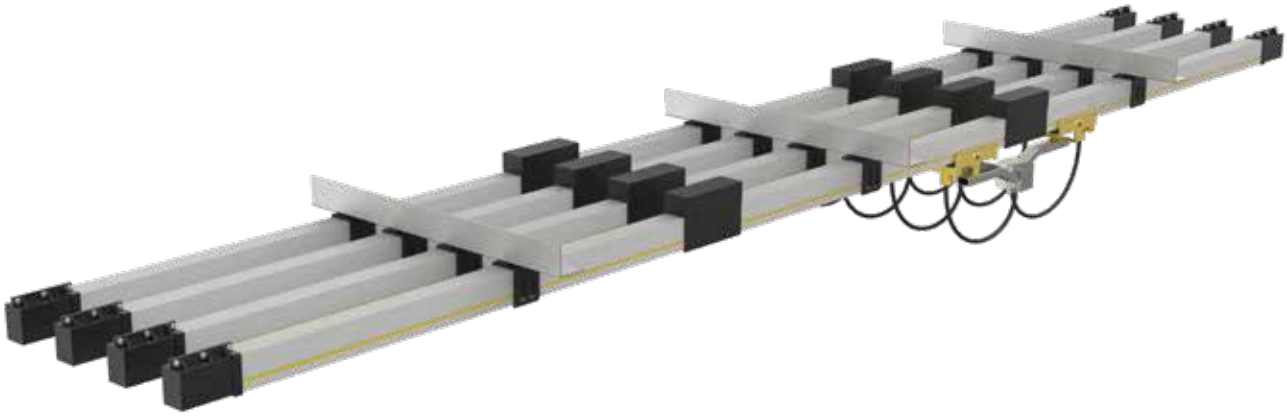
CERESTECH

# INSULATED CONDUCTOR SYSTEMS CMB



CERESTECH

CMH

## General

The CMB-H conductor rail system is a modern power supply system using single-pole insulated conductor rails.It complies with the latest regulations and provide the electric energy for mobile consumers.The conductor rail material is copper(200A-5000A),aluminium(150A-3000A).The aluminium conductor rail is provided with a proven and patented stainless steel contact surface.Any numbers of poles can be installed vertically or horizontally,on straight or curved systems

The conductor rail system can be installed indoor or outdoor.For high temperature conditions,a high temperature insulation cover up to +115℃ is available,also for low temperature conditions,it could be up to -40℃.

The entire conductor rail system is insulated to current Safety Regulations,it is entirely protected against direct contact. Ground insulation cover is marked yellow-green on one side over the entire length of the rail.

Type -R: Curves for R≥ 1200mm.

Approved and listed by： CCC,ISO9001 and CE.

## Insulation

Geneally,the phase line is Color green, the ground line is yellow-green plastic housing .Standard length is 6.0 m long,Other sections are available.

## Jointing material

Snap-in joint splices provide mechanical end electrical continuity.

They include insulated protection covers.

## Feed Sets

Line feeds( any joints) or end feeds.

## End caps

The open ends of the conductor are closed by end caps.

## Hangers

Standard brackets for conductor attachment to crane girders are available.Conductor with sliding and fixpoint hangers.

Standard distance between suspension points for indoor and outdoor installations : 1500 mm to 2000mm

## Exppansion section

The Expansion sections are required to compensate the different expansions between copper conductors and steel or concrete structures, in varying temperatures without interrupting electrical power.

Expansion joints are used when the Powerail length between feeds,curves, switches or other fix points is exceeding 200 m.Install one expansion joint according to accyually installation.

## Isolating section

Isolating sections are required if parts of the system or individual rails are to be de-energized within a conductor rail system.To prevent a voltage bridging by current collector two air gap isolating sections should be installed.

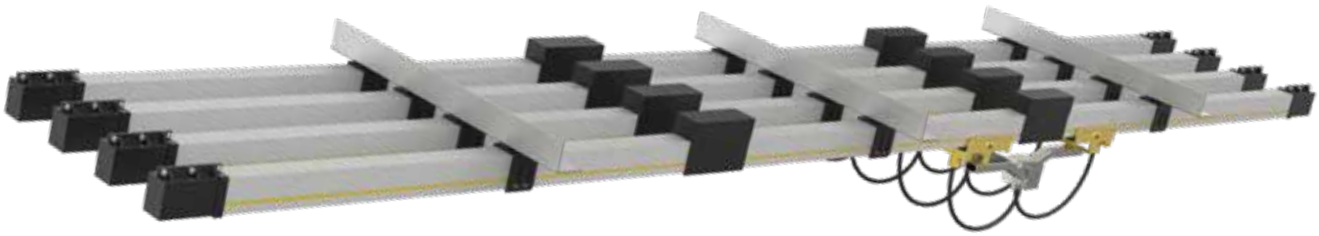
## Collectors

The current collectors are made of carbon brush,reinforced nylon and galvanized or spray-paint metal material Spring loaded carbon brushes maintain uniform contact. Connecting cables and hinged or flexible towing arms included. Double collectors for transfer applications and higher amperage.

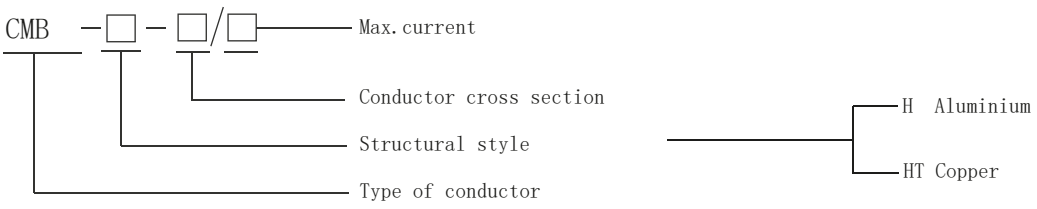
## Technical data

| Conductor rail system | Program CMB-H | | | | | | |
|---|---|---|---|---|---|---|---|
| Conductor rail | Aluminium | | | | Copper | | |
| Type | H24 | H32 | H35 | H52 | H24 | H32 | H52 |
| Nominal current at 100% DC and 35℃ [A] | 250-300 | 320-1250 | 230-800 | 1250-3000 | 500-800 | 800-1600 | 1250-5000 |
| D.C.resistance at 35℃ [Ω/km] | 0.203-0.187 | 0.153-0.046 | 0.153-0.067 | 0.043-0.015 | 0.116-0.067 | 0.067-0.039 | 0.036-0.007 |
| Impendance at 35℃ [Ω/km] | 0.209-0.195 | 0.155-0.048 | 0.155-0.069 | 0.044-0.017 | 0.118-0.069 | 0.069-0.040 | 0.038-0.008 |
| Support spacing [m] | 1.5 | 1.8 | 1.8 | 2.0 | 1.5 | 1.8 | 2.0 |
| Rail length [m] | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 |
| Housing length [m] | 5.88 | 5.83 | 5.83 | 5.75 | 5.88 | 5.83 | 5.75 |
| Max.voltage [V] | 660V | | Dielectric strength [KV/mm] | | 30-40 | | |
| Travelling speed | ⩽ 600 m/min | | standard | | GB7251.2-2006 | | |
| Expansion joint | not required uo to 200 m installation length | | | | | | |
| Flame retardant | Class B1-no flaming particles,self-extinguishing | | | | | | |
| Permissible ambient temperature | Standard insulation -20℃- +70℃<br>High temperature insulation -10℃- +115℃<br>Low temperature insulation -40℃- +85℃ | | | | | | |

## System photo



## Introductions of Type

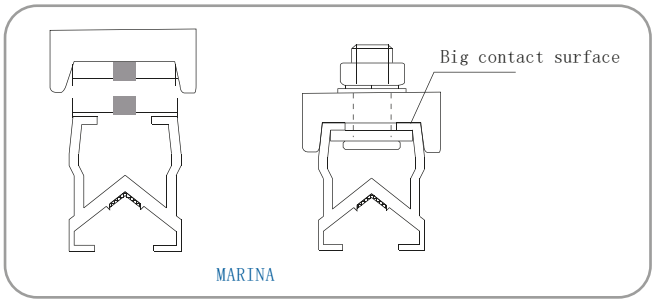


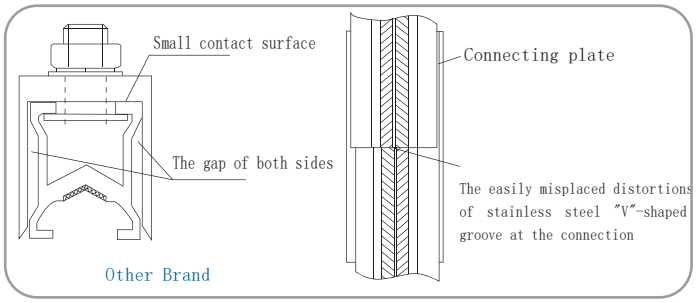
CERESTECH

CMB

## Characteristic

Marina Factories Equip.& Machinery Trdg. L.L.C. made the following improvements at the connection of the Conductor Bar, effectively reduce contact resistance of the connector, increase area of contact surface to reduce the joint temperature to prevent excessive heating, In addition, connectors are cleaning treatment (degreasing, deburring) in the process, in order to improve the effect of the use of the Conductor Bar. For instance, CMB-H (aluminum conductors), C-HT (copper conductors) unipole Conductor Bar.



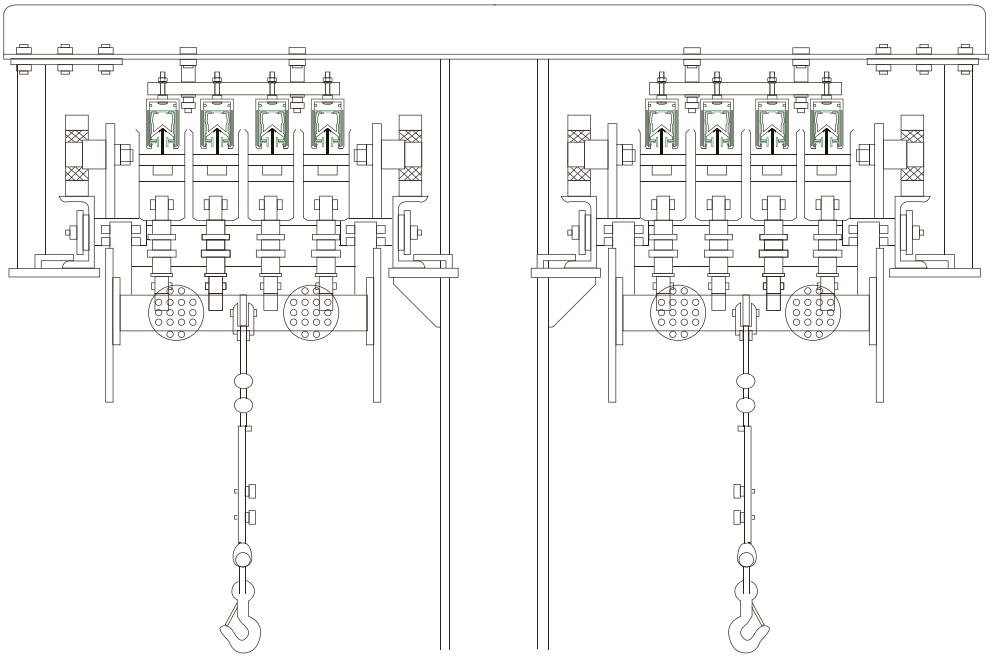

Using the new conductor structure, the top of the cross section of the Conductor Bar is slightly larger than the bottom of the connecting plate, the original structure of wedge-shaped cross-section, in connection bolt pressed contact with the comprehensive, large effective conductive area, low impedance, temperature rise of connection is small, do not distort, to ensure the stability of the Conductor Bar running.

Ordinary H-shaped connecting plate seemingly with a large contact surface, the actual there is the gap at both sides, effective conductive surface is small, the gap of both sides lead conductor which on the connection distorted easily, the collector carbon brush wear and tear which in the joints increase by several times, spark phenomenon should appear, the normal life of the Conductor Bar and the Collector Brush will greatly reduce.

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## Views of Oil to electricity for RTG*

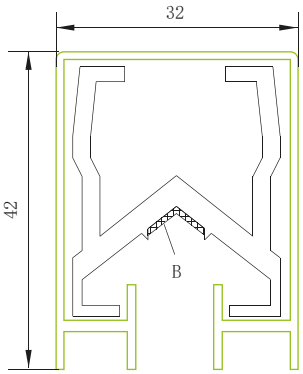
To provide a recommendation of that the crane change the track.



# Parts of the concuctor rail system

## H32 System

Scale 1 :1




Aluminium conductor

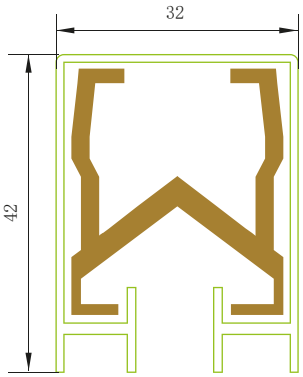
Standard Length:6.0 m,other lengths on request

Support spacing:1.8 m or 2.0 m.

Stainless steel belt
B = 9.8 mm

| Type | Conductor material | Cross section (mm $^2$) | Nominal current (A) | Leakage-distance (mm) | Resistance (Ω/km) | Weight kg | Cat.-No. |
|---|---|---|---|---|---|---|---|
| CMB-H-230/320 | Aluminium | 230 | 320 | 80 | 0.153 | 0.96 | 320126 |
| CMB-H-285/500 | Aluminium | 285 | 500 | 80 | 0.116 | 1.13 | 320136 |
| CMB-H-360/630 | Aluminium | 360 | 630 | 80 | 0.087 | 1.38 | 320156 |
| CMB-H-420/800 | Aluminium | 450 | 800 | 80 | 0.067 | 1.50 | 320166 |
| CMB-H-550/1000 | Aluminium | 550 | 1000 | 80 | 0.058 | 1.83 | 320176 |
| CMB-H-600/1250 | Aluminium | 600 | 1250 | 80 | 0.046 | 2.01 | 320186 |

Scale 1 :1




Copper conductor

Support spacing:1.8 m or 2.0 m.

Standard Length:6.0 m,other lengths on request.

| Type | Conductor material | Cross section (mm $^2$) | Nominal current (A) | Leakage-distance (mm) | Resistance (Ω/km) | Weight kg | Cat.-No. |
|---|---|---|---|---|---|---|---|
| CMB-HT-230/800 | Copper | 230 | 800 | 80 | 0.067 | 2.43 | 320266 |
| CMB-HT-300/1000 | Copper | 300 | 1000 | 80 | 0.058 | 3.05 | 320276 |
| CMB-HT-360/1250 | Copper | 360 | 1250 | 80 | 0.046 | 3.56 | 320286 |
| CMB-HT-450/1600 | Copper | 450 | 1600 | 80 | 0.039 | 4.37 | 320296 |

The neutral insulation cover is marked yellow-green on one side.

Standard insulation suitable from -20℃ to +70℃ ambient temperature.

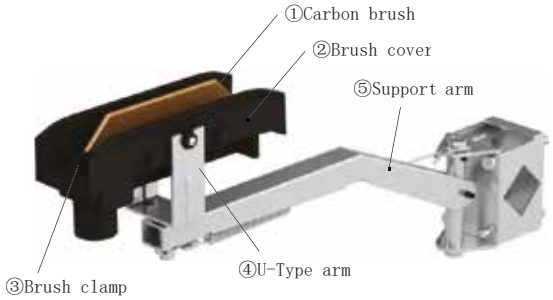
High temperature insulation suitable from -10℃ to +115℃ ambient temperature.

Low temperature insulation suitable from -40℃ to +85℃ ambient temperature.

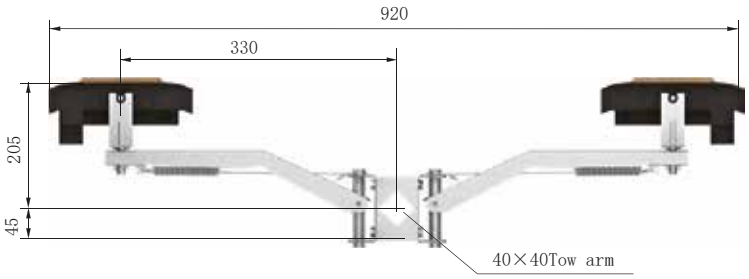
# Current Collector



## JD-400

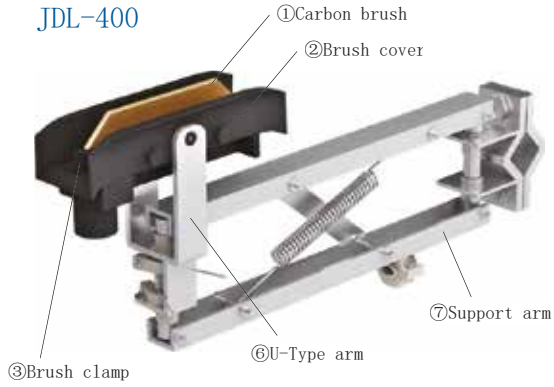



## JD*2-400

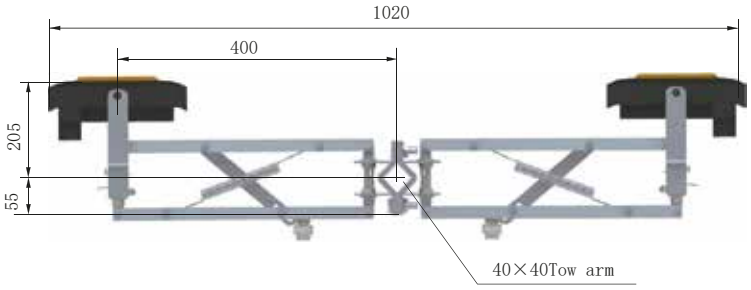



| Type | Weight kg | Hardware | Nominal current | Cat.-No. |
|---|---|---|---|---|
| JD-400 | 1.75 | Steel | 400Amp | 323110 |
| JD*2-400 | 3.45 | Steel | 800Amp | 323120 |

## JDL-400



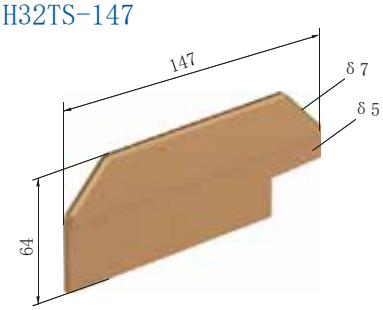

## JDL*2-400




| Type | Weight kg | Hardware | Nominal current | Cat.-No. |
|---|---|---|---|---|
| JDL-400 | 2.35 | Aluminum | 400Amp | 323130 |
| JDL*2-400 | 4.61 | Aluminum | 800Amp | 323140 |

# Carbon brush & Spare parts of Collector

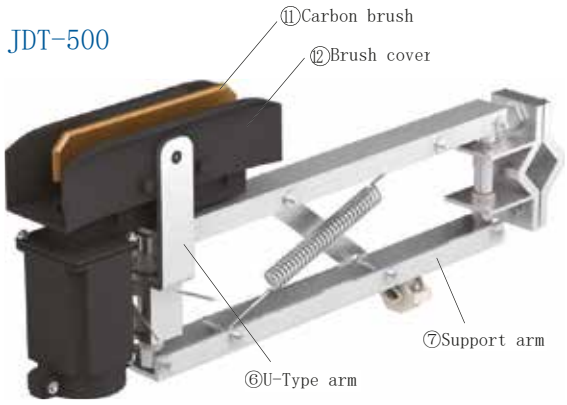
## H32TS-147



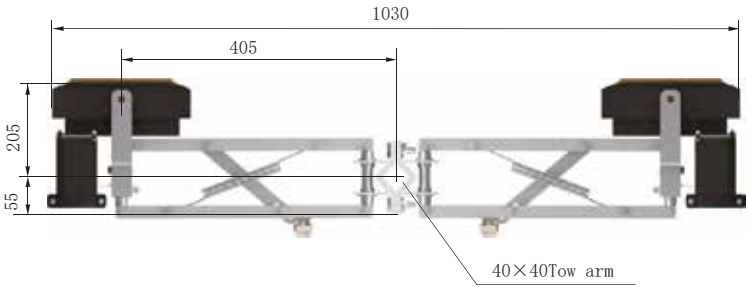

| Name | Type | Weight kg | Material | Cat.-No. | Remark |
|---|---|---|---|---|---|
| Carbon brush | H32TS-147 | 0.27 | Copper-graphite brush | 323101 | ① |
| Brush cover | H32HT-1 | 0.18 | Plastic | 323102 | ② |
| Brush clamp | H32HB-1 | 0.025 | Plastic | 323103 | ③ |
| U-Type arm | H32UA-1 | 0.15 | Steel | 323104 | ④ |
| Support arm | H32SA-1 | 1.20 | Steel | 323105 | ⑤ |
| U-Type arm | H32UA-2 | 0.20 | Steel | 323106 | ⑥ |
| Support arm | H32SA-2 | 1.60 | Steel | 323107 | ⑦ |
| Carbon brush assembly | H32TB-1 | 0.57 | Plastic &Carbon brush & Copper clamp | 323108 | ① +② + ③ + Copper clamp |

## Current Collector

### JDT-500




### JDT*2-500

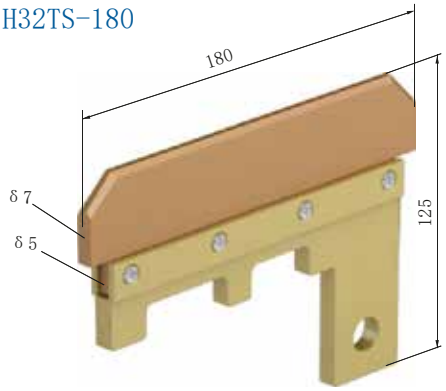



| Type | Weight kg | Hardware | Nominal current | Cat.-No |
|---|---|---|---|---|
| JDT-500 | 3.05 | Aluminum | 500Amp | 323150 |
| JDT*2-500 | 6.01 | Aluminum | 1000Amp | 323160 |



## Carbon brush & Spare parts of Collector

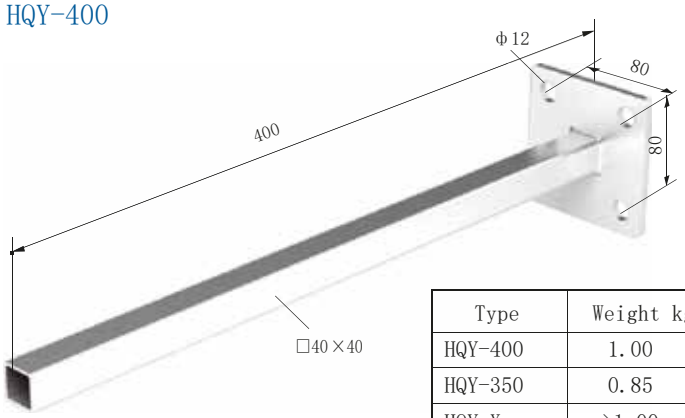
### H32TS-180




| Name | Type | Weight kg | Material | Cat-No. | Remark |
|---|---|---|---|---|---|
| Carbon brush | H32TS-180 | 0.73 | Copper-graphite brush | 323111 | ⑪ |
| Brush cover | H32HT-2 | 0.30 | Plastic | 323112 | ⑫ |
| Carbon brush assembly | H32TB-2 | 1.03 | Plastic &Carbon brush | 323118 | ⑪ +⑫ |

## Tow arm

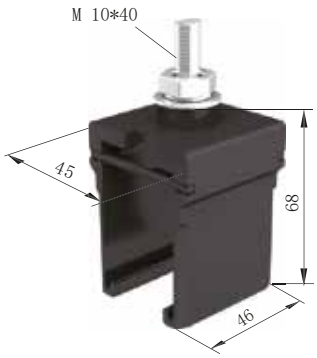
### HQY-400



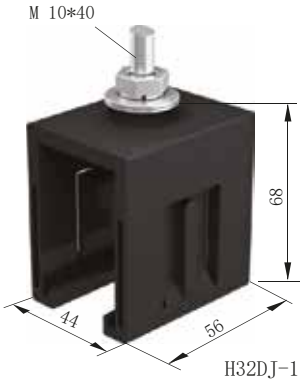

| Type | Weight kg | Material | Length(mm) | Cat.-No. | Remark |
|---|---|---|---|---|---|
| HQY-400 | 1.00 | Steel | 400 | 325040 | 4P |
| HQY-350 | 0.85 | Steel | 350 | 325035 | 3P |
| HQY-X | >1.00 | Steel | >400 | 325080 | - |

# Accessories for H32

## Hanger



H32DJ-2



H32DJ-1

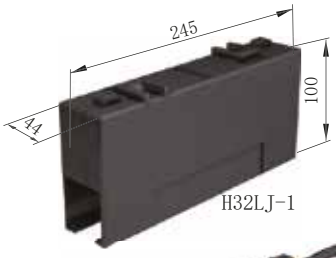
| Type | Weight kg | Material | Cat.-No. |
|---|---|---|---|
| H32DJ-1 | 0.075 | Plastic | 323901 |
| H32DJ-2 | 0.085 | Plastic | 323902 |
| H32DJ-5* | 0.088 | Polyseter | 323905 |

*Be used for high temperature.

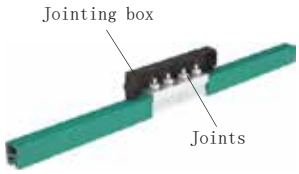
## Jointing box

| Type | Weight kg | Material | Cat.-No. |
|---|---|---|---|
| H32LJ-1 | 0.21 | Plastic | 323401 |
| H32LJ-5* | 0.23 | Polyseter | 323405 |

* Be used for high temperature.



H32LJ-1



ready installed

## Joints

Every joint could be use for feeding joint.

| Type | Weight kg | Material | Cat.-No. |
|---|---|---|---|
| H32JT-500A | 0.32 | Aluminium | 323422 |
| H32JT-800A | 0.41 | Copper | 323423 |
| H32JT-1000A | 0.40 | Aluminium | 323425 |
| H32JT-1250A | 0.66 | Copper | 323427 |
| H32JT-1600A | 0.82 | Copper | 323429 |


Line feeding

Aluminium joint

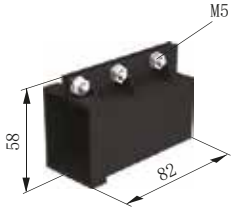



Copper joint




## End cap

| Type | Weight kg | Material | Cat.-No. |
|---|---|---|---|
| H32DM | 0.04 | Plastic | 323701 |

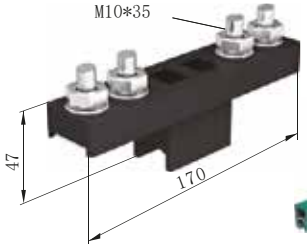




ready installed

## Isolating Section

| Type | Weight kg | Material | Cat.-No. |
|---|---|---|---|
| H32FD | 0.13 | Plastic | 326030 |



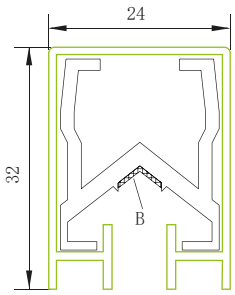


ready installed

# Parts of the concuctor rail system

## H24 System

Scale 1 :1




Aluminium conductor

Stainless steel belt

B = 8.5 mm

Standard Length:6.0 m

other lengths on request.

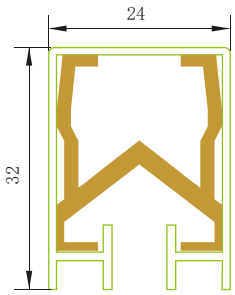
Support spacing:1.5 m

Curves

min. R=1.2m

| Type | Conductor material | Cross section ($mm^2$) | Nominal current (A) | Leakage-distance (mm) | Resistance (Ω/km) | Weight kg | Cat.-No. |
|---|---|---|---|---|---|---|---|
| CMB-H-160/250 | Aluminium | 160 | 250 | 45 or 8( | 0.203 | 0.63 | 240126 |
| CMB-H-180/300 | Aluminium | 180 | 300 | 45 or 8( | 0.187 | 0.71 | 240136 |

Scale 1 :1




Copper conductor

Standard Length:6.0 m

Support spacing:1.5 m

other lengths on request.

| Type | Conductor material | Cross sectic ($mm^2$) | Nominal current (A) | Leakage-distance (mm) | Resistance (Ω/km) | Weight kg | Cat.-No. |
|---|---|---|---|---|---|---|---|
| CMB-HT-160/500 | Copper | 160 | 500 | 45 or 8( | 0.112 | 1.68 | 240256 |
| CMB-HT-180/600 | Copper | 180 | 600 | 45 or 8( | 0.098 | 1.86 | 240266 |
| CMB-HT-200/700 | Copper | 200 | 700 | 45 or 8( | 0.087 | 2.04 | 240276 |
| CMB-HT-230/800 | Copper | 230 | 800 | 45 or 8( | 0.076 | 2.30 | 240286 |

**The neutral insulation cover is marked yellow-green on one side.**

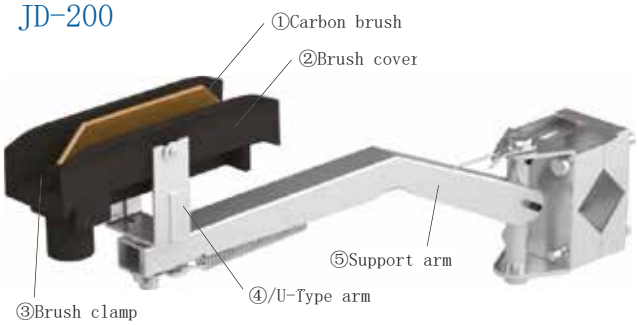
Standard insulation suitable from -20℃ to +70℃ ambient

High temperature insulation suitable fr 10℃ to +115℃ ambient temperature

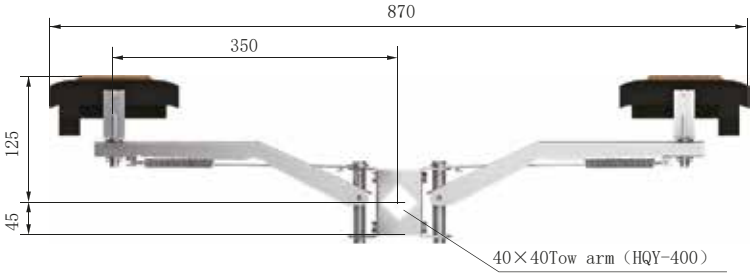
Low temperature insulation suitable from -40℃ to +85℃ ambient tempe

# Current Collector

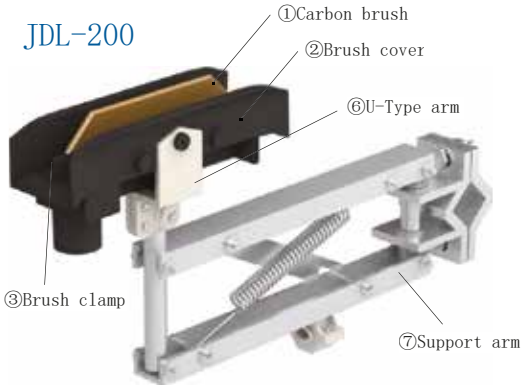
## JD-200



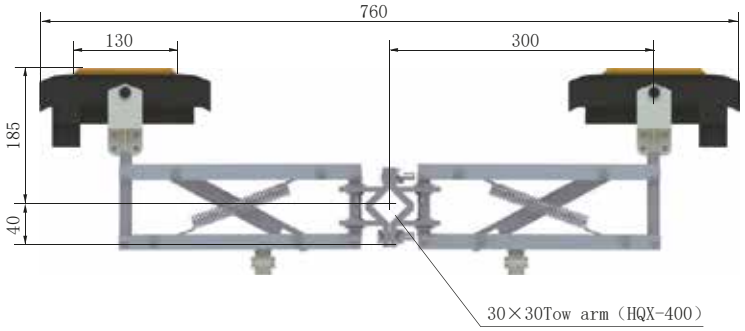

## JD*2-200




## JDL-200



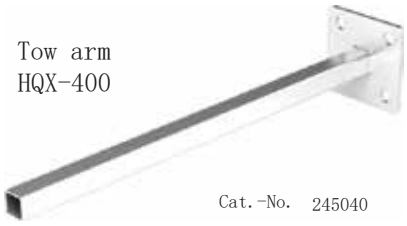

## JDL*2-200




Be uesd for Conductor rail H24 System

| Type | Weight kg | Hardware | Nominal current | Cat.-No. |
|---|---|---|---|---|
| JD-200 | 1.45 | Galvanized | 200Amp | 243110 |
| JD*2-200 | 2.72 | Galvanized | 400Amp | 243120 |
| JDL-200 | 1.18 | Aluminum | 200Amp | 243130 |
| JDL*2-200 | 2.25 | Aluminum | 400Amp | 243140 |

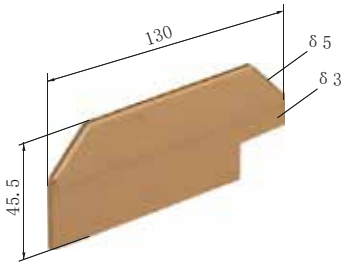
Tow arm
HQX-400



Cat.-No. 245040

## Carbon brush & Spare parts of Collector

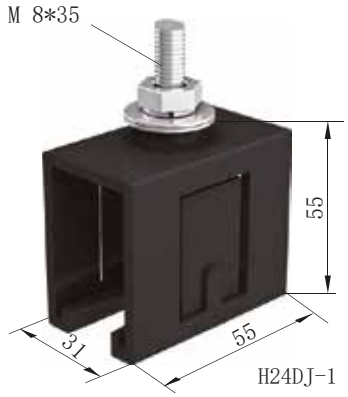
### H24TS-130




| Name | Type | Weight kg | Material | Cat.-No. | Remark |
|---|---|---|---|---|---|
| Carbon brush | H24TS-130 | 0.12 | Copper-graphite brush | 243101 | ① |
| Brush cover | H24HT-1 | 0.09 | Plastic | 243102 | ② |
| Brush clamp | H24HB-1 | 0.015 | Plastic | 243103 | ③ |
| U-Type arm | H24UA-1 | 0.095 | Steel | 243104 | ④ |
| Support arm | H32SA-1 | 1.20 | Steel | 323105 | ⑤ |
| U-Type arm | H24UA-2 | 0.13 | Steel | 243106 | ⑥ |
| Support arm | H32SA-2 | 1.10 | Steel | 323107 | ⑦ |
| Carbon brush assembly | H24TB-1 | 0.30 | Plastic & Carbon brush & Copper clamp | 243108 | ① +② + ③ + Copper clamp |

## Accessories for H24

### Hanger







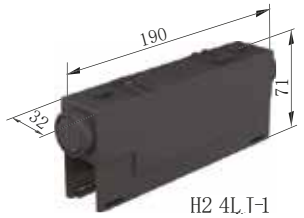
| Type | Weight kg | Material | Cat.-No. |
|---|---|---|---|
| H24DJ-1 | 0.05 | Plastic | 243901 |
| H24DJ-2 | 0.04 | Plastic | 243902 |
| H24DJ-5* | 0.05 | Polyseter | 243905 |

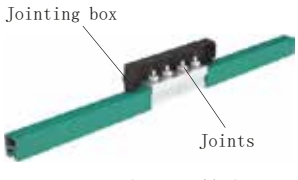
*Be used for high temperature.

### Jointing box

| Type | Weight kg | Material | Cat.-No. |
|---|---|---|---|
| H24LJ-1 | 0.12 | Plastic | 243401 |
| H24LJ-5* | 0.13 | Polyseter | 243405 |

*Be used for high temperature.

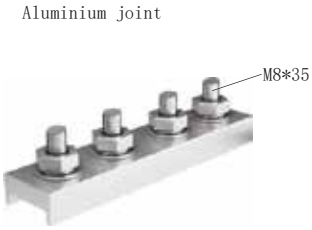



### Joints

Every joint could be use for feeding joint.

| Type | Weight kg | Material | Cat.-No. |
|---|---|---|---|
| H24JT-250A | 0.15 | Aluminium | 243425 |
| H24JT-500A | 0.23 | Copper | 243426 |
| H24JT-800A | 0.31 | Copper | 243428 |

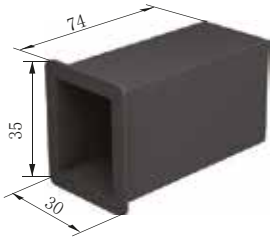






### End cap

| Type | Weight kg | Material | Cat.-No. |
|---|---|---|---|
| H24DM | 0.02 | Plastic | 243701 |

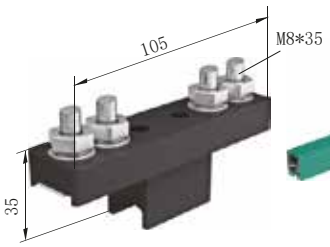


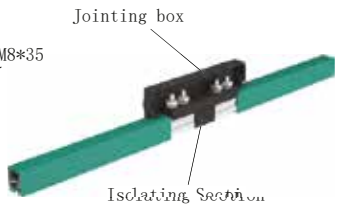




### Isolating Section

| Type | Weight kg | Material | Cat.-No. |
|---|---|---|---|
| H24FD | 0.07 | Plastic | 246030 |




CMB

CERESTECH

CMB

## Expansion joint



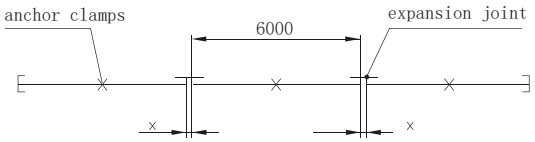
| Type | Conductor material | Cat.-No. |
|---|---|---|
| H19PZJ-Al | Al | 193501 |
| H19PZJ-Cu | Cu | 193502 |
| H24PZJ-Al | Al | 243501 |
| H24PZJ-Cu | Cu | 243502 |
| H32PZJ-Al | Al | 323501 |
| H32PZJ-Cu | Cu | 323502 |
| H52PZJ-Al | Al | 393501 |
| H52PZJ-Cu | Cu | 393502 |

## Solution about expansion section

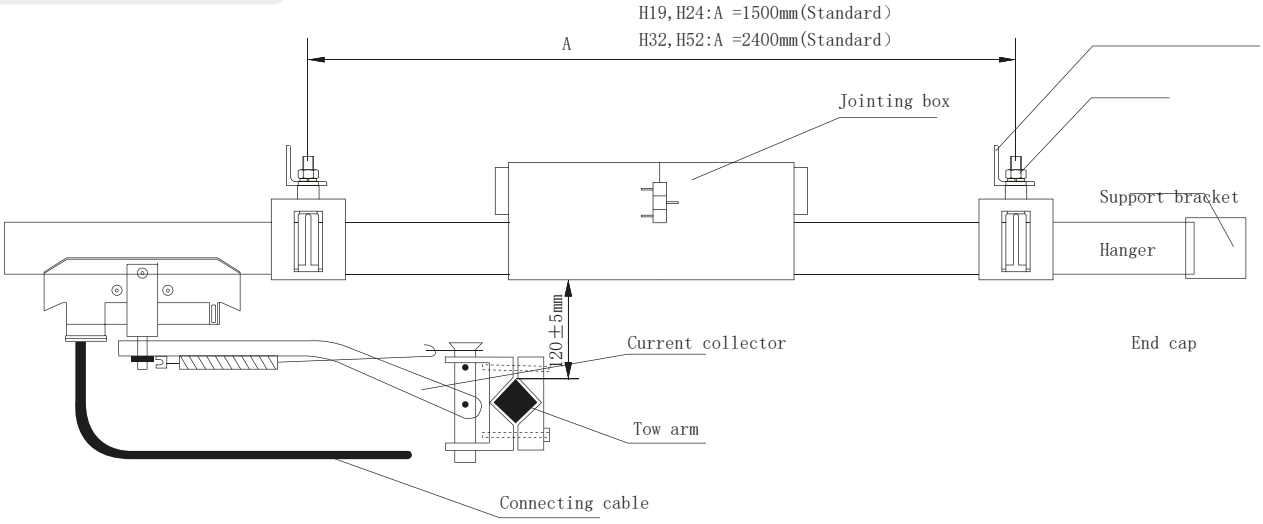
Installatiorint

The expansion joint section is supplied fully bassemin a 6 m length(H19 4.5 m length).With the exception of the rail conneinstallation no e: work is required on site.Please note,however,thatthe two air gaps in t eapansion joint must be adjusted as pen diagram drresponding to th ambiet temperature during assembly.The air gaps mus be rechecked aft fitting the anchor clam

Both air gaps in an expansion joint must be idel




## System arrangement



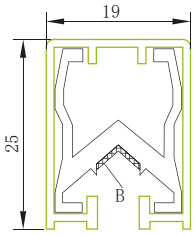

Installation Manual:

1. Support Installion:Fix the two supports of both ends of the track(welding or bolt) and adjust the horizontal state(add 1 or 2 points to meet the length of the wiring route).Take the wire between the two supports as the benchmark,the rest supports should be installed according to the standard distance(1800 mm for bolt and 2000 mm for welding), to ensure the depth of parallelism of the conductor rail between the height of the track less than 10 mm.
2. The connection part of the conductor and the connector should be polished with abrasive cloth to remove the oxide layer,apply the electrical conductive pastes and screw the bolt,double check if the seam of the guides is in minimum
3. The installation of the current collector: Determine the length of the tow arm unit according to the spof electrode and installation space. 120±5mm distance should be ensured in distance between the upper end and down end of the conductor rail(refer to the installation drawing of the conductor rail for more details)
4. End cap: Install the end caps on both sides and tighten them with rubberized fabric.
5. Inspection: Inspect the depth of parallelism between the conductor rail and operation track of the sliding unit and control the depth within 20mm, make a test run and check the running state of the flake passing through each joint,tighten all the fastening piece if some problems occurs,dry run one month without interval and tighten all fastening pieces again.

# Parts of the concuctor rail system

## H19 System

Scale 1 :1




Aluminium conductor

Stainless steel belt
B = 7.2 mm

### Length
Standard Length:4.5 m,other lengths on quest.

### Support spacing :1.5 m*

### Curves
min.R=0.8m

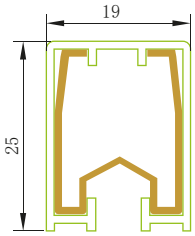
Main application:for overhead and elongated tracks for cranes, monorails, electric hoists, electrics tacking systems, as well as many other applications for supplying power to moving power loads.

*For producting line,the support spacing is 0.5 m -0.8 m

CMB

| Type | Conductor material | Cross section (mm ²) | Nominal current (A) | Leakage-distance (mm) | Resistance (Ω/km) | Weight kg | Cat.-No. |
|---|---|---|---|---|---|---|---|
| CMB-H-100/150 | Aluminium | 100 | 150 | 35 or 80 | 0.376 | 0.46 | 190135 |

Scale 1 :1




Copper conductor

Standard Length:4.5 m,other lengths on quest.

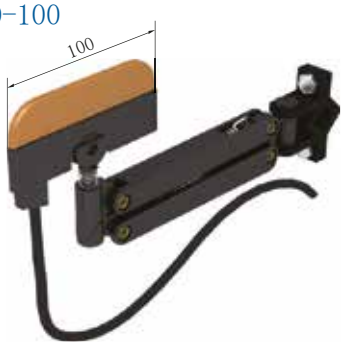
| Type | Conductor material | Cross section (mm ²) | Nominal current (A) | Leakage-distance (mm) | Resistance (Ω/km) | Weight kg | Cat.-No. |
|---|---|---|---|---|---|---|---|
| CMB-HT-50/150 | Copper | 50 | 150 | 35 or 80 | 0.376 | 0.63 | 190255 |
| CMB-HT-65/200 | Copper | 65 | 200 | 35 or 80 | 0.289 | 0.75 | 190265 |
| CMB-HT-110/300 | Copper | 110 | 300 | 35 or 80 | 0.195 | 1.15 | 190275 |
| CMB-HT-130/500 | Copper | 130 | 500 | 35 or 80 | 0.156 | 1.33 | 190285 |

The neutral insulation cover is marked yellow-green on one side.
Standard insulation suitable from -20℃ to +70℃ ambient temperature.
High temperature insulation suitable from -10℃ to +115℃ ambient temperature.
Low temperature insulation suitable from -40℃ to +85℃ ambient temperature.

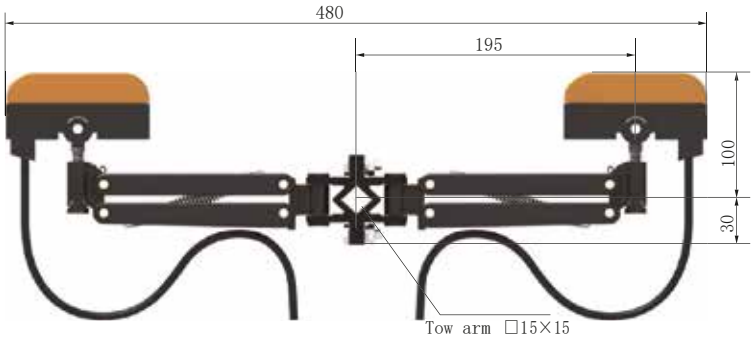
# Current Collector



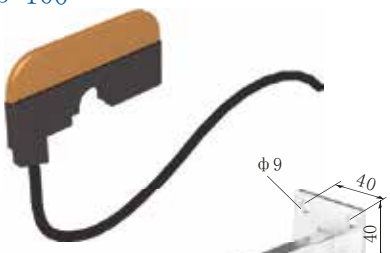
## JD-100




## JD*2-100




## JDS-100



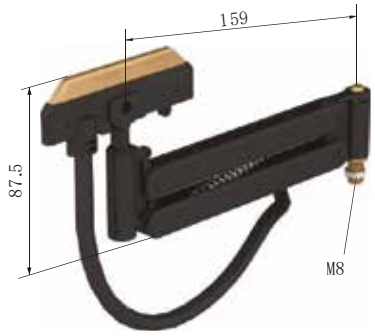

## HQS-350



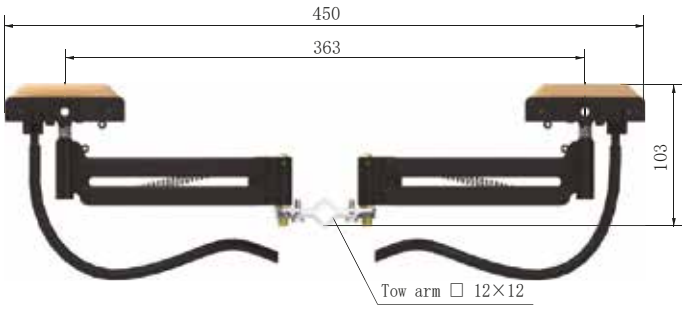
| Type | Weight kg | Hardware | Nominal current | Cat.-No. |
|---|---|---|---|---|
| JD-100 | 0.25 | Plastic | 100Amp | 193110 |
| JD*2-100 | 0.49 | Plastic | 200Amp | 193120 |

| Name | Type | Weight kg | Material | Cat.-No. |
|---|---|---|---|---|
| Carbon brush | H19TS-2 | 0.10 | Plastic & Carbon brush | 193102 |
| Tow arm | HQS-350 | 0.45 | Steel | 195035 |

## JDS-100




## JDS*2-100




| Type | Weight kg | Hardware | Nominal current | Cat.-No. |
|---|---|---|---|---|
| JDS-100 | 0.17 | Plastic | 100Amp | 193130 |
| JDS*2-100 | 0.34 | Plastic | 200Amp | 193140 |

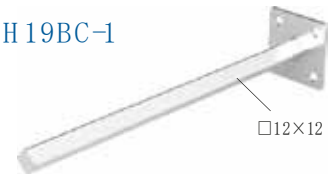
## H19TS-1




## H19TB-1



## H19BC-1

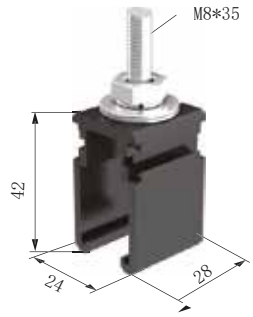



| Name | Type | Weight kg | Material | Cat.-No. |
|---|---|---|---|---|
| Carbon brush | H19TS-1 | 0.075 | Plastic & Carbon brush | 193101 |
| Towing bracket | H19TB-1 | 0.055 | Steel | 195001 |
| Tow arm | H19BC-1 | 0.25 | Steel | 195050 |

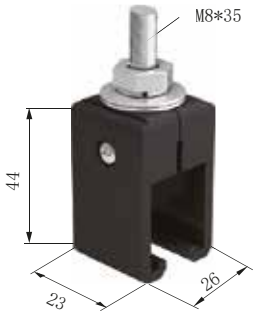
# Accessories for H19

## Single-Pole hanger

H19DJ-2



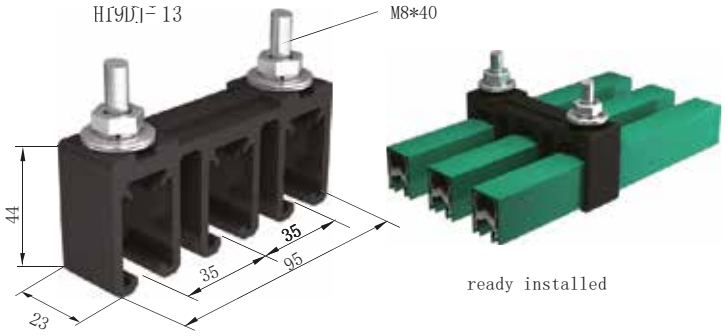

H19DJ-1




| Type | Weight kg | Material | Cat.-No. |
|---|---|---|---|
| H19DJ-1 | 0.043 | Plastic | 193901 |
| H19DJ-2 | 0.035 | Plastic | 193902 |
| H19DJ-5* | 0.043 | Polyseter | 193905 |

## Three-Pole hanger

H19DJ-13



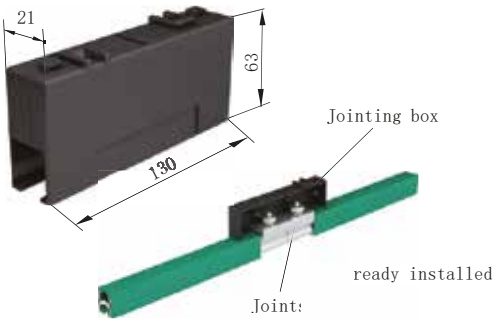

| Type | Weight kg | Material | Cat.-No. |
|---|---|---|---|
| H19DJ-13 | 0.088 | Plastic | 193913 |
| H19DJ-35* | 0.092 | Polyseter | 193915 |

*Be used for high temperature.

## Jointing box

| Type | Weight kg | Material | Cat.-No. |
|---|---|---|---|
| H19LJ-1 | 0.078 | Plastic | 193401 |
| H19LJ-5* | 0.083 | Polyseter | 193405 |

* Be used for high temperature.

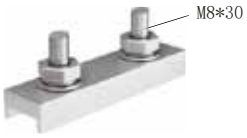



## Joints

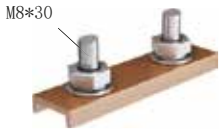
Every joint could be use for feeding joint.

| Type | Weight kg | Material | Cat.-No. |
|---|---|---|---|
| H19JT-150A | 0.071 | Aluminium | 193423 |
| H19JT-200A | 0.085 | Copper | 193425 |
| H19JT-300A | 0.092 | Copper | 193426 |
| H19JT-500A | 0.119 | Copper | 193427 |

Aluminium joint

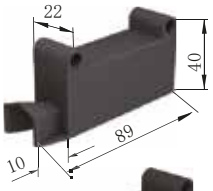


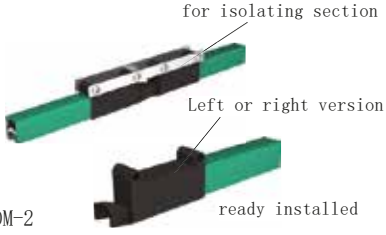

Copper joint

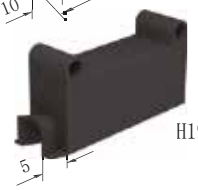



## End cap

It could be used for switch or isolating section.

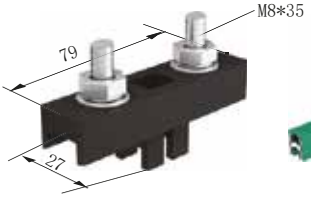


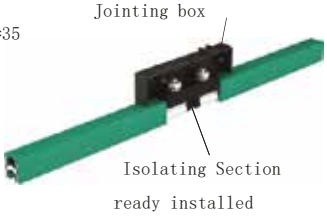




| Type | Weight kg | Material | Cat.-No. |
|---|---|---|---|
| H19DM-1 | 0.020 | Plastic | 193701 |
| H19DM-2 | 0.019 | Plastic | 193702 |

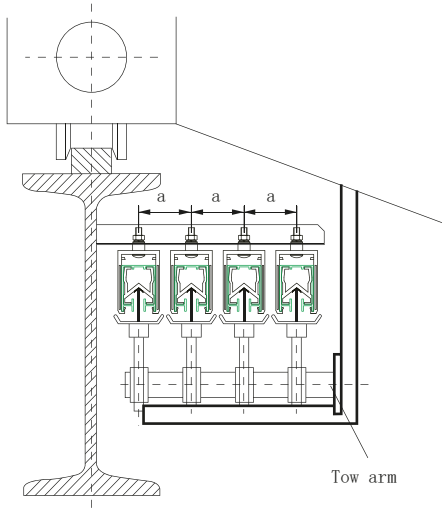
## Isolating Section



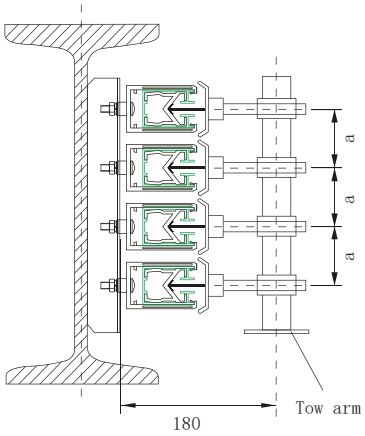




| Type | Weight kg | Material | Cat.-No. |
|---|---|---|---|
| H19FD | 0.063 | Plastic | 196030 |

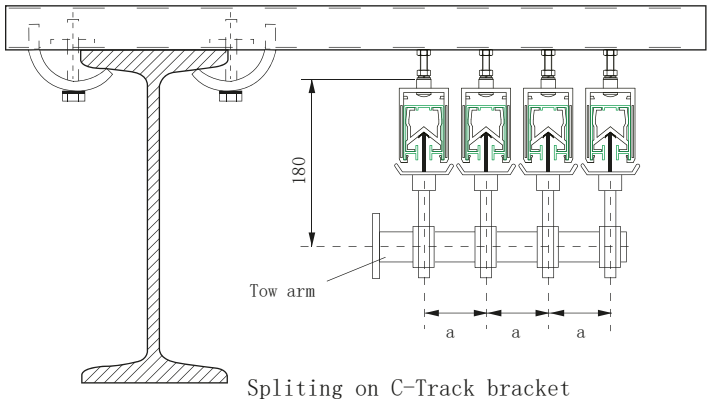
## System arrangement



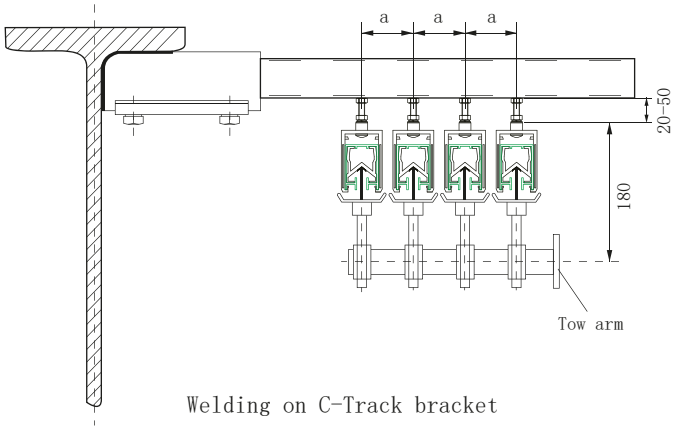

Vertical operation of powerail(welding on Angle steel bracket)



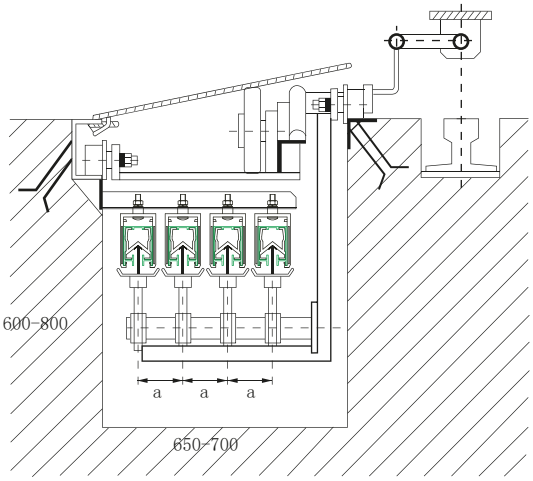

Horizontal operation of powerail(welding on Angle steel bracket)




Spliting on C-Track bracket




Welding on C-Track bracket




Trench installation

Standard spacing of current collector(a)

| Type | Centre distance between two conductor rail a(mm) |
|---|---|
| H19 | 35 or 80 |
| H24 | 45 or 80 |
| H32 | 80 |
| H35 | 80 |
| H52 | 100 |

Support bracket

| Type | Poles | Schematic | Materail | Cat.-No. |
|---|---|---|---|---|
| HZJ-31 | 3 | | Angle steel | 320001 |
| HZJ-41 | 4 | | Angle steel | 320002 |
| HZJ-32 | 3 | | Flat steel | 320011 |
| HZJ-42 | 4 | | Flat steel | 320012 |
| HZJ-C | 3-4 | | C-Track | 320021 |