

General technical information

Conversion Table of Horse Power

Full Load Current Table of 3 Phase Alternating

| H.P | 110V | 220V | 440V | 550V | 2300V |
|-------|------|------|------|------|-------|
| 1/2 | 4 | 2 | 1 | 0.8 | |
| 3/4 | 5.6 | 2.8 | 1.4 | 1.1 | |
| 1 | 7 | 3.5 | 1.8 | 1.4 | |
| 1 1/2 | 10 | 5 | 2.5 | 2.0 | |
| 2 | 13 | 6.5 | 3.3 | 2.6 | |
| 3 | | 9 | 4.5 | 4 | |
| 5 | | 15 | 7.5 | 6 | |
| 7 1/2 | | 22 | 11 | 9 | |
| 10 | | 27 | 14 | 11 | |
| 15 | | 40 | 20 | 16 | |
| 20 | | 52 | 26 | 21 | |
| 25 | | 64 | 32 | 26 | 7 |
| 30 | | 78 | 39 | 31 | 8.5 |
| 40 | | 104 | 52 | 41 | 10.5 |
| 50 | | 125 | 63 | 50 | 13 |
| 60 | | 150 | 75 | 60 | 16 |
| 75 | | 180 | 93 | 74 | 19 |
| 100 | | 246 | 123 | 98 | 25 |
| 125 | | 310 | 155 | 124 | 31 |
| 150 | | 360 | 180 | 144 | 37 |
| 200 | | 480 | 240 | 192 | 48 |

Check the steps below first to select the correct current (Ampere) of safety power rails and current collector :

1. Calculate the total motor's Horse Power(H.P) required.(ex.10H.P)
2. Make sure the rated voltage(A.C).(ex.220V)
3. Get the current data by checking the above conversion table.(ex.27 Ampere)

Safety Current Table of Conductor Wire Assembling

The safety current of safety power rails would perhaps be affected if the circuit temperature is over 35°C

| Copper Conductor Wire | | | 60°C Insulator | 75°C Insulator | 80°C Insulator | 90°C Insulator |
|-------------------------------|---------------------------|-------------------------------|--------------------|-------------------|-------------------|-------------------|
| Category of Conductor Wire | Dimension mm ² | No. of Wire/Diameter mm | Ampere Capacity(A) | | | |
| Single Wire | | 1.6 | 20 | | | |
| | | 2.0 | 30 | | | |
| | | 2.6 | 40 | | | |
| Strand Wire | 2.0 | 7/0.6 | 20 | | | |
| | 3.5 | 7/0.8 | 20 | | | |
| | 5.5 | 7/1.0 | 40 | | | |
| | 8 | 7/1.2 | 55 | 65 | 70 | 80 |
| | 14 | 7/1.6 | 80 | 95 | 100 | 110 |
| | 22 | 7/2.0 | 100 | 125 | 135 | 145 |
| | 30 | 7/2.3 | 125 | 150 | 160 | 170 |
| | 38 | 7/2.6 | 145 | 180 | 190 | 205 |
| | 50 | 19/1.8 | 175 | 210 | 220 | 245 |
| | 60 | 19/2.0 | 200 | 240 | 250 | 280 |
| | 80 | 19/2.3 | 230 | 285 | 300 | 330 |
| | 100 | 19/2.6 | 270 | 330 | 350 | 38 |
| | 125 | 19/2.9 | 310 | 380 | 400 | 440 |
| | 150 | 37/2.3 | 360 | 440 | 460 | 505 |
| | 200 | 37/2.6 | 425 | 520 | 550 | 600 |
| | 250 | 61/2.3 | 505 | 615 | 650 | 710 |
| 325 | 61/2.6 | 590 | 720 | 760 | 830 | |
| 400 | 61/2.9 | 680 | 825 | 870 | 955 | |
| 500 | 61/3.2 | 765 | 930 | 985 | 1080 | |

Horse power = total kws/0.75; A = Horse Power×3; (on the assumption 220V)

Total current [A.] ×1.25=proper current

According to the ampere quantity, choose the type of safety power rail:

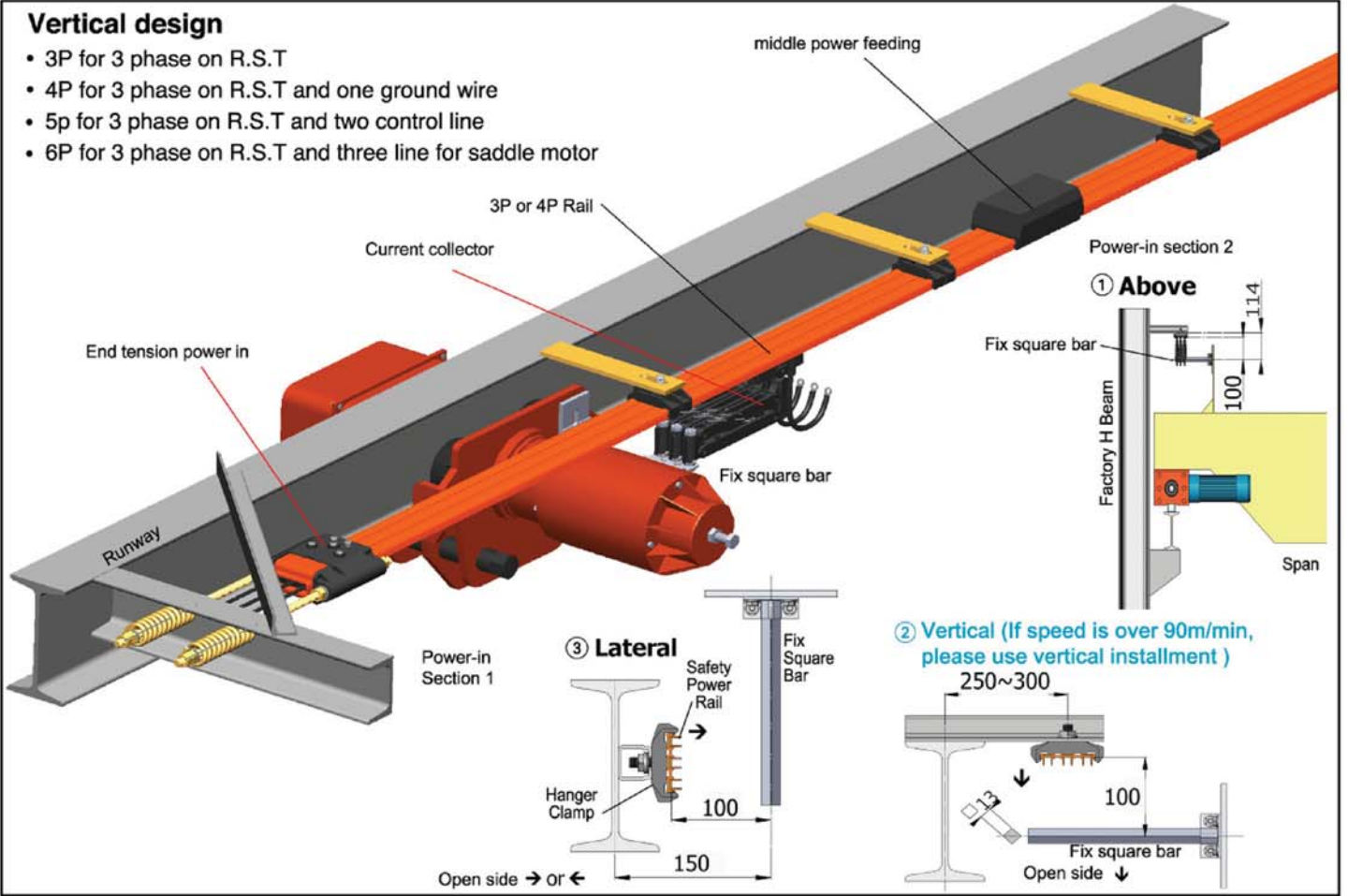
90A -200A: 3-6P safety power rail

150A: I type safety power rail

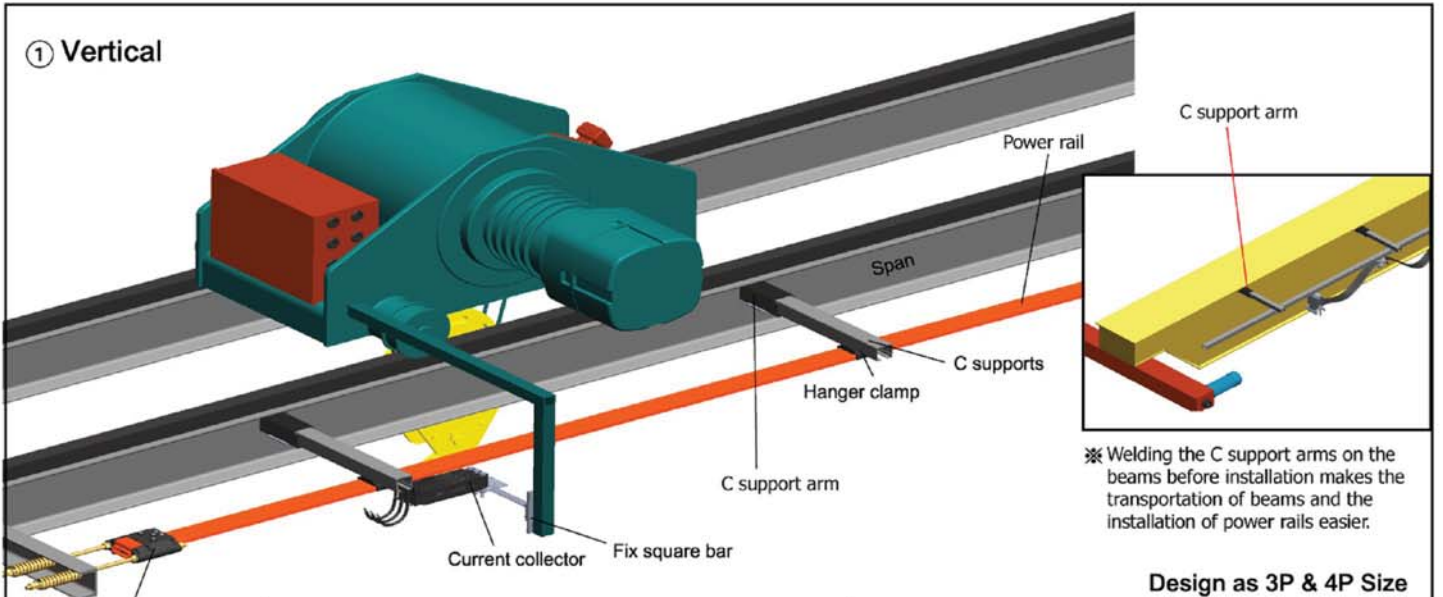
120A 320A 500A 800A: W type safety power rail

Vertical design

- 3P for 3 phase on R.S.T
- 4P for 3 phase on R.S.T and one ground wire
- 5p for 3 phase on R.S.T and two control line
- 6P for 3 phase on R.S.T and three line for saddle motor

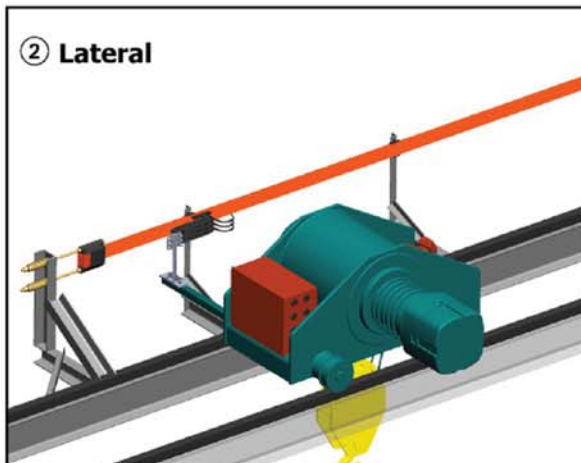


① Vertical

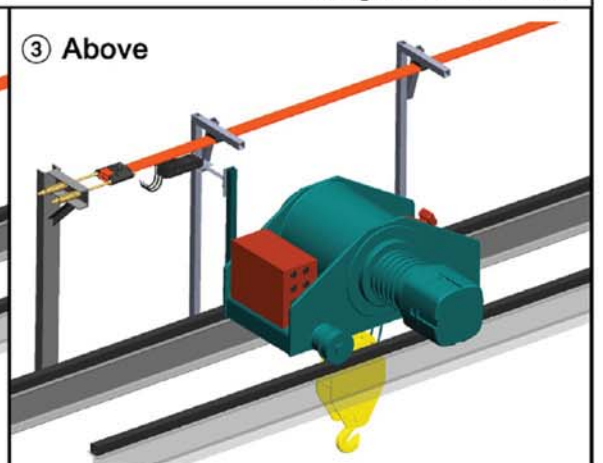


Design as 3P & 4P Size

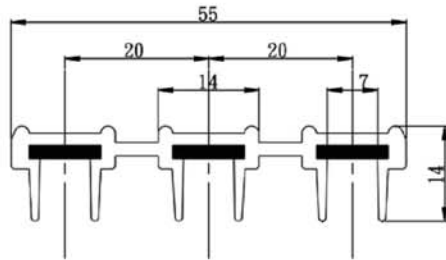
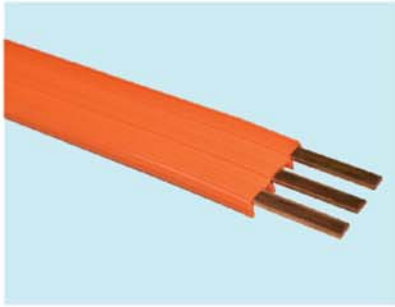
② Lateral



③ Above

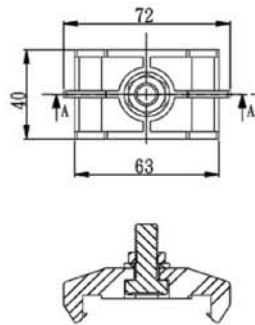


3P Safety power rail

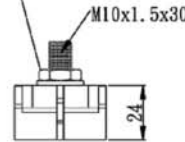


OFC 3N(99.9% ,good conductivity)

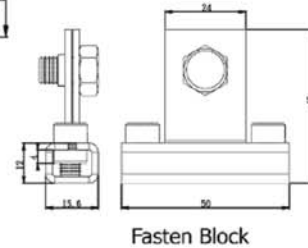
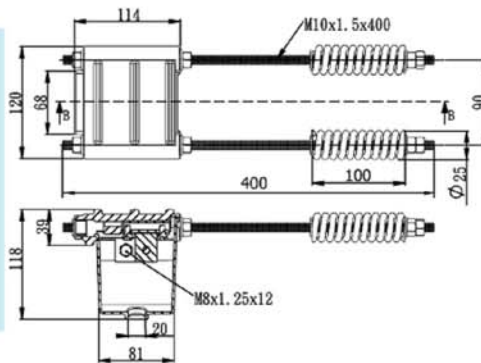
| 3P (Phase) Safety Power Rail | | | | |
|------------------------------|--------------|----------------|------------|---------------|
| Type | Capacity (A) | Thickness (mm) | Width (mm) | Weight (Kg/m) |
| KY-AN3007 | 75 | 2 | 10 | 0.8 |
| KY-AN3010 | 100 | 2.8 | 10 | 1.03 |
| KY-AN3015 | 150 | 3 | 10 | 1.14 |



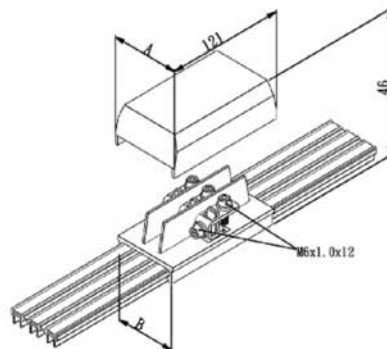
Use with C Track Support and C Plate M10 Nut 30×20×5'



KY-AN3100
3P Hanger Clamp
0.075 kg / pc

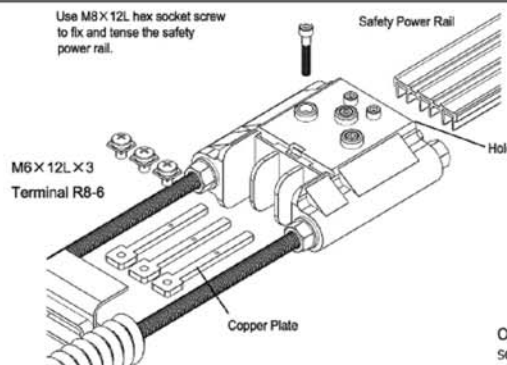


KY-AN3200
3P End Tension & Power in
1.73 kg / pc



| Type | Size | A | B |
|------|------|-----|-----|
| 3P | | 70 | 62 |
| 4P | | 90 | 82 |
| 6P | | 130 | 122 |

KY-AN3300
3P Middle Power Feed-in
0.21 kg / pc



1. Insert safety power rail into the hole
2. Use M8×12L hex socket screw to fix and tense the safety power rail. (only two and half cycle needed when screw meet the safety power rail)
3. Power lines fixed with terminals, and fasten the copper power plate.

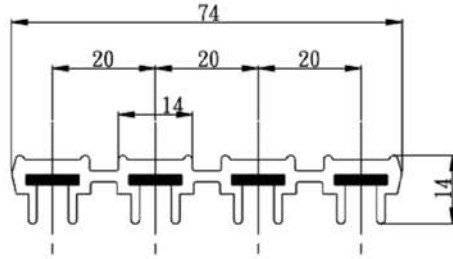
Power rail PVC peel free!

KY-AN3200N
3P End Tension & Power in

Only two and half cycle needed when screw meet safety power rail.

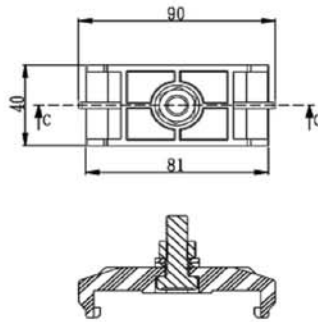
1.5 kg / pc

4P Safety power rail

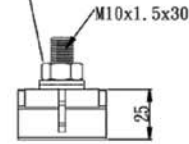


OFC 3N (99.9% ,good conductivity)

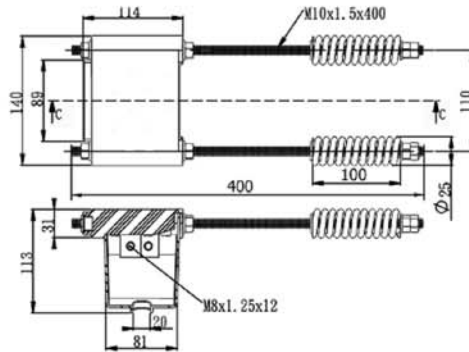
| 4P (Phase) Safety Power Rail | | | | |
|------------------------------|--------------|----------------|------------|---------------|
| Type | Capacity (A) | Thickness (mm) | Width (mm) | Weight (Kg/m) |
| KY-AN4007 | 75 | 2 | 10 | 1.1 |
| KY-AN4010 | 100 | 2.8 | 10 | 1.4 |



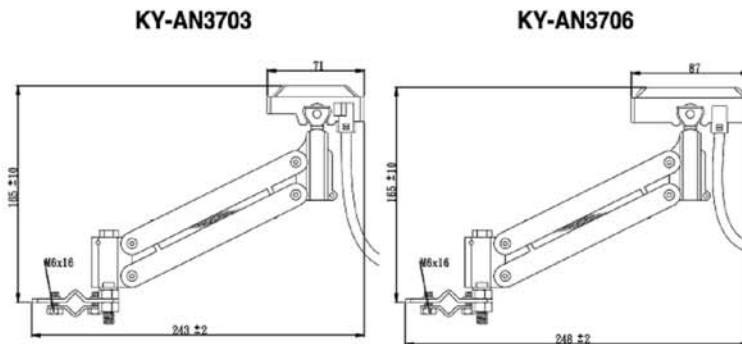
Use with C Track Support and C Plate M10 Nut 30×20×5!



KY-AN4100
4P Hanger Clamp
0.083 kg / pc

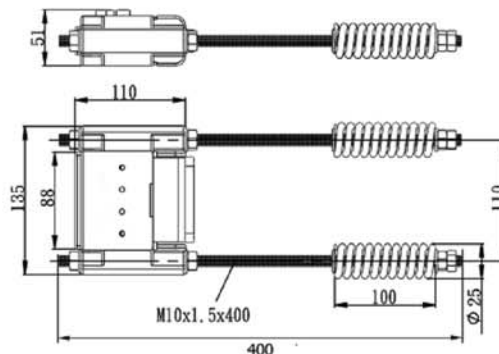


KY-AN4200
End Tension & Power in
1.74 kg / pc



KY-AN3703
30A Current Collector
0.24 kg / pc

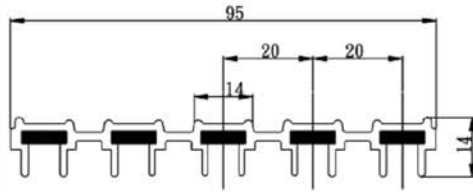
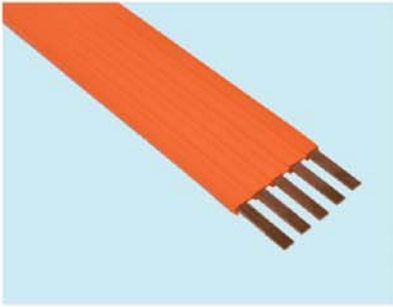
KY-AN3706
60A Current Collector
0.27 kg / pc



Power rail PVC peel free!

KY-AN4200N
End Tension & Power in
1.28 kg / pc

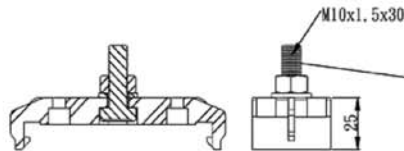
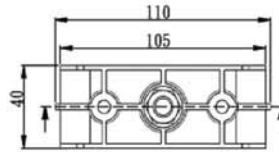
5P Safety power rail



OFC 3N(99.9% ,good conductivity)
 Conductor Cross Section: $2.8t \times 10w=28mm^2$

| 5P (Phase) Safety Power Rail | | | | |
|------------------------------|--------------|----------------|------------|---------------|
| Type | Capacity (A) | Thickness (mm) | Width (mm) | Weight (Kg/m) |
| KY-AN5009 | 100 | 2.8 | 10 | 1.7 |

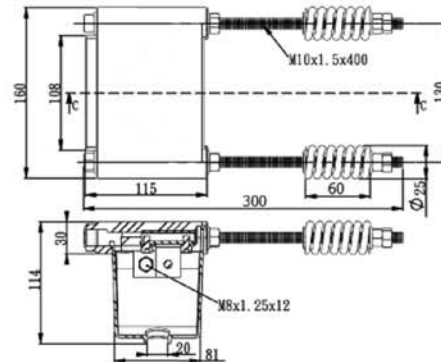
5P power rails use the same middle tension as 6P.



Use with C Track Support
 and C Plate M10 Nut
 $30 \times 20 \times 5^t$

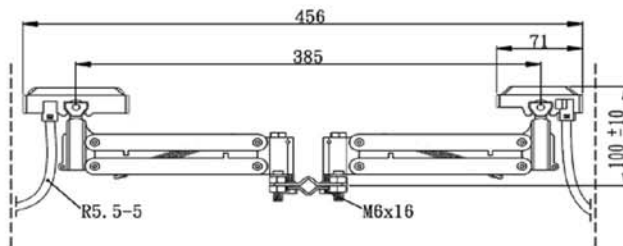
KY-AN5100
 Hanger Clamp

0.09 kg / pc

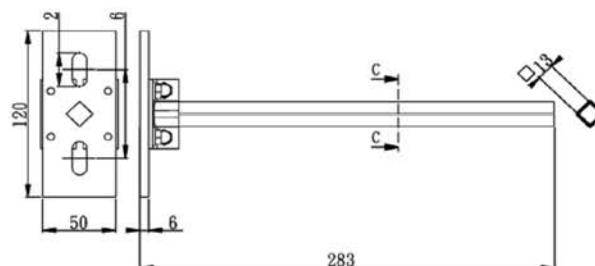


KY-AN5200
 5P Middle Tension
 & Power in

1.75 kg / pc



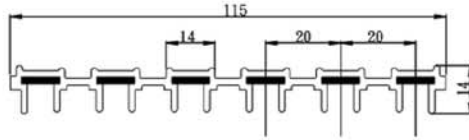
Made to Order
 Twin Current
 Collector



KY-AN3800
 Fix Square Bar

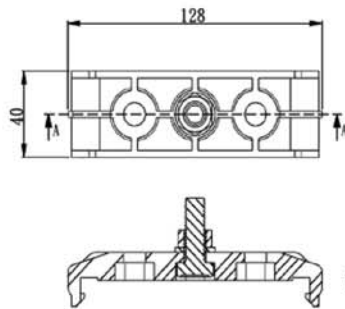
0.7 kg / pc

6P Safety power rail

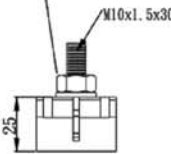


OFC 3N (99.9%, good conductivity)

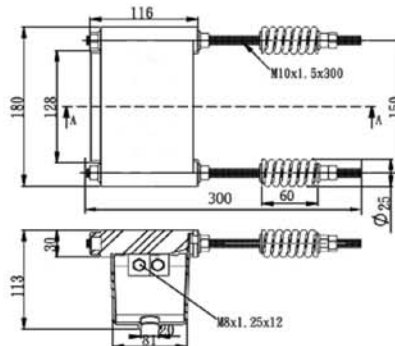
| 6P (Phase) Safety Power Rail | | | | |
|------------------------------|--------------|----------------|------------|---------------|
| Type | Capacity (A) | Thickness (mm) | Width (mm) | Weight (Kg/m) |
| KY-AN6007 | 75 | 2 | 10 | 1.64 |
| KY-AN6010 | 100 | 2.8 | 10 | 2.06 |



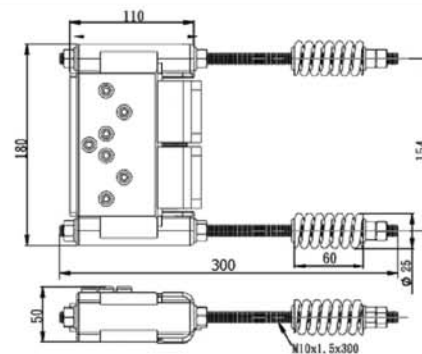
Use with C Track Support and C Plate M10 Nut 30x20x5



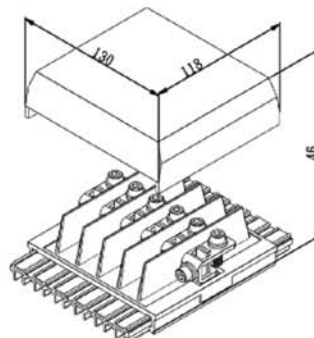
KY-AN6100
6P Hanger Clamp
0.1 kg / pc



KY-AN6200
6P End Tension & Power in
1.9 kg / pc

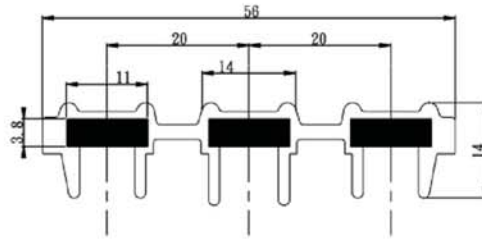


Power rail PVC peel free!
KY-AN6200N
6P End Tension & Power in
1.9 kg / pc



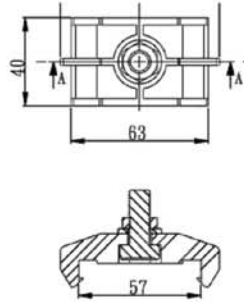
KY-AN6300
6P Middle Tension & Power in
0.38 kg / pc

3P 200A Parts Diagram

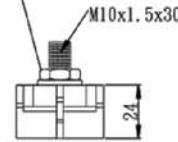


OFC 3N (99.9%, good conductivity)
Conductor Cross Section: 3.8*11w=41.8mm²

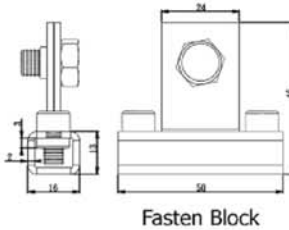
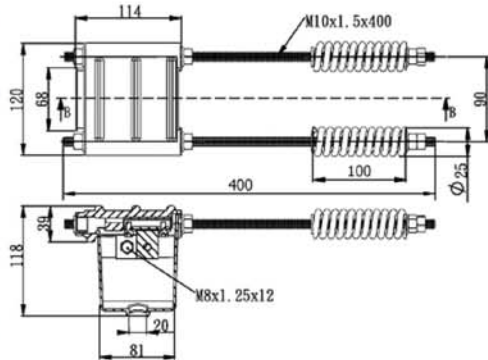
| 3P(Phase)Safety Power Rail | | |
|----------------------------|----------|------|
| Type | Standard | kg/m |
| KY-AN3020 | 200 Amp | 1.42 |



Use with C Track Support
and C Plate M10 Nut
30×20×5^t



| |
|------------------------|
| KY-AN3120 |
| 3P Hanger Clamp |
| 0.075 kg / pc |



| |
|--------------------------------------|
| KY-AN3220 |
| 3P End Tension & Power in |
| 1.75 kg / pc |

KYEC Safety Power Rail Test Result

| Test Type | Material | Resistance coefficient (R/M) | Durable Potential | Decay of Potential(V/M) | 220V/100m Decay Percentage | Temperature |
|-------------|--------------------------|------------------------------|-------------------|-------------------------|----------------------------|-------------|
| W type 800A | Aluminum | 0.000100 | 6KV×30min | 0.08 | 3.6% | 23 |
| W type 500A | Aluminum | 0.000107 | 6KV×30min | 0.054 | 2.5% | 23 |
| W type 320A | Aluminum & Copper | 0.000184 | 6KV×30min | 0.059 | 2.7% | 23 |
| 3P 100A | Copper | 0.000630 | 6KV×30min | 0.057 | 2.6% | 23 |
| 3P 100A | Copper & Stainless Steel | 0.000512 | 6KV×30min | 0.047 | 2.1% | 23 |
| 3P 75A | Copper | 0.000882 | 6KV×30min | 0.066 | 3.0% | 23 |

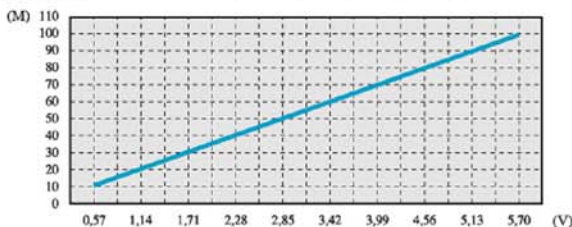
Assay Institute : Industrial Technology Research Institute

Assay instrument: **Brand & Model :** ESI 242D
KIKUSUI TOS-8700
TAMA-TDV-20ADS

Name of Instrument : PRECISION RES.MEASUREMENT SYSTEM
WITHAND ING VOLTAGE TESTER
HIGH VOLTAGE DIGITAL METER

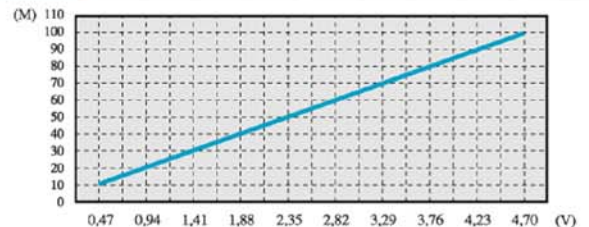
3P 100A (Copper)

| Length(M) | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
|-----------------------|------|------|------|------|------|------|------|------|------|------|
| Decay of Potential(V) | 0,57 | 1,14 | 1,71 | 2,28 | 2,85 | 3,42 | 3,99 | 4,56 | 5,13 | 5,70 |

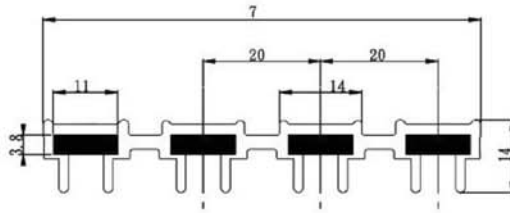


3P 100A (Stainless Steel)

| Length(M) | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
|-----------------------|------|------|------|------|------|------|------|------|------|------|
| Decay of Potential(V) | 0,47 | 0,94 | 1,41 | 1,88 | 2,35 | 2,82 | 3,29 | 3,76 | 4,23 | 4,70 |

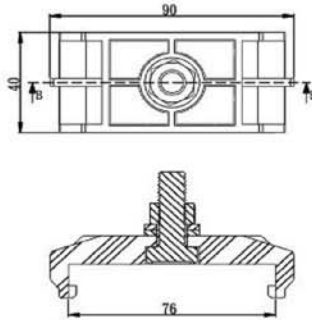


4P 200A Parts Diagram

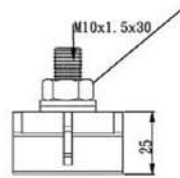


OFC 3N (99.9%, good conductivity)
 Conductor Cross Section: $3.8t \times 11w = 41.8mm^2$

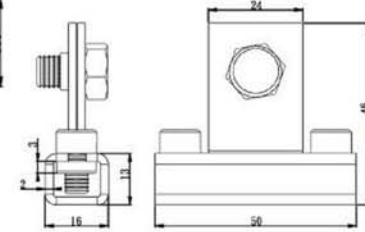
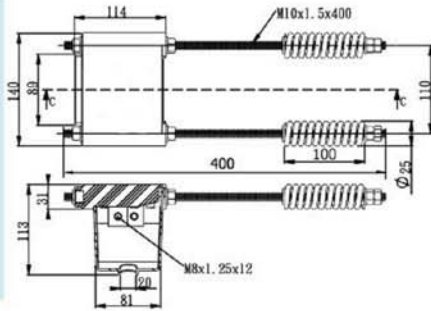
| 4P(Phase)Safety Power Rail | | |
|----------------------------|----------|------|
| Type | Standard | kg/m |
| KY-AN4020 | 200 Amp | 1.9 |



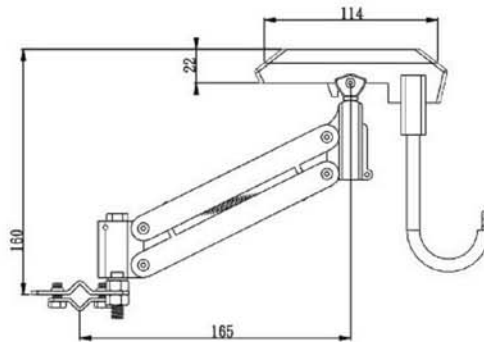
Use with C Track Support
 and C Plate M10 Nut
 $30 \times 20 \times 5^1$



| KY-AN4120 |
|------------------------|
| 4P Hanger Clamp |
| 0.083 kg / pc |



| KY-AN4220 |
|--------------------------------------|
| 4P End Tension & Power in |
| 1.75 kg / pc |



| KY-AN3710 |
|----------------------------|
| N Current Collector |
| 100A |
| 0.36 kg / pc |



| KY-AN4300 |
|---|
| 4P Middle Tension & Power in |
| 0.34 kg / pc |

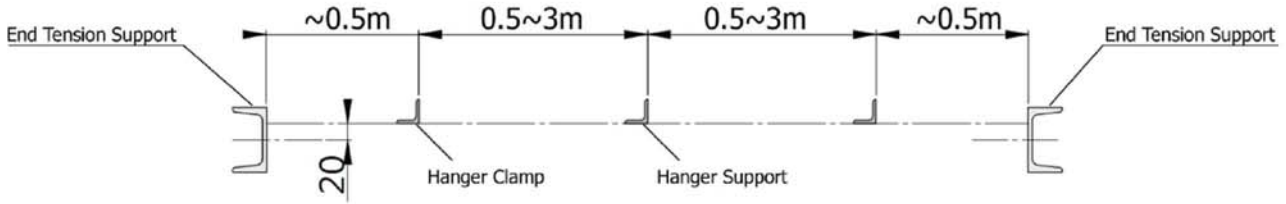


※ Coupling with current collector with power supply, it can clean power rails in movement.

| |
|--------------------------|
| Clean Brush |
| Produce on Demand |

3P、4P、5P、6P Installments Diagram

Step 1 Support Design

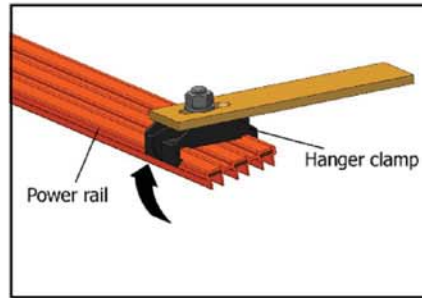
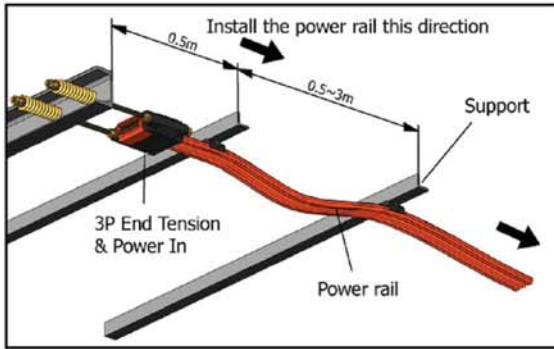


- Remark :
- (1) The side design installment recommended when a camber occurs to the 3-6P safety power rail assembly.
 - (2) The hanger clamps are supposed to be installed every 0.5 meter from the starting point of the turning.
 - (3) The 3-6P tension part for safety power rails must be installed at the place about 10mm higher than the hanger clamp.
 - (4) The silica gel must be coated on the connected place of the power-in part and safety power rail as weather protection.
 - (5) The 3-6P safety power rails are not suitable for outdoor usage or the place with high acid/alkali environments.

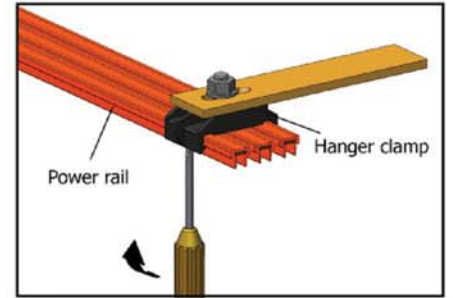
Step 2 End tension & Power-in

Remark : (1) Install one end on the ground then lift rail up to estimated location and install another.

Step 3 Hanger clamp

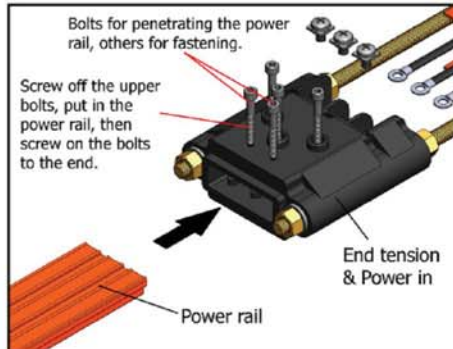


(1) Aim the hanger clamp with power rail and push up.

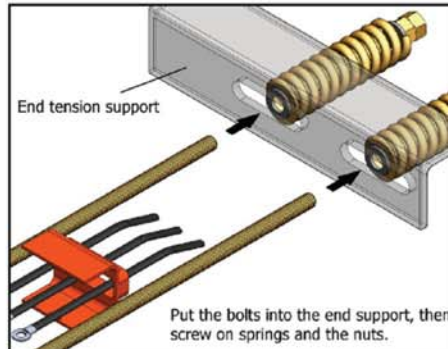


(2) Use a slotted screwdriver to dismantle the hanger clamp.

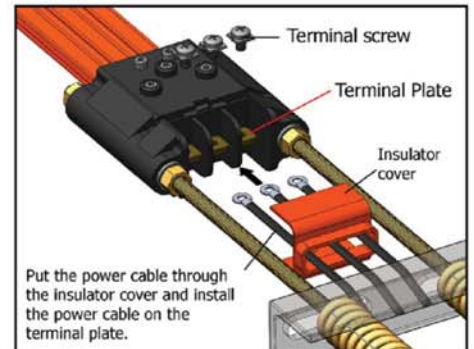
Step 4 End tension & Power-in



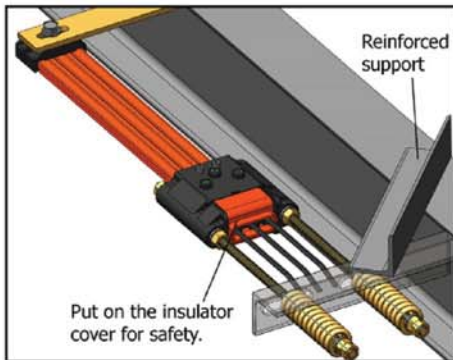
4-1



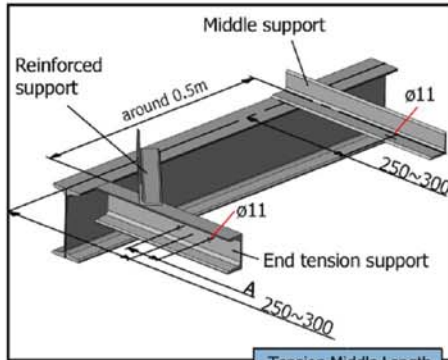
4-2



4-3



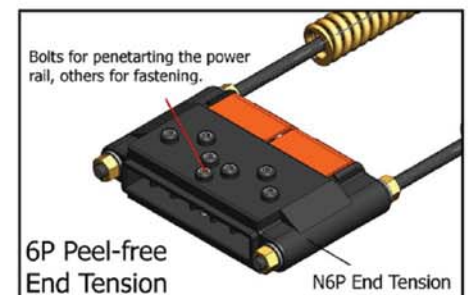
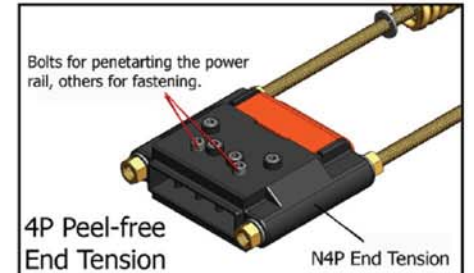
4-4



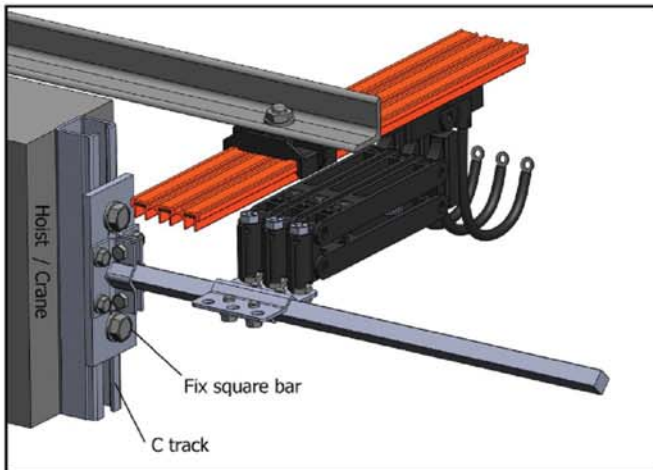
4-5

| Tension Middle Length | A |
|-----------------------|-----|
| 3P | 90 |
| 4P | 110 |
| 5P | 130 |
| 6P | 150 |
| 7P | 170 |

★ To avoid short circuit, please fasten the terminal plate with M8 x 16mm socket screws.

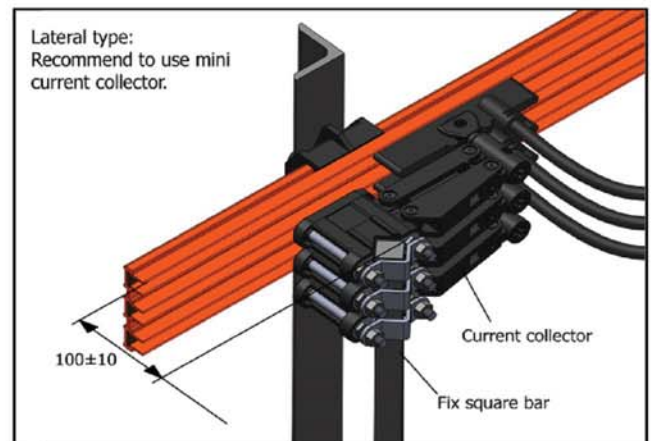
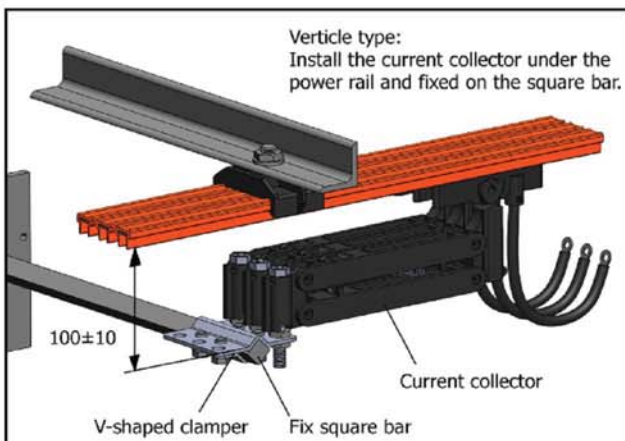
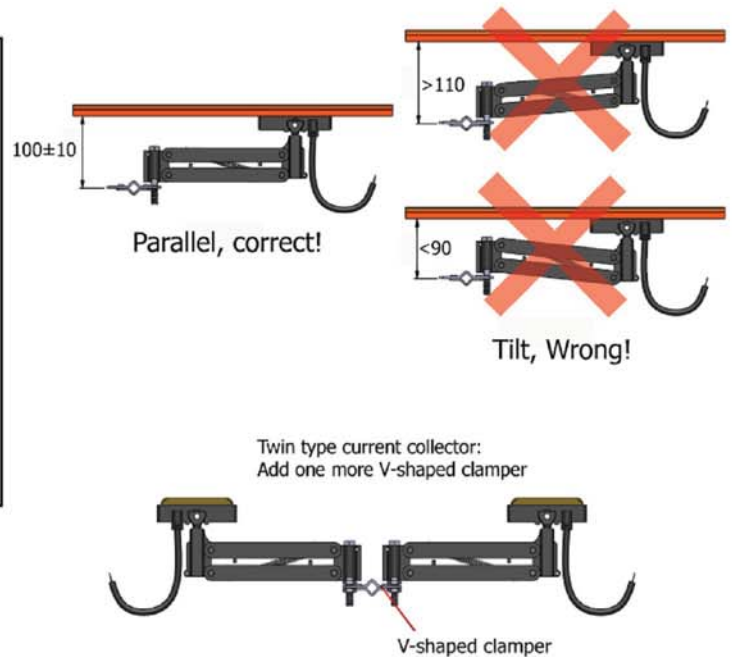


Step 5 Fix square bar/current collector



Remark:

- (1) Fix square bar could be welded on the crane or screw used.
- (2) Fix square bar's angle is supposed to be mounted. One diagonal of the bar must be parallel to ground and safety power rail, another is verticle.
- (3) Length could be cut as demand.
- (4) If carbon brushes worn, just replace a new one.



QUESTIONNAIRE

Please fill out the form. For curve tracks, we require drafts to prepare a quotation.

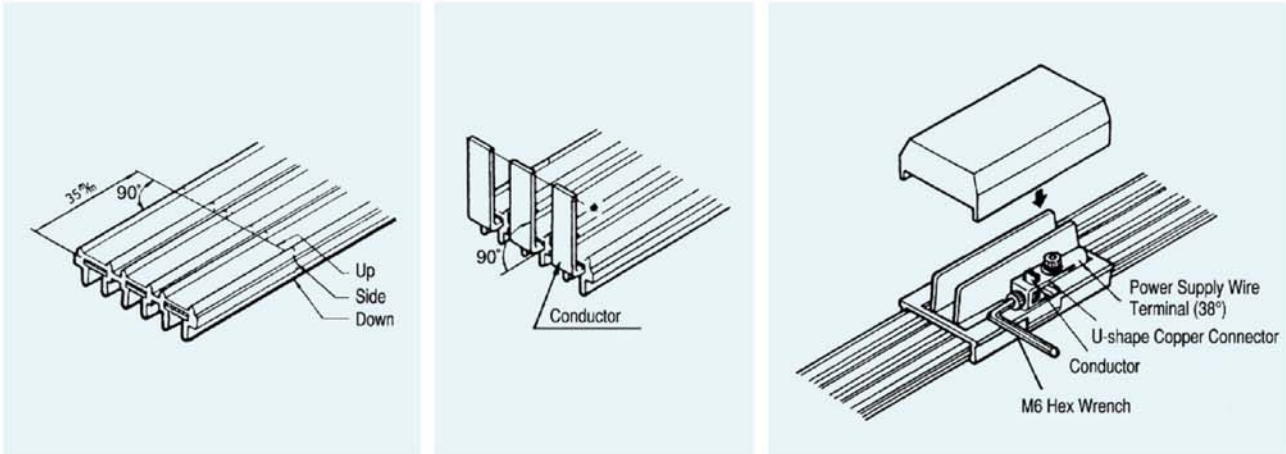
Company: _____ Tel: _____ Fax: _____

E-Mail: _____

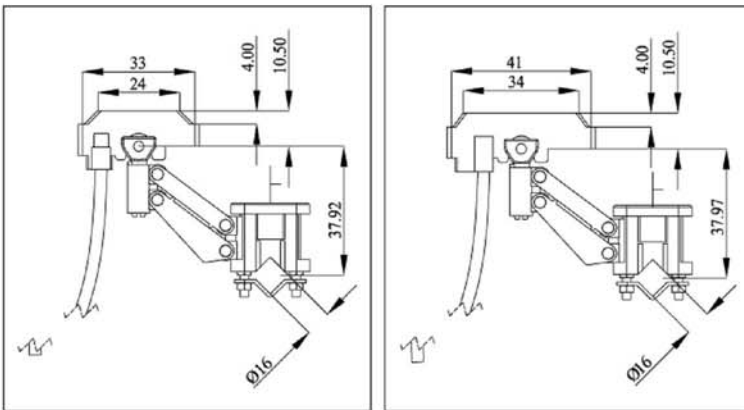
1. Number of power rail installations: _____
2. Type of equipment to be powered: _____
3. Voltage: _____ V, Phases: _____, Frequency: _____ Hz AC DC
4. Track length: _____ m ; travel speed: _____ m/min. Indoor Outdoor plant
5. Number of power rails: _____ (main rails: _____ control rails: _____ ground rail: _____)
6. Type of power rail: Combine (3P-6P power rail) Power rail respectively (I type)
7. Other operating conditions (humidity, dust, chemical influence etc.)

8. Ambient temperature: _____ °C min. _____ °C max.
9. How are the rails laid out? (Please provide draft): _____
10. Power consumption of the individual consumer loads: _____ (consult page 2)
11. Max. voltage drop from the power rail feed to the consumer unit _____
12. Remarks: _____

3P Rail connector and middle power in



- (1) Cut off the PVC material at 35mm from the end of safety power rail.
- (2) Bend upward copper material in vertical 90° angle.
- (3) Insert both sides of 90° vertical angle safety power rail into middle power feeding and connect both sides by screwing up M6 inner hexagon screw bolt on U type copper connector.



KY-AN37033

KY-AN37066



| Mini Current Collector | | |
|------------------------|----------|-------|
| Type | Standard | kg/pc |
| KY-AN37033 | 30 Amp | 0.14 |
| KY-AN37066 | 60 Amp | 0.17 |
| KY-AN37101 | 100 Amp | 0.27 |

Double set is available as photo, type for example is KY-AN37033D.

Current Collector Unit

Transit & Test System



DH-6832



DH-6813

