1 SCOPE

This specification covers the requirements of flexible flat unsheathed multiconductor cables with round conductors for use in electrical & electronic equipments.

2 REFERENCES

1.IS 9938-1981 : Recommended Colours for PVC Insulation for LF Wires & Cables.
2.JSS 51021- : Specification for Cables Flat, Flexible, unsheathed round conductor.
3.DK1A8 007001 A1 A1 /007999 A1 A1: Flat Cable Grey IDC.

3 REQUIREMENTS

3.1 GENERAL

The construction of the cable shall be as shown on Figure 1. The tinned conductors shall be laid side by side & covered by extrusion / moulding of flexible PVC grey in colour or as specified to provide a sound bonding between adjacent wires. The finished cable shall have an edge polarising strip of specified colour for identification purpose. The rated voltage of the cable shall be 300 V maximum & the current carrying capacity of each conductor shall be 1 A upto 35°C. The operating temperature range shall be between -20°C to 105°C. This cable is applicable for IDC connector system.

3.2 CONDUCTOR

The conductor shall consist of 7/0.13 mm annealed high conductivity copper wires smoothly drawn, circular in cross section, free from defects & shall be uniformly coated with pure tin. The resistance of the conductor shall be 226.3 ohms/km maximum at 20°C. The elongation & tensile strength shall be checked prior to stranding. The elongation of the con ductor shall be 9% minimum in 250 mm GL and the tensile strength of the conductor shall be 3120 kg/cm^2 nominal.

The tinned conductor shall satisfy the solder bath test as specified below :

A test piece of suitable length of wire shall be taken from the cable. The solder bath used for the test shall be of sufficient volume to ensure that the temperature of the solder remains constant, while the conductor is intruduced. The bath shall contain solder conforming to grade Sn60 to specification D 2019. Care shall be taken to maintain a uniform temperature of 230 $\pm$ 5°C throughout the mass of solder & to ensure that the conductor shall not be

heated by direct radiation prior to immersion into the bath. The surface of the bath shall be kept clean.Immediately before the immersion of the conductor, it shall be immersed in non-activated flux to specification D 3342 & excess flux shall be drained off. The multistrand conductor shall be immersed to a length of approximately 10 mm into the bath for a period of 5 ± 0.5 seconds.In case of conductors, when tested as individual wires, the immersion time shall be 2 ± 0.5 seconds.

The conductor shall then be examined for quality of solder coating under adequate light & magnification of 4 to 10 X. The dipped surface of the conductor shall be covered with a smooth & bright solder coating with no more than small amounts of scattered imperfections such as pin holes or enwetted / dewetted areas. These small imperfections shall not be concentrated in one area.A minimum of 95% of solderable surface of wire shall be covered by continuous coating of solder.

3.3 INSULATION

The conductor shall be uniformly covered with extruded PVC (Grade, Under Writers Laboratory listed style 2651 rated FR-1) of uniform colour as specified. The colour of insulation shall be in accordance with IS 9938 -1981 . The PVC insulation shall satisfy the following properties :

1. Stripping property. 2. High temperature ageing at 105 ± 5°C.

3.4 FINISHED CABLE

The dimensions of the finished cable shall be as per Fig.1 & TABLE I & it shall satisfy the following tests :

1. Conductor resistance	:as per clause 3.2
2. Dielectric withstanding voltage	: 2000 V AC rms, 50 Hz(min)
3. Insulation resistance between adjacent conductors	: 150Megohms/Km at 500V DC.
4. Impedance :	: 105 ohms (nominal)
5. Capacitance between conductors	: 49 pF/m (nominal)
6. Propagation delay :	: 46 ns/m (nominal)
7. Durability of identification	
8. Folding	
9. Tear groove Propagation	
10.Flexing endurance	
11.Shrinkage :	:1.6 mm maximum at either end
12.Thermal Shock	
13.Flammability	

4 PACKING AND MARKING

4.1 PACKING

The cable shall be supplied in coils of continues lengths of 30 metres (min).
The cable shall be wound on reels or drums. if supplied as coils it shall be tied suitably to prevent it from un-coiling. It shall be packed in such a way to avoid damage during transit and storage and prevent ingress of moisture.

4.2 MARKING

The reels, drums or coils shall be marked with the following:

1. Manufacturer's name and trade mark
2. Code number & order reference
3. Length and gross weight of cable
4. Date of manufacture / Batch number.
5. Any other relevant information

5 DESIGNATION

The Cable shall be designated as follows as per 15 digit Coding scheme

"STDS - DWX" Eg: 1.DWF1007013C26A0 for 26 conductors.
2.DWF100701BC20A0 for 20 conductors.

6 TYPE APPROVAL

6.1 TYPE APPROVAL. TESTS

20 metres cable shall be submitted free of cost for type approval tests.

6.2 SAMPLES FOR TYPE APPROVAL

Test as per clause 3 &4 shall be conducted for type approval purpose.

7 BATCH ACCEPTANCE

7.1 SAMPLING PLAN FOR BATCH ACCEPTANCE

Sampling plan as given in quality system documents pertaining to the units shall be followed for batch acceptance.

7.2 BATCH ACCEPTANCE TESTS

The properties under clause Sl No. 3 to 5 shall be tested for batch acceptance.

8 DEPARTURE FROM SPECIFICATION

Any departure from this specification shall be approved in writing by the Company prior to the execution of the order.

9 REJECTION OF SUPPLIES

M/s ITI LIMITED has the right to reject any material which does not confirm to the aforesaid conditions and to return any material which subsequently proves faulty in use.

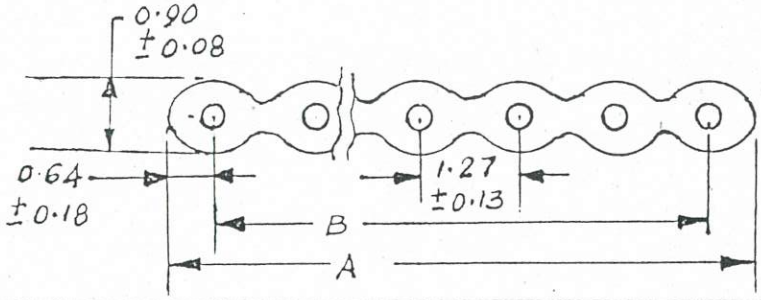
10 ACCEPTANCE

The acceptance of this specification without any comment will be taken to indicate that the vendor/supplier agrees to comply with the conditions herein mentioned.

TABLE -I

No.of Conductors	Dimensions in mm		Tolerance(±) mm	
	A	B	A	B
10	12.70	11.43	0.38	0.25
14	17.78	16.57	0.38	0.25
16	20.32	19.05	0.50	0.38
20	25.40	24.13	0.50	0.38
24	30.48	29.21	0.50	0.38
26	33.02	31.75	0.50	0.38
34	43.18	41.91	0.64	0.50
40	50.80	49.53	0.64	0.50
50	63.50	62.23	0.64	0.50
60	76.20	74.93	0.64	0.50
64	81.28	80.01	0.64	0.50

FIG -1 (Dimensions in mm)



HISTORY OF REVISION :

1.Spec reviewed, revised & 15 digit code incorporated.

2.Issue Advanced from 2+A1 to 3.

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