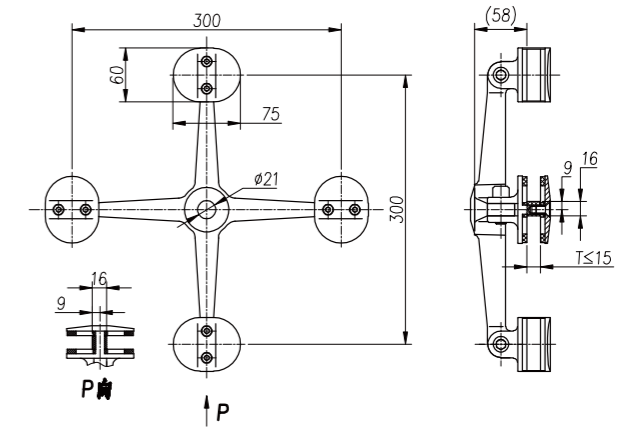
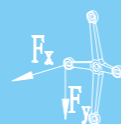
***TA24



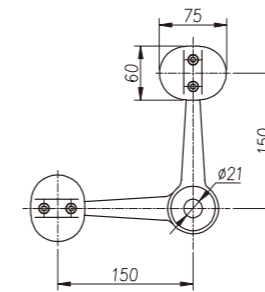
***TA11

Note: The model of spider consists of series number+ arm code like 2542TA4, 2542TA21 and so on.

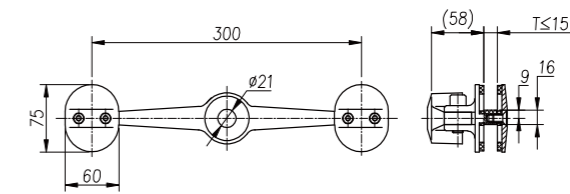
Size Model	A	B	C	d	d_1	The Recommended Value of Load Capacity (N)	Material: CF8M,CF8		Material: CD3MN	
							$F_x \leq$	$F_y \leq$	$F_x \leq$	$F_y \leq$
2542TA Series	250	420	26	40	26	4000	2000	5000	2600	
3060TA Series	300	600	30	36	26			3000	3900	



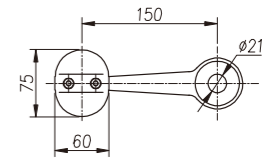
J3030T4



J3030T23

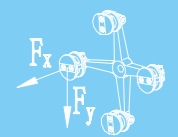


J3030T21



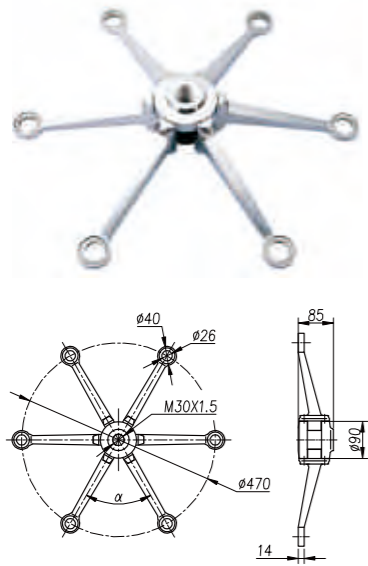
J3030T11

The Recommended Value of Load Capacity (N)	Model	Main material: CF8M, CF8		Main material: CD3MN	
		$F_x \leq$	$F_y \leq$	$F_x \leq$	$F_y \leq$
	J3030T Series	5000	2000	6500	2600



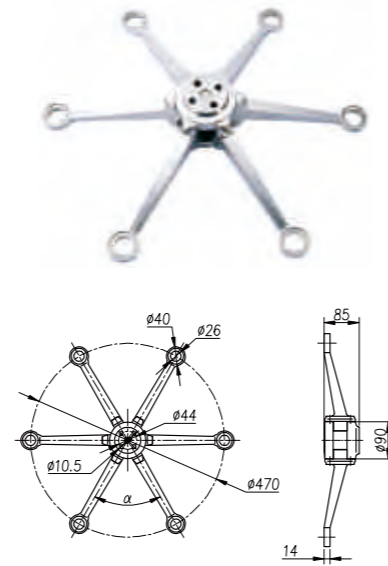
Fin Spider

4706K



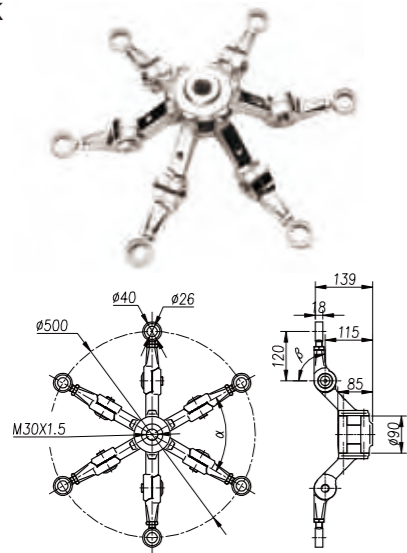
Note: 1. Minimum angle between two arms $\alpha \geq 44^\circ$.

4706G



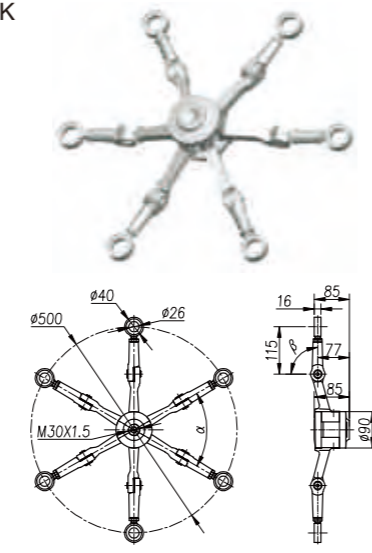
Note: 1. Minimum angle between two arms $\alpha \geq 44^\circ$.

5006K

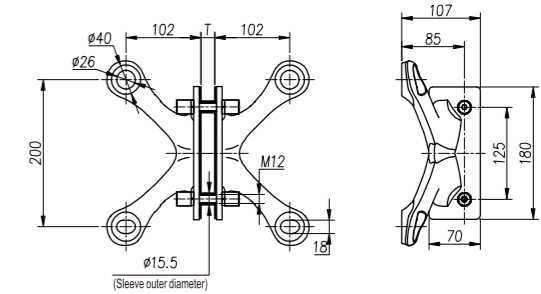


Note: 1. Minimum angle between two arms $\alpha \geq 44^\circ$;
2. The arm rotation angle: $55^\circ \leq \beta \leq 135^\circ$.

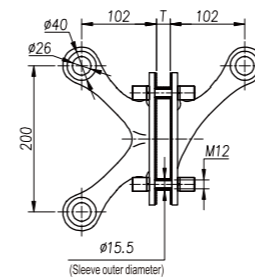
A5006K



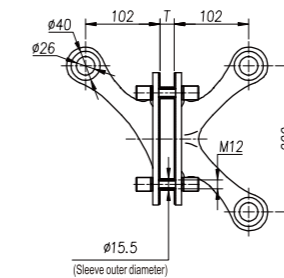
Note: 1. Minimum angle between two arms $\alpha \geq 44^\circ$;
2. The arm rotation angle: $55^\circ \leq \beta \leq 135^\circ$.



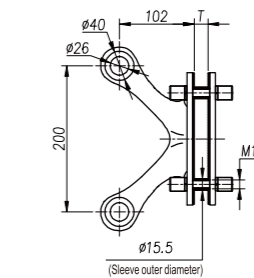
L200RA4



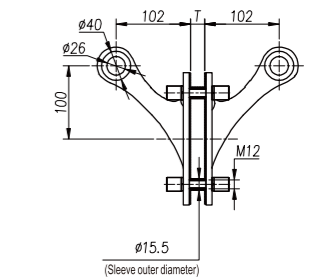
L200RA31



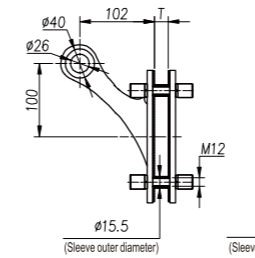
L200RA32



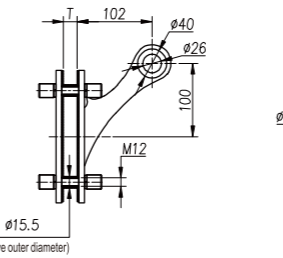
L200RA25



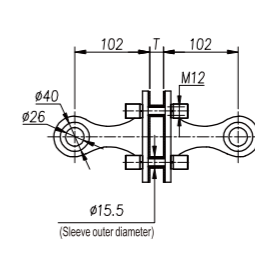
L200RA2



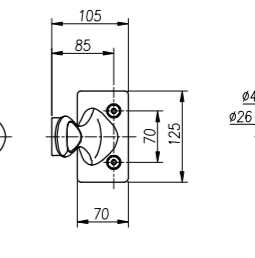
L200RA1



L200RA12



L200RA21



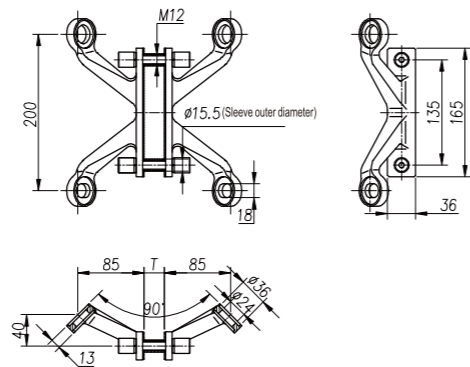
L200RA11

Note:

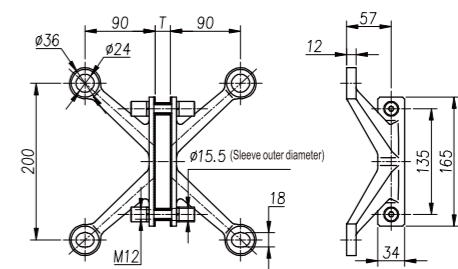
1. The standard thickness of glass fin is $T=19\text{mm}$;
2. Please place the order with note of removing rubber gasket or nylon sleeve while they are not needed. The drilling diameter on structure should be suit for the bolt dimension.

The Recommended Value of Load Capacity (N)	Model	Main material: CF8M, CF8		Main material: CD3MN		
		$F_x \leq$	$F_y \leq$	$F_x \leq$	$F_y \leq$	
	4706K	4000	2000	—	—	
4706G	—	—	—	—		
5006K	3800	—	—	—		
A5006K	1500	1000	—	—		

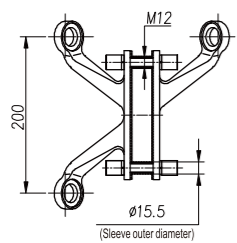
The Recommended Value of Load Capacity (N)	Model	Main material: CF8M, CF8		Main material: CD3MN		
		$F_x \leq$	$F_y \leq$	$F_x \leq$	$F_y \leq$	
	L200RA Series	3000	2000	—	—	



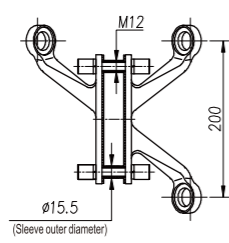
LZ200XFBJ4



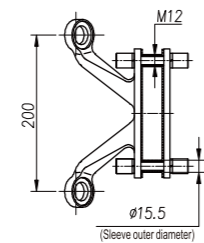
L200A4



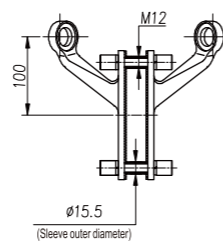
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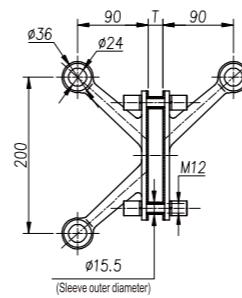
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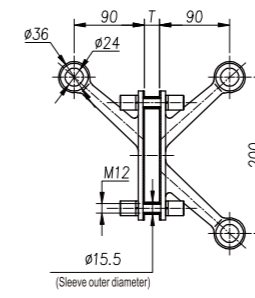
LZ200XFBJ25



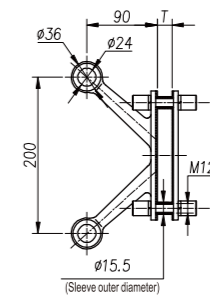
LZ200XFBJ2



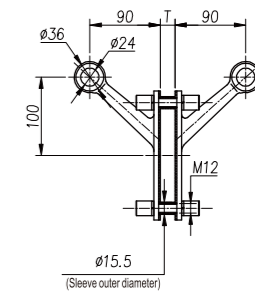
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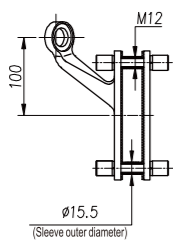
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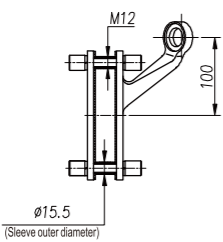
L200A25



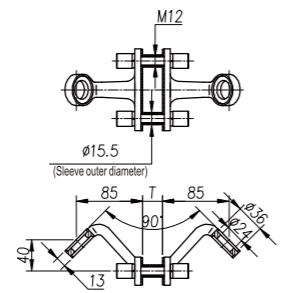
L200A2



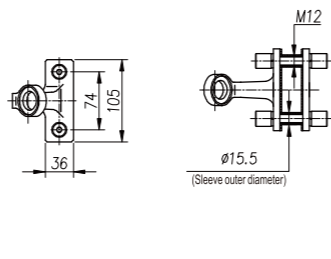
LZ200XFBJ1



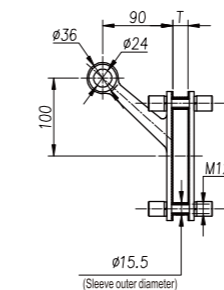
LZ200XFBJ12



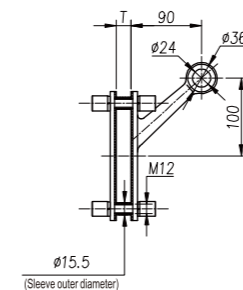
LZ200XFBJ21



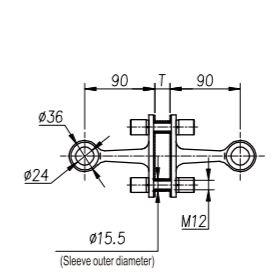
LZ200XFBJ11



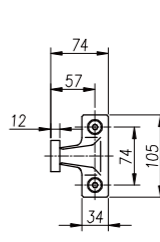
L200A1



L200A12



L200A21



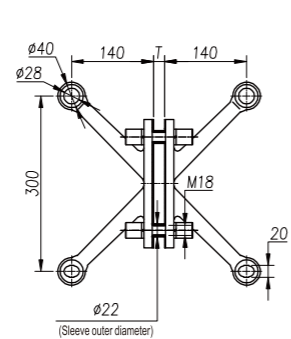
L200A11

Note:
 1. The standard thickness of glass fin is T=19mm;
 2. Please place the order with note of removing rubber gasket or nylon sleeve while they are not needed. The drilling diameter on structure should be suit for the bolt dimension.

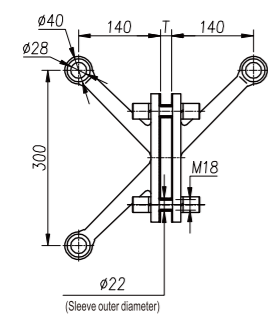
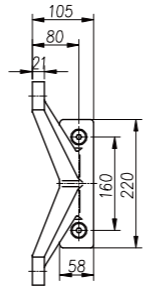
The Recommended Value of Load Capacity (N)	Model	Main material: CF8M, CF8		Main material: CD3MN		
		Fx ≤	Fy ≤	Fx ≤	Fy ≤	
	LZ200XFBJ Series	2000	1000	—	—	

Note:
 1. The standard thickness of glass fin is T=19mm;
 2. Please place the order with note of removing rubber gasket or nylon sleeve while they are not needed. The drilling diameter on structure should be suit for the bolt dimension.

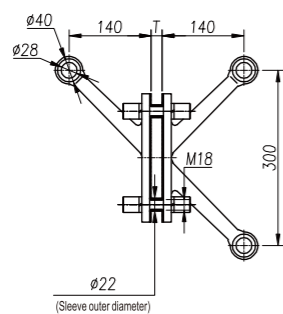
The Recommended Value of Load Capacity (N)	Model	Main material: CF8M, CF8		Main material: CD3MN		
		Fx ≤	Fy ≤	Fx ≤	Fy ≤	
	L200A Series	2000	1000	—	—	



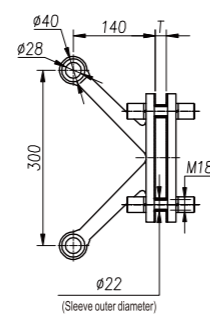
GL300A4



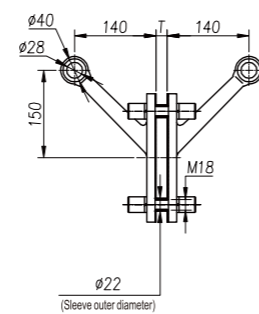
CL300A31



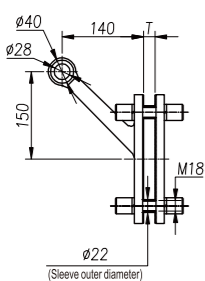
CL300A32



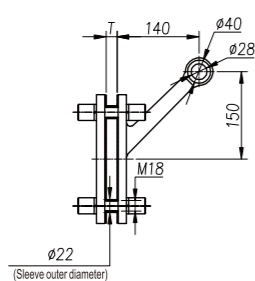
CL300A25



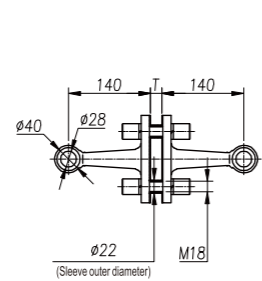
CL300A2



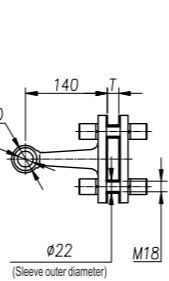
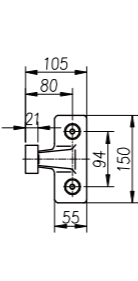
CL300A1



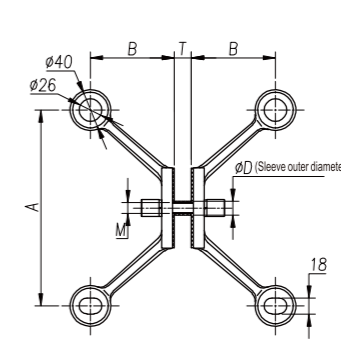
CL300A12



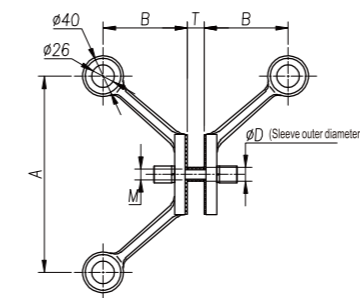
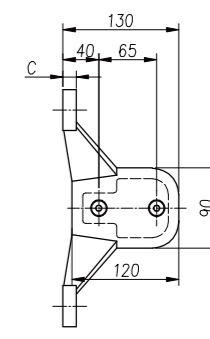
CL300A21



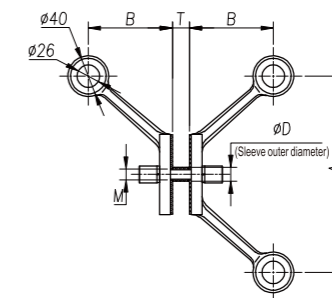
CL300A11



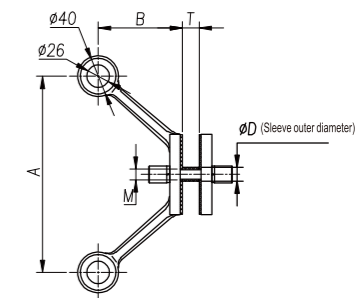
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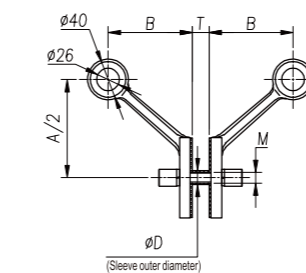
***B31



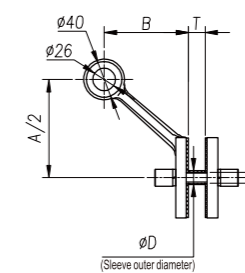
***B32



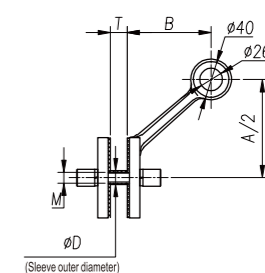
***B25



***B2



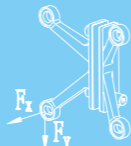
***B1



***B12

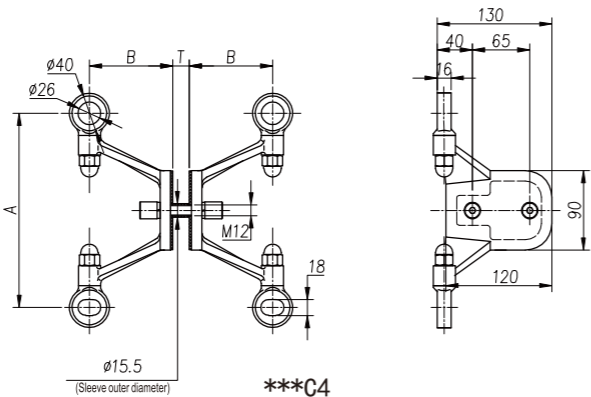
Note:
 1. The standard thickness of glass fin is T=19mm;
 2. Please place the order with note of removing rubber gasket or nylon sleeve while they are not needed. The drilling diameter on structure should be suit for the bolt dimension.

The Recommended Value of Load Capacity (N)	Model	Main material: CF8M, CF8		Main material: CD3MN	
		Fx ≤	Fy ≤	Fx ≤	Fy ≤
		CL300A Series	5000	3500	—

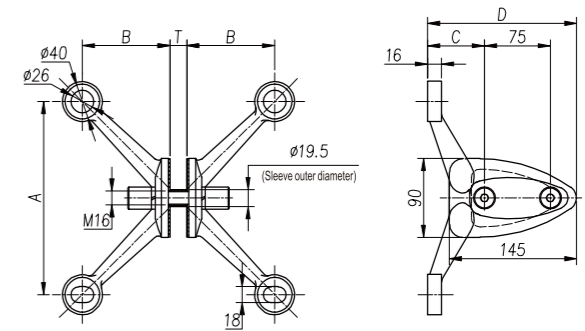


Note: 1. The model of spider consists of series number+ arm code like L250B4, L250B25 and so on.
 2. The standard thickness of glass fin is T=19mm;
 3. Please place the order with note of removing rubber gasket or nylon sleeve while they are not needed. The drilling diameter on structure should be suit for the bolt dimension.

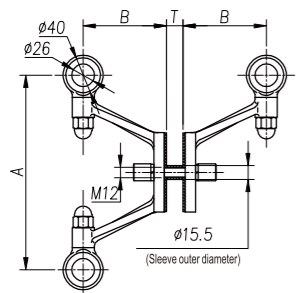
Size Model	A	B	C	D	M	T	The Recommended Value of Load Capacity (N)	Main material: CF8M, CF8		Main material: CD3MN	
								Fx ≤	Fy ≤	Fx ≤	Fy ≤
L220B Series	220	94	15	15.5	M12	—	2500	1500	3300	2000	
L250B Series	250	115	15	15.5	M12	—					
CL250B Series	250	115	18	19.5	M16	—					



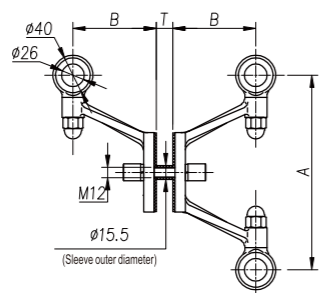
***C4



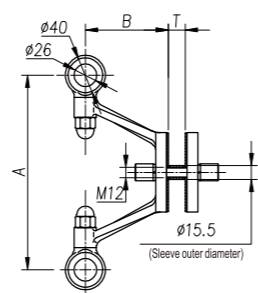
***D4



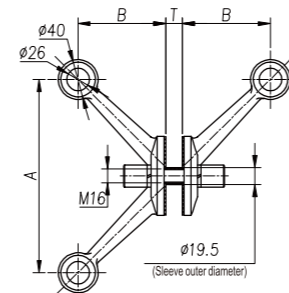
***C31



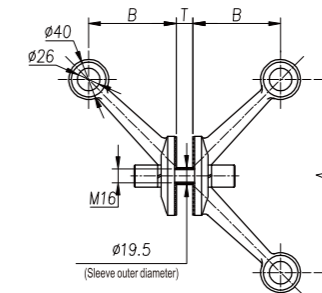
***C32



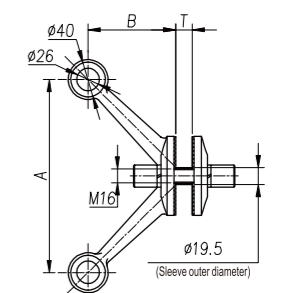
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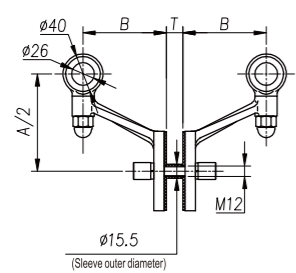
***D31



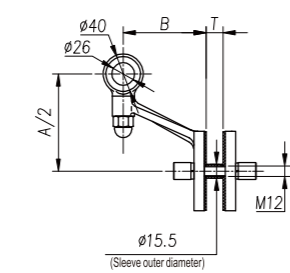
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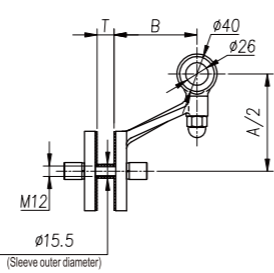
***D25



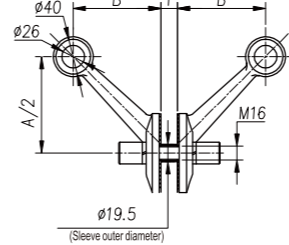
***C2



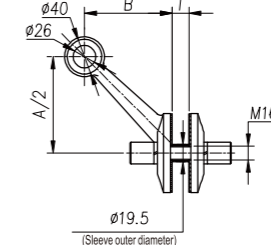
***C1



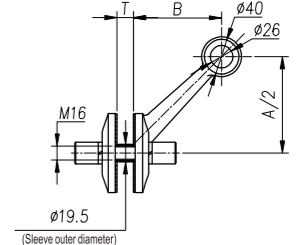
***C12



***D2



***D1



***D12

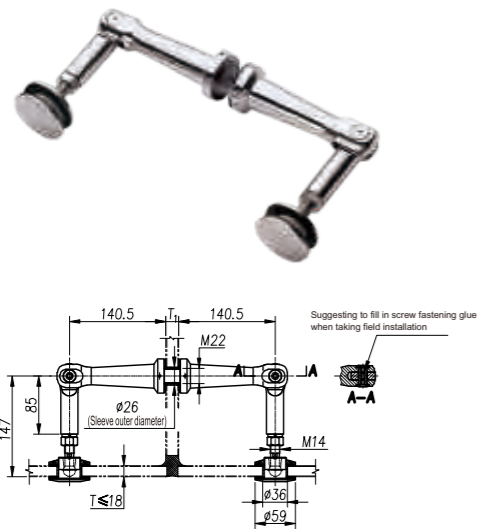
- Note: 1. The model of spider consists of series number+ arm code like L250C4, L250C25 and so on.
 2. The standard thickness of glass fin is T=19mm;
 3. Please place the order with note of removing rubber gasket or nylon sleeve while they are not needed. The drilling diameter on structure should be suit for the bolt dimension.

Size Model	A	B	T	The Recommended Value of Load Capacity (N)	Main material: CF8M, CF8		Main material: CD3MN	
					Fx <	Fy <	Fx <	Fy <
L220C Series	220	94	—	—	2500	1500	3300	2000
L250C Series	250	115	—					

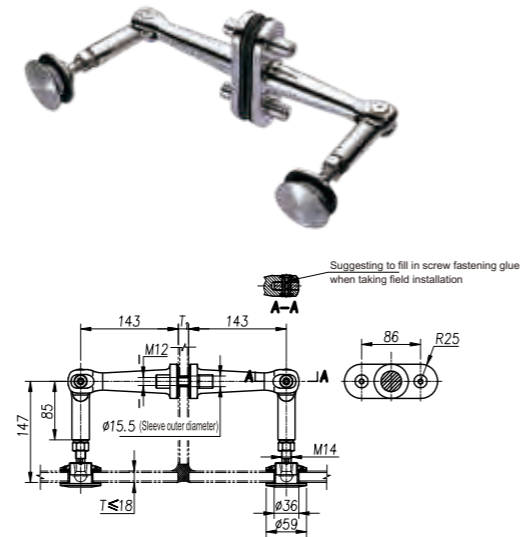
- Note: 1. The model of spider consists of series number+ arm code, like L250D4, L250D25 and so on.
 2. The standard thickness of glass fin is T=19mm;
 3. Please place the order with note of removing rubber gasket or nylon sleeve while they are not needed. The drilling diameter on structure should be suit for the bolt dimension.

Size Model	A	B	C	D	T	The Recommended Value of Load Capacity (N)	Main material: CF8M, CF8		Main material: CD3MN	
							Fx <	Fy <	Fx <	Fy <
L220D Series	220	100	65	170	—	—	2500	1500	3300	2000
L250D Series	250	115	90	195	—					

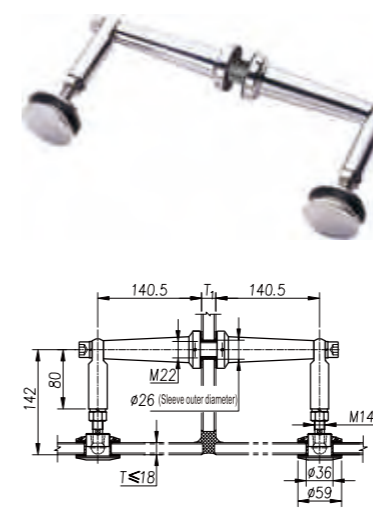
L300A



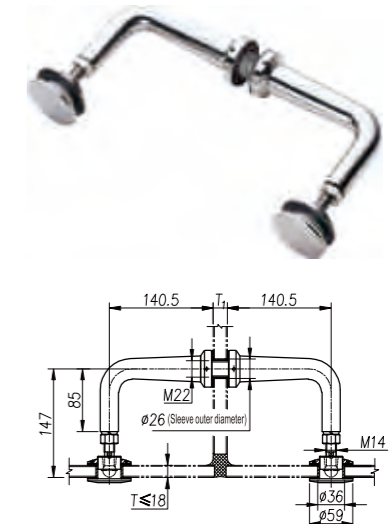
L300B



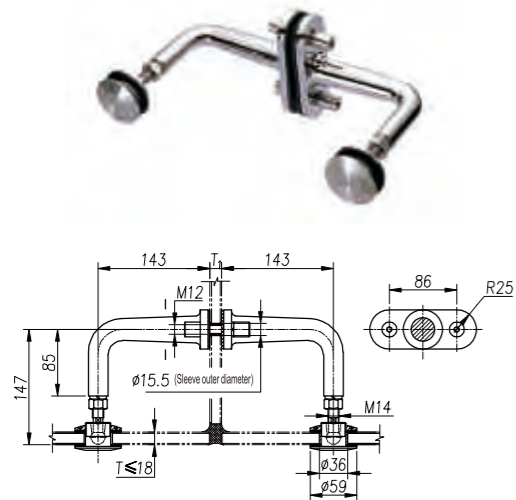
L300E



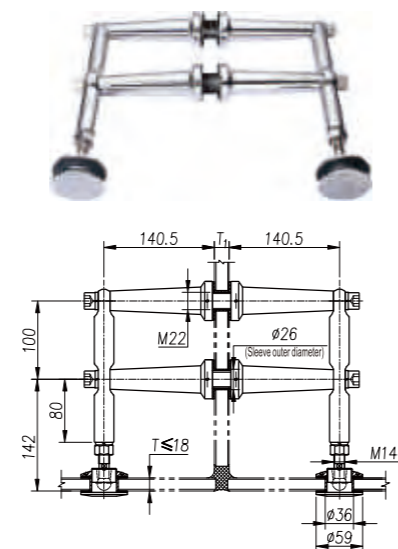
L300F



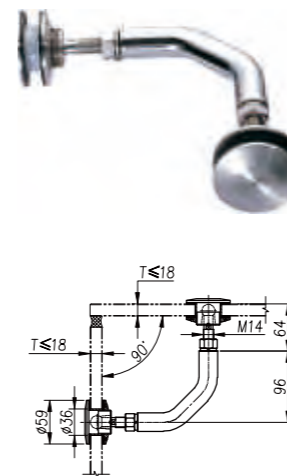
L300C



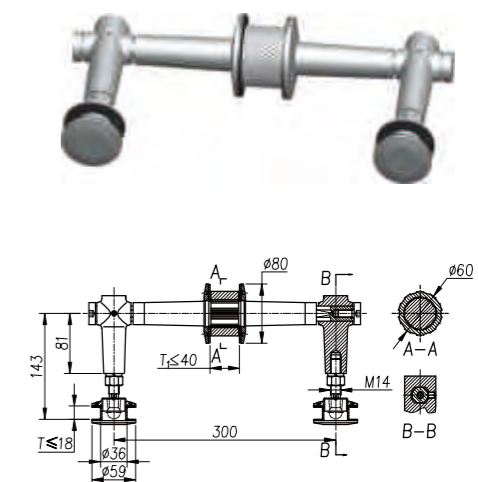
L300D



L300FY



L300G



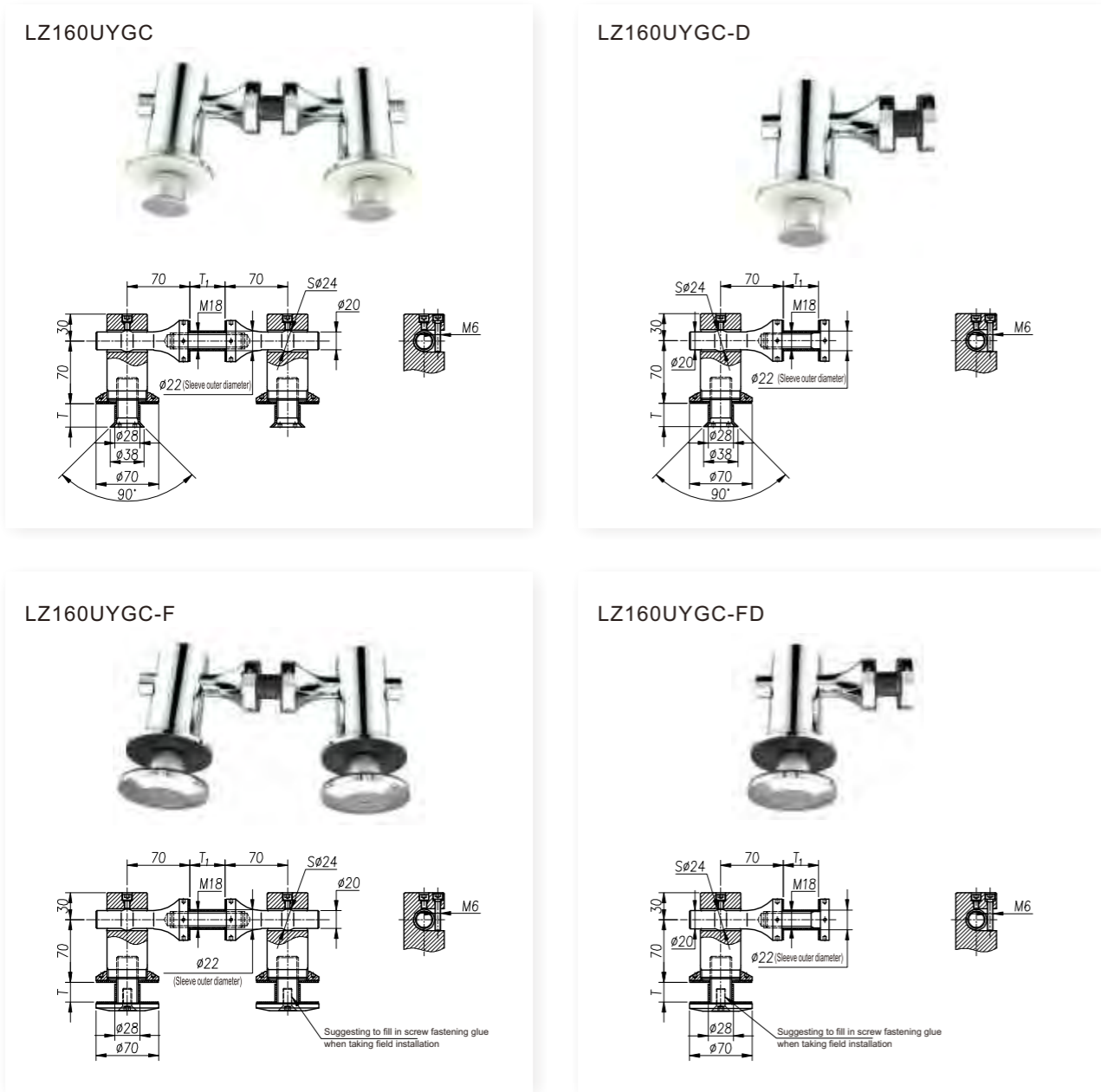
Note:
 1. The standard thickness of glass fin is $T_f=19\text{mm}$;
 2. Please place the order with note of removing rubber gasket or nylon sleeve while they are not needed. The drilling diameter on structure should be suit for the bolt dimension.

The Recommended Value of Load Capacity (N)	Model	Main material: CF8M, CF8		Main material: CD3MN		
		$F_x \leq$	$F_y \leq$	$F_x \leq$	$F_y \leq$	
3000	L300A	3000	1500	3900	2000	
	L300B					
	L300C					
	L300D					

Note:
 1. The standard thickness of glass fin is $T_f=19\text{mm}$;
 2. Please place the order with note of removing rubber gasket or nylon sleeve while they are not needed. The drilling diameter on structure should be suit for the bolt dimension.

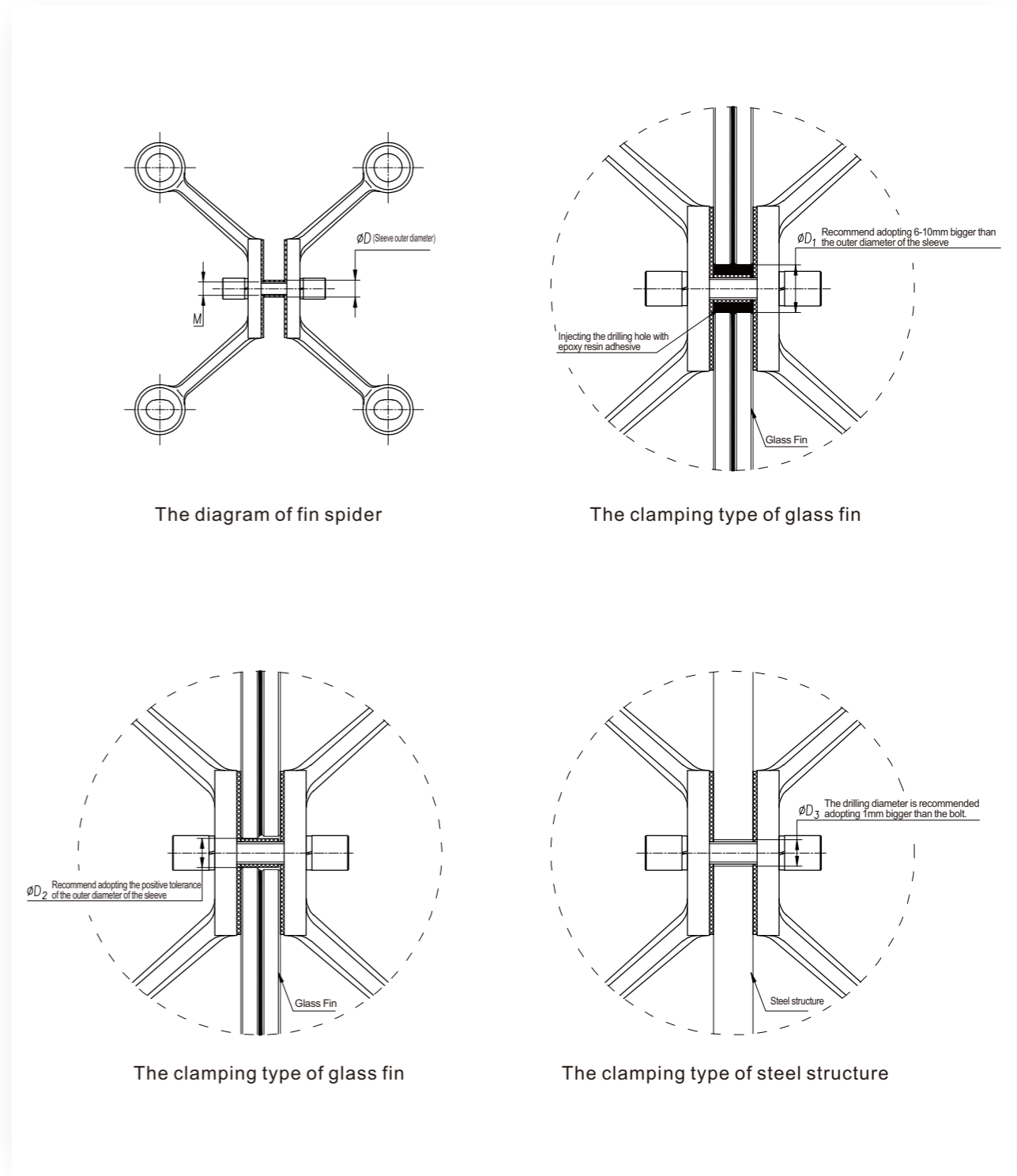
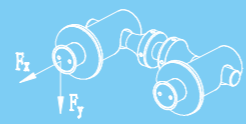
The Recommended Value of Load Capacity (N)	Model	Main material: CF8M, CF8		Main material: CD3MN		
		$F_x \leq$	$F_y \leq$	$F_x \leq$	$F_y \leq$	
3000	L300E	3000	1500	3900	2000	
	L300F					
	L300FY					
	L300G					

Glass Fin Drilling Diagram



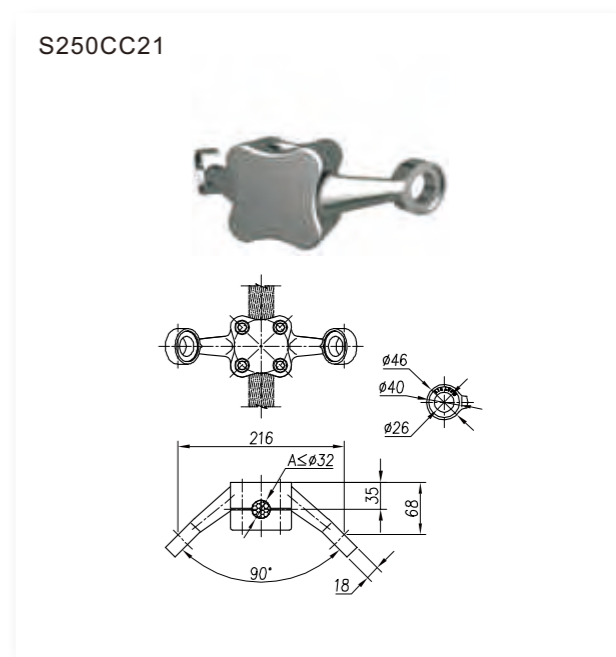
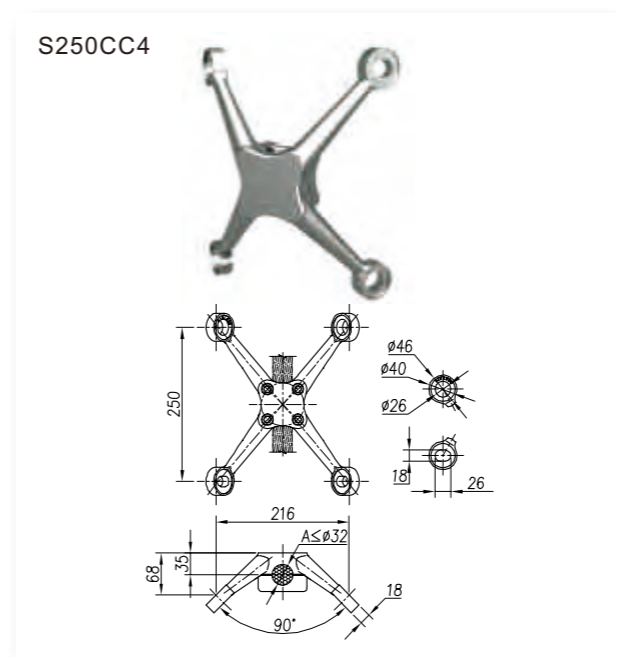
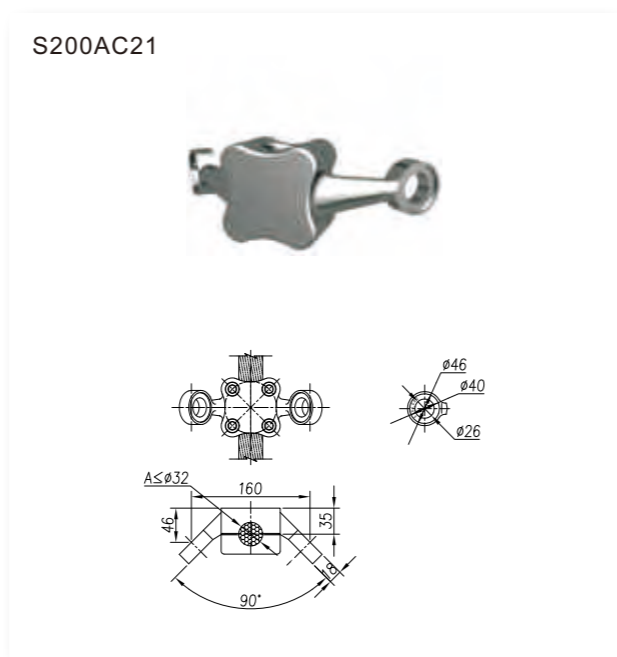
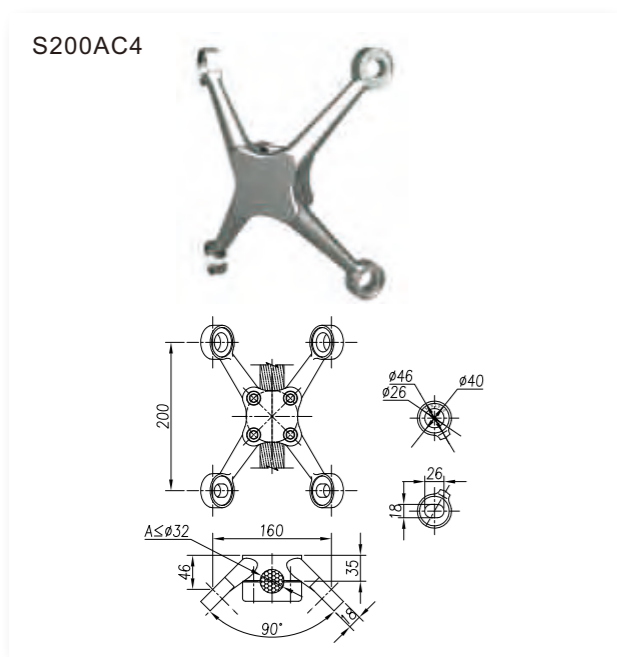
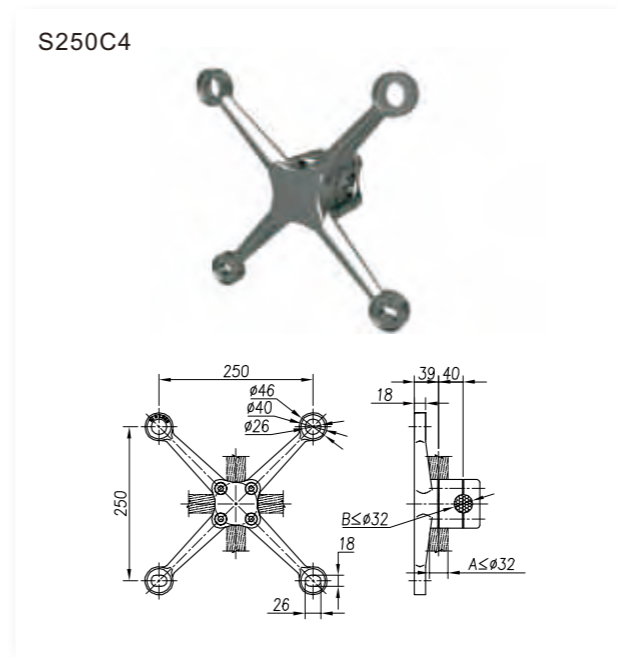
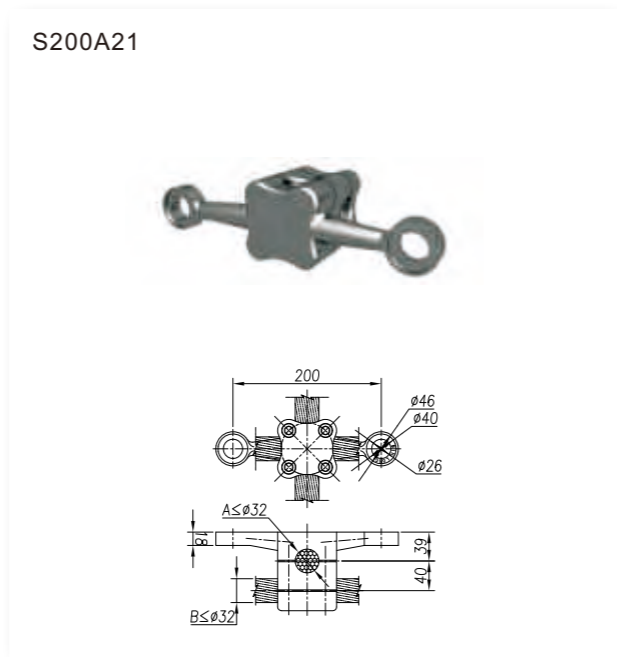
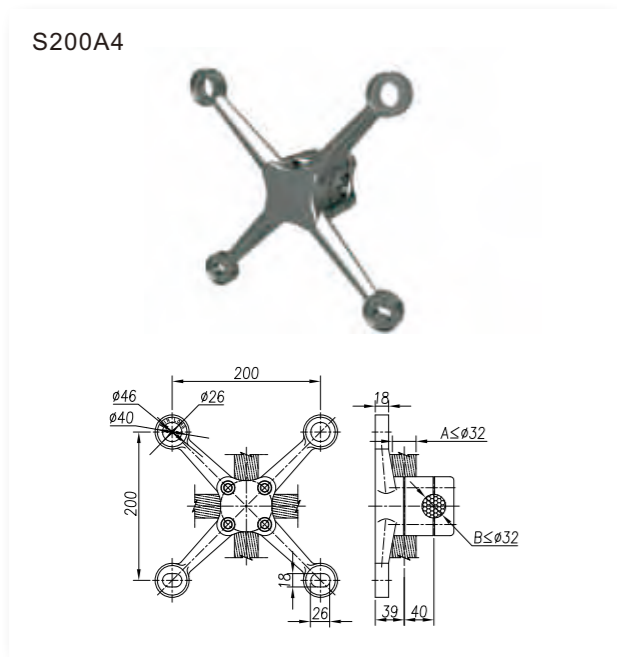
Note:
 1. The standard thickness of glass fin is $T_1=19\text{mm}$;
 2. Facade glass thickness for standard items is: $8\leq T\leq 26\text{mm}$;
 3. Please place the order with note of removing rubber gasket or nylon sleeve while they are not needed. The drilling diameter on structure should be suit for the bolt dimension.

The Recommended Value of Load Capacity (N)	Model	Main material: 316, 304	
		$F_x \leq$	$F_y \leq$
	LZ160UYGC	2000	—
	LZ160UYGC-D		
	LZ160UYGC-F		
	LZ160UYGC-FD		



Note:
 1. When installing the fin spider, the glass drilling diameter can be bigger than outer diameter of the nylon sleeve, and be injected with epoxy resin adhesive (Recommendation).
 2. When installing the fin spider, different drilling diameter of two panels is available, the smaller hole will bear the loads.
 3. When installing the fin spider on steel structure, the nylon sleeve is not necessary and the drilling diameter is recommended to adopt 1mm bigger than the bolt.
 4. The above drilling diagram is only for reference.

Cable Spider



The Recommended Value of Load Capacity (N)	Model	Main material: CF8M, CF8		Main material: CD3MN		
		Fx ≤	Fy ≤	Fx ≤	Fy ≤	
	S200A Series	2500	1500	3300	2000	
S200AC Series						

The Recommended Value of Load Capacity (N)	Model	Main material: CF8M, CF8		Main material: CD3MN		
		Fx ≤	Fy ≤	Fx ≤	Fy ≤	
	S250C Series	2500	1500	3300	2000	
S250CC Series						

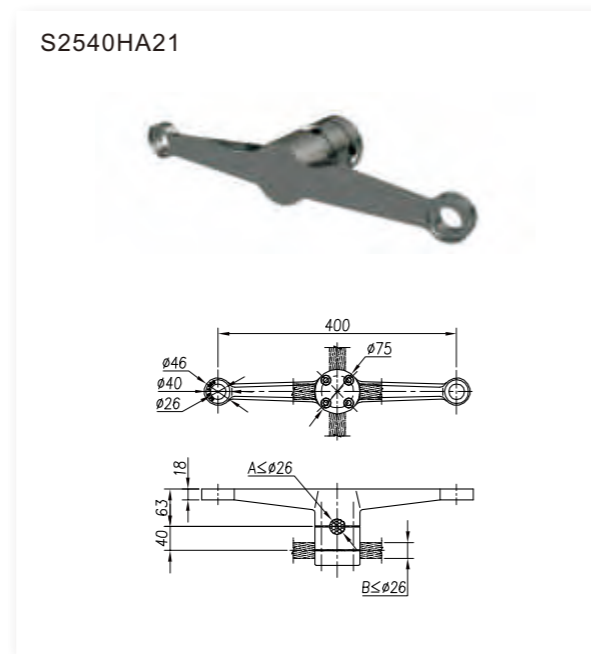
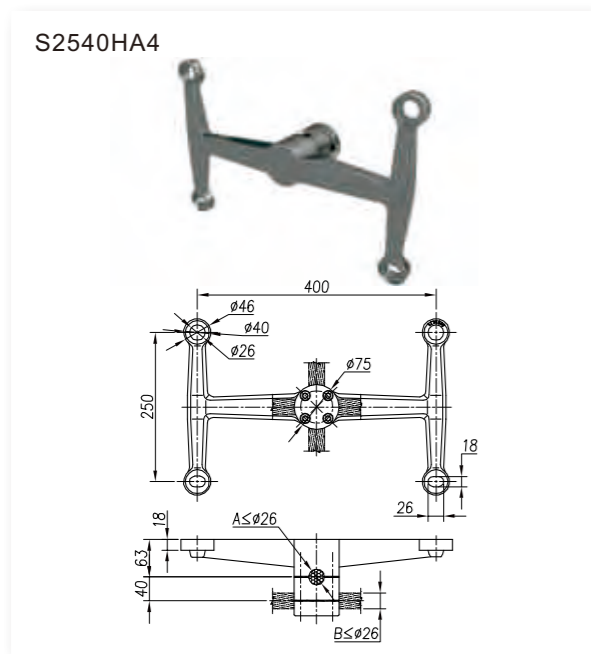
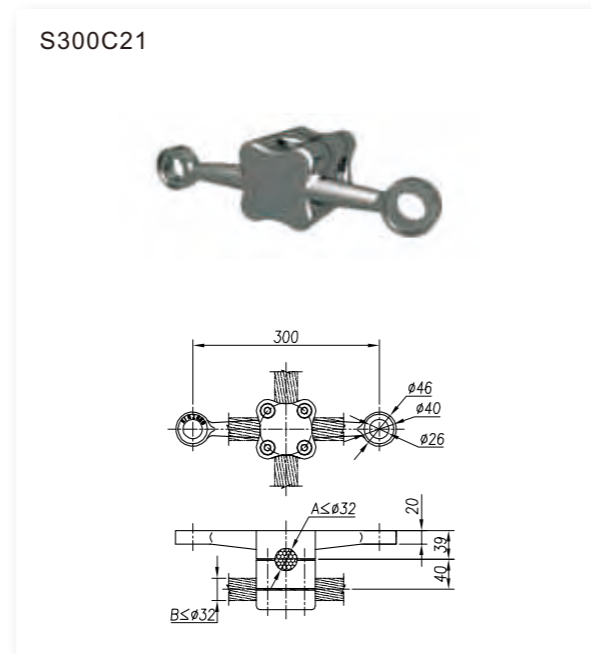
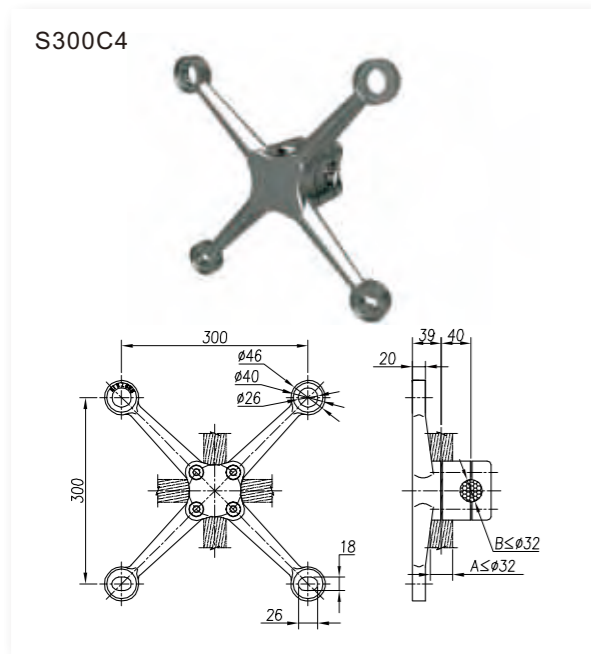
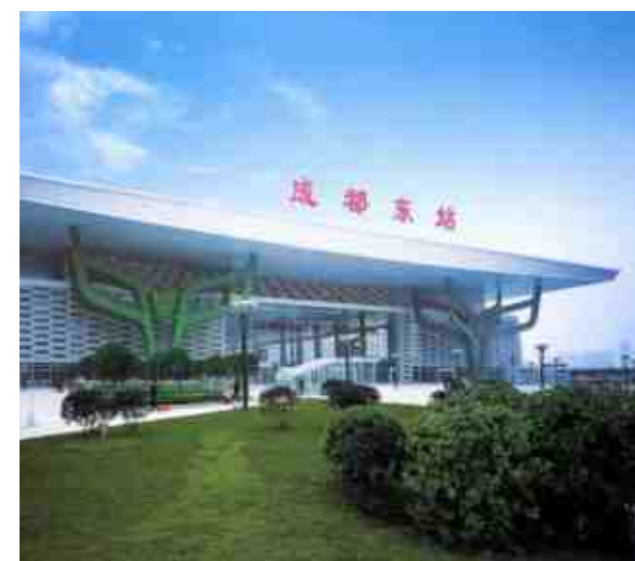
Clamp

I. Clamp Supporting advantages:

- 1.Simpler structure, lower cost;
- 2.No need drilling hole, can avoid glass manufacture defects and reduce the drilling fee;
- 3.No hole sealing issue of insulating glass;
- 4.Having kinds of gasket types, convenient for project request;
- 5.Plate is close to structure, which can decrease the structure bending effect;
- 6.Clients can choose and customize from many appearance types.

II. Clamp supporting disadvantages:

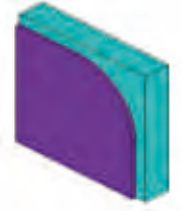
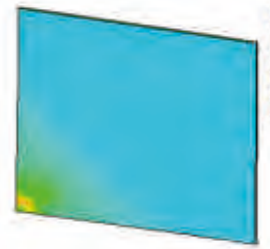

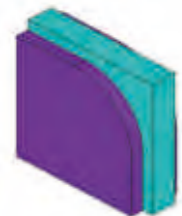
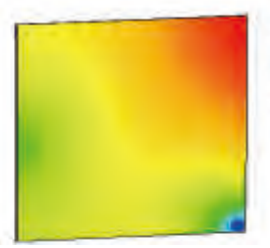


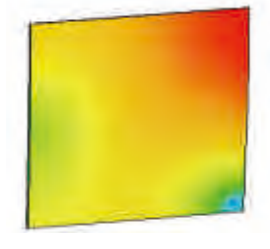




- 1.Glass bear the force for the bending plate;
- 2.Supporting plate locates at the glue-line , so curtain wall glue-line need to be designed more wider;
- 3.Once fixed on the corner, it can't decrease the glass calculation span;
- 4.Large dimension of appearance;
- 5.Having a long glue side and located at the glue-line, so it has a high construction requirement for silicone sealant.



The Recommended Value of Load Capacity (N)	Model	Main material: CF8M, CF8		Main material: CD3MN		
		Fx ≤	Fy ≤	Fx ≤	Fy ≤	
	S300C Series	3000	2000	3900	2600	
S2540HA Series	6500	2000	8000	2600		

III. The glass loading features under the clamp supporting

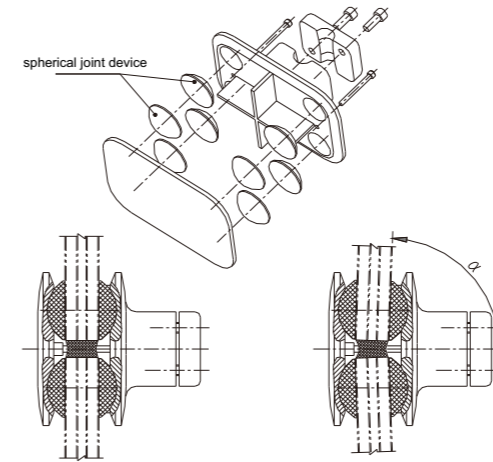
The glass loading, when it's under clamp supporting, has the relation with glass dimension, thickness, shape, etc. After the glass dimension confirmed, the glass loading will be more affected by clamp gasket. Common gasket supporting type and loading features as following:

Corner Supporting Manner	Stress (N/mm ²)	Deflection (mm)	Features
 <p>2mm rubber gasket</p>	 <p>maximum stress 55.702N/mm²</p>	 <p>maximum deflection 37.955mm</p>	The thinner the gasket, the greater the constraint on the rotation of the glass corner. The analysis result shows that the stress is large and the deflection is small.
 <p>6mm rubber gasket</p>	 <p>maximum stress 41.315N/mm²</p>	 <p>maximum deflection 46.326mm</p>	The thicker the gasket, the smaller the constraint on the rotation of the glass corner. The analysis result shows that the stress is small and the deflection is large.
 <p>2mm banded rubber gasket</p>	 <p>maximum stress 40.073 N/mm²</p>	 <p>maximum deflection 43.369mm</p>	The narrower (or smaller) gaskets have less constraint on the rotation of the glass corners. The analysis results are small stress and large deflection.
 <p>Nylon spherical hinge + 2mm banded rubber gasket</p>	 <p>maximum stress 46.427N/mm²</p>	 <p>maximum deflection 38.624mm</p>	The constraint of the spherical hinge on the corner of the glass is actually determined by the peripheral gasket (or glue joint). In this case, the analysis result is that the stress is large and the deflection is small. It has big difference with the simple spherical hinge support.

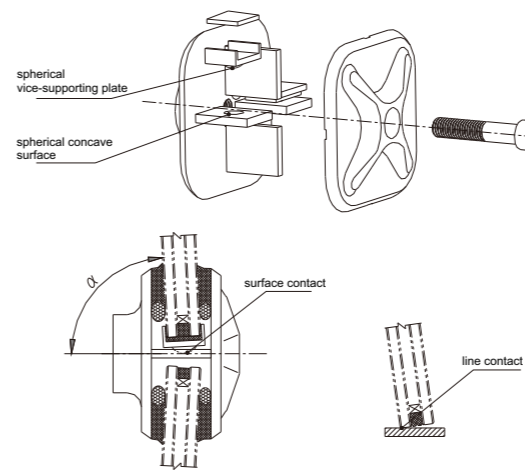
Analysis & Conclusion:

- In the above cooperation, the glass specification is 1800mm*2000mm. Glass type is 12mm tempered glass. Wind stress is 2.0Kpa. Glass strength design value is 84 N/mm².
- From the comparison, we can see that more rotating restrain capacity to the glass corner, bigger glass stress related corner supporting stress but the deflection turns smaller. On the contrary, it does also do this.
- The main purpose of this analysis is contrast different supporting glass force features. The result accuracy just can responsible for the model. And It will exist small different, This analysis for reference only.

Lateral Spherical Joint Clamp (patent: 200820092149.7)



Lateral Spherical Joint Clamp (patent: 200920204817.5)



(19) 中华人民共和国国家知识产权局 [51] Int. Cl.
A24B 2/08 (2006.07)

[12] 实用新型专利说明书
专利号 ZL 200820092149.7

[45] 授权公告日 2009年1月14日 [11] 授权公告号 CN 201180326Y

[22] 申请日 2008.2.15 [74] 专利代理机构 广州华进联合专利商标代理有限公司
[21] 申请号 200820092149.7 代理人 郑小奇
[73] 专利权人 东莞百景五金制品有限公司
地址 528415 广东省东莞市塘厦镇大坪工业区
[72] 发明人 白宝妮

[54] 实用新型名称
点板式幕墙夹具

[57] 摘要
一种点板式幕墙夹具,至少包括:外夹板,设有多个成内凹的部分球面状的球状孔;内夹板,与外夹板正对平行排列并设有弹性橡胶垫于内夹板和外夹板中间连接成一体;内夹板正对于外夹板上的球状孔设有多个成内凹的部分球面状的球状孔,以及多个垫片,成部分球体状,一端为凸配于外夹板上的球状孔或内夹板上的球状孔的球状面,另一端为安装平面,垫片置于该球状孔中,幕墙面板夹持在多个垫片之间。利用球形垫片的调整,幕墙面板在一定的倾斜角度内可以微调,而在安装过程中,可根据各部件的相对位置在一定范围内调节安装角度,安装易于实施且方便,而且能够减小幕墙面板特别是玻璃幕墙面板受外力时产生的应力,提高抗震性能及耐冲击破坏性能。

(19) 中华人民共和国国家知识产权局 [12] 实用新型专利

(51) Int. Cl. A24B 2/08 (2006.07)

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[21] 申请号 200920204817.5 [74] 专利代理机构 广州华进联合专利商标代理有限公司 44224
[73] 专利权人 东莞百景五金制品有限公司
地址 528415 广东省东莞市塘厦镇大坪工业区
[72] 发明人 白宝妮
[54] 实用新型名称
点板式幕墙夹具

[57] 摘要
一种点板式幕墙夹具,至少包括:外夹板,内夹板,该内夹板与外夹板正对平行排列并设有弹性橡胶垫于内夹板和外夹板中间连接成一体;以及弹性橡胶垫,与弹性橡胶垫成一体并安装于上方弹性橡胶垫。本实用新型的点板式幕墙夹具对幕墙面板实现了夹持连接,即弹性橡胶垫与弹性橡胶垫连接,弹性橡胶垫成球面状,幕墙面板在三维方向上在一定角度范围内可转动与幕墙面板在转动过程中,弹性橡胶垫与弹性橡胶垫之间始终保持接触,即保持接触面积不变,不会产生接触应力集中,承载稳定可靠,安装性强。

IV. Clamp usage instructions:

1. Using taboo for gasket & glue

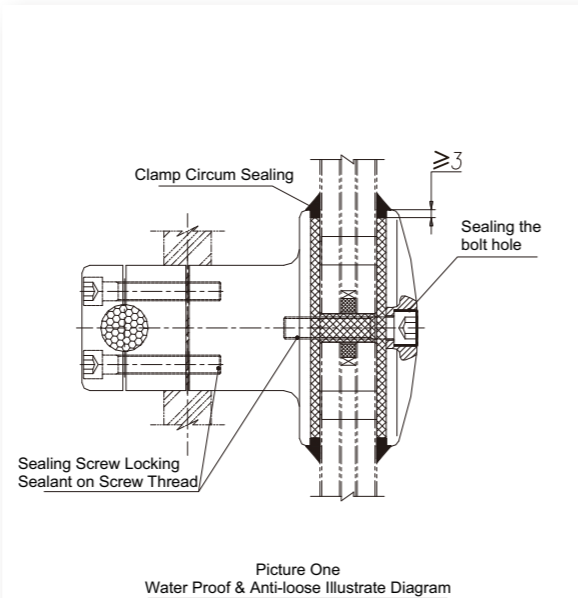
- 1) To avoid the sealant color changing to yellow (as below picture) and affect the appearance, so suggesting choose black sealant.
- 2) Before sealing, suggest make the glue and dyeing gasket or compatibility test according to the manufacture standard.
- 3) Sealant suggesting use it with neutral silicone weather-proof attributes.
- 4) The glue area must be clean before sealing, and the exact requirement can consult the supplier.

2. Sealing measure

- 1) RG unilateral distance design should be $\geq 3\text{mm}$ on glass clamp edge and two glass facade sides.
- 2) Clear the glue area before sealing and guarantee the glue-line consistency, in order to guarantee the glue-line quality.

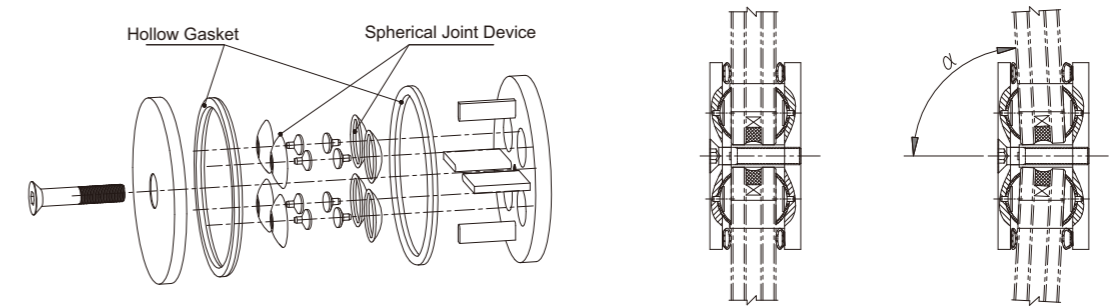
3. Anti-loose measure

Suggest sealing screw locking sealant on the screw thread, which can prevent clamp screw bolt become loose under long time vibration.



V. Clamp new technique

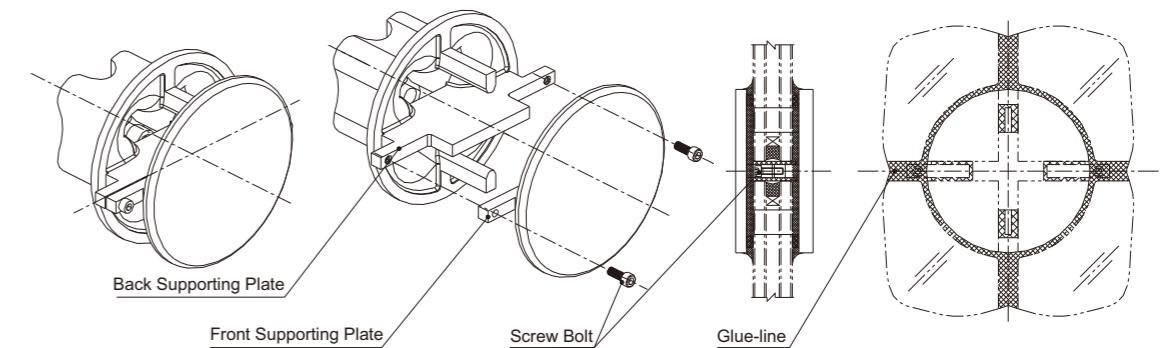
New spherical clamp



Product highlights:

1. Decrease the glass restriction effect of the edge gasket and sealing, come into play the spherical full effect.
2. No need fill in foam stick before sealing and it can get the same wide sealant, which increases the installation efficiency.

Screw concealed clamp



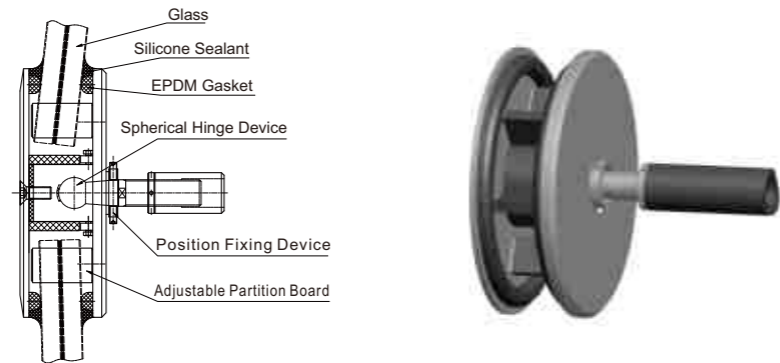
Product highlights:

1. The installation blot is invisible from indoor & outdoor, good appearance.
2. Can prevent clamp screw bolt become loose under long time vibration.
3. No screw hole sealing and can perfect solve the screw water leakage.



Clamp Introduction for Curved Glass

Clamp for Curved Glass



Features of the Clamp Special for Curved Glass

1. The EPDM thick washer, formed by injection molding, is used at the outer edge of clamp, providing point support to glass corner and adaptation to the changing of angle between glass and clamp.
 2. Removable and adjustable movable bulkhead is applied in the clamp, are easy for the installation of glass with multi angles and pieces.
 3. The spherical joint device inside the clamp is easy for adjusting the angle of clamp. The spherical joint positioning device at the back of clamp can position the clamp after the angle adjustment, to avoid the interaction effect between glasses during installing or under stress.
- Note: Above mentioned spherical joint positioning device is our patent, rights reserved.

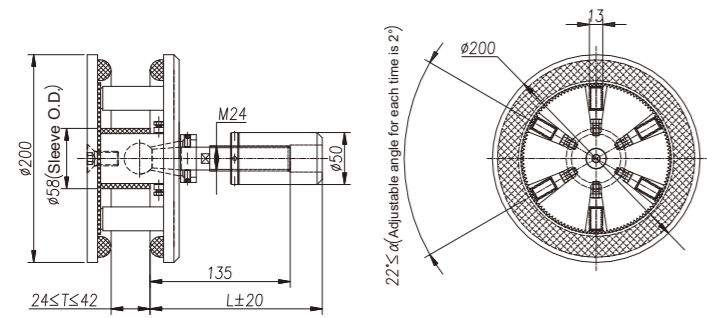


▲ Nanjing Small Red Flower Art Primary School

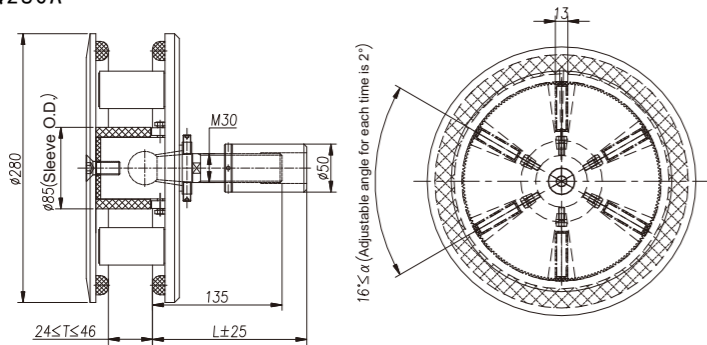


▲ Yangjiang Yingxin Plaza

JQ200A



JQ280A



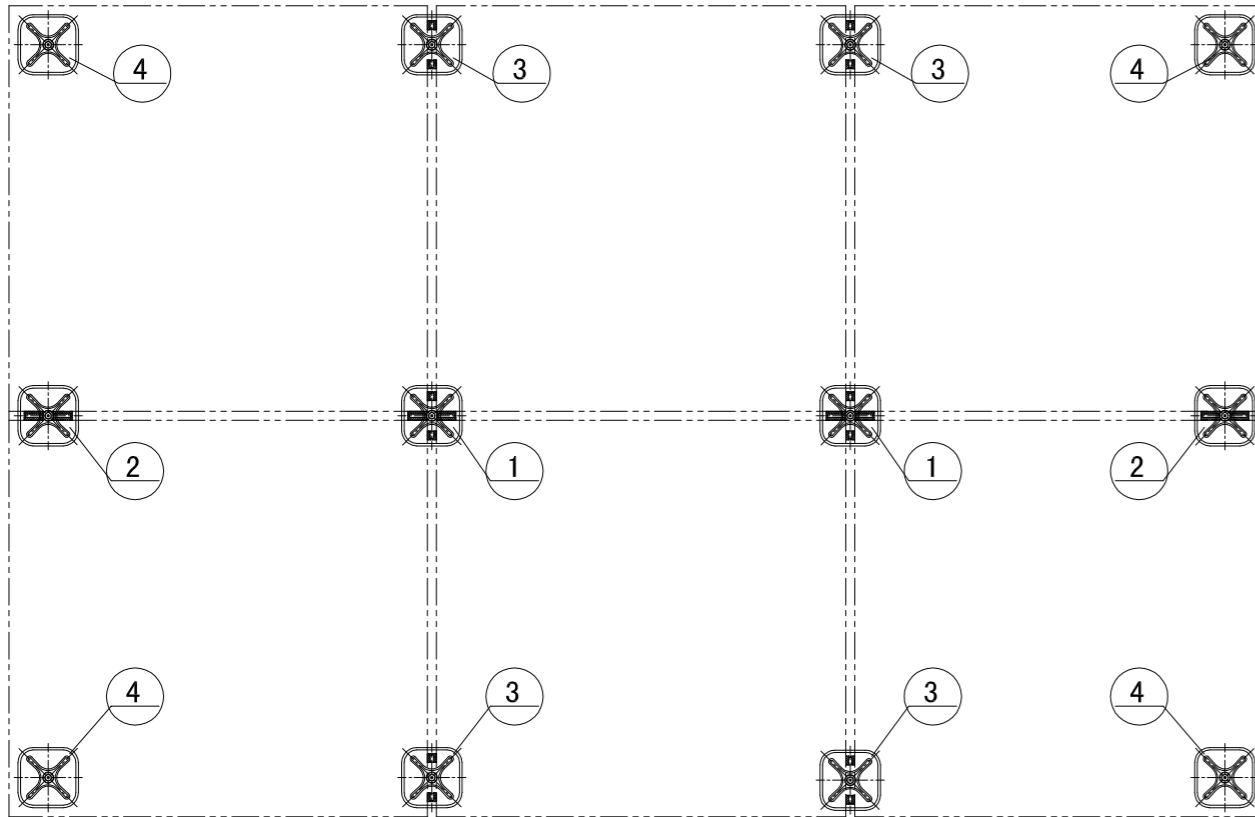
▼ Installation Section



▼ Installation Section



Clamp Naming Definition



Curtainwall Node	①	②	③	④
Diagram				
Rib Plates Quantity	4 pieces (two long and two short)	2 pieces (two long)	2 pieces (two short)	without rib plates
Type	normal name code	normal name code+WS	normal name code+WH	normal name code+W
Example	J120B11	J120B11WS	J120B11WH	J120B11W

Note: 1. Normal name code means the clamp has both vertical and horizontal rib plates. Normal name code + W/WS/WH means clamp without rib plates/without vertical rib plates/ without horizontal rib plates;
 2. Normal name code + W means the glass need to be drilled holes ,and because of different way of clamping glass ,it has different ways to drill the glass holes and the glass holes will also have different sizes ,for details ,please consult KIN LONG company.

Clamp

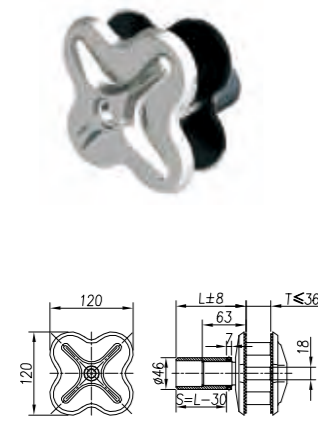
J100A Series Clamp (round shape)

J100A11	J100A21	J100A71																																													
<table border="1"> <thead> <tr> <th>Model</th> <th>Size</th> <th>A</th> <th>B</th> <th>L₁</th> <th>L₂</th> </tr> </thead> <tbody> <tr> <td>J100A31</td> <td>φ20</td> <td>φ20</td> <td>64</td> <td>30</td> <td></td> </tr> <tr> <td>J100A32</td> <td>φ32</td> <td>φ32</td> <td>84</td> <td>40</td> <td></td> </tr> </tbody> </table>	Model	Size	A	B	L ₁	L ₂	J100A31	φ20	φ20	64	30		J100A32	φ32	φ32	84	40		<table border="1"> <thead> <tr> <th>Model</th> <th>Size</th> <th>A</th> <th>L₁</th> </tr> </thead> <tbody> <tr> <td>J100A41</td> <td>φ20</td> <td>64</td> <td></td> </tr> <tr> <td>J100A42</td> <td>φ32</td> <td>84</td> <td></td> </tr> </tbody> </table>	Model	Size	A	L ₁	J100A41	φ20	64		J100A42	φ32	84		<table border="1"> <thead> <tr> <th>Model</th> <th>Size</th> <th>A</th> <th>L₁</th> <th>L₂</th> </tr> </thead> <tbody> <tr> <td>J100A51</td> <td>φ20</td> <td>64</td> <td>70</td> <td></td> </tr> <tr> <td>J100A52</td> <td>φ32</td> <td>84</td> <td>77</td> <td></td> </tr> </tbody> </table>	Model	Size	A	L ₁	L ₂	J100A51	φ20	64	70		J100A52	φ32	84	77	
Model	Size	A	B	L ₁	L ₂																																										
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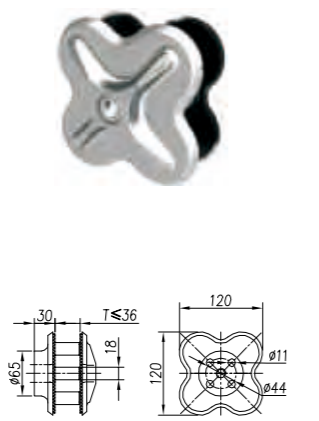
The Recommended Value of Load Capacity (N)	Main material: CF8M, CF8	
	F _x ≤	F _y ≤
	18000	3000

J120A Series Clamp (flower shape)

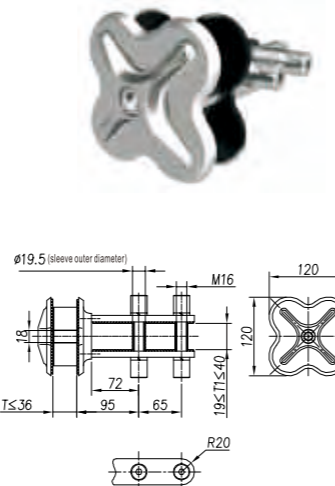
J120A11

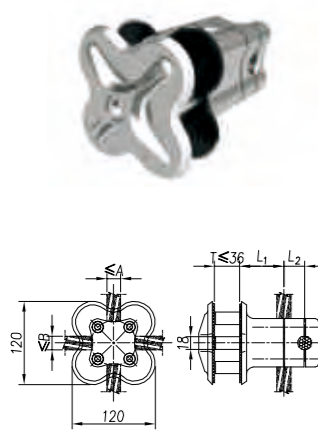


J120A21

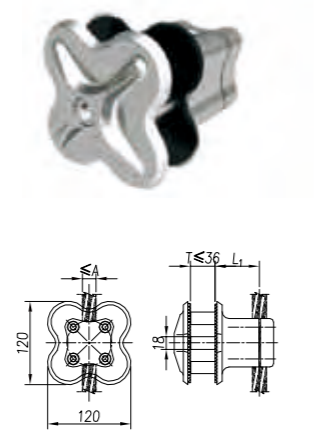


J120A71

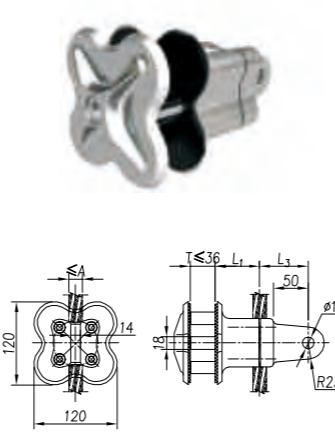




Size Model	A	B	L ₁	L ₂
J120A31	Φ20	Φ20	64	30
J120A32	Φ32	Φ32	84	40



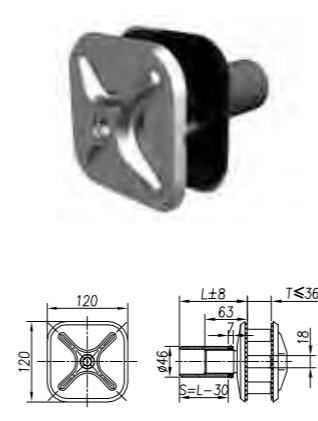
Size Model	A	L ₁
J120A41	Φ20	64
J120A42	Φ32	84



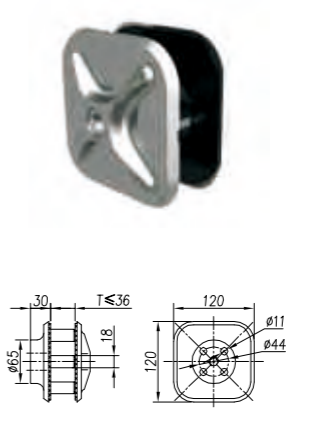
Size Model	A	L ₁	L ₂
J120A51	Φ20	64	70
J120A52	Φ32	84	77

J120B Series (square shape)

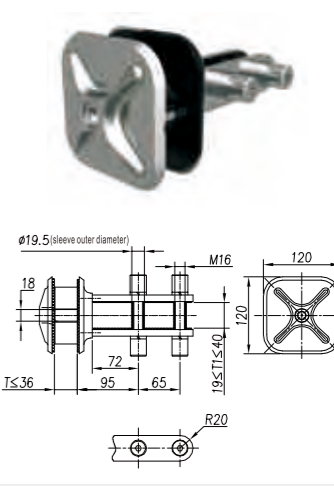
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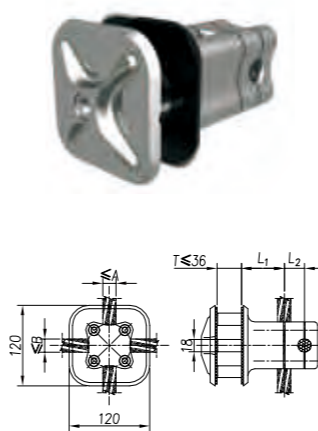


J120B21

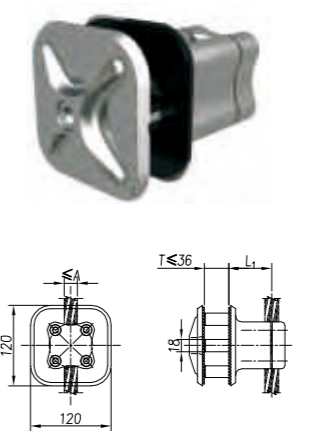


J120B71

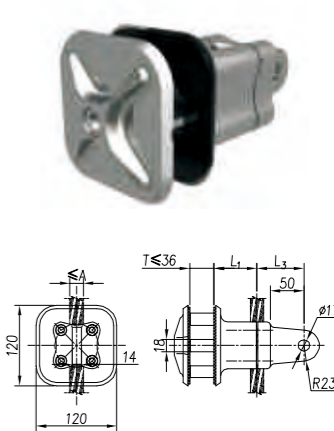




Size Model	A	B	L ₁	L ₂
J120B31	Φ20	Φ20	64	30
J120B32	Φ32	Φ32	84	40

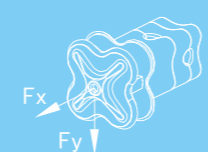


Size Model	A	L ₁
J120B41	Φ20	64
J120B42	Φ32	84

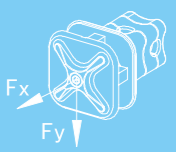


Size Model	A	L ₁	L ₂
J120B51	Φ20	64	70
J120B52	Φ32	84	77

The Recommended Value of Load Capacity (N)	Main material: CF8M, CF8	
	F _x <	F _y <
	18000	3000

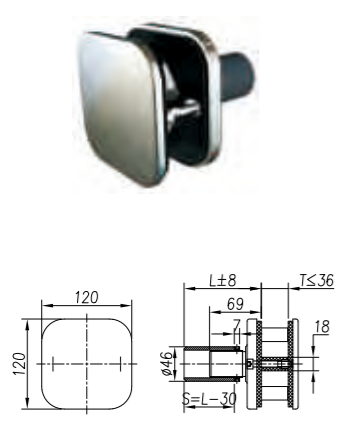


The Recommended Value of Load Capacity (N)	Main material: CF8M, CF8	
	F _x <	F _y <
	18000	3000

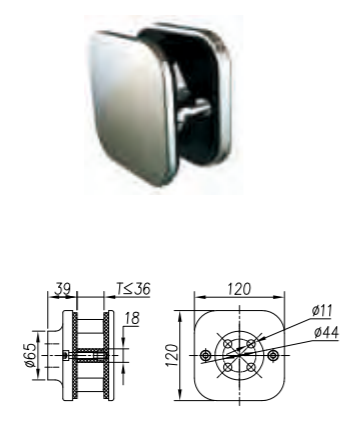


J120C Series(square shape)

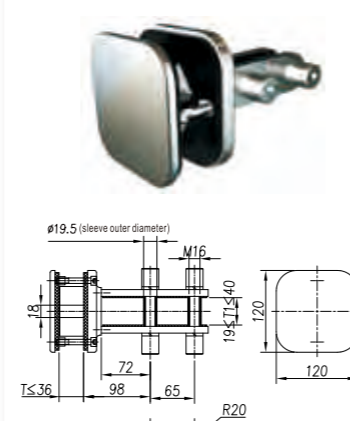
J120C11

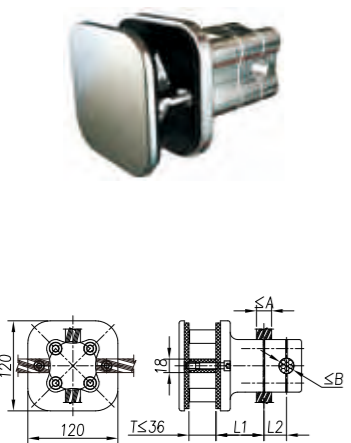


J120C21

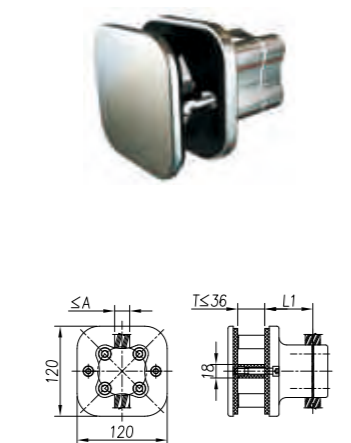


J120C71

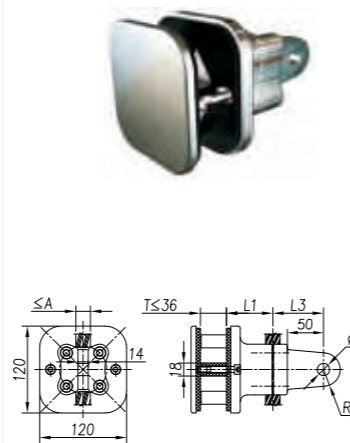




Size	A	B	L ₁	L ₂
J120C31	φ20	φ20	64	30
J120C32	φ32	φ32	84	40



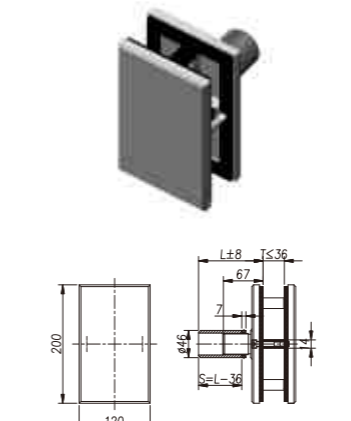
Size	A	L ₁
J120C41	φ20	64
J120C42	φ32	84



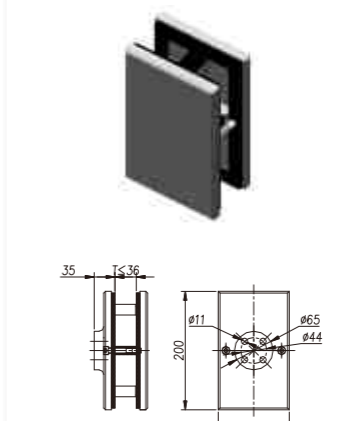
Size	A	L ₁	L ₂
J120C51	φ20	64	70
J120C52	φ32	84	77

J120D Series (rectangle shape)

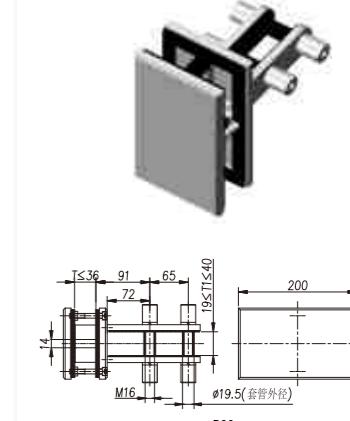
J120D11

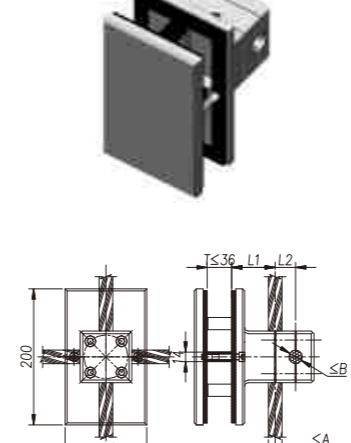


J120D21

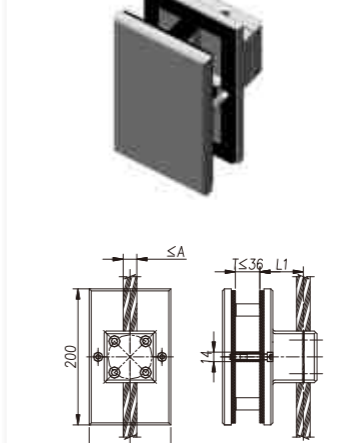


J120D71

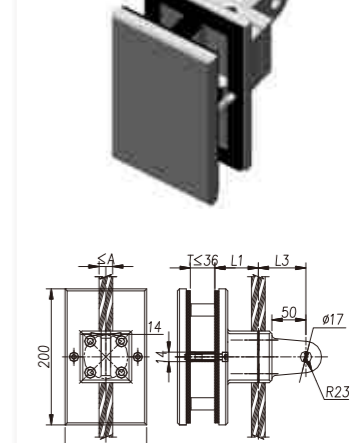




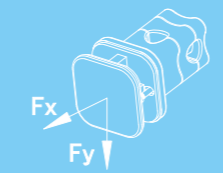
Size	A	B	L ₁	L ₂
J120D31	φ20	φ20	64	30
J120D32	φ32	φ32	84	40

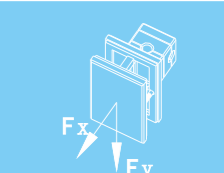


Size	A	L ₁
J120D41	φ20	64
J120D42	φ32	84



Size	A	L ₁	L ₂
J120D51	φ20	64	70
J120D52	φ32	84	77

The Recommended Value of Load Capacity (N)	Main material: CF8M, CF8		
	F _x ≤	F _y ≤	
	18000	3000	

The Recommended Value of Load Capacity (N)	Main material: CF8M, CF8		
	F _x ≤	F _y ≤	
	18000	4000	

J150A Series(round shape)

J150A11

J150A21

J150A71

Size Model	A	B	L ₁	L ₂
J150A31	φ20	φ20	64	30
J150A32	φ32	φ32	84	40

Size Model	A	L ₁
J150A41	φ20	64
J150A42	φ32	84

Size Model	A	L ₁	L ₂
J150A51	φ20	64	70
J150A52	φ32	84	77

J152A Series(rhombus shape)

J152A11

J152A21

J152A71

Size Model	A	B	L ₁	L ₂
J152A31	φ20	φ20	64	30
J152A32	φ32	φ32	84	40

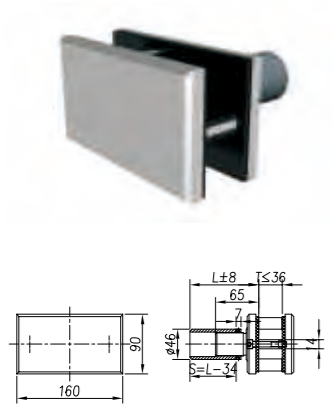
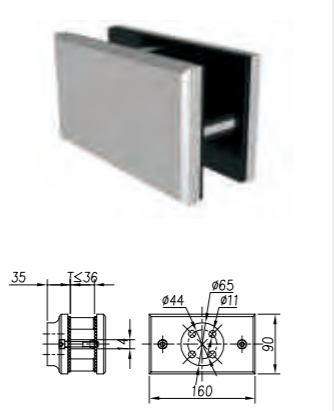
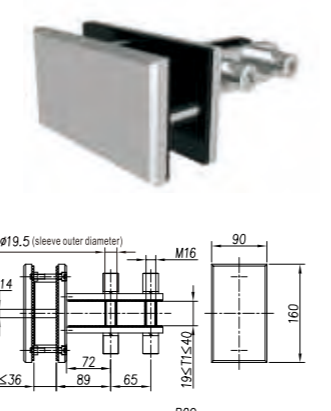
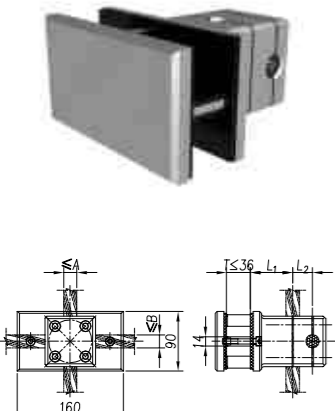
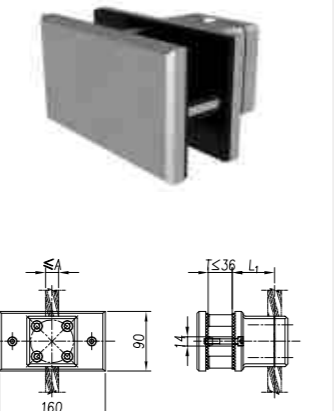
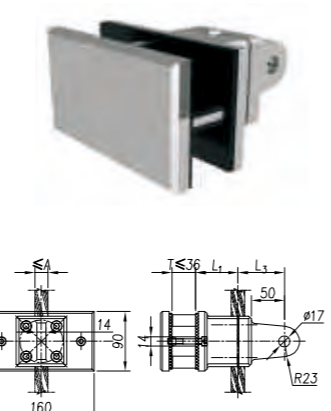
Size Model	A	L ₁
J152A41	φ20	64
J152A42	φ32	84

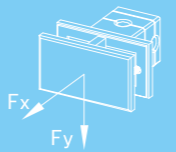
Size Model	A	L ₁	L ₂
J152A51	φ20	64	70
J152A52	φ32	84	77

The Recommended Value of Load Capacity (N)	Main material: CF8M, CF8		
	F _x ≤	F _y ≤	
	18000	4000	



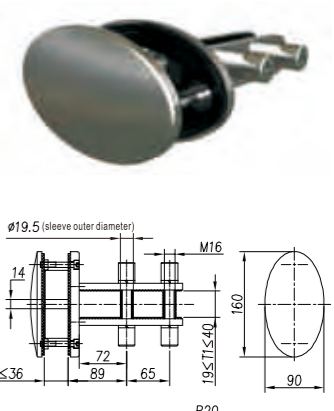
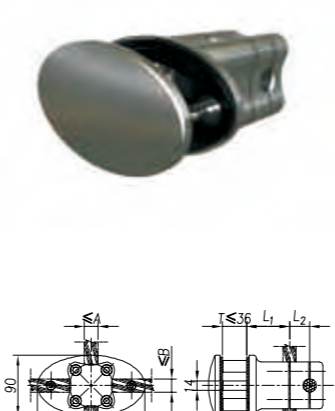
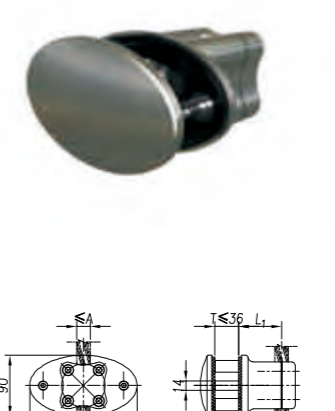
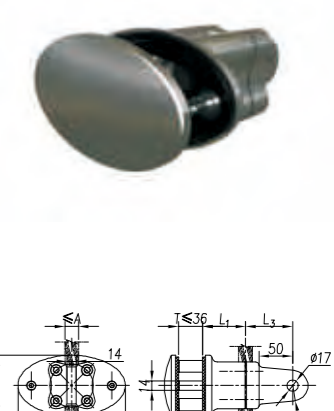
The Recommended Value of Load Capacity (N)	Main material: CF8M, CF8		
	F _x ≤	F _y ≤	
	18000	4000	

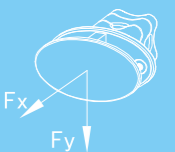
J160A Series(rectangle shape)

<p>J160A11</p> 	<p>J160A21</p> 	<p>J160A71</p> 																																				
																																						
<table border="1"> <thead> <tr> <th>Size Model</th> <th>A</th> <th>B</th> <th>L₁</th> <th>L₂</th> </tr> </thead> <tbody> <tr> <td>J160A31</td> <td>Φ20</td> <td>Φ20</td> <td>64</td> <td>30</td> </tr> <tr> <td>J160A32</td> <td>Φ32</td> <td>Φ32</td> <td>84</td> <td>40</td> </tr> </tbody> </table>	Size Model	A	B	L ₁	L ₂	J160A31	Φ20	Φ20	64	30	J160A32	Φ32	Φ32	84	40	<table border="1"> <thead> <tr> <th>Size Model</th> <th>A</th> <th>L₁</th> </tr> </thead> <tbody> <tr> <td>J160A41</td> <td>Φ20</td> <td>64</td> </tr> <tr> <td>J160A42</td> <td>Φ32</td> <td>84</td> </tr> </tbody> </table>	Size Model	A	L ₁	J160A41	Φ20	64	J160A42	Φ32	84	<table border="1"> <thead> <tr> <th>Size Model</th> <th>A</th> <th>L₁</th> <th>L₂</th> </tr> </thead> <tbody> <tr> <td>J160A51</td> <td>Φ20</td> <td>64</td> <td>70</td> </tr> <tr> <td>J160A52</td> <td>Φ32</td> <td>84</td> <td>77</td> </tr> </tbody> </table>	Size Model	A	L ₁	L ₂	J160A51	Φ20	64	70	J160A52	Φ32	84	77
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The Recommended Value of Load Capacity (N)	Main material: CF8M, CF8		
	$F_x \leq$	$F_y \leq$	
	18000	4000	

J160F Series(oval shape)

<p>J160F11</p> 	<p>J160F21</p> 	<p>J160F71</p> 																																				
																																						
<table border="1"> <thead> <tr> <th>Size Model</th> <th>A</th> <th>B</th> <th>L₁</th> <th>L₂</th> </tr> </thead> <tbody> <tr> <td>J160F31</td> <td>Φ20</td> <td>Φ20</td> <td>64</td> <td>30</td> </tr> <tr> <td>J160F32</td> <td>Φ32</td> <td>Φ32</td> <td>84</td> <td>40</td> </tr> </tbody> </table>	Size Model	A	B	L ₁	L ₂	J160F31	Φ20	Φ20	64	30	J160F32	Φ32	Φ32	84	40	<table border="1"> <thead> <tr> <th>Size Model</th> <th>A</th> <th>L₁</th> </tr> </thead> <tbody> <tr> <td>J160F41</td> <td>Φ20</td> <td>64</td> </tr> <tr> <td>J160F42</td> <td>Φ32</td> <td>84</td> </tr> </tbody> </table>	Size Model	A	L ₁	J160F41	Φ20	64	J160F42	Φ32	84	<table border="1"> <thead> <tr> <th>Size Model</th> <th>A</th> <th>L₁</th> <th>L₂</th> </tr> </thead> <tbody> <tr> <td>J160F51</td> <td>Φ20</td> <td>64</td> <td>70</td> </tr> <tr> <td>J160F52</td> <td>Φ32</td> <td>84</td> <td>77</td> </tr> </tbody> </table>	Size Model	A	L ₁	L ₂	J160F51	Φ20	64	70	J160F52	Φ32	84	77
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J160F52	Φ32	84	77																																			

The Recommended Value of Load Capacity (N)	Main material: CF8M, CF8		
	$F_x \leq$	$F_y \leq$	
	18000	4000	

Rectangle Series

<p>J307Z</p>	<p>J307G2</p>	<p>J257G</p>
<p>J308Z</p>	<p>J308S</p>	<p>J308L</p>

J300A Series(shape of spider)

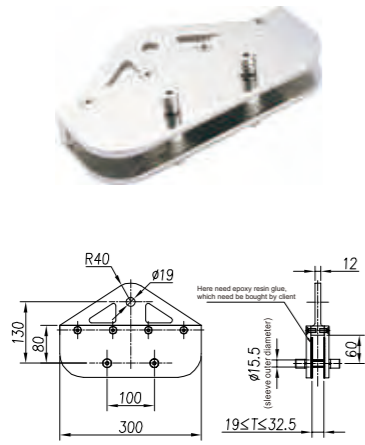
<p>J300A11</p>	<p>J300A21</p>	<p>J300A71</p>																																													
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J300A52	Φ32	84	77																																												

The Recommended Value of Load Capacity (N)	Main material: CF8M, CF8		
	$F_x \leq$	$F_y \leq$	
	27000	8000	

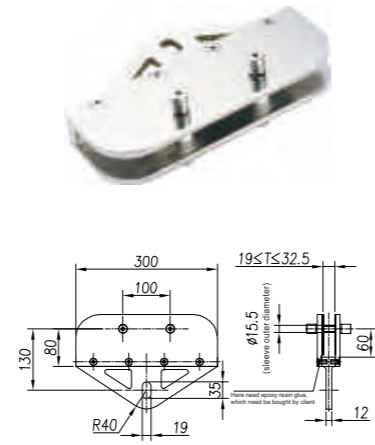
The Recommended Value of Load Capacity (N)	Main material: CF8M, CF8		
	$F_x \leq$	$F_y \leq$	
	5000	2500	

Glass Fin Suspending Clamp

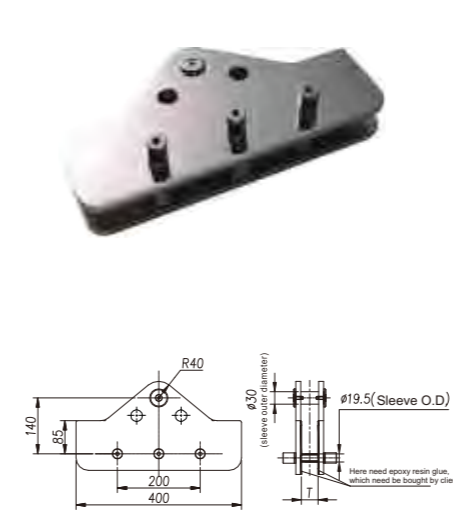
BL31



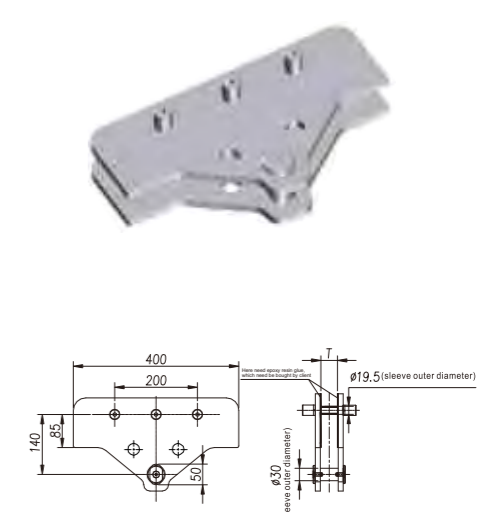
BL32



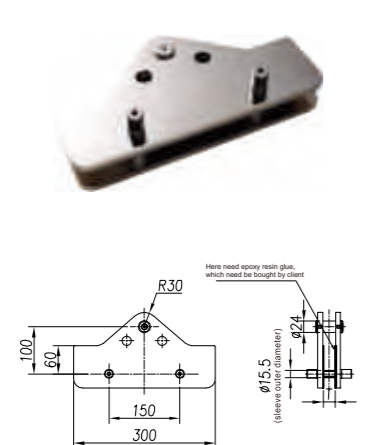
BL45



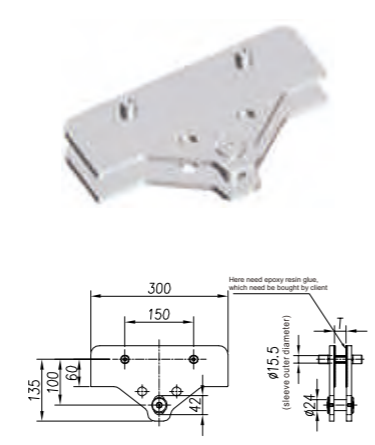
BL46



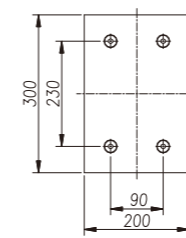
BL35



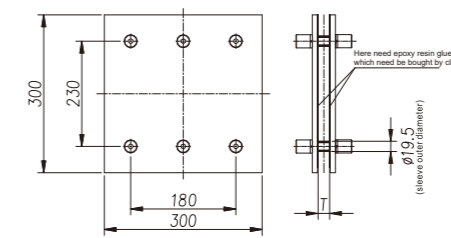
BL36



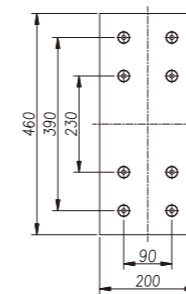
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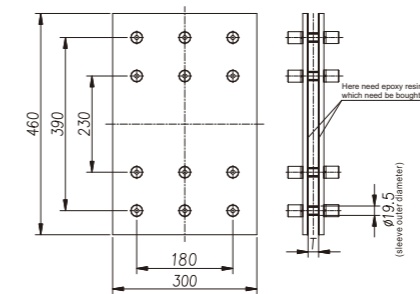
BLF33



BLF322

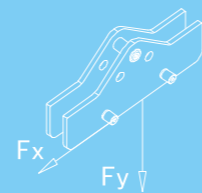


BLF332

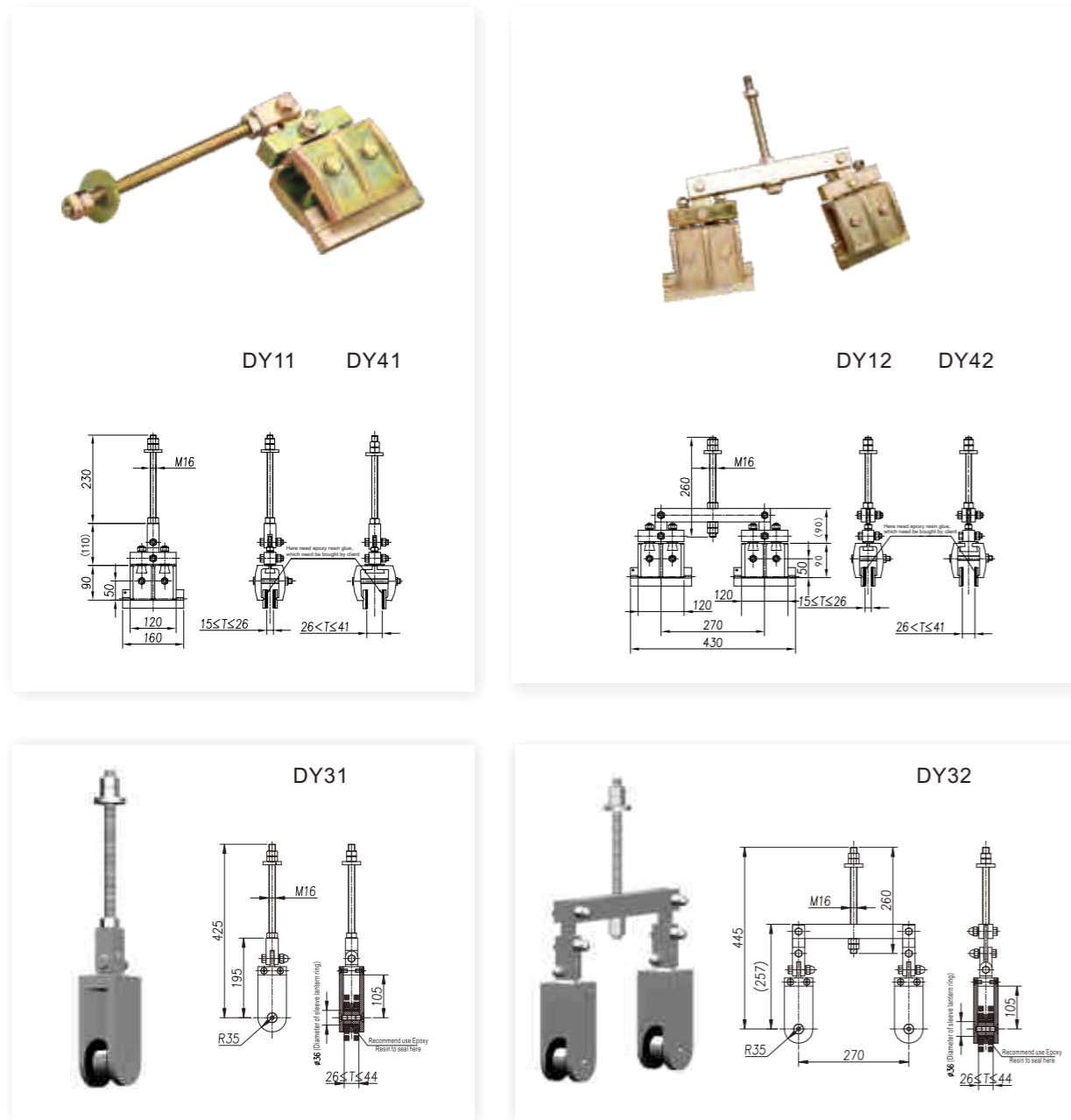


Middle fin clamp using illustrate diagram

The Recommended Value of Load Capacity (N)	Model	Main material: CF8M/316, CF8/304	
		$F_x \leq$	$F_y \leq$
	BL31	12000	12000
BL32	15000	/	
BL35	15000	15000	
BL36	22000	/	
BL45	22000	22000	
BL46	22000	/	



Glass Fin Clamp

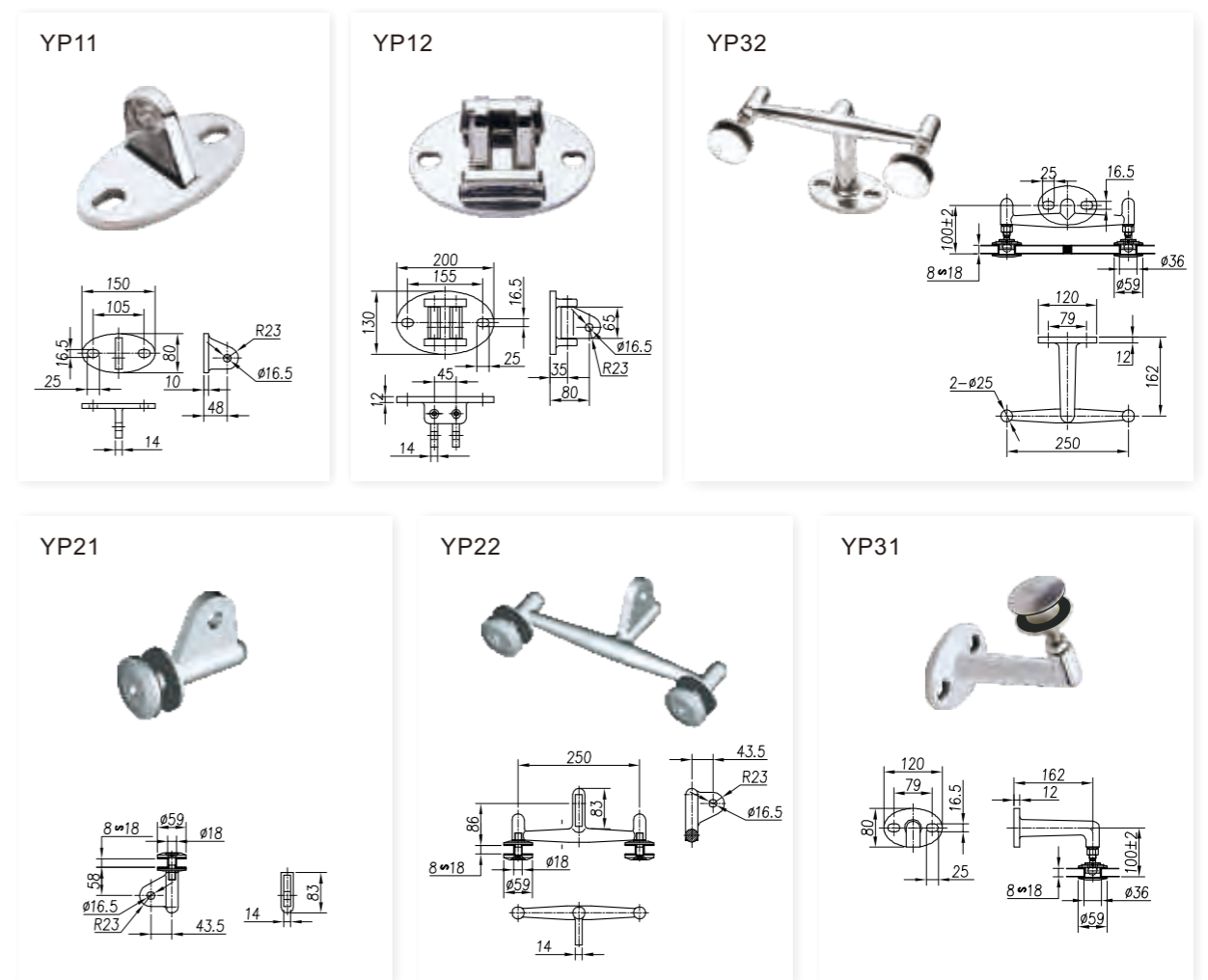
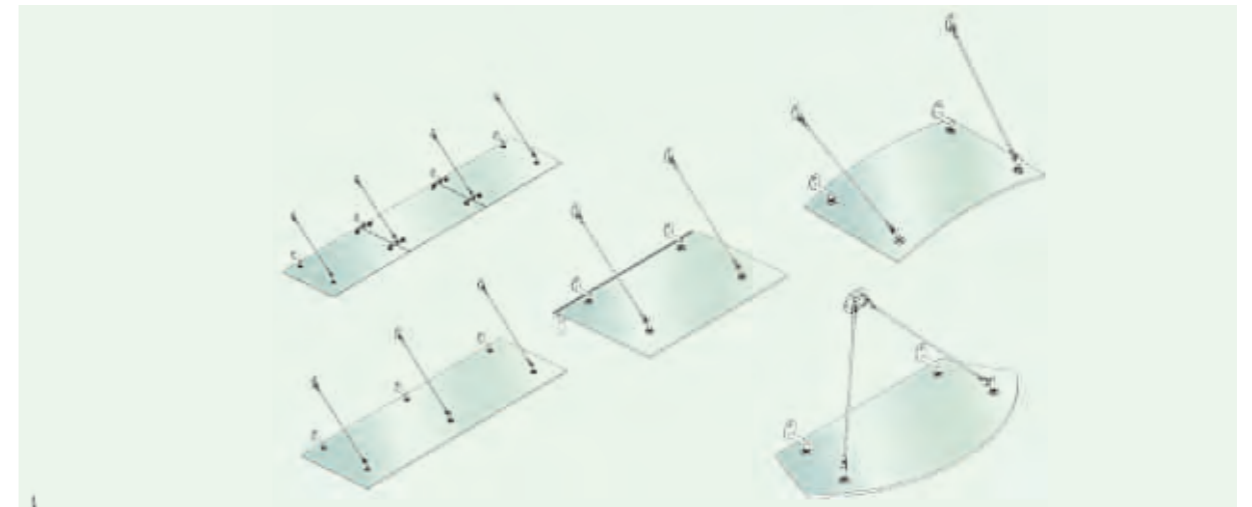


The Recommended Value of Load Capacity (N)

Material	Carbon steel				316/304	
Model	DY11	DY12	DY41	DY42	DY31	DY32
Bearing Capacity(N)	4000	7000	4000	7000	6000	12000

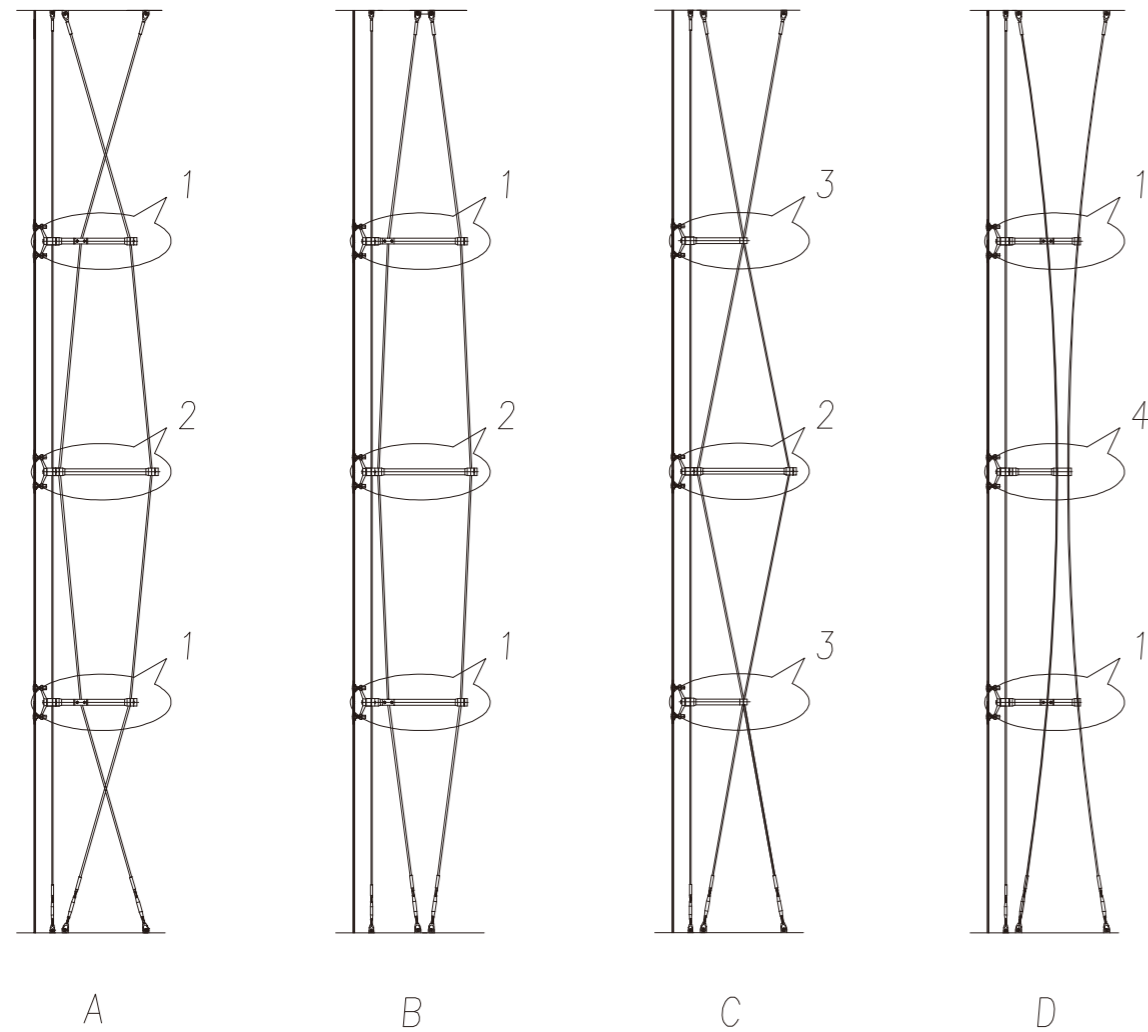
Note: This product can not bear the horizontal load.

Canopy Fittings



Note: The above fittings are used together with standard Q01A-16 or Q01B-16 anchor.

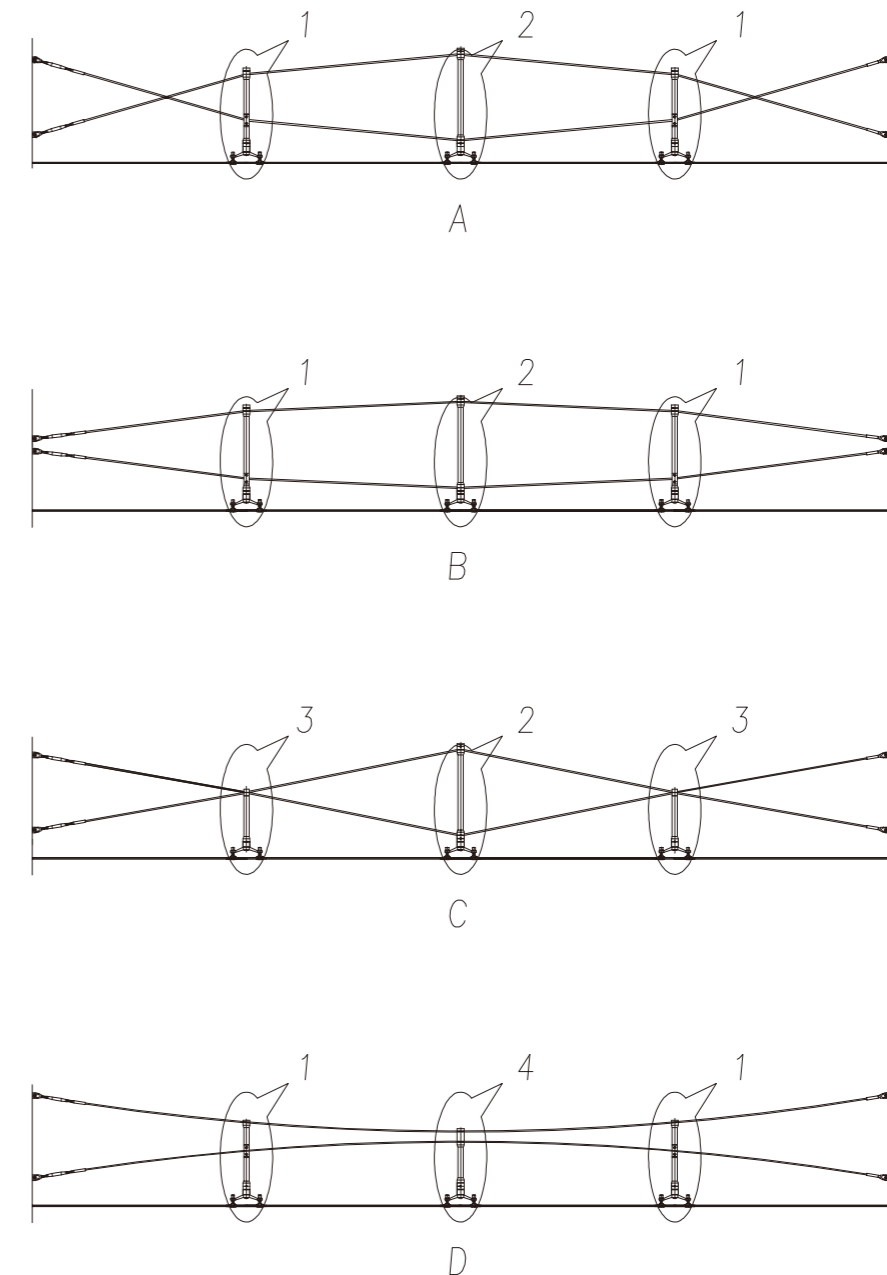
Common Forms of Supporting Structure with Tension Cable(I)



Forms of Vertical Cable Arrangement

Available support bar type at node 1	SSA-21, SSA-22
Available support bar type at node 2	SSA-11, SSA-12
Available support bar type at node 3	SSA-31, SSA-32
Available support bar type at node 4	SSA-41

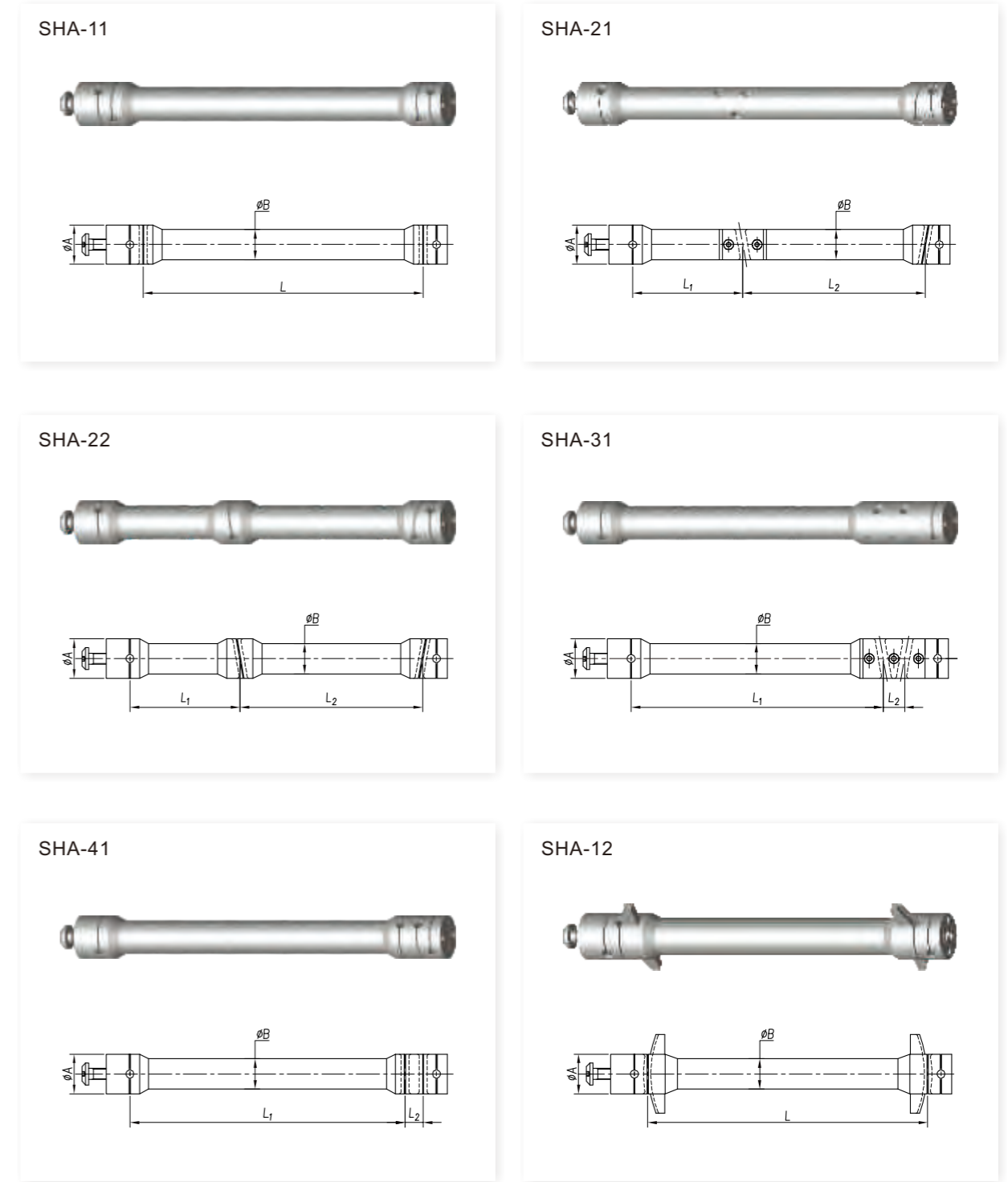
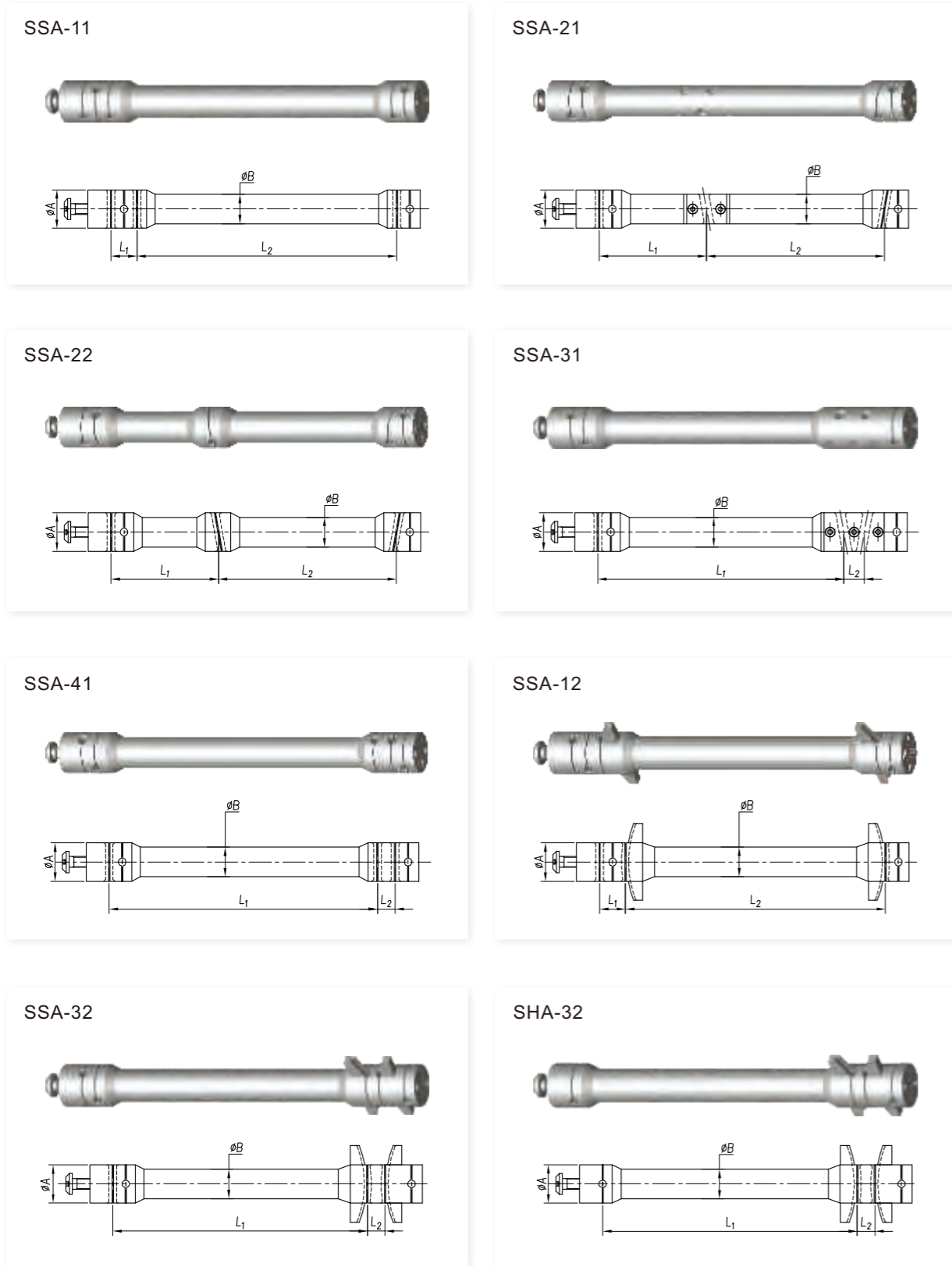
Common Forms of Supporting Structure with Tension Cable(II)



Forms of Horizontal Cable Arrangement

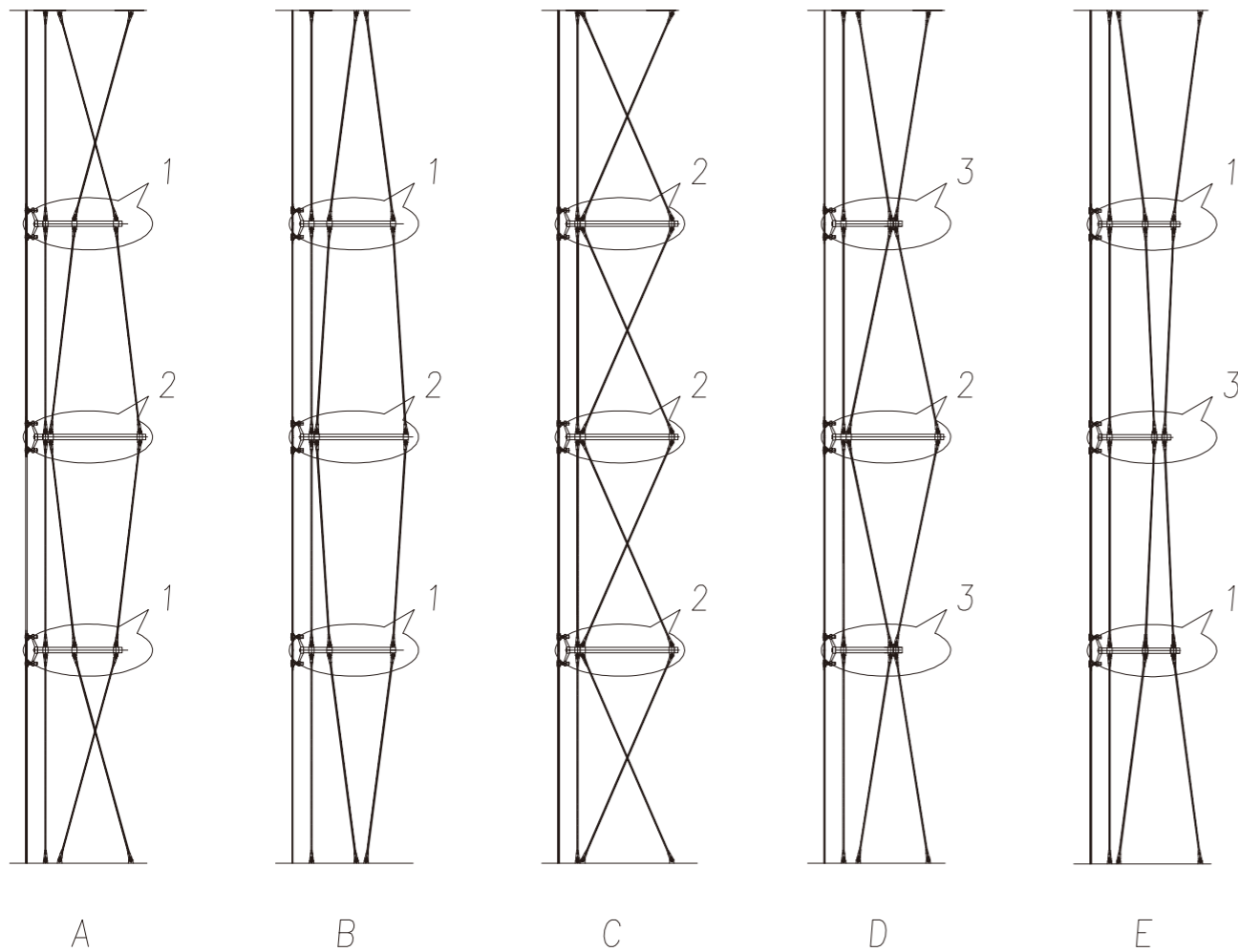
Available support bar type at node 1	SHA-21, SHA-22
Available support bar type at node 2	SHA-11, SHA-12
Available support bar type at node 3	SHA-31, SHA-32
Available support bar type at node 4	SHA-41

The Strut Bar of Tension Cable



- Notes:
1. There are two types of diameter of lock block ϕA : $\phi 65$ and $\phi 75$, select proper one according to the diameter of cable.
 2. There are two specifications of the joint sleeve ϕB of the strut : $\phi 50 \times 5$ and $\phi 60 \times 8$, the exact dimension is based on the calculation.

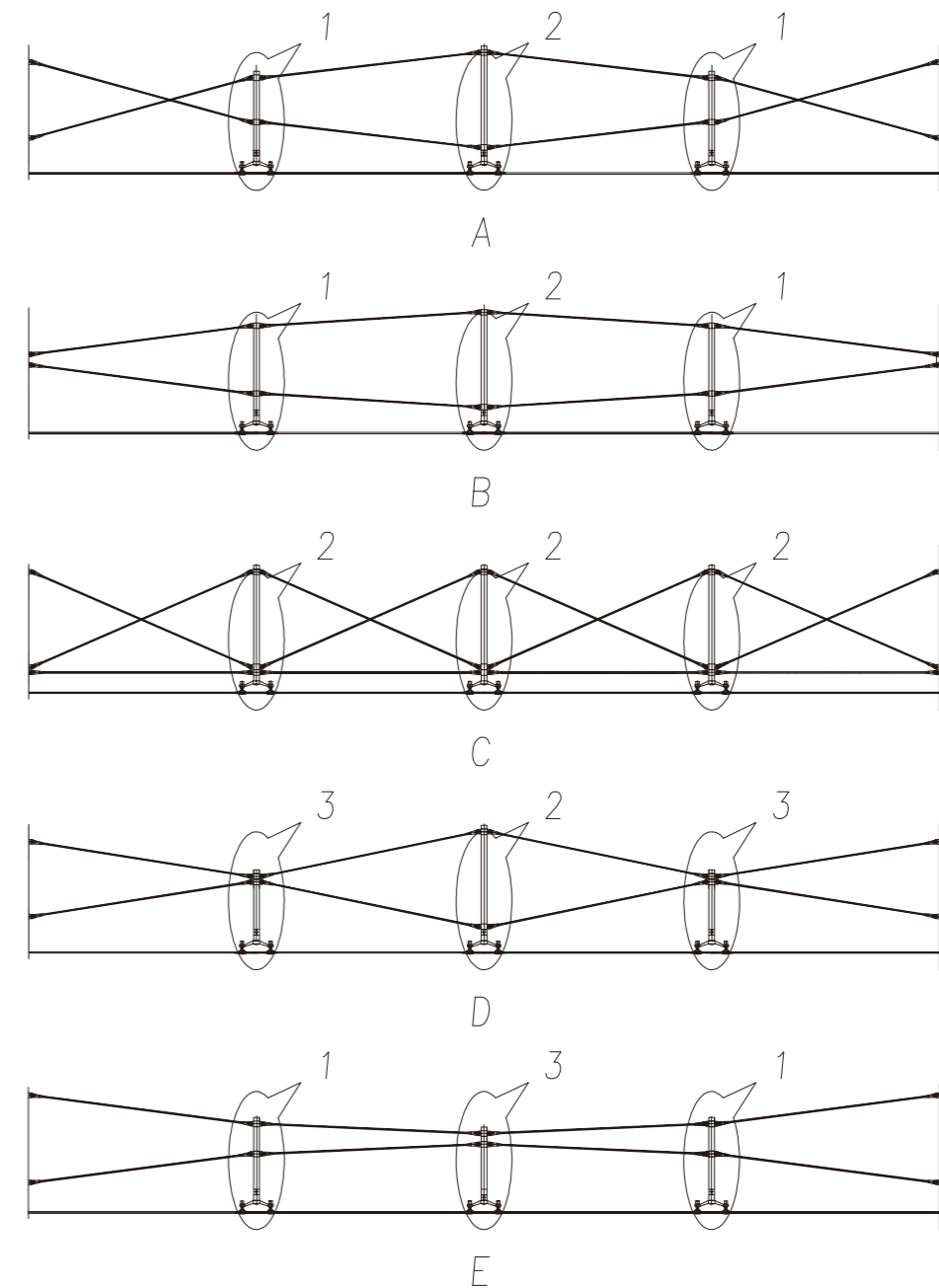
Common Forms of Supporting Structure with Tension Rod(I)



Forms of Vertical Rod Arrangement

Available support bar type at node 1	GA-2, GB-2
Available support bar type at node 2	GA-1, GB-1
Available support bar type at node 3	GA-31, GA-32, GB-3

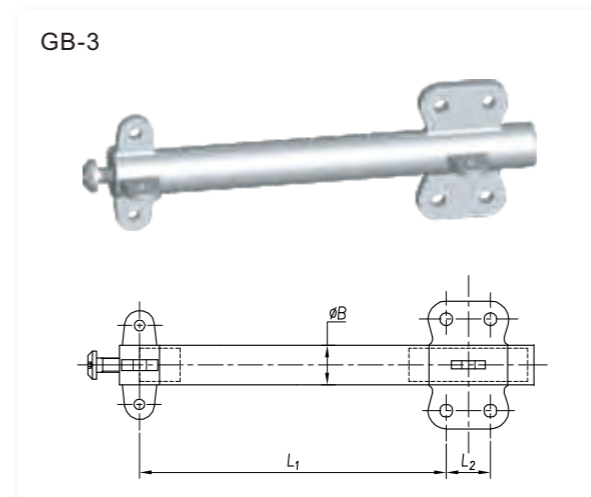
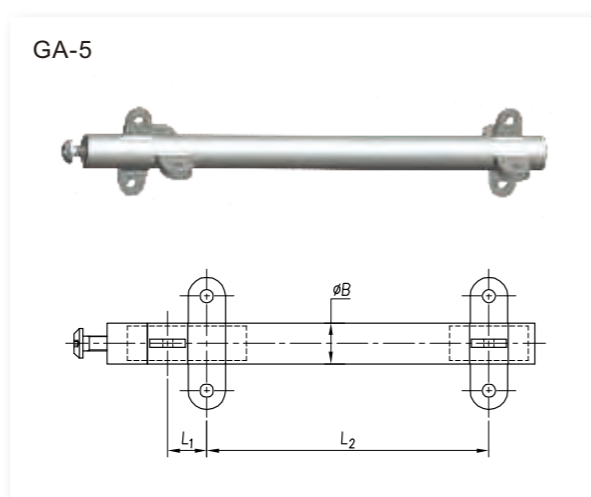
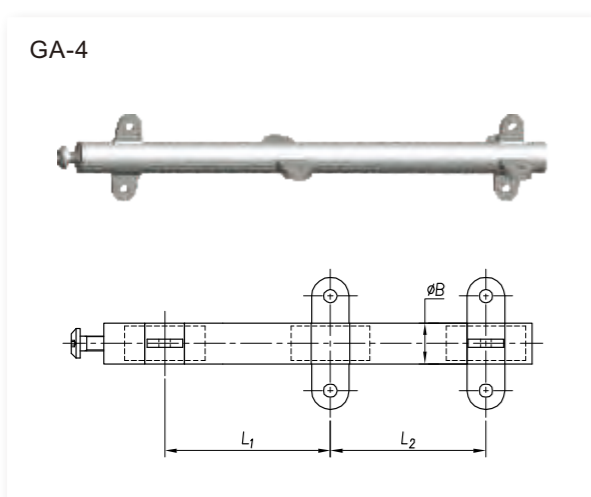
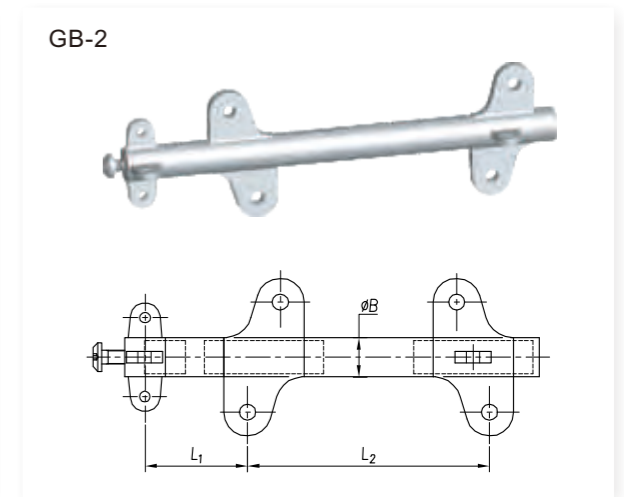
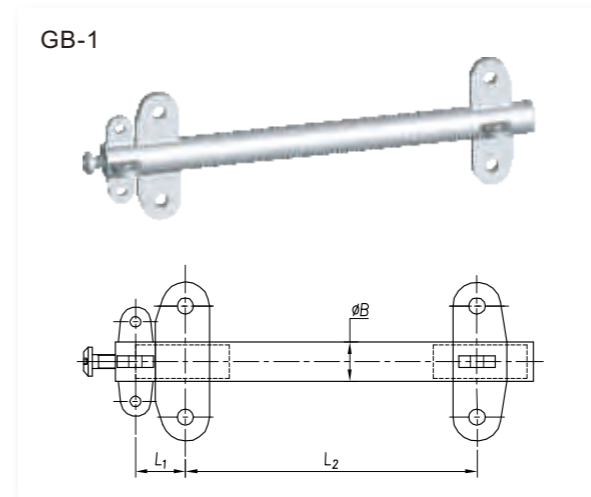
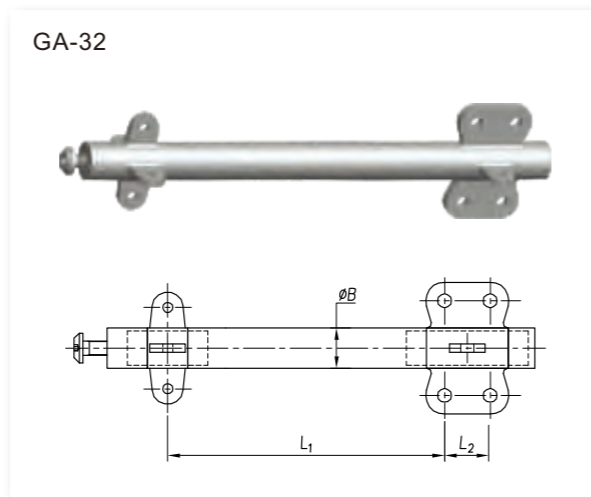
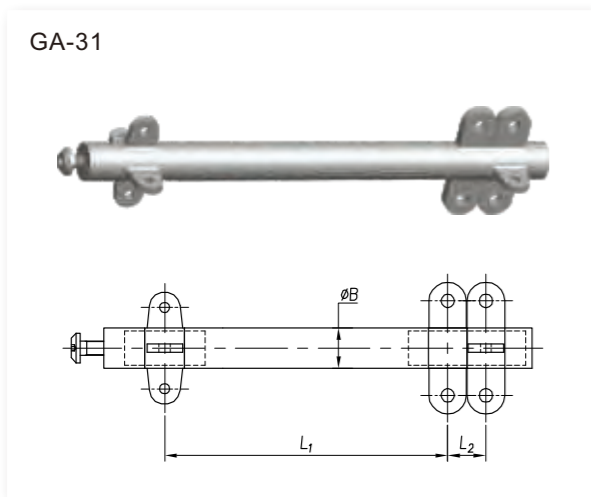
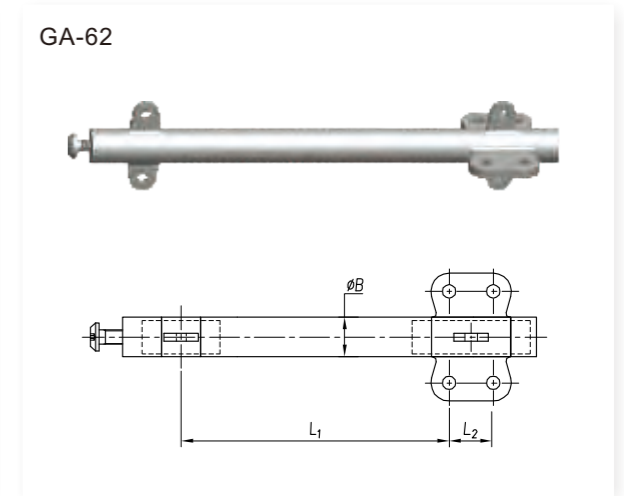
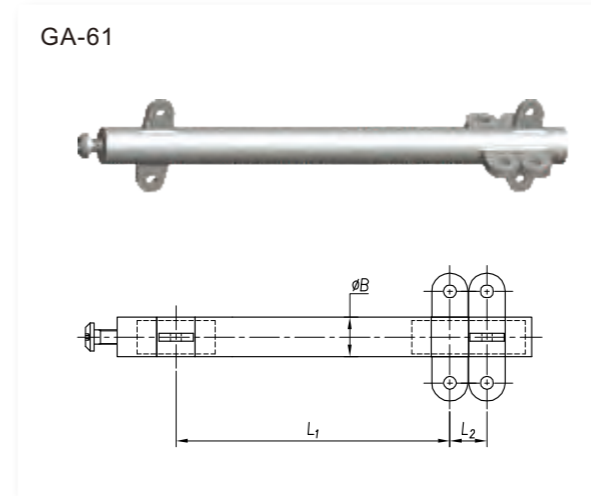
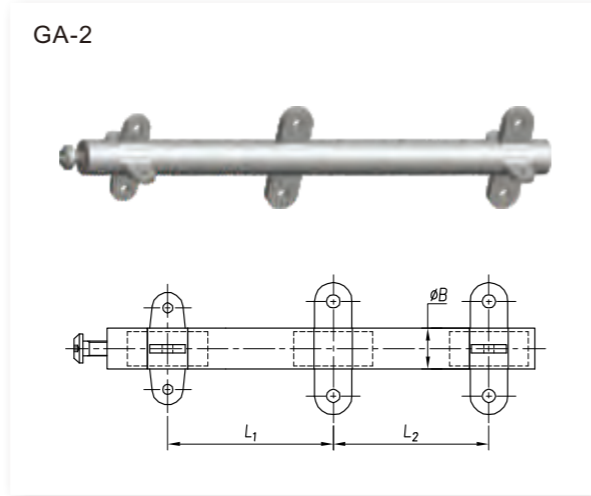
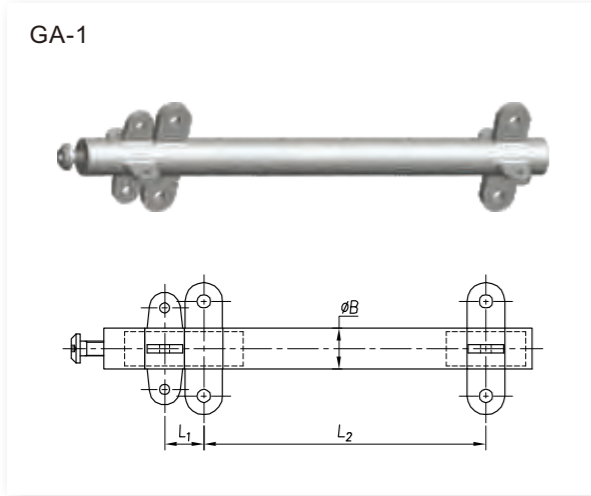
Common Forms of Supporting Structure with Tension Rod(II)



Forms of Horizontal Rod Arrangement

Available support bar type at node 1	GA-4
Available support bar type at node 2	GA-1, GB-1, GA-5
Available support bar type at node 3	GA-61, GA-62

The Strut Bar of Tension Rod



Note: The otic placode of strut bar is depended on the size of tension rod. Two specifications ($\phi B = \phi 50 \times 5$ & $\phi 60 \times 8$) are available for the connecting sleeve ϕB of strut bar.

Stainless Steel Tension Rod



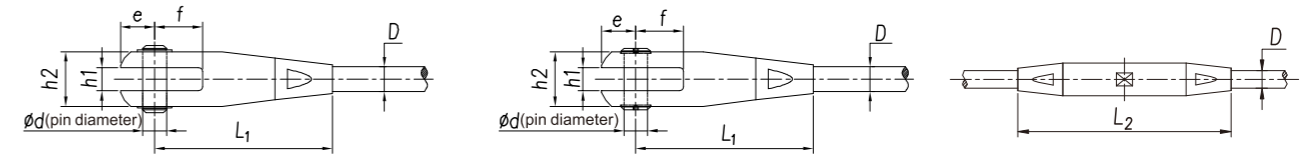
Material

Type	Product	Screw Rod	Fastener	Tension Rod Joint	Product Range
Q01A Series		316, 304	316, 304 (A4-70, A2-70)	CF8M, CF8	Φ10-Φ36
Q01B Series		316, 304	316, 304 (A4-70, A2-70)	CF8M, CF8	Φ10-Φ36

The parameters of the rod body

No.	(mm)	Effective Section Area	Yield Strength	Tensile Strength	Elongation
1	M10	57.99	515	650	≥25
2	M12	84.27			
3	M14	115.44			
4	M16	156.67			
5	M18	192.47			
6	M20	244.79			
7	M22	303.40			
8	M24	352.50			
9	M27	459.40			
10	M30	560.59			
11	M33	693.60			
12	M36	816.72			

Model



Pin fixed by snap spring for diameter $d \leq M22$

Pin fixed by screw for diameter $d > M22$

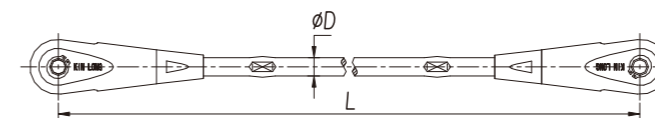
adjustable sleeve

Specification

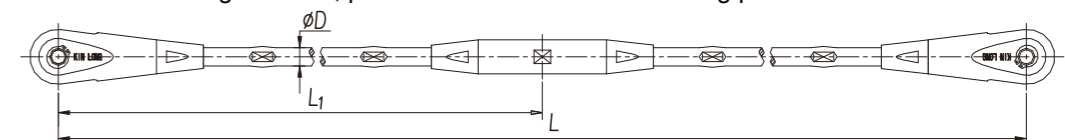
Type	OD of Screw	D	e	f	h ₁	h ₂	L ₁	L ₂	d	Single Side Adjustment Capacity
Q01A-10	M10	φ9	18	23	11	26.5	100	155	13	±12.5
Q01A-12	M12	φ10.8	18	23	11	26.5	100	155	13	
Q01A-14	M14	φ12.6	20	25	13	31	108	166	15	
Q01A-16	M16	φ14.6	23	28	15	35	117	179	16	
Q01A-18	M18	φ16.3	25	35	17	40	130	199	18	
Q01A-20	M20	φ18.3	30	35	17	42.5	138	211	20	
Q01A-22	M22	φ20.3	32.5	42	21	47	148	211	22	±14
Q01A-24	M24	φ24	38	48	21	53	170	244	24	
Q01A-27	M27	φ27	43	52	25	60	182	254	27	
Q01A-30	M30	φ30	47.1	60	25	65	195	265	30	
Q01A-33	M33	φ33	49.5	65	27	68	205	285	33	
Q01A-36	M36	φ36	56.5	72	29	76	220	295	37	
Q01B-10	M10	φ9	16.5	23	11	21	58	115	13	±5
Q01B-12	M12	φ10.8	18.1	23	11	23	61	117	13	
Q01B-14	M14	φ12.6	19.9	25	13	28	66	124	15	
Q01B-16	M16	φ14.6	22.7	28	15	32	76	131	16	
Q01B-18	M18	φ16.3	26	35	17	35	84	153	18	
Q01B-20	M20	φ18.3	28.7	35	17	37	89	155	20	
Q01B-22	M22	φ20.3	31.6	42	21	45	103	157	22	
Q01B-24	M24	φ24	33.2	48	21	47	110	184	24	
Q01B-27	M27	φ27	37.8	52	25	54	123	198	27	
Q01B-30	M30	φ30	43.6	60	25	56	134	205	30	
Q01B-33	M33	φ33	47.5	65	27	62	147	219	33	
Q01B-36	M36	φ36	50.8	72	29	68	160	231	37	

Order Instruction

The Length of the tension rod is from pin to pin.



When the tension rod length > 6m, please connect as the following picture.



The Stainless Steel Cable With Squeezed Anchor

Material

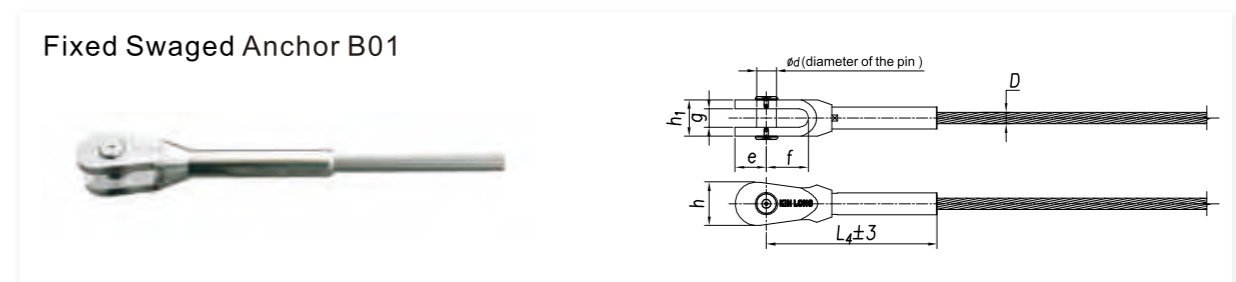
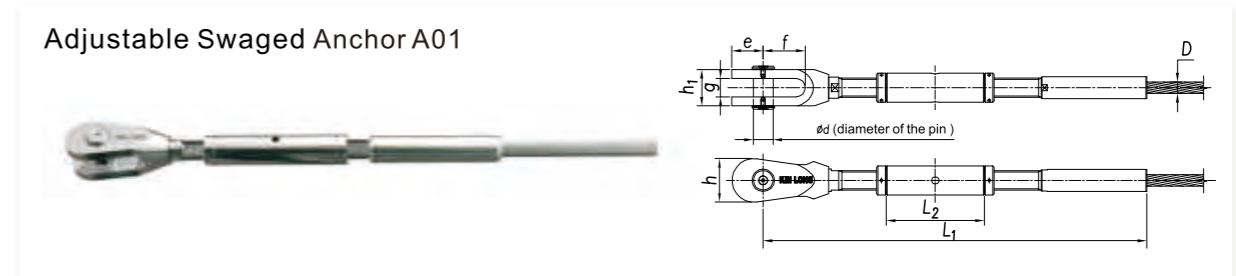
Type	Product	Steel Strand	fastener	Swaged End With Adjustor, Lock Pin	Anchor	Product Range
A01, B01, M01		316	316 (A4-70)	2205	CD3MN	φ8- φ36

Performance Parameter

Cable Diameter (mm)	Reference Configuration	Steel Wire Diameter (mm)	Sectional Area (mm ²)	Minimum Breaking Force (kN)	Modulus Elasticity (10 ⁵ N/mm ²)
8	1x19	1.60	38.20	45.38	1.30±0.10
10		2.00	59.69	70.91	
12		2.40	85.95	102.11	
14		2.80	116.99	138.99	
16	1x37	2.29	152.39	181.04	
18		2.57	192.15	225.68	
20		2.86	237.22	278.62	
22	1x61	2.44	286.27	336.23	
24		2.67	340.69	400.14	
26		2.89	399.84	469.61	
28		3.11	463.71	544.63	
30	1x91	2.73	531.60	603.56	
32		2.91	604.85	686.71	
34		3.09	682.82	775.24	
36		3.27	765.51	869.12	

Note: Besides the above mentioned tension cables, we also can fabricate the cable with higher strength. Send your enquiry if in need.

Model



Specification

2205 Anchor(A01/B01)									
D	d	g	h ₁	e	f	h	L ₁	L ₂	L ₄
φ8	12	11	22	20	24	28	≤275	80	107
φ10	14	13	26	23	30	32	≤305	80	134
φ12	16	15	30	26	34	36	≤442	125	163
φ14	20	18	36	32	42	44	≤466	125	191
φ16	22	20	40	36	46	50	≤492	130	209
φ18	24	23	46	39	52	54	≤523	130	237
φ20	27	25	50	43	58	60	≤655	175	262
φ22	30	27	54	48	65	68	≤684	175	294
φ24	33	29	58	53	74	76	≤728	180	321
φ26	33	32	64	53	74	76	≤746	180	339
φ28	36	34	68	58	80	82	≤778	185	364
φ30	39	37	74	62	88	88	≤935	230	394
φ32	42	40	80	67	94	96	≤955	230	417
φ34	45	42	84	72	100	102	≤992	235	442
φ36	50	45	90	77	106	110	≤1016	235	464

The Stainless Steel Cable with Casting Anchor “Easy extension” Series

Model

Adjustable End of Spherical Hinge C01



Note: Material of ball joint seat is carbon steel.

Adjustable Center Connector M01



Specification

2205 Anchor(M01/C01)							
D	M	L	L _s	D ₁	H	L ₂	L ₃
φ8	M12	158	90	55	38	80	≤304
φ10	M16	178	92	55	42	80	≤342
φ12	M18x2	228	119	65	48	125	≤497
φ14	M20x2	250	124	70	53	125	≤523
φ16	M22x2	270	132	70	57	130	≤552
φ18	M24x2	294	140	70	60	130	≤596
φ20	M27x2	350	177	85	67	175	≤736
φ22	M30x2	378	187	100	74	175	≤773
φ24	M33x2	398	190	100	78	180	≤819
φ26	M33x2	413	190	100	78	180	≤855
φ28	M36x3	453	212	115	86	185	≤893
φ30	M39x3	502	245	115	90	230	≤1061
φ32	M42x3	528	255	130	98	230	≤1084
φ34	M45x3	553	263	140	107	235	≤1124
φ36	M48x3	573	268	140	108	235	≤1163

Material

Type	Product	Steel Strand	fastener	Screw, Lock Pin	Open End Socket	Product Range
G02, H02, K02		316	316 (A4-70)	2205	CD3MN	φ30- φ100

Performance Parameter

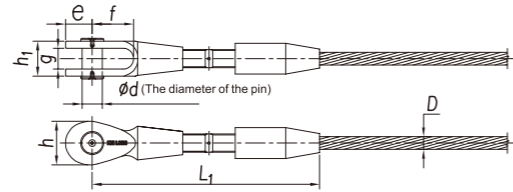
Cable Diameter (mm)	Reference Configuration	Steel Wire Diameter(mm)	Sectional Area (mm ²)	Minimum Breaking Force (kN)	Modules Elasticity (10 ⁵ N/mm ²)
30	1x91	2.73	531.60	670.62	1.30±0.10
32		2.91	604.85	763.01	
34		3.09	682.82	861.38	
36		3.27	765.51	965.69	
38		3.45	852.93	1075.97	
40		3.64	945.07	1192.21	
42		3.82	1041.94	1314.41	
45		4.09	1196.11	1352.80	
48		4.36	1360.91	1539.19	
52		1x127	4.00	1595.93	
56	4.31		1850.90	2093.37	
60	1x169	4.00	2123.72	2374.32	
65		4.33	2492.42	2786.52	
70	1x217	4.12	2889.67	3230.65	
75	1x271	3.95	3316.46	3707.80	
80		4.21	3773.39	4218.65	
85	1X331	4.05	4259.09	4761.67	
90		4.29	4774.90	5338.34	
95		4.52	5320.18	5947.96	
100		4.76	5894.94	6590.54	

Note: Besides the above mentioned tension cables, we also can fabricate the cable with higher strength. Send your enquiry if in need.

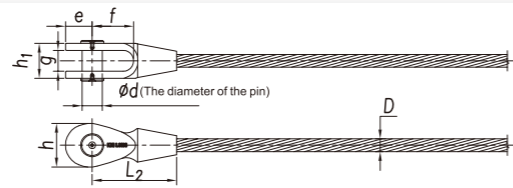
Order Instruction

Model

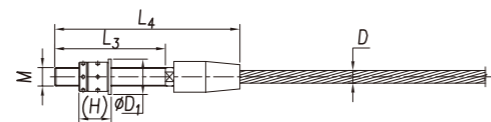
Adjustable Swaged Anchor G02



Fixed Swaged Anchor H02



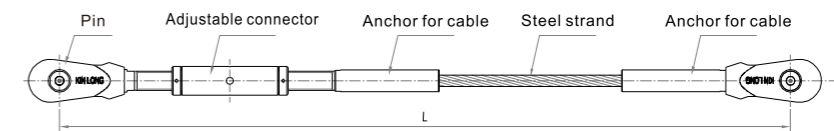
Screw Anchor K02



Note: Suggest to use spherical hinged shim at screw end.

Specification

D	d	g	h ₁	e	f	h	L ₁	L ₂	L ₃	L ₄	H	D ₁	M
φ30	46	50	84	64	99	104	≤ 630	205	250	435	77	85	M45
φ32	50	53	89	68	105	112	≤ 673	220	260	456	83	92	M48
φ34	52	57	95	71	112	116	≤ 701	230	269	472	84	98	M52
φ36	56	60	100	76	115	124	≤ 729	236	280	493	93	105	M56
φ38	60	63	106	81	118	132	≤ 758	250	290	509	93	105	M56
φ40	62	65	111	85	132	138	≤ 797	262	300	530	99	110	M60x4
φ42	66	70	117	88	138	145	≤ 817	280	305	541	99	110	M60x4
φ45	70	75	125	95	148	155	≤ 875	300	318	568	101	115	M64
φ48	74	80	132	100	156	165	≤ 944	320	330	595	105	120	M68
φ52	80	85	144	108	170	178	≤ 994	340	360	647	120	125	M72x6
φ56	88	93	154	117	185	192	≤ 1063	370	380	684	127	140	M80x6
φ60	94	100	166	126	196	206	≤ 1122	395	395	710	130	145	M85x6
φ65	102	108	180	136	214	222	≤ 1205	435	411	756	136	160	M90x6
φ70	108	117	194	147	230	240	≤ 1285	460	435	806	144	175	Tr100x6
φ75	116	125	208	158	246	258	≤ 1360	500	455	855	164	180	Tr105x6
φ80	124	133	222	167	263	275	≤ 1413	530	460	880	169	185	Tr110x6
φ85	132	141	236	177	280	292	≤ 1460	556	470	910	176	200	Tr115x6
φ90	140	150	250	190	296	310	≤ 1528	595	485	950	181	210	Tr120x6
φ95	148	159	263	200	312	327	≤ 1593	625	485	985	191	220	Tr130x6
φ100	156	167	278	210	328	344	≤ 1652	660	490	1005	198	230	Tr135x6



When order the products, please pay attention to the following:

- 1.L is the length as your requirement.(L means pin to pin).
- 2.The below format is the cable length that one adjusting end(A01) normally can adjust(L),if the needed cable length is more than L of the below format ,it needs to add adjusting anchors or consult KIN LONG company.

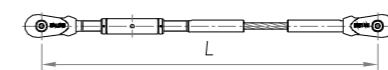
Tension cable diameterΦD	φ8	φ10	φ12	φ14	φ16	φ18	φ20	φ22	φ24	φ26	φ28	φ30	φ32	φ34	φ36
Adjustable tension cable length L(m)	≤5	≤5	≤10	≤10	≤10	≤10	≤16	≤16	≤16	≤16	≤20	≤25	≤25	≤25	≤25

3.When purchasing this product, please provide the value of pretension force.

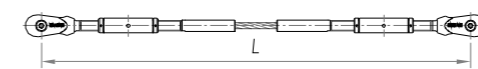
4.For φ8 and φ10 cable ,the anchor is hexagon.

Tension cable common combined types as below figure

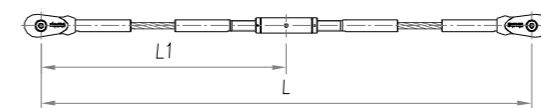
Type I : A01-B01



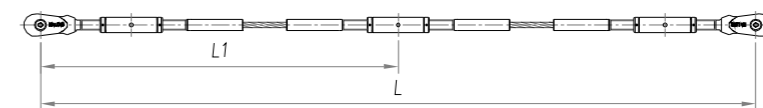
Type II : A01-A01



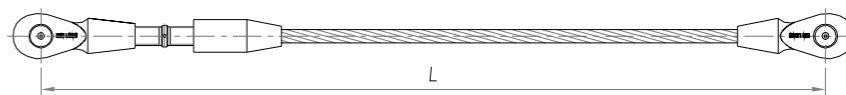
Type III : B01-M01-B01



Type IV: A01-M01-A01



Type V : G02-H02



Type VI : H02-K02



Stainless Steel Tension Cable Using Instructions

Stainless steel tension cable has high strength, good corrosion resistance, and high stiffness characteristic.

Brightness appearance can maximum reflect metallic texture. It gets most of architects & clients approval.

Therefore, stainless steel tension cable gets widely application in construction cable structure. In order to avoid abnormal appearing, we suggest paying attention to following points during the using:

1. Storage:

After the tension cable ship to the construction site, it shall be inspected as soon as possible.

If not use immediately after the inspection qualified, the product should be still kept in the original packaging box, and then deposits it according to the following conditions:

(1) Tension cable deposit location should be indoors, storage environment should be ventilated, dry, no acid, alkali, salt and water vapor in high temperature which bad medium could lead to a stainless steel getting rust. Such as the storage time more than one month, then half a month need to unpacking check regularly, to check if the surface is rust. If there is any rust, need to find and eliminate the cause of the corrosion products, when the reason belongs to the storage environment, its location should be changed to another proper one.

(2) If the indoor storage conditions are not available, except pay attention to the above attentions, still need to make waterproof protection. In addition to the storage area to build above canopy or cover rain wear prevention, bottom should also be padding to prevent rainwater from the bottom into the boxes. Such as packing is wet, the product must be cleaned and change a new deposit box. When in outdoor storage, the inspection cycle should be reduced to a week.

(3) For the tension cable in the installation stage, after be take out from inside packing, packing boxes shall be kept for a period of time. The rest tension cables must be stored in the original packaging box; In case the tension cables need to be return or repair back to our company, they also need to use the original package.

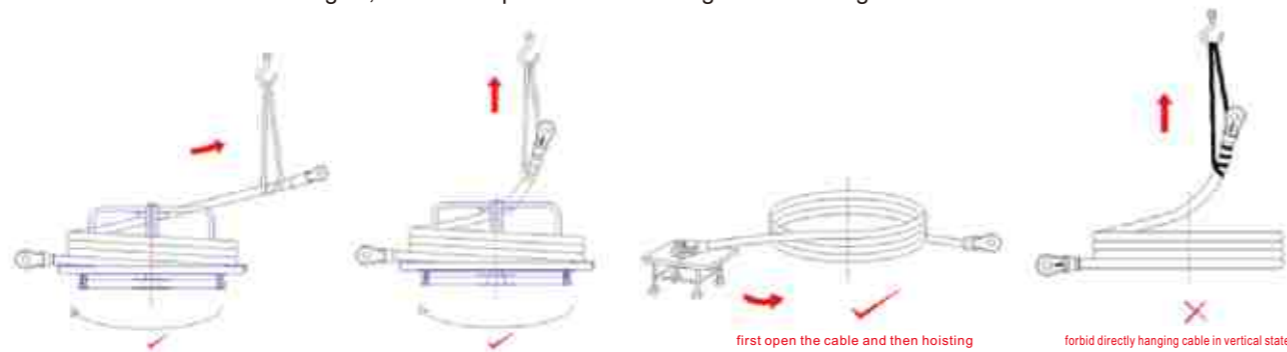
2. Installation:

(1) When lifting, please check rotating situation of the cable adjustable connecting screw. Without the stress state, the threaded connecting of tension cable should be smoothly.

If can't goes smoothly, then should find the reason and eliminate them. Common problems are like screw thread out of shape, screw thread damage, having sand & soil on the screw thread. Solve measures have file maintain, clear with steel brush, change the accessories etc.

If the problems can not be solved accordingly on the construction site, please contact us timely.

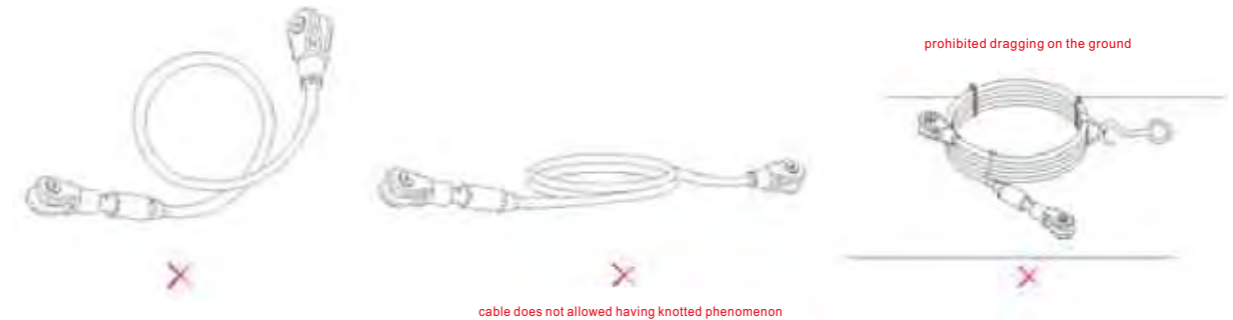
(2) When lifting tension cable on the construction site, small diameter cable should be lifted against the cable bight direction, and after it becomes straight, then make the lifting installation. For big diameter cables should be put on the cable release tray, then spin the cable release tray while lifting. The lifting speed should keep the same with the speed of cable release tray, which can guarantee the cable be lift with natural state. Prohibit vertical lift directly before the cable with the natural state. If the cable being a spiral state when lifting, then the lifting work must be stop immediately. It can go on only after the spiral state turn to natural state. If there is no cable release tray is available on the construction site, then it needs to use folk truck to lift or manpower to lift and rotate. What's more, two anchors on both sides should be taken reference protecting when lifting. The external cable protect layer should not fall off or be damaged, which can prevent scratching and crashing.



(3) There is no need to put the cables on cable release tray if the cable is short or have the enough places. Concrete operations are: keep the cable tray without move, lifting the cable anchor on the outer ring up from the cable tray opposite spin and expansion ,then begin the lift step.

(4) Once improper lifting operation caused the warp, wire skip, loose strands, injured, it need to inform the professional to check whether can keep using or not.

After the cable lifting at proper position, confirming the length, dimension and no need to dismounting, then coating the screw fasten glue in the screw part of the pin bolt and also using 3N·m torque to tighten the bolt.



3. Construction protection:

(1) Tension cable should be handled gently on the construction site, prohibit throwing and dropping products, in order to avoid collision between products or damaged by other hard products; During the installation processes, the product should also be well protected to prevent scratches and bruises, especially the thread part of the tension cable.

(2) When the stainless steel cable is installed, the welding cross operation should be avoided as far as possible. If unavoidable, protection measures should be taken to avoid welding spark or welding slag to splash down to the surface of the tension cable. Particular attention is that cable can not be used as a welding conductor.

(3) If there are multi-cross operations on the construction site, during the installation process or installation process, product all must be make good protection. To avoid the other type of works materials, such as cement mortar, coating and other pollutants in contact with the surface of stainless steel cable, making the surface contamination or rust. If the improper protective caused the products getting pollution and corrosion, clients should consult our company the remove scheme, after clearing there need to do further strengthen protection.

4. Maintenances:

(1) Surface cleaning :

Stainless steel is point to in the air, water, salt water, acids, alkalis and other corrosive medium, the steel with high chemical stability, but that doesn't mean stainless steel does not rust or getting corrosion. When in the engineering use stage, the product surface accumulation of dust and other pollutants are likely to lead to stainless steel corrosion, and even rupture caused by corrosion. Therefore, stainless steel tension cable must be regularly clean and daily cleaning. Regular cleaning cycle should not be more than one year; daily cleaning cycle depending on the type of surface contaminants and if has led to the product surface rust. If you can confirm the contaminant on the surface of products, that can cause product corrosion or rust, have to surface cleaning, and rust removal at any time. On account of the wire of stainless steel cable is pore structure; therefore, it can not be clear with water, detergent etc liquid in the steel wire directly. Its better dries the wet towel or uses few clear liquid to clearing with soft fabric.

Please pay attention to the following points when taking maintenance processing:

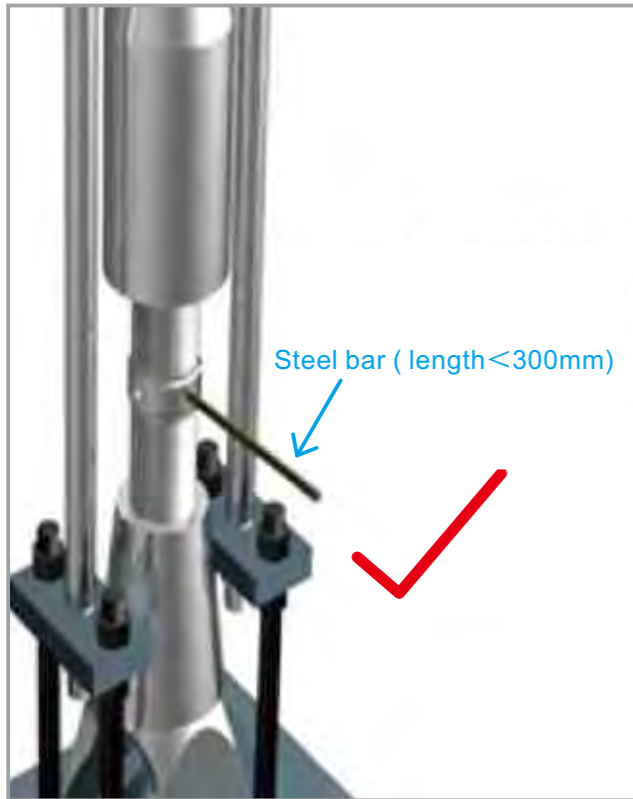
① In any case, the surface of stainless steel can not be cleaned with chlorine-containing solution (such as bleach solution, disinfectant 84, etc.). When chlorine-containing solution be used for other purpose (e.g. disinfection), the stainless steel should also be in a good protection.

② Stainless steel gets rust is not only concerned with pollutants, but also with the ambient temperature, humidity, atmospheric composition and so on. If in the case of no obvious pollutants, the stainless steel also gets corrosion, in addition to do timely rust cleaning, but also need to find the specific cause of the product rusty, in order to take appropriate measures.

(2) Others:

This manual unsettled the product maintenance and care matters (such as prestress inspection and adjustment, etc.), need to carry on according to the current industry standard glass curtain wall engineering specifications, the relevant provisions.

Tension instructions of "Easy Tension" series stainless steel tension cable



Steel bar (length < 300mm)

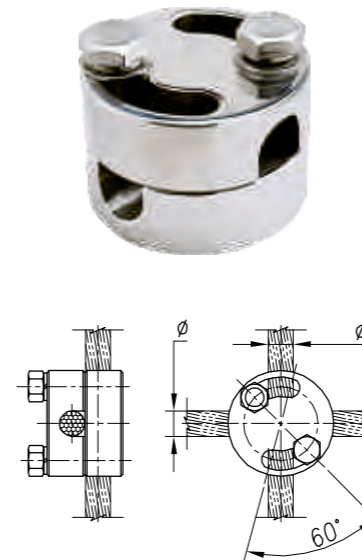
Please pay attention to the following matters when tensioning the cable:

1. Before tensioning, the thread should be checked again and remove the attached sand, welding slag and so on.
2. Before tensioning, it should be guaranteed the exposed thread length is the same as shown in the diagram.
3. Cable tension must use special tension tools.
4. During tension process, it is recommended to use bare hands or the bellowing steel rod ($L \leq 300\text{mm}$) inserted into the screwdriver hole for rotation. Under normal circumstances, one hand can easily turn the screw (no more than 5KG force). If the above method can not easily turn the screw, it may cause by using improper tensioning tools or improper adjustment, at this moment it should be readjusted or consults our company.
5. Under any circumstances, no force rods can be applied on steel rods or using chain wrench, pipe wrenches and similar tools to do the screw rod turning process. Failure to follow the above attention matters could result in subsequent tension difficulties or product damage. If this happens, KIN LONG company will not assume any responsibility.

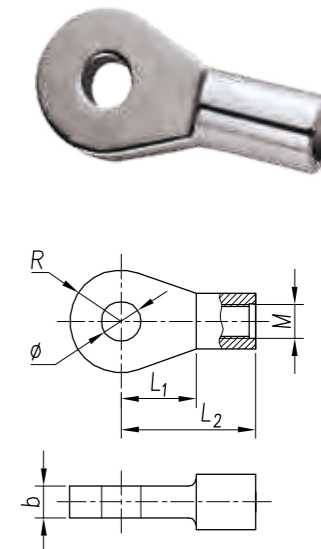


Typical Fittings for Cable

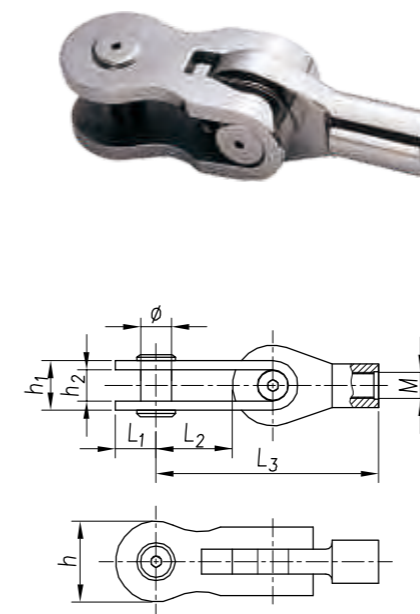
SGP-02



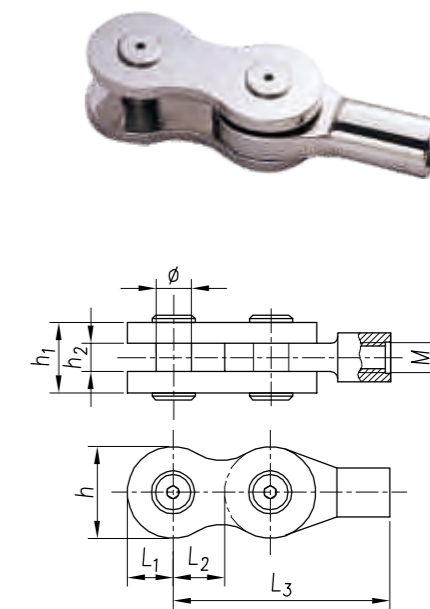
SGP-03



SGP-05



SGP-06



Customized Products

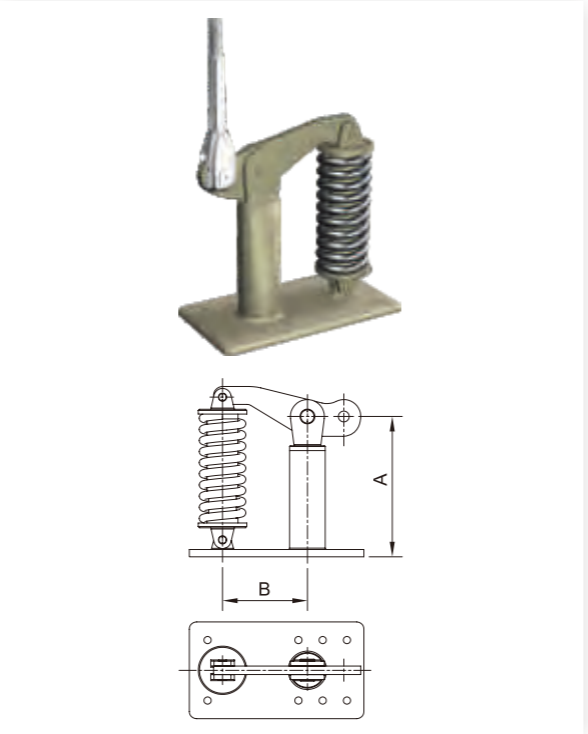
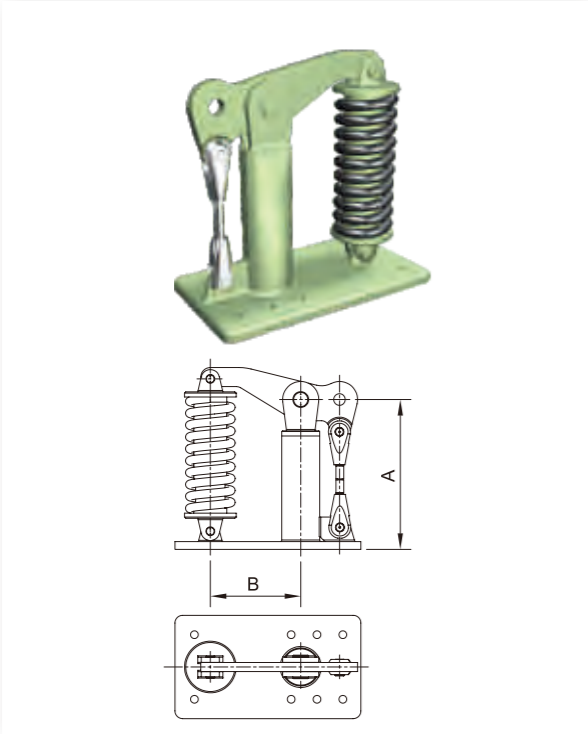
With the development of architecture technology and the promotion of green building around world, stainless steel, a green construction material, has been used frequently in many kinds of constructions. Owing a strong design team and many years of experience in manufacture of stainless steel architectural fittings, KIN LONG has made a large number of stainless steel connecting fittings for many customers at home and abroad in recent years. Please contact our representative office all around the world if you need any stainless steel connecting fitting, and we will be delighted to serve you.



Jiang Su International Library Center

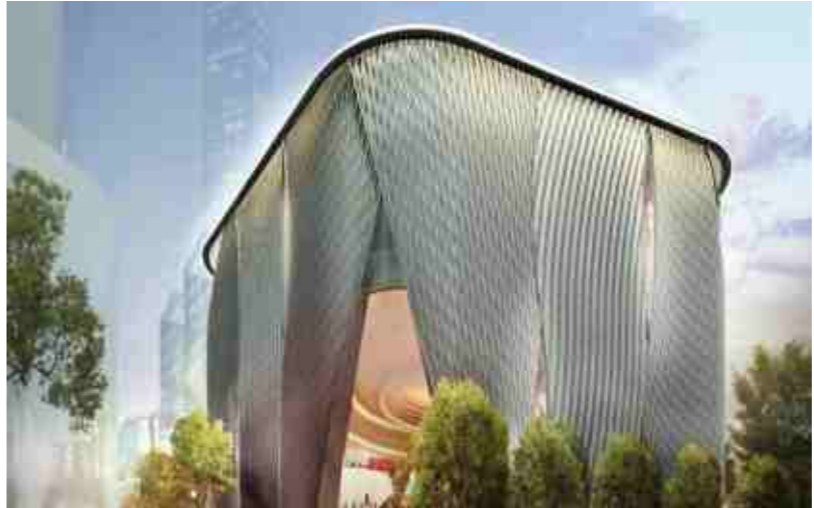
Overload Protection Device

Pretension Keeping Device



Project name: Qingdao Blue Silicon Valley Rail Transit Express

This project is located in Laoshan District of Qingdao city and Jimo city territory, the starting point for the Laoshan Miaoling Road and Shenzhen Road junction, along Miaoling Road, Binhai Highway, Datian Road and Gaoyu River to the north to set site, the end is the Daqiao saltern of Jimo city. The total length is 58.44 km, reserved the conditions of Tianheng town extended to Haiyang city. The whole line adopts overhead laying method. There are 1 underground line at the starting point, about 5km; 3 mountain tunnels; 1 Xianzi tunnel 700m; 1 Laoshan tunnel 4.58km; 1 short tunnel 508m. There are 22 stations along the line, including 4 underground stations and 18 elevated stations. On this project, KIN LONG provided 16,000m non-standard steel pipe products, more than 3,000 sets of non-standard spherical joint hinge connection device.



Project name: Hong Kong Opera Center

The project is located in the prime area of Hong Kong's WKCD east, which is the Canton Road and Austin Road West border, covering an area of 13,800 square meters. It is the earliest open venue for the 17 core arts and cultural facilities in the West Kowloon Cultural District and will provide a platform for interaction among the theater industry. As the east gate of a tourist visiting cultural area, the whole building is like a beautiful lantern with the traditional Chinese moon-shape arch. The exterior design is full of energy and vitality. The smooth appearance and the space arrangement all show a concept of "qi". KIN LONG has provided more than 24,000 sets of non-standard shaped connector products for this project, and the product material is duplex stainless steel.



Zhenjiang Sports International Convention and Exhibition Center



Shenzhen Ping An International Financial Center



Shenzhen Stock Exchange



Burj Khalifa in Dubai



Beijing Golden Center



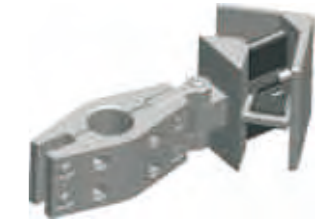
Project in California, U.S.A



Shijiazhuang Airport



Shenyang Hanglung Plaza



Beijing Tsinghua Science Park



Sydney Green Center High-rise Apartment Building



HTC Headquarters Mansion in Taiwan



ASOK Terminal 21 in Thailand



HK Project



HK West Kowloon



Shanghai Zhongjian Building



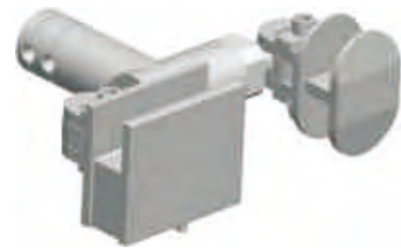
Middle East Petroleum Building in Abu Dhabi



Dongguan Wing Lung Business Hotel



Guangzhou West Tower



Shenzhen Gangxia Parkway



Shenzhen Baoan District Children's Palace



Investment Council in Abu Dhabi



Shanghai Siemens



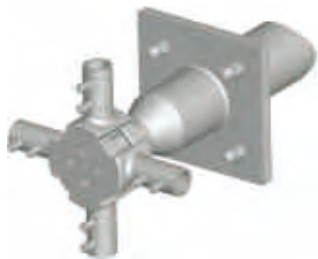
Nanchang International Expo City



Taiwan United Daily



Shenzhen Airport



Shanghai Culture Square



Shanghai Bund International Financial Center



Shanghai Bund International Financial Center



Shanghai Culture Square



Shenzhen Zuotingyoyuan



Hong Kong Drama Centre



Huaya Square Curtain Wall System



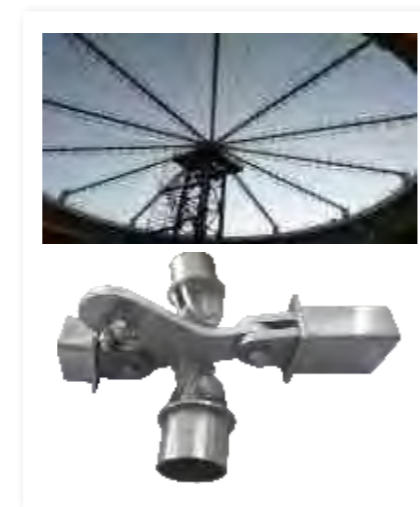
Satinless Plate & Structural System Products

Stainless steel fin fixed-point supporting glass curtain wall is an important expression of tactics of the building envelope structure, crystal clear walls so that indoor and outdoor mutual response, fusion through, the unique spatial characteristics makes the building perfectly showing its charm. Because of its simple and transparency, large span, wide vision, in the new building it has been widely used, gained the favor of architects. After years of development, KIN LONG already has the design and processing ability of large-size steel plate and structural customized parts, provided technical service and high quality products for many projects. If you're interested in this series products, please contact our local office, we will sincerely service you all.



Projects name: Shenzhen Hongfa Xixiang Commercial Center Renovation Project

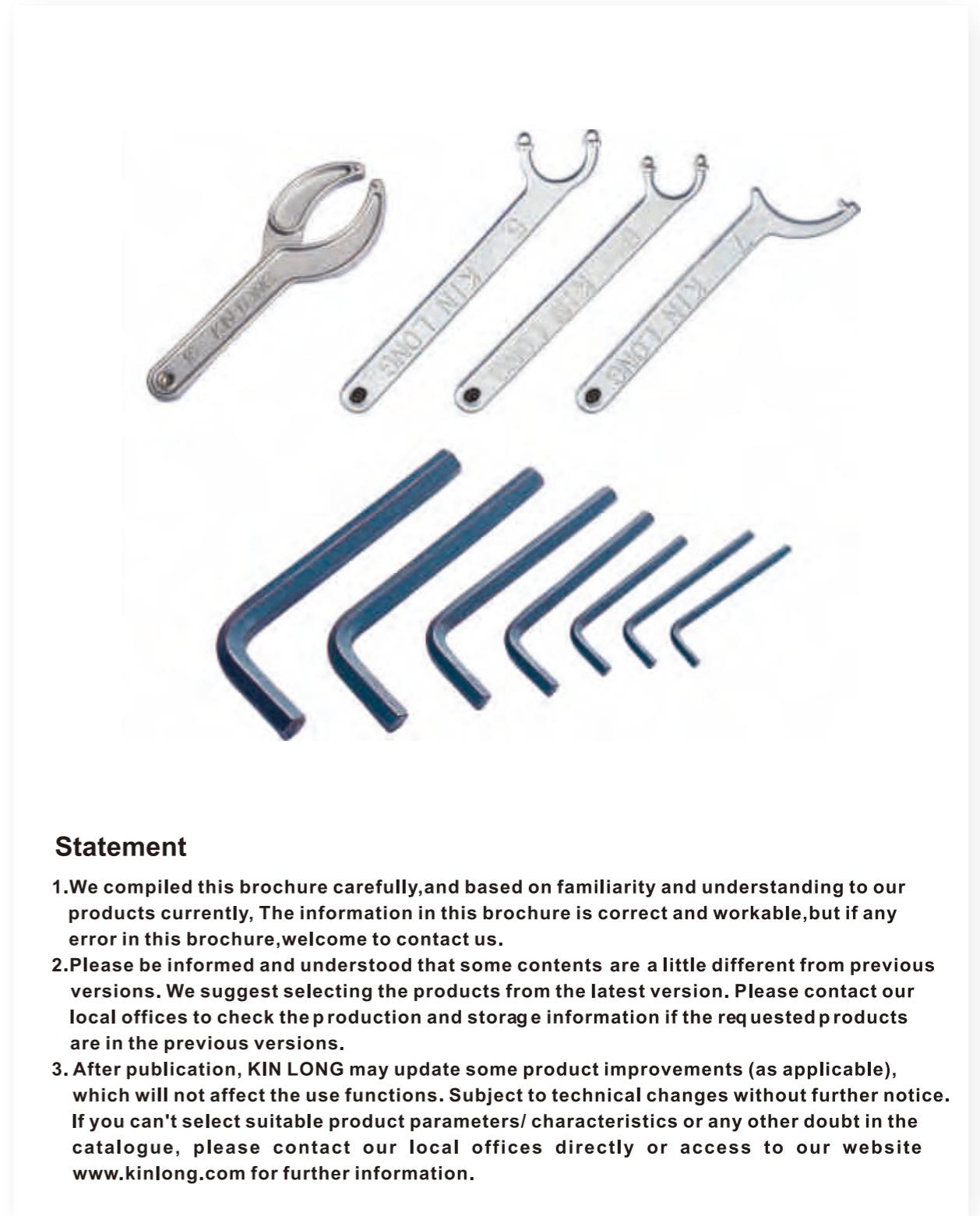
This project is located in Xixiang Street, Bao'an District, and Shenzhen city. The total renovation project covers a construction area of more than 800,000 square meters. It is an upscale living area, commercial and commercial service area of integrating business, residence and office functions with a total investment of about 1.5 billion yuan. The first phase of the sales office curtain wall adopted ribs supporting glass curtain wall structure, the curtain wall area is about 900 square meters, arc shape, horizontal span of about 30m, and about 34m high. In order to improve the safety performance of the entire curtain wall and beautify the visual effect, the structure form of the glass curtain wall is a combination of a horizontal stainless steel rib, a vertical glass rib and a vertical parallel stabilizing rod. KIN LONG provides stainless steel rib (single panel with 1.6 tons), customized clamps and customized tension rods, etc..



Project name: Iran Commercial Mall

This project has a total construction area of 4 million square meters, a tension cable curtain wall area of about 5700 square meters, a roof area of about 4611 square meters and a dome of diameter 40 meters. It is a high-end commercial and commercial service area integrating commercial and office functions. KIN LONG provided customized structural parts (single weight of 2 tons), tension cables of $\phi 12$, $\phi 16$, $\phi 22$, $\phi 26$, $\phi 34$, $\phi 40$ and $\phi 45$, routels, spiders and customized support rods, etc. for this project.

Installation Tools



Statement

1. We compiled this brochure carefully, and based on familiarity and understanding to our products currently, The information in this brochure is correct and workable, but if any error in this brochure, welcome to contact us.
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