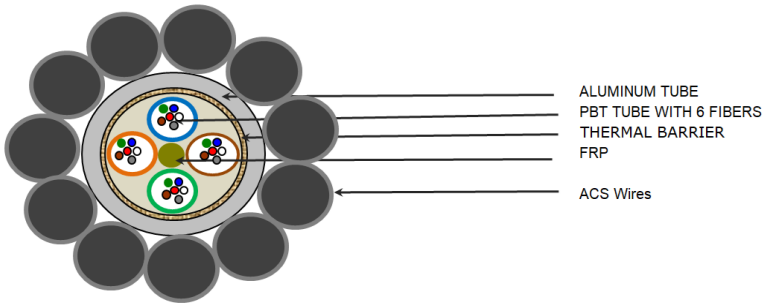
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POLYCAB IDEAS. CONNECTED.	**Polycab India Limited** Works: Unit-3, Plot No. 13, 15, 16A & 16B, Halol-Vadodara Road, Taluka - Halol, Dist. Panchmahal, Gujarat - 389350 INDIA.	Document No:PC/OPGW/ALT/SS/03 Rve.No:00 Issue Date:11/10/2024

OPGW Cable Specification sheet

OPGW Cable Type	**PC-OPGW -03-ALT11ACS24F (92,40)**
OPGW Cable Descrption	**AL Tube 24F OPGW 12.0 mm 92 KN**
OPGW Cable Crossection	

PC-OPGW -03-ALT11ACS24F (92,40)		**Material**	**No.**	**Material Diameter**
Structure	Fibers	G652.D	24	-
	Center	Aluminum Tube	1	6.80 mm (±0.2 mm)
	Outer Layer	20.3%ACS wire	11	2.60 mm ± 0.04 mm

Technical Data	Stranding direction of outer layer		Left Hand Lay
	Fiber No. & Type	24	G.652D
	Maximum Optical Attenuation of Cable	@1310 nm @1550 nm	≤ 0.35 dB/km ≤ 0.21 dB/km
	Number of Loose Tubes	4 No's	Blue, Orange, Green and Brown
	Number of Fibers per Loose Tube	6 No's	Blue, Orange, Green, Brown, Slate and White
	Standard Diameter	12.0	mm
	Supporting Cross Section Section of AS wire Section of Aluminum Tube	 58.4 15.08	 mm² mm²
	Approximate mass	445	Kg/Km
	Rated Tensile Strength	92	KN
	Modulus of Elasticity	140	KN/mm²
	Thermal Coefficient of Linear Expansion	13.8	×10-6/℃
	Permissible Maximum Working Stress (45% UTS)	563.4	N/mm^2
	Everyday Stress（EDS) (20% UTS)	250.4	N/mm^2
	Calculated D.C. Resistance at 20℃	≤ 0.92	Ω/km
	Short-Circuit Current （1 sec, 20～200℃）	6.32	KA
	Short-Circuit Current capacity（20～200℃）	40	KA²·s
	Lightening Arc IEC 60794-4-10 Class-1	100 C	200A 0.5sec
	Minimum Bending Radius	240	mm
Temperature Range :	Installation	-30℃～+70	°C
	Operation	-40℃～+85	°C
Factory tests and standard	General tests Aluminum clad steel wires Aluminum Alloy wires	IEEE 1138:2021/IEC 60794-4 IEC 63248 IEC 62641	
Remarks	1) All Sizes and Values are Nominal Values 2) Tolerance on diameter and weight is ± 2%*D and ± 5%*W		

ACME — Approved in CAT- (1)

- ☑ CAT- 1 : Document Approved with Minor Comments
- ☐ CAT- 2 : Document Approved With Comments Go Ahead With Manufacturing
- ☐ CAT- 3 : Document Not Approved. Revised & Resubmit
- ☐ CAT- 4 : Document Retain For Information

Approval or comments conveyed herein neither relieves Vendor / Contractor of his contractual obligations and his responsibilities to correctness of dimensions, materials of construction, weights, quantities, design details, assembly fits, systems / performance requirements and conformity of supplies with Indian statutory laws as may be applicable, nor does it limit the Purchaser's rights under the contract.

APPROVED BY :

NAME : DHIRENDRA THAKUR DATE : 21-01-2026

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Data Requirements Sheet-OPGW

The Document is Approved subject to the condition that all the Test Reports are approved from Qualty team - ACME.

DRS Form 1(a)

DATA REQUIREMENTS SHEETS for OVERHEAD FIBRE OPTIC CABLE

OPTICAL GROUND WIRE (OPGW) - 24/48 Fibre:

Manufacturer: Polycab India Limited

Part # PC-OPGW -03-ALT11ACS24F (92,40)

Configuration: Aluminum Tube OPGW

CABLE CONSTRUCTION			
Seq	**Parameter:**	**As per Technical Specification**	**As per Bidder Offering**
1.	No. of Fibres Dual Window Single-Mode:	24/48	24
2.	Buffer Type:	As applicable	Non-metallic
3.	Buffer Tube material	As applicable	PBT
4.	No. of Buffer Tubes:	As applicable	4
5.	No. of Fibers per bufferTube:	As applicable	6F
6.	Expected Cable Life:	25 Year	25 years
7.	**Parameters of OPGW**		
(i)	UTS	In Kgf	9378
(ii)	Effective area	In mm^2	58.4
(iii	Weight	In kg/m	0.445
(iv)	Diameter	In mm	12.0
(v)	Modulus of elasticity	In kg/ mm^2	14271
(vi)	Coeff. Of linear expansion	In $/^0C$	13.8* 10 -6
(vii)	Central tube design	Al or Steel	Aluminium Tube

DRS Form 2

DATA REQUIREMENTS SHEETS for OPTICAL FIBRE

DUAL-WINDOW SINGLE MODE (DW-SM)

OPTICAL PARAMETERS			
Seq	**Parameter:**	**As per Technical Specification**	**As per Bidder offering**
1.	Fiber manufacturer(s)/Type:		Sterlite/Birla/ZTT/HFCL Type : G652D
2.	Attenuation Coefficient@ 1310nm: @ 1550 nm:	≤ 0.35 dB/km ≤ 0.21 dB/km	≤ 0.35 dB/km ≤ 0.21 dB/km
3.	Point discontinuity @ 1310nm: @ 1550nm:	≤ 0.05 dB ≤ 0.05 dB	≤ 0.05 dB ≤ 0.05 dB
4.	Nominal Mode Field Diameter @ 1310 nm:	8.6 to 9.5 µm (± 0.6 µm)	8.6 to 9.5 µm (± 0.6 µm)
5.	Chromatic Dispersion Coefficient (Maximum) @ 1310 (1288-1339) nm: @ 1310 (1271-1360) nm: @ 1550 nm:	3.5 ps / (nm x km) 5.3 ps / (nm x km) 18 ps / (nm x km)	≤ 3.5 ps/(nm x km) ≤ 5.3 ps/(nm x km) ≤18 ps/(nm x km)
6.	Zero dispersion wavelength:	1300 to 1324 nm	1300 to 1324 nm
7.	Cutoff wavelength:	≤ 1260 nm	≤ 1260 nm
Physical and Mechanical Properties			
8.	Bend Performance: (37.5 mm radius, 100 turns)@1310 nm (30mm radius, 100 turn)@1550 nm (16mm radius, 1 turn) @ 1550nm	≤ 0.05 dB ≤ 0.05 dB ≤ 0.50 dB	≤ 0.05 dB ≤ 0.05 dB ≤ 0.50 dB
9.	Cladding Diameter (nominal ± deviation):	125.0 µm ± 1 µm	125.0 µm ± 1 pm
10.	Polarisation mode dispersion coefficient	≤ 0.2 ps/km$^{1/2}$	≤ 0.2 ps/km$^{1/2}$
11.	Proof test level	≥ 0.69 Gpa	≥ 0.69 Gpa

DRS Form-1

Data Requirements Sheets for

OVERHEAD FIBER OPTIC CABLE

OPTICAL GROUND WIRE (OPGW)

CABLE CONSTRUCTION			
Seq	**Parameter:**	**Unit:**	**Particulars:**
1	Fiber Manufacturer Dual Window Single-Mode:		Sterlite/Birla/ZTT/HFCL Fiber Type: DWSM G.652D
2	No. of Fibers Dual Window Single-Mode:	each	24
3	Buffer Type:		Loose tube
4	Buffer Tube Diameter:	mm	2.0 (nominal)
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:		Fiber 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	Describe Central Core Design:		Central optical unit consists of an aluminium tube housing the multiple buffered optical Fiber units containing the Fibers. The central optical unit and the outer stranded metallic wires protect the Fibers from Mechanical, Electrical and Environmental effects.

DRS Form-1 (Continued)

Data Requirements Sheets for

~~OVERHEAD FIBER OPTIC CABLE~~

OPTICAL GROUND WIRE (OPGW)

Seq	Parameter:	Unit:	Particulars:
15.	Aluminium Clad steel wire Diameter: Number:	 M Each	 2.60 (20.3 % IACS) 11
14.	Aluminium alloy wires Diameter: Number:	 M Each	 N/A N/A
17.	Aluminium tube inner diameter:	Mm	5.20 ± 0.20
15.	Aluminium tube outside diameter:	Mm	6.80 ± 0.20
19.	Cable Diameter: (nominal ± deviation)	Mm	12.00 ± 2%
20.	Cable cross-section area	mm^2	73.48
21.	Cable cross-section area (Effective):	mm_2	58.40
22.	Fully Compliant with IEEE 1138:	Yes/No	Yes

Mechanical Properties of Cable

23.	breaking load/ Ultimate Tensile Strength (UTS):	KN	92.0 (Minimum)
24.	Fiber strain margin:	%	45% of Cable UTS
25.	Zero Fiber strain up to load	KN	41.44
26.	Weight:	kg/km	445 ± 5%
27.	Crush strength:	kg/mm	231.4 Kg/100mm^2
28.	Equivalent Modulus of elasticity:	KN/mm2	140
29.	Minimum Bending Radius without microbending:	Mm	240 (20xD where D is diameter of OPGW)
30.	Maximum Bending Radius: Short Term: Long Term (Continuous):	 mm mm	 360 480

Continued -

DRS Form-1 (continued)

Data Requirements Sheets for

OVERHEAD FIBER OPTIC CABLE

OPTICAL GROUND WIRE (OPGW)

Seq	Parameter:	Unit:	Particulars:
31.	Tensile proof test (Screening) level:	KN/mm2	1.102
32.	Maximum permissible tensile stress:	KN/mm2	0.708
33.	Permissible CTS. tensile stress:	KN/mm2	0.315
34.	Maximum sag at maximum temperature and design span with no wind:	Mm	NA
35.	Everyday tension at 32ºC, no wind:	% or UTS	NA
36.	Maximum tension at Everyday condition with full wind pressure	Kg	NA

Thermal Properties of Cable

37.	Coefficient of linear expansion:	per °C	13.8×10^{-6}
38.	Coefficient of expansion Cladding: Core:	 per °C per °C	 23×10^{-6} 11.5×10^{-6}
39.	Nominal operating temperature range:	°C	-40°C to +80°C
40.	SC current transient peak temperature:	°C	200
41.	Maximum allowable temperature for lightning strike:	°C	210
42.	DC Resistance of OPGW cable at 20°C	O/Km	≤ 0.92
43.	Short Circuit Current Short Circuit current capacity	KA $KA^2.sec$	6.32 KA for 1 Second 40 KA^2s

- Continued -

DRS Form-1
(continued)

Data Requirements Sheets for

OVERHEAD FIBER OPTIC CABLE

OPTICAL GROUND WIRE (OPGW)

		CABLE SPOOL and DRUM	
Seq	**Parameter:**	**Unit:**	**Particulars:**
44.	Available length per spool Maximum: Nominal:	 m m	 5250, 3150 5000, 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) 1450 x 800 x 840mm 1350 x 800 x 840mm 1250 x 800 x 840mm (Approximate value, tolerance is ±10cm Subject to actual delivery and drum shall be selected subject to the availability at the time of manufacturing and OPGW length per drum)
46.	Weight of empty drum:	kg	5000m Drum: 190 Kg (approx.) 3000m Drum: 170 Kg (approx.)
47.	Weight of drum with cable: spooled	kg	5000m Drum: 2460 Kg (approx.) 3000m Drum: 1500 Kg (approx.)
48.	Will drum length scheduling be practiced to match transmission line span lengths?	Yes/No	Yes
49	Describe Drum Materials		Steel Drum covered with Polypropylene sheet
50	Describe cable end capping and protection against abrasion etc.:		Both ends of the cable shall be sealed with a end caps so as to prevent the escape of filling compounds and dust & moisture ingress during shipment and handling

DRS Form-1 (continued)

Data Requirements Sheets for

OVERHEAD FIBER 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	Maximum span 800 meters
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:		 NA
62.	Describe Installation method(s):		OPGW is suitable for live line installation or normal installation

DRS Form 2

DATA REQUIREMENTS SHEETS for OPTICAL FIBER

DUAL-WINDOW SINGLE MODE (DW-SM)

OPTICAL PARAMETERS			
Seq	**Parameter:**	**Unit:**	**Particulars:**
1.	Fiber manufacturer(s)/Type:		Sterlite/Birla/ZTT/HFCL Fiber Type: DWSM G.652D
2.	Fiber production method:		Chemical Vapor 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	≤ 0.05 ≤ 0.05
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 Uniform refractive index
18.	Numerical aperture:		0.13 typical

DRS Form 2 (continued)

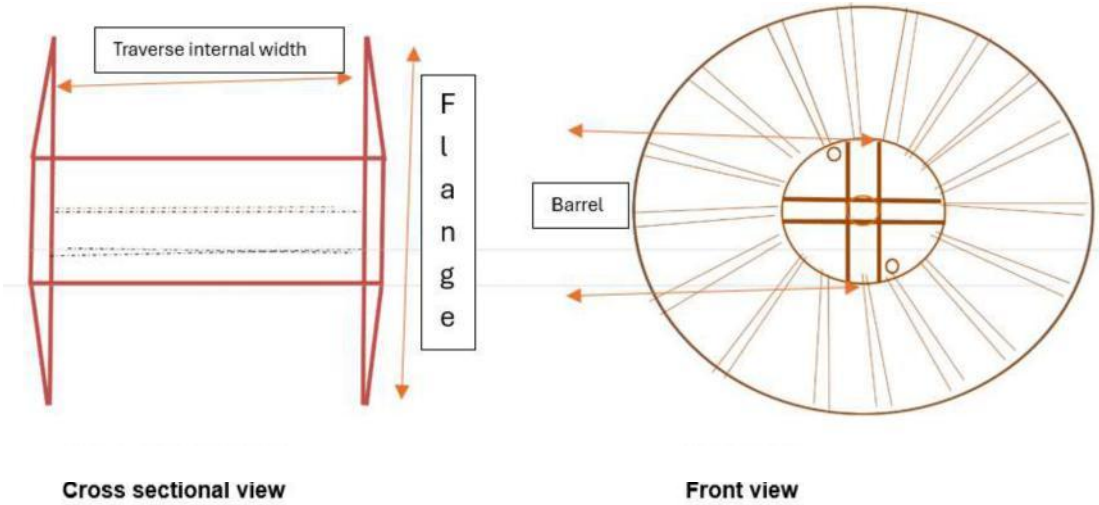
DATA REQUIREMENTS SHEETS for OPTICAL FIBER

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	9.0 ± 1.0
21.	Core non-circularity:	%	≤ 6.0 (Coating non-circularity)
22.	Cladding Diameter (nominal ± deviation):	µm	125 ± 0.7
23.	Core- Clad / Mode field concentricity Error	µm	≤ 0.5
24.	Cladding non circularity	%	≤ 0.8
25.	Fiber 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 Concentricity error ≤12 µm
30.	Polarization 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 598D
33.	Colouring material compliant with technical specs?	Yes/No	Yes
34.	Minimum Guaranteed design life span of optical Fibers	Year	25
35.	Dynamic Fatigue Parameter	N	≥ 20

1.OPGW Packaging and Drum specification

OPGW shall be wound on a steel drum. Steel drums shall be corrosion free, shall be of adequate strength, and constructed to protect the OPGW against all damage and displacement during transit, storage, subsequent handling & stringing operations in the field. The drum is covered by poly Propylene sheets to avoid any damage to the surface of OPGW. Both ends of the cable shall be sealed as to prevent the escape of filling compounds and dust & moisture ingress during shipment and handling. Spare cable caps shall be provided with each drum as required. Name plate with required marking shall be provided with the drum according to customer's requirement and the drum details are stenciled on the outer side of drum.



Cross sectional view

Front view

Steel Drum Dimensions

Diameter Of Cable (mm)	Length (m)	Flange Diameter (mm)	Barrel Diameter (mm)	Transverse (Internal Width) (mm)
12.0 mm	Upto 5000	1250 or 1350 or 1450	800	840

Note: The drum is selected depending on feasibility and cable length at the time of manufacturing OPGW.