



**PVC INSULATED WINDING WIRES**  
**POLYTAPE WINDING WIRES**  
**3 CORE FLAT CABLE**  
FOR SUBMERSIBLE PUMP MOTORS

**KEI**  
Wires and Cables





KEI INDUSTRIES LIMITED is in the business of providing quality cables for various applications for over four decades. From its inception, the company has believed in adding diversity to its product range with a view to serve its large clientele. The company has also been consistently incorporating clients feedbacks for product innovation and upgradation. Today, KEI enjoys a premium brand imagery serving large infrastructure projects in various fields like Refinery, Power, Petro Chemical, Cement, Steel and Fertilizer. It is now a proud ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007 certified company. The faith and support extended by its clients usher KEI to serve yet another important and critical application - Submersible Pump Motors - through PVC Insulated Winding Wires.

KEI's PVC Insulated Winding Wires for Submersible Pump Motors serve more than 350 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.



# PVC INSULATED WINDING WIRES: SOLID COPPER CONDUCTORS (As Per IS 8783, Part 4/ Section 1)

SIZE	DIMENSION IN mm			CONDUCTOR RESISTANCE at 20° C ohms/km Max	RANGE OF MOTORS FOR WHICH NORMALLY SUITED HP
	NORMAL CONDUCTED DIAMETER	MINIMUM INSULATION THICKNESS	OVERALL DIAMETER APPROX.		
0.6	0.6	0.25	1.15	62.20	2 TO 3.5
0.7	0.7	0.30	1.35	45.70	2 TO 3.5
0.8	0.8	0.30	1.45	35.00	4 TO 5
0.9	0.9	0.30	1.55	27.60	4 TO 5
1.0	1.0	0.30	1.65	22.40	5 TO 10
1.1	1.1	0.30	1.75	18.50	5 TO 10
1.2	1.2	0.30	1.85	15.50	10 TO 20
1.3	1.3	0.30	1.95	13.20	10 TO 20
1.4	1.4	0.35	2.15	11.40	10 TO 20
1.5	1.5	0.35	2.25	09.95	10 TO 20
1.6	1.6	0.35	2.35	08.75	20 TO 30
1.7	1.7	0.35	2.45	07.75	20 TO 30
1.8	1.8	0.35	2.55	06.91	20 TO 30
1.9	1.9	0.35	2.65	06.20	20 TO 35
2.0	2.0	0.45	2.95	05.60	20 TO 35
2.1	2.1	0.45	3.05	05.08	20 TO 35
2.2	2.2	0.45	3.15	04.63	35 TO 75
2.3	2.3	0.45	3.25	04.23	35 TO 75
2.4	2.4	0.50	3.45	03.89	35 TO 75
2.5	2.5	0.50	3.55	03.56	35 TO 75
2.6	2.6	0.50	3.65	03.31	35 TO 75

## 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.



NOTE: The range of HP given in the table is only a guide. The actual choice of winding wire will depend on design considerations of the motor.

## POLY WRAPPED 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 & in line 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 plans. 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/ seperation of layers	Circulating Hot air oven & Mandrels

S. No.	Normal Conductor Diameter (mm)	Tolerance ± (mm)	Normal Resistance Ohms/KM at 20°C	Overall Diameter (mm)	Weight of Poly Wrapped (Kg/Km)	Elongation Minimum (%)
1	0.5	0.005	87.78	0.82	2	25
2	0.6	0.006	60.96	0.92	3	26
3	0.7	0.007	44.78	1.02	4	28
4	0.8	0.008	34.29	1.12	5.2	28
5	0.9	0.009	27.09	1.32	6.4	29
6	1	0.01	21.94	1.42	7.8	30
7	1.1	0.011	18.14	1.52	9.2	30
8	1.2	0.012	15.24	1.62	11	31
9	1.3	0.013	12.98	1.72	12.8	32
10	1.4	0.014	11.2	1.82	15	32
11	1.5	0.015	9.75	1.92	17	32
12	1.6	0.016	8.57	2.02	19.3	32
13	1.7	0.017	7.59	2.12	21.6	32
14	1.8	0.018	6.77	2.22	24	32
15	1.9	0.019	6.08	2.32	26.5	32
16	2	0.02	5.49	2.42	29.4	33
17	2.1	0.021	4.98	2.52	32.7	33
18	2.2	0.022	4.53	2.62	35.5	33
19	2.3	0.023	4.15	2.72	38.5	33
20	2.4	0.024	3.81	2.82	42	33

**POLY KEI**  
Wires and Cables  
The power behind the power

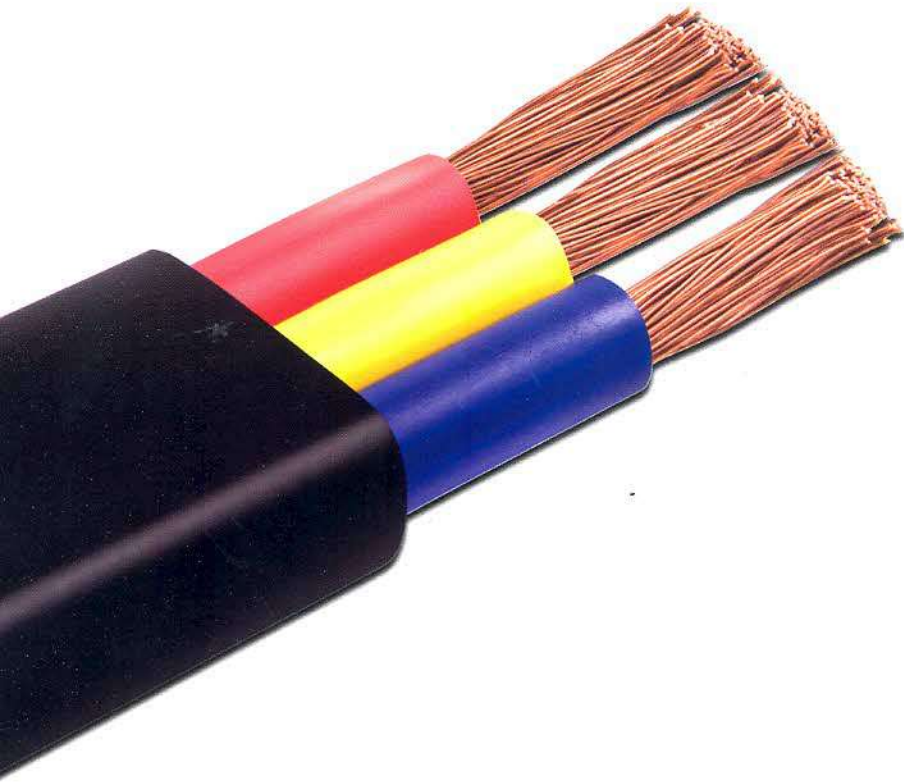
Triple Poly Tape Insulated Winding Wire  
for Submersible Pump Motor

QUALITY IS KEI (Y)



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

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



## Technical Specification

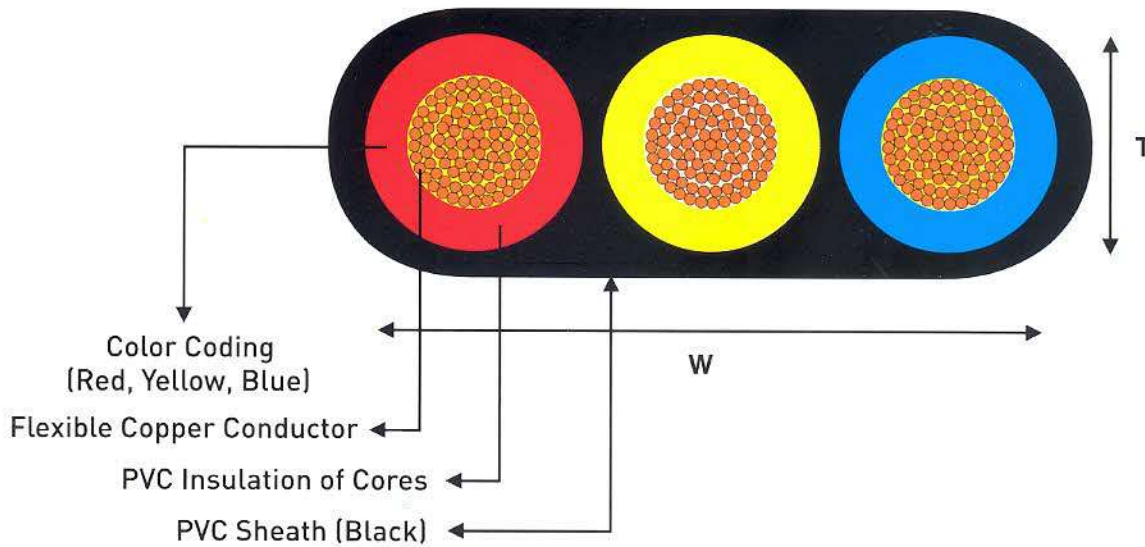
**Conductor:** Nicely bunched high purity bright, electrolytic grade, plain annealed copper with superb flexibility according to harmonized grades H05V-K, H07V-K, BS 6360 class 5 available in various sizes.

**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

Nominal Area of Conductor	INSULATION			Overall Dimensions		Max. Conductor Resistance at 20°C (Max.)	Current Carrying Capacity at 40°C
	*Number/ Size of Wire for each Core	Thickness (Nom.)	Core Dia. (Nom.) W	Width T	Thickness		
sq. mm	mm	mm	mm	(Nom.)mm	(Nom.)mm	Ohm/Km	Amps.
1.50	30/0.25	0.8	3.25	12.8	6	13.3	14
2.50	50/0.25	0.9	3.9	14.6	6.4	7.98	18
4.00	56/0.30	1	4.65	17.2	7.4	4.95	26
6.00	84/0.30	1	5.3	18.7	7.9	3.3	31
10.00	80/0.40	1	6.6	23.7	9.9	1.91	42
16.00	126/0.40	1	8.2	28	11.4	1.21	57
25.00	196/0.40	1.2	10.1	35.5	14.7	0.78	72
35.00	276/0.40	1.2	11.5	39.5	16.2	0.554	90

**Note:** Conductor as per class II only for 1.5 & 2.5 sq mm. For balance it is class V. Supplied in 500±5% metre packing on drums. Can also be supplied in 100 metre packing on request. \*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.



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

# KEI Industries Limited



## Registered and Corporate Office

D-90, Okhla Industrial Area Phase-1, New Delhi-110020  
Tel: +91-11-26818840/8642/0242 Fax: +91-11-26817225, 26811959  
E-mail: info@kei-ind.com, delhi@kei-ind.com, Website: www.kei-ind.com

## Chandigarh Office

SCO 84, 1st Floor, Swastik Vihar, MDC, Sector-5, Panchkula-134109  
Tel: +91-172-4416301 Fax: +91-172-4416300 E-mail: chandigarh@kei-ind.com

## Jaipur Office

7 Kailash Path, Suraj Nagar (W) Civil Lines, Jaipur-302006 Rajasthan  
Tel: +91-141-5179279, +91-9829036095 Fax: +91-141-2221707 E-mail: jaipur@kei-ind.com

## Marketing Office (Mumbai)

101-103, Vastu Shilp, Vastu Enclave, Andheri Pump House, Andheri (East), Mumbai-400093  
Tel: +91-22-28239673, 28375642 Fax: +91-22-28258277  
E-mail: mumbai@kei-ind.com, international@kei-ind.com

## Baroda Office

803, Siddharth Complex, Near Hotel Express, R.C. Dutt Road, Baroda-390007  
Tel: +91-265-6539719, 2341831, 9824087943, 9824676443  
Fax: +91-265-2334161 E-mail: baroda@kei-ind.com

## Unit-1 Bhiwadi, Rajasthan

SP-919/920/922, RIICO Industrial Area, Phase-III, Bhiwadi, Distt. Alwar-301019 Rajasthan  
Tel: +91-1493-220106/221731 Fax: +91-1493-221731 E-mail: bhiwadi@kei-ind.com

## Unit-2 Silvassa, Union Territory, D & NH

99/2/7, Madhuban Industrial Estate, Rakholi, Silvassa-396230 Dadra & Nagar Haveli  
Tel: +91-260-2644404/2630944 Mr. Nirav Desai; nirav.desai@kei-ind.com  
Mob: +91-9723455316 Fax: +91-260-2645896 E-mail: silvassa@kei-ind.com

## Unit-3 Chopanki, Rajasthan

A-280/281/282/283/284, RIICO Industrial Area (Chopanki) Distt. Alwar-301019 Rajasthan  
Tel: +91-1493-260202/06 Fax: +91-1493-260203 E-mail: chopanki@kei-ind.com

For all India enquiries contact: Mr. Vinay Aggarwal +91-9876867788; vinay.aggarwal@kei-ind.com