BIHAR STATE POWER TRANSMISSION COMPANY LTD., PATNA
A subsidiary company of Bihar State Power (Holding) Company Ltd., Patna
CIN – U74110BR2012SGC018889
[SAVE ENERGY FOR BENEFIT OF SELF AND NATION]
Head Office, Vidyut Bhawan, Bailey Road, Patna – 800021
E-mail address – ceplanningengg@gmail.com , engg.dept@bsptcl.bihar.gov.in
Website - www.bsptcl.in

Letter No. C.E. (P&E) 05/2024 35 / BSPTCL, Patna Dated 18/1/24

From,

Kumar Prasant
Chief Engineer (P&E)

To,

JV of M/s ABN Tower & Transmission Pvt. Ltd.(Lead partner)
and M/s BinodConstruction(JV partner)
Godrej Genesis Building,Unit No.609,Plot No.XI,
6th Floor,Block EP & GP,Sector-V,Salt Lake
Kolkata-700091

Email:- info@abntower.com

Sub.:- Adoption of vendor of M/s Apar Industries Ltd.,Vadodara for supply of 24F OPGW Fibre Optic Cable along with adoption of GTP & drawing of the same for Construction of 2x50MVA, 132/33KV GSS Bhorey (Dist.Gopalganj) including residential quarter with construction of associated 02 nos. 132KV Line bays at GSS Hathua & Construction of its associated 132KV D/C Bhorey-Hathua Tr. Line with ACSR Panther Conductor (Line length-60RKM) on turnkey basis under state plan against NIT-10/PR/BSPTCL/2023 .

Ref.:- 1. NIT No.- 10/PR/BSPTCL/2023.
2. NOA No.- 13(service), Dated-01.09.23 & 12(supply), Dated-01.09.23
3. Your Letter no.- ABN/23-24/10/BSPTCL/RL-1445, Dated-12.01.2024
4. This office Letter no.- 656, Dated-28.11.23
5. This office Letter no.- 203, Dated-02.03.22

Sir,

With reference to subject noted above, your request for adoption of vendor of M/s Apar Industries Ltd.,Vadodara for supply of 24F OPGW Fibre Optic Cable along with adoption of GTP & drawing of the same from NIT- 12/PR/BSPTCL/2021 against NIT-10/PR/BSPTCL/2023 is hereby considered on the risk and responsibility of **M/s ABN Tower & Transmission Pvt. Ltd.(Lead partner) JV with M/s Binod Construction(JV partner).**

Please note that this approval and issue of this letter does not absolve you from any contractual responsibility in terms of quality and correctness of the material and should be strictly in accordance with the tender specifications/ISS/IEC. If at any time, any abnormality is observed, BSPTCL reserves the right to withdraw this approval with immediate effect without any pre-intimation.

Encl: As above.

Yours faithfully

18/01/24

(Kumar Prasant)
Chief Engineer (P&E)

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Document No	:	DRS/24F/OPGW-AP/01
Issue No	:	01
Issue Date	:	09.03.2022
Revision No	:	00
Revision date	:	00

Adopted for NIT No. -10/PR/BSPTCL/2023 30/01/24

APPROVED
to the condition that you are not absolved of ... responsibility for completeness of the materials supplied as per specification
... Superintending Engineer (Designing)
Bihar State Power Transmission Company Limited
Vidyut Bhawan, Patna-800021

TECHNICAL SPECIFICATION

(24F OPGW CABLE)

Rev	Date	Description

Prepared By	:	Dnyaneshwar
Checked By	:	P. Agnihotri
Issued By	:	S.K.Jana

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DRS Form 1(a)

DATA REQUIREMENTS SHEETS for OVERHEAD FIBRE OPTIC CABLE

OPTICAL GROUND WIRE (OPGW) – 24/48 Fibre: 24F

Manufacturer : APAR INDUSTRIES LIMITED
Part # : **24F12AS[72,39.9]**

CABLE CONSTRUCTION

Seq	Parameter:	As per Technical Specification	As per Bidder Offering
1.	No. of Fibres Dual Window Single-Mode:	24	24
2.	Buffer Type:	Loose Tube	Loose Tube
3.	Buffer Tube material	As applicable	PBT (Polybutylene Terephthalate)
4.	No. of Buffer Tubes	As applicable	4
5.	No. of Fibers per buffer Tube	As applicable	6
6.	Expected Cable Life	25 Year	25 Years
7.	**Parameters of OPGW**		
(i)	UTS	Kgf	7340 Kgf (72 KN)
(ii)	Effective area	mm²	49.86
(iii)	Weight	Kg/m	0.362
(iv)	Diameter	mm	11.40
(v)	Modulus of elasticity	Kg/mm²	12244
(vi)	Coeff. Of linear expansion	/°C	14.6 x 10⁻⁶ /°C
(vii)	Central tube design	Subject to ... Al or Steel	Aluminium

Adopted for NIT No -10/PR/BSPTCL/2023
30/01/24

Adopted for construction of ... near ... 04/12/2023

Electrical Superintending Engineer (Planning and Engineering) Bihar State Power Transmission ... Vidyut Bhawan, Patna

148

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DATA REQUIREMENTS SHEETS for
OVERHEAD FIBRE OPTIC CABLE
OPTICAL GROUND WIRE (OPGW):24

Manufacturer: APAR INDUSTRIES LIMITED

Part #: 24F12AS[72,39.9]

CABLE CONSTRUCTION

Seq	Parameter:	Unit:	Particulars:
1	Fibre Manufacturer Dual Window Single-Mode:		Sterlite Technologies Limited Fiber Type :DWSM G.652D
2	No. of Fibres Dual Window Single-Mode:	each	24
3	Buffer Type:		Loose tube
4	Buffer Tube Diameter:	mm	1.90 ± 0.10
5	Buffer Tube material		PBT (PolyButylene Terephthalate)
6	No. of Buffer Tubes:	each	04
7	No. of Fibers per Tube:	each	06
8	Identification/numbering of individual tubes:		Different Color / 4 Tube (Blue, Orange, Green, Brown)
9	No. of empty tubes (If any):	each	N/A
10	Filling material:		Fibre Jelly (Non-hygroscopic, Non-conductive)
11	Filling material compliant with technical specifications?	Yes/No	Yes
12	Strength member(s):		FRP and ACS Wires
13	Binding yarn/ tape:		Thermal Barrier
14	Adopted for NF7HO —101PE/BSPTCL/2023 20/01/24 Describe Central Core Design:		Central optical unit consists of an aluminium tube housing the multiple buffered optical fibre units containing the fibres. The central optical unit and the outer stranded metallic conductor protect the fibres from Mechanical, Electrical and Environmental effects.

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Electrical Superintending Engineer
(Planning and Engineering)
Bihar State Power Transmission Company Limited
Vidyut Bhawan, Patna-800021
02/03/22

Adopted for construction of new railway bridge over Ganga near Mokama, BSH Sarthi...
04/12/2023

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DRS Form 1 (Continued)

DATA REQUIREMENTS SHEETS for

OVERHEAD FIBRE OPTIC CABLE

OPTICAL GROUND WIRE (OPGW):

Seq	Parameter:	Unit:	Particulars:
15.	Aluminium Clad steel wire Diameter: Number:	mm each	2.30 (27 % IACS) 12
16.	Aluminium alloy wires Diameter: Number:	mm each	N/A N/A
17.	Aluminium tube inner diameter:	mm	5.00 ± 0.20
18.	Aluminium tube outside diameter:	mm	6.80 ± 0.20
19.	Cable Diameter: (nominal ± deviation)	mm	11.40 ± 2%
20.	Cable cross-section area (Nominal):	mm^2	66.54
21.	Cable cross-section area (Effective):	mm^2	49.86
22.	Fully Compliant with IEEE 1138:	Yes/No	Yes

Adopted for NIT No -10/PR/BSPTCL/2023.

Mechanical Properties of Cable

Seq	Parameter:	Unit:	Particulars:
23.	breaking load/ Ultimate Tensile Strength (UTS):	kN	72
24.	Fibre strain margin:	%	47% of Cable UTS
25.	Zero fibre strain up to load	kN	33.84
26.	Weight:	kg/km	362 ± 3%
27.	Crush strength:	kg/mm	188 Kg/100mm²
28.	Equivalent Modulus of elasticity:	KN/mm²	120.11
29.	Minimum Bending Radius without microbending:	mm	228
30.	Maximum Bending Radius: Short Term: Long Term (Continuous):	 mm mm	 342 456

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Continued -

C46

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DRS Form 1 (Continued)

DATA REQUIREMENTS SHEETS for OVERHEAD FIBRE OPTIC CABLE

OPTICAL GROUND WIRE (OPGW):

Seq	Parameter:	Unit:	Particulars:
31.	Tensile proof test (Screening) level:	KN/mm²	1.011
32.	Maximum permissible tensile stress:	KN/mm²	0.578
33.	Permissible CTS. tensile stress:	KN/mm²	0.289
34.	Maximum sag at maximum temperature and design span with no wind:	mm	NA
35.	Everyday tension at 32°C, no wind:	% of UTS	NA
36.	Maximum tension at Every day condition with full wind pressure	Kg	NA

Thermal Properties of Cable

37.	Coefficient of linear expansion:	per °C	14.6 X 10^{-6}
38.	Coefficient of expansion Cladding: Core:	 per °C per °C	 23 X 10^{-6} 11.5 X 10^{-6}
39.	Nominal operating temperature range:	°C	-40°C to +80°C
40.	SC current transient peak temperature:	°C	220
41.	Maximum allowable temperature for lightning strike:	°C	210
42.	DC Resistance of OPGW cable at 20°C	Ω/Km	≤ 0.740
43.	Short Circuit Current	KA	≥ 6.32 KA for 1 Second (39.9 KA²s)

Adopted for NIT No- 10/PR/BSPTCL/2023 30/11/24

Adopted for construction of new ... 04/12/2023

- Continued

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DRS Form 1 (Continued)

DATA REQUIREMENTS SHEETS for OVERHEAD FIBRE OPTIC CABLE

OPTICAL GROUND WIRE (OPGW):

CABLE SPOOL and DRUM			
Seq	**Parameter:**	**Unit:**	**Particulars:**
44.	Available length per spool Maximum: Nominal:	 m m	 525, 3150 500, 3000 (Standard length & tolerance of cable per reel shall be : 1) 5000m ± 5% 2) 3000m ± 5% However customized lengths as per the requirement can also be supplied.
45.	Size of drum:	m	(Flange x Barrel x Traverse) **5000m Drum :** 1350 x 625 x 915mm **3000m Drum :** 1170 x 625 x 915mm
46.	Weight of empty drum:	kg	**5000m Drum :** 200 Kg (approx.) **3000m Drum :** 150 Kg (approx.)
47.	Weight of drum with cable: spooled	kg	**5000m Drum :** 2010 Kg (approx.) **3000m Drum :** 1236 Kg (approx.)
48.	Will drum length scheduling be practiced to match transmission line span lengths?	Yes/No	N.A

49. Describe Drum materials:

Adopted for NIT No 2311(10)PIE/BSPTCL/2023

Returnable Steel Drum covered with Polypropylene sheet for main supply and Non-Returnable Steel Drum covered with Polypropylene sheet for spare quantity supply.

50. Describe cable end capping and protection against abrasion etc.:

Both ends of OPGW cable shall be securely fastened to drum and sealed with a shrinkable End Cap.

Adopted for construction of new railway bridge over Jamuna river Mokama

04/12/2023

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Bihar State Power Transmission ...
Vidyut Bhawan, Patna

(49)

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DRS Form 1 (Continued)

DATA REQUIREMENTS SHEETS for OVERHEAD FIBRE OPTIC CABLE

OPTICAL GROUND WIRE (OPGW):

INSTALLATION

Seq	Parameter:	Unit:	Particulars:
51.	Splice Loss: Maximum: Average:	 dB dB	 0.10 0.05
52.	Operating Temperature Range:	°C	-40°C to +80°C
53.	Rated Isoceraunic No.		50
54.	Expected Cable Life:	Years	25
55.	Installation rate per team:	km/day	Matching with the line and stringing Schedule.
56.	No. of persons per team:	no.	
57.	Max. possible span for specified operating conditions:	M	NA
58.	Midspan sag at 0°C with no wind loading:	Mm	
59.	Midspan sag at max temp. with no wind loading:	Mm	
60.	Midspan sag at max temp. and wind loading	Mm	
61.	Cable swing angles: Worst Case: Everyday:		N/A
62.	Describe Installation method(s):		OPGW is suitable for live line installation or normal installation

Adopted for NIT No -10/PR/BSPTCL/2023
30/01/24

Adopted for constructing of new railway bridge over Ganga near Mokama & its connected ...
04/12/2023

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(Planning and Engineering)
Bihar State Power Transmission Company Limited
Vidyut Bhawan, Patna 800021
02/02/22

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DRS Form 2

DATA REQUIREMENTS SHEETS for OPTICAL FIBRE
DUAL-WINDOW SINGLE MODE (DW-SM)

OPTICAL PARAMETERS

Seq	Parameter:	Unit:	Particulars:
1.	Fibre manufacturer(s)/Type:		Sterlite Technologies Limited Fiber Type :DWSM G.652D
2.	Fibre production method:		Chemical Vapour Deposition (CVD)
3.	Attenuation Coefficient@ 1310 nm: @ 1550 nm:	dB/km dB/km	≤ 0.35 ≤ 0.21
4.	Attenuation Variation with Wavelength (±25 nm):	dB/km	≤ 0.05
5.	Attenuation at water peak @ 1383 nm	dB/km	≤ 0.35
6.	Point discontinuity @ 1310nm: @ 1550nm:	dB dB	≤ 0.10 ≤ 0.10
7.	Temperature dependence (induced attenuation):	dB	≤ 0.05 (-60°C to +85°C)
8.	Nominal Mode Field Diameter @ 1310 nm: @ 1550 nm:	μm	9.2 10.4
9.	Mode Field Diameter Deviation @ 1310 nm: @ 1550 nm:	μm	±0.4 ±0.8
10.	Mode field non-circularity:	%	≤ 6.0
11.	Chromatic Dispersion Coefficient @ 1310 (1288-1339) nm: @ 1310 (1271-1360) nm: @ 1550 nm:	Ps/nm.km	≤ 3.5 ≤ 5.3 ≤ 18
12.	Zero dispersion wavelength:	nm	1300 ~ 1324
13.	Zero dispersion Slope:	$ps/nm^2.km$	≤ 0.092
14.	Cutoff wavelength:	nm	≤ 1260
15.	Refractive Index :		1.4670 @1310 nm & 1.4675 @1550 nm
16.	Refractive Index profile:		Step Index
17.	Cladding Design:		Matched
18.	Numerical aperture:		0.13 typical

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Bihar State Power Transmission Company Limited
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Adopted for construction of new crossing bridge near Mokama & Ganga ... 04/12/2023

Adopted for NIT No. 10/PR/BSPTCL/2023
30/01/24

142

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DRS Form 2 (Continued)

DATA REQUIREMENTS SHEETS for OPTICAL FIBRE
DUAL-WINDOW SINGLE MODE (DW-SM)

PHYSICAL and MECHANICAL PROPERTIES			
Seq	**Parameter:**	**Unit:**	**Particulars:**
19.	Bend Performance: (37.5 mm radius, 100 turns) @1310 nm (30 mm radius, 100 turn) @1550 nm (16mm radius, 1 turn) @ 1550nm	dB dB dB	Attenuation Rise ≤ 0.05 per Km Attenuation Rise ≤ 0.05 per Km Attenuation Rise ≤ 0.50 per km
20.	Core Diameter (nominal ± deviation) :	µm	8.50 ± 0.7
21.	Core non-circularity:	%	≤ 6.0
22.	Cladding Diameter (nominal ± deviation):	µm	125 ± 0.7
23.	Core- Clad / Mode field concentricity Error	µm	≤ 0.5
24.	Cladding non circularity:	%	≤ 1.0.
25.	Fibre cut-off wavelength	nm	≤ 1320
26.	Protective Coating type & material Primary: Secondary:		UV-cured Acrylate. UV-cured Acrylate.
27.	Protective Coating Diameter (nominal ± deviation):	µm	245 ± 10
28.	Protective Coating removal method:		Stripping method
29.	Coating Concentricity	µm	Coating cladding error < 12
30.	Polarisation mode dispersion coefficient	$ps/km^{1/2}$	≤ 0.2
31.	Proof test level	GPa	≥ 0.69 (100 Kpsi)
32.	Colour coding scheme compliant with EIA/TIA 598 or IEC 60304 or Bellore GR-20.	Yes/No	EIA/TIA 598
33.	Colouring material compliant with technical specs?	Yes/No	Yes
34.	Minimum Guaranteed design life span of optical fibres	Year	25

Adopted for MI7TL
— 10/P12 13 SPT 04/2023
30/01/24

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Adopted for construction of new railway bridge near Mohaddi and Sakhrend. 04/12/2023

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Vidyut Bhawan, Patna 800021

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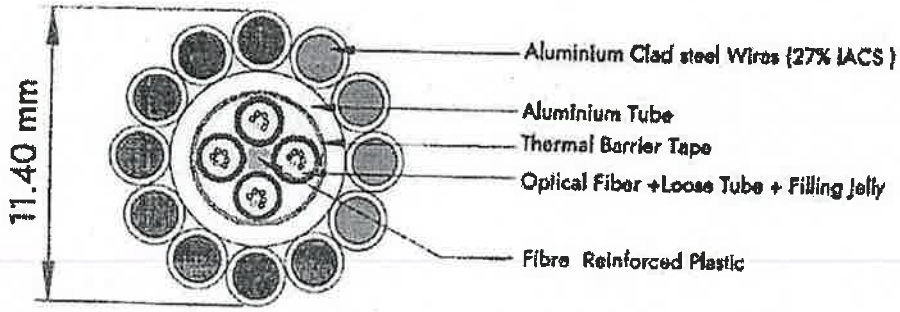
A) Additional Details of OPGW Cable

Cross Sectional Drawing:



24F12AS[72,39.9]		Named	No.	Diameter
Structure Details	Fibers	G652.D	24	-
	Center	Aluminum Tube (OD)	1	6.80 mm ± 0.20 mm
		Aluminum Tube (ID)	1	5.00 mm ± 0.20 mm
	Layer 1	27 %AS wire	12	2.30 mm ± 0.04 mm
Technical Data	**According to IEEE std 1138, IEC 60794-4 standards**			
	Stranding direction of outer layer is "Left-hand"			
	Fiber No. & Type		24	G.652D
	Standard Diameter		11.40	mm
	Supporting Cross Section			
	Section of AS wire		49.86	mm²
	Section of Aluminum Tube		16.68	mm²
	Approximate mass		362	Kg/Km
	Rated Tensile Strength		72	KN
	Modulus of Elasticity		120.11	KN/mm²
	Thermal Coefficient of Linear Expansion		14.6	×10⁻⁶/°C
	Calculated D.C. Resistance at 20°C		0.740	Ω/km
	Short-Circuit Current (1 sec, 20~220°C)		≥ 6.32	KA
	Short-Circuit Current capacity (20~220°C)		39.9	kA²·s
	Minimum Bending Radius		228	mm
Temperature Range :	Installation		-10°C~+50	°C
	Transportation and Operation		-40°C~+80	°C

Remarks : 1) All Sizes and Values are Nominal Values

2) Tolerance on diameter, area and weight is ± 1.5%*D, ± 3%*A and ± 3%*W

Adopted for NIT No-10/PR/BSPTCL/2023

Adopted for construction of new railway bridge ... near Mokamah ... 04/12/2023

Subject to the condition ... the responsibility for correctness of the materials ... as per specification

Electrical Superintending Engineer (Planning and Engineering) Bihar State Power Transmission Company Limited Vidyut Bhawan, Patna-800021

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B) Reference Standards

The standard specifications according to which the OPGW cable shall be manufactured and tested are:

- IEC 60793-1 : Optical fiber Part 1: Generic specifications
- IEC 60793-2 : Optical fiber Part 2: Product specifications
- ITU-T G.652 : Characteristics of a single-mode optical fiber cable
- ITU-T G.655 : Characteristics of a non-zero dispersion-shifted single-mode optical fiber and cable.
- EIA/TIA 598 B : Color code of fiber optic cable.
- IEC 60794-4 : Sectional specification – Aerial optical cables along electrical power lines
- IEC 60794-4-10 : Aerial optical cables along electrical power lines –Family specification for OPGW
- IEC 60794-1-2 : Optical fiber cables-Part 1-2: Generic specification-Basic optical cable test Procedure.
- IEEE 1138-2009 : IEEE Standard for testing and performance for optical ground wire (OPGW) for use on electric utility power lines
- IEC 61395 : Overhead Electrical Conductors – Creep test procedures for stranded conductors.
- IEC 61232 : Aluminum –clad steel wire for electrical purposes
- IEC 61089 : Round wire concentric lay overhead electrical stranded conductors

C) Optical Fiber Identification

Individual optical fibers within a fiber unit and fiber units shall be identifiable in accordance with EIA/TIA 598 color-coding scheme as specified below.

Coloring utilized for color coding optical fibers shall be integrated into the fiber coating and shall be homogenous. The color shall not bleed from one fiber to another and shall not fade during fibre preparation for termination or splicing.

Adopted for NIT No -10/PR1/BSPTCL/2023 (initials) 30/01/24

Fiber Units	Fiber No. and Fiber Color					
Blue Tube	1	2	3	4	5	6
	Blue	Orange	Green	Brown	Slate	White
Orange Tube	1	2	3	4	5	6
	Blue	Orange	Green	Brown	Slate	White
Green Tube	1	2	3	4	5	6
	Blue	Orange	Green	Brown	Slate	White
Brown Tube	1	2	3	4	5	6
	Blue	Orange	Green	Brown	Slate	White

For Apar Industries Ltd, India

(signature)

(S.K. Jana) Sr.GM-QA & Tech

APAR INDUSTRIES L.T.D. INDIA

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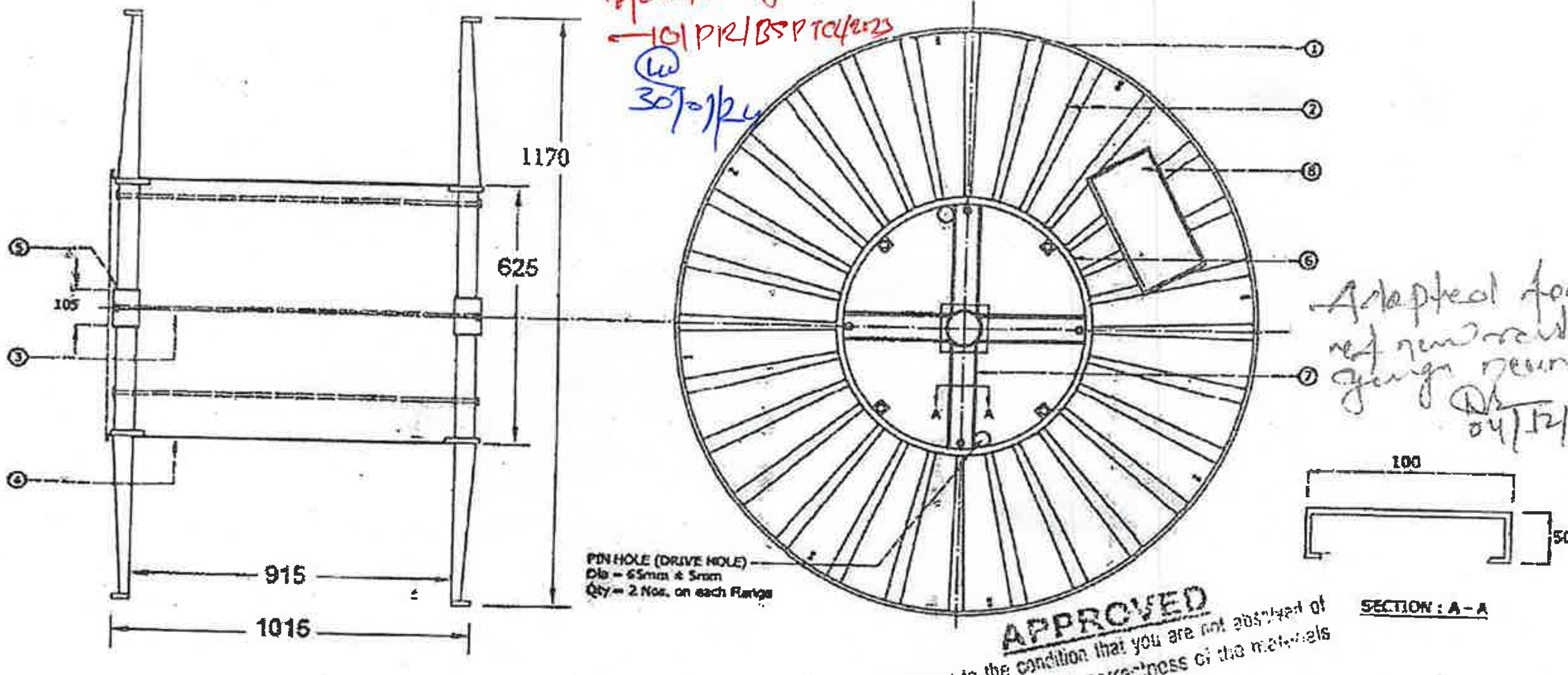
...the condition that you are not ... responsibility for correctness of the ... as per specification
...rical Superintending Eng... Planning and Engineering ... Power Trans... Bhawan, Patna-800021

Adopted for construction of new railway bridge ... near Mokama ... 04/12/2023



1	OUTER RING	50 X 6 mm
2	CORRUGATION SHEET	1.20 mm (THICK)
3	TIE ROD	12mm & 8 Nos.
4	BARREL SHEET	1.60 mm (THICK)
5	CENTRE HOLE	105 mm ID x 115 mm OD.
6	INNER RING	100mm (W) X 4.00 mm (THICK)
7	CROSS ARM	100mm x 50mm, 4.00mm (THICK)
8	FRAME SIZE (FOR MARKING)	200mm x 300mm (APPROX)
9	PAINT	GREEN COLOR ENAMEL PAINT
10	Barrel and Inner surface of flange shall have water proof protective HDPE sheet.	
11	The drums are Returnable with Polypropylene sheet Covering.	
12	Flanges shall have non corrosive primer coat and enamel paint of Green colour.	
13	The outer layer of the OPGW Cable shall be covered with Min. 5mm Thick Polypropylene sheet to protect the cable from damages during transit.	

RETURNABLE STEEL DRUM

Note -
a) All dimensions are in mm
b) All mild steel shall conform to IS-2062
c) Washers are required on all bolts
d) Tolerance on dimension of drum parts other than the thickness of sheets shall be ± 3%.

CUSTOMER	POWERGRID CORPORATION OF INDIA LIMITED	
CODE NAME	OPGW CABLE / 4140mm / 24F12AS(72,39.5)	
OPGW DETAILS	Specification	IEC 61232, IEEE 1138 & ITU G652
	Standard length	3000 mtrs ± 5%
	Net Weight	1086 Kg (APPROX)
	Gross weight	1239 Kgs (Approx)
APAR CONDUCTORS		Issue No. : 01
		Issue Date : 29.06.2021
		Rev. No. 00
		Rev. Date : 00
SCALE N.T.S	DRG. NO.:- AILS .LCS:14GE:OPGW/02	

Page No. 01 of 01

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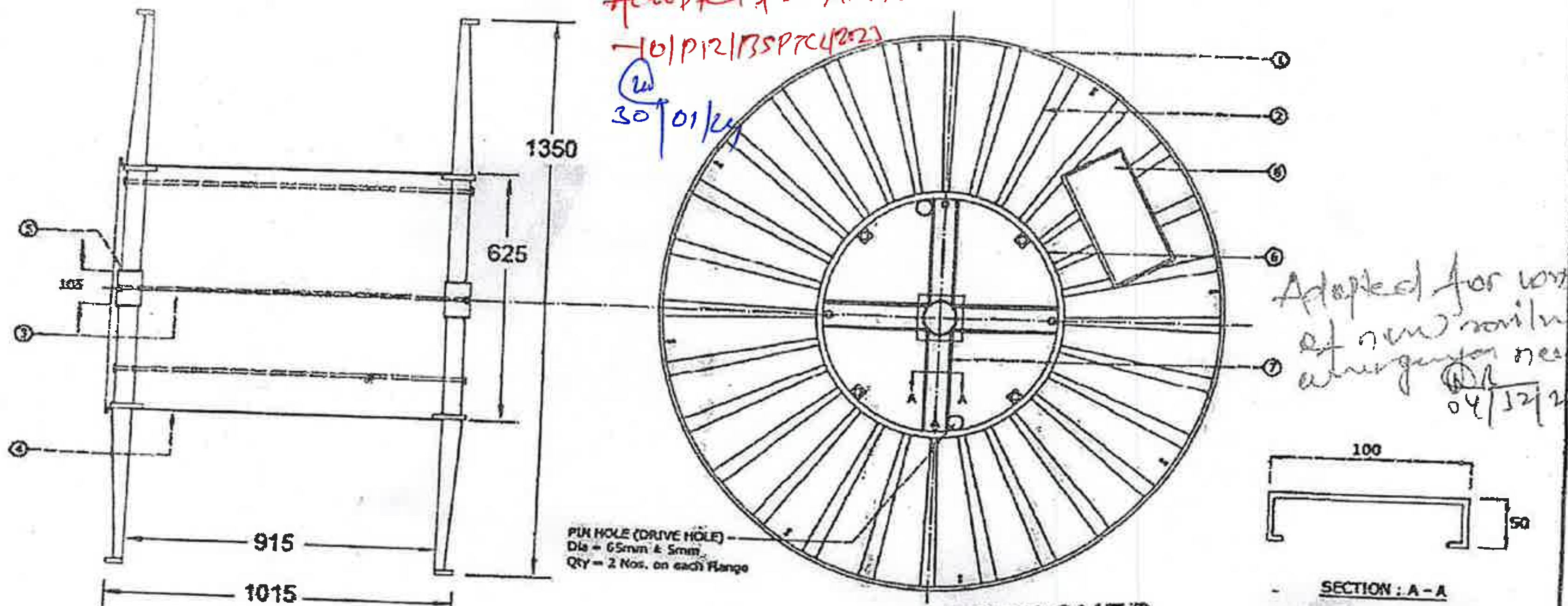
APAR INDUSTRIES LTD. INDIA

Adopted for NIT No –101/PR/BSPTCL/2023 (W) 30/01/24

Adopted for construction of new sub-station bays in Gaya ... Mohania 13 ... 04/12/2023

89



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Electrical Superintending Engineer (Planning and Engineering)
Bihar State Power Transmission Company Limited
Vidyut Bhawan, Patna-800021
04/01/22

1	OUTER RING	50 X 8 mm
2	CORRUGATION SHEET	1.20 mm (THICK)
3	TIE ROD	12mm & 8 Nos.
4	BARREL SHEET	1.60 mm (THICK)
5	CENTRE HOLE	105 mm ID x 115 mm OD.
6	INNER RING	100mm (W) X 4.00 mm (THICK)
7	CROSS ARM	100mm x 50mm, 4.00mm (THICK)
8	FRAME SIZE (FOR MARKING)	200mm x 300mm (APPROX)
9	PAINT	GREEN COLOR ENAMEL PAINT
10	Barrel and inner surface of flange shall have water proof protective HDPE sheet.	
11	The drums are Returnable with Polypropylene sheet Covering.	
12	Flanges shall have non corrosive primer coat and enamel paint of Green colour.	
13	The outer layer of the OPGW Cable shall be covered with Min. 5mm Thick Polypropylene sheet to protect the cable from damage during transit.	

RETURNABLE STEEL DRUM

Note -

a) All dimensions are in mm

b) All mild steel shall conform to IS-2062

c) Washers are required on all bolts

d) Tolerance on dimension of drum parts other than the thickness of sheets shall be ± 3%.

CUSTOMER	POWERGRID CORPORATION OF INDIA LIMITED	
NOA NO.		
ITEM / CODE NAME	OPGW CABLE - 11.40mm / 24F12AS(72.39.9)	
OPGW DETAILS	Specification	IEC 61232, IEEE 1138 & ITU G652
	Standard length	5000 mtrs ± 5%
	Net Weight	1810 Kg (APPROX)
	Gross weight	2010 Kgs (Approx)

APAR CONDUCTORS

Issue No. : 01	
Issue Date : 29.06.2021	
Rev. No. 00	
Rev. Date : 00	
SCALE :N.T.S	DRG. NO.:- AILS :LCS:14GE:OPGW/01

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38