

## ABOUT US

As an Industry acclaimed Cable Reinforcement Solutions Manufacturer in India, HTL Ltd's high performance Fiber Reinforced Plastic (FRP) Rod, Aramid Reinforced Plastic (ARP) Rod, and Impregnated Glass Fiber Reinforcement (IGFR) Yarn are the product of choice for leading Indian as well as global cable manufacturing companies who demand the highest quality, durability & safety standards.

Our State-of-the-Art Manufacturing facility as located at Hosur in Tamil Nadu, India manufactures FRP Rods, ARP Rods & IGFR Yarns in complete compliance with the Industry norms and standards. Our Customer First approach ensures world-class quality, on-time delivery & availability of our products to all of our customers across the globe thereby maximising customer satisfaction.



## OTHER BUSINESS VERTICALS



Polymer Compounds



Optical Fiber Cables



Wiring Harness for Aerospace & Defence



Wiring Harness for Automotive & Industrial



## GET IN TOUCH



+91 99118 56122



crssales@htllimited.com



HTL Ltd., No. 113 - 116, SIPCOT Industrial Complex, Hosur - 635126 Tamil Nadu, India



Registered Office:

HTL Ltd.,  
No. 57, GST Road, Guindy,  
Chennai - 600032  
Tamil Nadu, India

**CABLE REINFORCEMENT  
SOLUTIONS FOR A  
CONNECTED TOMORROW**

[www.htllimited.com](http://www.htllimited.com)



## FIBER REINFORCED PLASTIC ROD (FRP)

FRP Rods are used as strength member as well as an armouring element in optical fiber cables. Fiberglass reinforcements are pultruded with unique resin formulations to produce a final thermoset FRP rod.

### CHARACTERISTICS

- Long splice-free length
- Superior dimensional stability
- Provides anti-buckling properties & protection during installation
- Designed for all-dielectric or metallic cable application

### APPLICATIONS

- ADSS Cable
- Uni-tube Cable
- Slotted Core Cable
- Multi-loose Tube Cable



### SIZES

UV FRP from 0.5 mm to 3.5 mm diameter & Thermal FRP from 0.8 mm to 3.5 mm diameter

### OFFERINGS

Uncoated, EAA Coated, Flat, Water Swellable & Up-Jacketed

### TECHNICAL SPECIFICATIONS

Property	Test Method	Unit	Value
Glass Content	By Weight	%	83 ± 2% Thermal FRP
			78 ± 2% UV FRP
Diameter Stability	Micro-meter	mm	± 0.05
Ovality	Micro-meter	mm	< 0.05
Ultimate Tensile Strength	ASTM D 3916	Kg/mm <sup>2</sup>	≥ 150
Tensile Modulus	ASTM D 638	Kg/mm <sup>2</sup>	≥ 5000
Elongation @ Break	ASTM D 3916	%	2.5 – 4.0
Min. Bend Radius	-	mm	≤ 25 x D @ 23° C
Heat Stress Tolerance (Bend radius)	-	mm	24 hours @ 80° C, 50 x D

## ARAMID REINFORCED PLASTIC ROD (ARP)

ARP Rods are used as strength member in FTTH (Fiber to the Home) & low-count optical fiber cables. Its flexible construction helps maintain high strength where cables are installed & subjected to sharp & small bends.

### CHARACTERISTICS

- Inert with sheathing material
- Soft, Flexible, and Easy to Handle
- Good mechanical & environmental characteristics
- Designed for all-dielectric or metallic cable application

### APPLICATIONS

- Flat Drop Cable
- Oval Drop Cable
- Round Drop Cable
- Figure 8 Drop Cable



### SIZES

Standard diameter sizes from 0.4 mm to 1.2 mm

### OFFERINGS

EAA Coated

### TECHNICAL SPECIFICATIONS

Property	Test Method	Unit	Value
Aramid Content	By Weight	%	68 ± 2%
Diameter Stability	Micro-meter	mm	± 0.03
Ovality	Micro-meter	mm	< 0.03
Ultimate Tensile Strength	ASTM D 3916	Kg/mm <sup>2</sup>	≥ 150
Tensile Strength @ 1% Elongation	ASTM D 3916	Kg/mm <sup>2</sup>	≥ 50
Tensile Modulus	ASTM D 638	Kg/mm <sup>2</sup>	≥ 6500
Elongation @ Break	ASTM D 3916	%	≤ 3.0
Min. Bend Radius	-	mm	10 x D

## IMPREGNATED GLASS FIBER REINFORCEMENT YARN (IGFR)

IGFR Yarns are used with or without FRP rods to provide peripheral strength to the cable, which is manufactured from glass yarns as typically produced with special PU resin systems for increased softness and strength of IGFR.

### CHARACTERISTICS

- Smooth & Even Surface
- Good adhesion property
- High strength to weight ratio
- High degree of softness and strength
- Coated with soft & abrasion-resistant resin for easy handling & improved flexibility

### APPLICATIONS

- ADSS Cable
- Unitube & Multitube SWA Cable
- Multitube Ribbon Armoured Cable
- Unitube & Multitube Unarmoured Cable



### SIZES

Water Blocking type from 630 to 1850 Tex & Non-Water Blocking type from 630 to 1850 Tex

### OFFERINGS

Water Blocking & Non-Water Blocking types

### TECHNICAL SPECIFICATIONS

Property	Test Method	Unit	Value			
			Type C	Type B	Type D	Type E
Linear Density	ASTM D 885	Tex	630 ± 5%	800 ± 5%	1260 ± 5%	1850 ± 5%
Breaking Load	ASTM D 885	N	≥ 350	≥ 440	≥ 600	≥ 950
Modulus of Elasticity	ASTM D 885	N/mm <sup>2</sup>	≥ 65000	≥ 65000	≥ 65000	≥ 65000
Load at Elongation @ 0.5% Strain	ASTM D 885	N	≥ 75	≥ 100	≥ 150	≥ 200
Elongation @ Break	ASTM D 885	%	≤ 5	≤ 5	≤ 5	≤ 5
Loss on Ignition (for non-water blocking type)	ASTM D 4963-94	%	3 ± 1	3 ± 1	3 ± 1	3 ± 1
Loss on ignition (for water blocking type)	ASTM D 4963-94	%	6 ± 2	6 ± 2	6 ± 2	6 ± 2
Water Absorption, 1 minute In deionised water (for water blocking type)	ASTM D 570	% weight gain	≥ 400	≥ 400	≥ 400	≥ 400