

Multifiber Pre-terminated Assembly —Bundle Solution

What's Bundle Solution?

Bundle Fiber Pre-terminated Assemblies offer a streamlined solution for deployment and fiber management without extra cable to be routed for indoor and outdoor application. The assemblies are pre-terminated in factory to save time and cost at the fiber installation site. The bundle fiber pre-terminated assemblies allow the same infrastructure to be used for current and future needs without whole replacement of existing cabling and connectivity components.

A ruggedized pulling eye attached as option provides extra protection for the connectors and easy installation when proceed the installation in the field. It can be coiled on the wooden reel which is strong enough to resist crush and pressure during pulling. Pre-terminated bundle fiber optic cable assemblies are produced in any length with multi fiber and single fiber connectors such as MPO, SC, FC, LC, ST, MU connectors to meet performance requirement and installation environment. The bundle fiber cable fan out length is at your requirement to be with same length or staggered.

Product Features



Features

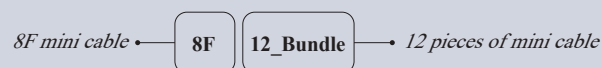
- Fiber count: up to 336F
- Compatible with all standard management accessories without special tool
- 100% factory tested assemblies for simple point-to-point links
- The fanout or break out part can be the same length or staggered
- Easy and fast installation and tool-free termination.
- Pulling eye element allows to pull the cable through race tracks easily
- Provides extra mechanical protection and durability
Special design of the strong structure reel to make the fiber pulling work easier
- An assortment of connectors terminated with SM, MM, OM3, OM4, OM5 fiber
- Each piece of product is delivered with a separated test sheet

Product Naming Rules

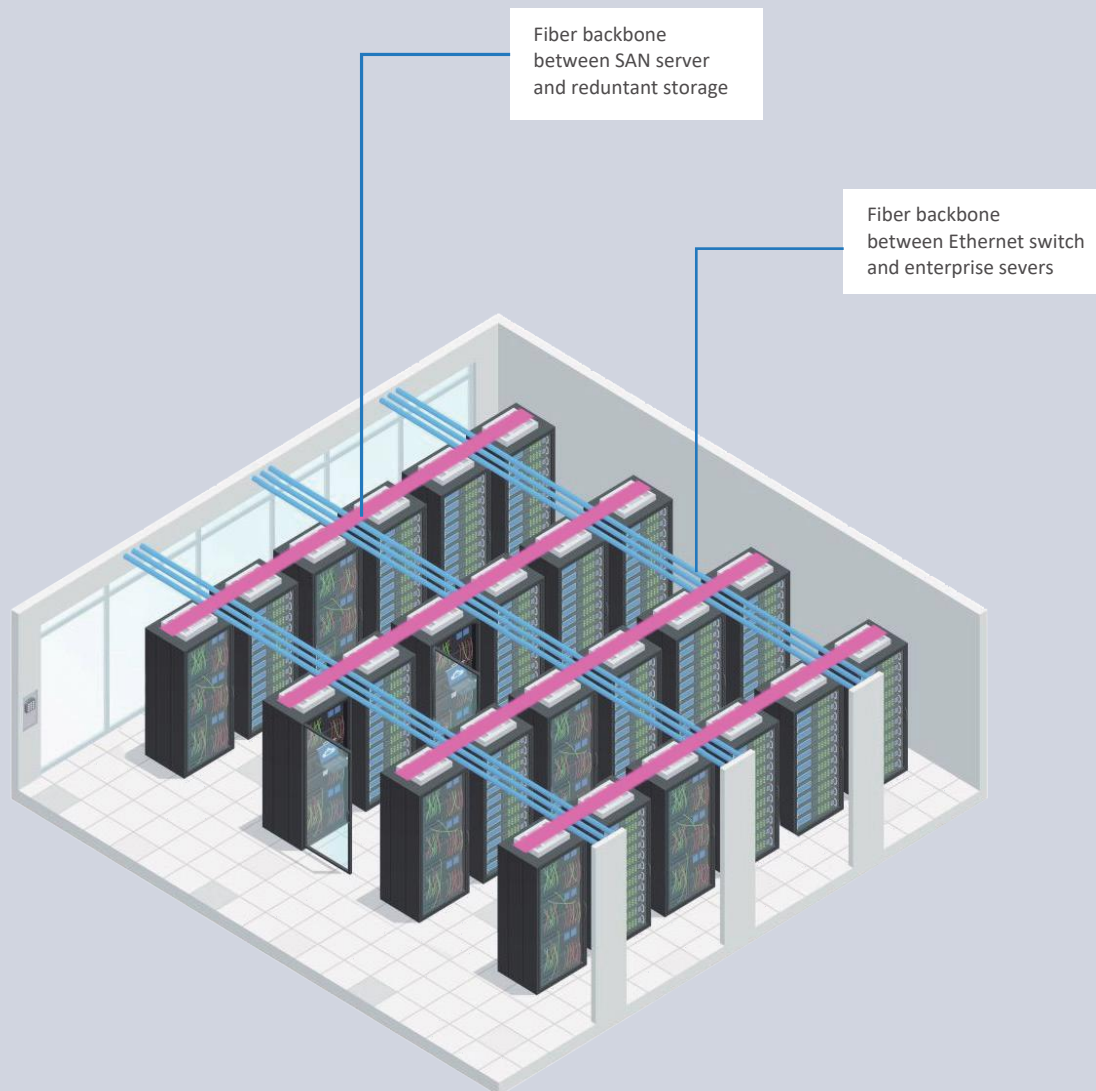
A bundle incorporate "X" pieces of "Y"F mini cable is then called "Y"F-"X" Bundle. For example: a bundle with 12 pieces of 8F mini round cable is called 8F-12bundle.

X=1, 2, 3...

Y=1, 2, 3...



Typical Applications



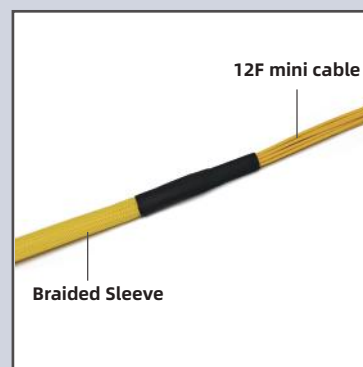
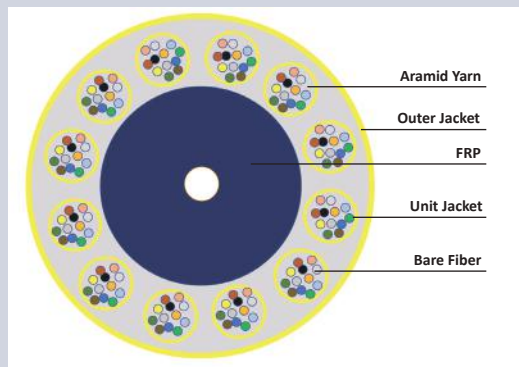
Applications favorable for bundle solution

- Perfect usage for the data backbone installation
- Ideal for extended distances and multiple building environments
- Data centers

Cable Types Applied to Bundle Solution

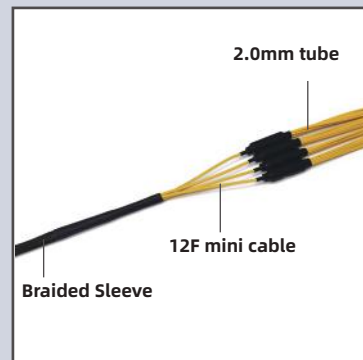
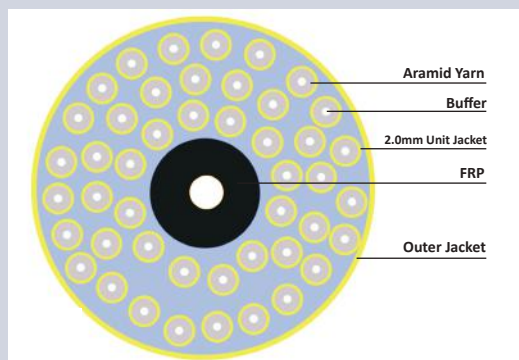
Typical Examples

144F Mini Cable



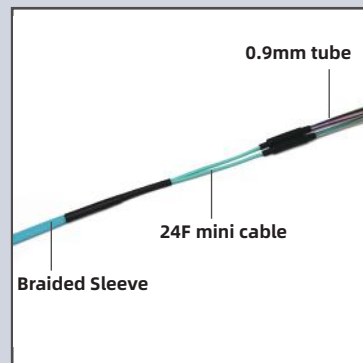
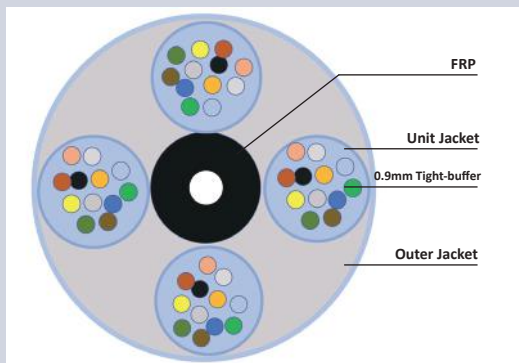
- 144F mini cable Solution:
8F_18Bundle;
12F_12Bundle;
24F_6Bundle.

48F Breakout Cable



- 48F breakout cable solution:
8F_6Bundle + 2.0mm loose tube;
12F_4Bundle + 2.0mm loose tube;
24F_2Bundle + 2.0mm loose tube.

48F Distribution Cable



- 48F distribution cable solution:
8F_6Bundle + 0.9mm loose tube;
12F_4Bundle + 0.9mm loose tube;
24F_2Bundle + 0.9mm loose tube.

Why Bundle?

Problems can be solved with bundle solution.



The bundle solution is featured by attractive advantages below

1. **cost-efficient**
2. **Better lead time**
3. **Easy operation/installation**

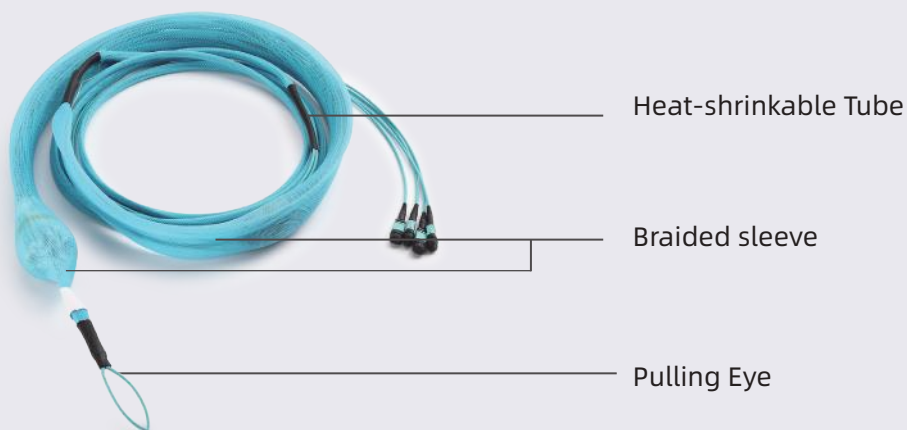
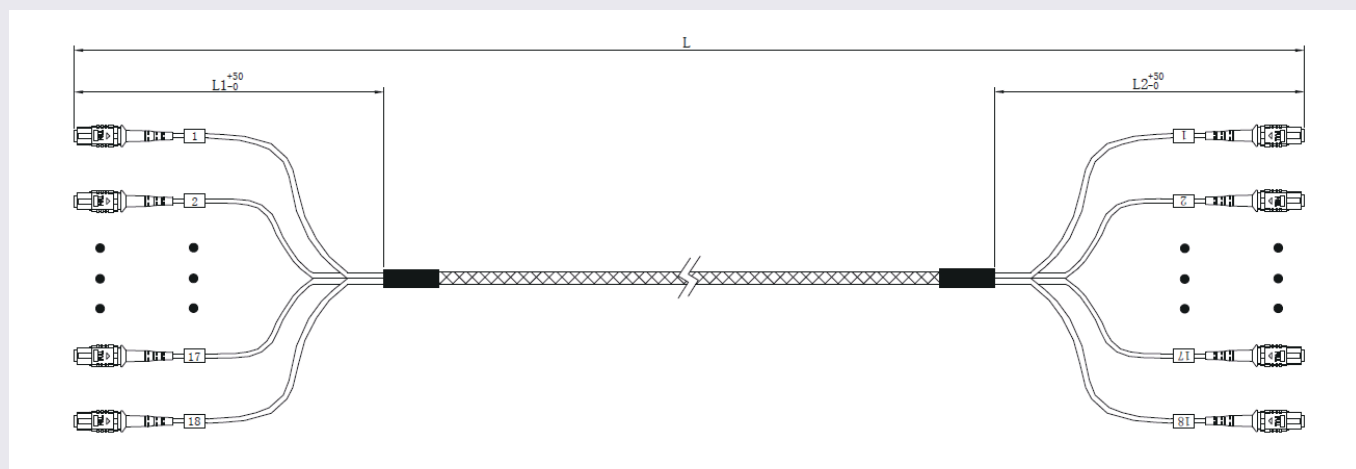
For multi-fiber connection demands, for example 36F, 48F, 72F, 64F, 96F, 144F or any other fiber count, they are attainable with multiple of 12F or 24F cable which are largely in routine stock and hugely used. There is no need to order cable with a particular fiber-count which is not that commonly used and always sold at MOQ of several kilometers. Such being the case, when demand is confined within a certain level, bundle solution is an ideal alternative for cost-efficient sake. In addition, bundle solution offers better lead time as there is no need to waste time waiting for particular fiber cables.

When laying cables over a relatively long distance, you bundle a cluster of cable up into a single unite, so laying cable can be done at a time without repetitive operation whilst getting better protection at the same time.



Typical Structure

Description of the structure of pre-assembled bundle cables



The production of pre-terminated cable assemblies in T&S's own facilities and their careful assembly at the highest industry standards ensure superior performance and maximum reliability. In addition to bundle cables with typical structure, we offer a range of bundle cables with customer configurations.

Production Service Features

- All fiber and cable types (including hybrid cables)
- All connector types
- Every attenuation grade for different customer requirements
- Every length, even for single unit order
- Customer-specific assembly
- Customer-specific cable printing
- Quality assurance
- The optical attenuation is defined according to
- IEC60793-1-40 B

Braided Sleeve



Introductory Information for Braided Sleeve

Braided sleeve (or expando) in a bundle solution is, mainly for integration and protection purpose , usually used at two sections of the bundle cable. The first is the tube attached to the main body of the cluster of mini cable, which remains with the cable without being removed after installation. The other braided sleeve is basically optional, subject to installation requirement, which wraps up the connectors.



Material	Polyethylen terephthalate, Organic phosphate, Color master bath		
RoHS Compliance	Compliant		
Melting Point	200°C		
Color	Aqua Magenta Yellow Blue or customized colors		

Bundle	2~6	8~12	16~32
Sleeve OD	8 mm	10 mm	16mm

Recommended braided sleeve OD is based on calculation with 2.4mm ~ 3.2mm cable.
If cable quantity is not specified above, sleeve OD is decided according to engineers calculations seperatedly.

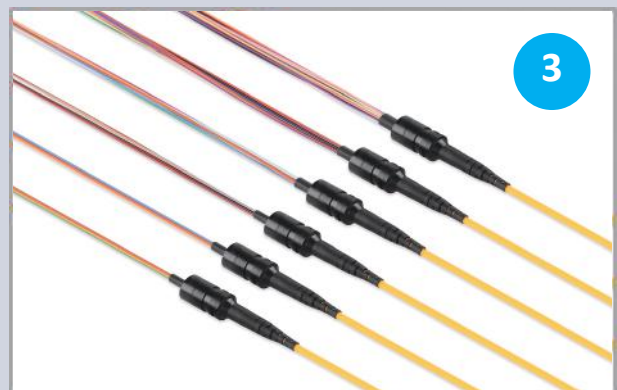
Bundle elements

Fanout Kit

When single cables of a bundle assembly is of breakout configuration instead of trunk cable, the fanout structure of each single cable is basically made with the following three types of fanout kit at T&S production facilities.



suitable for 3.0~5.0mm multifiber cable with a capacity of up to 24 pieces of 2.0mm breakout legs

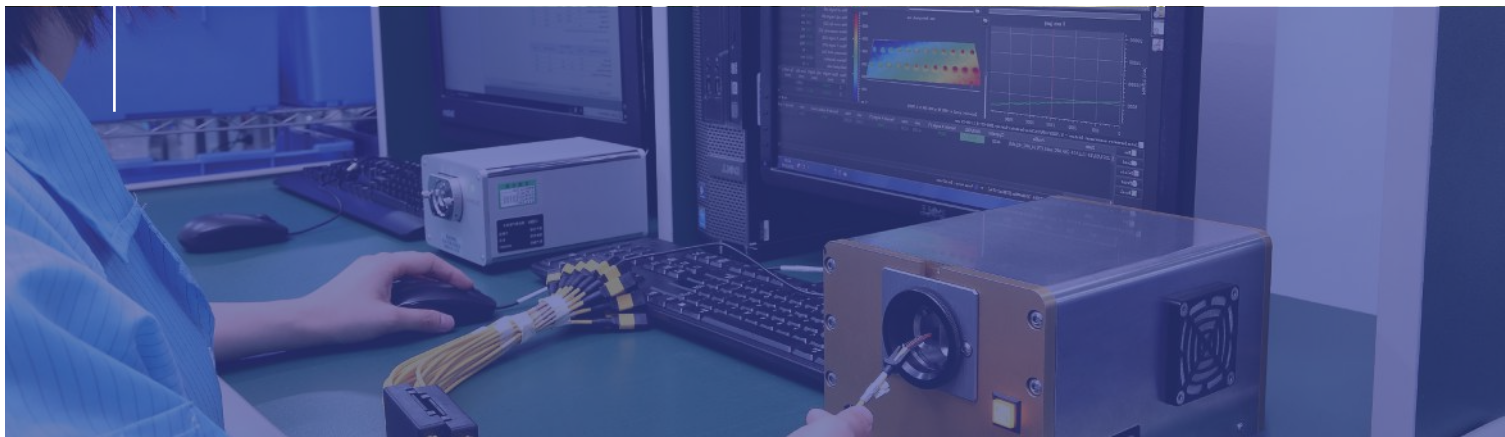


suitable for 3.0~5.0mm multifiber cable with a capacity of up to 24 pieces of 0.9mm breakout legs

①. Simplified fanout kits is made of thick cable jacket and heat-shrinkable tube which T&S offers for free.

② and ③ are universal fanout kit applies to ordinary 3.0mm round cable.

Pulling Eye



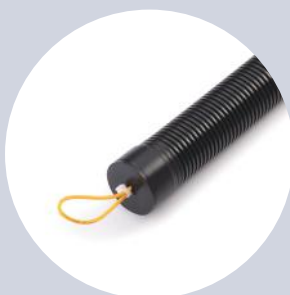
A pulling eye is a device fastened to a cable to which a hook is attached in order to pull the cable through a cable duct or small space during installation. It's usually made together with braided sleeve or corrugated pipe. There are two typical types as shown below:

Light type

made of braided sleeve: light

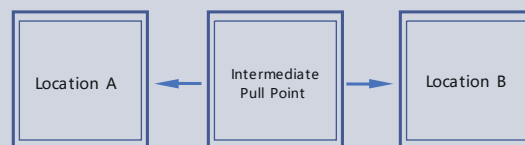
Heavy type

made of corrugated pipe: durable



Optional pulling eyes are recommended.

The pulling eye (and associated cable netting) will protect the pre-terminated ends during the pull. In many cases, pulling is not done from point to point, but rather from an intermediate point pulling back in each direction to each termination location. In that scenario, you will need to order the cable with two pulling eyes.



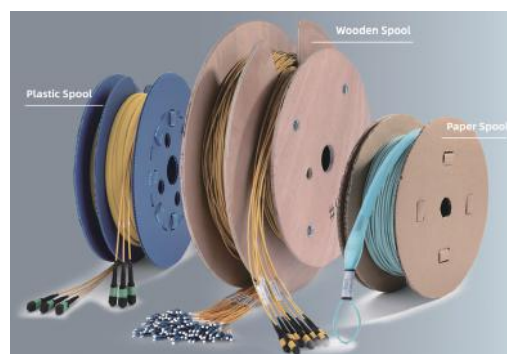
In many cases, a cable is planned to pull directly from point to point. When the installation begins, occasionally, the decision is made to pull from an intermediate point rather than from point to point (in which case you'll be glad that you ordered the extra pulling eye).

Type	Light	Heavy
Color	Aqua; Magenta; Yellow; Blue; (customized colors are available)	Black

Packaging



- Generally, for bundles of 30 meters or shorter, plastic bag is suggested to be used for packaging.
- If the construction space requires to be dust free, plastic reels are recommended.
- Mainly considering the loading capacity, paper reel is recommended for light bundles, while wooden reels for relatively heavy bundles. Take detailed information on the table next page as reference.



Plastic Bag Packaging



Double-layer reel offers better protection for connectors during transportation and installation.

Packaging Information

■ Plastic Bag

< 4 Bundle and L ≤ 30m	Plastic Bag Packaging
------------------------	-----------------------

■ Winding Reel

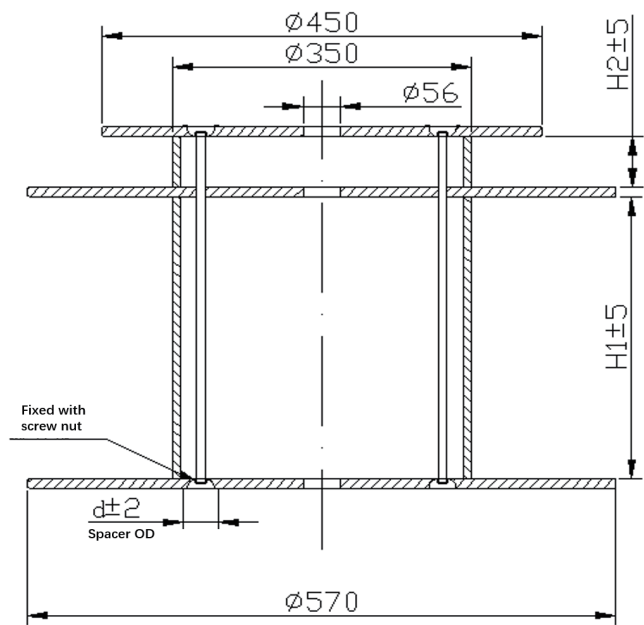
	Item	1/2-Bundle	4-Bundle	6/8-Bundle	12-Bundle
≥ 4 Bundle or L > 30m	0#	-	-	-	-
	1#	30 < L ≤ 60	10 ≤ L ≤ 60	10 ≤ L ≤ 30	-
	2#	60 < L ≤ 90	-	-	-
	3#	90 < L ≤ 120	60 < L ≤ 90	-	10 ≤ L ≤ 30
	4#	120 < L ≤ 140	90 < L ≤ 120	30 < L ≤ 60	-
	5#	140 < L ≤ 160	120 < L ≤ 140	-	-
	6#	160 < L ≤ 200	140 < L ≤ 160	-	-
	7#	-	160 < L ≤ 200	60 < L ≤ 90	30 < L ≤ 60
	8#	-	-	-	-
	9#	-	-	90 < L ≤ 120	-
	10#	-	-	120 < L ≤ 140	60 < L ≤ 90
	11#	-	-	140 < L ≤ 180	90 < L ≤ 120
	12#	-	-	180 < L ≤ 200	120 < L ≤ 140
	13#	-	-	-	140 < L ≤ 160
	14#	-	-	-	160 < L ≤ 180
	15#	-	-	-	180 < L ≤ 200
	16#	-	-	-	-
	17#	-	-	-	-
	18#	-	-	-	-
	19#	-	-	-	-

	Item	16-Bundle	18-Bundle	32-Bundle
≥ 4 Bundle or L > 30m	0#	-	-	-
	1#	-	-	-
	2#	-	-	-
	3#	10 ≤ L ≤ 30	-	-
	4#	-	10 ≤ L ≤ 30	-
	5#	-	-	-
	6#	-	-	10 ≤ L ≤ 30
	7#	30 < L ≤ 60	-	-
	8#	-	30 < L ≤ 60	-
	9#	-	-	-
	10#	60 < L ≤ 90	-	30 < L ≤ 60
	11#	-	60 < L ≤ 90	-
	12#	90 < L ≤ 120	-	-
	13#	120 < L ≤ 140	90 < L ≤ 120	60 < L ≤ 90
	14#	140 < L ≤ 160	120 < L ≤ 140	-
	15#	160 < L ≤ 200	140 < L ≤ 160	90 < L ≤ 120
	16#	200 < L ≤ 300	160 < L ≤ 200	120 < L ≤ 140
	17#	300 < L ≤ 350	200 < L ≤ 300	140 < L ≤ 160
	18#	-	300 < L ≤ 350	160 < L ≤ 200
	19#	-	-	200 < L ≤ 300

Note: Reference above is dedicated for bundle products with MTP-LC configuration;

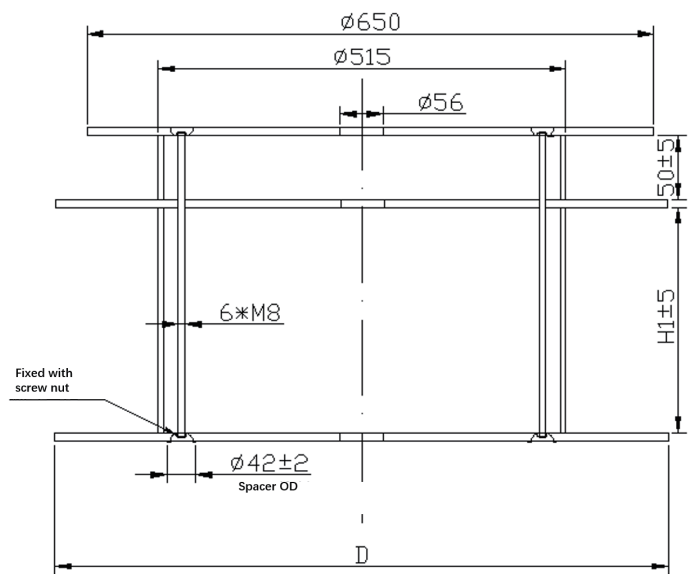
Reel Information

■ Reel Series 1 (wooden or plastic)



Reel Code	H1 (mm)	H2 (mm)	Weight (kg)
0#	50	35	3.5
1#	50	50	3.9
2#	60	50	3.9
3#	75	50	3.9
4#	90	50	4.0
5#	110	50	4.0
6#	120	50	4.2
7#	150	50	4.3
8#	180	50	4.5
9#	200	50	4.8
10#	220	50	4.8
11#	280	50	5.2
12#	360	50	5.4
13#	400	50	6.1
14#	450	50	6.1
15#	500	50	6.7

■ Reel Series 2 (wooden only)



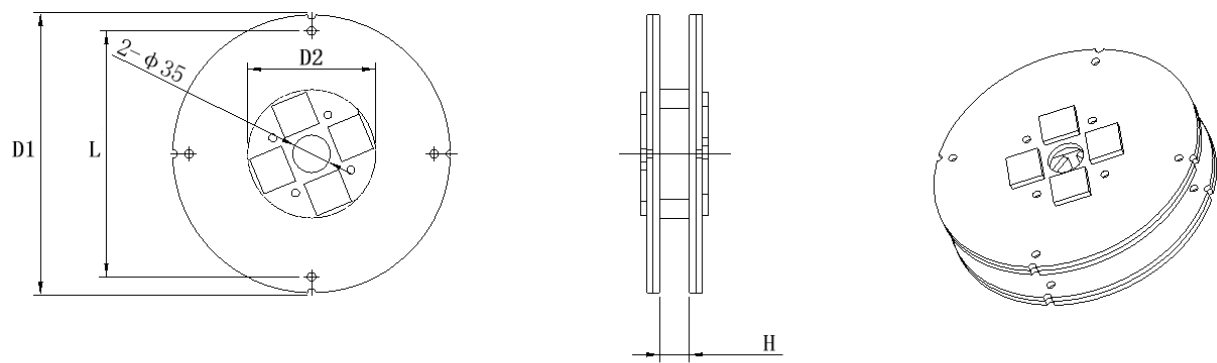
Reel Code	H1 (mm)	D (mm)	Weight (kg)
16#	300	800	11.7
17#	350	800	14.0
18#	420	800	15.2
19#	420	900	18.1

Packaging



Reel Information

■ Reel Series 3 (Paper)



Reel Code	D1 (mm)	D2 (mm)	L (mm)	H (mm)	Weight (kg)
1#	320	200	300	90	0.21
2#	400	240	380	150	0.66

Bundle Solution Cases

■ 96F Mini Cable Solution

- 8 x 12F mini cable — “12F_8Bundle”;
- 4 x 24F mini cable — “24F_4Bundle”.



■ 48F Mini Cable Solution

- 4 x 12F mini cable — “12F_4Bundle”;
- 2 x 24F mini cable — “24F_2Bundle”.

