MAJOR EXPORTING COUNTRIES

UAE
Nigeria
West Indies
Canada
Philippines

Oman
Ghana
Malaysia
Congo
Switzerland

Kuwait
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BahRAIN
South Korea
Ethiopia
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Australia
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Vietnam

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Japan
Indonesia
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Zambia

Kenya
Mauritius
Namibia
Iran

Egypt
Sri Lanka
Saudi Arabia
Iraq

Tanzania
Bangladesh
Algeria
Kazakhstan

Eritrea
Afghanistan
Mozambique
New Zealand

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CABLES FOR PHOTOVOLTAICS
(SOLAR CABLES)
ABOUT US

Steered by an unambiguous vision for the future and buoyed by several sector-favorable initiatives in the renewable energy sector, KEI has stepped on the accelerator. It has added new lines of business, introduced new technologies and strengthened its production and delivery systems. Today, the Company is amongst the few in the country that has the expertise to manufacture cables in capacities of up to 220kV. It is also the first cable manufacturing company to be endorsed with the National Accreditation Board for Testing and Calibration (NABL, along with certain international accreditations). Driven by the belief that it is the customers who give meaning to a company’s existence, KEI keeps customer satisfaction close to its heart.

PRODUCT PORTFOLIO

KEI has always been known to be focussed to quality products. The Company believes in delivering the highest standards of customer satisfaction and to meet the demands of a growing and diverse client base, KEI manufactures a range of various products suited to such dissimilar sectors as power stations, oil refineries, railways, automobiles, cement, steel, fertilizers, textiles and real estate, amongst others.

The product range comprises extra high voltage cables up to and including 220 kV, high and medium voltage cables, low tension cables, control and instrumentation cables, specialty cables, elastomeric cables, solar cables, winding wires, flexible and house wires, submersible cables, stainless steel wires and marine cables in addition to turnkey projects on an engineering, procurement and construction (EPC) basis.

ACHIEVEMENTS

The key to KEI’s successful march forward is the vast portfolio of products that it offers. So far, only a few companies in India have the expertise to manufacture cables in capacities of up to 220kV & more and thanks to its collaboration with the reputed Swiss firm – BruggKabel AG, KEI is proud to be on that list. While KEI’s range of products speaks volumes about the organisation’s accomplishments, the ISO certification for its products just takes its success to a new platform, underscoring the quality of its cables and wires.

BRAND VALUES

The core brand value for KEI is building long-lasting partnerships with customers and suppliers. In this endeavor, it affects no compromises. As an ISO 9001:2008, ISO 14001:2004, OH&SAS 18001:2007 certified company, KEI continues to keep quality as its first priority. Thanks to this sincere decree, KEI has earned a rock-solid reputation – completely in line with the reputation that its collaboration partner, BruggKabel AG, and in absolute compliance with the vision of its founder.
VISION

To emerge as one of the world’s leading manufacturer of electrical cables, wires and allied businesses companies with global footprints, offering advanced products and services, delivering sustainable value to all stakeholders.

MISSION

- To have strong branding of our products & services
- To develop our resource competency in multi-disciplinary areas/levels up to deploy ability
- To be a professionally managed, self-propelled and system-driven company
- To develop in-house R&D for New Product Development
- To achieve our intent of sustainability ‘Leadership with Care’, by having best practices on Care for the Environment, Community, Customers, Shareholders and our EMPLOYEES.

SOLAR POWER

Rapid urbanization and globalization has given rise to an increased demand for energy. The fast pace of depletion of conventional sources of energy influenced us to find newer and sustainable solutions to meet this increase in demand. In such a scenario, renewable energy sources like wind and solar energy are the need of the hour.

Solar power generation has emerged as one of the most rapidly growing renewable sources of electricity. Solar energy is set to address the ever-growing need for power across the world. It has a low impact on the environment, serving as an ideal alternative to produce electricity, while maintaining a lower carbon-footprint and thereby helping preserve the nature. This has opened new avenues of business for the cable and wire manufacturing companies.

In the recent years, there has been an increase in the number of solar power generation plants, both in India and worldwide, which has in-turn created a higher demand for wires and cables. In response to this increase in demand, KEI is helping the renewable energy industry harness the opportunity and make it a reality.

KEI is proud to contribute to the renewable industry by supplying electrical solar cables to solar power plants. With a sharp focus on technology and innovation, the Company aims at becoming one of the key environment-friendly technology companies of the country. To keep pace with the changing needs of the industry, it is important to overcome challenges, identify opportunities for growth and provide future-proof solutions for the industry.

VALUES

- Safety: Through attitude | People and Property |
- Respect: People & Environment
- Transparency: In all our dealings, in our behaviour
- Commitment: Towards self and organisational development
- Love & Care: For all stakeholders

QUALITY MANAGEMENT

In aggregation with the ecological compatibility, future technologies are measured in terms of efficiency, service life, emission reduction and the conservation of natural resources. Innovative cable products and systems, holistic solutions and maximum performance in project management are the added value which KEI offers to its customers and business partners. These are also our cornerstones for strong connections into the future. Quality management is one of the most important factors in the success of a Company. KEI offers a range of customer-tailored products to perform to the highest standards of applications in its diverse usage.
**PROPERTIES**

- A lifetime 'Component': lasts up-to 30 years even under tough conditions
- Used in extreme weather conditions (UV Resistance)
- Halogen-free: low smoke emission and low toxicity during fire
- Flame & Fire retardant
- Flexibility & stripability: for fast and easy installation
- Easy installation: with color identification
- Suitable to common connector types
- TUV, VDE, UTE and IMO-certified
- One common factor for most of the photovoltaic power systems is outdoor use, characterized by high temperature/high UV radiation

**CONSTRUCTION**

KEI Solar Cables are manufactured with following materials:

- Annealed tinned copper conductor (Class 5)
- Cross linked Insulated Halogen free polyolefin compound
- Cross linked halogen free polyolefin sheath compound

**Product Construction:**

**Conductor:**
Annealed tinned flexible copper with class 5 as per EN 60228 IEC 60228

**Insulation:**
Cross linked Insulated Halogen free polyolefin compound

**Sheath:**
Cross linked halogen free polyolefin sheath compound

Type of appliance: Cable for Photovoltaic Systems

Standard: 2P3g 1169/08.2007/BS 58618

Marking: KEI, EVT-F, 0.6/1.0KV, Cable size, year of manufacturing, TUV 2P3g 1169/08.2007 or BS EN 58618

Cross Sectional area: 2.5 sqmm to 16 sqmm or as per customer requirement

Maximum permissible voltage: 2000 Vdc

Conductor According to class 5 of IEC 60228/DIN VDE 0295

Lower ambient temperature: -40 deg C

Upper ambient temperature: +90 deg C

Max. temperature at conductor: 120 deg C for 20000h
FEATURES

Chemical Features:
- Weather and UV resistant
- Resistant to mineral oils
- Resistant to acids & alkaline

Thermal Features:
- Ambient Temperature: -40°C to +90°C
- Maximum Temperature at Conductor: 120°C (200000h)
- Short Circuit Temperature: 200°C at conductor (max. 5 sec)
- Thermal Endurance Test: According to EN 60216-2 (temperature index +120°C)
- High Temperature Pressure Test according to EN 60811-3-1
- Damp - Heat Test: According to EN 60068-2-78, 1000 hrs. at 90°C with 85% humidity

Electrical Features:
- Rated Voltage: 0.6/1 kV AC
- Rated DC Voltage: 1.5 kV
- Maximum Permitted DC Voltage: 1.8 kV (conductor/ conductor, non-earthed system, circuit not under load)
- Maximum Permitted AC Voltage: 0.712.6 kV (UAc/ U)
- Working Voltage: DC 1000 V
- Insulation Resistance: 1000 MΩ/KM
- Spark Test: 6000 Vac (8/400 V)
- Voltage Withstand: 650 V as per EN50395 for 5 min
- Ampacity: According to requirements for cables for PV systems

Mechanical features:
- Resistant to Impact, tear and abrasion
- Minimum bending radius is 4 times the diameter
- Safe pulling force -50 N/sqmm
- Mineral Oil Resistance will be according to EN 60811-2-1
- Ozone Resistance will be according to EN 50396 part 8.1.3
- Weathering-UV Resistance: according to HD 605/A1 or DIN 53367
- Ammonia resistant is done for 30 days in saturated ammonia atmosphere [internal testing]
- Very good resistance to oil and chemicals
- Acid & Alkaline Resistance will be according to EN 60811-2-1 [Oxal acid and sodium hydroxide]

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<table>
<thead>
<tr>
<th>Cable Size</th>
<th>Thickness of Insulation</th>
<th>Thickness of Sheath</th>
<th>Approx. Overall Diameter</th>
<th>Approx. Weight of cable</th>
<th>Max. Conductor DC resistance at 20°C</th>
<th>Max. Current rating under continuous operation at 10°C &amp; ambient temperature at 25°C</th>
<th>Spool/Drum size for 900 meters drum length</th>
<th>Spool/Drum size for 1000 meters drum length</th>
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<td>1630 X 1950 X 458</td>
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</table>

* Spool Hole size shall be minimum 80mm and maximum 110mm.
* Eight wooden spools packed in one pallet shall be provided.
* F - Flange diameter; T - Traverse internal length; B - Barrel diameter
* Packaging conductor size up to 10mm in wooden ply spool & above 10mm in Wovnder drums.

Packaging
Wooden packaging according to the IPPC ISPM standard
All pallets and plywood reels acc to IPPC Standard ISPM15
- Fit for square and land transport
- Can be stacked in up to 2-high and shipped in 29 ft containers.

Distribution, Storage And Availability
Customers of KEL Industries receive their solar cables deliveries on schedule from the standard stocks.
Large buffer stocks are available there to ensure flexibility. Currently, KEL Industries manages several individual customers stocks across the world in order to avoid out-of-stock situation in the supply. By agreement, suitable purchase contracts can be made to create further buffer stocks on a worldwide basis, which can be tailored and managed to individual requirements.
Standard Reel Dimensions

Legend:
F - Diameter of Flange
T - Traverse
B - Barrel Diameter

Standard Dimensions of Packaging Units/Pallets

Pallet size [1080 x 1080 x 1080]
* Values are in mm

TEST AND RATINGS

- Maximum Conduction Temperature: IEC 60228
- Resistance to Extreme Temperatures: Minimum IEC 60228-1-1
- Resistance to Humidity: Rays UL 1581
- Resistance to Odor: EN 60811-3-1
- Resistance to Water: EN 60811-3-3
- Ozone Resistance: IEC 60817-1-4
- Impact Resistance: IEC 60817-1-4
- Abrasion Resistance: EN 50025
- Tear Resistance: EN 50240
- Environmentally Friendly
- Frost Proof: IEC 60817-1-4
- Low Pollution Gas Emission: IEC 60817-1-4
- Low Halogen Density: EN 50240-2
- Non-Propane: IEC 60817-2

Certificate of Approval

NABL National Accreditation Board for Testing and Calibration Laboratories

Certificate of Accreditation

KSS Industries Ltd. (Quality Assurance Laboratory)