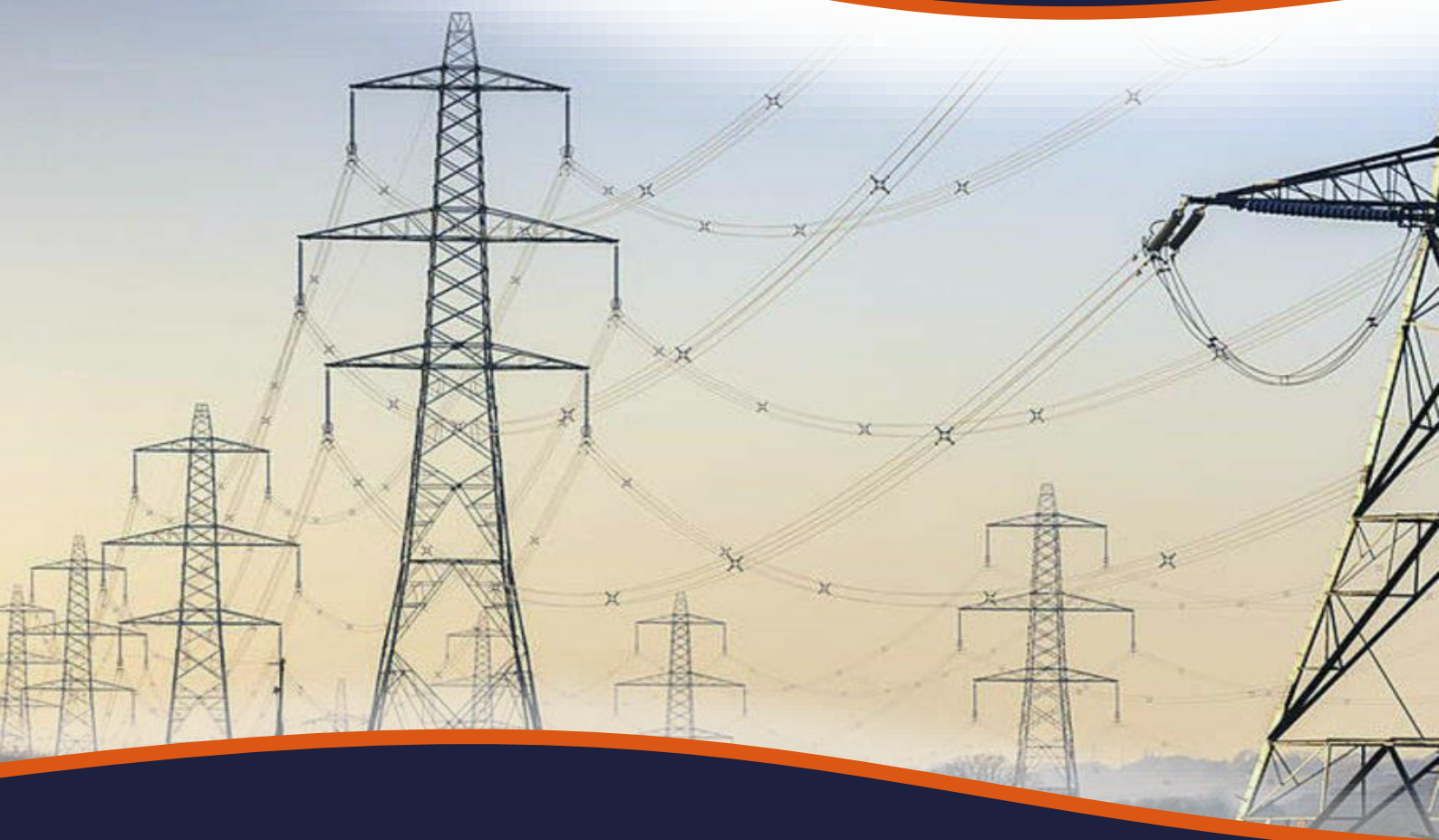




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# P&B Weir Electrical Ltd.

## Transmission Line Earthing Equipment

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[www.pentaesp.com](http://www.pentaesp.com)

# Transmission Line Earthing Equipment

## PRODUCT RANGE

1

The PENTA P&B range of equipment for use on transmission lines has a proven track record of many years' service in the electricity supply industry and conforms to the requirements of ENA 41-21.

### PRODUCT BENEFITS



Solid construction to give extended service



Proven service record used by the electricity supply industry for more than 40 years



Lightweight and excellent resistance to corrosion

### TRANSMISSION LINE END CLAMPS

The Transmission Line range of portable earthing is suitable for temporary earthing of conductors within the range 132kV, 275kV and 400kV.



#### CE69 LINE END CLAMP

The CE69 clamp is to be applied in either an upward or downward direction utilising an OL1 operating socket attached to an insulated operating pole. The spring-loaded jaws enable the clamp to be slipped easily over the line conductor and retain the clamp in position whilst the operating screw is being tightened or loosened. The clamp is suitable for application to conductors ranging from 13mm to 46mm.

Clamping Diameter: 13- 46mm

Short Circuit Rating: 20kA/ 1s

Cont. Current Rating: 300A

Weight: 0.632kg

**Part Number: EFP-16743**

*Applied in either an upward or downward direction using an OL1 Socket.*

#### CE13/A LINE END CLAMP

The CE13/A Line End clamp attaches to an OL1 operating socket and is designed to be applied in a nearly horizontal position, from the tower cross arm over tension set insulators to the conductor. The CE13/A clamp accommodates a range of conductors from 19mm to 42mm.

Clamping Diameter: 19-42mm

Short Circuit Rating: 20kA/ 1s

Cont. Current Rating: 300A

Weight: 0.996kg

**Part Number: EFP-11868**

*Angled jaws allow application from a near-horizontal position*



LAST UPDATED 23/01/2024/SM



# Transmission Line Earthing Equipment

## PRODUCT RANGE

2



### CE10/A2 LINE END CLAMP

The CE10/A2 clamp is for direct application by hand to steelwork. The large thumbscrew of the device has a captive hardened steel tip which penetrates through painted, weathered or non-conductive surfaces and indents into the steelwork, ensuring a strong connection to earth potential.

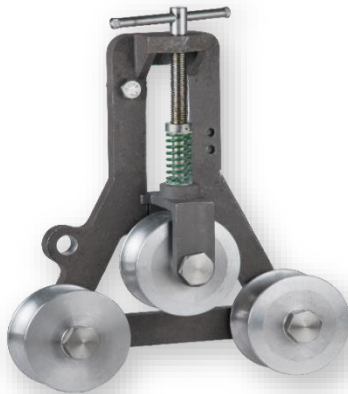
Short Circuit Rating: 8.9kA/ 1s  
Cont. Current Rating: 150A  
Weight: 0.401kg  
Patent Reference: GB2463506  
**Part Number: EFP-11173/1**

*Hardened steel tip penetrates non-conductive surfaces for a strong connection.*

### CE18/A BRIDGING CLAMP

The CE18/A clamp is for earthing the conductor over the tension set insulators to the tower arm coupling during maintenance. It bolts to the coupling through the clearance hole for the arcing horn bolt, which is removed before earthing.

Short Circuit Rating: 8.9kA/ 1s  
Cont. Current Rating: 150A  
Weight: 0.331kg  
**Part Number: FA2043-C**



### CE23/A RUNNING EARTH CLAMP

The CE23/A Running Earth clamp is designed specifically for earthing line conductors during “stringing” operations. The CE23/A Running Earth enables the cable to run freely between contact roller faces whilst providing a positive contact to earth.

The earth is anchored to a convenient position using the lanyard locating hole. The maximum size of a conductor that can be accommodated is 42mm. The CE23/A has a short circuit rating of 18kA/1s and a continuous current rating of 300A.

Improved cable fixing location offers improved strength, suitable for PB50 and PB120 palm terminations.

Clamping Diameter: Up to 42mm  
Short Circuit Rating: 20kA/ 1s  
Cont. Current Rating: 300A  
Weight: 4.758kg  
**Part Number: FA2127**

*Enables to run freely whilst providing a positive contact to earth.*



# Transmission Line Earthing Equipment

## PRODUCT RANGE

3



### CE81 LINE END CLAMP

Designed for large special conductors such as used for river crossings and CCC conductor with double 'Armour Rods'. The CE81 Line End clamp is to be applied in either an upward or downward direction using an OL1 operating socket attached to an insulated operating pole. The spring-loaded jaws enable the clamp to be slipped easily over the line conductor and retain the clamp in position whilst the operating screw is being tightened or loosened.

Short Circuit Rating: 20kA/ 1s

Continuous Current Rating: 300A

Weight: 0.861kg

**Part Number: EFP-16790**

*The clamp is suitable for application to conductors ranging from 46mm to 86mm diameter.*





### TRANSMISSION OPERATING POLES

PENTA P&B offers a range of operating poles suitable for 66-400kV for Transmission Line use. These include 8/16ft telescopic poles, 6ft extensions, 2ft bridging poles and approved single section dedicated pole sets for easy clip together assembly.

The two-part telescopic pole has an extended length of 4.83m (15' 10") and a closed length of 2.55m (8' 4"). Intermediate spring-loaded locking pegs provide partially extended lengths of 4m (13' 1") and 4.4m (14' 5"). The pole requires an OL1 operating socket for the application of our line end clamps with long taper style operating screws.

A 0.6m (2') bridging earth pole is available with a rain shield fitted above the open weave bonded hand grip and a swivelling eye fitting at the bottom of the pole. The pole employs an operating socket for application of our line end clamps with long taper type operating screws.

### PRODUCT BENEFITS

-  Open weave hand grips
-  Rain shield available
-  'Snap action' button joints
-  Lightweight rigid sections





# Transmission Line Earthing Equipment

## PRODUCT RANGE

4

### 8FT /16FT TELESCOPIC POLE WITH OLI SOCKET & SLING

The two-part telescopic pole has an extended length of 4.83m (15' 10") and a closed length of 2.54m (8' 4"). Intermediate spring-loaded locking pegs provide partially extended lengths of 4m (13' 1") and 4.4m (14' 5"). The pole is supplied with an OL1 operating socket for the application of our Line End clamps with long taper style operating screws.

Extended Length: 16 ft/ 4.83m

Retracted Length: 8 ft/ 2.54m

Operating Socket needed: OL1 socket

Weight: 3.4kg

**Part Number: FA1816-B**

*Supplied with an OL1 Socket and a carry sling.*

### 8FT /16FT TELESCOPIC POLE

Extended Length: 16 ft/ 4.83m

Retracted Length: 8 ft/ 2.54m

Operating Socket needed: OL1 socket

**Part Number: FA1816-A**

*Supplied with an OL1 Socket.*

### 6FT POLE WITH SLING

Attaches to the 8/16ft Telescopic Pole to extend overall length to 22ft / 6.7m.

Total Length: 6ft / 1.8m

Weight: 1.68kg

**Part Number: FA1817-A**

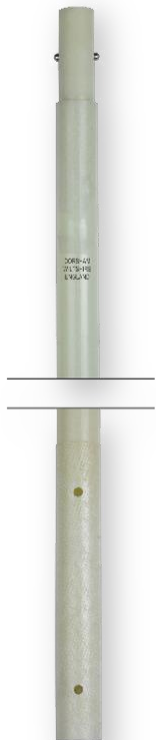
### 6FT OPERATING POLE WITHOUT SLING

Attaches to the 8/16ft Telescopic Pole to extend overall length to 22ft / 6.7m.

Total Length: 6ft / 1.8m

Weight: 1.6kg

**Part Number: FA1817-B**



# Transmission Line Earthing Equipment

## PRODUCT RANGE

5



### OL1 OPERATING SOCKET

Suitable for fitting Long Taper Clamps, spring Loaded.

Weight: 0.23kg

**Part Number: FA1200-B**

Suitable CE13/A, CE69 and CE81 Line End clamps.

### 2FT BRIDGING POLES

0.6m (2 ft) Bridging Pole assembly.

Total Length: 2ft/ 0.6m

Weight: 0.98kg

**Part Number: EFR-18109**

Supplied with Operating socket, Rain Shield and Swivel Eye Fitting.



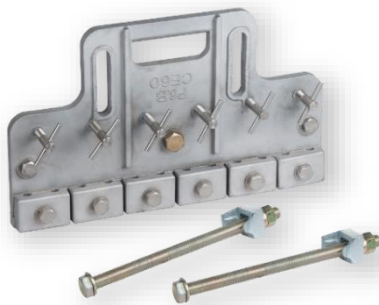
## TRANSMISSION SPARROW PLATES

The CE60 Sparrow Plate is a multiple-earth tower bonding plate. Designed for the control of induced currents, to manage short circuits upon adjacent circuits, protect in the event of re-energisation of the circuit being worked upon and provide a common point of earthing connection for portable drain earths, equipment and platforms by removal of step and touch potentials.

PENTA P&B currently offers two types of Sparrow plate, the MK1 (pre-2014) and the MK2 (post-2014). Contact us more for more information on which version you require full refurbishment and repair service also available.

### PRODUCT BENEFITS

- Lightweight aluminium alloy
- Good corrosion resistance
- PB50F and PB120F ferrule compatible



### CE60 SPARROW PLATE MK1 (PRE-2014)

Fits up to six portable Line Earth with PB50F Ferrule terminations and up to six further equipment earth. Provision for up to four interconnecting leads (120 sq.mm) with PB120 terminations.

Cont. Current Rating: 600A

Short Circuit Rating: 36kA/ 1s

**Part Number: EFP-16785**

*Bonding lead connections are suitable for Palm terminations only.*



### CE60 SPARROW PLATE MK2 (POST-2014)

Fits up to six portable Line Earths and up to six further equipment earth with PB50F terminations. Provision for up to four interconnecting leads (120 sq.mm) with PB120F terminations.

Cont. Current Rating: 600A

Short Circuit Rating: 36kA/ 1s

**Part Number: EFP-16710**

European Registered Design Number: 001404578-0001 &  
001404578-0002

*Bonding lead connections are suitable for Ferrule terminations only.*

*Spares: CE60 Sparrow Plate 'back-to-back' fittings kit ref: EAP-20117*



# Transmission Line Earthing Equipment

## PRODUCT RANGE

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### TRANSMISSION DRESS SYSTEM ACCESSORIES



#### CE61 DEAS BAR

Insulated Earthing bar for use in the dead-end arcing horn bolt hole when lowering off tension set insulators. Suitable for use with CE69 Line End, CE18/A Bridging Earth, CE13/A Line End, PB50 terminated leads and CE52 legacy Line End clamps.

Short Circuit Rating: 9.1kA/ 1s

Continuous Current Rating: 450A

**Part Number: EFP-16711**

#### PLAIN TEE CONNECTOR

To join Sparrow Plate connecting bonds. Compatible with PB120 palm terminations only.

Short Circuit Rating: 36kA/ 1s

Continuous Current Rating: 600A

**Part Number: EFP-16783**



#### CE84 TEE CONNECTOR

To join sparrow plate connecting bonds.

Compatible with PB120F Ferrule terminations only.

Short Circuit Rating: 36kA/ 1s

Continuous Current Rating: 600A

European Design Registration Number: 001404578-0003 and 001404578-0004

**Part Number: EFP-17528**

### TRANSMISSION EARTHING LEADS

PENTA P&B can supply Aluflex leads in any length required, in a range of sizes including 50sqmm, 120sqmm.

PENTA P&B can offer training for maintenance on leads, or repair/replace leads as required. The Earth leads are wrapped with a layer of P.T.P. tape and covered with an extruded clear P.V.C. sheath. Flexible clear P.V.C. stress-relieving sleeves are fitted to prevent excessive wear around the compression joints. The Earth End to Line End clamp interconnecting lead has a 50sqmm nominal section area, terminated by PB50F type ferrule terminations.



#### 120SQMM CLEAR ALUFLEX

Short Circuit Rating: 20kA/ 1s

Cont.Current Rating: 300A

Weight per Metre: 390g

**Part Number: R10909**

*Other lead configurations are available upon request.*

#### 50SQMM CLEAR ALUFLEX

Short Circuit Rating: 8.9kA/ 1s

Cont.Current Rating: 150A

Weight per Metre: 190g

**Part Number: EFL-19100/1**

*Other lead configurations are available upon request.*



Earth bonds are of a 120 sqmm nominal section terminated either by PB120 palm type terminations or PB120F Ferrule terminations, depending upon which style CE60 Sparrow plate is used. Flexible clear P.V.C. stress-relieving sleeves are fitted to prevent excessive wear around the compression joints.



# Transmission Line Earthing Equipment

## PRODUCT RANGE

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### 50SQMM ARCTIC ORANGE FIELD DRAIN EARTH

Short Circuit Rating: 8.9kA/ 1s

Cont.Current Rating: 150A

Weight per Metre: 190g

**Part Number:** EFL-19128

*Other lead configurations are available upon request.*



### CE4 SCAFFOLD CLAMP

Clamping Diameter: 20- 50mm

Weight: 0.669kg

Continuous current rating: 150A

Short Circuit Rating: 8.9kA/ 1s

**Part Number:** FA3736-A

## TRANSMISSION ALUMINIUM TERMINATIONS



### PB50 ALU. 11 DIA HOLE

Suitable for M10 and 3/8" fasteners

**Part Number:** EMP-07880/1

**Support sleeve:** 6112-01



### PB50 ALU TERMINATION 13 DIA HOLE

Suitable for M12 & 1/2" fasteners

**Part Number:** EMP-07880/3

**Support sleeve:** 6112-01



### PB50F FERRULE TERMINAL

Suitable for 50sqmm Aluflex cable, available to suit M10 and M12 fasteners.

**Part Number:** EMP-07886

**Support sleeve:** 6112-01



### PB50S TERMINATION LUG

Suitable for Capacitor output posts

**Part Number:** EMC-07887

**Support sleeve:** 6112-01



### PB50T ALUMINIUM TERMINATION WITH 13-DIA HOLE

**Part Number:** EMP-07884

**Support spring:** EBL-16548



### PB70 ALU. TERMINATIONS

Suitable for 70sqmm Aluflex cable, suits M12 fasteners.

**Part Number:** EMP-07883/1 (11 Dia Hole)

EMP-07883/3 (13 Dia Hole)

#### TERMINATION

PB70 Alu. Termination

PB70T Alu. Termination

PB70F Alu. Termination

#### Support sleeve

6112-01

EBL-16548

6112-01



### PB95F ALU. TERMINATION

Suitable for 95sqmm Aluflex cable, suits M12 fasteners.

**Part Number:** EMP-07897

**Support spring:** EBP-14714





# Transmission Line Earthing Equipment

## PRODUCT RANGE

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### **PB95T ALU. TERMINATION WITH 13 DIA HOLE**

**PB95F Alu. Termination**      **EMP-07889**  
**Support Spring:**              xxxxxxxx



### **PB95T ALU. TERMINATION WITH 11 DIA HOLE**

**PB95F Alu. Termination**      **EMP-07889/1**  
**Support Spring:**              **EBP-14714**



### **PB95T ALU. TERMINATION WITH 13 DIA HOLE**

**PB95F Alu. Termination**      **EMP-07889**  
**Support Spring:**              xxxxxxxx

### **PB120T ALU. TERMINATIONS 13 DIA HOLE**

Suitable for 120sqmm Aluflex cable,  
suits M12 fasteners.

**Part Number:**              **EMP-07885**  
**Support spring:**              xxxxxxxx

### **PB120T ALU TERMINATION 13.25 DIA HOLE**

**Part Number:**              **EMP-07881/3**  
**Support spring:**              xxxxxxxx



### **PB120F FERRULE TERMINATION**

Suitable for 50sqmm Aluflex cable. For  
fitting to CE10/A2, CE13/A, CE69, and  
CE81 Clamps.

**Part Number:**              **EMP-07891**  
**Support sleeve:**              xxxxxxxx



### **PB120 ALU. TERMINATIONS**

Suitable for 120sqmm Aluflex cable,  
suits M12 fasteners.

**Part Number:** **EMP-07881/1 (11 Dia Hole)**  
**EMP-07881/3 (13 Dia Hole)**

**Support sleeve:**              xxxxxxxxxxxx



### **120 PALM TERMINATION**

**Part Number:**              **EBP-07888**  
**(18 Dia Hole)**  
**Support sleeves:**              xxxxxxxx



### **SP150 TERMINATION EXTRA LONG PALM**

**For bolting to steel structures**

**Part Number:**              **EMP-07882/2**  
**Support spring:**              xxxxxxxx

# Transmission Line Earthing Equipment

## PRODUCT RANGE

9

### OTHER CABLE PARTS

#### 50SQMM STRAIN RELIEF SLEEVE

Part Number: 6112-01



#### 120SQMM STRAIN RELIEF SLEEVE

Part Number: xxxxxxxx



#### 50SQMM CU. PALM TERMINATION M10

Part Number: MISC-00312



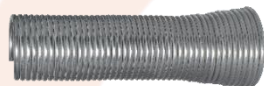
#### 50sq.mm STRESS RELIEVING SPRING

Part Number: EBL-16548



#### 120sq.mm STRESS RELIEVING SPRING

Part Number: 4906



#### 150sq.mm STRESS RELIEVING SPRING

Part Number: EBP-14714

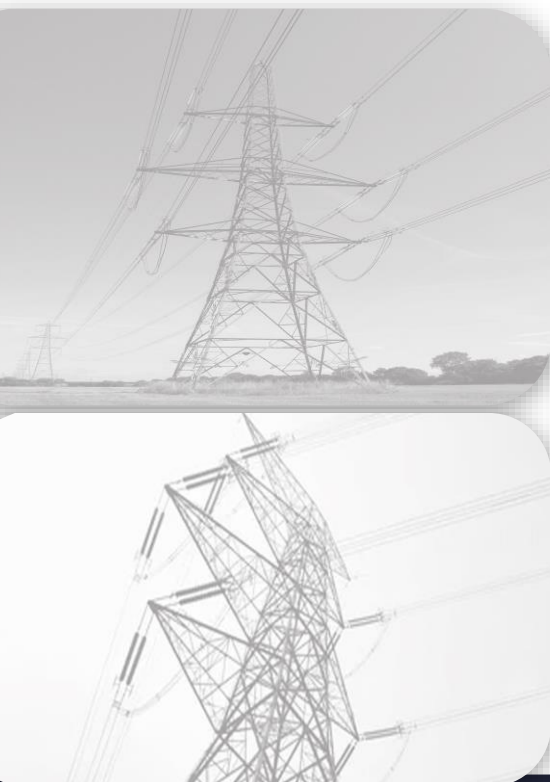


#### SPECIAL ALU. FERRULE 95sq.mm

Part Number: SK170506-3/2



*Note: Short circuit and continuous current data is not quoted for terminations, as the method and quality of a third party compression cannot be guaranteed to replicate our in-house termination process for leads, as per our own type-tested products (see Aluflex Leads section).*



# Transmission Line Earthing Equipment

PRODUCT RANGE

10



## EARTH SPIKE

Steel welded construction and galvanised finish.

Weight: 3.8kg

Part Number: FA3174-A



## REYNOLD AND MEWP PRODUCTS

Part Number	Description
EFP-16738	Reynolds bond for conductor sampling.
EFP-16738/1	Reynolds bond for hot joint repairs.
EFP-16760	MEWP Earthing kit (photo enclosed).
EFP-20077	MEWP vehicle modification kit.
EFP-19306	Substation applied DrESS kit.



**MEWP EARTH KIT AND  
THE EARTH SPIKE IN  
USE ON SITE.**



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