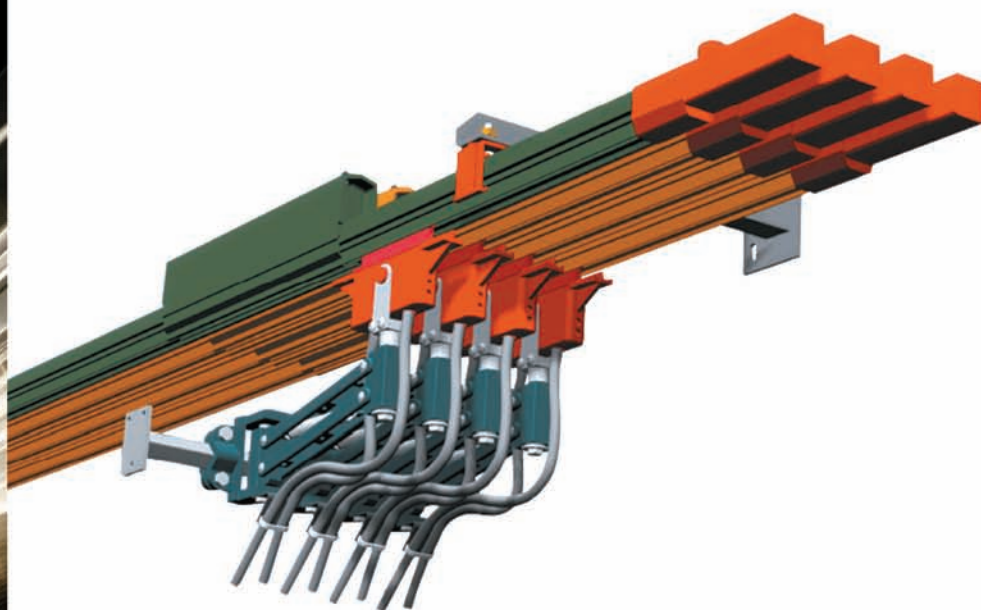


# HEVIBAR 3

INSULATED CONDUCTOR BARS  
630 up to 1250 Amp



- Finger safe up to IP2
- 630 to 1250 Amp conductors in Standard or Medium Heat cover
- Cover shaped to shed water and dust
- Horizontal conductors with contact from underside
- Bar length: 6 metres
- Systems up to 200 metres without expansion sections
- Reduced and simple maintenance

**CONDUCTIX**  
INSUL 8

① DELACHAUX GROUP



Certificate No. FM 21334

## HEVIBAR 3 INSULATED CONDUCTOR BARS

The **CONDUCTOR BAR** engineering unit of **DELACHAUX** Group supplies electrical power feed systems for moving machinery. Easy to install and maintain, **HEVIBAR 3** ensures a high level of reliability. It has been designed to meet safety standards demanded in industry.

### Advantages of conductor bars:

- Ability to feed several moving machines from the same conductor system
  - Suitable for high amperage
- Feed points can be placed at any location
  - Compactness
  - Long system length possible
- Suitable for both indoor and outdoor use

### Range of application:

Cranes and gantries in workshops, iron and steel industry, foundries, harbours, etc.

### HEVIBAR 3 features:

- Easy installation, reduced and simple maintenance
  - Protection degree IP2, finger safe
- Hard wearing, corrosion resistant stainless steel contact surface
  - Insulating covers shaped to shed water and dust
  - Standard PVC cover for normal temperatures
  - Medium Heat cover available for high ambient temperatures
- Expansion sections not required for runs less than 200 m
  - Max travel speed: 200 m/min

HEVIBAR 3 complies with the following international standards:  
NFC 20.010 – NFC 63.010 – NFC 32.070 – VDE 0470 – BS 5490 – DIN 53438

## TYPICAL APPLICATIONS



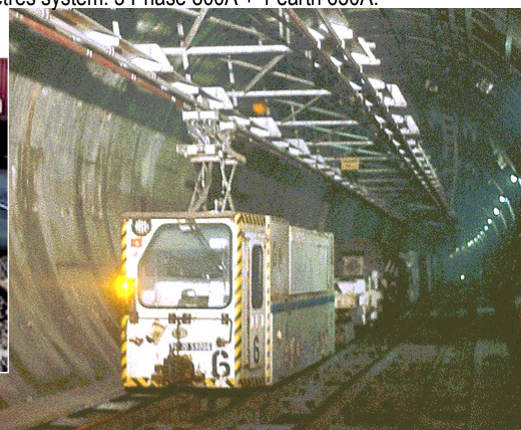
← 3 cranes operating outdoor on a 456 metres system, comprising 3 x 1250A Phase and 1 x 800A Earth conductor.



↙ Container handling cranes operating outdoor on a 375 metres system. 3 Phase 800A + 1 earth 630A.



300 metres of 800A bar ↑ → with medium heat cover feeding two steelwork cranes.  
Dusty, corrosive and hot (+80°C) environment.  
Using insulated hanger clamps supplied pre-fitted to support brackets.



### CHANNEL TUNNEL ↑

180 km of HEVIBAR 3 supplied power to the locos throughout construction, taking building materials in and bringing out the excavated earth.

A similar installation was supplied on the French side by our sister company Delachaux.

Collectors mounted on lifting tables.



## TECHNICAL DATA

| CONDUCTOR BAR                       | 630 A               | 800 A               | 1000 A              | 1250 A              |
|-------------------------------------|---------------------|---------------------|---------------------|---------------------|
| Nominal current at + 25°C           | 630 A               | 800 A               | 1000 A              | 1250 A              |
| Cross sectional area                | 328 mm <sup>2</sup> | 422 mm <sup>2</sup> | 631 mm <sup>2</sup> | 783 mm <sup>2</sup> |
| Nominal voltage :                   |                     |                     |                     |                     |
| AC                                  | 660 V               | 660 V               | 660 V               | 660 V               |
| DC                                  | 750 V               | 750 V               | 750 V               | 750 V               |
| Resistance at 25°C (for DC)         | 0.000 096 Ω/m       | 0.000 074 Ω/m       | 0.000 051 Ω/m       | 0.000 040 Ω/m       |
| Mounting centres between conductors |                     |                     |                     |                     |
| Standard hangers                    | 70 mm               | 70 mm               | 70 mm               | 70 mm               |
| Hangers with insulators             | 100 mm              | 100 mm              | 100 mm              | 100 mm              |
| Impedance at 25°C (for AC-50Hz):    |                     |                     |                     |                     |
| 70mm centres                        | 0.000167 Ω/m        | 0.000145 Ω/m        | 0.000118 Ω/m        | 0.000106 Ω/m        |
| 100mm centres                       | 0.000181 Ω/m        | 0.000159 Ω/m        | 0.000132 Ω/m        | 0.000120 Ω/m        |
| Distance between hangers            | 3 m                 | 3 m                 | 3 m                 | 3 m                 |
| Bar length                          | 6 m                 | 6 m                 | 6 m                 | 6 m                 |
| Max. travel speed                   | 200 m/min           | 200 m/min           | 200 m/min           | 200 m/min           |

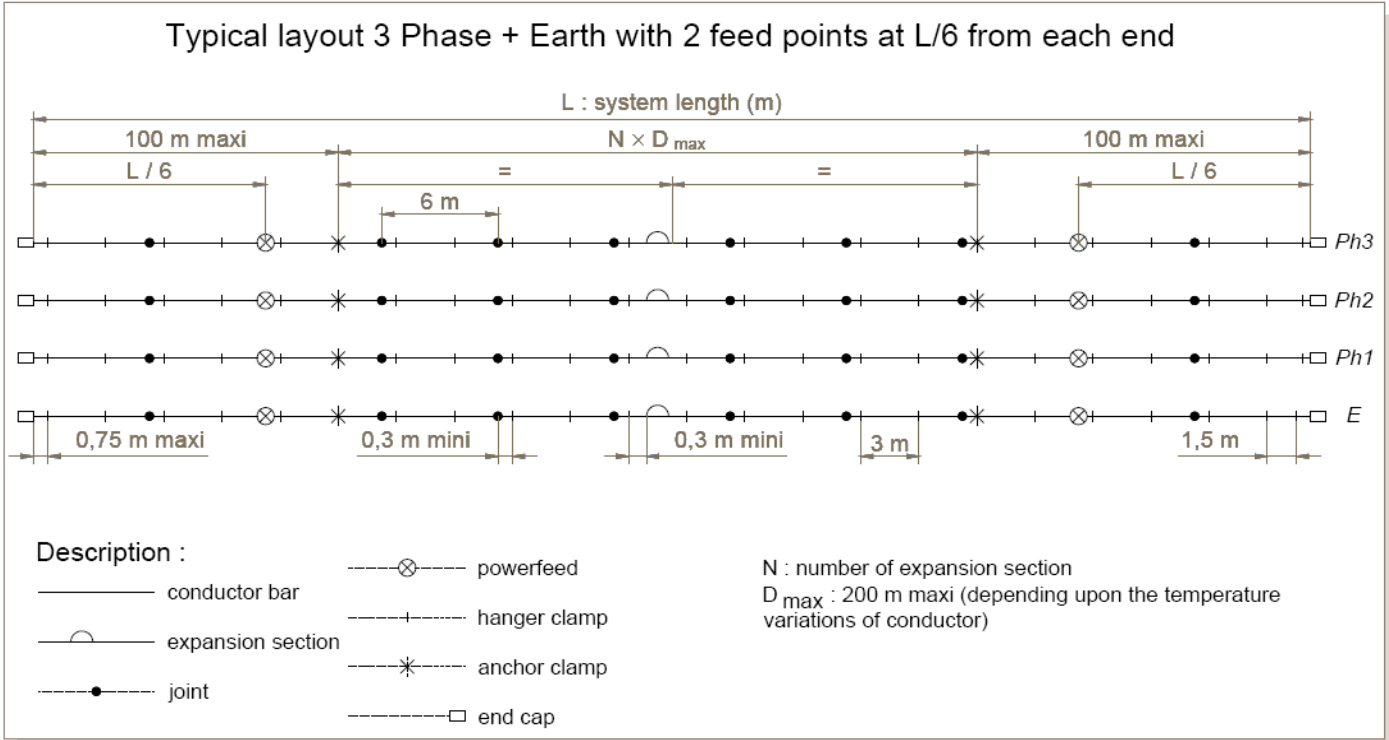
| INSULATING COVERS                                 | STANDARD                  | MEDIUM HEAT               |
|---------------------------------------------------|---------------------------|---------------------------|
| Material                                          | P V C                     | Noryl                     |
| Colour (Phase / Earth)                            | Orange / Green            | Red / Red                 |
| Dielectric strength                               | 180 kV / cm               | 240 kV / cm               |
| Surface resistivity                               | > 10 <sup>11</sup> Ω      | > 10 <sup>14</sup> Ω      |
| Volume resistivity                                | > 10 <sup>15</sup> Ω / cm | > 10 <sup>16</sup> Ω / cm |
| Softening temperature                             | + 80°C                    | + 125 °C                  |
| Flame test                                        | Self extinguishing        | Self extinguishing        |
| Max. allowable ambient temperature<br>(see below) | - 15 to + 55 °C           | - 30 to + 85 °C           |

| FACTOR "K"        |           |       |       |       |       |       |
|-------------------|-----------|-------|-------|-------|-------|-------|
|                   | Ta \ Duty | 100%  | 80%   | 60%   | 40%   | 20%   |
|                   |           |       |       |       |       |       |
| Standard cover    | 25°C      | 1.000 | 1.118 | 1.291 | 1.581 | 2.236 |
|                   | 35°C      | 0.905 | 1.011 | 1.168 | 1.430 | 2.023 |
|                   | 45°C      | 0.798 | 0.892 | 1.030 | 1.261 | 1.784 |
|                   | 55°C      | 0.674 | 0.754 | 0.870 | 1.066 | 1.508 |
| Medium Heat cover | 65°C      | 0.775 | 0.866 | 1.000 | 1.225 | 1.732 |
|                   | 75°C      | 0.707 | 0.791 | 0.913 | 1.118 | 1.581 |
|                   | 85°C      | 0.632 | 0.707 | 0.816 | 1.000 | 1.414 |

The rating of the conductor (maximum allowable current) depending on the duty factor of the cranes and the max ambient temperature **Ta** can be established using the following formula:

$$I_{\text{allowable}} = \text{nominal current} \times K$$

## SYSTEM LAYOUT



## SELECTION OF CONDUCTORS

An accurate choice of conductors can only be made when the following are known:

- The type of current: single or 3 Phase AC; DC
- The maximum current and duty cycle
- The allowable volt drop for the machine being supplied
- The ambient temperature and environment (dust, coastal, humid, acidic)

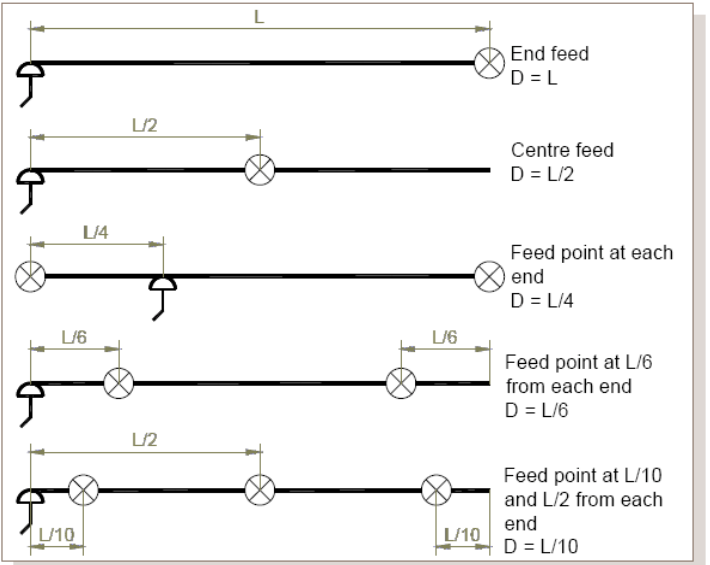
Volt drop calculation  $\Delta U$  :

|                       |                                                  |
|-----------------------|--------------------------------------------------|
| 3-Phase AC            | $\Delta U = \sqrt{3} \times I \times D \times Z$ |
| Single Phase AC       | $\Delta U = 2 \times I \times D \times Z$        |
| Continuous current DC | $\Delta U = 2 \times I \times D \times R$        |

$$\Delta U\% = (\Delta U \times 100) / U_n$$

Where :

$\Delta U$  : volt drop in Volt  
 $\Delta U\%$  : volt drop in % of the nominal voltage  
 $U_n$  : voltage in Volt  
 $I$  : maximum current in Amps  
 $D$  : see opposite diagram  
 $R$  : resistance in Ohm per metre  
 $Z$  : impedance in Ohm per metre



## ENQUIRY FORM

### ELECTRICAL DATA

|                            |                        |
|----------------------------|------------------------|
| <b>COMPANY NAME:</b> ..... | <b>CONTACT:</b> .....  |
| <b>ADDRESS:</b> .....      | <b>POSITION:</b> ..... |
| .....                      | <b>Tel. No:</b> .....  |
| <b>PROJECT:</b> .....      | <b>Fax No:</b> .....   |
| <b>DATE:</b> .....         | <b>e-mail:</b> .....   |

- Voltage: AC - DC ..... V Frequency: ..... Hz
- Number of conductors: ..... Phase ..... Earth
- Position of powerfeed: centre / end / other : qty .....  
 At: ..... meters } from one end  
 ..... meters }  
 ..... meters }
- Number of machines: ..... Type: crane / gantry / other: .....

### ELECTRICAL LOADS

|              | MACHINE N°1    |   |      | MACHINE N°2    |   |      | MACHINE N°3    |   |      | MACHINE N°4    |   |      |
|--------------|----------------|---|------|----------------|---|------|----------------|---|------|----------------|---|------|
|              | Current (Amps) |   | Duty | Current (Amps) |   | Duty | Current (Amps) |   | Duty | Current (Amps) |   | Duty |
| MOTORS       | R              | S | %    | R              | S | %    | R              | S | %    | R              | S | %    |
| Hoist        |                |   |      |                |   |      |                |   |      |                |   |      |
| Cross travel |                |   |      |                |   |      |                |   |      |                |   |      |
| Long travel  |                |   |      |                |   |      |                |   |      |                |   |      |
| Auxiliary    |                |   |      |                |   |      |                |   |      |                |   |      |
| Others       |                |   |      |                |   |      |                |   |      |                |   |      |

- R: running current S: starting current  
 - Type of motors: squirrel cage / slip rings / other Inverter drive: Yes / No  
 - Allowable volt drop: .....%

### SYSTEM DATA

- Length: ..... metres
- Location: indoor- outdoor  
 Humidity (.....%) – Excessive dust – Saline conditions – others: .....
- Industry: .....
- Ambient temperature : .....°C min / .....°C max
- Max travel speed: .....metres / min
- Isolation sections: Yes / No Number: ..... Position: *enclose a sketch*

### OTHER INFORMATION

.....

.....

.....

.....

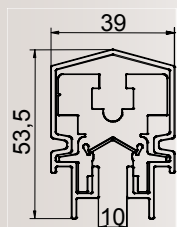
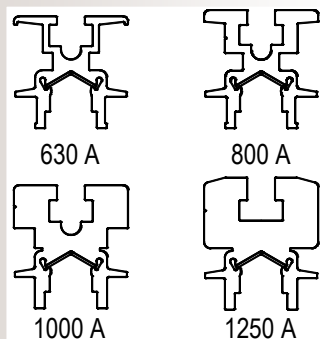
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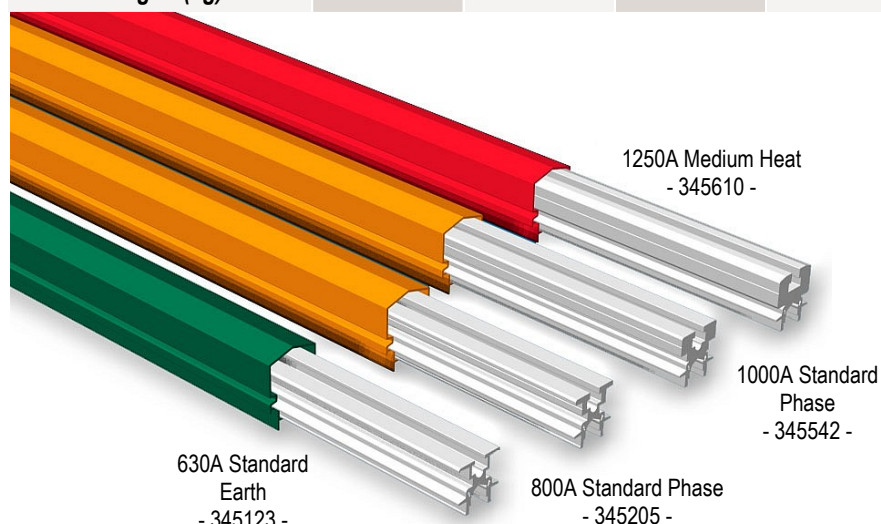
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## CONDUCTOR BARS



The outer dimensions are identical for all current ratings.

| CURRENT RATING                | 630 A  | 800 A  | 1000 A | 1250 A |
|-------------------------------|--------|--------|--------|--------|
| Standard Phase cover (orange) | 345102 | 345205 | 345542 | 345606 |
| Standard Earth cover (green)  | 345123 | 345249 | 345557 | 345645 |
| Medium Heat cover (red)       | 345104 | 345229 | 345513 | 345610 |
| Weight (kg)                   | 10.38  | 12.66  | 17.28  | 20.58  |



## EXPANSION SECTIONS

The expansion section consists of a sliding section inserted in a 6 metre long bar.

A series of strips [1] maintains the contact surface and ensures electrical continuity.

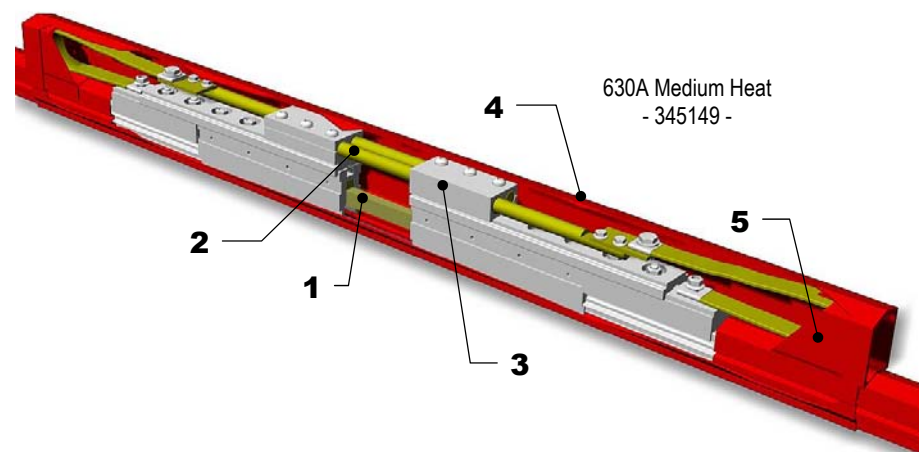
Mechanical guidance is provided by brass spindles [2], which slide within conductive carriers [3].

The maximum gap of the expansion section is 200 mm.  
The overall length of the expansion section is 6 metres when gap is set at 100 mm.

A joint cover [4], the ends of which are closed by end caps [5], protects the assembly.

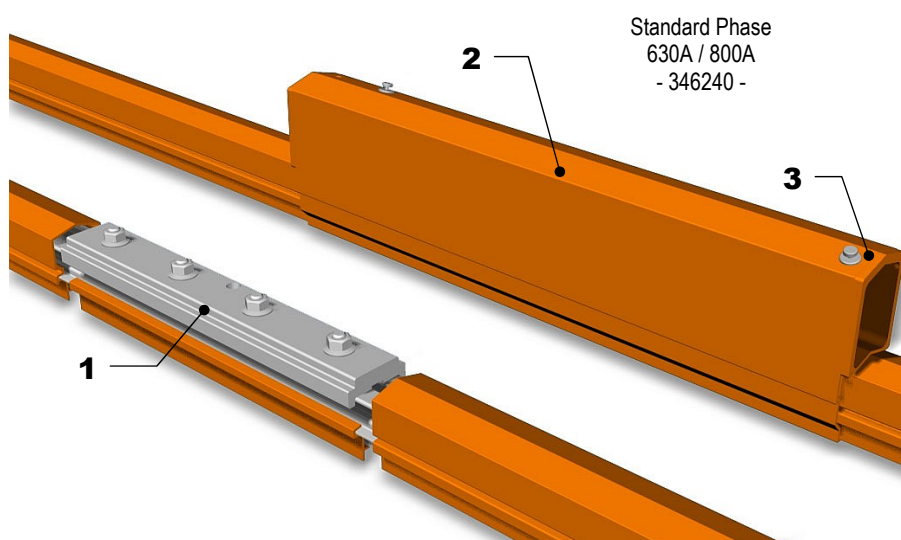
The expansion section is installed in place of one length of conductor bar.

| CURRENT RATING                | 630 A  | 800 A  | 1000 A | 1250 A |
|-------------------------------|--------|--------|--------|--------|
| Standard Phase cover (orange) | 345135 | 345250 | 345575 | 345660 |
| Standard Earth cover (green)  | 345140 | 345260 | 345580 | 345665 |
| Medium Heat cover (red)       | 345149 | 345265 | 345585 | 345670 |
| Weight (kg)                   | 14.00  | 16.00  | 20.00  | 22.00  |



## JOINTS

| CURRENT RATING                | 630A / 800A | 1000A / 1250A |
|-------------------------------|-------------|---------------|
| Standard Phase cover (orange) | 346240      | 346242        |
| Standard Earth cover (green)  | 345241      | 346243        |
| Medium Heat cover (red)       | 346114      | 346101        |
| Weight (kg)                   | 0.82        | 1.10          |



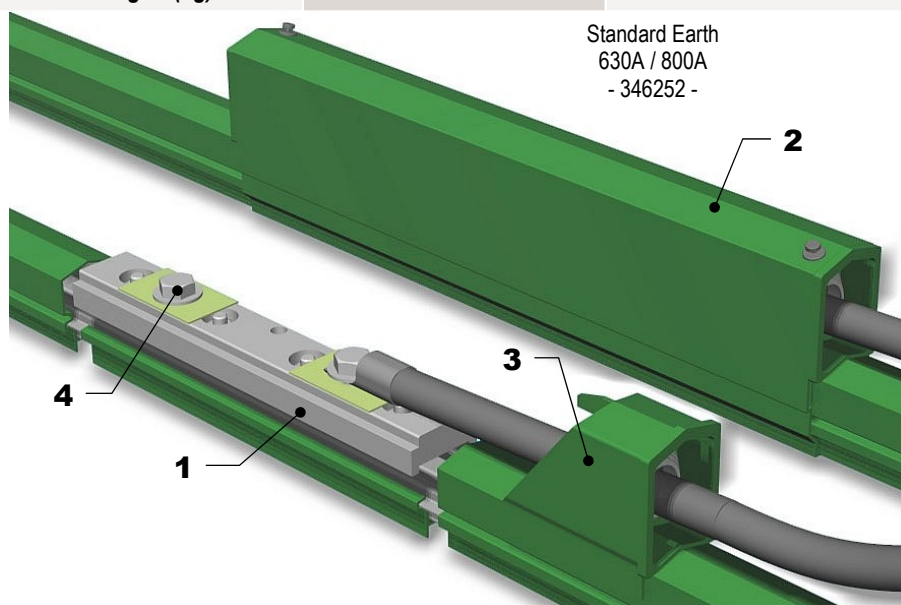
The aluminium joint body [1] ensures correct vertical and horizontal alignment of the contact surface and the electrical continuity.

A joint cover [2], the ends of which are closed by end caps [3], protects the joint.

During installation the contact surfaces of the joint and bar must be coated with electrical jointing compound (to be ordered separately).

## POWERFEEDS

| CURRENT RATING                | 630 A / 800 A | 1000 A / 1250 A |
|-------------------------------|---------------|-----------------|
| Standard Phase cover (orange) | 346250        | 346252          |
| Standard Earth cover (green)  | 346251        | 346253          |
| Medium Heat cover (red)       | 346116        | 346180          |
| Weight (kg)                   | 0.96          | 1.18            |



Powerfeed for connection of one or two flexible cables.

If the powerfeed is located near an anchor point, rigid cable may be used.

The aluminium body [1] ensures both vertical and horizontal alignment of the contact strip.

A cover [2] and two end caps [3] which are fitted with grommets to seal the cable entry protect the powerfeed.

Cable terminates onto screws [4].

Powerfeed is usually installed in place of a joint.



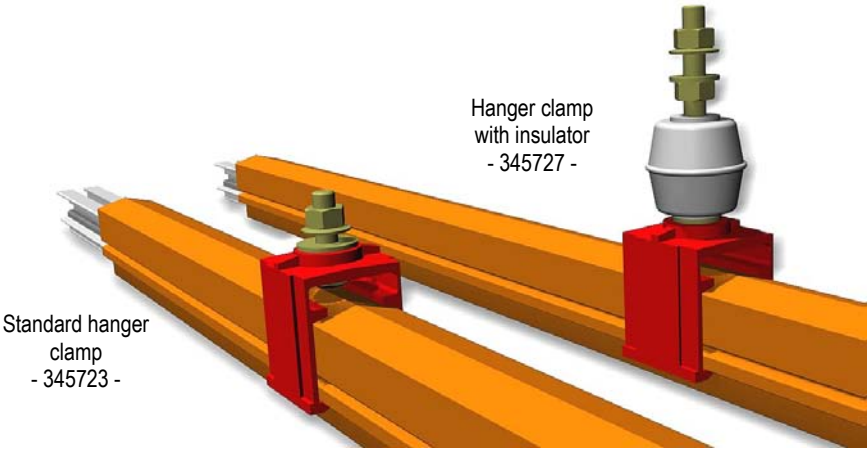
## HANGER CLAMPS

Hanger clamp of medium heat plastic.

Hanger clamp can swivel around its shouldered fitting bolt. This allows the self-orientation of the hangers in relation to the conductors.

In particularly dusty or humid environments, hangers with insulator should be used.

| TYPE        | STANDARD | WITH INSULATOR |
|-------------|----------|----------------|
| Code        | 345723   | 345727         |
| Weight (kg) | 0.11     | 0.28           |



## ANCHOR CLAMP

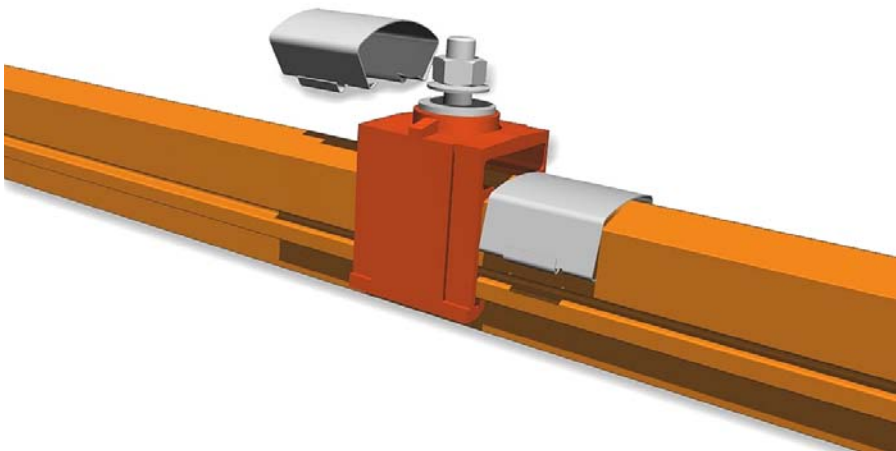
*Ordered in pairs*

An anchor point is formed when an anchor clamp is located either side of a hanger clamp.

The anchor point (1 at least per conductor) is usually in the middle of the system.

Expansion sections must always be situated equidistant between two anchor points.

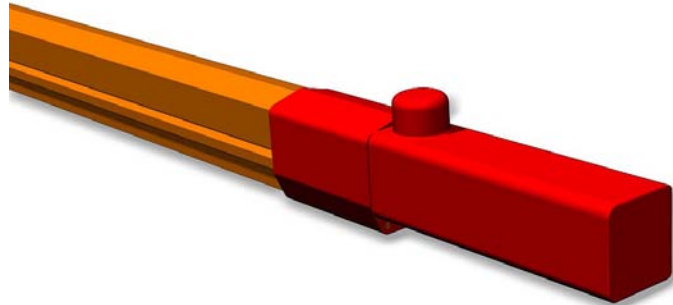
|             |        |
|-------------|--------|
| Code        | 349045 |
| Weight (kg) | 0.02   |



## END CAP

Provides protection at the end of the system.

|             |        |
|-------------|--------|
| Code        | 346113 |
| Weight (kg) | 0.13   |

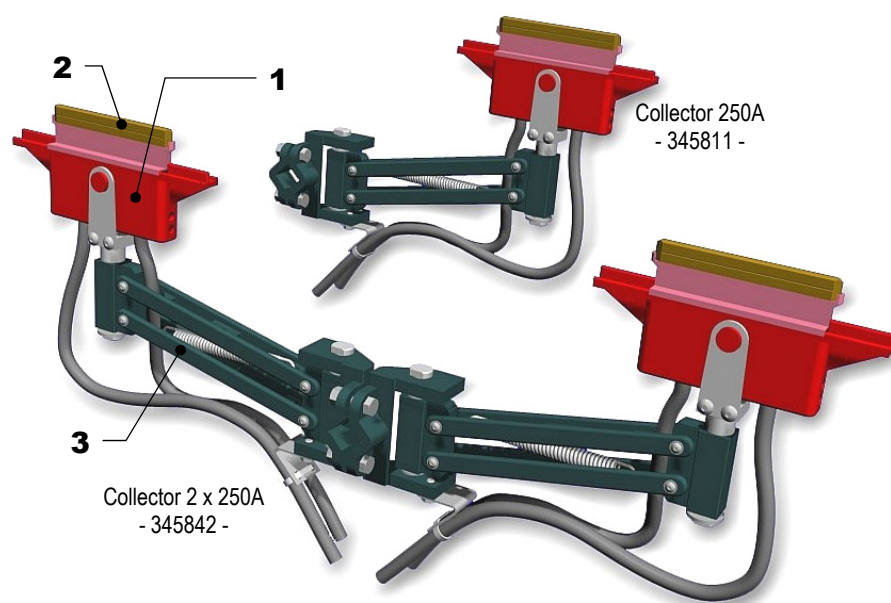




## COLLECTORS

| TYPE                        | 250 A  | 2 x 250 A |
|-----------------------------|--------|-----------|
| Maximum permanent current * | 175 A  | 350 A     |
| Phase collector             | 345811 | 345842    |
| Weight (kg)                 | 4.50   | 9.00      |

\* with aluminium – stainless steel conductor



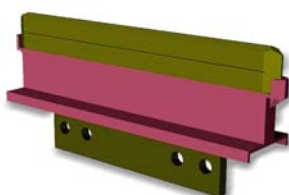
The collector head [1] prevents accidental contact with the live shoe [2] and guides the shoe along the "V"-shaped strip of the conductor.

Collector head is equipped with two flexible connection cables (25 mm<sup>2</sup>, 3 m long).

The arm [3] absorbs any misalignment and bending of the conductors and ensures a permanent contact pressure.

## 250A COLLECTOR SHOE + HOLDER

|             |        |
|-------------|--------|
| Code        | 345804 |
| Weight (kg) | 0.30   |

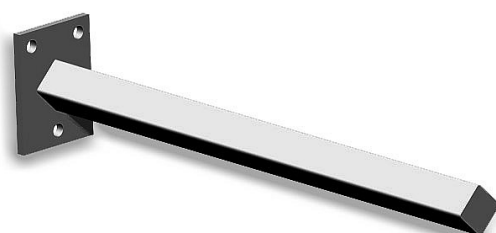


Suitable for all collectors.

The copper graphite shoe ensures electrical continuity, a smooth contact with the conductor bar and a good resistance to wear.

## COLLECTOR BRACKET

|             |        |
|-------------|--------|
| Code        | 345886 |
| Weight (kg) | 2.55   |

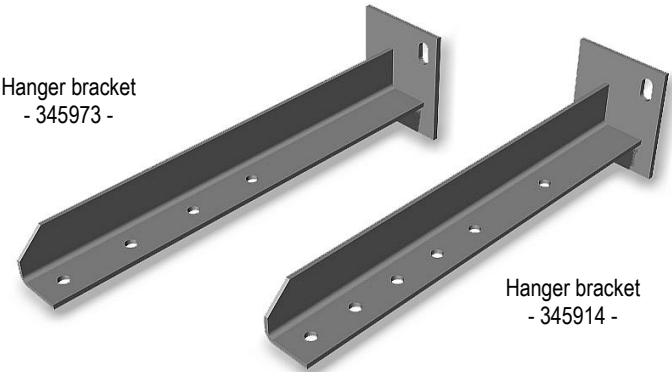


To suit all collectors.

25 mm square, 400 mm long, galvanised steel.

## HANGER BRACKETS

| HANGER TYPE            | STANDARD | WITH INSULATOR |
|------------------------|----------|----------------|
| Code                   | 345973   | 345914         |
| Conductor pitch centre | 70 mm    | 100 mm         |
| Weight (kg)            | 2.23     | 2.23           |



Length 400 mm.  
Other dimensions: see last page.

## ISOLATION JOINTS

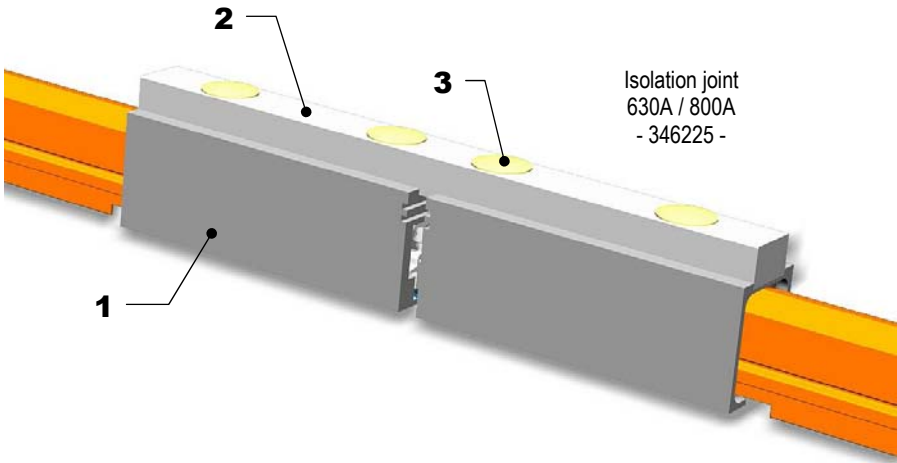
|             | 630A / 800A | 1000A / 1250A |
|-------------|-------------|---------------|
| Code        | 346225      | 346226        |
| Weight (kg) | 0.79        | 1.08          |

The isolation joint is used to electrically separate two sections of conductor.

This portion can be switched off while the rest of the system stays live.

A 100 mm gap is created when the two isolation pieces [1] are aligned using top bar [2].

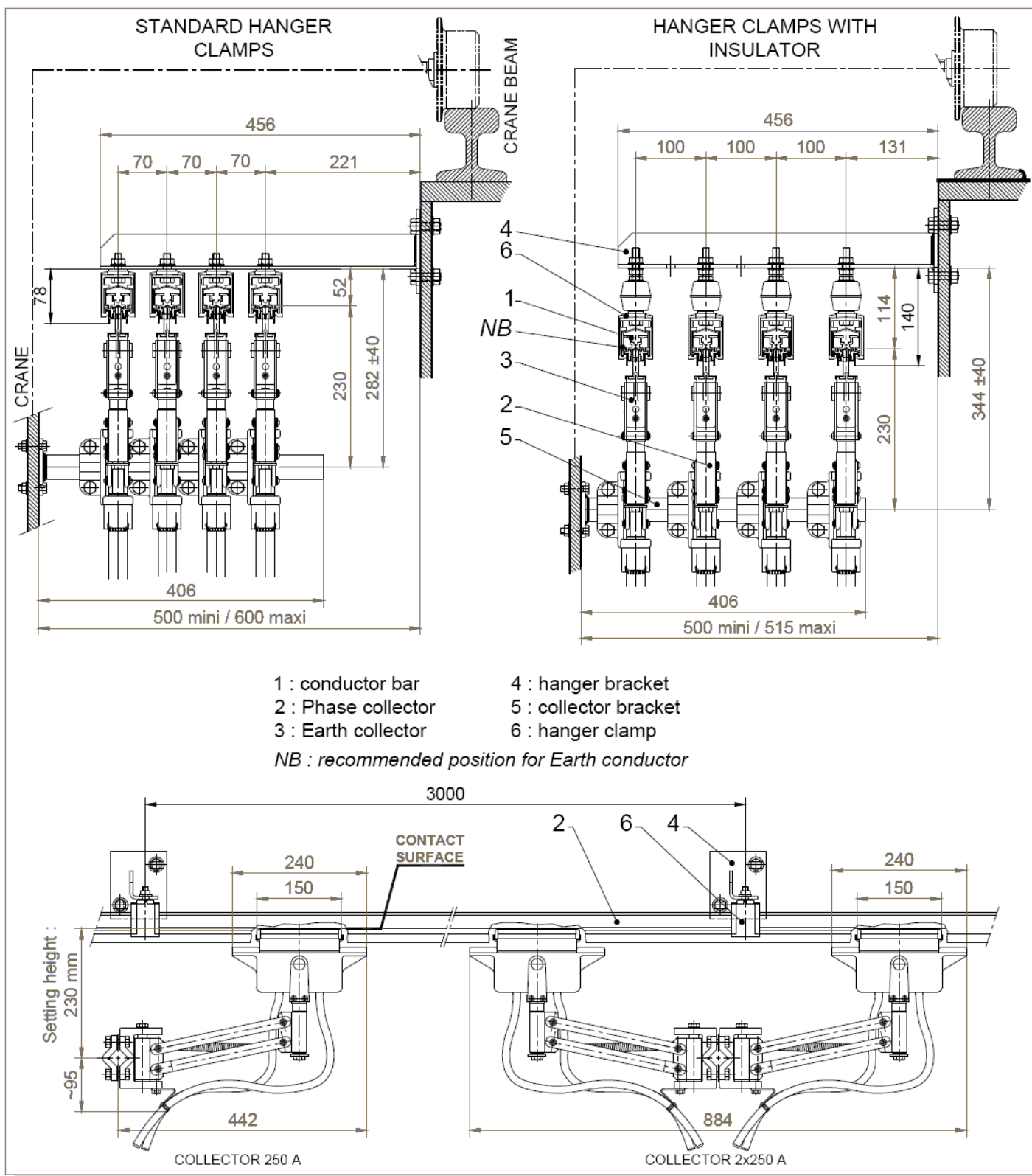
Fixings are protected by plastic plugs [3].



## ELECTRICAL JOINTING COMPOUND

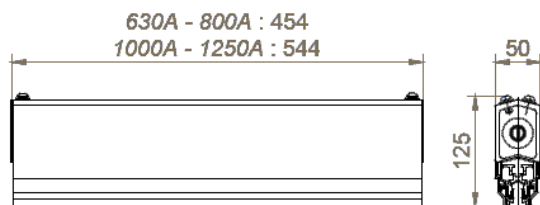
|      |                                                |
|------|------------------------------------------------|
| Code | 918001                                         |
|      | Contents sufficient for roughly 20 connections |

In order to optimize the electrical continuity, electrical jointing compound must be applied during the installation for joints and powerfeeds.

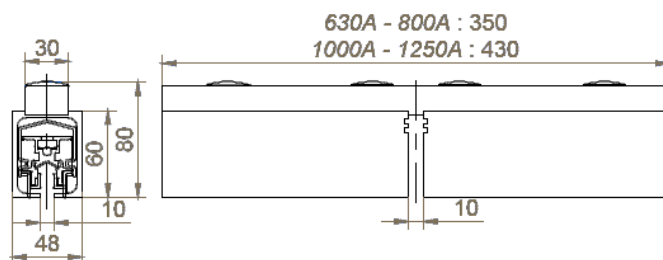




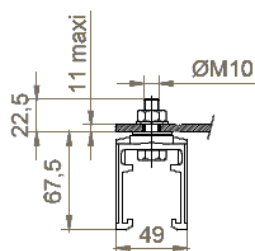
## CROSS SECTIONS



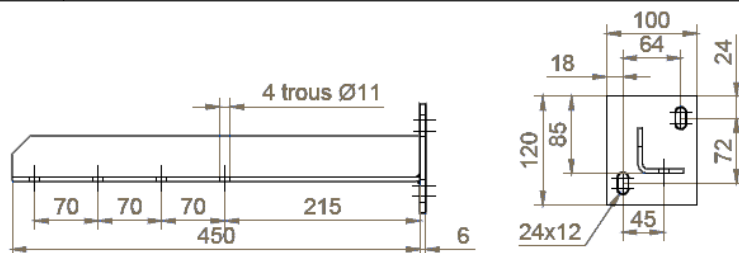
**JOINTS 630A - 800A / 1000 - 1250A**  
**POWERFEEDS 630A - 800A / 1000A - 1250A**



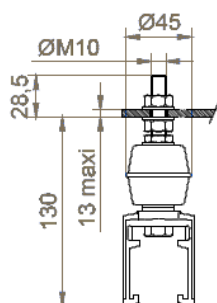
**INSULATING JOINTS 630A - 800A / 1000A - 1250A**



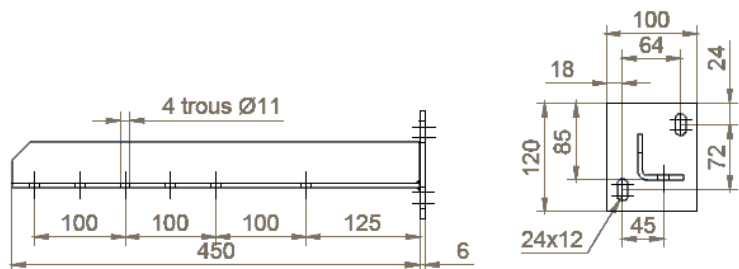
**HANGER CLAMP**  
70 mm centres



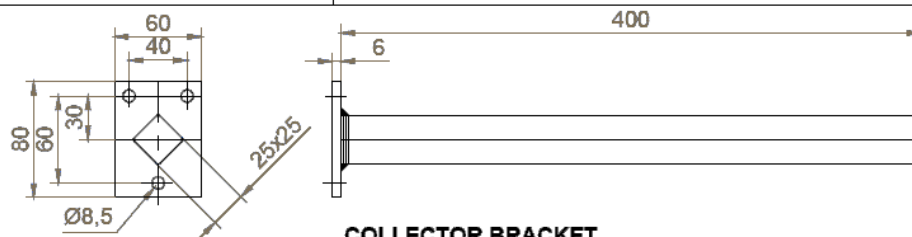
**HANGER BRACKET**  
70 mm centres



**HANGER CLAMP WITH INSULATOR**  
100 mm centres



**HANGER BRACKET**  
100 mm centres



**COLLECTOR BRACKET**



POWER AND DATA TRANSFER

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## Countries where we are also represented :

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