

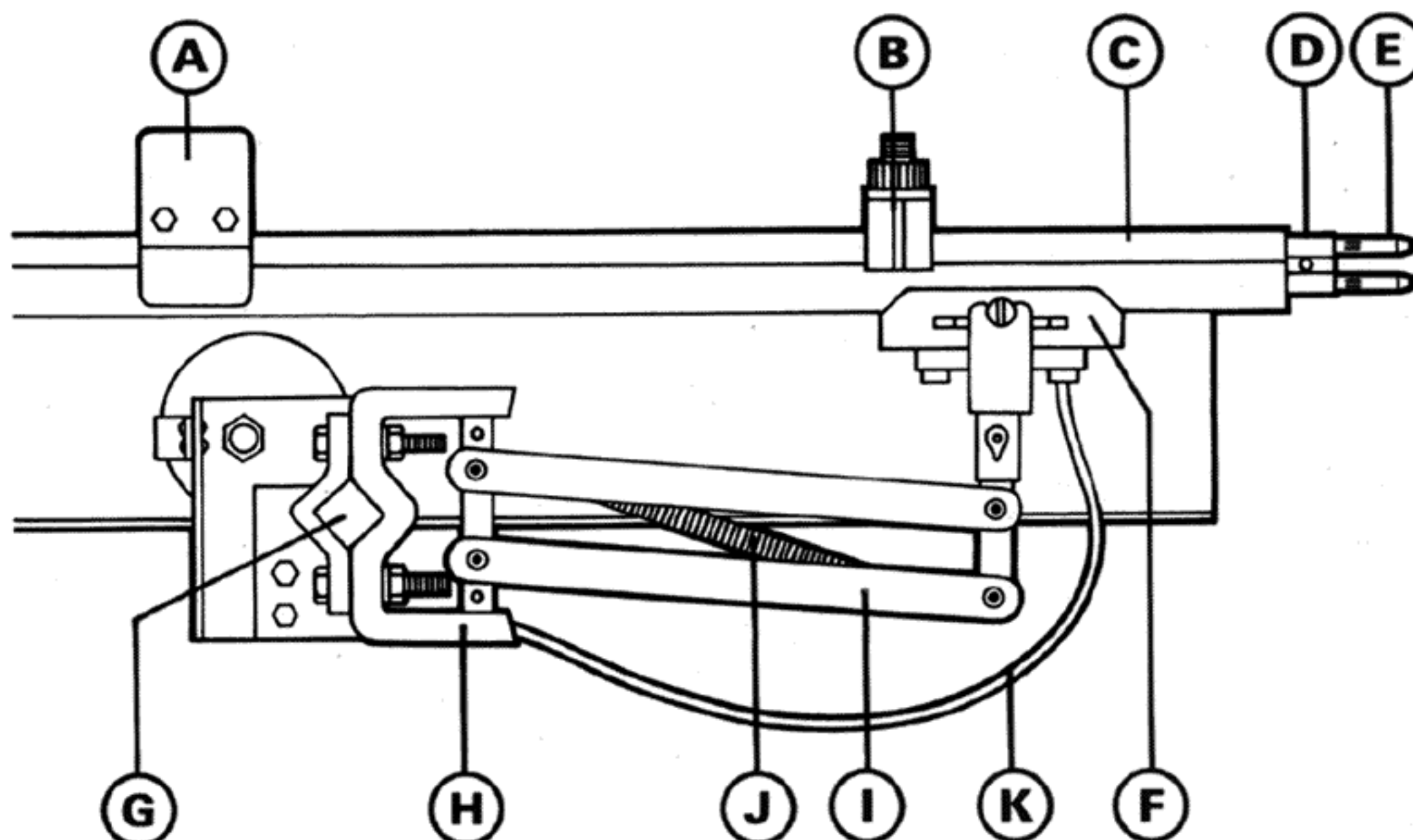
# Basic Components & Definitions



ELECTRICAL CO.

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The primary components of an Insul-8 Bar\* system are:

- |                             |   |
|-----------------------------|---|
| A – Powerfeed               | G – 25mm square bar collector mount (by others) |
| B – Hanger clamp            | H – Collector base                              |
| C – Insulating cover        | I – Collector arm                               |
| D – Figure 8-Bar conductor  | J – Collector spring                            |
| E – Connector pins          | K – Flexible cable                              |
| F – Collector head and shoe |   |

## Covered Conductors

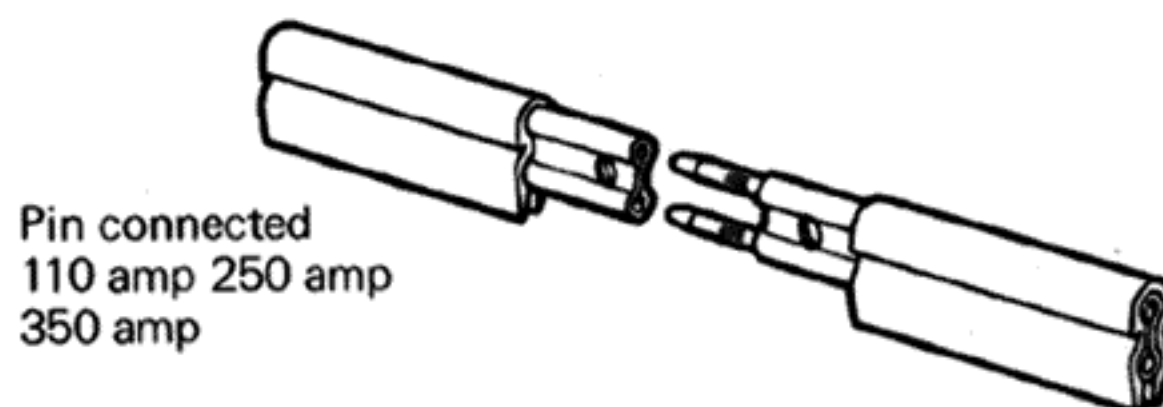
**Continuous circuits:** systems in which the collectors are in continuous mechanical contact with the conductor bars. Such systems may also incorporate expansion, isolating, power interrupting sections and switches.

**Discontinuous circuits:** systems which require the collectors to leave conductor bars, travel through the air and be re-tracked as at fire doors, interlocks etc.

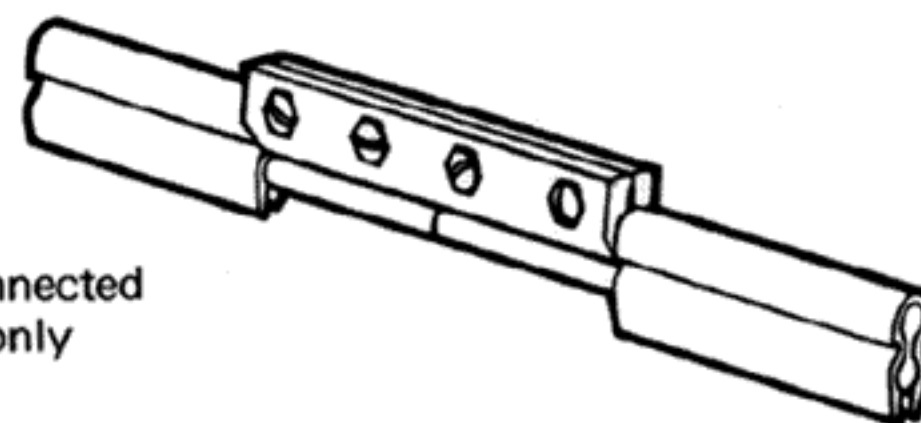
## Covered Conductor Bars

Supplied in standard lengths with connection devices and insulating covers. Pre-fabricated curves, special conductor bar materials can be supplied to order.

**NOTE:** Hanger clamps, end covers, joint keepers, joint covers and clamp connectors are not included in these assemblies and must be ordered separately. Connector tool 11134 is supplied at cost for all pin connected bar (see page 7).



Pin connected  
110 amp 250 amp  
350 amp



Clamp connected  
500 amp only

CONDUCTOR		PART NUMBERS			CONNECTORS
Material	Length	With Rigid PVC Covers*	With Medium Heat Covers*	With High Heat Covers*	Connectors
† Galvanised steel (110 amp)	3m	11000	11019	11038	Pin type
Copper steel laminate (250 amp)	3m	11008	11027	11046	Pin type**
Electrolytic copper (350 amp)	3m	11012	11031	11050	Pin type**
Solid copper (500 amp)	6m	11016	11035	11054	Clamp type

\* 1 joint cover per length required.

\*\* Joint keepers required.

† Not suitable for outdoor environment.

# Conductor Expansion Sections

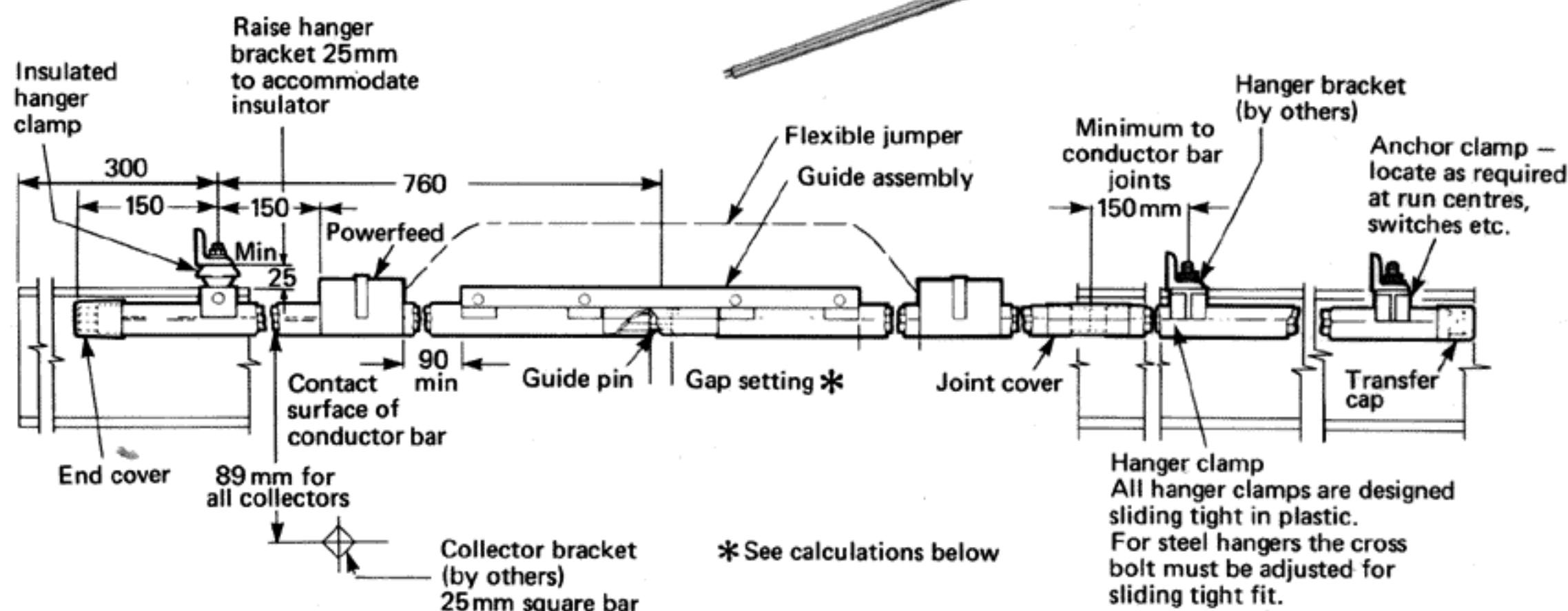
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Complete factory assembled units of 3m (overall) length continuously insulated conductor bar, complete with connector pins, expansion cover, guide assembly and powerfeeds installed with flexible jumper.

**NOTE:** Use same conductor bar as specified for system.  
Consult factory for voltages above 600V.



Conductor systems using	Part Numbers			Powerfeeds (installed with jumper) Part No.
	With rigid PVC covers to 71°C	With medium heat covers to 121°C	With high heat covers to 149°C	
Galvanised steel (110 amp)	11057 11058	11064	11070	25284 25281 25281
Copper steel laminate (250 amp)	11060	11066	11072	25281 25281
Electrolytic copper (350 amp)	11061 11062	11067 11068	11073 11074	25281 25281 11094
Solid copper (500 amp)	11063	11069	11075	11094

## \*Expansion Systems

Since all metals expand and contract with changes in temperature, it is necessary to include expansion gap assemblies in all installations where the temperature variation or a length of straight run would cause an expansion greater than 62mm at each end of the bars. For expansion sections on systems with curves, please refer to the works. For straight systems with a working temperature range of 0°C to 50°C, the following lengths can be accommodated without expansion sections:

Galvanised steel	—	100m
Copper/steel laminated	—	87m
Rolled copper	—	78m

The following notes are designed to enable the number of expansion sections to be calculated and the setting of these gaps during installation:

### Calculation of expansion sections 110 — 350 amp bar sizes

This information to be calculated or estimated	t2 = maximum temp °C
	t1 = minimum temp °C
	L = total length of run in metres
	T = ambient temp °C at the time of setting gaps
	Ce = coefficient of expansion (see table page 3)

$$\left[ (t_2 - t_1) \times L \times 1000 \times \frac{Ce}{62} \right] - 1 = \text{number of expansion sections required (round up to next whole number)}$$

Gap setting on the day of erection

$$67 - \left[ \frac{T - t_1}{t_2 - t_1} \times 62 \right] = \text{gap required in mm between the bar ends across the pin}$$

It is also recommended that expansion sections are fitted at the building expansion joints. Refer to factory for expansion sections required for the 500 amp solid copper bar systems.

### Example

252 metres of 250 amp copper/steel laminated bar for indoor use with a temperature variation 5°C to 55°C.

$$\left[ (55 - 5) \times 252 \times 1000 \times \frac{0.000144}{62} \right] - 1 = 1.926 \text{ (round up to 2)}$$

Therefore two expansion sections would be required, these to be spaced equidistant along the bars. Gap settings of these expansion sections at the time of installation with an ambient temperature of 30°C.

$$67 - \left[ \left( \frac{30 - 5}{55 - 5} \right) \times 62 \right] = 67 - \left[ \frac{25}{50} \times 62 \right] = 36 \text{ mm gap}$$



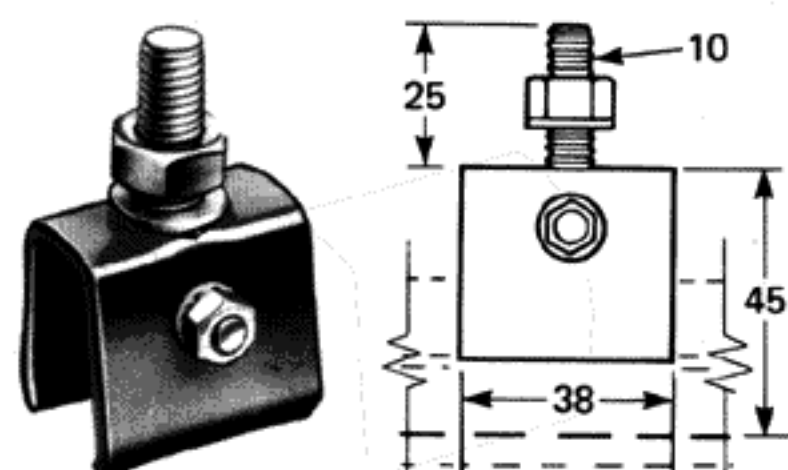
# Conductor Fittings

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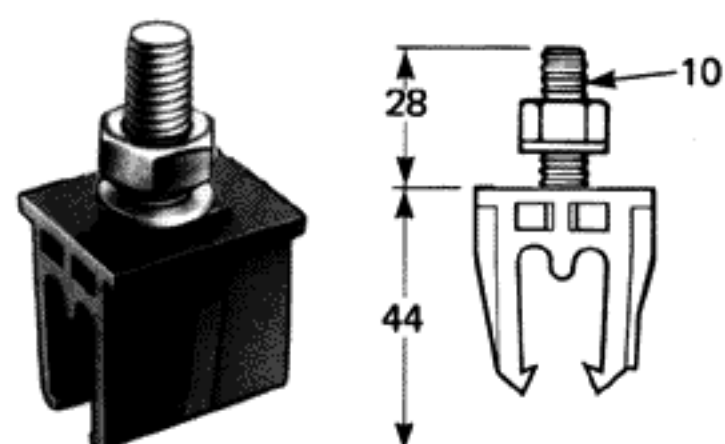
## Hanger Clamp (Steel)



**Part No. 11076**

Manufactured in  
steel zinc coated

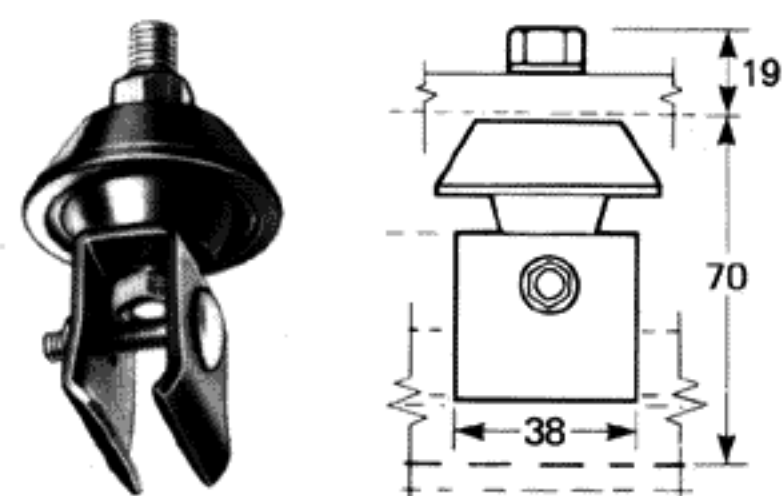
## Hanger Clamp (Plastic)



**Part No. 22800**

Standard snap-in  
type in  
Makrolon.

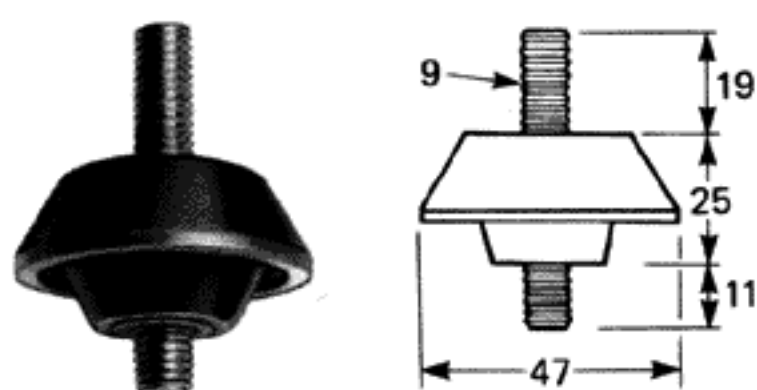
## Insulated Hanger Clamp



**Part No. 11083**

Hanger clamp  
polyester coated  
complete with  
insulator  
Part No. 11087  
for outdoor  
or dirty  
environments.

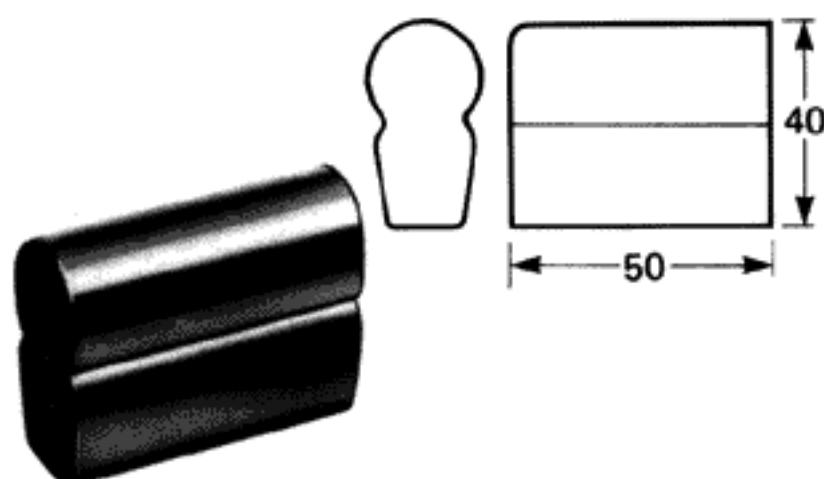
## Insulator



**Part No. 11087**

Insulator for  
high heat to  
149°C. Used with  
hanger clamps.  
Insulators are  
available for  
operating voltages  
up to 7.5 kV.

## End Cap



**Part No. 11088**

For 90 to 350 amp  
conductors to 121°C.

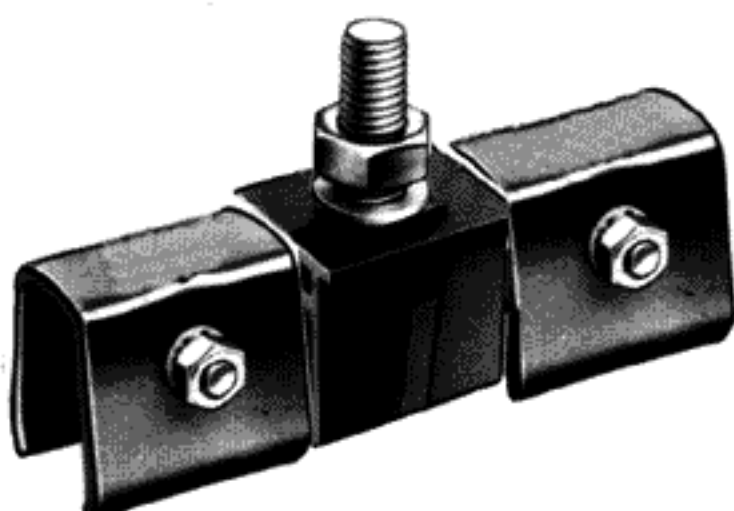
**Part No. 12171**

For 500 amp  
(solid copper)  
conductors to 121°C.

**Part No. 11633**

For all 8-shaped  
conductors to 149°C.

## Anchor Clamp



**Part No. 25151**

For use at anchor  
points on horizontal  
vertical runs

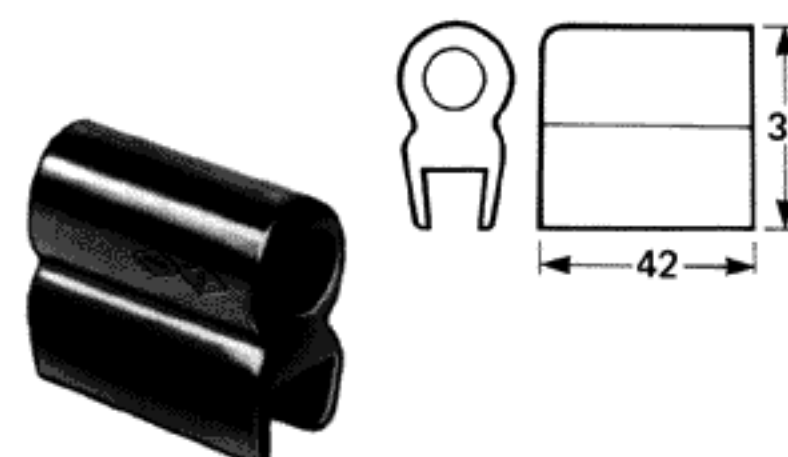
## Isolating Piece



**Part No. 11427**

Moulded plastic  
203mm long,  
for isolating  
and power  
interrupting  
sections.

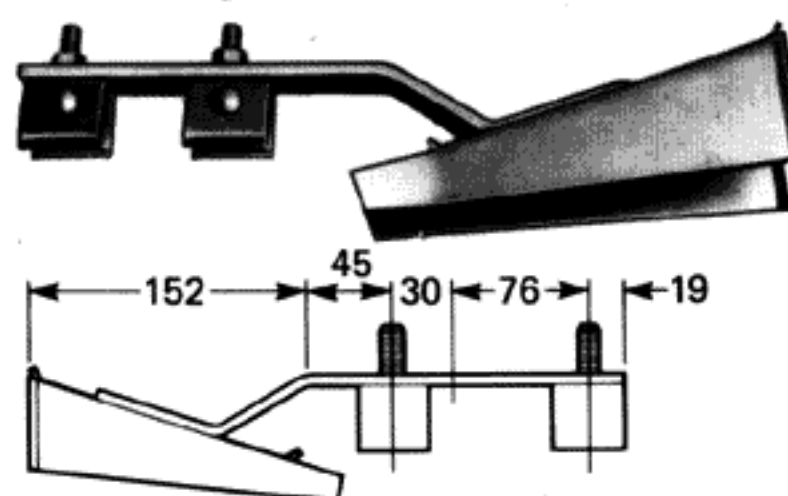
## Transfer Cap



**Part No. 13161**

Moulded plastic  
for use at switches,  
interlocks, pickup  
guides and other  
transfer points.

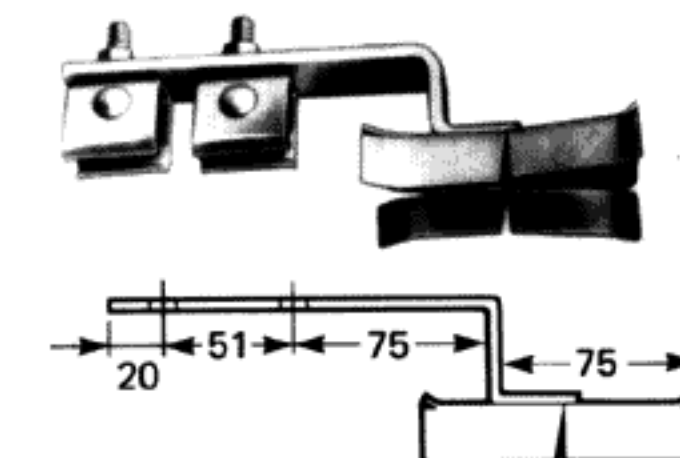
## Pickup Guide



**Part No. 15148**

For 'J' head  
collectors  
(indoors) when  
conductors are  
mounted on 75mm  
minimum spacing.

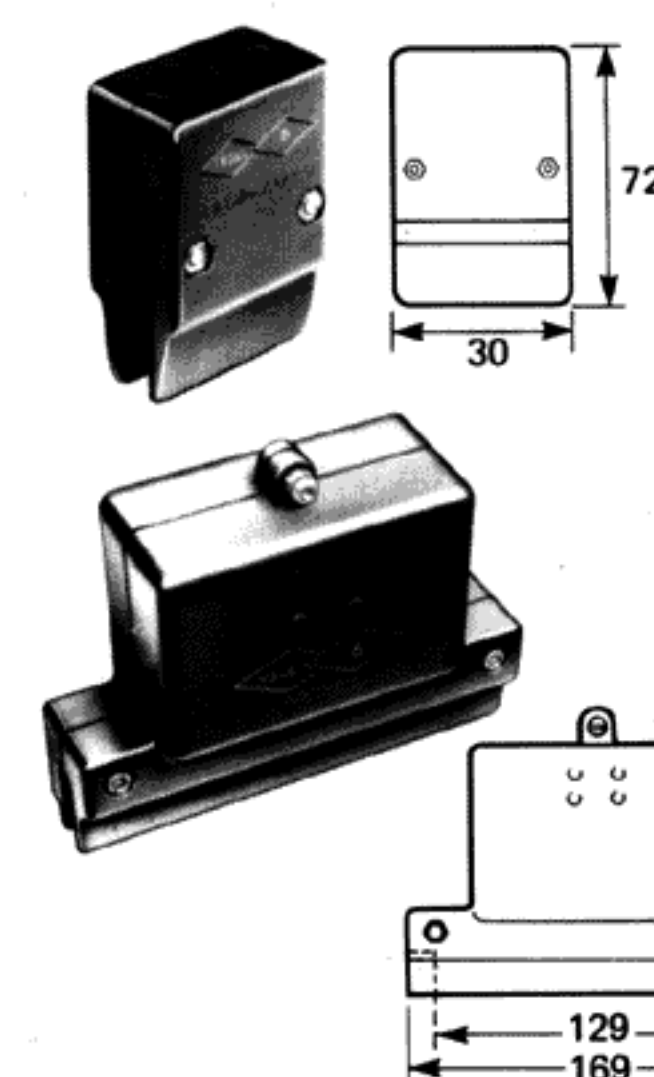
## Transfer Guide



**Part No. 25261**

For 'J' head  
collectors  
(indoors) when  
conductors are  
mounted on 75mm  
minimum spacing.

## Powerfeed Assemblies



**Part No. 11092 (250 amp)**  
Copper clamp type.  
Complete assembly of  
clamp and glass filled  
nylon case.

**Part No. 11094  
(300/500 amp)**  
Copper clamp type  
with stub.  
Complete assembly  
of clamp with four  
hole stub and case for  
temperature to 149°C.

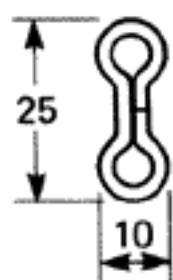
# Conductor Fittings

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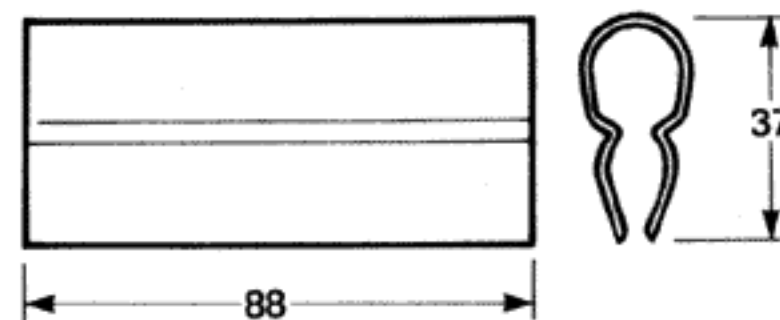
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## Conductor Bars



Material	Length	Part No.
Galvanised steel	3m	<b>11095</b>
Copper steel laminate	3m	<b>11103</b>
Electrolytic copper	3m	<b>11107</b>
Solid copper	6m	<b>11111</b>

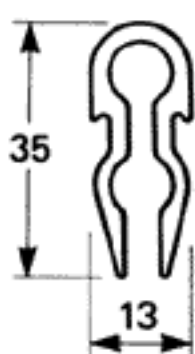
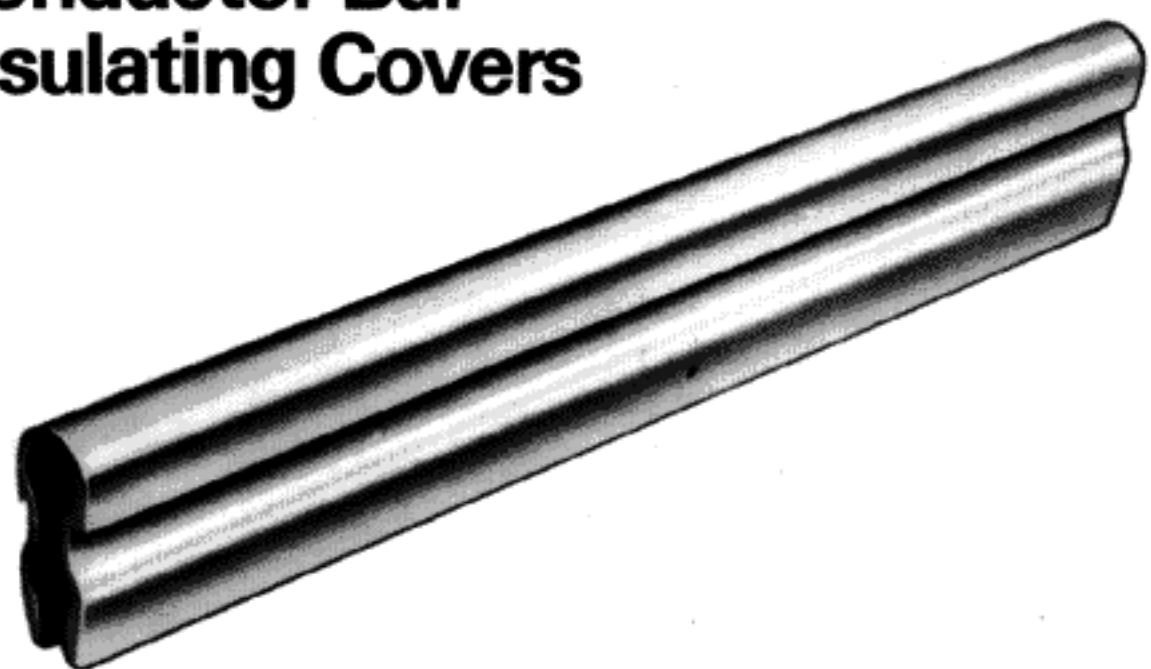
## Joint Covers



**Part No.13600** For all conductor bars with PVC or medium heat covers except solid copper.

**Part No.11123** For all conductor bars with high heat covers except solid copper.

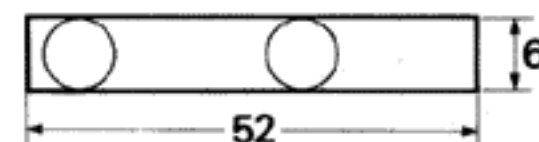
## Conductor Bar Insulating Covers



Type	Length	Part No.
Rigid PVC to 71°C	3m	<b>11114</b>
Medium heat to 121°C	3m	<b>11115</b>
High heat to 149°C	3m	<b>11116</b>

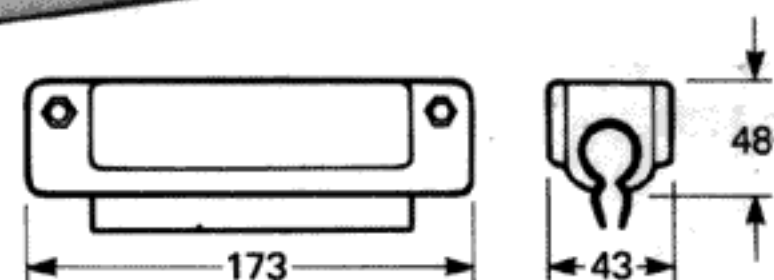
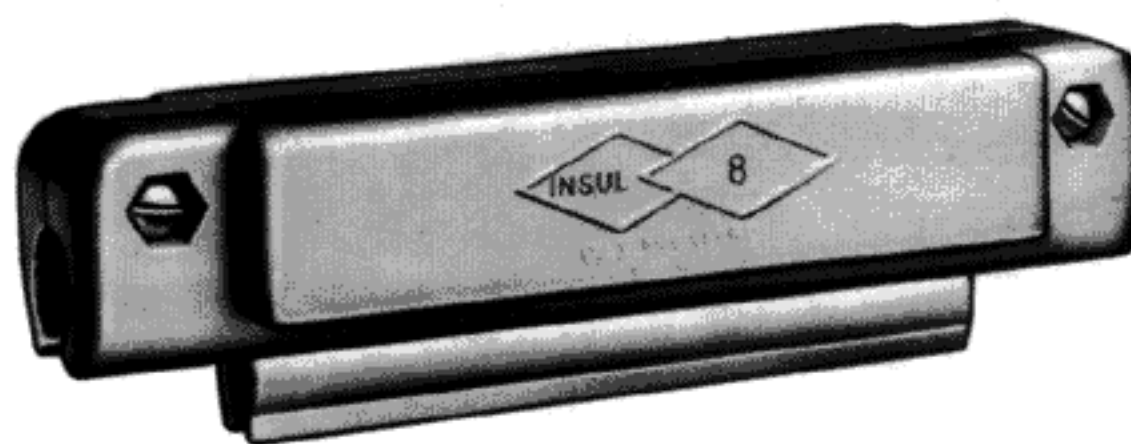
204°C

## Joint Keeper



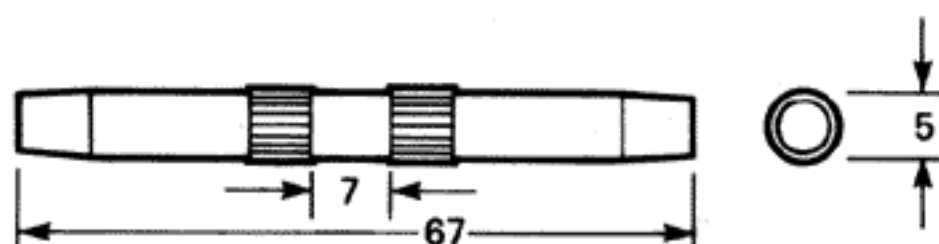
**Part No.11125** For rolled copper and laminated conductor bars.

## Connector Clamp & Cover



**Part No.11117** For solid conductors or for repairs on any figure-8 shaped conductor.

## Connector Pins



**Part No.11120** Galvanised steel for steel conductor bar only.

**Part No.11121** *Copper for:*  
Copper steel laminate,  
electrolytic copper  
conductor bars.

## Connector Tool



**Part No.11134** Used with all 8-bar conductors except solid copper.



# Collectors

(For use with all conductor bars on page 4)

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## 'J' head, 'C' base types 50 amp and 100 amp.

Suitable for indoor and outdoor environments and for straight runs, curves and discontinuous circuits on cranes and monorails of 600V or less. Each collector head is rated at 50 amp or 100 amp.

Collectors are arm type devices which both articulate and swivel. They are spring loaded to maintain proper contact shoe pressure with the conductor and assure reliable operation even under conditions of considerable misalignment, both horizontally and vertically. The easily replaced shoes are mounted in non-conducting cases and support arms are earthed to the supporting structure. All collectors are equipped with flexible lead wires.

Two types of base are available: the short stroke 'H' base is suitable for most applications. The 'C' base is a parallelogram design that allows a longer stroke and is suitable for applications where greater misalignment occurs. A single style of head, type 'J', is available in two sizes, one for 50 amp shoes and another for 100 amp shoes. Either size may be mounted on single 'H' or 'C' bases (standard or lateral) and either may be mounted on tandem 'C' bases (standard or lateral) for additional ampacity and/or reliability.

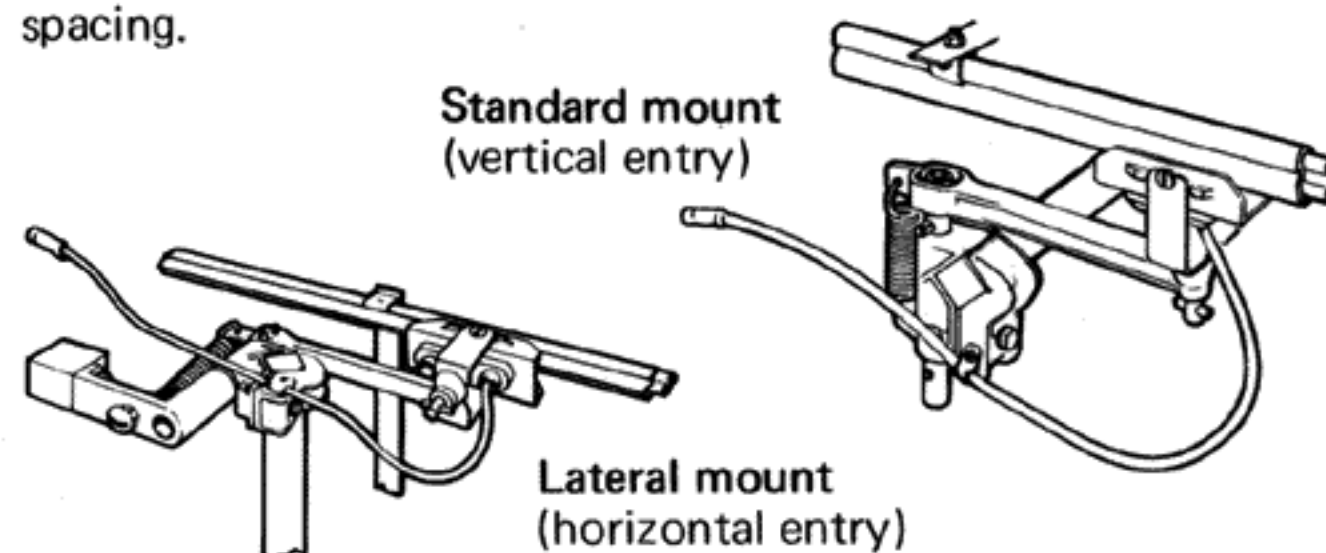
Standard mount collectors (single or tandem head) can negotiate horizontal curves as follows: 50 amp — minimum

radius 460mm; 100 amp — straight runs only.

Refer to factory for all special collector applications.

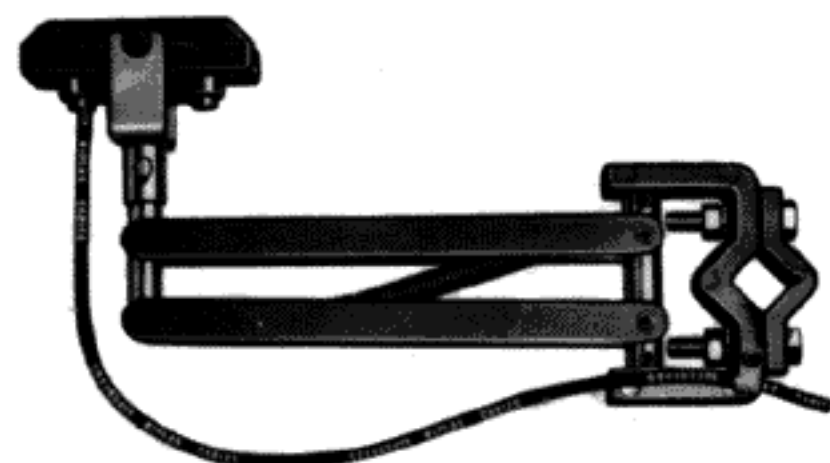
**Single head:** a collector with one contact head and used in either standard or lateral mounting.

**Tandem heads:** a collector with two contact heads mounted on a single base. Used for increased capacity or to maintain electrical continuity across gaps. Single heads may be mounted in tandem, on separate brackets, for increased spacing.

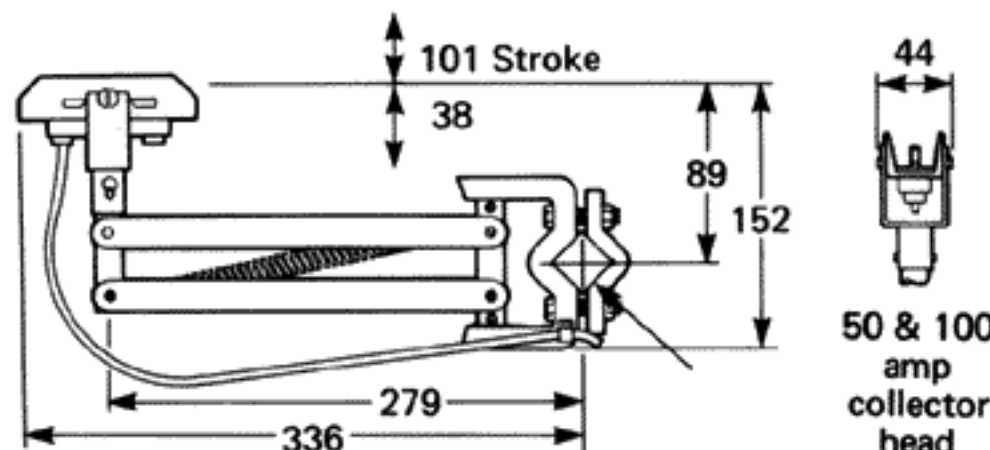


## Contact Shoe Spring Pressure

50 amp collectors 1.36 — 2.3 kilos  
100 amp collectors 2.72 — 4 kilos



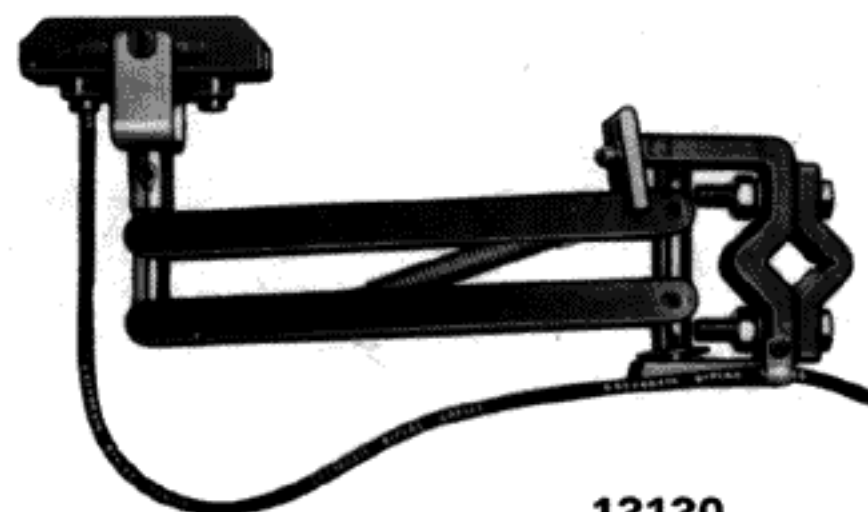
13128



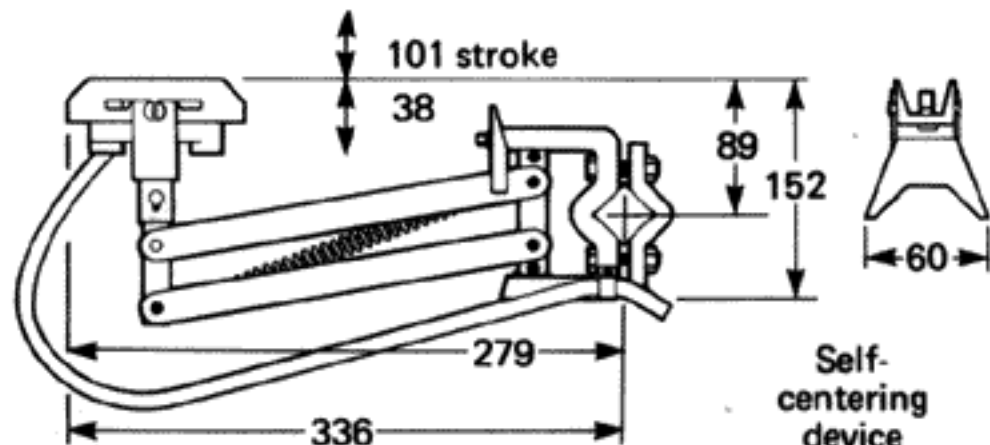
### Standard mount for continuous systems

**13128 50 amp**  
For straight runs and curves to 460mm minimum radius.

**13613 100 amp**  
For straight runs.



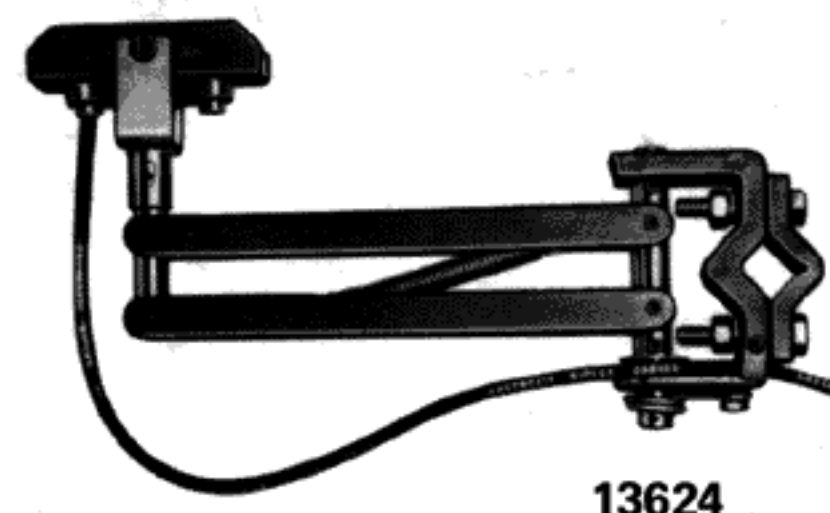
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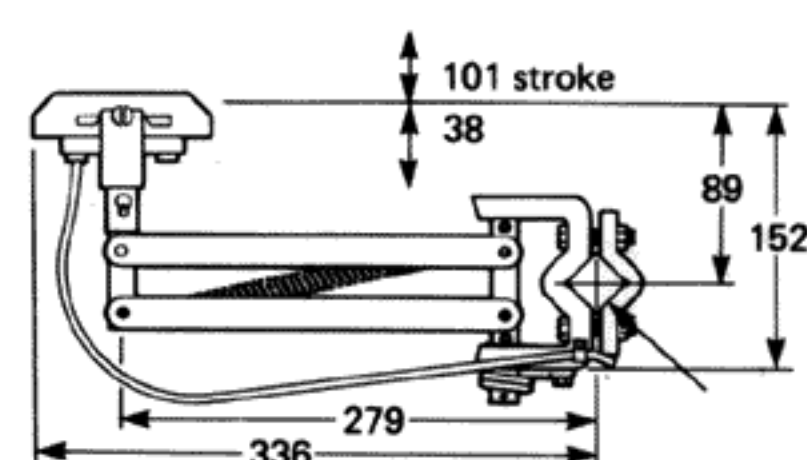
### Standard mount, self-centering, for discontinuous systems

**13130 50 amp**  
For straight runs and curves to 460mm minimum radius.

**13625 100 amp**  
For straight runs.



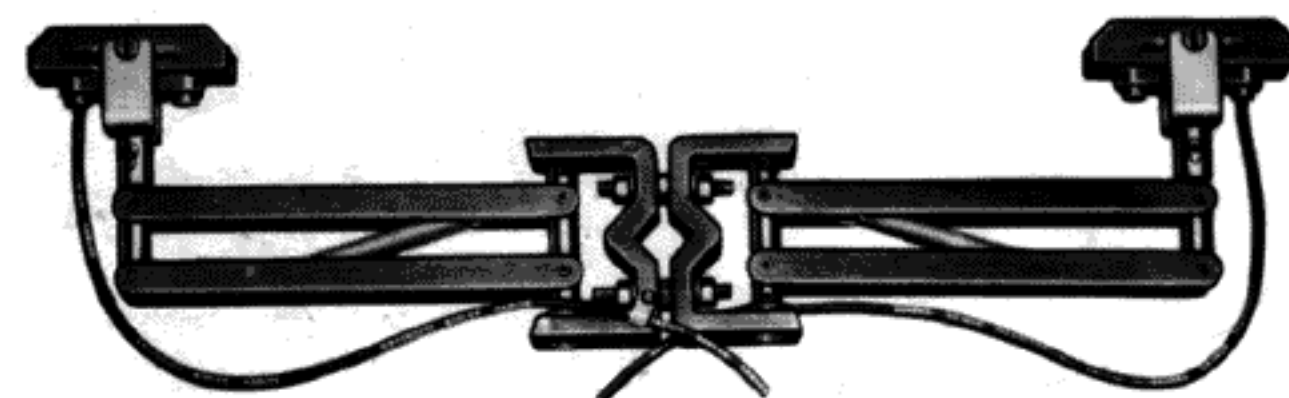
13624



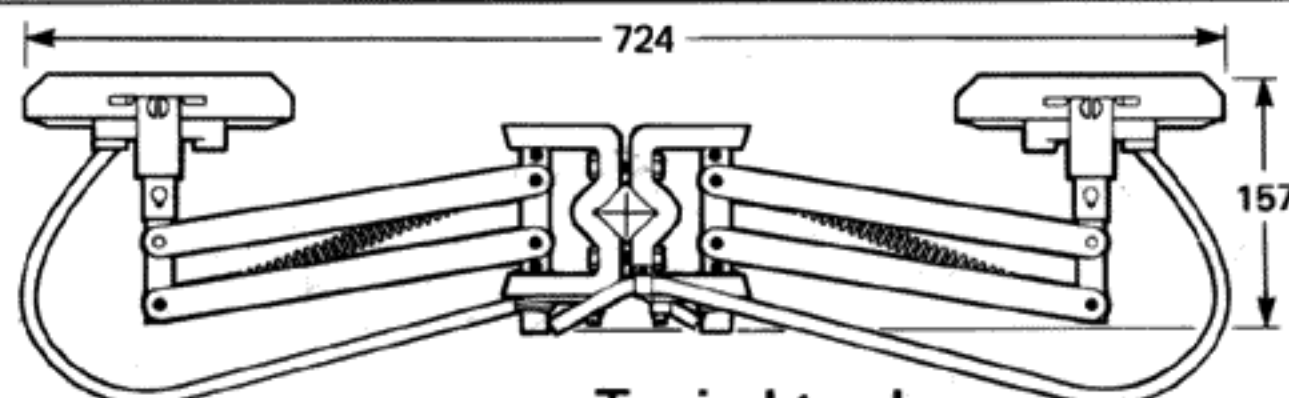
### Lateral mount for continuous straight runs only

**13129 50 amp**

**13624 100 amp**



13082



### Typical tandem

**13082 100 amp** For straight runs.

**13083 100 amp** Self-centering.

**13084 100 amp** Lateral.

**13626 200 amp**

**13628 200 amp**

**13627 200 amp**

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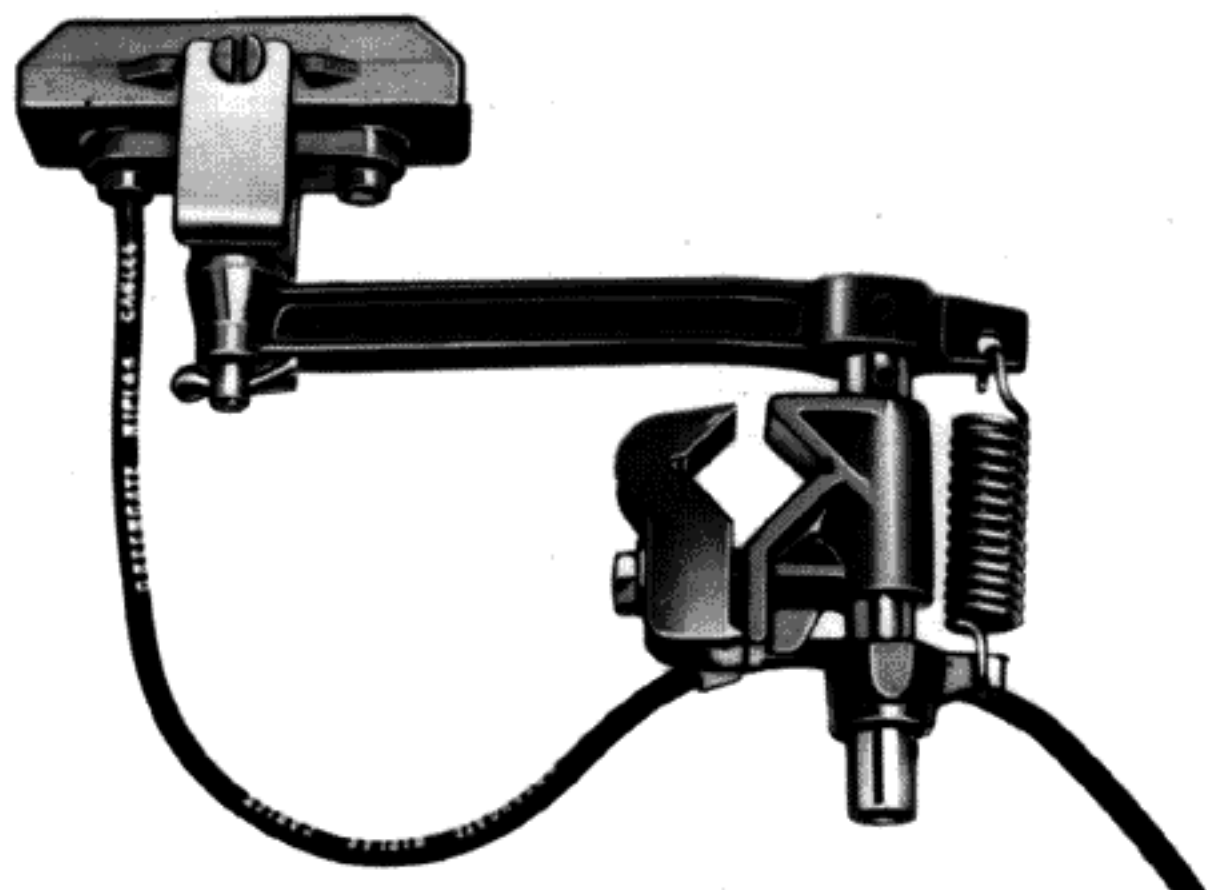
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'J' head, 'H' base types 50 amp and 100 amp.  
For curves and discontinuous systems of 600V or less.  
Collector heads are rated at 50 amp.

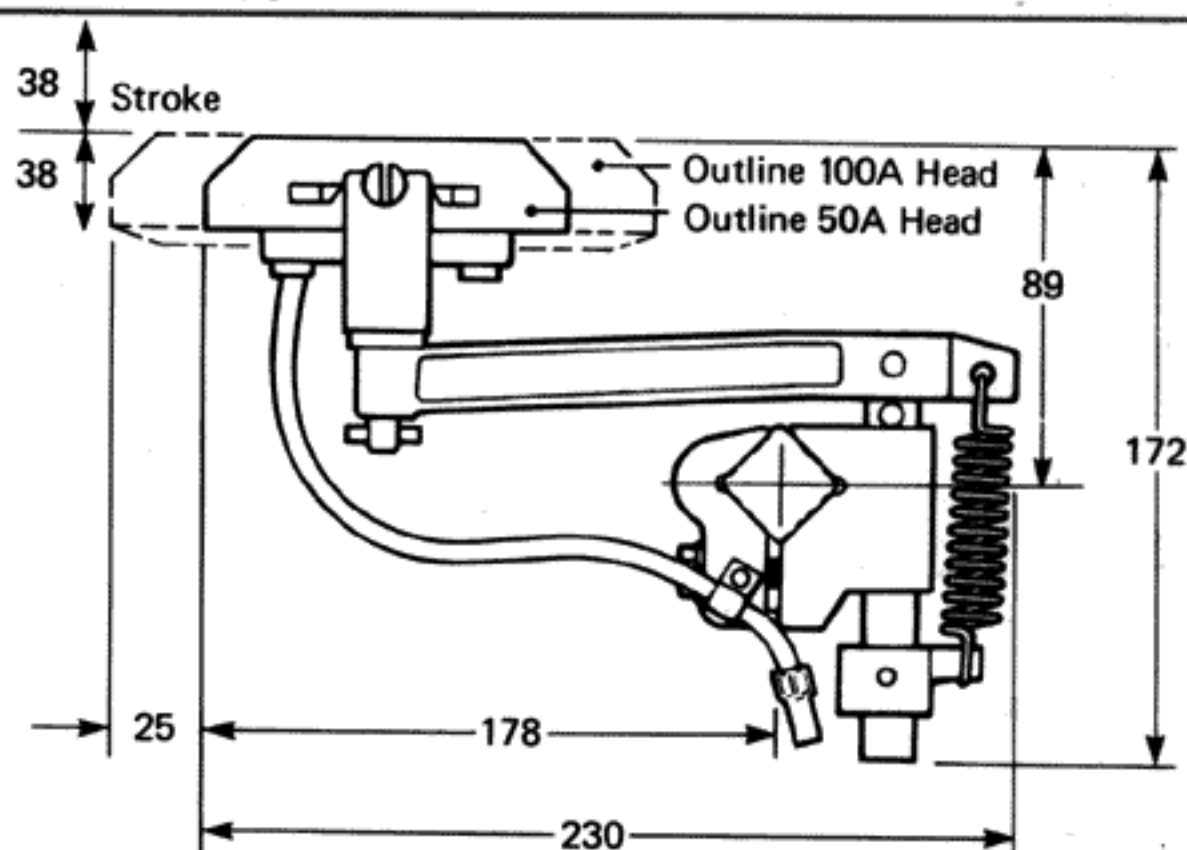
Designs for straight runs, curves and discontinuous systems.



*This head is common to all collectors on this page.*

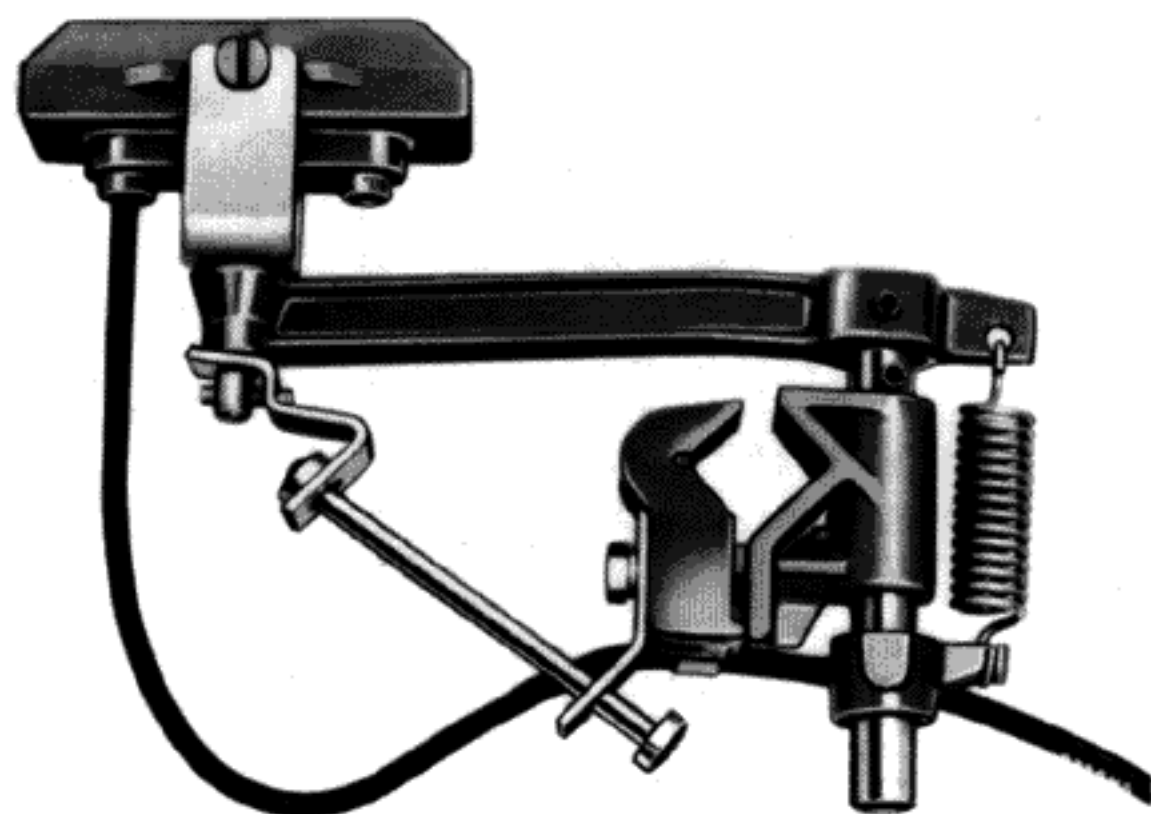


13131

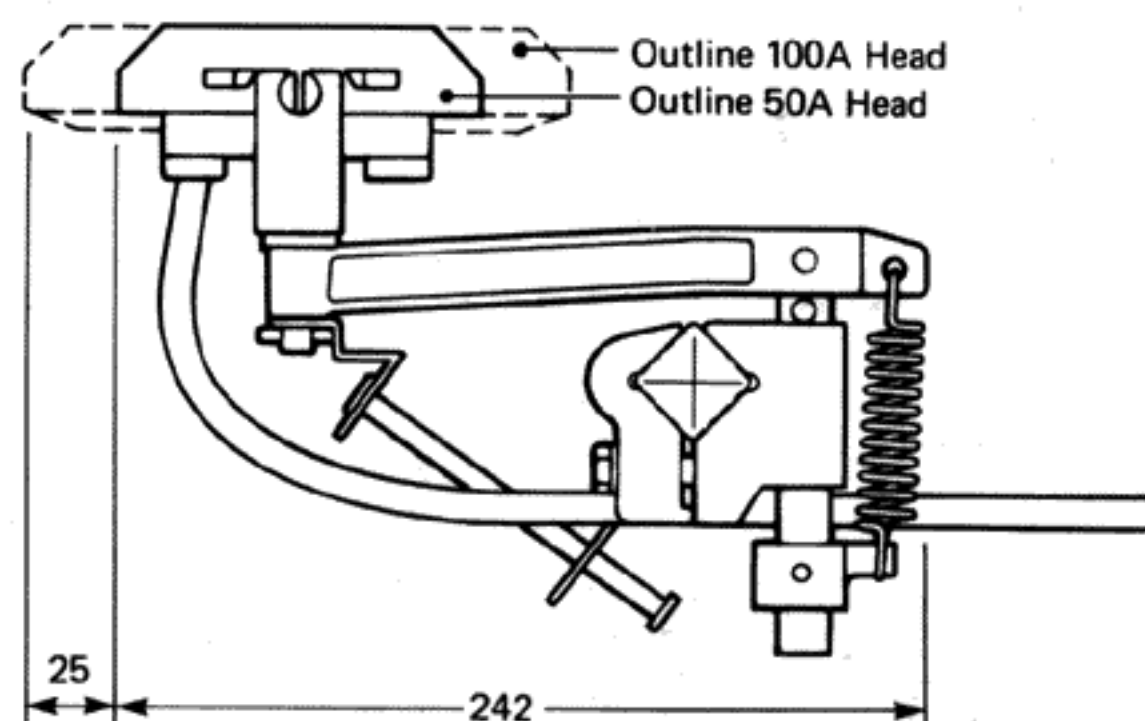


**Standard mount for continuous runs and curves to 460mm minimum radius.**

**13131 50 amp**  
**13629 100 amp** For straight runs.

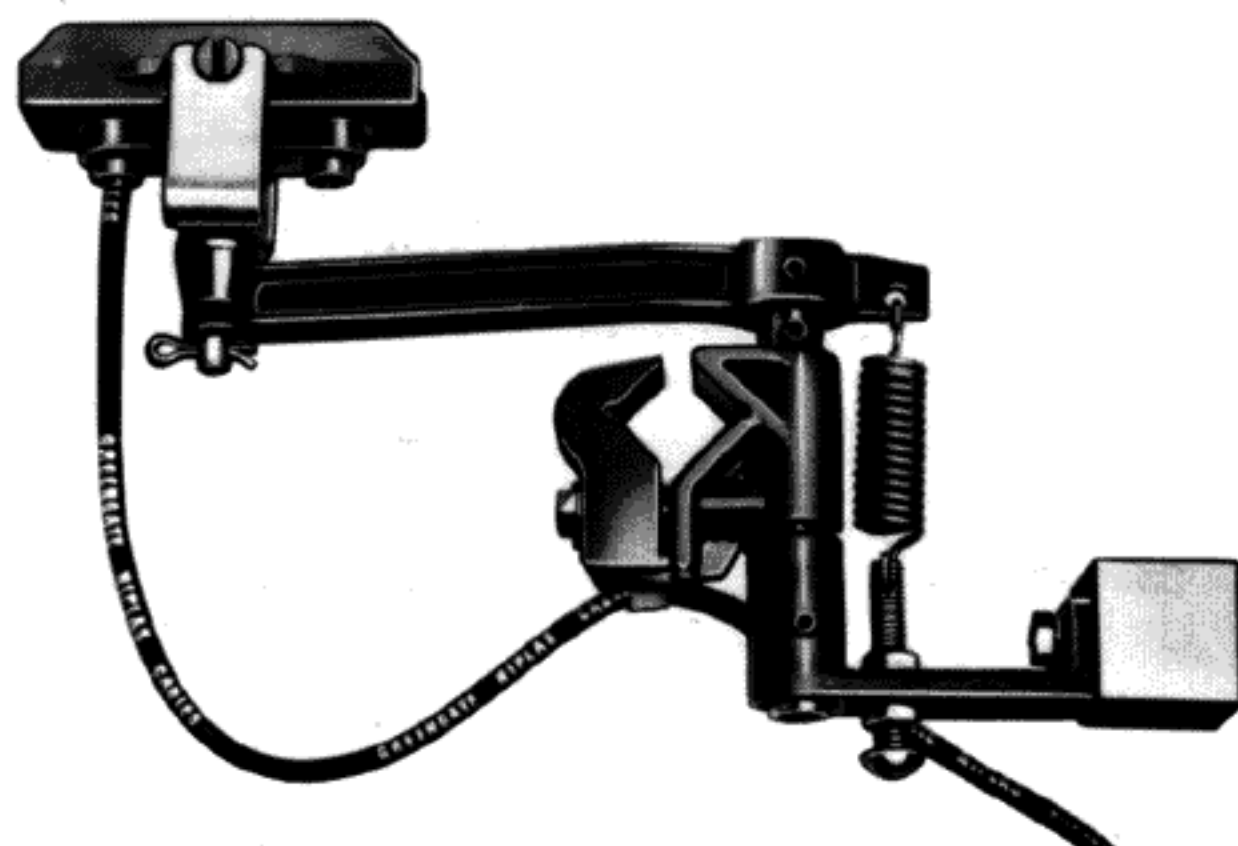


13132

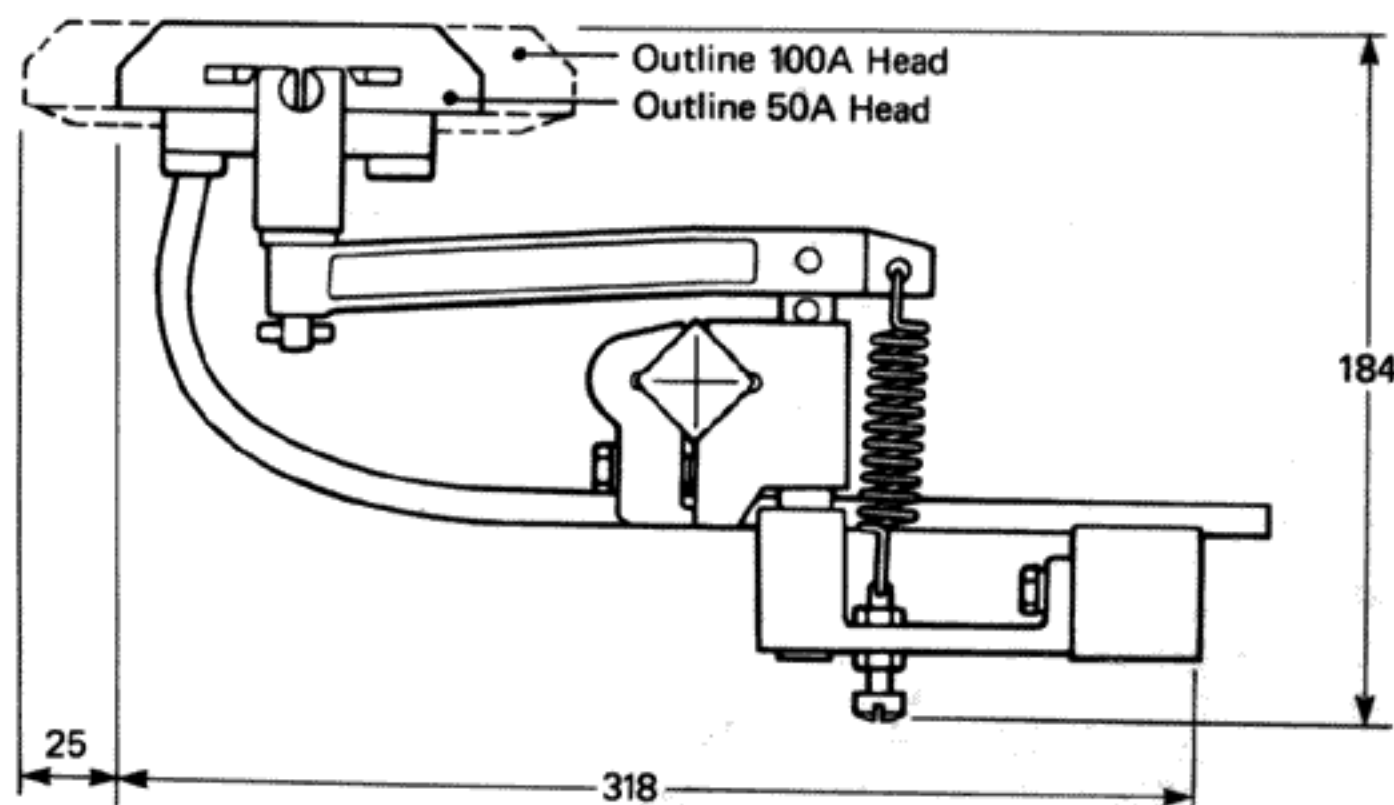


**Standard mount, self-centering, for discontinuous systems.**

**13132 50 amp** For straight runs and curves to 460mm minimum radius.  
**13630 100 amp** Discontinuous straight systems.



13133



**Lateral mount for continuous systems — not recommended for use on monorails**

**13133 50 amp**  
**13631 100 amp**

*All dimensions in millimetres*