

# Substation Earthing

The PBwel range of equipment for use in Substations has a **proven track record** of many years service in the Electricity Supply Industry. As well as supplying a standard range of **approved equipment**, PBWEL also have the capability to design **new solutions** for any Portable Earthing requirement.



Our range includes Line end Clamps, Earth end Clamps, Aluflex Leads, Operating Poles, Connectors and Bonds, and much more.





PBwel

**FOR A LIFE ON THE LINE**

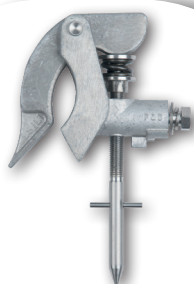
P&B Weir Electrical Ltd

+44 (0) 1225 811 449

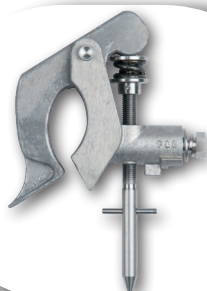
[weir@pbwel.com](mailto:weir@pbwel.com)

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



**CE22/A Line end Clamp**

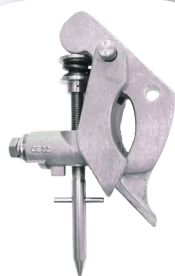
Clamping Diameter-	10-38mm
Short Circuit Rating-	17.5kA/2sec
Max number of Leads-	1
Weight-	1.051kg
Part Number-	FA2738-A

**CE22/B Line end Clamp**

Clamping Diameter-	37-76mm
Short Circuit Rating-	17.5kA/2sec
Max number of Leads-	1
Weight-	1.090kg
Part number-	FA2143-B

**CE22/C Line end Clamp**

Clamping Diameter-	60-90mm
Short Circuit Rating-	17.5kA/2sec
Max number of Leads-	1
Weight-	1.267kg
Part number-	FA2739-A

**CE22/A+B Line end Clamp**

Clamping Diameter-	19-76mm
Short Circuit Rating-	17.5kA/2sec
Max number of Leads-	1
Weight-	1.086kg
Part number-	FA2143-A

**CE25 Line end Clamp**

Clamping Diameter-	35-75mm
Short Circuit Rating-	38kA/2sec
Max number of Leads-	2
Weight-	1.728kg
Part number-	FA2169-B



## CE I 6/5.5 Line end Clamp

Clamping Diameter-	140mm
Short Circuit Rating-	50kA/3sec
Max number of Leads-	3
Weight-	2.073kg
Part Number-	FA2004-A



## CE I 6/5 Line end Clamp

Clamping Diameter-	127mm
Short Circuit Rating-	50kA/3sec
Max number of Leads-	3
Weight-	2.406kg
Part number-	FA2844-A



## CE I 5 Line end Clamp

Clamping Diameter-	90mm
Short Circuit Rating-	36.5kA/2sec
Max number of Leads-	2
Weight-	1.369kg
Part number-	FA2191-A



## CE27 Line end Clamp

Clamping Diameter-	101.6mm
Short Circuit Rating-	17.5kA/2sec
Max number of Leads-	2
Weight-	1.538kg
Part number-	FA2180



## CE5 I Line end Clamp

Clamping Diameter-	140-160mm
Short Circuit Rating-	38kA/2sec
Max number of Leads-	2
Weight-	2.848kg
Part number-	EFP-16703





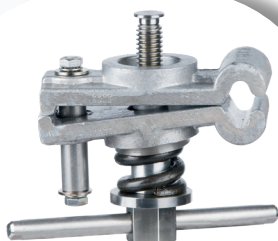
## CE50 Line end Clamp

Clamping Diameter-	190-200mm
Short Circuit Rating-	38kA/2sec
Max number of Leads-	2
Weight-	3.027kg
Part Number-	EFP-16702



## CE7 I Line end Clamp

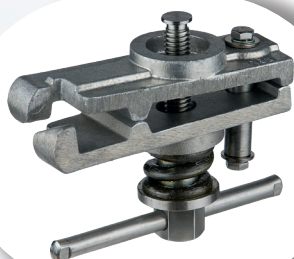
Clamping Diameter-	220-250mm
Short Circuit Rating-	17.5kA/2sec
Max number of Leads-	1
Weight-	3.825kg
Part number-	EFP-16749



## CE20 Earth end clamp

Earth Tape Thickness-	3.2-6.5mm
Earth Tape Width-	38-50mm
Short Circuit Rating-	38kA/2sec
Weight-	0.617kg
Part number-	FA2120-B

*Applied to clean or dirty Copper or Aluminium strip.*



## CE2 I Earth end clamp

Earth Tape Thickness-	3.2-13mm
Earth Tape Width-	25-50mm
Short Circuit Rating-	17.5kA/2sec
Weight-	0.640kg
Part number-	FA2121-B

*Applied to clean or dirty Copper or Aluminium strip.*



## CE20/2 Earth end clamp

Earth Tape Thickness-	3.2-6.5mm
Earth Tape Width-	38-50mm
Short Circuit Rating-	38kA/2sec
Weight-	0.937kg
Part number-	FA2173-B

*Two Earth Leads can be fitted to extend the Short Circuit Rating to 38kA/2sec.*

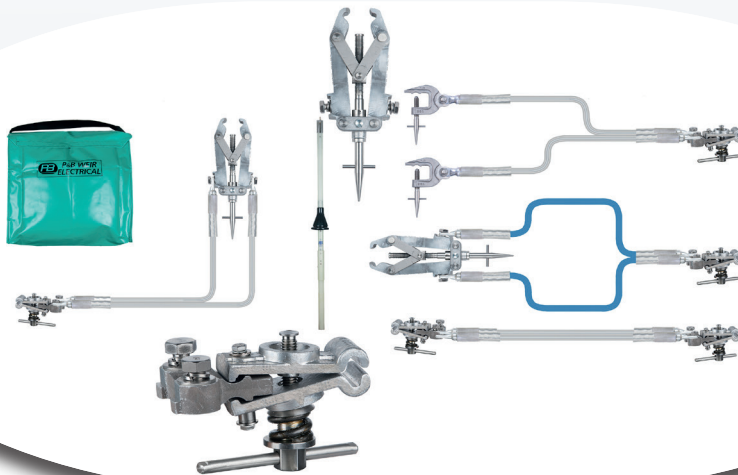
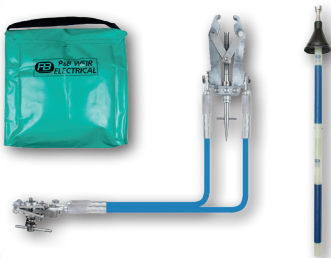
## Earth Tape Repair kits

Earth tape defects range from deterioration of welded underground jointed interfaces on an earthing grid to a high resistance connection between a tape and the primary plant. PBwel supply kits to aid safe repairs on Earth Tape.

Kits are fully customisable if required, but the standard offering is the NSI 24 Temporary Earth Bond Kit.

### NSI 24 Temporary Earth Bond Kit

1 x CE57 Earth Tape Clamp	1 x CE20/2 Clamp
2 x 8mtr Blue 50sqmm Aluflex Leads	1 x 2ft Top Pole
1 x 2ft Bottom Pole	1 x PVC Carry Bag



Kits are fully customisable upon request, or spare components are available. These include-

CE57 Clamps  
CE20/2 Clamp  
Pole sections  
Blue or Clear leads



## Aluflex Leads

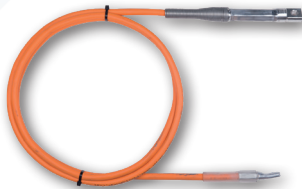
PBwel can supply Aluflex leads in any length required, in a range of sizes including 50sqmm, 120sqmm and 150sqmm.

For use in Substations, 150sqmm is always used as a primary lead. 50sqmm Arctic Orange is used for Field Equipment Earths, and for the control of impressed voltages.



### 150sqmm Clear Aluflex

Short Circuit Rating-	17.5 kA/2sec
Cont. Current Rating-	350A
Weight per Mtr-	600g



### 50sqmm Arctic Orange Aluflex

Short Circuit Rating-	8.9 kA/1sec
Cont. Current Rating-	150A
Weight per Mtr-	190g

*Leads for Field Equipment Earths generally use two types of termination. One end is the PB150T which is suitable for the CE20 clamp, whereas the other is a standard PB50.*



### Terminations

**PB50 Palm Termination (Part number- EMP-07880)**

Suitable for 50sqmm Aluflex cable.

**PB150 Palm Termination (Part number- EMP-07882)**

Suitable for 150sqmm Aluflex cable.

**PB150T Palm Termination (Part number- EMP-07884)**

Suitable for 50sqmm Cable, with a standard 150sqmm size palm for CE20 Clamps.

## Operating Poles

PBwel offer a range of Operating Poles suitable for 66-400kV for Substation use.

### 8ft Single Sections

Sections Available-	Top and Bottom
Compatible with-	S9D and CEA/S2 Sockets
Weight-	1.40kg
Part numbers-	(Top) FA1346-E
	(Bottom) FA1332-H

*Bottom sections available with End Plug.*

### 4ft Single Sections

Sections Available-	Top, Intermediate and Bottom
Compatible with-	S9D and CEA/S2 Sockets
Weight-	0.700kg
Part numbers-	(Top) EBR-18101/3
	(Intermediate) EAR-18103/3
	(Bottom) EAR-18103/2

*Can be used in conjunction with 8ft sections to make up required length.*

### 8ft Pole (2x 4ft sections joined by chain)

Sections Available-	Used as single pole only
Compatible with-	S9D and CEA/S2 Sockets
Weight-	1.380kg
Part number-	EFR-18104/3

*Not compatible with other Pole sections.*

### S9D Operating Socket



- Suitable for fitting Short Taper Clamps
- Attaches Clamps from below
- Weight- 0.360kg
- Part number- FA1097-B

### CEA/S2 Operating Socket



- Sprung Loaded Plunger
- Attaches Clamps from above
- Suitable for fitting Short Taper Clamps
- Part number- EFS-11203
- Weight- 0.385kg

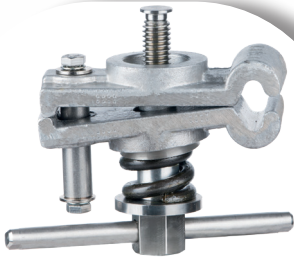




## Field Equipment Earths

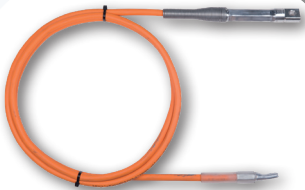
Where Field Equipment such as MEWPs, Scaffolds and conductive fencing is in use around electrified lines, the PBwel Field Equipment Earth can be used to drain any potential harmful induced voltages.

Although standard Field Equipment Earths consist of the products below, alternative clamps can be used if required. If you believe that your requirement may need a bespoke solution, then please contact us for a recommendation.



### CE20 Earth End Clamp

Earth Tape Thickness-	3.2-6.5mm
Earth Tape Width-	38-50mm
Short Circuit Rating-	38kA/2sec
Weight-	0.617kg
Part number-	FA2120-B



### 50sqmm Arctic Orange Aluflex

Short Circuit Rating-	8.9 kA/1sec
Cont. Current Rating-	150A
Weight per Mtr-	190g

*Leads for Field Equipment Earths generally use two types of termination. One end is the PB150T which is suitable for the CE20 clamp, whereas the other is a standard PB50.*



### CE4 Scaffold Clamp

Clamping Diameter-	22-50mm
Weight-	0.659kg
Part number-	FA3637-A

*Suitable for a range of Field Equipment applications.*

### Other available accesories include-

**Earth Spike**- Robust gavanised steel with capacity for up to five earth leads.

**Earth Rod**- Copper clad Steel Rods which can be clustered using an earth nest.

**Pan Handle**- Bolted Earth Connection point.



## Suspended Earthing Spigot

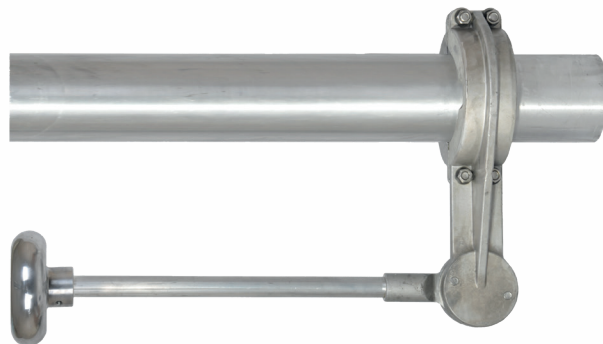
The Spigot is designed to be permanently fitted to new or existing busbars. It accommodates up to five PBwel Clamps suitable for 38mm, reducing the need for heavier large diameter Clamps.

### National Grid EGI Code: BC4P000 I

Designed to fit any UK busbar size.

Lightweight, easily installed by one person.

Suitable for busbars at any angle up to 60°.



The machined clamp is supplied in two halves that are bolted together around the busbar using the supplied fasteners. A 38mm diameter spigot and corona shield, common to all spigot clamps and busbar sizes, is then bolted onto the clamp.

### Completed Tests

1kN Mechanical Loading Trials

900Amps Cont. Current Test

RIV and Corona Discharge Test

80kA/1sec Short Circuit Rating

40kA/3sec Short Circuit Rating