

Delton Cables Limited

Regd. Office : 'Delton House', 4801, Bharat Ram Road 24, Darya Ganj, New Delhi-110 002 (INDIA)
 Phones : 91-11-23273905-07 Fax : 91-11-23280375, 23272178, 26835550
 E-mail : dcl@deltoncables.com Website : www.deltoncables.com

DATASHEET FOR INSULATION CABLE

AN ISO 9001:2008 COMPANY

TYPE-F

REV.01/07-10-2013

1	Manufacturer's Name	M/s Delton Cables Ltd, Faridabad
2	Type of cable	I Type 2P
3	Reference design standards	VDE-0472 / VDE-0815 / IS-10810
4	Voltage Grade	225V (Peak)
5	Conductor Size	0.5 Sq.mm
6	Conductor	
	a) Reference Standard	IS - 8130
	b) Material	Annealed Bare Copper (ABC)
	c) Grade	Electrolytic
	d) No. of strands/diameter of strands (mm)	Seven (7) / 0.3 (nom.)
7	Insulation	
	a) Reference standard	VDE-207 Part 4
	b) Material	Extruded PVC Type Y13
	c) Thickness (mm) Min. / Max.	0.25 / 0.35
	d) Minimum volume Resistivity (in ohm cm)	
	i). At 20 deg C	1×10^{14}
	ii). At 70 deg C	1×10^{11}
8.	Pair & Twisting	
	a) Whether pairs are twisted	Yes
	b) Max. lay of Twist (mm)	50
	c.) Cores of the Pairs of bunch provided	Pair No.1 Blue + Red. Pair No.2 Grey + Yellow
	d) Single Layer of binder tape on each pair provided	Yes
	e) Bunch (unit formation) for more than 4P Provided	No

PROJECT ENGG. - C & I	APPROVED	27/10/2016	IN. CHONDHURY	(NAME)
(SIGN)	(SIGN)	(DATE)	(NAME)	(DATE)
VALID UPTO.....			31/10/2019	

PROJECT NAME:-

DCC NO: 0000-405-PEI-Y-014 (ARWOT)
 (SIGN) (DATE) (NAME) S.K. GUPTA
 (NAME) AKM (PE-001)

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AN-ISO 9001-2008-COMPANY	
9	Shield
a)	Material
	Al. Mylar Tape
b)	Min. Thickness over individual pair (in mm)
	0.028
c)	Min. Thickness of Overall shield (in mm)
	0.055
d)	Coverage Overlapping (Min.)
	100% / 20%
10	Drain wire
a)	Reference standard
	IS-8130
b)	Material
	Annealed Tinned Copper (ATC)
c)	Size (Sq.mm) / No. of strands / Diameter of Strands (mm)
	0.5 / Seven (7) / 0.3 (nom.)
d)	Separate drain wires for individual as well as over all shield provided.
	Yes
11	Fillers (if applicable) are non hygroscopic & flame retardant
	Yes
12	Outer Sheath
a)	Reference standard
	VDE-207 Part 5, VDE - 0816
b)	Material
	Extruded PVC Type YMI with FRLS Properties
c)	Min. thickness of Outer Sheath (in mm)
	1.8
d)	Min. Oxygen index (as per ASTM D 2863) in %
	29
e)	Min. Temp index (in deg C as per ASTM D 2863) at O ₂ index 21%
	250
f)	Max. Acid gas generation (as per IEC-60754-1) in % (by weight)
	20
g)	Max. Smoke density rating (as per ASTM D 2843) in %
	60
h)	Color of Outer Sheath
	Blue
13	Complete Cable
a)	Overall Diameter of cable (mm)
	2P
b)	Allowed Tolerance on Overall diameter (mm)
	10.4

PROJECT ENGG. - C & I

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(SIGN)

27/10/2016
 (DATE)

I.N. CHOWDHURY
 (NAME)

VALID UPTO 31/10/2019
 DATE

PROJECT ENGG. - C & I

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(SIGN)

28/10/13
 (DATE)

S.K. GUPTA
 (NAME)

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AN ISO 9001-2008 COMPANY		
c)	Ovality at any Cross section more than 1 mm	Yes
d)	Variation in Diameter not more than 1mm	Yes
14	Cable Parameters at 20 deg C (+/-3 deg C)	
a)	Max. Conductor loop resistance at 20°C (in Ohm/Km)	73.4
b)	Min. Insulation Resistance at 20 deg. C (in M.ohm x km)	100
c)	Max. Mutual capacitance at 0.8KHz (in nF/Km)	120
d)	Min. Cross talk for near end at 0.8KHz (in dB)	60
e)	Max. Attenuation at 1 KHz (in dB/km)	1.2
f)	Max. Characteristic Impedance at 1 KHz (in ohm)	320
g)	Min. Static Noise Interference (in dB) as per IEEE - Transaction 1967	60
15	Continuous Maximum operating temp (deg C)	70
16	Whether complete cable assembly flame retardant as per IEEE-383	Yes
17	Whether complete cable assembly passes Swedish chimney test as per SEN 4241475 (Class F3)	Yes
18	Identification	
a)	Progressive automatic on - line sequential marking of length in meters at every one meter's on Outer sheath	Yes
b)	FRLS marked within 5 meter	Yes
c)	Durable marking at intervals not exceeding 625 mm including:- Manufacturer's Name, Conductor's size, Insulation material, Number of Pairs, Type of cable, Voltage Grade, Year of Manufacturer.	Yes

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(SIGN)	27/10/2016 (DATE)	I.N. CHOWDHURY (NAME)
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AN ISO 9001-2008 COMPANY

19	Test Voltage		
	a) High Voltage Test (Dielectric strength)	Core to Core	Core to shield
	i) Voltage (kV)	2	0.5
	ii) Duration (in minutes)	1	1
	b) Resistance to direct current test	A.C	D.C
	i) Voltage (in Volts +/-10%)	1200	220
	ii) Duration	10 minutes	10 days
20	Cable cross-sectional drawings for each type of cable furnished at Annex-I.	Yes	
21	Cable Drums		
	a) Length of single coil in a drum for 2P	1000 Mtrs.	
	b) Tolerance on Individual drum length w.r.t (a) above	+/-5%	
	c) Wooden drum provided	Yes	
	d) Identification marks provided on drum as Manufacturer's Name, Country of manufacturing, Consignee Address, LOA No., Drum No., Length of Cable, Net & Gross Wt. Year of Manufacture, Type/ Size of Cable, voltage Grade	Yes	
22	Type Test procedure as per VDE-0472, IS: 10810, VDE 0815 and Other relevant standards to be furnished	Yes	
23	Quantity	Refer LOA/NOA	

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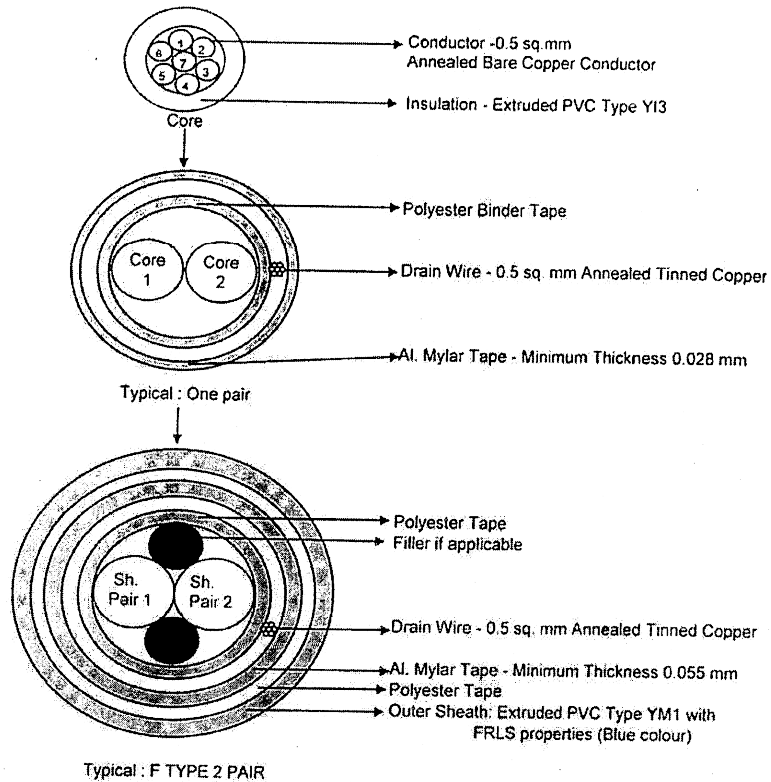
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APPROVED		
DOC. NO. 0000-405-PEE-4-014 (A) Rev. 01		
(SIGN)	28/11/13 (DATE)	S.K. GUPTA (NAME)
VALID UPTO 27/12/2016 (DATE)		

PROJECT NAME:-

Delton Cables Limited

Typical Cross Sectional Drawing F- TYPE

ANNEXURE-I



PROJECT ENGG. - C & I	
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DATASHEET FOR INSTRUMENTATION CABLE

AN ISO 9001:2008 COMPANY

TYPE-G

REV.01/07-10-2013

1	Manufacturer's Name	M/s Delton Cables Ltd. Faridabad
2	Type of cable	G Type 2P
3	Reference design standards	VDE-0472 / VDE-0815 / IS-10810
4	Voltage Grade	225V (Peak)
5	Conductor Size	0.5 Sq.mm
6	Conductor	
	a) Reference Standard	IS - 8130
	b) Material	Annealed Bare Copper (ABC)
	c) Grade	Electrolytic
	d) No. of strands/diameter of strands (mm)	Seven (7) /0.3 (nom.)
7	Insulation	
	a) Reference standard	VDE-207 Part 4
	b) Material	Extruded PVC Type Y13
	c) Thickness (mm) Min. / Max.	0.25 / 0.35
	d) Minimum volume Resistivity (in ohm cm)	
	i). At 20 deg C	1×10^{14}
	ii). At 70 deg C	1×10^{11}
8.	Pair & Twisting	
	a) Whether pairs are twisted	Yes
	b) Max. lay of Twist (mm)	50
	c) Cores of the Pairs of bunch provided	Pair No.1 Blue + Red, Pair No.2 Grey + Yellow
	d) Single layer of binder tape on each pair provided	Yes
	e) Bunch (unit formation) than 4P Provided	No

PROJECT ENGG. - C & I		
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VALID UPTO 31 / 10 / 2019		
DATE		

PROJECT NAME: STATION 38X113 SK Gupta

(SIGN) (DATE) (NAME)



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AN ISO 9001-2008 COMPANY

9	Shield	
	a) Material	Al. Mylar Tape
	b) Min. Thickness of Overall shield (in mm)	0.055
	c) Coverage Overlapping (Min.)	100% / 20%
10	Drain wire	
	a) Reference standard	IS-8130
	b) Material	Annealed Tinned Copper (ATC)
	c) Size (Sq.mm) / No. of strands / Diameter of Strands (mm)	0.5 / Seven (7) / 0.3 (nom.)
11	Fillers (if applicable) are non hygroscopic & flame retardant	Yes
12	Outer Sheath	
	a) Reference standard	VDE-207 Part 5, VDE - 0816
	b) Material	Extruded PVC Type YMI with FRLS Properties
	c) Min. thickness of Outer Sheath (in mm)	1.8
	d) Min. Oxygen index (as per ASTM D 2863) in %	29
	e) Min. Temp index (in deg C as per ASTM D 2863) at O ₂ index 21%	250
	f) Max. Acid gas generation (as per IEC-60754-1) in % (by weight)	20
	g) Max. Smoke density rating (as per ASTM D 2843) in %	60
	h) Colour of Outer Sheath	Blue
13	Complete Cable	
	a) Overall Diameter of cable (mm)	2P 9.9
	b) Allowed Tolerance on Overall diameter (mm)	+/-2
	c) Ovality at any Cross section not more than 1 mm	Yes
	d) Variation in Diameter not more than 1mm	Yes

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DOC. NO. 0000-405-PEI-Y-015 (Approved)

[Signature] 28/11/13 S.K. GUPTA
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AN ISO 9001-2008 COMPANY

14	Cable Parameters at 20 deg C (+/-3 deg C)	
a)	Max. Conductor loop resistance at 20°C (in Ohm/Km)	73.4
b)	Min. Insulation Resistance at 20 deg. C (in M.ohm x km)	100
c)	Max. Mutual capacitance at 0.8KHz (in nF/Km)	100
d)	Min. Cross talk for near end at 0.8KHz (in dB)	60
e)	Max. Attenuation at 1 KHz (in dB/km)	1.2
f)	Max. Characteristic Impedance at 1 KHz (in ohm)	340
g)	Min. Static Noise Interference (in dB) as per IEEE - Transaction 1967	60
15	Continuous Maximum operating temp (deg C)	70
16	Whether complete cable assembly flame retardant as per IEEE-383	Yes
17	Whether complete cable assembly passes Swedish chimney test as per SEN 4241475 (Class F3)	Yes
18	Identification	
a)	Progressive automatic on - line sequential marking of length in meters at every one meter's on Outer sheath	Yes
b)	FRLS marked within 5 meter	Yes
c)	Durable marking at intervals not exceeding 625 mm including:- Manufacturer's Name, Conductor's size, Insulation material, Number of Pairs, Type of cable, Voltage Grade, Year of Manufacturer.	Yes
19	Test Voltage	
a)	High Voltage Test (Dielectric strength)	Core to Core
i)	Voltage (kV)	2
ii)	Duration (min)	1
		Core to shield
		0.5

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PROJECT NAME: DELTON CABLES LIMITED
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 VALID UPTO 27/10/2016



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AN ISO 9001-2008 COMPANY

	b)	Resistance to direct current test	A.C	D.C
	i)	Voltage (in Volts +/-10%)	1200	220
	ii)	Duration	10 minutes	10 days
20		Cable cross-sectional drawings for each type of cable furnished at Annex-I.	Yes	
21		Cable Drums		
	a)	Length of single coil in a drum for 2P	1000 Mtrs.	
	b)	Tolerance on Individual drum length w.r.t (a) above	+/-5%	
	c)	Wooden drum provided	Yes	
	d)	Identification marks provided on drum as Manufacturer's Name, Country of manufacturing, Consignee Address, LOA No., Drum No., Length of Cable, Net & Gross Wt, Year of Manufacture, Type/ Size of Cable, voltage Grade	Yes	
22		Type Test procedure as per VDE-0472, IS: 10810, VDE 0815 and Other relevant standards to be furnished	Yes	
23		Quantity	Refer LOA/NOA	

PROJECT ENGG. - C & I

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VALID UPTO 27/11/2016 DATE



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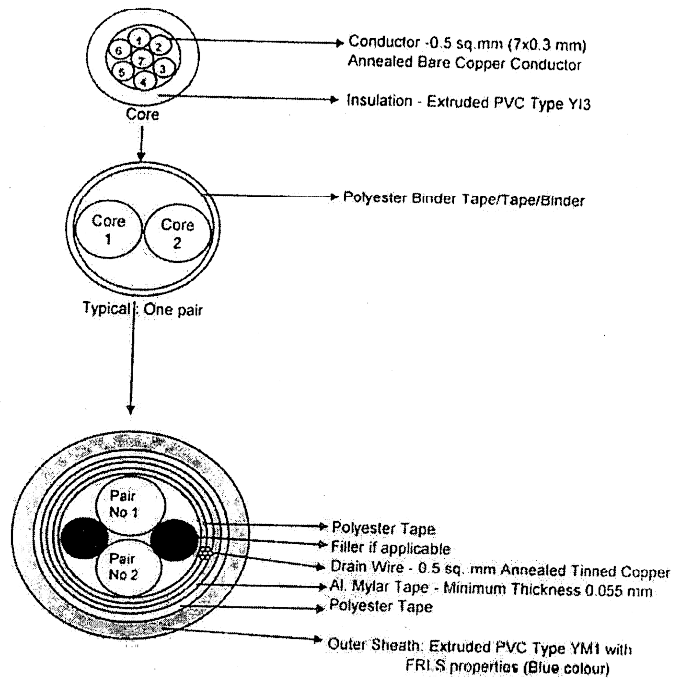
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PROJECT NAME: _____

Delton Cables Limited

Typical Cross Sectional Drawing G- TYPE

ANNEXURE-I



Typical : G TYPE 2 PAIR

PROJECT ENGG. - C & I		
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(SIGN) <i>[Signature]</i>	(DATE) 28/11/13	(NAME) S.K. GUPTA
VALID UPTO 27/12/2016		
DATE		



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VALID UPTO 31/10/2019		
DATE		

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DATASHEET AN ISO 9001:2008 COMPANY COMMUNICATION CABLE

TYPE-F

REV.02/07-10-2013

1	Manufacturer's Name	M/s Delton Cables Ltd. Faridabad	
2	Type of cable	F Type	
		4P	8P
		12P	16P 24P
3	Reference design standards	VDE-0472 / VDE-0815 / IS-10810	
4	Voltage Grade	225V (Peak)	
5	Conductor Size	0.5 Sq.mm	
6	Conductor		
	a) Reference Standard	IS - 8130	
	b) Material	Annealed Bare Copper (ABC)	
	c) Grade	Electrolytic	
	d) No. of strands/diameter of strands (mm)	Seven (7) / 0.3 (nom.)	
7	Insulation		
	a) Reference standard	VDE-207 Part 4	
	b) Material	Extruded PVC Type Y13	
	c) Thickness (mm) Min. / Max.	0.25 / 0.35	
	d) Minimum volume Resistivity (in ohm cm)	1 x 10 ¹¹	
	i). At 20 deg C	1 x 10 ¹¹	
	ii). At 70 deg C		
8	Pair & Twisting		
	a) Whether pairs are twisted	Yes	
	b) Max. lay of Twist (mm)	50	
	c) Cores of the Pairs of bunch provided	As per Attached Annexure - I	
	d) Single layer of binder tape on each pair provided	Yes	

PROJECT ENGG. - C & I

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27/10/2016 **I.N. CHOWDHURY**

(SIGN) (DATE) (NAME)

VALID UPTO 31/10/2019

DATE

PROJECT ENGG. - C & I

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27/10/2016 **S.K. GUPTA**

(SIGN) (DATE) (NAME) AGM

VALID UPTO 27/10/2019 **(PE-C&I)**

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e) Bunch (Unit Formation) for more than 4P provided		AN ISO 9001-2008 COMPANY		Yes									
9	Shield												
a)	Material	Al. Mylar Tape											
b)	Min. Thickness over individual pair (in mm)	0.028											
c)	Min. Thickness of Overall shield (in mm)	0.055											
d)	Coverage/Overlapping (Min.)	100% / 20%											
10	Drain wire												
a)	Reference standard	IS-8130											
b)	Material	Annealed Tinned Copper (ATC)											
c)	Size (Sq.mm) / No. of strands / Diameter of Strands (mm)	0.5 / Seven (7) / 0.3 (nom.)											
d)	Separate drain wires for individual as well as over all shield provided.	Yes											
11	Fillers (if applicable) are non hygroscopic & flame retardant		Yes										
12	Outer Sheath												
a)	Reference standard	VDE-207 Part 5, VDE - 0816											
b)	Material	Extruded PVC Type YMI with FRLS Properties											
c)	Min. thickness of Outer Sheath (in mm)	1.8											
d)	Min. Oxygen index (as per ASTM D 2863) in %	29											
e)	Min. Temp index (in deg.C as per ASTM D 2863) at O ₂ index 21%	250											
f)	Max. Acid gas generation (as per IEC-60754-1) in % (by weight)	20											
g)	Max. Smoke density rating (as per ASTM D 2843) in %	60											
h)	Color of Outer Sheath	Blue											
13	Complete Cable												
a)	Overall Diameter of cable (mm)	<table border="1"> <tr> <td>8P</td> <td>12P</td> <td>16P</td> <td>24P</td> </tr> <tr> <td>5.3</td> <td>17.3</td> <td>19.3</td> <td>22.4</td> </tr> </table>				8P	12P	16P	24P	5.3	17.3	19.3	22.4
8P	12P	16P	24P										
5.3	17.3	19.3	22.4										

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27/10/2016 IN. CHOWDHURY
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PROJECT ENGG. - C & I

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27/10/2016 SK. GUPTA
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AN ISO 9001-2008 COMPANY		17.2
	b) Allowed Tolerance on Overall diameter (mm)	
	c) Ovality at any Cross section not more than 1 mm	Yes
	d) Variation in Diameter not more than 1mm	Yes
14	Cable Parameters at 20 deg C (+/-3 deg C)	
	a) Max. Conductor loop resistance at 20°C (in Ohm/Km)	73.4
	b) Min. Insulation Resistance at 20 deg. C (in M.ohm x km)	100
	c) Max. Mutual capacitance at 0.8KHz (in nF/Km)	120
	d) Min. Cross talk for near end at 0.8KHz (in dB)	60
	e) Max. Attenuation at 1 KHz (in dB/km)	1.2
	f) Max. Characteristic Impedance at 1 KHz (in ohm)	320
	g) Min. Static Noise Interference (in dB) as per IEEE - Transaction 1967	60
15	Continuous Maximum operating temp (deg C)	70
16	Whether complete cable assembly flame retardant as per IEEE-383	Yes
17	Whether complete cable assembly passes Swedish chimney test as per SEN 4241475 (Class F3)	Yes
18	Identification	PROJECT ENGG. - C & I
	a) Progressive automatic on - line sequential marking of length in meters at every one meter's on Outer sheath	APPROVED 27/10/2016 I.N. CHOWDHURY (SIGN) (DATE) (NAME)
	b) FRLS marked within 5 meter	VALID UPTO 31 / 10 / 2019 DATE
	c) Durable marking at intervals not exceeding 625 mm including:- Manufacturer's Name, Conductor's size, Insulation material, Number of Pairs, of cable, Voltage Grade, Year of Manufacturer.	PROJECT ENGG. - C & I APPROVED Doc. No: 0000-405-PEI-Y-01V(A) 28/11/13 SKAUP.TA (SIGN) (DATE) (NAME) VALID UPTO 27/11/2016

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AN ISO 9001-2008 COMPANY

19	Test Voltage		
	a) High Voltage Test (Dielectric strength)	Core to Core	Core to shield
	i) Voltage (kV)	2	0.5
	ii) Duration (in minutes)	1	1
	b) Resistance to direct current test	A.C	D.C
	i) Voltage (in Volts +/-10%)	1200	220
	ii) Duration	10 minutes	10 days
20	Cable cross-sectional drawings for each type of cable furnished at Annex-II.	Yes	
21	Cable Drums		
	a) Length of single coil in a drum) for 4P / 8P / 12P) for 16P / 24P	1000 Mtrs. 500 Mtrs.	
	b) Tolerance on Individual drum length w.r.t (a) above	+/-5%	
	c) Wooden drum provided	Yes	
	d) Identification marks provided on drum as Manufacturer's Name, Country of manufacturing, Consignee Address, LOA No., Drum No., Length of Cable, Net & Gross Wt, Year of Manufacture, Type/ Size of Cable, voltage Grade	Yes	
22	Type Test procedure as per VDE-0472, IS: 10810, VDE 0815 and Other relevant standards to be furnished	Yes	
23	Quantity	Refer LOA/NOA	

PROJECT ENGG. - C & I	
APPROVED	
(SIGN) <i>[Signature]</i>	(DATE) 27/10/2016
(NAME) I.N. CHOWDHURY	
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(NAME) SK GUPTA	
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PROJECT NAME

Dekton Cables Limited

ANNEXURE-I (REFERENCE STD:-VIDE-0815)

Conductor Pair : For 4 Pair cables, the colour scheme identification shall be as follow:-

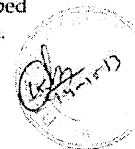
Pair	Core	Colour
1 st Pair	1 st Core	Blue
1 st Pair	2 nd Core	Red
2 nd Pair	1 st Core	Grey
2 nd Pair	2 nd Core	Yellow
3 rd Pair	1 st Core	Green
3 rd Pair	2 nd Core	Brown
4 th Pair	1 st Core	White
4 th Pair	2 nd Core	Black

In case of higher number of pairs, the above colour scheme shall be repeated, and to distinguish between the two pairs giving same colour code in a cable, suitable colour bands shall be used. For example all eight cores of the first unit shall have a band of Pink colour. The complete scheme is given below and the order of colour bands shall be PINK, ORANGE, VIOLET, PINK etc.

Unit No.	Colour of Bands	Band Mark
1.	PINK	= = = = =
2.		= = = = =
3.		= = = = =
4.		= = = = =
5.	ORANGE	= = = = =
6.		= = = = =
7.		= = = = =
8.		= = = = =
9.	VIOLET	= = = = =
10.		= = = = =
11.		= = = = =
12.		= = = = =

NOTE: For Cables above 4 Pair, each 4 Pair unit shall be open helically lapped with Numbered Binder tape for purpose of binding & unit identification.

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The dimension 'L' shall be limited between 60mm and 80mm. The bands shall be neat and cover at least ninety percent (90%) of the periphery of the core.

Band marking shall not be easily erasable and shall also meeting bleeding and blooming test and colour fastness to water test requirement as per relevant standard.

For Cables more than 4 Pair, Polyester tape over unit 1 shall be marked 1, Polyester tape over unit 2 shall be marked 2, Polyester tape over unit 3 shall be marked 3, Polyester tape over 4 shall be marked 4, Polyester tape over unit 5 shall be marked 5, Polyester tape over unit 6 shall be marked 6, Polyester tape over unit 7 shall be marked 7, Polyester tape over unit 8 shall be marked 8, Polyester tape over unit 9 shall be marked 9, Polyester tape over unit 10 shall be marked 10, Polyester tape over unit 11 shall be marked 11 and Polyester tape over unit 12 shall be marked 12 for unit identification.

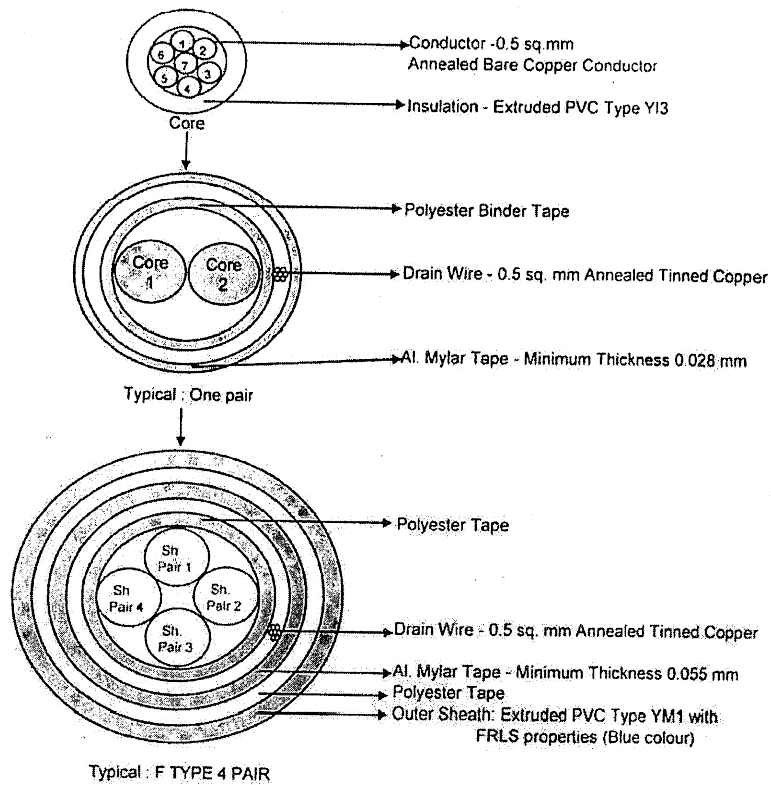
एनटीपीसी NTPC			PROJECT ENGG. - C & I		
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Typical Cross Sectional Drawing F- TYPE

ANNEXURE-II

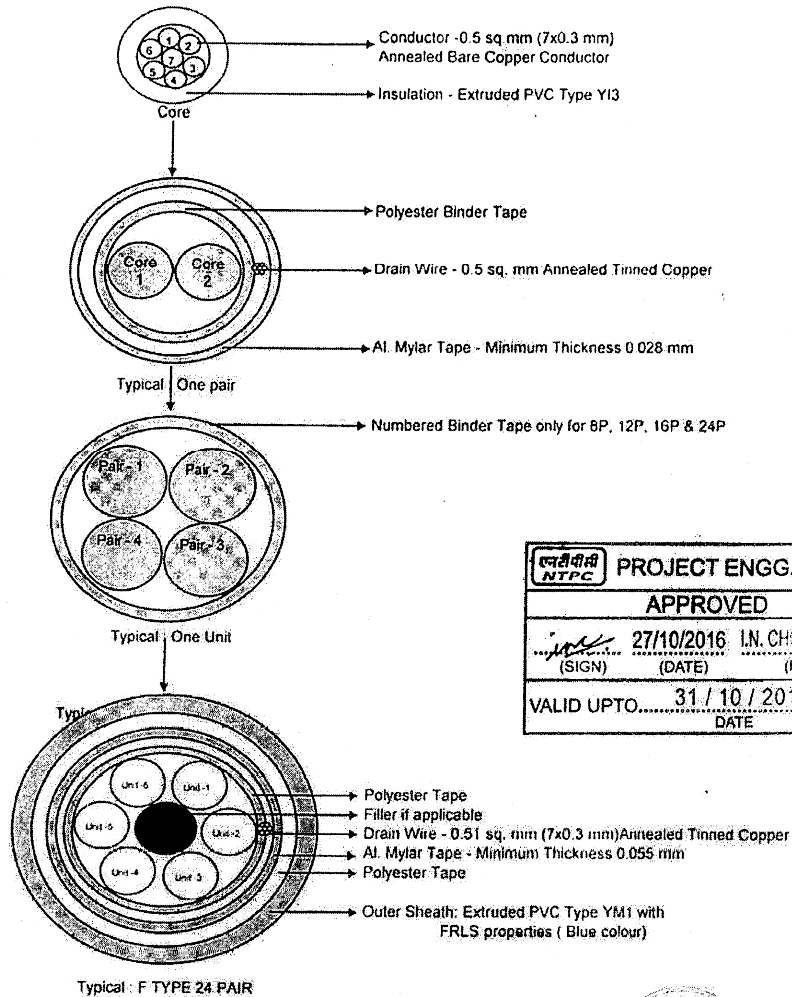


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Typical Cross Sectional Drawing F- TYPE



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Note: Similar arrangement shall be followed for F Type 8 P, 12 P & 16 P cables

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VALID UPTO... 27/11/2014		



Delton Cables Limited

Regd. Office : 'Delton House', 4801, Bharat Ram Road 24, Darya Ganj, New Delhi-110 002 (INDIA)
 Phones : 91-11-23273905-07 Fax : 91-11-23280375, 23272178, 28835550
 E-mail : dcl@deltoncables.com Website : www.deltoncables.com

DATASHEET FOR INSTRUMENTATION CABLE TYPE-G REV.02/07-10-2013

1	Manufacturer's Name	M/s Delton Cables Ltd. Faridabad	
2	Type of cable	G Type 4P 8P 12P 16P 24P 48P	
3	Reference design standards	VDE-0472 / VDE-0815 / IS-10810	
4	Voltage Grade	225V (Peak)	
5	Conductor Size	0.5 Sq.mm	
6	Conductor		
	a) Reference Standard	IS - 8130	
	b) Material	Annealed Bare Copper (ABC)	
	c) Grade	Electrolytic	
	d) No. of strands/diameter of strands (mm)	Seven (7) / 0.3 (nom.)	
7	Insulation		
	a) Reference standard	VDE-207 Part 4	
	b) Material	Extruded PVC Type Y13	
	c) Thickness (mm) Min. / Max.	0.25 / 0.35	
	d) Minimum volume Resistivity (in ohm cm)	1×10^{14} 1×10^{11}	
8	Pair & Twisting		
	a) Whether pairs are twisted	Yes	
	b) Max. lay of Twist (mm)	50	
	c) Cores of the Pairs of bunch provided	As per Attached Annexure - I	
	d) Single layer of binder on each pair provided.	Yes	
	e) Bunch (unit formation) for more than 4P Provided	Yes	

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 E-mail : dcl@deltoncables.com Website : www.deltoncables.com

AN ISO 9001-2008 COMPANY

9	Shield					
	a) Material					Al. Mylar Tape
	b) Min. Thickness of Overall shield (in mm)					0.055
	c) Coverage Overlapping (Min.)					100% / 20%
10	Drain wire					
	a) Reference standard					IS-8130
	b) Material					Annealed Tinned Copper (ATC)
	c) Size (Sq.mm) / No. of strands / Diameter of Strands (mm)					0.5 / Seven (7) / 0.3 (nom.)
11	Fillers (if applicable) are non hygroscopic & flame retardant					Yes
12	Outer Sheath					
	a) Reference standard					VDE-207 Part 5, VDE - 0816
	b) Material					Extruded PVC Type YM1 with FRLS Properties
	c) Min. thickness of Outer Sheath (in mm)					1.8
	d) Min. Oxygen index (as per ASTM D 2863) in %					29
	e) Min. Temp index (in deg C as per ASTM D 2863) at O ₂ index 21%					250
	f) Max. Acid gas generation (as per IEC-60754-1) in % (by weight)					20
	g) Max. Smoke density rating (as per ASTM D 2843) in %					60
	h) Color of Outer Sheath					Blue
13	Complete Cable					
	a) Overall Diameter of cable (mm)	4P	8P	12P	16P	24P
		10.7	14.3	16.3	18.1	21.0
	b) Allowed Tolerance on Overall diameter (mm)					+/-2
	c) Ovality at any Cross section not more than 1 mm					Yes
	d) Variation in Diameter not more than 1mm					Yes

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VALID UPTO 27/12/2016		

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Delton Cables Limited

Regd. Office : 'Delton House', 4801, Bharat Ram Road 24, Darya Ganj, New Delhi-110 002 (INDIA)
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14	Cable Parameters at 20 deg C (+/-3 deg C)	
a)	Max. Conductor loop resistance at 20°C (in Ohm/Km)	73.4
b)	Min. Insulation Resistance at 20 deg. C (in M.ohm x km)	100
c)	Max. Mutual capacitance at 0.8KHz (in nF/Km)	100
d)	Min. Cross talk for near end at 0.8KHz (in dB)	60
e)	Max. Attenuation at 1 KHz (in dB/km)	1.2
f)	Max. Characteristic Impedance at 1 KHz (in ohm)	340
g)	Min. Static Noise Interference (in dB) as per IEEE - Transaction 1967	60
15	Continuous Maximum operating temp (deg C)	70
16	Whether complete cable assembly flame retardant as per IEEE-383	Yes
17	Whether complete cable assembly passes Swedish chimney test as per SEN 4241475 (Class F3)	Yes
18	Identification	
a)	Progressive automatic on - line sequential marking of length in meters at every one meter's on Outer sheath	Yes
b)	FRLS marked within 5 meter	Yes
c)	Durable marking at intervals not exceeding 625 mm including:- Manufacturer's Name, Conductor's size, Insulation material, Number of Pairs, Type of cable, Voltage Grade, Year of Manufacturer.	Yes
19	Test Voltage	
a)	High Voltage Test (Dielectric strength)	Core to Core
i)	Voltage (kV)	2
ii)	Duration (in minutes)	1
		Core to shield
		0.5

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<i>[Signature]</i> (SIGN)	28/10/16 (DATE)	S.K. ANUPMA (NAME)
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	b)	Resistance to direct current test	A.C	D.C
	i)	Voltage (in Volts +/-10%)	1200	220
	ii)	Duration	10 minutes	10 days
20		Cable cross-sectional drawings for each type of cable furnished at Annex-II.	Yes	
21		Cable Drums		
	a)	Length of single coil in a drum) for 4P / 8P / 12P) for 16P / 24P / 48P	1000 Mtrs. 500 Mtrs.	
	b)	Tolerance on Individual drum length w.r.t (a) above	+/-5%	
	c)	Wooden drum provided	Yes	
	d)	Identification marks provided on drum as Manufacturer's Name, Country of manufacturing, Consignee Address, LOA No., Drum No., Length of Cable, Net & Gross Wt. Year of Manufacture, Type/ Size of Cable, voltage Grade	Yes	
22		Type Test procedure as per VDE:- 0472, IS: 10810, VDE 0815 and Other relevant standards to be furnished	Yes	
23		Quantity	Refer LOA/NOA	

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Delton Cables Limited

ANNEXURE-I (REFERENCE STD:-VDE-0815)

Conductor Pair : For 4 Pair cables, the colour scheme identification shall be as follow:-

Pair	Core	Colour
1 st Pair	1 st Core	Blue
1 st Pair	2 nd Core	Red
2 nd Pair	1 st Core	Grey
2 nd Pair	2 nd Core	Yellow
3 rd Pair	1 st Core	Green
3 rd Pair	2 nd Core	Brown
4 th Pair	1 st Core	White
4 th Pair	2 nd Core	Black

In case of higher number of pairs, the above colour scheme shall be repeated, and to distinguish between the two pairs giving same colour code in a cable, suitable colour bands shall be used. For example all eight cores of the first unit shall have a band of Pink colour. The complete scheme is given below and the order of colour bands shall be PINK, ORANGE, VIOLET, PINK etc.

Unit No.	Colour of Bands	Band Mark
1.	PINK	← — — — — →
2.		= = = = =
3.		= = = = =
4.		= = = = =
5.	ORANGE	= = = = =
6.		= = = = =
7.		= = = = =
8.		= = = = =
9.	VIOLET	= = = = =
10.		= = = = =
11.		= = = = =
12.		= = = = =

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NOTE: For Cables having 4 Pair units shall be open helically lapped with Numbered Bands for the purpose of binding & unit identification.

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Deltan Cables Limited

The dimension 'L' shall be limited between 60mm and 80mm. The bands shall be neat and cover at least ninety percent (90%) of the periphery of the core.

Band marking shall not be easily erasable and shall also meeting bleeding and blooming test and colour fastness to water test requirement as per relevant standard.

For Cables more than 4 Pair, Polyester tape over unit 1 shall be marked 1, Polyester tape over unit 2 shall be marked 2, Polyester tape over unit 3 shall be marked 3, Polyester tape over 4 shall be marked 4, Polyester tape over unit 5 shall be marked 5, Polyester tape over unit 6 shall be marked 6, Polyester tape over unit 7 shall be marked 7, Polyester tape over unit 8 shall be marked 8, Polyester tape over unit 9 shall be marked 9, Polyester tape over unit 10 shall be marked 10, Polyester tape over unit 11 shall be marked 11 and Polyester tape over unit 12 shall be marked 12 for unit identification.

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S.K. GUPTA (NAME)	
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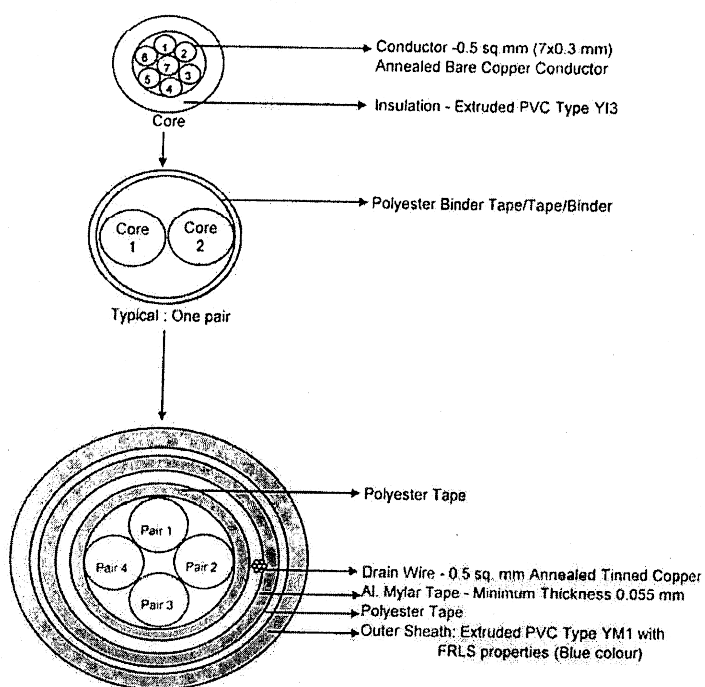


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Typical Cross Sectional Drawing G- TYPE

ANNEXURE-II



Typical : G TYPE 4 PAIR

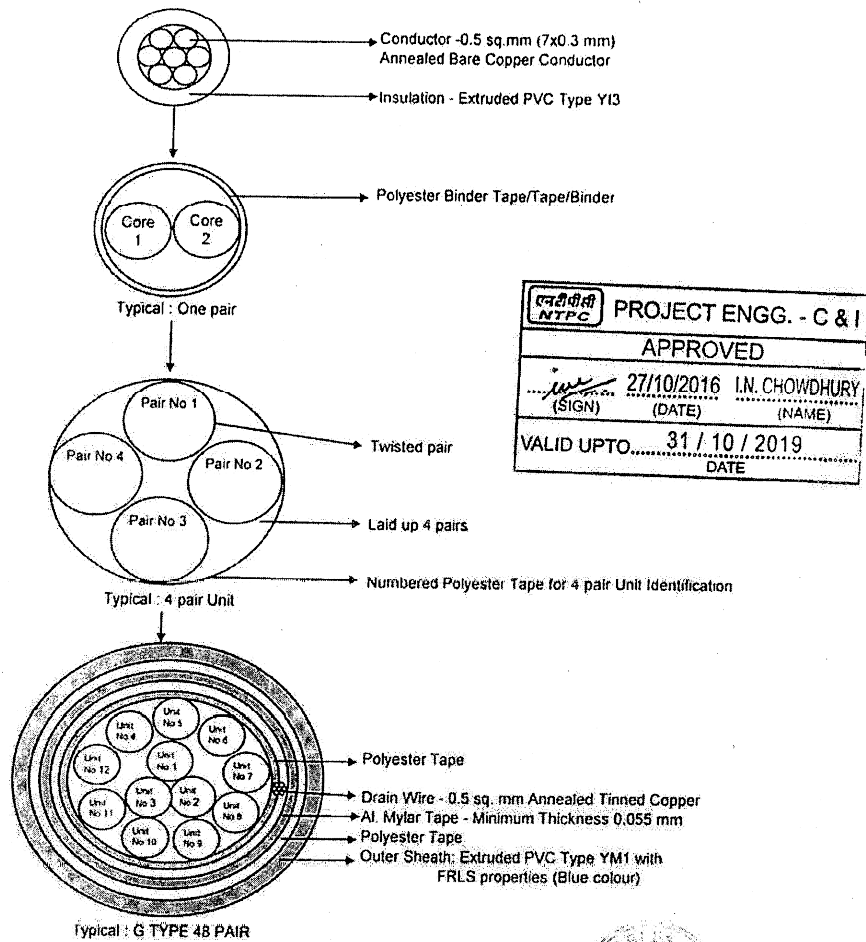
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Typical Cross Sectional Drawing G- TYPE

ANNEXURE-II



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Note: Similar arrangement shall be followed for G Type 8 P, 12 P, 16 P, 24 P, 48 P cables.

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