

**CPRI**

**TEST REPORT**



**Central Power Research Institute**

**(A Govt. of India Society,)**

**P.B. No.8066, Sadashivanagar Post Office**

**Prof. Sir.C.V. Raman Road,**

**Bangalore - 560 080(INDIA)**

# CENTRAL POWER RESEARCH INSTITUTE



**CPRI**

## TEST REPORT

**Test Report Number** : DCCD-12738(A) Date : 27.08.2012

**Name & Address of the Customer** : M/s. Gala Shrink Fit Pvt.Ltd.,  
Plot No. 24, Vasai Taluka Industrial Co. Op. Society,  
Gauraipada, Vasai(East) Thane.

**Name & Address of the Manufacturer** : M/s. Gala Shrink Fit Pvt.Ltd.,  
Plot No. 24, Vasai Taluka Industrial Co. Op. Society,  
Gauraipada, Vasai(East) Thane.

**Particulars of sample tested** : **19/33 kV Heat Shrink Straight Through Joint , Heat Shrink Indoor Terminations & Heat Shrink Outdoor terminations mounted on 3 X 185 mm<sup>2</sup> 19/33 kV XLPE Cable.**

**Condition of the sample on receipt** : New

**Type** : "CAB LINK" Heat Shrink

**Designation** : **Cable -**  
3 X 185 sq.mm, Aluminium conductor, XLPE insulated, Strip Armoured PVC Sheathed 19/33 KV Cable

: **Accessories : ( In two loops)**  
No. of joints: Two ( One on each loop)  
Type: Heat Shrink (CAB LINK BRAND)

No. of terminations: Two Indoor & Two Outdoor  
Type: Heat Shrink (CAB LINK BRAND)

**Voltage Rating** : 19/33 KV  
One loop with One straight through joint and Two Heat shrink Indoor terminations ( DCCDCAB12S0031)  
One loop with One straight through joint and Two Heat shrink Outdoor terminations (DCCDCAB12S0032)

**Serial Number** : Nil

**Number of Samples tested** : Two loops

**Date(s) of Test(s)** : 07.03.2012 to 25.06.2012

**CPRI Sample Code no(s)** : DCCDCAB12S0031, DCCDCAB12S0032


**Particulars of test conducted** : Type Test (Sequence A1, B1 II, 1.1, 2.1 )

**Test in accordance with Standard /Specification** : As per IEC 60502-4- 2010 , Sequence 1.1 & 2.1  
CENELEC HD 629-1-1996, Sequence A1 & B1 II

**Sampling plan** : Not Applicable

**Customer's requirement** : Nil

**Deviation if any** : Nil

  
(Thirumurthy)  
**Test Engineer**



  
(K.Mallikarjunappa)  
**Joint Director**

# CENTRAL POWER RESEARCH INSTITUTE



**CPRI**

Date:27.08.2012

## TEST REPORT

Test Report No.:DCCD-12738(A)

### Name of the witnessing persons

Customer's representatives : None  
Other than customer's representatives : None.

Test subcontracted with address  
of the laboratory : Nil

### Documents constituting this Certificate (in words)

Number of sheets : Eleven  
Number of oscillogram/s : Fourty Eight ( Twelve pages)  
Number of graphs : Nil  
Number of photos : Nil  
Number of test circuit diagrams : Nil  
Number of drawings : Three  
1. Drg no.GTSPL/005/11/11  
2. Drg.no.GTSPL/004/11/11  
3. Drg.no.GTSPL/006/11/11

(Thirumurthy)  
Test Engineer

(K.Mallikarjunappa)  
Joint Director



# CENTRAL POWER RESEARCH INSTITUTE



**CPRI**

Date: 27.08.2012

## TEST REPORT

Test Report No.: DCCD-12738(A)

### TEST RESULTS

#### 1. DC HIGH VOLTAGE TEST (Dry):

- a) Test connection : Between test core and other cores shorted to grounded shield and armour  
 b) Test Voltage : 114 kV ac  
 c) Duration of test : Fifteen Minutes  
 d) Ambient Temperature : 27 °C

e)

Length of the sample	DCCDCAB12S0031	DCCDCAB12S0032
	10.0 metres	10.0 metres

f) Result :

Sl. No.	Core Identification	Remarks	
		DCCDCAB12S0031	DCCDCAB12S0032
1.	Red	WITHSTOOD	WITHSTOOD
2.	Yellow	WITHSTOOD	WITHSTOOD
3.	Blue	WITHSTOOD	WITHSTOOD

#### 2. AC HIGH VOLTAGE TEST (Dry):

- a) Test connection : Between test core and other cores shorted to grounded shield and armour  
 b) Test Voltage : 85.5 kV ac  
 c) Duration of test : Five Minutes  
 d) Ambient Temperature : 29 °C

e)

Length of the sample	DCCDCAB12S0031	DCCDCAB12S0032
	10.0 metres	10.0 metres

f) Result :

Sl. No.	Core Identification	Remarks	
		DCCDCAB12S0031	DCCDCAB12S0032
1.	Red	WITHSTOOD	WITHSTOOD
2.	Yellow	WITHSTOOD	WITHSTOOD
3.	Blue	WITHSTOOD	WITHSTOOD

#### 3. AC HIGH VOLTAGE TEST (Wet): Only for Outdoor terminations

- a) Test connection : Between test core and other cores shorted to grounded shield and armour  
 b) Test Voltage : 76 kV ac  
 c) Duration of test : One Minute  
 d) Ambient Temperature : 25.5 °C  
 e) Length of sample : 10.0 metres

f) Result :

Sl. No	Core Identification	Remarks
1.	Red	WITHSTOOD
2.	Yellow	WITHSTOOD
3.	Blue	WITHSTOOD

(Thirumurthy)  
TEST ENGINEER

# CENTRAL POWER RESEARCH INSTITUTE



Test Report No.:DCCD-12738(A)

Date:27.08.2012

## TEST RESULTS

### 4. PARTIAL DISCHARGE TEST: (At Ambient)

- a) Sensitivity of the discharge detector : 5 pC
- b) Test connection : Between test core and other cores shorted with grounded shield & armour
- c) Specified maximum discharge magnitude: 10 pC
- d) Measurement of discharge magnitude at 33 kV ac

e)

Length of the sample	DCCDCAB12S0031	DCCDCAB12S0032
	10.0 metres	10.0 metres

- f) Observed Discharge magnitudes at 33 kV ac:

Sl.No	Core Identification	Discharge magnitude in pico Coulombs	
		DCCDCAB12S0031	DCCDCAB12S0032
1	Red	Less than 5 pC	Less than 5 pC
2	Yellow	Less than 5 pC	Less than 5 pC
3	Blue	Less than 5 pC	Less than 5 pC

### 5. INSULATION RESISTANCE MEASUREMENT BEFORE IMPACT TEST:

- a) Test Voltage : 500 V dc
  - b) Electrification time : One minute
  - c) Ambient Temperature : 26 °C
- d)

Length of sample	DCCDCAB12S0031	DCCDCAB12S0032
	10.0 metres	10.0 metres

- e) Specified Insulation Resistance :  $10^3 M\Omega$  (Min)

- f) Observed Values(in  $M\Omega$ ) :

Sl. No.	Core Identification	Insulation resistance in $M\Omega$	
		DCCDCAB12S0031	DCCDCAB12S0032
1.	Red	$237 \times 10^3$	$206 \times 10^3$
2.	Yellow	$572 \times 10^3$	$249 \times 10^3$
3.	Blue	$293 \times 10^3$	$317 \times 10^3$

### 6. IMPACT TEST

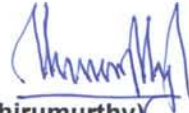
The joint was placed on a hard base floor. A wedge shaped mass of 4 kg having a right angle edge with a 2 mm radius impacting edge was dropped three times from a height of 1 metre on the joint such that the impacting edge is horizontal and at right angles to the axis of the joint

No. of Impacts: Three ( One in the middle of the joint, and one each at the ends)

RESULT:

Sample Code	Result
DCCDCAB12S0031	No visual damage observed to affect the performance of the joint
DCCDCAB12S0032	No visual damage observed to affect the performance of the joint

After the impact test, the joints were immersed in a water bath for 24 hours and insulation resistance was measured.

  
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**TEST RESULTS**

**7. INSULATION RESISTANCE TEST AFTER IMPACT TEST: (Immersed)**

- a) Test Voltage : 500 V dc
- b) Electrification time : One minute
- c) Ambient Temperature : 26 °C
- d)

Length of sample	DCCDCAB12S0031	DCCDCAB12S0032
	10.0 metres	10.0 metres

e) Specified Insulation Resistance :  $10^3$  MΩ (Min)

f) Observed Values (in MΩ) :

Sl. No.	Core Identification	Insulation resistance in MΩ	
		DCCDCAB12S0031	DCCDCAB12S0032
1.	Red	103 X 10 <sup>3</sup>	162 X 10 <sup>3</sup>
2.	Yellow	112 X 10 <sup>3</sup>	153 X 10 <sup>3</sup>
3.	Blue	125 X 10 <sup>3</sup>	146 X 10 <sup>3</sup>

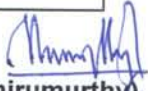
**8. IMPULSE WITHSTAND TEST :**

Sample Identification	Temperature of conductor during Test	Ambient temperature in °C		No. of Impulses	Test Voltage (kV Peak)
		Dry Bulb	Wet Bulb		
DCCDCAB12S0031	95 to 100 °C	32.0	26.0	10 Positive & 10 Negative	194
DCCDCAB12S0032	95 to 100 °C	32.0	26.0	10 Positive & 10 Negative	194

Test Connection	The impulse source was connected to the conductor of the particular phase (ends shorted) under test and the screen connected to ground. The conductors of the other two phases which were not under test were shorted together with their screen and connected to ground.
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Phase	Polarity	Shot Number	Oscillogram Number		Result
			DCCDCAB12S0031	DCCDCAB12S0032	
Red	Positive	First	1917	1700	Withstood
		Tenth	1924	1714	
	Negative	First	1928	1723	
		Tenth	1936	1737	
Yellow	Positive	First	1946	1748	Withstood
		Tenth	1954	1821	
	Negative	First	1957	1826	
		Tenth	2005	1845	
Blue	Positive	First	2013	1851	Withstood
		Tenth	2020	1857	
	Negative	First	2024	1900	
		Tenth	2032	1906	

(Oscillograms enclosed)

  
**(Thirumurthy)**  
**TEST ENGINEER**

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### TEST RESULTS

#### 9. HEATING CYCLE TEST IN AIR:

1. The following test conditions were maintained during each load cycle.
  - i) Total duration of heating cycle voltage test : 8 hours
  - ii) Duration of heating period : 5 hours
  - iii) Duration of natural Cooling Period : 3 hours
  - iv) Temperature of the conductor during Heating Cycle :95 to 100 °C
  - v) AC voltage applied through out the heating cycle voltage test :47.5 kV ac

2.Number of cycles : 3

3. Results

	DCCDCAB12S0031	DCCDCAB12S0032
Result	WITHSTOOD	WITHSTOOD

#### 10. PARTIAL DISCHARGE TEST AT ELEVATED TEMPERATURE:

- a) Sensitivity of the discharge detector : 5 pC
- b) Test connection : Between test core and other cores shorted with grounded shield & armour
- c) Specified maximum discharge magnitude: 10 pC
- d) Measurement of discharge magnitude at 33kV ac
- e)

Length of the sample	DCCDCAB12S0031	DCCDCAB12S0032
	10.0 metres	10.0 metres

f) Conductor temperature during test : 95 to 100 °C

g) Observed Discharge magnitudes at 33 kV ac:

Sl.No	Core Identification	Discharge magnitude in pico Coulombs	
		DCCDCAB12S0031	DCCDCAB12S0032
1	Red	Less than 5 pC	Less than 5 pC
2	Yellow	Less than 5 pC	Less than 5 pC
3	Blue	Less than 5 pC	Less than 5 pC

#### 11. PARTIAL DISCHARGE TEST AT AMBIENT TEMPERATURE:

- a) Sensitivity of the discharge detector : 5 pC
- b) Test connection : Between test core and other cores shorted with grounded shield & armour
- c) Specified maximum discharge magnitude: 10 pC
- d) Measurement of discharge magnitude at 33 kV ac
- e)

Length of the sample	DCCDCAB12S0031	DCCDCAB12S0032
	10.0 metres	10.0 metres

f) Ambient temperature : 28 °C

g) Observed Discharge magnitudes at 33 kV ac:

Sl.No	Core Identification	Discharge magnitude in pico Coulombs	
		DCCDCAB12S0031	DCCDCAB12S0032
1	Red	Less than 5 pC	Less than 5 pC
2	Yellow	Less than 5 pC	Less than 5 pC
3	Blue	Less than 5 pC	Less than 5 pC

  
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### TEST RESULTS

#### 12. HEATING CYCLE TEST IN AIR:

1. The following test conditions were maintained during each load cycle.
  - i) Total duration of heating cycle voltage test : 8 hours
  - ii) Duration of heating period : 5 hours
  - iii) Duration of natural Cooling Period : 3 hours
  - iv) Temperature of the conductor during Heating Cycle :95 to 100 ° C
  - v) AC voltage applied through out the heating cycle voltage test :47.5 kV ac

2.Number of cycles : 60

3. Results

	DCCDCAB12S0031	DCCDCAB12S0032
Result	WITHSTOOD	WITHSTOOD

#### 13. HEATING CYCLE TEST IN WATER :(FOR JOINTS)

1. The joint was immersed in water with a height of 1.0 metre above the top surface of the joint and subjected to heating cycle test ,maintaining the following conditions during each load cycle.  
(Both Indoor and outdoor terminations in Air)

- i) Total duration of heating cycle voltage test : 8 hours
- ii) Duration of heating period : 5 hours
- iii) Duration of natural Cooling Period : 3 hours
- iv) Temperature of the conductor during Heating Cycle :95 to 100 ° C
- v) AC voltage applied through out the heating cycle voltage test :47.5 kV ac

2.Number of cycles : 63

3. Results

	DCCDCAB12S0031	DCCDCAB12S0032
Result	WITHSTOOD	WITHSTOOD

#### 14. IMMERSION TEST FOR OUTDOOR TERMINATIONS:

- 1.The outdoor terminations were immersed in water at ambient temperature with a height of water of 0.03 metre above every part of termination and subjected to heating cycle test ,maintaining the following conditions during each load cycle.

- i) Total duration of heating cycle voltage test : 8 hours
- ii) Duration of heating period : 5 hours
- iii) Duration of natural Cooling Period : 3 hours
- iv) Temperature of the conductor during Heating Cycle :95 to 100 ° C

2.Number of cycles : 10

  
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**Date:27.08.2012**

**TEST RESULTS**

**15. PARTIAL DISCHARGE TEST AT ELEVATED TEMPERATURE:**

- a) Sensitivity of the discharge detector : 5 pC
- b) Test connection : Between test core and other cores shorted with grounded shield & armour
- c) Specified maximum discharge magnitude: 10 pC
- d) Measurement of discharge magnitude at 33 kV ac
- e)

Length of the sample	DCCDCAB12S0031	DCCDCAB12S0032
	10.0 metres	10.0 metres

f) Conductor temperature during test : 95 to 100 °C

g) Observed Discharge magnitudes at 33 kV ac:

Sl.No	Core Identification	Discharge magnitude in pico Coulombs	
		DCCDCAB12S0031	DCCDCAB12S0032
1	Red	Less than 5 pC	Less than 5 pC
2	Yellow	Less than 5 pC	Less than 5 pC
3	Blue	Less than 5 pC	Less than 5 pC

**16. PARTIAL DISCHARGE TEST AT AMBIENT TEMPERATURE:**

- a) Sensitivity of the discharge detector : 5 pC
- b) Test connection : Between test core and other cores shorted with grounded shield & armour
- c) Specified maximum discharge magnitude: 10 pC
- d) Measurement of discharge magnitude at 33 kV ac
- e)

Length of the sample	DCCDCAB12S0031	DCCDCAB12S0032
	10.0 metres	10.0 metres

f) Ambient temperature : 29 °C

g) Observed Discharge magnitudes at 33 kV ac:

Sl.No	Core Identification	Discharge magnitude in pico Coulombs	
		DCCDCAB12S0031	DCCDCAB12S0032
1	Red	Less than 5 pC	Less than 5 pC
2	Yellow	Less than 5 pC	Less than 5 pC
3	Blue	Less than 5 pC	Less than 5 pC

**(Thirumurthy)  
TEST ENGINEER**

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## TEST REPORT

Test Report No.:DCCD-12738(A)

Date:27.08.2012

### TEST RESULTS

#### 17. IMPULSE WITHSTAND TEST :

Sample Identification	Temperature of conductor during Test	Ambient temperature in °C		No. of Impulses	Test Voltage (kV Peak)
		Dry Bulb	Wet Bulb		
DCCDCAB12S0031	Ambient	30.0	24.0	10 Positive & 10 Negative	194
DCCDCAB12S0032	Ambient	30.0	24.0	10 Positive & 10 Negative	194

Test Connection	The impulse source was connected to the conductor of the particular phase (ends shorted) under test and the screen connected to ground. The conductors of the other two phases which were not under test were shorted together with their screen and connected to ground.
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Phase	Polarity	Shot Number	Oscillogram Number		Result
			DCCDCAB12S0031	DCCDCAB12S0032	
Red	Positive	First	1535	1421	Withstood
		Tenth	1542	1428	
	Negative	First	1545	1432	
		Tenth	1552	1440	
Yellow	Positive	First	1601	1449	Withstood
		Tenth	1608	1457	
	Negative	First	1612	1500	
		Tenth	1620	1507	
Blue	Positive	First	1628	1517	Withstood
		Tenth	1635	1524	
	Negative	First	1639	1527	
		Tenth	1648	1534	

(Oscillograms enclosed)

  
 (Thirumurthy)  
**TEST ENGINEER**

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**CPRI**

## TEST REPORT

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Date:27.08.2012

## TEST RESULTS

### 18. AC HIGH VOLTAGE TEST (Dry):

- a) Test connection : Between test core and other cores shorted to grounded shield and armour  
b) Test Voltage : 47.5 kV ac  
c) Duration of test : Fifteen minutes  
d) Ambient Temperature : 26 °C  
e)

Length of the sample	DCCDCAB12S0031	DCCDCAB12S0032
	10.0 metres	10.0 metres

f) Result :

Sl. No.	Core Identification	Remarks	
		DCCDCAB12S0031	DCCDCAB12S0032
1.	Red	WITHSTOOD	WITHSTOOD
2.	Yellow	WITHSTOOD	WITHSTOOD
3.	Blue	WITHSTOOD	WITHSTOOD

### 19. EXAMINATION:

On completion of the tests, the joints were examined.

Remarks: No cracking in the filling, moisture path across primary seal, or corrosion and /or tracking observed.

(Thirumurthy)  
TEST ENGINEER



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## TEST REPORT

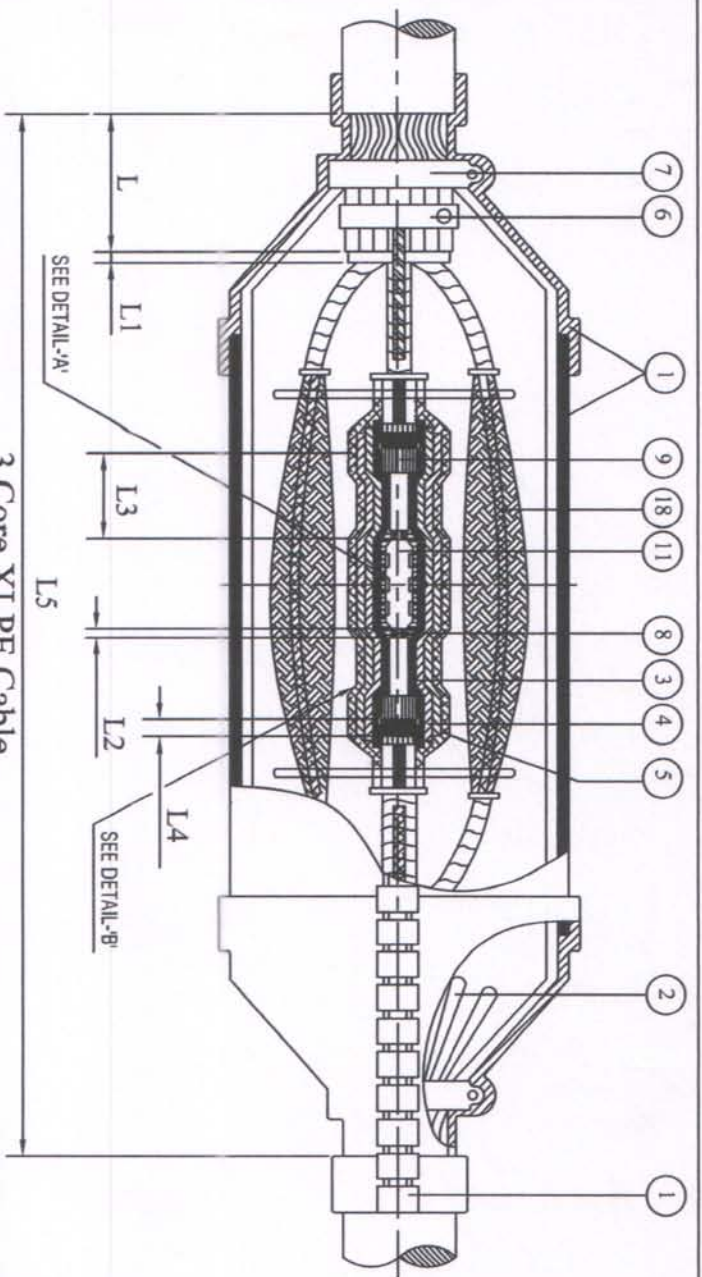
Test Report No.:DCCD-12738(A)

Date: 27.08.2012

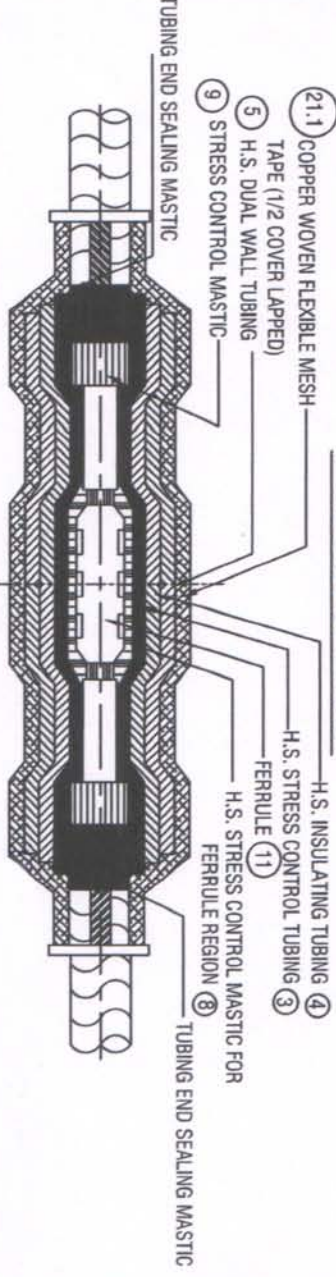
### NOTE

- a) The Test results relate only to the item(s) tested.
- b) Publication or reproduction of this report in any form other than by complete set of the whole report and in the language written, is not permitted without the written consent of CPRI.
- c) Any Corrections/erasure invalidates this test report.
- d) NABL has Accredited this laboratory as per ISO 17025-2005 standard for the tests carried out.
- e) Any anomaly/discrepancy in this test report should be brought to our notice within 45 days from the date of issue.

(Thirumurthy)  
TEST ENGINEER

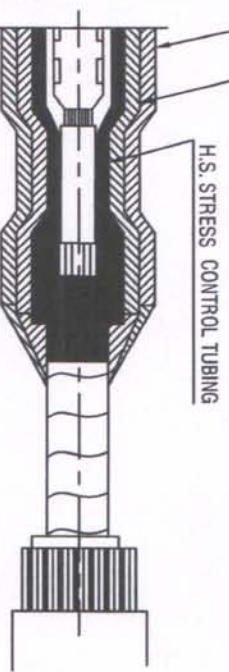


3 Core XLPE Cable



1 Core XLPE Cable

DETAIL-'A'



SEE DETAIL-'B'

H.S. STRESS CONTROL MASTIC FOR

Cable Cutting Dimensions for 3 Core XLPE Cables						
Cable size sq. mm	L	L1	L2	L3	L4	L5
400-500	100	10	10	175	60	1850
240-300	100	10	10	175	60	1850
120-185	100	10	10	175	60	1700
70-95	100	10	10	175	60	1650
16-50	100	10	10	175	60	1650

Cable Cutting Dimensions for 1 Core XLPE Cables						
Cable size sq. mm	L	L1	L2	L3	L4	L5
800-1000	80	10	10	150	55	1650
400-630	80	10	10	150	55	1650
150-300	80	10	10	150	55	1400
70-120	80	10	10	150	55	1350
25-50	80	10	10	150	55	1300

19	DETAILED INSTRUCTION MANUAL
18	METAL SCREEN CONTINUITY SYSTEM CONSISTING OF COPPER WOVEN FLEXIBLE MESH TAPE + SMALL COPPER BRAID + SOLDER + FLUX+COPPER BINDING WIRE
17	CLEANING TISSUES
16	MOPPING CLOTH
15	PVC ADHESIVE TAPE
14	ALOXIDE EMERY TAPE
13	NYLON STRING
12	MASTIC SEALING TAPES
11	INLINE CONNECTORS (FERRULE)
10	SILICON GREASE
9	STRESS CONTROL MASTIC FOR CUT END
8	STRESS CONTROL MASTIC FOR FERRULE REGION
7	JUBILEE CLAMPS FOR FIXING OVER THE PROTECTIVE COVER (CANNISTER)
6	ARMOUR EARTHING MATERIAL (BACKUP RING-2 NOS.+ TINNED COPPER BRAID + JUBILEE CLAMP- 2 NOS.)
5	HEAT SHRINKABLE DUAL WALL TUBINGS (RED + BLACK)
4	HEAT SHRINKABLE INSULATION TUBINGS (RED)
3	HEAT SHRINKABLE STRESS CONTROL TUBINGS (BLACK)
2	GALVANISED WRAP AROUND JOINT CASE (CANNISTER)
1	HEAT SHRINKABLE OUTER JACKETING SLEEVE

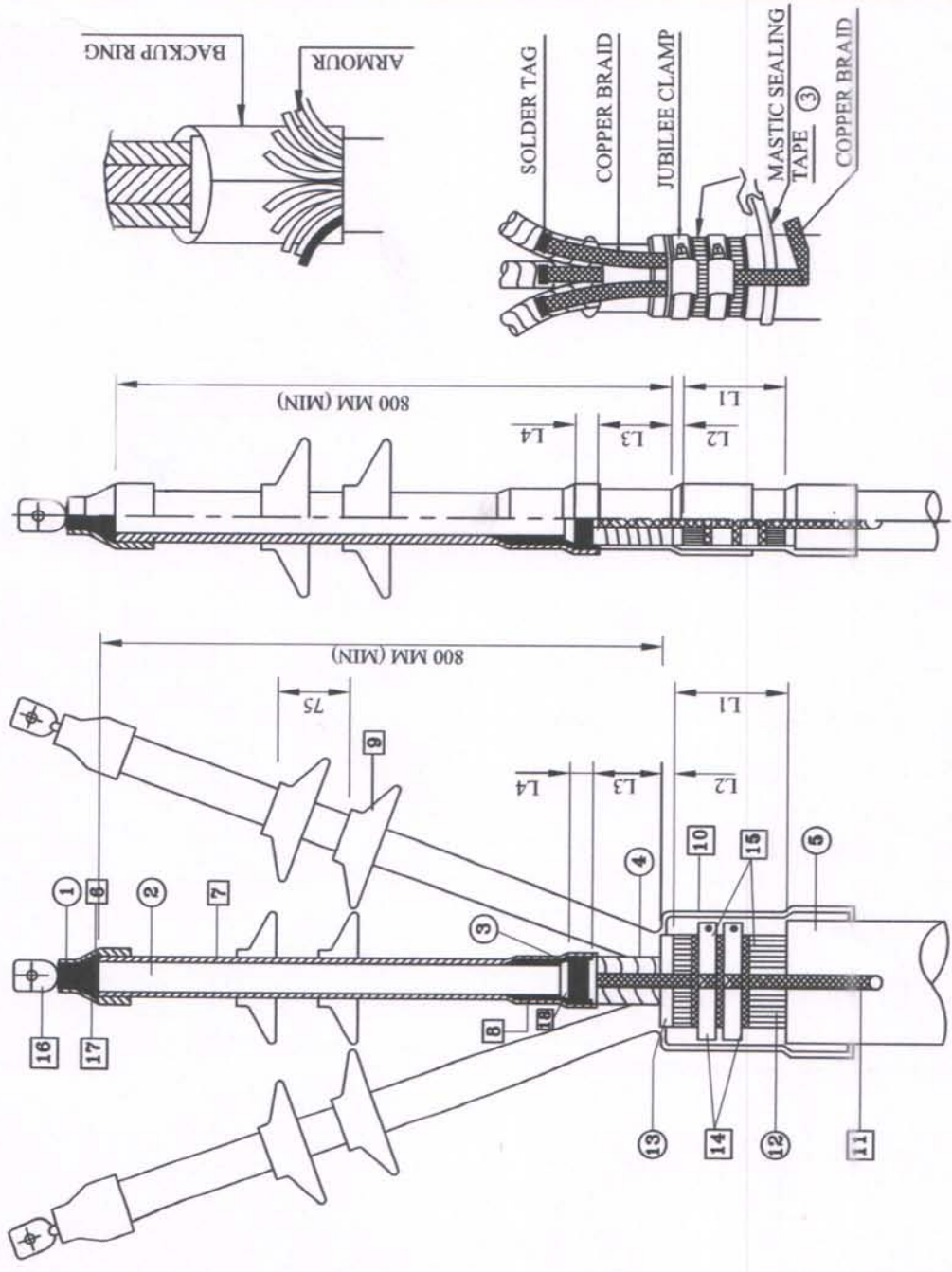
S.No.	DESCRIPTION OF KIT CONTENTS
1	HEAT SHRINKABLE OUTER JACKETING SLEEVE
2	GALVANISED WRAP AROUND JOINT CASE (CANNISTER)
3	HEAT SHRINKABLE STRESS CONTROL TUBINGS (BLACK)
4	HEAT SHRINKABLE INSULATION TUBINGS (RED)
5	HEAT SHRINKABLE DUAL WALL TUBINGS (RED + BLACK)
6	ARMOUR EARTHING MATERIAL (BACKUP RING-2 NOS.+ TINNED COPPER BRAID + JUBILEE CLAMP- 2 NOS.)
7	JUBILEE CLAMPS FOR FIXING OVER THE PROTECTIVE COVER (CANNISTER)
8	STRESS CONTROL MASTIC FOR FERRULE REGION
9	STRESS CONTROL MASTIC FOR CUT END
10	SILICON GREASE
11	INLINE CONNECTORS (FERRULE)
12	MASTIC SEALING TAPES
13	NYLON STRING
14	ALOXIDE EMERY TAPE
15	PVC ADHESIVE TAPE
16	MOPPING CLOTH
17	CLEANING TISSUES
18	METAL SCREEN CONTINUITY SYSTEM CONSISTING OF COPPER WOVEN FLEXIBLE MESH TAPE + SMALL COPPER BRAID + SOLDER + FLUX+COPPER BINDING WIRE
19	DETAILED INSTRUCTION MANUAL

		<b>GALA SHRINK FIT</b> MUMBAI - 401 105 (INDIA)			
<b>TITLE :-</b> HEAT SHRINKABLE STRAIGHT THROUGH JOINT SUITABLE FOR 19/33 KV (U MAX: 36 KV) 3 & 1 CORE XLPE CABLES					
rawn. By Seeba Kumar	OKD. BY Shalish Kale	APPD. BY Bhavesh Gala	DATE 5/11/11	DRG. No. GTP/L/006/1/11	SCALE : NTS EDITION No. : 00



○	CABLE COMPONENTS
□	KIT CONTENTS (MAJOR PARTS)
△	KIT CONTENTS (INSTALLATION AIDS)
L4	LENGTH OF SEMI CONDUCTING SCREEN OF CORE
L3	LENGTH OF METALLIC SHIELDING OF CORE
L2	LENGTH OF INNER SHEATH
L1	LENGTH OF ARMOUR
LEGENDS	



1 Core XLPE Cable

3 Core XLPE Cable

Ref. Document No. :- 103

CABLE CUTTING DIMENSIONS FOR 3 CORE CABLES	CABLE CUTTING DIMENSIONS FOR 1 CORE CABLES
240-400	800-1000
150-185	400-630
70-120	185-300
16-50	70-150
CABLE SIZE (Sq.mm)	16-50
L1	L1
L2	L2
L3	L3
L4	L4
CABLE CUTTING DIMENSIONS FOR 1 CORE CABLES	

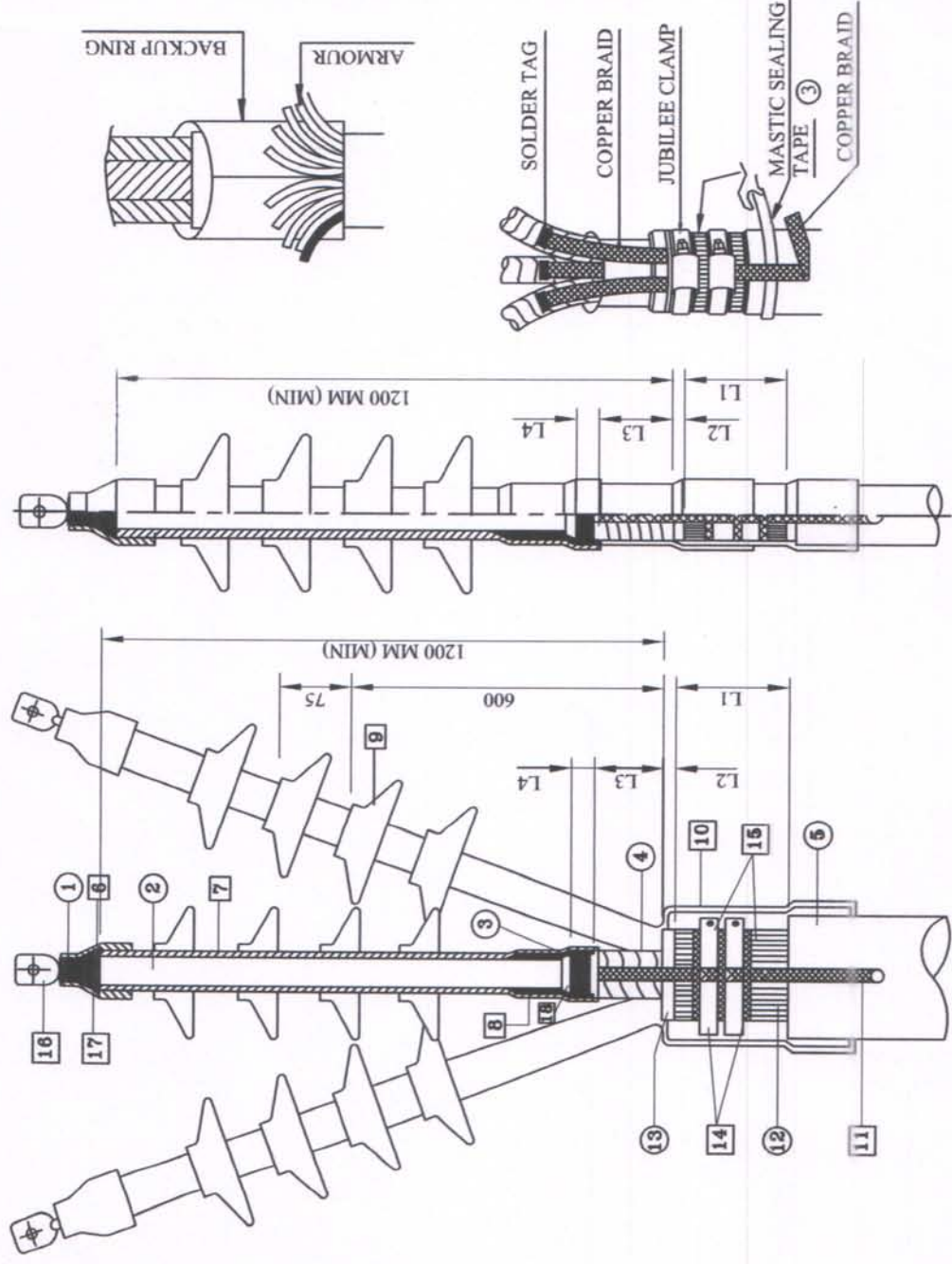
S.No	DESCRIPTION
22	MOPPING CLOTH
21	ALOXITE EMERY TAPE
20	NYLON STRING
19	SILICON GREASE
18	STRESS CONTROL MASTIC
17	LUG SEALING MASTIC RED
16	TERMINAL LUG
15	MASTIC SEALING TAPE
14	JUBILEE CLAMPS
13	INNER SHEATH
12	ARMOUR
11	TINNED COPPER EARTH BRAID (MAIN EARTH)
10	ANTI TRACKING CABLE BREAK OUT
9	RAIN SHED
8	STRESS CONTRL TUBING
7	ANTI TRACKING WEATHER RESISTANT TUBING
6	TERMINAL SLEEVE
5	OUTER SHEATH
4	METAL SHIELD
3	SEMI CONDUCTIN SCREEN
2	INSULATION
1	CONDUCTOR

	<b>GALA SHRINK FIT</b> MUMBAI - 401 105 (INDIA)		
Drawn By Seva Kumar	CKD. BY Shallesh Kale	APPD. BY Bhavesh Gala	DATE 5/11/11
			SCALE : NTS ESTION No. : 00 DRG. No. <b>GTSP/L/005/11/11</b>



○	CABLE COMPONENTS
□	KIT CONTENTS (MAJOR PARTS)
△	KIT CONTENTS (INSTALLATION AIDS)
L4	LENGTH OF SEMI CONDUCTING SCREEN OF CORE
L3	LENGTH OF METALLIC SHIELDING OF CORE
L2	LENGTH OF INNER SHEATH
L1	LENGTH OF ARMOUR
<b>LEGENDS</b>	

22	MOPPING CLOTH
21	ALOXITE EMERY TAPE
20	NYLON STRING
19	SILICON GREASE
18	STRESS CONTROL MASTIC
17	LUG SEALING MASTIC RED
16	TERMINAL LUG
15	MASTIC SEALING TAPE
14	JUBILEE CLAMPS
13	INNER SHEATH
12	ARMOUR
11	TINNED COPPER EARTH BRAID (MAIN EARTH)
10	ANTI TRACKING CABLE BREAK OUT
9	RAIN SHED
8	STRESS CONTRL TUBING
7	ANTI TRACKING WEATHER RESISTANT TUBING
6	TERMINAL SLEEVE
5	OUTER SHEATH
4	METAL SHIELD
3	SEMI CONDUCTIN SCREEN
2	INSULATION
1	CONDUCTOR



1 Core XLPE Cable

3 Core XLPE Cable

CABLE SIZE (Sq.mm)	CABLE CUTTING DIMENSIONS FOR 3 CORE CABLES				CABLE CUTTING DIMENSIONS FOR 1 CORE CABLES			
	L1	L2	L3	L4	L1	L2	L3	L4
240-400	80	10	200	60	80	10	200	60
150-185	80	10	200	60	80	10	200	60
70-120	60	10	200	60	60	10	200	60
16-50	60	10	200	60	60	10	200	60

	<b>GALA SHRINK FIT</b> MUMBAI - 401 105 (INDIA)		
Drawn. By Selva Kumar	CKG. BY Shallesh Kale	APPD. BY Bhavesh Gala	DATE 5/11/11
SCALE : NTS EDITION No. : 00 DRG. No.			<b>GTSP/L/004/11/11</b>

S.No. DESCRIPTION

# CENTRAL POWER RESEARCH INSTITUTE



**CPRI**

## TEST REPORT

**Test Report Number** : DCCD-12738(B) Date : 27.08.2012

**Name & Address of the Customer** : M/s. Gala Shrink Fit Pvt.Ltd.,  
Plot No. 24, Vasai Taluka Industrial Co. Op. Society,  
Gaurapada, Vasai(East) Thane.


**Name & Address of the Manufacturer** : M/s. Gala Shrink Fit Pvt.Ltd.,  
Plot No. 24, Vasai Taluka Industrial Co. Op. Society,  
Gaurapada, Vasai(East) Thane.

**Particulars of sample tested** : **19/33 kV Heat Shrink Straight Through Joint , Heat Shrink Indoor Termination & Heat Shrink Outdoor termination mounted on for 3 X185 mm<sup>2</sup> 19/33 kV XLPE Cable.**

**Condition of the sample on receipt** : New  
**Type** : "CAB LINK" Heat Shrink  
**Designation** : **Cable -**  
3 X 185 sq.mm, Aluminium conductor, XLPE insulated, Strip Armoured PVC Sheathed 19/33 KV Cable  
: **Accessories : ( In One loops)**  
No. of joints: One  
Type: Heat Shrink.(CAB LINK BRAND)  
No. of terminations: One Indoor & One Outdoor  
Type: Heat Shrink(CAB LINK BRAND)  
Voltage Rating : 19/33 KV  
One loop with One Heat Shrink straight through joint, One End Heat shrink Indoor termination & One end Heat Shrink Outdoor termination.

**Serial Number** : Nil  
**Number of Samples tested** : One loop  
**Date(s) of Test(s)** : 11.07.2012 to 30.07.2012  
**CPRI Sample Code no(s)** : DCCDCAB12S0034

**Particulars of test conducted** : Type Test ( Sequence II)  
**Test in accordance with Standard /Specification** : As per IEC 60502-4- 2010 , Sequence 1.2 & 2.2  
CENELEC HD 629-1 Seq A2 & B2 I-III  
**Sampling plan** : Not Applicable  
**Customer's requirement** : Nil  
**Deviation if any** : Nil

  
(Thirumurthy)  
**Test Engineer**



  
(K.Mallikarjunappa)  
**Joint Director**



# CENTRAL POWER RESEARCH INSTITUTE



Date: 27.08.2012

## TEST REPORT

Test Report No.: DCCD-12738(B)

### Name of the witnessing persons

Customer's representatives : None  
Other than customer's representatives : None.

Test subcontracted with address  
of the laboratory : Nil

### Documents constituting this Certificate (in words)

Number of sheets : Five + One Report of Four Pages  
Number of oscillogram/s : Twelve ( Three pages)  
Number of graphs : Nil  
Number of photos : Nil  
Number of test circuit diagrams : Nil  
Number of drawings : Three  
1. Drg no. GTSPL/005/11/11  
2. Drg no. GTSPL/004/11/11  
3. Drg no. GTSPL/006/11/11

(Thirumurthy)  
Test Engineer

(K. Mallikarjunappa)  
Joint Director



# CENTRAL POWER RESEARCH INSTITUTE



**CPRI**

## TEST REPORT

Test Report No.: DCCD-12738(B)

Date: 27.08.2012

### TEST RESULTS

#### 1. DC HIGH VOLTAGE TEST :

- a) Test connection : Between test core and other cores shorted to grounded shield and armour  
 b) Test Voltage : 114 kV ac  
 c) Duration of test : Fifteen minutes  
 d) Ambient Temperature : 29 °C  
 e) Length of the Sample : 11.0 metres  
 f) Test Result :

Sl. No.	Core Identification	Remarks
1.	Red	WITHSTOOD
2.	Yellow	WITHSTOOD
3.	Blue	WITHSTOOD

#### 2. AC HIGH VOLTAGE TEST (Dry):

- a) Test connection : Between test core and other cores shorted to grounded shield and armour  
 b) Test Voltage : 85.5 kV ac  
 c) Duration of test : Five Minutes  
 d) Ambient Temperature : 29 °C  
 e) Length of the Sample : 11.0 metres  
 f) Test Result :

Sl. No.	Core Identification	Remarks
1.	Red	WITHSTOOD
2.	Yellow	WITHSTOOD
3.	Blue	WITHSTOOD

#### 3. Thermal Short Circuit Test:

As per SC lab Test Report No. SC12314A Dated 23.07.2012 ( Enclosed).

#### 4. IMPULSE WITHSTAND TEST :

Temperature of conductor during Test	Ambient temperature in °C		No. of Impulses	Test Voltage (kV Peak)
	Dry Bulb	Wet Bulb		
Ambient	30.0	28.0	10 Positive & 10 Negative	194

Test Connection	The impulse source was connected to the conductor of the particular phase (ends shorted) under test and the screen connected to ground. The conductors of the other two phases which were not under test were shorted together with their screen and connected to ground.
-----------------	---

**(Thirumurthy)**  
**TEST ENGINEER**

# CENTRAL POWER RESEARCH INSTITUTE



## TEST REPORT

CPRI Test Report No. : DCCD- 12738(B)

**CPRI**  
Date: 27.08.2012

## TEST RESULTS

Phase	Polarity	Shot Number	Oscillogram Number	Result
Red	Positive	First	1400	Withstood
		Tenth	1408	
	Negative	First	1413	
		Tenth	1421	
Yellow	Positive	First	1428	Withstood
		Tenth	1435	
	Negative	First	1438	
		Tenth	1446	
Blue	Positive	First	1451	Withstood
		Tenth	1458	
	Negative	First	1501	
		Tenth	1508	

(Oscillograms enclosed)

### 5. AC HIGH VOLTAGE TEST (Dry):

- a) Test connection : Between test core and other cores shorted to grounded shield and armour
- b) Test Voltage : 47.5 kV ac
- c) Duration of test : Fifteen minutes
- d) Ambient Temperature : 29 °C
- e) Length of the Sample : 11.0 metres
- f) Test Result :

Sl. No.	Core Identification	Remarks
1.	Red	WITHSTOOD
2.	Yellow	WITHSTOOD
3.	Blue	WITHSTOOD

### 6. EXAMINATION:

On completion of the tests, the joints were examined.

Remarks: No cracking in the filling, moisture path across primary seal, or corrosion and /or tracking observed.

**(Thirumurthy)**  
**TEST ENGINEER**



# CENTRAL POWER RESEARCH INSTITUTE



## TEST REPORT

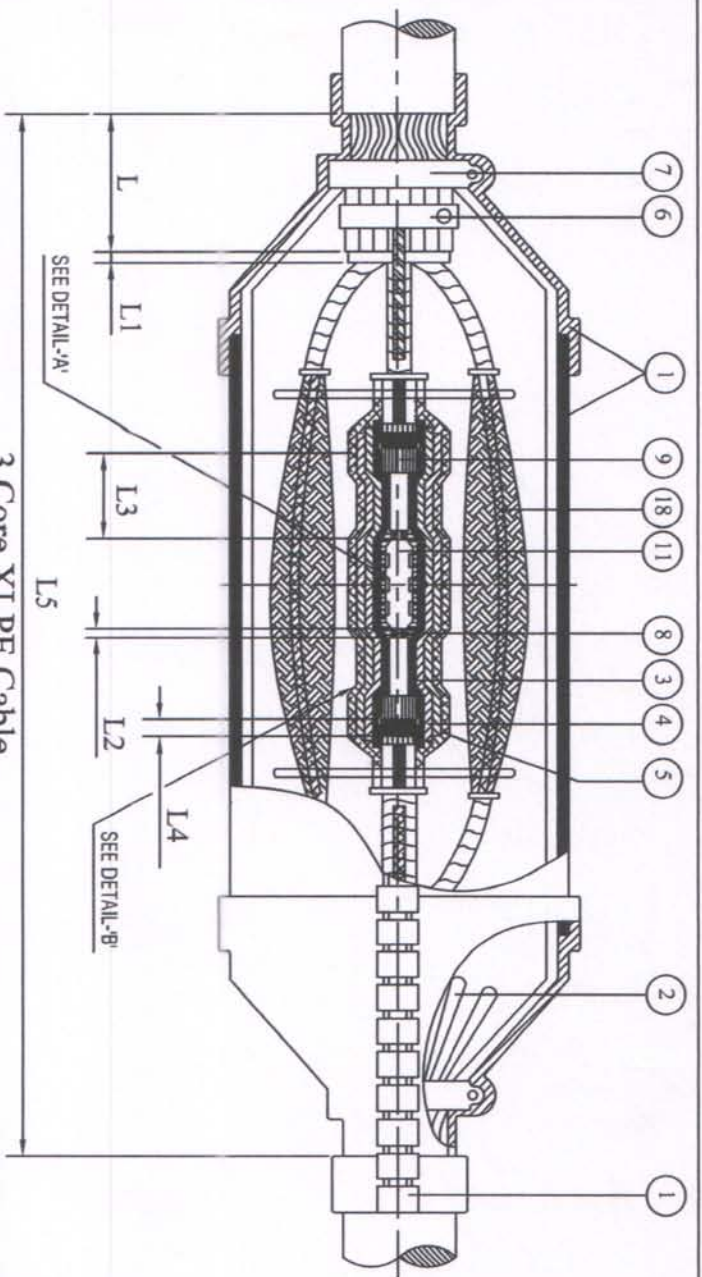
Test Report No.:DCCD-12738(B)

Date: 27.08.2012

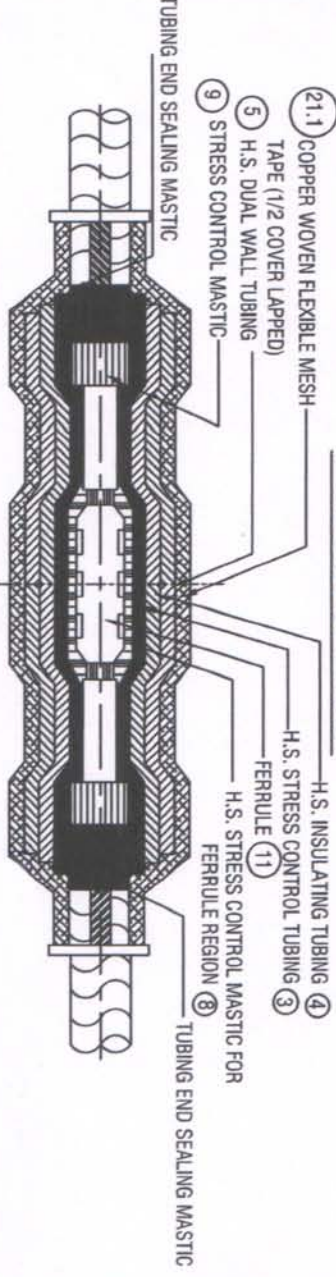
### NOTE

- a) The Test results relate only to the item(s) tested.
- b) Publication or reproduction of this report in any form other than by complete set of the whole report and in the language written, is not permitted without the written consent of CPRI.
- c) Any Corrections/erasure invalidates this test report.
- d) NABL has Accredited this laboratory as per ISO 17025-2005 standard for the tests carried out.
- e) Any anomaly/discrepancy in this test report should be brought to our notice within 45 days from the date of issue.

(Thirumurthy)  
TEST ENGINEER

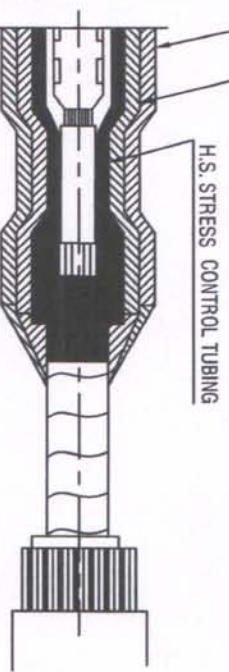


3 Core XLPE Cable



1 Core XLPE Cable

DETAIL-'A'



SEE DETAIL-'B'

H.S. STRESS CONTROL MASTIC FOR

Cable Cutting Dimensions for 3 Core XLPE Cables						
Cable size sq. mm	L	L1	L2	L3	L4	L5
400-500	100	10	10	175	60	1850
240-300	100	10	10	175	60	1850
120-185	100	10	10	175	60	1700
70-95	100	10	10	175	60	1650
16-50	100	10	10	175	60	1650

Cable Cutting Dimensions for 1 Core XLPE Cables						
Cable size sq. mm	L	L1	L2	L3	L4	L5
800-1000	80	10	10	150	55	1650
400-630	80	10	10	150	55	1650
150-300	80	10	10	150	55	1400
70-120	80	10	10	150	55	1350
25-50	80	10	10	150	55	1300

DETAILED INSTRUCTION MANUAL

19	DETAILED INSTRUCTION MANUAL
18	METAL SCREEN CONTINUITY SYSTEM CONSISTING OF COPPER WOVEN FLEXIBLE MESH TAPE + SMALL COPPER BRAID + SOLDER + FLUX+COPPER BINDING WIRE
17	CLEANING TISSUES
16	MOPPING CLOTH
15	PVC ADHESIVE TAPE
14	ALOXIDE EMERY TAPE
13	NYLON STRING
12	MASTIC SEALING TAPES
11	INLINE CONNECTORS (FERRULE)
10	SILICON GREASE
9	STRESS CONTROL MASTIC FOR CUT END
8	STRESS CONTROL MASTIC FOR FERRULE REGION
7	JUBILEE CLAMPS FOR FIXING OVER THE PROTECTIVE COVER (CANNISTER)
6	ARMOUR EARTHING MATERIAL (BACKUP RING-2 NOS.+ TINNED COPPER BRAID + JUBILEE CLAMP- 2 NOS.)
5	HEAT SHRINKABLE DUAL WALL TUBINGS (RED + BLACK)
4	HEAT SHRINKABLE INSULATION TUBINGS (RED)
3	HEAT SHRINKABLE STRESS CONTROL TUBINGS (BLACK)
2	GALVANISED WRAP AROUND JOINT CASE (CANNISTER)
1	HEAT SHRINKABLE OUTER JACKETING SLEEVE

S.No.

DESCRIPTION OF KIT CONTENTS



**GALA SHRINK FIT**  
MUMBAI - 401 105 (INDIA)



TITLE :-

**HEAT SHRINKABLE STRAIGHT THROUGH JOINT SUITABLE FOR 19/33 KV (U MAX: 36 KV) 3 & 1 CORE XLPE CABLES**



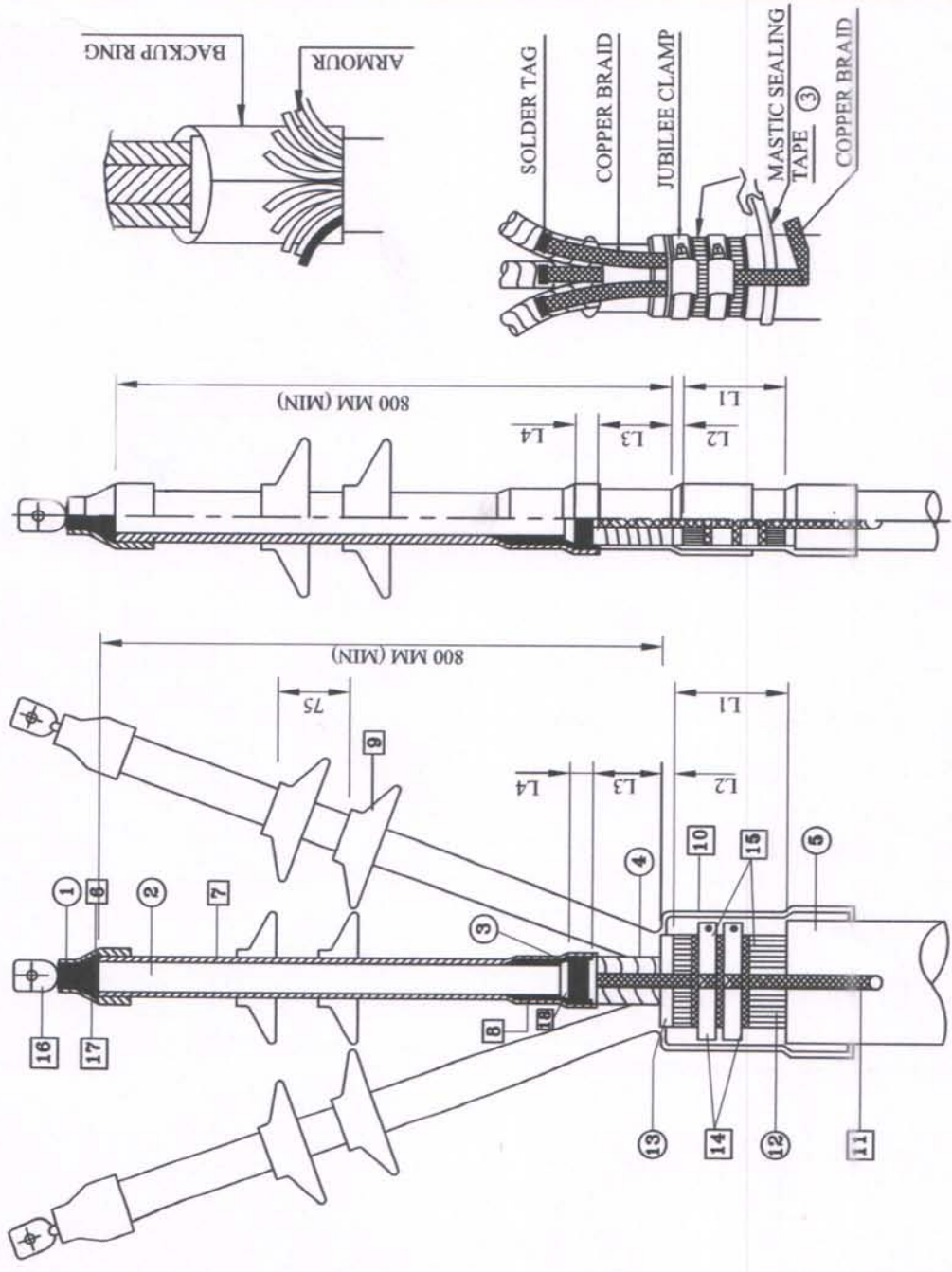
SCALE : NTS

EDITION No. : 00

rawn. By	OKD. BY	APPD. BY	DATE	DRG. No.
seeba Kumar	Shalish Kale	Bhavesh Gala	5/11/11	GTP/L/006/1/11



○	CABLE COMPONENTS
□	KIT CONTENTS (MAJOR PARTS)
△	KIT CONTENTS (INSTALLATION AIDS)
L4	LENGTH OF SEMI CONDUCTING SCREEN OF CORE
L3	LENGTH OF METALLIC SHIELDING OF CORE
L2	LENGTH OF INNER SHEATH
L1	LENGTH OF ARMOUR
LEGENDS	



3 Core XLPE Cable

1 Core XLPE Cable

Ref. Document No. :- 103

CABLE SIZE (Sq.mm)	CABLE CUTTING DIMENSIONS FOR 3 CORE CABLES				CABLE CUTTING DIMENSIONS FOR 1 CORE CABLES			
	L1	L2	L3	L4	L1	L2	L3	L4
240-400	80	10	200	60	80	10	200	60
150-185	80	10	200	60	80	10	200	60
70-120	60	10	200	60	80	10	200	60
16-50	60	10	200	60	60	10	200	60
CABLE SIZE (Sq.mm)	L1	L2	L3	L4	L1	L2	L3	L4

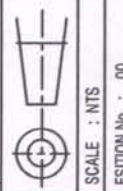
△22	MOPPING CLOTH
△21	ALOXITE EMERY TAPE
△20	NYLON STRING
△18	SILICON GREASE
18	STRESS CONTROL MASTIC
17	LUG SEALING MASTIC RED
16	TERMINAL LUG
15	MASTIC SEALING TAPE
14	JUBILEE CLAMPS
13	INNER SHEATH
12	ARMOUR
11	TINNED COPPER EARTH BRAID (MAIN EARTH)
10	ANTI TRACKING CABLE BREAK OUT
9	RAIN SHED
8	STRESS CONTRL TUBING
7	ANTI TRACKING WEATHER RESISTANT TUBING
6	TERMINAL SLEEVE
5	OUTER SHEATH
4	METAL SHIELD
3	SEMI CONDUCTIN SCREEN
2	INSULATION
1	CONDUCTOR
S.No	DESCRIPTION



**GALA SHRINK FIT**  
MUMBAI - 401 105 (INDIA)



Title :-  
**Heat Shrinkable Indoor Termination**  
**For 19/33 KV (U max: 36 KV)**  
**3 & 1 Core XLPE Cables**

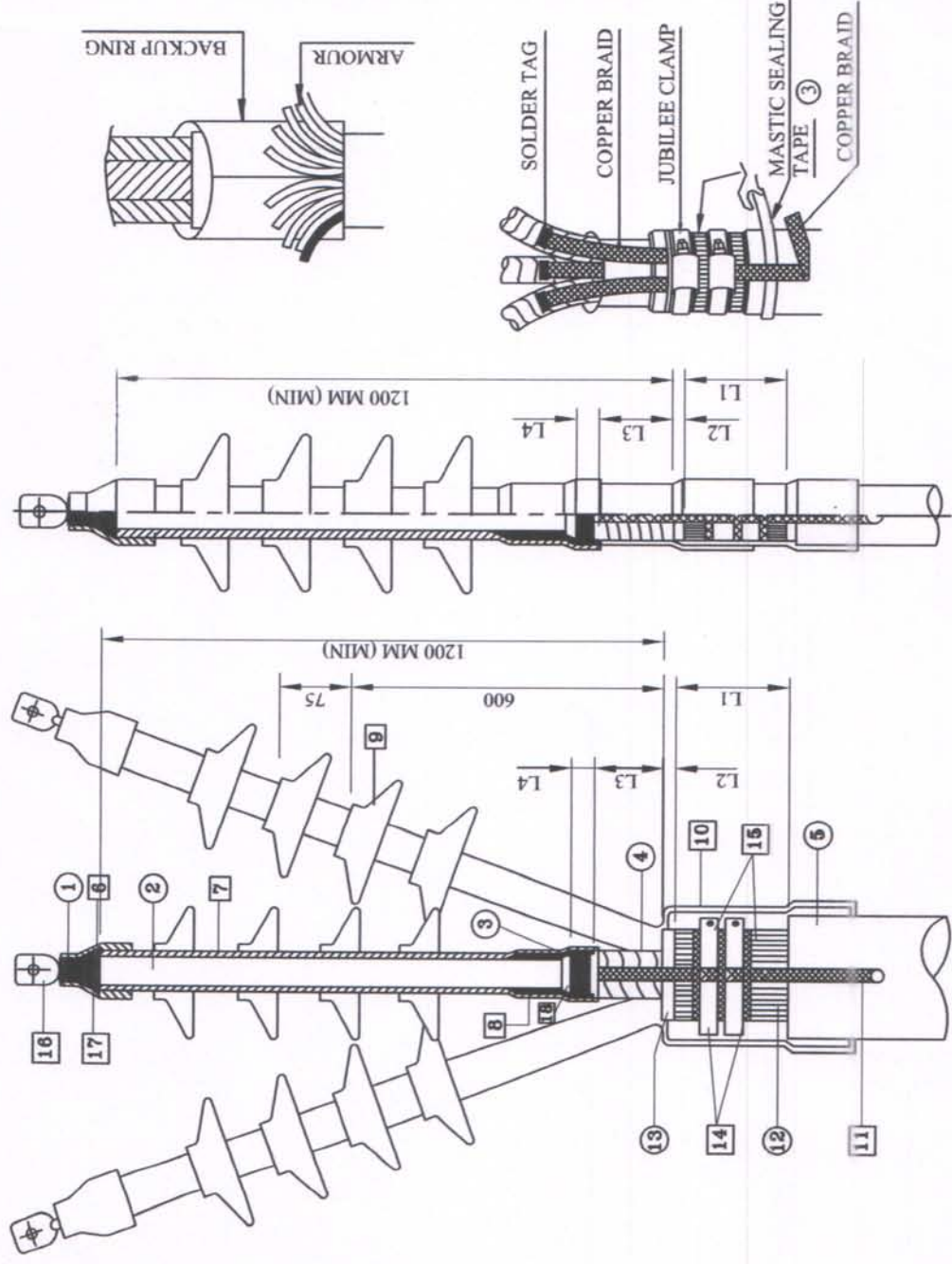


Drawn By Seva Kumar	CKD. BY Shallesh Kale	APPD. BY Bhavesh Gala	DATE 5/11/11
SCALE : NTS			ESTION No. : 00
DRG. No.			GTSP/L/005/11/11



○	CABLE COMPONENTS
□	KIT CONTENTS (MAJOR PARTS)
△	KIT CONTENTS (INSTALLATION AIDS)
L4	LENGTH OF SEMI CONDUCTING SCREEN OF CORE
L3	LENGTH OF METALLIC SHIELDING OF CORE
L2	LENGTH OF INNER SHEATH
L1	LENGTH OF ARMOUR
<b>LEGENDS</b>	

22	MOPPING CLOTH
21	ALOXITE EMERY TAPE
20	NYLON STRING
19	SILICON GREASE
18	STRESS CONTROL MASTIC
17	LUG SEALING MASTIC RED
16	TERMINAL LUG
15	MASTIC SEALING TAPE
14	JUBILEE CLAMPS
13	INNER SHEATH
12	ARMOUR
11	TINNED COPPER EARTH BRAID (MAIN EARTH)
10	ANTI TRACKING CABLE BREAK OUT
9	RAIN SHED
8	STRESS CONTRL TUBING
7	ANTI TRACKING WEATHER RESISTANT TUBING
6	TERMINAL SLEEVE
5	OUTER SHEATH
4	METAL SHIELD
3	SEMI CONDUCTIN SCREEN
2	INSULATION
1	CONDUCTOR



1 Core XLPE Cable

3 Core XLPE Cable

CABLE SIZE (Sq.mm)	CABLE CUTTING DIMENSIONS FOR 3 CORE CABLES				CABLE CUTTING DIMENSIONS FOR 1 CORE CABLES			
	L1	L2	L3	L4	L1	L2	L3	L4
240-400	80	10	200	60	80	10	200	60
150-185	80	10	200	60	80	10	200	60
70-120	60	10	200	60	60	10	200	60
16-50	60	10	200	60	60	10	200	60

	<b>GALA SHRINK FIT</b> MUMBAI - 401 105 (INDIA)		
Drawn. By Selva Kumar	CKG. BY Shallesh Kale	APPD. BY Bhavesh Gala	DATE 5/11/11
			SCALE : NTS EDITION No. : 00 DRG. No. <b>GTSP/L/004/11/11</b>

S.No. DESCRIPTION



CPRI

## TEST REPORT



**Central Power Research Institute**

(A Govt. of India Society)




P.B.No. 8066, Sadashivanagar Post Office,  
Sir C.V. Raman Road,  
Bangalore - 560 080 (INDIA)

CENTRAL POWER RESEARCH INSTITUTE  
(Member of STL)



CPRI

TEST REPORT

Test Report Number	SC12314A	Dated: 23 <sup>rd</sup> July, 2012
Name & Address of the Customer	M/s. Gala Shrink Fit, Plot No. 24, Vasai Taluka Ind. Co. Op. Society, Gauripada, Vasai – East, Thane – 401 208.	
Name & Address of the Manufacturer	M/s. Gala Shrink Fit, Plot No. 24, Vasai Taluka Ind. Co. Op. Society, Gauripada, Vasai – East, Thane – 401 208.	
Particulars of sample tested	Cable accessories -Terminations & Joint	
Condition of the sample on receipt	Good	
Type	Heat shrinkable indoor & outdoor terminations and heat shrink straight through joint.	
Designation	CAB LINK	
Serial number	---	
Number of samples tested	One	
Date (s) of test (s)	11 <sup>th</sup> & 12 <sup>th</sup> July, 2012	
CPRI sample code no(s).	DCCDCAB12S0034	
Particulars of tests conducted	Thermal Short Circuit	
Test in accordance with Standard / specification	IEC 60502- 4: 2010 & sub - clause 11 of IEC 61442:2005 & CENELEC HD 629-1-1996	
Sampling plan	Not applicable	
Customer's requirement	21.53 kA rms for 1.0s	
Deviations if any	None	
Name of the witnessing persons		
Customer's representative	Mr. Shailesh M. Kale (Tech. Support – Kitting Div.)	
Other than customer's representatives	None	
Test subcontracted with address of the laboratory	None	
Documents constituting this report (in words)		
Number of sheets	Four	
Number of oscillograms	Two	
Number of graphs	Nil	
Number of photos	Nil	
Number of test circuit diagrams	One	
Number of drawings	Nil	
 (H.S. Lokeshappa) Test Engineer		 (Swaraj Kumar Das) Joint Director



**CENTRAL POWER RESEARCH INSTITUTE**  
(Member of STL)



**CPRI**

Test Report Number: SC12314A

Dated: 23<sup>rd</sup> July, 2012

**Description of sample tested (Ratings as assigned by the manufacturer)**

Test sample	Cable accessories -Terminations & Joint
Type of insulation	XLPE (cable)
Designation	CAB LINK
Rated voltage	19/33 kV
Rated current	350 A
Frequency	50 Hz
Number of cores	Three
Type of outer sheath	PVC
Type of armour	Galvanised steel formed wire
Length of the cable	11 m
Conductor cross-section	185 sq.mm
Conductor material	Aluminium
No. of terminations	One indoor & one outdoor
Type of terminations	Heat shrink
Number of joint	One
Type of the joint	Heat shrink straight through
Maximum temperature when carrying short-circuit current	250 °C

**Documents attached to this report**

Oscillogram number(s)	SC12314A.S001 & SC12314A.S002
Test circuit diagram number(s)	CRTL/SC/STC-03A

  
Test Engineer

**CENTRAL POWER RESEARCH INSTITUTE**  
(Member of STL)



Test Report Number: SC12314A

Dated: 23<sup>rd</sup> July, 2012

**Schedule of test**

**THERMAL SHORT CIRCUIT TEST**

**TEST CONDITIONS**

Source

Phases  
Frequency

Short-circuit generator  
Three  
50 Hz

Test sample

Condition before test  
No. of phases

Good  
Three; one end of the cable (indoor termination) connected to the source

Test details

Test circuit drawing number  
Short-circuit applied  
Short-circuit point

CRTL/SC/STC-03A  
On the other end (outdoor termination) of the cable  
Grounded

Oscillogram No.	Type of test	Current (kA )	Duration (s)	Conductor temperature prior to the short circuit test (°C)	Observation
		Rms			
SC12314A.S001 (1 <sup>st</sup> shot)	Thermal short circuit	R – 20.58 Y – 21.25 B – 21.34 Average : 21.06*	1.07	29.5 °C	<b>During test:</b> No abnormality <b>After test:</b> No visible damage
SC12314A.S002 (2 <sup>nd</sup> shot)	Thermal short circuit	R – 20.95 Y – 21.50 B – 21.39 Average : 21.28 <sup>#</sup>	1.05	32.0 °C	<b>During test:</b> No abnormality <b>After test:</b> No visible damage

\* Equivalent to 21.78 kA rms for 1.0s

<sup>#</sup> Equivalent to 21.80 kA rms for 1.0s

**Physical Inspection:** No visible damage to the terminations or joint of the cable.

*[Signature]*  
**Test Engineer**



**CENTRAL POWER RESEARCH INSTITUTE**  
(Member of STL)



**CPRI**

**Test Report Number:** SC12314A

**Dated:** 23<sup>rd</sup> July, 2012

**NOTE**

- a) The Test results relate only to the item(s) tested.
- b) Publication or reproduction of this report in any form other than by complete set of the whole test report / Certificate and in the language written is not permitted without the written consent of CPRI.
- c) Any Corrections / erasure invalidate the test Report/Certificate.
- d) NABL has Accredited this laboratory as per ISO 17025-2005 standard for the tests carried out.
- e) Any anomaly / discrepancy in the test report / Certificate should be brought to notice of CPRI within 45 days from the date of issue.

Additional Information:

This is not a certificate of rating. A certificate of rating is not issued as only limited tests as requested by the customer were carried out.

CPRI issues following types of reports/certificates:

**Test Report:**

The test report contains the record of the values of test parameters as obtained during testing, the physical condition of the sample during / after the test(s) and copy of oscillogram(s). Test report is issued when partial tests are performed as against the complete test requirement for proving specific ratings.

**Sealed Certificate:**

The sealed certificate is issued, on request and payment of the prescribed charges thereof only when the sample of particular type and rating has satisfactorily passed all the specified tests in compliance with the condition stipulated in a published National / International standard.

**CPRI issues the following type test certificates based generally on STL Guidelines:**

- I. Type test certificate of Short Circuit Performance.
- II. Type test certificate of Switching Performance.
- III. Type test certificate of Temperature Rise Performance.
- IV. Type test certificate of Dielectric Performance.
- V. Type test certificate of complete type test.

  
**Test Engineer**

# CENTRAL POWER RESEARCH INSTITUTE



## TEST REPORT

**Test Report Number** : DCCD-12738(C)      **Date** : 27.08.2012

**Name & Address of the Customer** : M/s. Gala Shrink Fit Pvt.Ltd.,  
Plot No. 24, Vasai Taluka Industrial Co. Op. Society,  
Gauripada, Vasai(East) Thane.

**Name & Address of the Manufacturer** : M/s. Gala Shrink Fit Pvt.Ltd.,  
Plot No. 24, Vasai Taluka Industrial Co. Op. Society,  
Gauripada, Vasai(East) Thane.

**Particulars of sample tested** : **19/33 kV Heat Shrink Indoor Terminations and Outdoor terminations mounted on 3 X 185 mm<sup>2</sup> 19/33 kV XLPE Cable.**


**Condition of the sample on receipt** : New  
**Type** : "CAB LINK" Heat Shrink  
**Designation** : **Cable -**  
3 X 185 sq.mm, Aluminium conductor, XLPE insulated, PVC Sheathed  
19/33 KV Cable  
: **Accessories : ( In two loops)**  
No. of terminations: Two Indoor , Two Outdoor terminations  
Type: Heat Shrink (CAB LINK BRAND)  
Voltage Rating : 19/33 KV  
One loop with two ends Heat shrink Indoor  
Terminations (DCCDCAB12S0035)  
One loop with two ends Heat shrink Outdoor  
Terminations (DCCDCAB12S0033)

**Serial Number** : Nil  
**Number of Samples tested** : One loop  
**Date(s) of Test(s)** : 16.06.2012 to 22.08.2012  
**CPRI Sample Code no(s)** : DCCDCAB12S0033, DCCDCAB12S0035

**Particulars of test conducted** : Humidity Test on Indoor terminations and Salt fog Test on outdoor terminations

**Test in accordance with Standard /Specification** : As per IEC 60502-4- 2010 , Sequence 1.5  
CENELEC HD 629-1-1996, Sequence A3

**Sampling plan** : Not Applicable  
**Customer's requirement** : Nil  
**Deviation if any** : Nil

  
(Thirumurthy)  
**Test Engineer**



  
(K.Mallikarjunappa)  
**Joint Director**



# CENTRAL POWER RESEARCH INSTITUTE



**CPRI**

Date: 27.08.2012

## TEST REPORT

Test Report No.: DCCD-12738(C)

### Name of the witnessing persons

Customer's representatives : None  
Other than customer's representatives : None.

Test subcontracted with address  
of the laboratory : Nil

### Documents constituting this Certificate (in words)

Number of sheets : Four + One report of 5 sheets  
Number of oscillogram/s : Nil  
Number of graphs : Nil  
Number of photos : Two  
Number of test circuit diagrams : Nil  
Number of drawings : One. Drg No. GTSP/005/11/11

(Thirumurthy)  
Test Engineer

(K. Mallikarjunappa)  
joint Director

# CENTRAL POWER RESEARCH INSTITUTE



**CPRI**

Test Report No.:DCCD-12738(C)

TEST REPORT

Date:27.08.2102

TEST RESULTS

## 1. HUMIDITY TEST FOR INDOOR TERMINATIONS:

The indoor terminations were kept in a chamber where the water was sprayed continuously from an atomiser. The conductivity of spraying water was maintained between  $70 \pm 0.1$  mS/metre through out the test. A test voltage of 24 KV ac between the conductors shorted and grounded shield was maintained for 300 hours.

**Result : Withstood.** No flashover or tripping occurred during test. After the test no tracking or erosion or mechanical damage observed  
( Photographs enclosed)

## 2. SALT FOG TEST FOR OUTDOOR TERMINATIONS:

As per Test Report No. 43/1/2012-HV/0316/GSF dated 31.07.2012.  
( Enclosed)

(Thirumurthy)  
TEST ENGINEER



CENTRAL POWER RESEARCH INSTITUTE



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Photograph No.1: Terminations before Humidity Test



Photograph No.2: Terminations after Humidity Test

(Thirumurthy),

TEST ENGINEER

# CENTRAL POWER RESEARCH INSTITUTE



**CPRI**

## TEST REPORT

Test Report No.:DCCD-12738(C)

Date: 27.08.2102

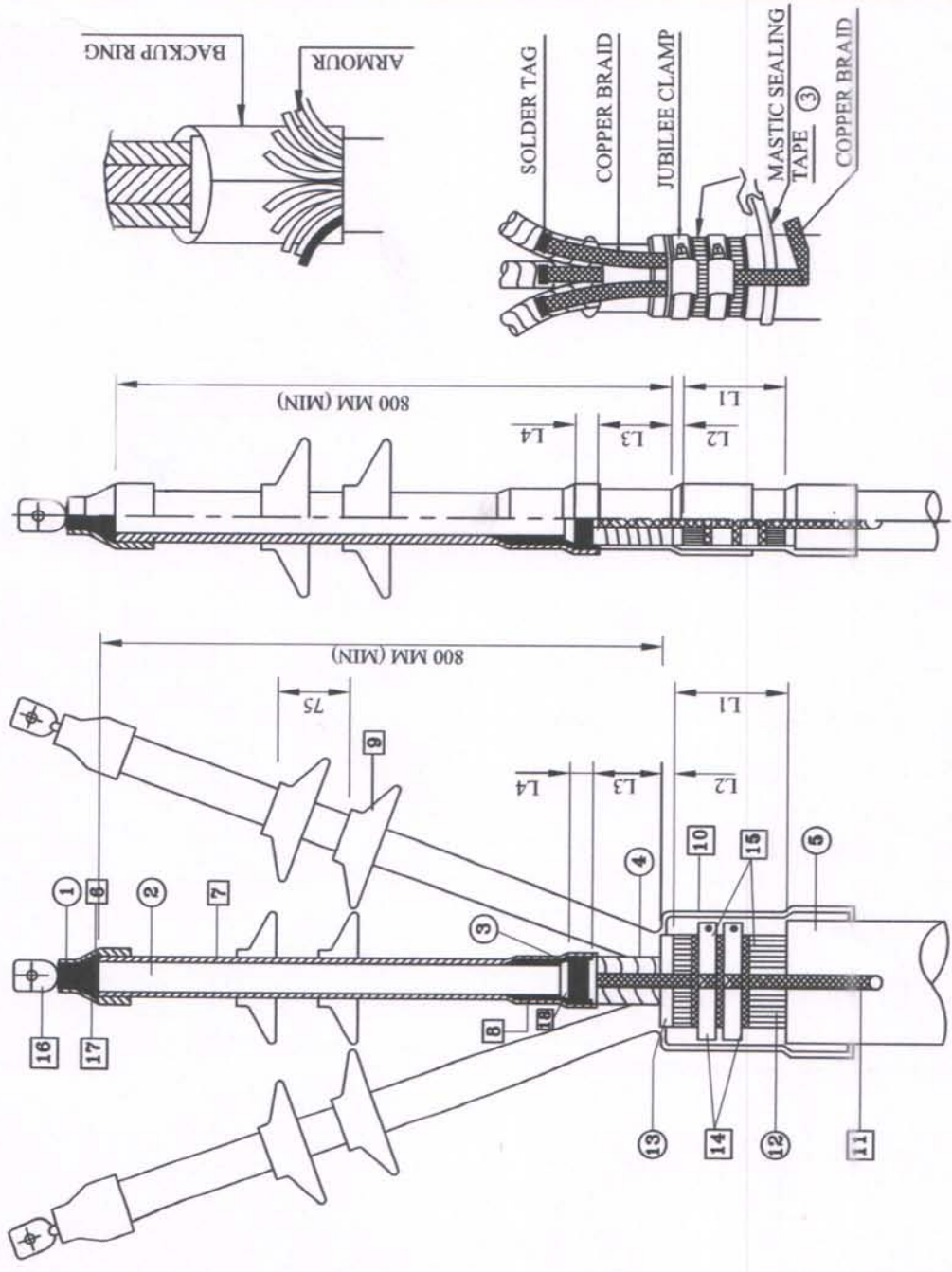
### NOTE

- a) The Test results relate only to the item(s) tested.
- b) Publication or reproduction of this report in any form other than by complete set of the whole report and in the language written, is not permitted without the written consent of CPRI.
- c) Any Corrections/erasure invalidates this test report.
- d) NABL has Accredited this laboratory as per ISO 17025-2005 standard for the tests carried out.
- e) Any anomaly/discrepancy in this test report should be brought to our notice within 45 days from the date of issue.

(Thirumurthy)  
**TEST ENGINEER**



○	CABLE COMPONENTS
□	KIT CONTENTS (MAJOR PARTS)
△	KIT CONTENTS (INSTALLATION AIDS)
L4	LENGTH OF SEMI CONDUCTING SCREEN OF CORE
L3	LENGTH OF METALLIC SHIELDING OF CORE
L2	LENGTH OF INNER SHEATH
L1	LENGTH OF ARMOUR
LEGENDS	



1 Core XLPE Cable

3 Core XLPE Cable

Ref. Document No. :- 103

CABLE CUTTING DIMENSIONS FOR 3 CORE CABLES	CABLE SIZE (Sq.mm)	L1	L2	L3	L4
240-400	80	10	200	200	60
150-185	80	10	200	200	60
70-120	60	10	200	200	60
16-50	60	10	200	200	60
CABLE SIZE (Sq.mm)	L1	L2	L3	L4	

CABLE CUTTING DIMENSIONS FOR 1 CORE CABLES	CABLE SIZE (Sq.mm)	L1	L2	L3	L4
800-1000	80	10	200	200	60
400-630	80	10	200	200	60
185-300	80	10	200	200	60
70-150	60	10	200	200	60
16-50	60	10	200	200	60
CABLE SIZE (Sq.mm)	L1	L2	L3	L4	

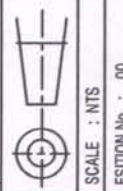
△22	MOPPING CLOTH
△21	ALOXITE EMERY TAPE
△20	NYLON STRING
△18	SILICON GREASE
18	STRESS CONTROL MASTIC
17	LUG SEALING MASTIC RED
16	TERMINAL LUG
15	MASTIC SEALING TAPE
14	JUBILEE CLAMPS
13	INNER SHEATH
12	ARMOUR
11	TINNED COPPER EARTH BRAID (MAIN EARTH)
10	ANTI TRACKING CABLE BREAK OUT
9	RAIN SHED
8	STRESS CONTRL TUBING
7	ANTI TRACKING WEATHER RESISTANT TUBING
6	TERMINAL SLEEVE
5	OUTER SHEATH
4	METAL SHIELD
3	SEMI CONDUCTIN SCREEN
2	INSULATION
1	CONDUCTOR
S.No	DESCRIPTION



**GALA SHRINK FIT**  
MUMBAI - 401 105 (INDIA)



Title :-  
**Heat Shrinkable Indoor Termination**  
**For 19/33 KV (U max: 36 KV)**  
**3 & 1 Core XLPE Cables**

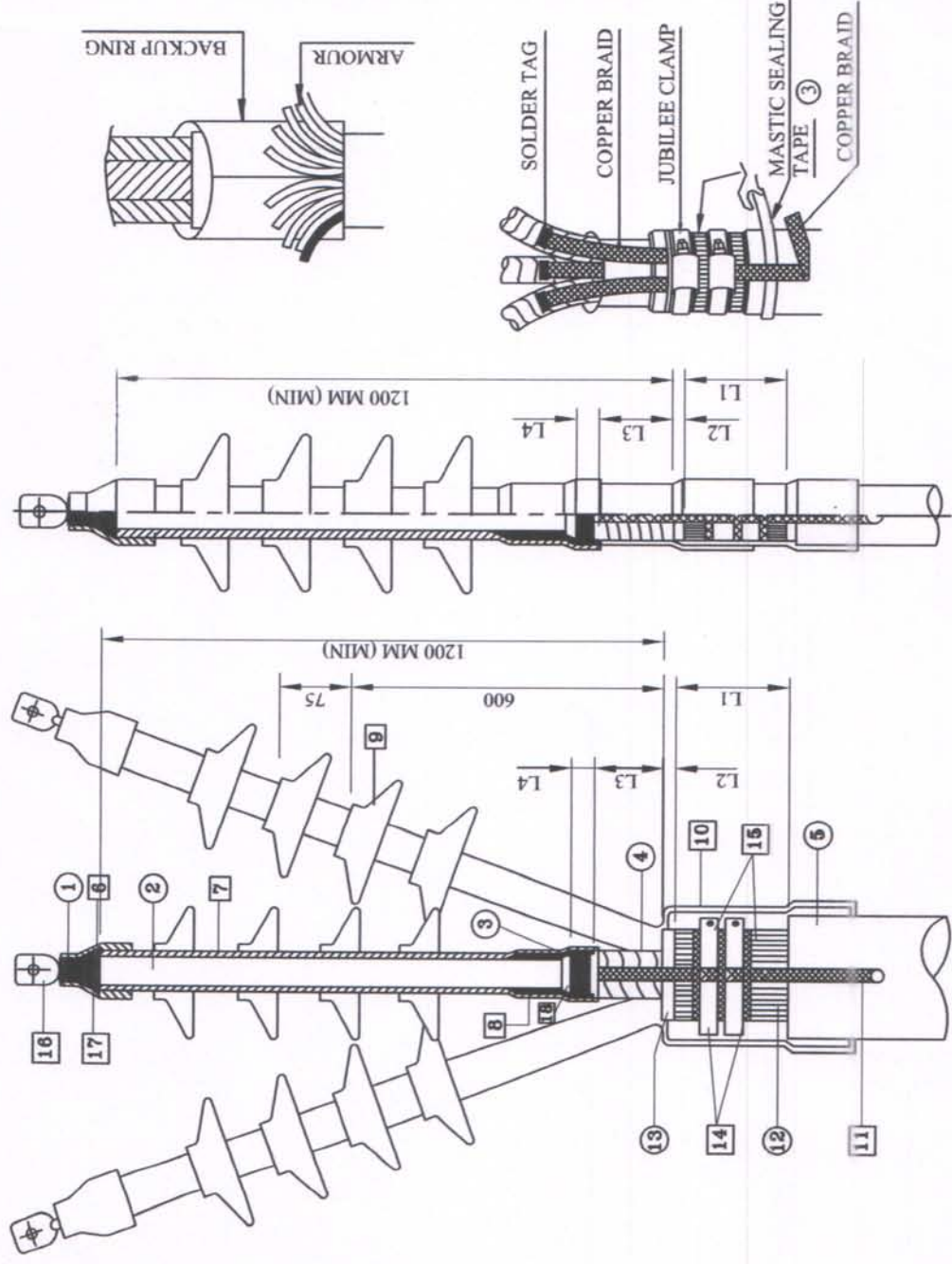


Drawn By Seva Kumar	CKD. BY Shallesh Kale	APPD. BY Bhavesh Gala	DATE 5/11/11
SCALE : NTS			ESTION No. : 00
DRG. No.			GTSP/L/005/11/11



○	CABLE COMPONENTS
□	KIT CONTENTS (MAJOR PARTS)
△	KIT CONTENTS (INSTALLATION AIDS)
L4	LENGTH OF SEMI CONDUCTING SCREEN OF CORE
L3	LENGTH OF METALLIC SHIELDING OF CORE
L2	LENGTH OF INNER SHEATH
L1	LENGTH OF ARMOUR
<b>LEGENDS</b>	

22	MOPPING CLOTH
21	ALOXITE EMERY TAPE
20	NYLON STRING
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3	SEMI CONDUCTIN SCREEN
2	INSULATION
1	CONDUCTOR



1 Core XLPE Cable

3 Core XLPE Cable

CABLE SIZE (Sq.mm)	CABLE CUTTING DIMENSIONS FOR 3 CORE CABLES				CABLE CUTTING DIMENSIONS FOR 1 CORE CABLES			
	L1	L2	L3	L4	L1	L2	L3	L4
240-400	80	10	200	60	80	10	200	60
150-185	80	10	200	60	80	10	200	60
70-120	60	10	200	60	60	10	200	60
16-50	60	10	200	60	60	10	200	60

	<b>GALA SHRINK FIT</b> MUMBAI - 401 105 (INDIA)		
Drawn. By Selva Kumar	CKG. BY Shallesh Kale	APPD. BY Bhavesh Gala	DATE 5/11/11
SCALE : NTS			EDITION No. : 00
GTSP/L/004/11/11			

S.No. DESCRIPTION