

# KEI<sup>®</sup>

## Wires & Cables

BRIDGING THE GAP ACROSS 60 DIFFERENT COUNTRIES



THE POWER BEHIND THE POWER



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**KEI Industries Limited**

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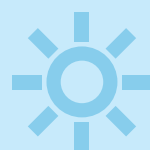
- PVC INSULATED WINDING WIRES
  - POLY WINDING WIRES
  - 3 CORE FLAT CABLES
- FOR SUBMERSIBLE PUMPS

# KEI<sup>®</sup>

## Wires & Cables

खुशहाली की पहचान,  
आपके पम्प की जान.





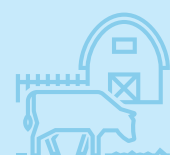
PVC Insulated Winding Wires



Poly Winding Wires



3 Core Flat Cables



Established in 1968, KEI Industries Ltd. is ranked amongst the top cable manufacturing companies of the world. Through its customer focus approach and continuous quest for worldclass quality, KEI has emerged as an industry leader over a period of five decades. KEI is acclaimed for its strong customer support and an efficient marketing and distribution network. It has an evergrowing international footprint with clients spread across 45 countries to date.

Today, KEI enjoys a premium brand imagery serving large infrastructure projects in various fields like refinery, power, petrol chemical, cement, steel, and fertilizers. Along with this, utmost safety standards are practiced, confirming to occupational health and safety management system standards of OHSAS. KEI has four manufacturing facilities in India to manufacture cables from 1.12 KV upto 440 KV. With a comprehensive portfolio designed to meet the needs of clients across sectors and geographies. ISO 9001, 14001, 18001 certifications from DNV of the Netherlands are a testament to stringent quality control measures maintained by the company. Surveillance by a competent team of technocrats and quality enablers, allows KEI to ensure compliance with globally accepted quality standards. Continuous product innovation and cutting edge R&D at its in-house labs, contribute towards constant evolution in products & services.

KEI has the world-class quality, skilled manpower, and most importantly, the technology to ace any new challenge that can come during transmission, distribution, and supply of electrical power. The faith and support extended by its clients usher KEI to serve yet another important and critical application- Submersible Pump motors – through PVC & Poly Winding Wires.



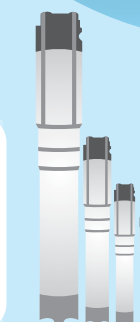
## PVC INSULATED WINDING WIRES

KEI's PVC Insulated Winding Wires for Submersible Pumps serve many submersible pump manufacturers and thousands of rewinders across India with fine quality products.

KEI's Winding Wire is insulated with a superior grade of PVC compound as per IS 5831 to give it the needed electrical strength and resistance to abrasion. The copper conductors used by KEI are of the highest level of purity and conductivity. These conductors are also annealed to stringent specifications.

### Precautions

Although due care is taken in the handling of winding wire from manufacturing to packaging stage, this product being delicate, proper care is also needed during handling, storage and its insertion into stator slot to ensure desired product performance.



### HR PVC INSULATED WINDING WIRE: AS PER IS 8783 (Part4/Section 1):1995 SOLID COPPER CONDUCTOR

Nom. Conductor Diameter (mm)	Min. Insulation Thickness (mm)	Overall Diameter Approx. (mm)	Conductor Resistance at 20° ohms/km Max	Weight Per KM (Kg)
0.60	0.25	1.15	62.20	3.60
0.70	0.30	1.35	45.70	5.10
0.80	0.30	1.45	35.00	6.30
0.90	0.30	1.57	27.60	7.50
1.00	0.30	1.65	22.40	9.00
1.10	0.30	1.75	18.50	10.60
1.20	0.30	1.85	15.50	12.30
1.30	0.30	1.95	13.20	14.30
1.40	0.35	2.15	11.40	16.70
1.50	0.35	2.25	9.95	19.00
1.60	0.35	2.35	8.75	21.20
1.70	0.35	2.45	7.75	23.90
1.80	0.35	2.55	6.91	26.40
1.90	0.35	2.65	6.20	29.20
2.00	0.45	2.95	5.60	33.20
2.10	0.45	3.05	5.08	36.40
2.20	0.45	3.15	4.63	39.40
2.30	0.45	3.25	4.23	43.00
2.40	0.50	3.47	3.89	47.00
2.50	0.50	3.55	3.56	51.00
2.60	0.50	3.65	3.31	54.40
2.70	0.50	3.75	3.07	58.60
2.80	0.55	3.95	2.86	63.30
2.90	0.55	4.05	2.63	68.40
3.00	0.55	4.15	2.49	72.80

1. Specific Length can be supplied as per customer requirement. 2. Overall Diameter can be increased as per customer requirement. 3. Tolerance of Outer Diameter is (+/-) 0.05 mm.

# POLY WRAPPED WINDING WIRES

KEI proudly presents the Poly wrapped winding wire commonly known as "SUBMERSIBLE COPPER WINDING WIRE." The copper conductor is wrapped with thin polyester film & Biaxial Oriented Poly Propylene (BOPP) films. The modern plant with sophisticated wrapping heads & inline continuous heat shrinkage furnace is installed to get uniform covering. A complete quality assurance testing by instruments covering all governing standards is available. The test standards followed are IS 8783:1995.



## APPLICATION

Used in submersible pump motors of all sizes for domestic and industrial applications.

## PACKINGS

Available in coil form with sustainable length as per size, in polythene bag and packed in inner & outer corrugated boxes.

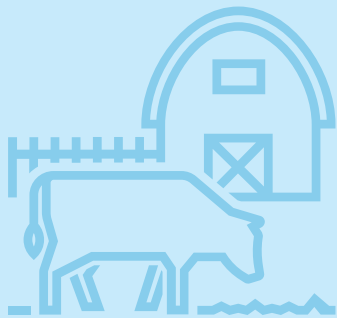
## SPECIAL SALIENT FEATURES

- Saves energy - ETP grade high conductivity annealed copper used
- Less current leakage - No air gap between the films
- Tear resistant - High mechanical strength - High tensile strength
- Each coil tested at 3500 V
- Heat shock test at 150°C
- Easy winding - Resistance annealed copper and controlled OD
- Manufactured by ultra modern automatic plant as per IS 8783 (Part 4/sec 3)

## TESTING FACILITIES FOR SUBMERSIBLE WINDING WIRES

The quality assurance having all testing facilities with ultra modern, high precision instruments and rigorous testing plants. Details of test which conforms to IS 8783 (Part 4/sec 3) is as follows.

S.No.	Name of the Tests	Units	Testing Instruments used
1	Size (Diameters)	mm	Digital Micrometers
2	Elongation	Percentage	Tensile tester
3	Conductor Resistance	Ohm/Km	Resistance Meter
4	Volume Resistivity	Ohm-cm	Million mega meter
5	High Voltage Test	Kv	High Voltage tester
6	Thermal Ageing	Change in Elongation & tensile	Ageing Oven & tensile tester
7	Shrinkage Test	Percent	Circulating Hot air oven
8	Water Absorption	mg/cm <sup>2</sup>	Vacuum Oven & Pump Desecrator
9	Hot Deformation	Percent	Circulating Hot air oven
10	Heat Shock test	No sign of Cracks/scales/ separation of layers	Circulating Hot air oven & Mandrels



## POLY WRAPPED WINDING WIRE: As per IS 8783 (Part4/Section 3): 1995 SOLID COPPER CONDUCTOR

Nom. Conductor Diameter (mm)	Tolerance +/- mm	Overall Diameter Approx. (mm)	Conductor Resistance at 20° C ohms/km Max	Weight Per KM (Kg)	Elongation Minimum (%)
0.50	0.005	0.80	87.78	2.04	25
0.60	0.006	0.90	60.96	2.86	26
0.70	0.007	1.02	44.78	3.84	28
0.80	0.008	1.12	34.29	4.96	28
0.90	0.009	1.22	27.09	6.17	29
1.00	0.010	1.42	21.94	7.75	30
1.10	0.011	1.52	18.14	9.28	30
1.20	0.012	1.62	15.24	10.95	31
1.30	0.013	1.72	12.98	12.76	32
1.40	0.014	1.82	11.20	14.71	32
1.50	0.015	1.92	9.75	16.80	32
1.60	0.016	2.02	8.57	19.02	32
1.70	0.017	2.22	7.59	21.70	32
1.80	0.018	2.32	6.77	24.30	32
1.90	0.019	2.42	6.08	26.90	32
2.00	0.020	2.52	5.49	29.70	33
2.10	0.021	2.62	4.98	32.70	33
2.20	0.022	2.72	4.53	35.70	33
2.30	0.023	2.92	4.15	39.40	33
2.40	0.024	3.02	3.81	42.80	33

1. Specific Length can be supplied as per customer requirement.
2. Overall Diameter can be increased as per customer requirement
3. Tolerance of Outer Diameter is (+/-) 0.05 mm.





### SUBMERSIBLE FLAT CABLE (THREE CORE) FOR VOLTAGE UP TO 1100 V AC

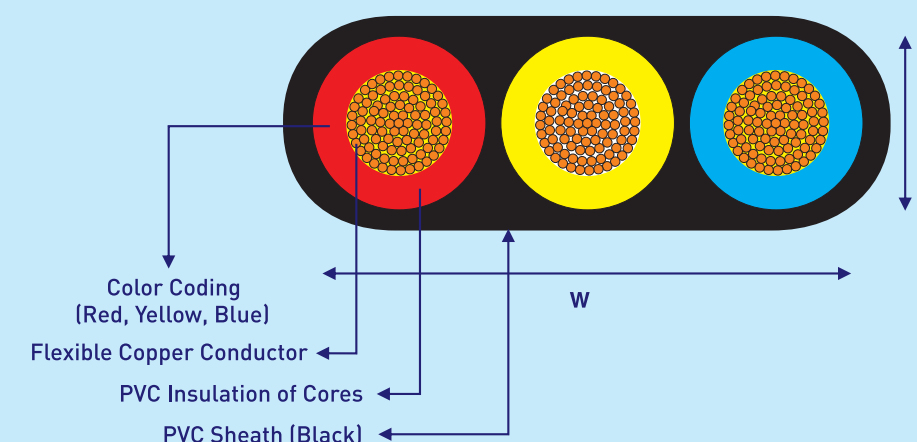
- Fits perfect required Grommet
- As per IS dimension
- Perfect sheathing for underwater application

#### Technical Specification

**Conductor:** Nicely bunched high purity bright, electrolytic grade, plain annealed copper with superb flexibility according to harmonized grades H05V-K, H07V-K, BS 6360 class 5 available in various sizes.

**Insulation & Sheathing:** Generally available with general purpose insulation and normal PVC sheathing, choice of insulation and sheathing is available on special order.

**Three core flat flexible industrial cable for submersible pump motors,  
1100 voltage grade**



HP	Amp
5	7.5
7.5	11
10	14.9
12.5	18.9
15.5	22.5
17.5	25.2
20	28.4
25	35.6
30	42.3
35	50.4
40	58.1
45	62.1
50	67.5
55	73.8
60	81
65	87.3
70	93.6
75	100.8
80	108



- 1) HP Vs Current:** The full load current for submersible pump motors, 3 phase, 50 cycles, 415 - 425 V
- 2) Derating Factors:** Multiply the current carrying capacity of the cable by factors given below for various ambient temperatures.

Ambient Temperature °C	30	35	40	45	50
Rating Factor	1.09	1.04	1	0.95	0.77

#### Notes:

# Current ratings are given considering max. conductor operating temperature of 700C

\*The number and diameter of conductor strands are for reference only. Conductor resistance as per IS : 8130 is the governing criteria. The above data is indicative and may be revised without prior intimation.

Standard Coil length is 100 mtrs; longer lengths & 3C x 50 Sq.mm, 3C x 70 Sq.mm, 3C x 95 Sq.mm Sizes are available on request. KEI will not be responsible for any damages arising out of incorrect application of it's product.