



HOUSE WIRE & FLEXIBLE WIRE

• **SELECTION GUIDE FOR 3 CORE FLAT CABLES**

• **HP Vs Current:** The full load current for submersible pump motors, 3 phase . 50 cycles, 415 -425 V.

HP	5.0	7.5	10.0	12.5	15.5	17.5	20.0	25.0	30.0	35.0	40.0	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0
AMP	7.5	11.0	14.9	18.9	22.5	25.2	28.4	35.6	42.3	50.4	58.1	62.1	67.5	73.8	81.0	87.0	93.6	100.8	108.0

Derating Factors: Multiply the current capacity of the cable by factor given below for various ambient temperatures.

Ambient Temperature °C	30	35	40	45	50
Rating Factor	1.09	1.04	1.00	0.95	0.77

TABLE 1: SINGLE CORE /MULTICORE FLEXIBLE INDUSTRIAL CALBES AS PER IS :694 -1990 VOLATGE GRADE UP TO 1100 VOLTS

		AREA sq.mm.	0.5	0.75	1.0	1.5	2.5	4.0	6.0	10.0	16.0	25.0	35.0	50.0
NO. & SIZE OF WIRE		NO./mm	16/.2	24/.2	32/.2	30/.25 OR 48/.2	50/.25 OR 48/.2	56/.3 OR 80/.2	84/0.3	80/.3 OR 140/.3	126/.4 OR 226/.3	196/.4 OR 354/.3	276/.4 OR 495/.3	396/.4 OR 703/.3
CONDUCTOR	RESISTANCE (MAX.)@ 20 ° C	Ohms/Km	39.0	26.0	19.5	13.3	7.98	4.95	3.30	1.91	1.21	0.780	0.554	0.386
	CURRENT RATING DC OR AC	Amps	4	7	12	15	20	27	35	46	62	80	102	138
INSULATION	THICKNESS(nom.)	mm	0.6	0.6	0.6	0.6	0.7	0.8	0.8	1.0	1.0	1.2	1.2	1.4
SINGLE CORE UNSHEATHED	OVERALL DIAMETER (Approx)	mm	2.00	2.30	2.45	2.75	3.50	4.10	4.75	6.00	7.10	8.80	10.10	12.00

SINGLE CORE SHEATHED	SHEATH THICKNESS(Nom.)	mm	0.9	0.9	0.9	0.9	1.0	1.0
	OVERALL DIAMETER (Approx)	mm	4.00	4.25	4.50	4.80	5.45	6.30
TWIN FLAT SHEATHED	OVERALL WIDTH (Nom.)	mm	6.2	6.7	-	-	-	-
	OVERALL HIGHT (Approx)	mm	4.0	4.25	-	-	-	-
2 CORE	SHEATH THICKNESS (Nom.)	mm	0.9	0.9	0.9	0.9	1.0	1.0
	OVERALL DIAMETER(Approx)	mm	6.1	6.7	7.0	7.6	9.1	10.5
3 CORE	SHEATH THICKNESS(Nom.)	mm	0.9	0.9	0.9	0.9	1.0	1.0
	OVERALL DIAMETER (Approx)	mm	6.4	7.1	7.4	8.0	9.6	11.4
4 CORE	SHEATH THICKNESS (Nom.)	mm	0.9	0.9	0.9	1.0	1.0	1.0
	OVERALL DIAMETER(Approx)	mm	6.9	7.7	8.1	9.2	10.7	12.4
5 CORE	SHEATH THICKNESS(Nom.)	mm	0.9	0.9	1.0	1.0	1.0	1.1
	OVERALL DIAMETER (Approx)	mm	7.5	8.3	9.1	9.9	11.7	13.8

IS : 694



Note: The Conductor Construction given above is indicative only and will be such that all requirements of strand diameter and conductor resistance as per IS: 694 and IS: 8130 are met.

• **TABLE 2 : SINGLE CORE FLEXIBLE INDUSTRIAL CABLES GENERALLY CONFORMING TO IS 694 :1990 VOLTAGE GRADE UPTO 1100 VOLTS**

AREA sq.mm			70.0	95.0	120.0	150.0	185.0	240.0
NO. & SIZE OF WIRE		NO./mm	360/.5	475/.5	608/.5	750/.5	925/.5	1221/.5
CONDUCTOR	RESISTANCE (MAX.)@ 20 °C	Ohm/km	0.272	0.206	0.161	0.129	0.106	0.0801
	CURRENT RATING DC/AC	Amps	214	260	305	355	415	500
INSULATION	THICKNESS(nom.)	mm	1.4	1.6	1.6	1.8	2.0	2.2
	O.D. (Approx.)		13.9	15.9	17.8	19.8	22.0	26.0

TABLE 3: FLEXIBLE MULTICORE INDUSTRIAL CABLES (6 CORES TO 19 CORES) GENERALLY CONFORMING TO IS 694 : 1990, VOLTAGE GRADE UP TO 1100 VOLTS

CORES	AREA sq.mm	0.5	0.75	1.0	1.5	2.5	4.0
6	SHEATH THICKNESS (Nom.) mm	0.9	1.0	1.0	1.0	1.1	1.2
	OVERALL DIAMETER (Approx.)mm	8.1	9.4	9.8	10.7	12.9	16.0
7	SHEATH THICKNESS(Nom.) mm	0.9	1.0	1.0	1.0	1.1	1.2
	OVERALL DIAMETER(Approx.) mm	8.1	9.4	9.8	10.7	12.9	16.0
8	SHEATH THICKNESS(Nom.) mm	1.0	1.0	1.0	1.1	1.2	1.3
	OVERALL DIAMETER(Approx.) mm	9.4	10.4	10.9	12.2	14.6	17.0
10	SHEATH THICKNESS(Nom.) mm	1.0	1.1	1.1	1.1	1.3	1.4
	OVERALL DIAMETER(Approx.) mm	10.5	11.9	12.5	13.7	16.7	19.5

12	SHEATH THICKNESS(Nom.) mm	1.0	1.1	1.1	1.1	1.3	1.4
	OVERALL DIAMETER(Approx.) mm	10.8	12.3	12.9	14.1	17.3	20.5
14	SHEATH THICKNESS(Nom.) mm	1.1	1.1	1.1	1.2	1.3	1.4
	OVERALL DIAMETER (Approx) mm	11.5	12.8	13.5	15.0	18.1	22.5
16	SHEATH THICKNESS(Nom.) mm	1.1	1.2	1.2	1.2	1.4	1.5
	OVERALL DIAMETER (Approx) mm	12.1	13.7	14.4	15.8	19.3	24.0
19	SHEATH THICKNESS (Nom.) mm	1.1	1.2	1.3	1.3	1.4	1.5
	OVERALL DIAMETER(Approx) mm	12.7	14.4	15.1	16.8	20.3	25.5

TABLE 4: THREE & FOUR CORE FLEXIBLE INDUSTRIAL CABLES FOR VOLTAGE GRADE UP TO 1100 VOLTS

AREA sq.mm			6.0	10.0	16.0	25.0	35.0	50.0	70.0	95.0	120.0
NO. & SIZE OF WIRE		NO./mm	84/.3	140/.3 OR 80/.4	226/.3 OR 126/.4	354/.3 OR 276/.4	495/.3 OR 276/.4	703/.5 OR 396/.4	360/.5	475/.5	608/.5
CONDUCTOR	RESISTANCE (MAX.)@ 20 °C	Ohm/km	3.30	1.91	1.21	0.78	0.554	0.386	0.272	0.206	0.161
	CURRENT	Amps	31	42	57	72	91	120	165	200	225
INSULATION	THICKNESS	mm	0.8	1.0	1.0	1.1	1.2	1.4	1.4	1.6	1.6
3 CORE	SHEATH THICKNESS (Nom.)	mm	1.3	1.4	1.4	1.5	1.6	2.0	2.2	2.4	2.5
	O.D.(Approx)	mm	13.3	16.9	19.1	23.0	26.3	31.7	38.5	45.0	49.0
4 CORE	SHEATH THICKNESS(Nom.)	mm	1.4	1.4	1.4	1.6	1.7	2.0	2.2	2.4	2.5
	O.D.(Approx)	mm	14.7	18.6	21.0	25.5	29.2	33.4	40.0	46.5	51.0

TABLE: 5 COLOUR CODING

Type	COLOURS		Type	COLOURS	
	CODE	SHEATH		CODE	SHEATH
Single core Unsheathed	Red; Yellow; Blue; Black; White & Grey		2 Core Round Sheathed	Red & Black	Black
Single core Sheathed	Black	Black	3 Core Round Sheathed	Red; Black & Yellow/Green for earth	Black
Twin Twisted	Red & Black		4 Core Round Sheathed	Red; Black & Yellow/Green for earth	Black
Twin Flat Sheathed	Red & Black	Black	5 Core Round Sheathed	Red; Yellow; Blue; Black & Grey	Black