

No. 3979 & 3978, 2<sup>nd</sup> Floor, 80 Feet Road, 4<sup>th</sup> Phase Girinagar, BSK 3<sup>rd</sup> Stage, Bangalore - 560 085 India

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**TECHNICAL SPECIFICATION OF *QuickWej*<sup>®</sup> – BOLTLESS WEDGE CONNECTORS FOR ELECTRICAL SUBSTATIONS, TRANSMISSION LINES & DISTRIBUTION NETWORKS**

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<b>Connector Name:</b>	<b><i>QuickWej</i><sup>®</sup></b>
<b>Connector Description:</b>	<b>Mechanical boltless C type wedge connector</b>
<b>Connector Applications:</b>	<b>Line jumpers, taps, connections to the equipment like wave traps, Isolators, Circuit Breakers, CTs, PTs, Lightning Arresters and Bus Bars</b>

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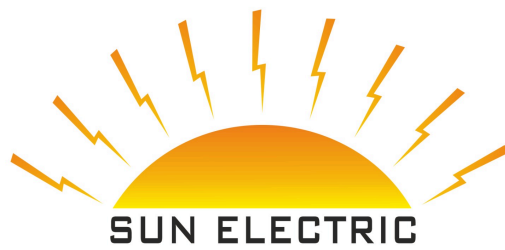
***QuickWej*** is a unique category of mechanical connectors that incorporate a wedge component and a tapered 'C' shaped spring body. During installation, the wedge is driven between two conductors into the 'C', spreading the 'C' body, which in turn places high forces on the conductors for a reliable and stable connection. Wedge is mechanically driven inside the 'C' body.

The surface of the connector is smooth with all edges rounded off. The connectors have maximum contact surface with the conductor, extremely low and stable contact resistance and minimum power loss. They maintain constant force within the connection for the life of connector while compensating for thermal expansion or grip and increased life span. ***QuickWej*** is 100% maintenance-free.

**Service Conditions:**

All parts of the connector are suitable for use in atmospheric condition indicated below, suitably protected against corrosion both during storage and in service. The connector is designed to be capable of withstanding dynamic and thermal stresses without any damage or deterioration.

- Annual average ambient temperature: 50°C
- Maximum ambient temperature: 60°C
- Maximum relative humidity: 85-100%
- Environmental conditions: Tropical climate with polluted saline atmosphere



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### **Applicable Standards:**

**QuickWej** satisfies the requirements of ANSIc 119.4 AA Class 3, IS 5561:2018 and BS-3288 Part 1.

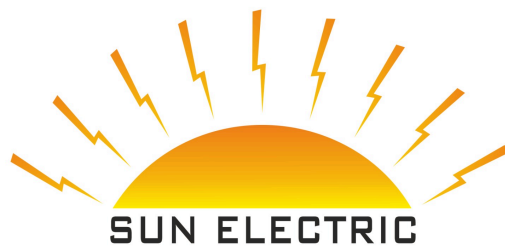
### **Material:**

**QuickWej** is made of high strength and high conductivity Aluminium alloy. The connector is suitable for use on all combinations of Aluminium and Copper conductors. The components are proportioned to minimize stress concentration, corrosion and deterioration by galvanic action. The connector is free from sharp edges and burrs. The contact surface of the connector is uniform to provide effective contact with the conductors.

### **Technical Details:**

**QuickWej** consists of a spring 'C' member and a wedge made from a special Aluminium alloy of high ductility and electrical conductivity. The 'C' member and the wedge are factory coated with anti-corrosive, oxide inhibiting conductive gel, to help clean the surface during installation and protect the conducting surfaces from getting corroded while in service. Connectors are hammer installable and reusable multiple times without any change in mechanical and electrical properties.

- The connector provides a “boltless” connection between the run and the tap conductors.
- The “C” member has elastic properties to accommodate the variations in conductor dimensions due to thermal effects.
- **QuickWej** is available for all combinations of run and tap conductors for any conductor size including ACSR, AAC, AAAC, AL59 and Copper cables (sector shaped as well as circular). **QuickWej** suitable for equipment stud (Copper / Aluminium) and equipment terminal pad is available with horizontal and vertical take-offs.
- Connector is clearly marked with part numbers and suitable conductor names.
- Connector installation procedure is simple, fool-proof and does not require special training or permission.



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- For connectors suitable for conductors greater than 70 sqmm, the wedge is provided with a stopper to ensure complete installation and also to help inspect the connectors from the ground. For connectors suitable for conductors less than or equal to 70 sqmm, wedge does not have a stopper, because of the smaller section of the connector. In this case, the driving head of the hammer itself will prevent the wedge from being driven beyond the point of right installation.

The mechanical stresses during the wedge insertion causes plastic deformation of the C-member and increases the geometrical conformation of the connector to the conductor.

The normal current carrying capacity of **QuickWej** is greater than that of the corresponding conductors for which they are designed to be used. **QuickWej** is designed to carry an overload of minimum 20% in excess of rated current.

#### **QuickWej – terminal connectors:**

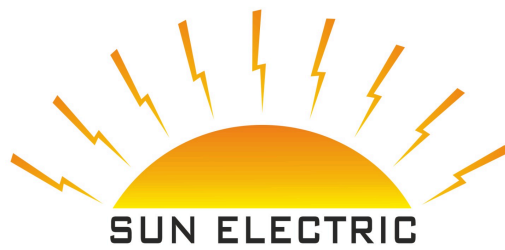
Terminal accessories are available for use with QuickWej to connect conductors to equipment terminals. Accessories for flat (pad type) as well as stud type terminals are available. Terminal connectors are available for following applications.

- Single conductor to equipment pad
- Single conductor to equipment stud (diameter to be specified)
- Twin conductor to equipment pad
- Twin conductor to equipment stud (diameter to be specified)

#### **Conductive gel:**

**QuickWej** is factory coated a special compound on its inner surfaces, where the conductors come in contact with the connector surfaces. This compound is a conductive gel made of silicone and consists of fine Copper particles and is hydrophobic in nature. This is non-corrosive, non-reactive, non-explosive, non-toxic, non-flammable and does not cause biological infections. Following are advantages of using this compound.

- Fills minute pores / gaps between connector and conductor surfaces and ensures minimum resistance.
- Prevents environmental and galvanic corrosion.
- Prevents formation of Aluminum Oxide during installation, thereby minimizes contact resistance.



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### **Identification:**

**QuickWej** comes with its name etched / engraved on the wedge along with catalogue number and suitable conductor / cable size. Weight of the hammer recommended for installation will be available on the C member. Manufacturer's contact information will also be available on the C member.

### **Packing:**

Each connector consisting of one C member and one wedge, coated with conductive gel as detailed above, is packed inside a polyethylene bag and sealed. Connectors will then be packed in cartons for shipping. Packing will be "export-worthy" and will be suitable for shipping by either sea or air.

### **Installation Instructions:**

Reasonable copies of installation manuals in English will be supplied with every consignment of **QuickWej**.

### **Tests:**

Tests are conducted in accordance with latest editions of BS-3288 Part 1, BS-159, ANSIC119.4 and IS-5561. While majority of the tests are conducted in recognized third party laboratories, few are conducted in-house.

#### **Type Tests**

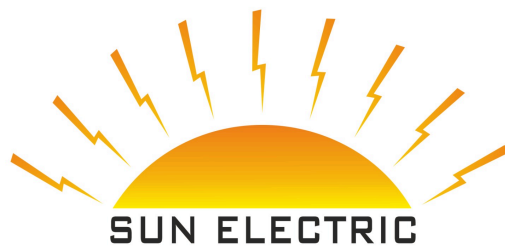
- Visual examination
- Dimensional verification
- Tensile strength test
- Electrical contact resistance test
- Temperature rise test
- Heat cycle test
- Thermal shock test
- Salt spray test
- Short time current test

#### **Routine tests**

- Visual examination
- Dimensional check

#### **Acceptance Tests**

- Visual examination
- Tensile strength test
- Contact resistance
- Dimensional check



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### General Technical Particulars:

Parameter	Value			
Connector Name	<b>QuickWej®</b>			
Type	Mechanical boltless wedge connector			
Components	'C' member and wedge (terminal accessory if applicable)			
Suitability	ACSR / AAAC XLPE/ AAC / AL59 / Copper conductors			
Electrical compound coating	Conducting grooves pre-coated with anti-corrosive oxide inhibiting conductive gel			
Material	'C' Body - Al. Alloy to provide spring action			
	Wedge - Al. Alloy			
Frequency	50 Hz & 60 Hz			
Minimum tensile strength of the assembly	120 kgf			
Maximum contact resistance	The resistance of 1.25m of a conductor, including one connector does not exceed the resistance of 1.25m of identical conductor without connectors, by 3%.			
Packing	Each pack contains one 'C' body and one wedge with anti-corrosive and anti-oxidation conductive gel applied to both 'C' body and wedge			
Installation tools	Hammer - 400 grams for sizes with Cat Nos. ending M, A, BL, B			
	Hammer - 800 grams for sizes with Cat Nos. ending C, D, E, H			
<b>Electrical parameters as per connector sizes</b>	<b>Rated Voltage</b>	<b>Rated Continuous Current</b>	<b>Temp. Rise over ambient</b>	<b>Rated Short-Time Current</b>
Sizes with Cat Nos. ending "M"	22kV	185A	32K	N.A.
Sizes with Cat Nos. ending "A"	22kV	220A	32K	6kA/s
Sizes with Cat Nos. ending "BL"	22kV	300A	32K	6kA/s
Sizes with Cat Nos. ending "B"	72kV	350A	30K	10kA/s
Sizes with Cat Nos. ending "C"	132kV	500A	28K	25kA/3s
Sizes with Cat Nos. ending "D"	220kV	850A	26K	40kA/3s
Sizes with Cat Nos. ending "E"	400kV	1000A	25K	40kA/3s
Sizes with Cat Nos. ending "H"	400kV	1500A	24K	40kA/s