

Ribbon Cable Breakout (RIBCBOUT) Kits

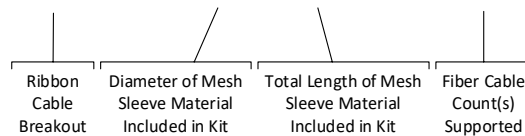
1. Introduction

This document provides a high-level overview of and basic installation instructions for the CommScope RIBCBOUT (Ribbon Cable Breakout) series ribbon fiber cable breakout kits utilizing expandable mesh sleeve material to provide protection and transportation for the fiber ribbons from the point of exit from the cable sheath to the tie-down point on the fiber splice tray or wheel. The kits are applicable for both standard matrix and “rollable” style fiber ribbons in slotted core, central tube or loose buffer tube cable constructions and for cable counts ranging from 144-fiber to 3456-fiber. The breakout kits are intended for use with the following CommScope fiber product lines:

- NG4access Optical Fiber Distribution Frame
- SD Series Optical Fiber Splice-only 4U Rack Mount Panel
- Wall Mount and Rack Mount FEC Series Fiber Entrance Cabinets
- Flex Frame Optical Fiber Distribution Frame
- Floor Mount FEC Series Fiber Entrance Cabinet (formerly known as OMX Series)

2. Catalog Code Naming Convention

RIBCBOUT-3/8-50-864/1152



3. Product Applicability

The following table identifies the breakout kit catalog code that is applicable to the specific CommScope product line and to the fiber cable count to be broken out:

COMMSCOPE PRODUCT LINE	RIBBON FIBER CABLE COUNT							
	144	288	432	576	864	1152	1728	3456
NG4access	A							
SD SERIES	B				C		E	G
FEC WALL/RACK								
FLEX FRAME								
FEC FLOOR MOUNT (OMX)					D		F	H

LEGEND: (A) RIBCBOUT-1/4-35-144; (B) RIBCBOUT-3/8-50-144/288/432/576; (C) RIBCBOUT-3/8-50-864/1152; (D) RIBCBOUT-3/8-100-864/1152; (E) RIBCBOUT-3/8-75-1728; (F) RIBCBOUT-3/8-150-1728; (G) RIBCBOUT-3/8-125-3456; (H) RIBCBOUT-3/8-300-3456

4. Breakout Kit Contents

COMPONENT DESCRIPTION	BREAKOUT KIT							
	A	B	C	D	E	F	G	H
¼" Mesh Sleeve Material	35'							
3/8" Mesh Sleeve Material	2'	50'	50'	100'	75'	150'	125'	300'
Felt Tape Strip 1"x12"	1	1	1	2	1	3	2	5
Plastic Mesh Tie-down Sleeve	3	6	8	12	12	18	24	36
Small Cable Ties	5	15	10	30	15	45	25	90
Large Cable Ties		2	2		2		2	
3-way Flare Tube Shell	1	2	4	4	4	6	8	12
3-way Flare Tube Insert	1	2	4	4	4	6	8	12
3-way Flare Tube Foam Insert	1	2	4	4	4	6	8	12
Large Cable Clamp		1	1	1	1	1		
Extra-large Cable Clamp							1	1
Corrugated Tubing, 11.6mm I.D. Black		6'						
Corrugated Tubing, 22mm I.D. Black			6'					
Corrugated Tubing, 31mm I.D. Gray					6'		6'	

- A. **LEGEND:** (A) RIBCBOU-1/4-35-144; (B) RIBCBOU-3/8-50-144/288/432/576; (C) RIBCBOU-3/8-50-864/1152; (D) RIBCBOU-3/8-100-864/1152; (E) RIBCBOU-3/8-75-1728; (F) RIBCBOU-3/8-150-1728; (G) RIBCBOU-3/8-125-3456; (H) RIBCBOU-3/8-300-3456

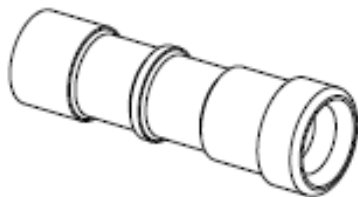
NOTE: The RIBCBOU series of breakout kits have been designed to support multiple product lines and multiple cable counts. The type and quantity of each component used will vary by the specific product application and cable count. It is not uncommon to have certain components left over after installation. Refer to the user documentation for the specific product line for additional information.

5. Breakout Kit Component Usage



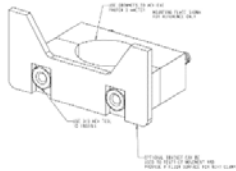
- **Mesh Sleeve Material** – used to protect and transport fiber ribbons from the cable sheath exit point to the tie-down point on the splice tray or wheel.

- **Felt Tape Strips** – used to create a friction surface on plastic buffer tubes to allow them to be securely fastened to 3-way flare tube assemblies using small cable ties (loose buffer tube cable construction only) and/or used to create a friction surface on the mesh sleeve material where it will be secured to the splice tray or wheel using small cable ties.



- **Plastic Mesh Tie-down Sleeves** – inserted into the mesh sleeve material at the point of tie-down at the splice tray or wheel to protect the ribbons from crushing and to provide a solid surface around which to tighten the small cable ties. Also allows the ribbons to move freely when winding up the mesh tubing onto the splice wheel which can help prevent macrobends in the fiber ribbons (splice wheel application only).

- Small Cable Ties – used to secure 3-way flare tube assemblies to loose buffer tubes (loose buffer tube cable construction only) and/or used to secure mesh sleeve material to splice trays or wheels.
- Large Cable Ties – used to secure corrugated tubing to cable sheath (Flex Frame and SD splice panel applications only) and/or splice panel fiber entry point (SD splice panel application only).
- 3-way Flare Tube Shells, Inserts & Foam Inserts – used to stagger and subdivide larger ribbon groups into smaller ribbon groups for distribution to splice trays or wheels. The foam inserts are used only with “rollable” fiber ribbons.



- Cable Clamps – used to secure cables within splicing enclosures.

- Corrugated Tubing – used to conceal the cable sheath breakout point and provide bend radius protection for mesh sleeve material and/or used to conceal cable sheath breakout point and protect ribbons and mesh sleeve material from cable breakout point on rack to cable entry point on splice panel (SD splice panel application only).



6. Tools and Materials Required for Installation

- Measuring tape
- Marking pen
- Cable sheath cutting tool, sheath knife or utility knife
- Sharp scissors or electrician’s snips
- 3/4” vinyl tape (electrician’s tape)
- 3/4” masking or painter’s tape
- Diagonal cutting plier
- 3/8” nut driver (if cable clamp is used)

7. 12-fiber Mass Fusion Splice Trays and Wheels and Splice Capacities

- NG4access Optical Fiber Distribution Frame:
 - Splice tray catalog code NG4-ACCWHMFS
 - 12-fiber mass fusion splice capacity – 6 (72 fibers)

- SD Series Optical Fiber Splice-only 4U Rack Mount Panel:
 - Splice tray catalog code FOST-ACC-C-TRAY-RIBN-24
 - 12-fiber mass fusion splice capacity – 24 (288 fibers)

- Wall Mount and Rack Mount FEC Series Fiber Entrance Cabinets:
 - Splice tray catalog code FOST-ACC-C-TRAY-RIBN-24
 - 12-fiber mass fusion splice capacity - 24 (288 fibers)

- Flex Frame Optical Fiber Distribution Frame:
 - Splice tray catalog code FOST-ACC-D-TRAY-RIBN-24
 - 12-fiber mass fusion splice capacity – 24 (288 fibers)

- Floor Mount FEC Series Fiber Entrance Cabinet (OMX):
 - Splice wheel catalog code FST-DRSHD-MF
 - 12-fiber mass fusion splice capacity – 8 (96 fibers)

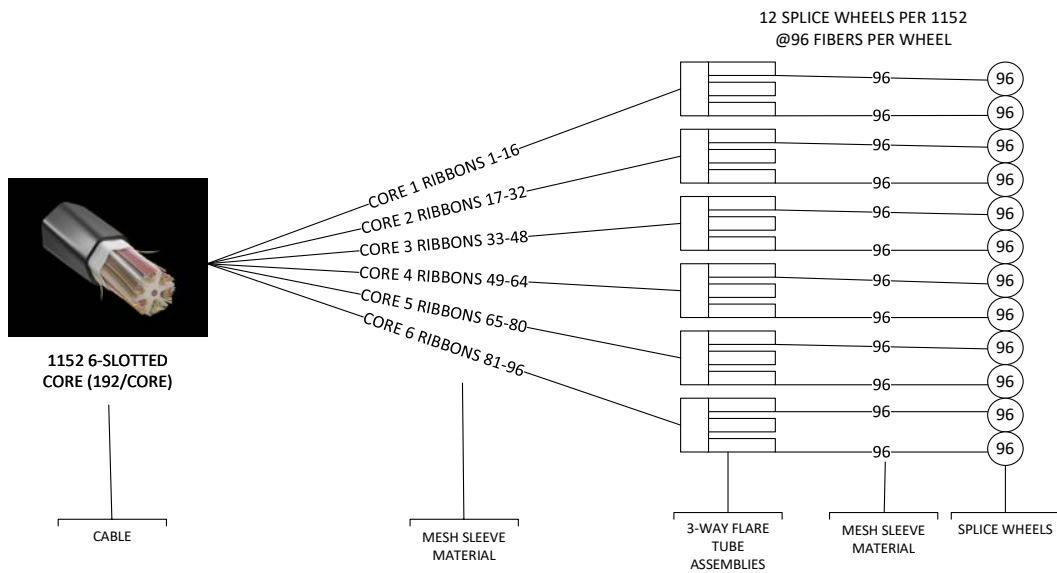
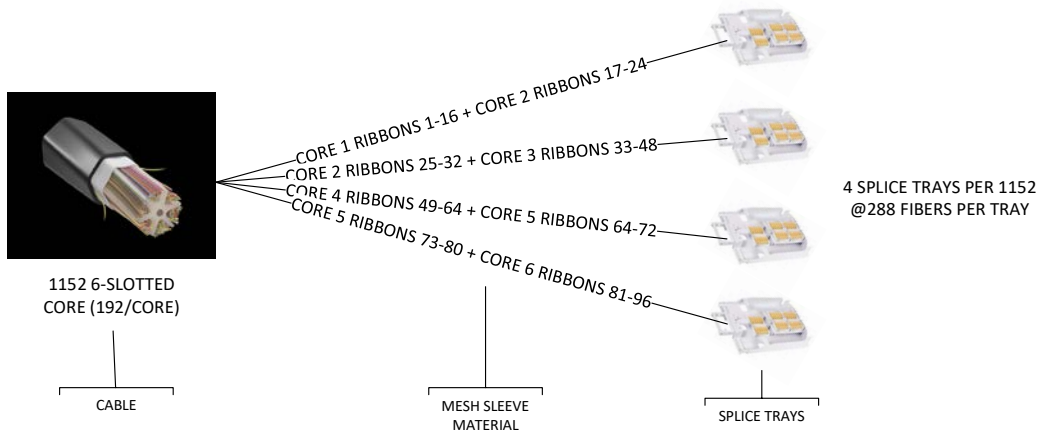


8. Typical Breakout Methods for Slotted Core Cables

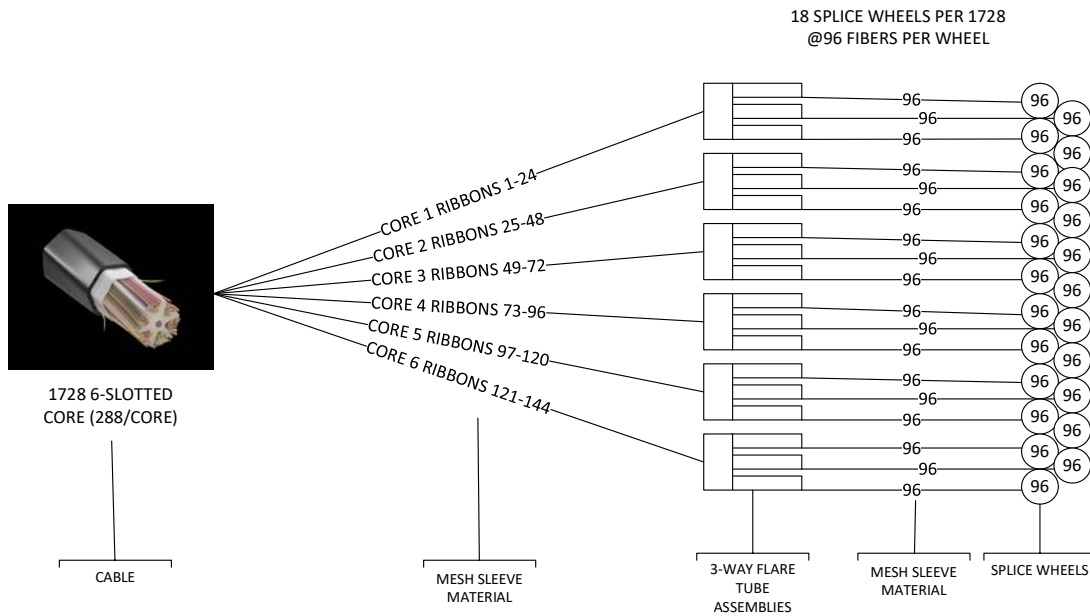
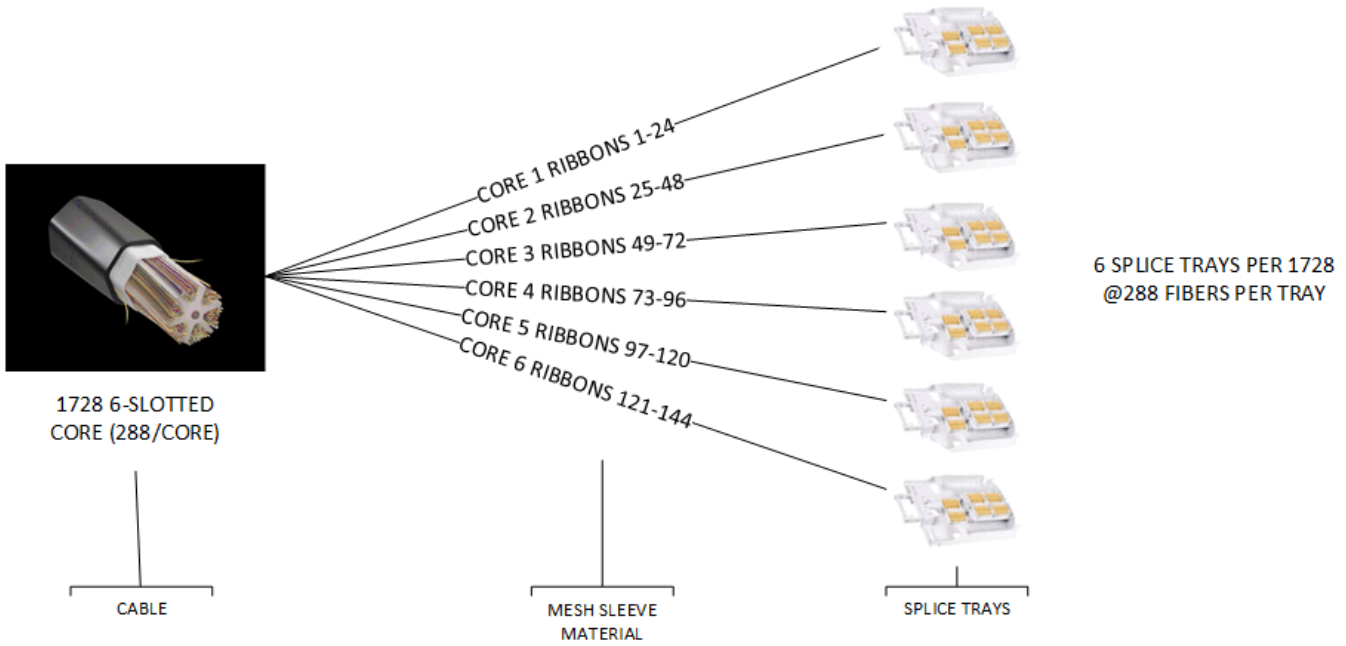
Slotted core ribbon fiber cables tend to pose the greatest challenge in determining a breakout scheme as the number of cores within the cable and the number of ribbons per core vary by cable fiber count. In certain scenarios it may be necessary to populate the mesh sleeve material with ribbons from adjacent cores. In these scenarios, care must be taken to ensure the fiber ribbons are properly routed and protected.

The following illustrations depict methods for breaking out various slotted core cable counts to both the splice wheels and splice trays at their maximum capacities (96 fibers for wheels and 288 fibers for trays). Populating the splice wheels or trays at capacities less than the maximum capacity will require different breakout strategies which are beyond the scope of this document. If assistance is required in developing breakout schemes, please contact your local CommScope Field Application Engineer for additional support.

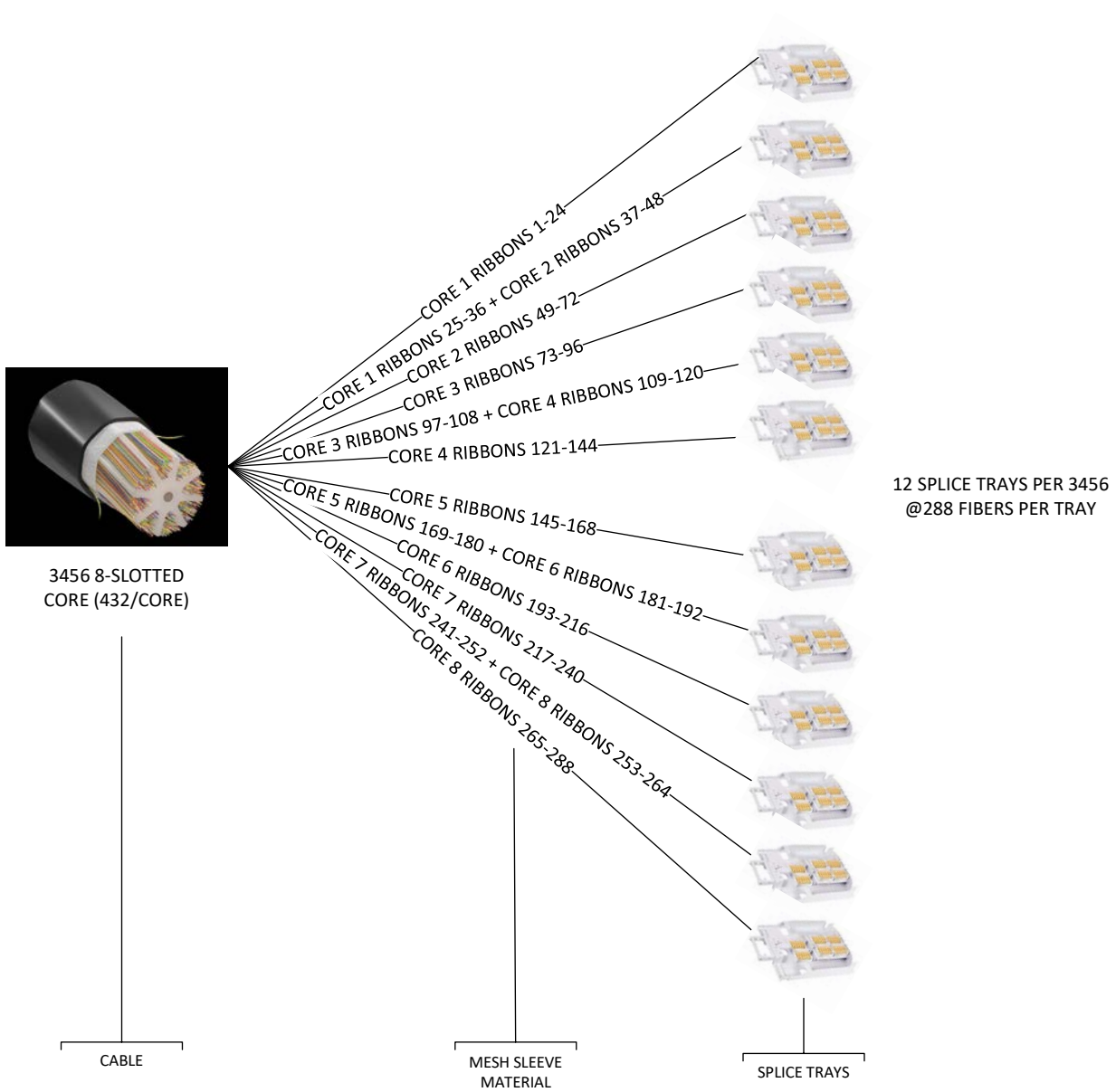
- 1152-fiber 6-core Slotted Core Cable:



- 1728-fiber 6-core Slotted Core Cable:

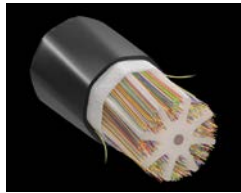


- 3456-fiber 8-core Slotted Core Cable:

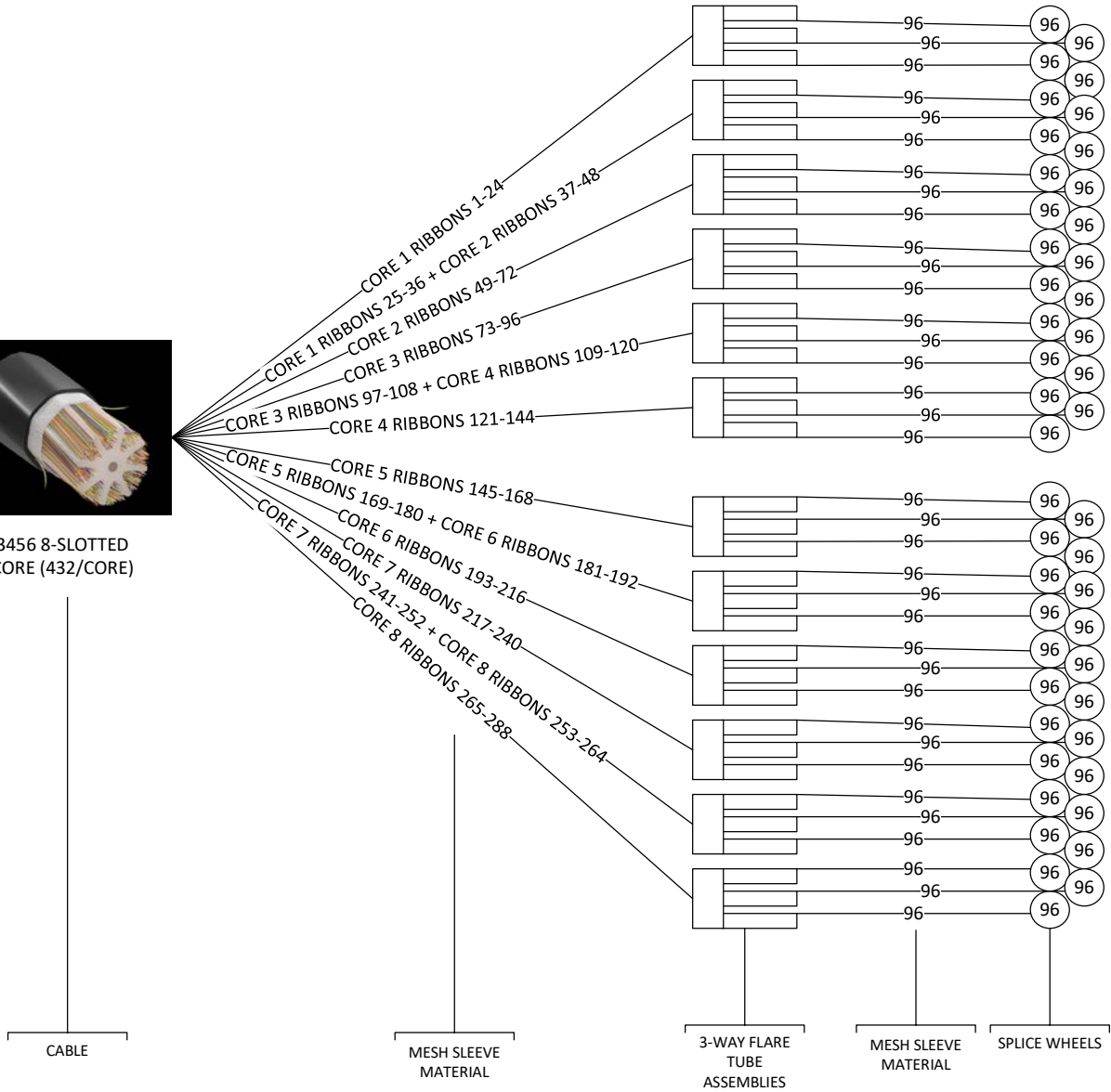


- 3456-fiber 8-core Slotted Core Cable:

36 SPLICE WHEELS PER 3456
@96 FIBERS PER WHEEL

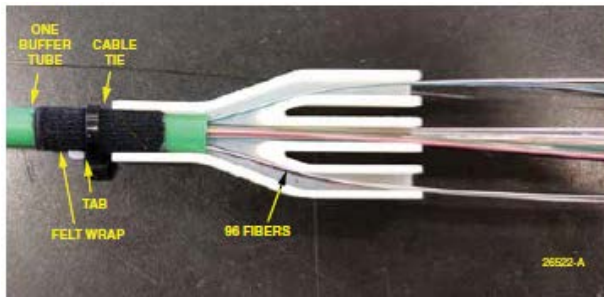


3456 8-SLOTTED
CORE (432/CORE)



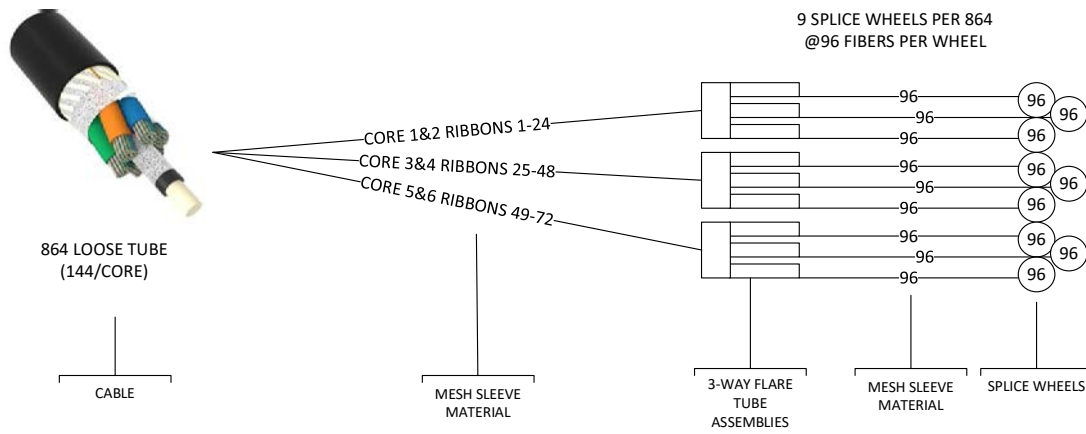
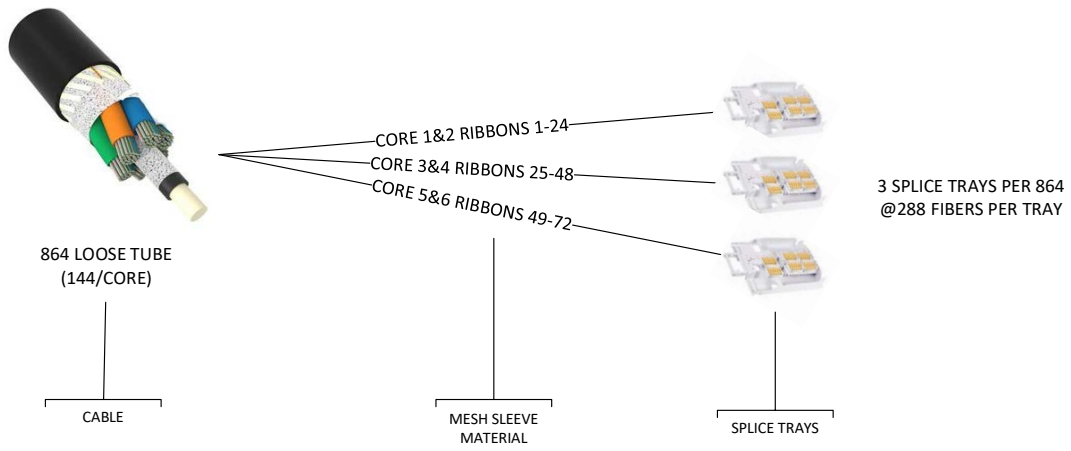
9. Typical Breakout Methods for Loose Buffer Tube Cables

Loose buffer tube type cables have multiple subunit tubes within the cable sheath – each containing a number of fiber ribbons. The number of buffer tubes per cable and the number of ribbons per tube varies by cable count. In some breakout schemes, the mesh sleeve material may be brought all the way to the cable sheath and attached to the buffer tube or tubes at that point, while in other schemes the buffer tubes may be extended beyond the cable sheath to stagger the breakouts with the 3-way flare tube assemblies being directly affixed to the buffer tubes.

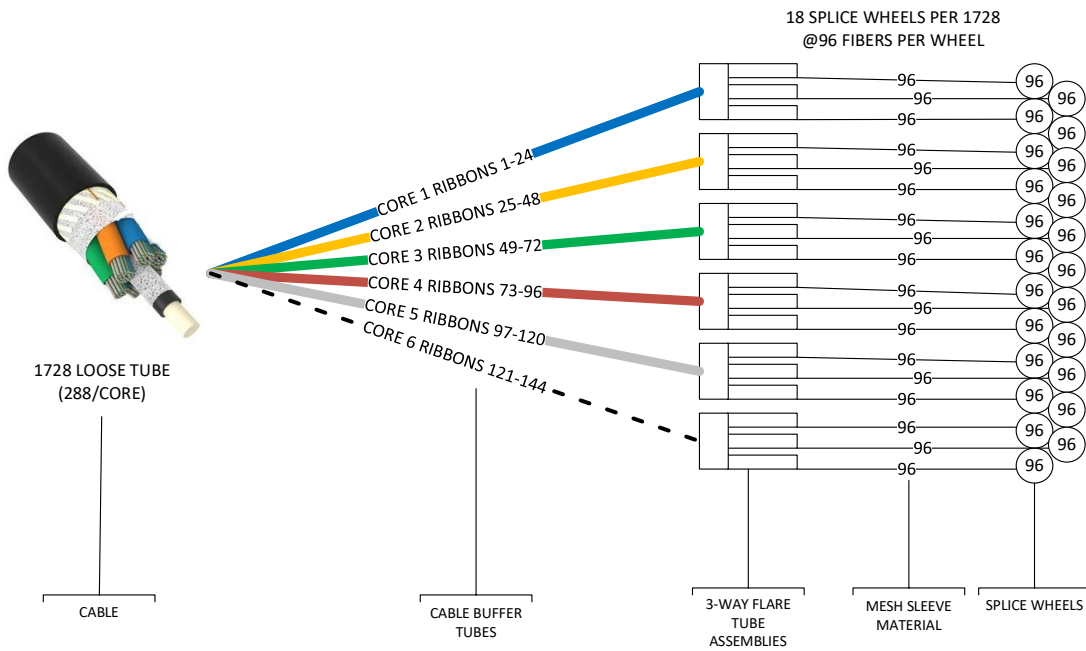
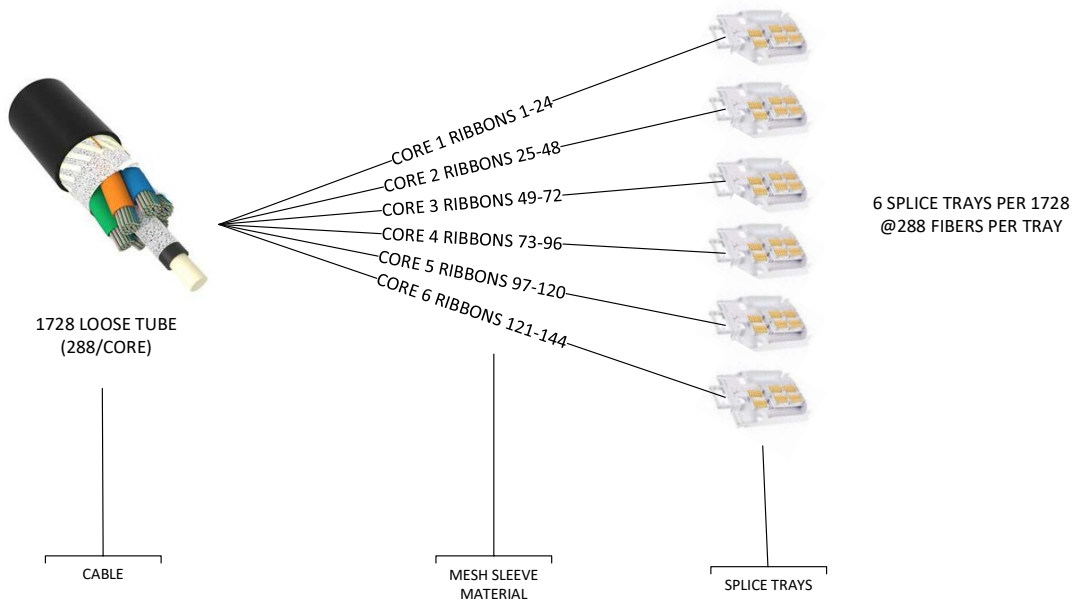


The following illustrations depict methods for breaking out various loose buffer tube cable counts to both the splice wheels and splice trays at their maximum capacities (96 fibers for wheels and 288 fibers for trays). Populating the splice wheels or trays at capacities less than the maximum capacity will require different breakout strategies which are beyond the scope of this document. If assistance is required in developing breakout schemes, please contact your local CommScope Field Application Engineer for additional support.

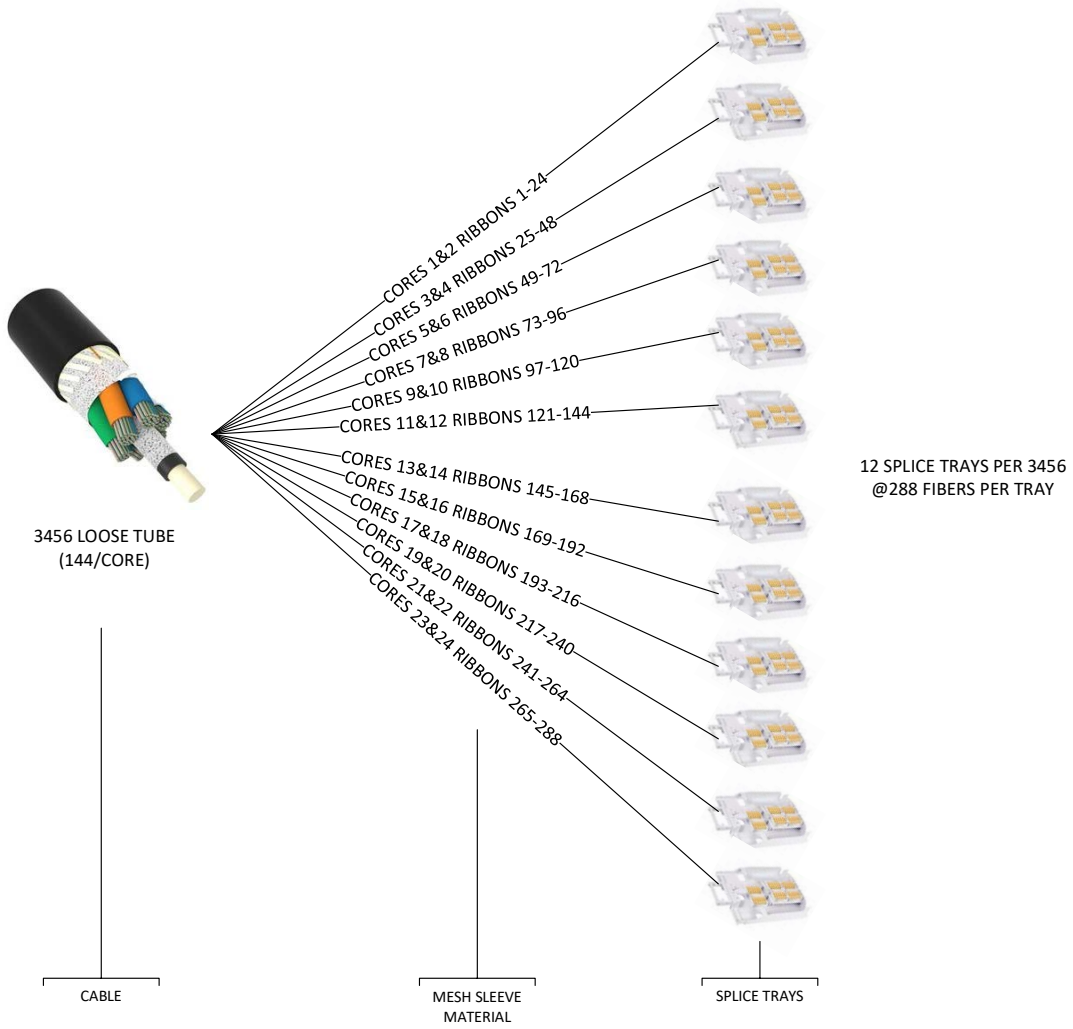
- 864-fiber 6-tube Loose Buffer Tube Cable:



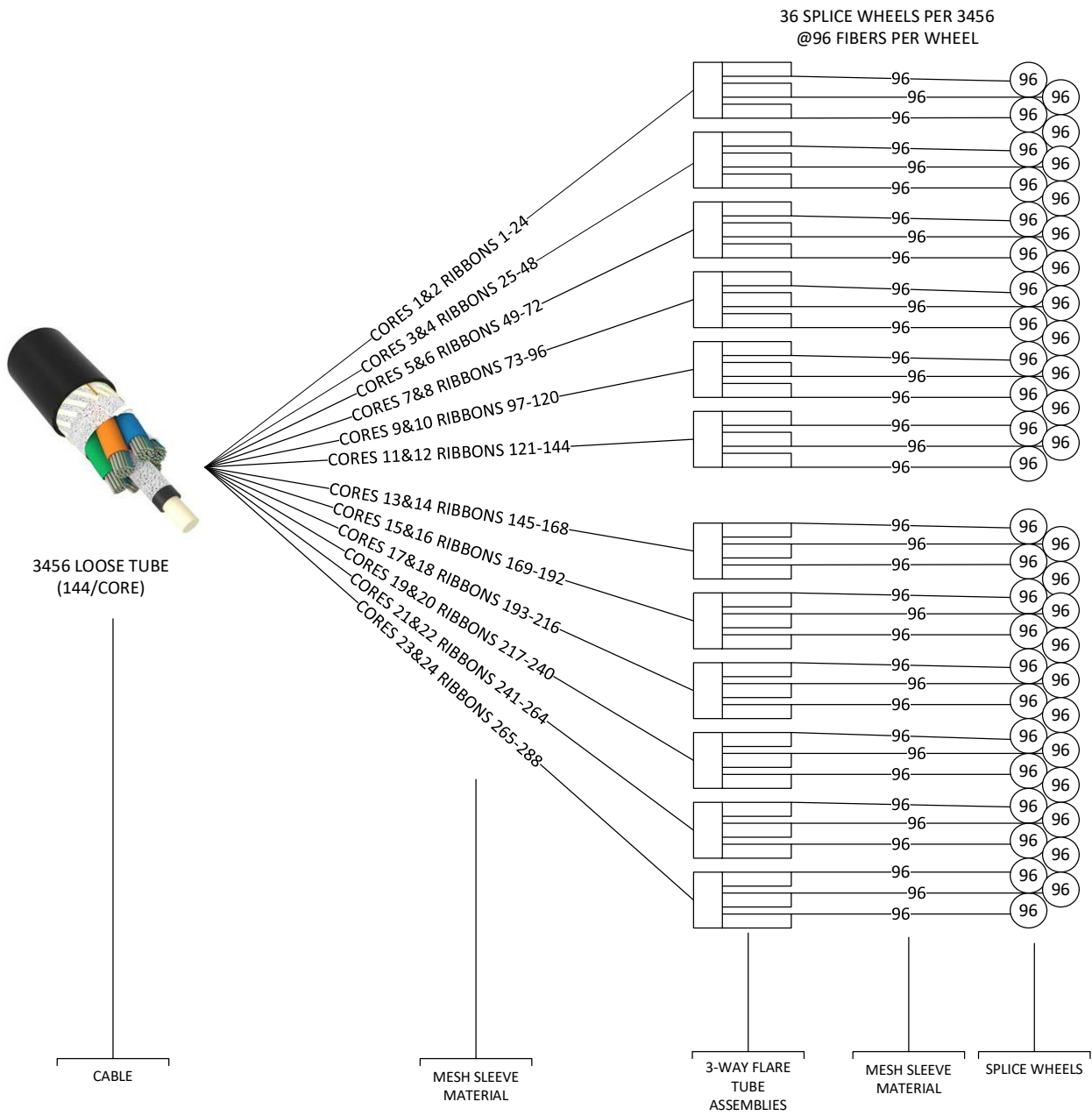
1728-fiber 6-tube Loose Buffer Tube Cable:



- 3456-fiber 24-tube Loose Buffer Tube Cable:



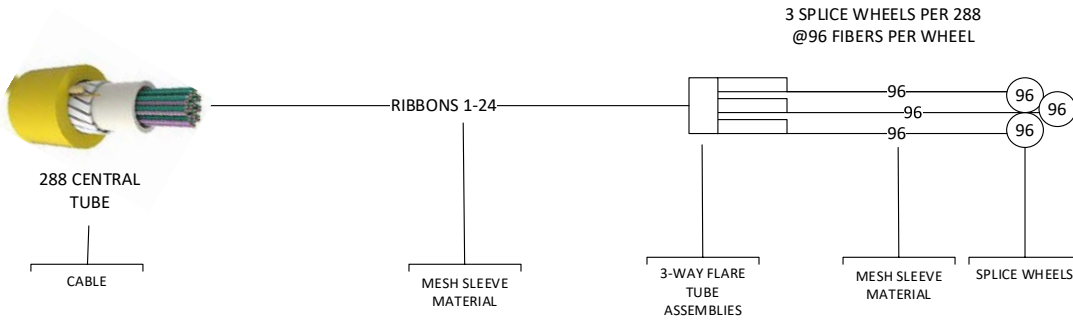
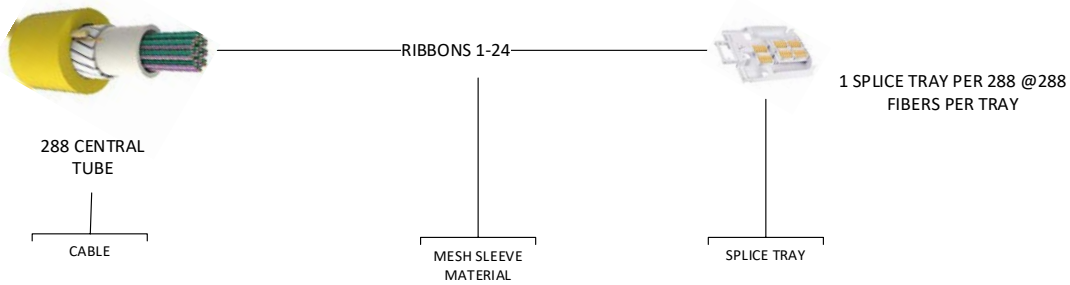
- 3456-fiber 24-tube Loose Buffer Tube Cable:



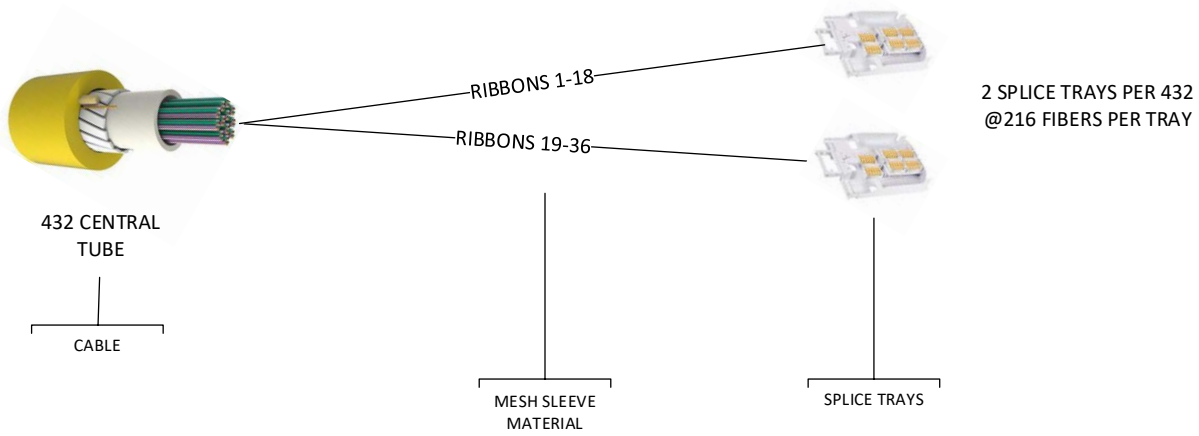
10. Typical Breakout Methods for Central Tube Cables

Central tube type cables have a single large tube within the cable sheath containing all of the fiber ribbons. In some higher-count cable constructions the ribbons may be bound into smaller groups using colored binder yarns or tapes. Central tube cables are the easiest to break out since there are no core slots or subunit tubes containing a predefined number of fiber ribbons.

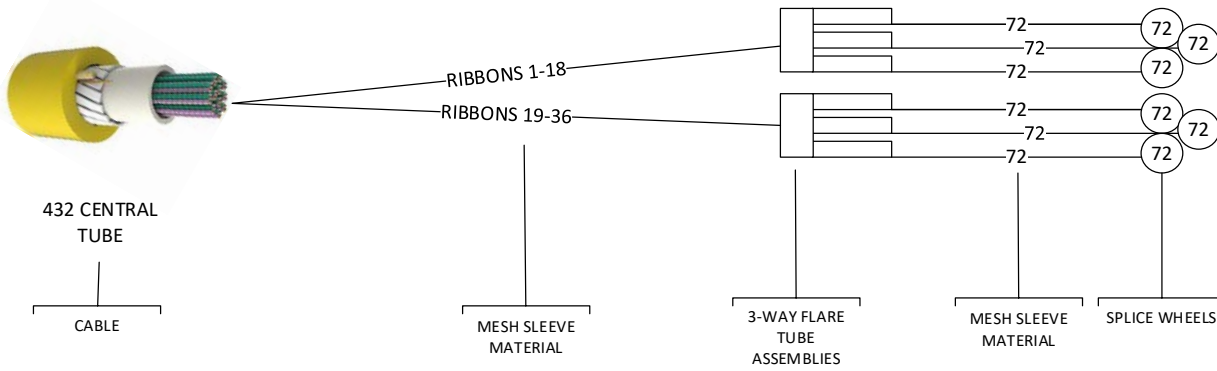
288-fiber Central Tube Cable:



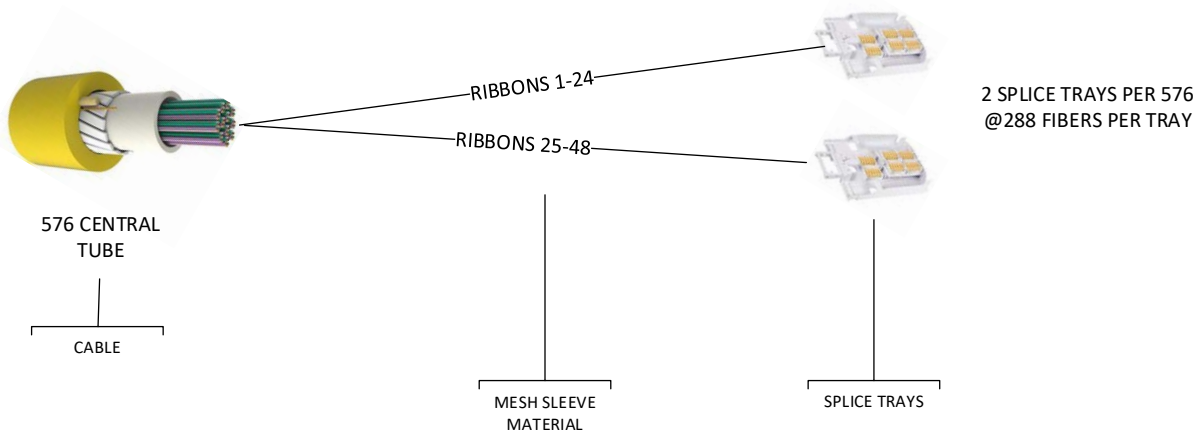
• 432-fiber Central Tube Cable:



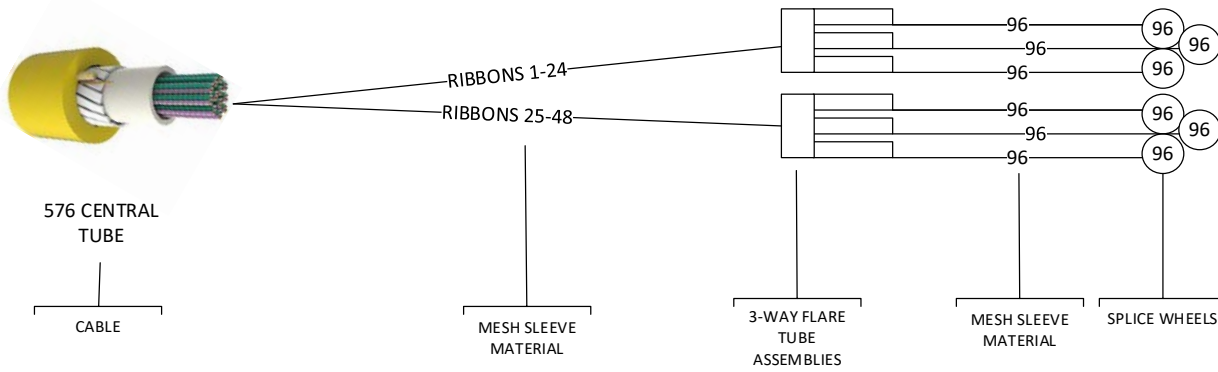
6 SPLICE WHEELS PER 432
@ 72 FIBERS PER WHEEL



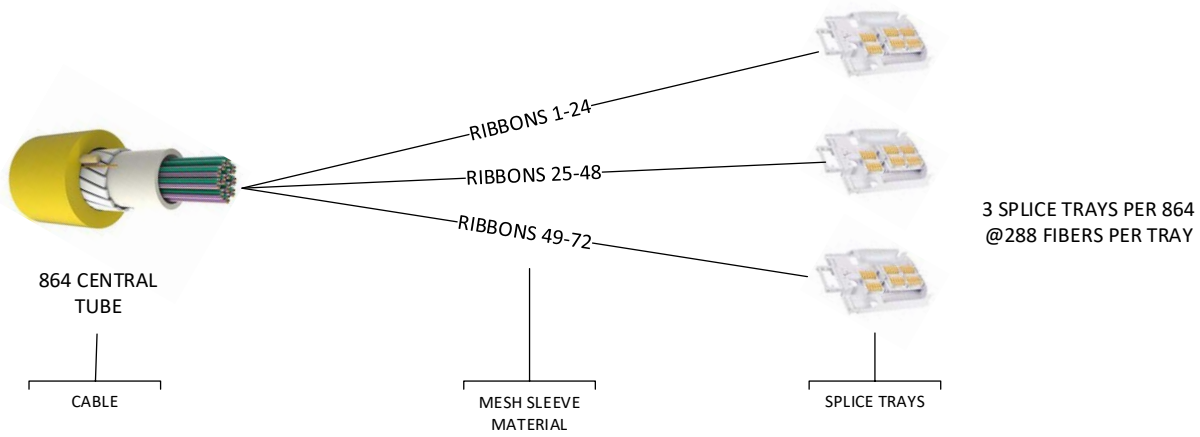
576-fiber Central Tube Cable:



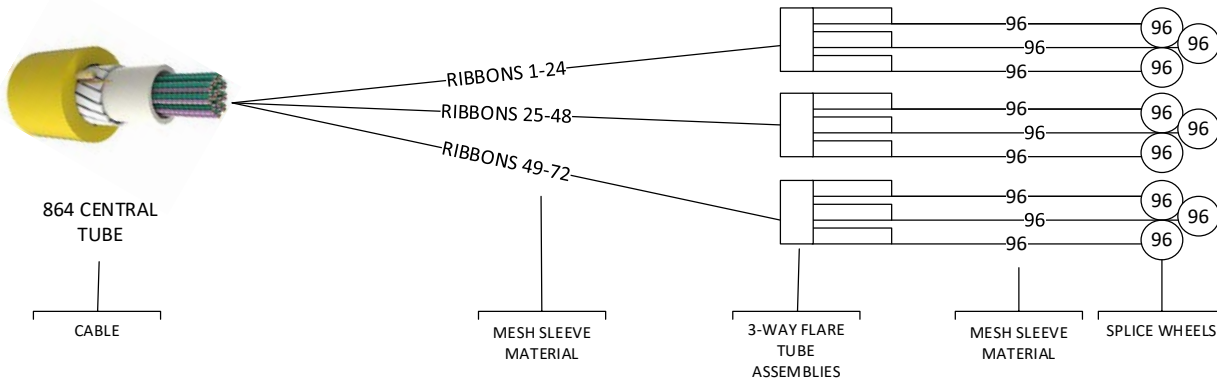
6 SPLICE WHEELS PER 576
@96 FIBERS PER WHEEL



864-fiber Central Tube Cable:



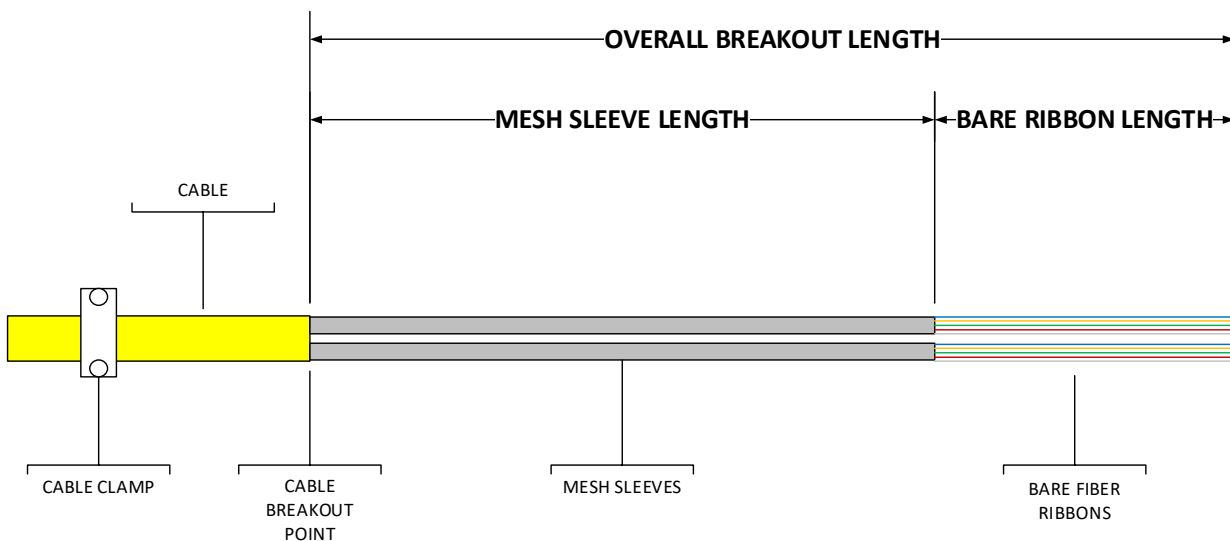
9 SPLICE WHEELS PER 864
@96 FIBERS PER WHEEL



11. General Installation Procedures

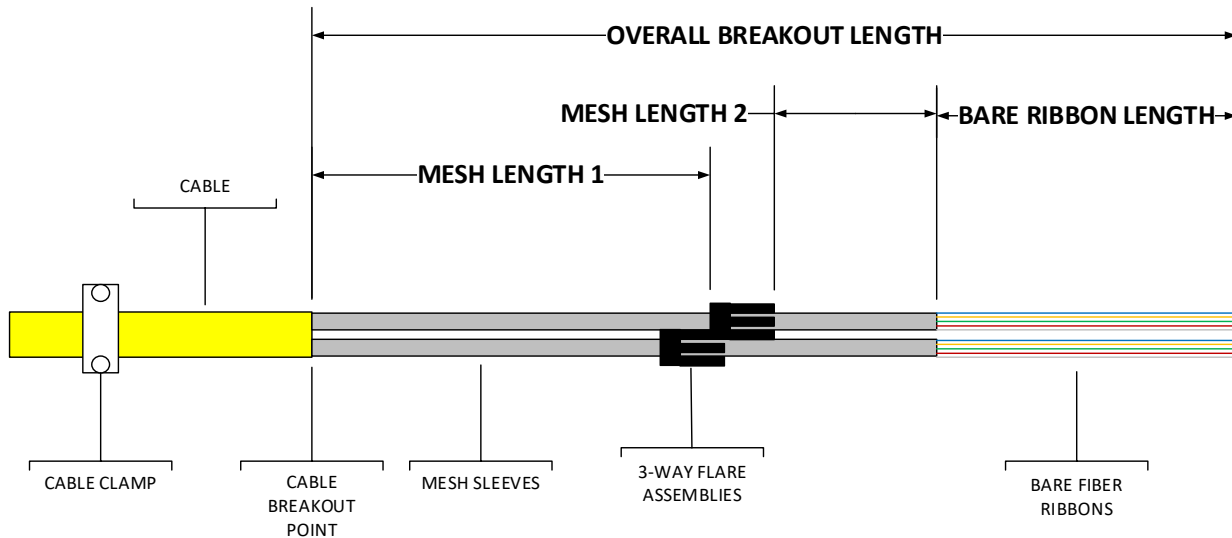
While specific installation procedures will vary significantly by product application and cable count, there is some general installation information that can be provided in this document, as follows:

- a. **Step 1** - Determine the clamping or anchoring point of the incoming cable:
 - i. For the NG4access frame, this will be a clamp location provided on the frame
 - ii. For the SD splice-only panel, this will be a location external to but nearby the panel – typically on the rack or cabinet in which the panel is installed
 - iii. For FEC cabinets and the Flex frame, this will be a clamp location provided within the enclosure
- b. **Step 2** - Determine the distance from the cable anchor point to the cable sheath breakout point
- c. **Step 3** – Determine the total breakout length of the cable. In the case of breakouts not requiring the 3-way flare tube assemblies, this is determined by:
 - i. The longest segment of mesh sleeve material required between the cable breakout point and its associated splice tray or wheel – **PLUS** -
 - ii. The length of bare fiber ribbon required. This varies by splice tray or wheel.



In the case of breakouts using the 3-way flare tube assemblies, this is determined by:

- i. The longest segment of mesh sleeve material required between the cable breakout point and its associated 3-way flare tube assembly – **PLUS** -
- ii. The longest length of the mesh sleeve material between the 3-way flare tube assemblies and the splice trays or wheels -**PLUS** -
- iii. The length of bare fiber ribbon required. This varies by splice tray or wheel.



NOTE: Always refer to the installation instructions specific to the CommScope product in which the breakout kit will be installed to confirm the correct breakout lengths for the application and cable type.

- d. **Step 4** – Measure and mark the cable sheath at the breakout location and, using tools appropriate for the task and the cable type, open the cable sheath at the breakout location per the manufacturer’s recommendation for the specific cable type. In the case of slotted core and central tube cables, these steps will expose the fiber ribbons. In the case of loose buffer tube cables, these steps will expose the buffer tubes. Carefully trim the buffer tubes to the length(s) appropriate for the application to expose the fiber ribbons.
- e. **Step 5** – Measure and cut the mesh sleeve material into the appropriate number of segments and lengths for the specific application.
- f. **Step 6** – Identify and isolate the first group of fiber ribbons that will make up a subgroup within a mesh sleeve. Groom the ribbons so that they neatly exit the cable breakout point and are not twisted or crossed over other ribbons. Tape the ends of the ribbon group together using masking or painter’s tape making sure cover the fiber ends.

NOTE: Step 6 is an **important step** that will prevent the fibers from snagging or breaking when being inserted into the mesh tubing! Masking/painter’s tape sticks to the ribbons much better than other types of tape.

- g. **Step 7** – Feed the first group of ribbons into a mesh sleeve. Slide the mesh sleeve all the way up to the cable breakout point or to the end of the buffer tube.
- h. **Step 8** – Repeat steps 5-7 for the remaining fiber subgroups.

- i. **Step 9** – Using vinyl tape, carefully tape the mesh sleeves to the cable sheath or buffer tubes. Use enough tape to ensure that the mesh sleeves are securely attached to the sheath or buffer tubes but be careful not to overtighten the tape wraps or get any tape stuck to the fiber ribbons.
- j. **Step 10** – If required by the application, remove the tape from the fiber ends and divide the ribbons again for each subgroup and re-tape the fiber ends. Feed the ribbon subgroups through the secondary segments of mesh sleeve, secure the mesh material to the flare assemblies and assemble the three-way flares per the instructions provided in the flare tube assembly installation drawing.
- k. **Step 11** – Route and dress the mesh sleeves and fiber ribbons to the splice tray or wheel locations per the specific product application.
- l. **Step 12** – Attach the ends of the mesh sleeves and the bare ribbons to the splice trays or wheels using the felt tape strips, plastic mesh tie-down sleeves and small cable ties and coil the bare fiber in the tray or wheel per the instructions provided with the tray or wheel.

12. Additional Product Documentation

- NG4access ODF Platform Splice Chassis and Splice Tray User Manual:
 - https://www.commscope.com/catalog/doc/pdf/14921/NG4access_ODF_Platform_Splice_Chassis_and_Splice_Tray.pdf
- SD Series Optical Fiber Splice-only 4U Rack Mount Panel Quick Start Guide:
 - https://www.commscope.com/catalog/doc/pdf/15985/TC-96255-IP_SD-4U-SPLICE_PANEL_Quick_Start.pdf
- Wall Mount and Rack Mount FEC Series Fiber Entrance Cabinets User Manuals:
 - https://www.commscope.com/catalog/doc/pdf/10410/TECP-31-106_FEC-10K_Fiber_Entrance_Cabinet.pdf
 - https://www.commscope.com/catalog/doc/pdf/10411/TECP-31-107_FOSC_Splice_Tray_for_FEC-10K_Fiber_Entrance_Cabinet.pdf
- Flex Frame Optical Fiber Distribution Frame Splice Cabinet User Manual:
 - http://www.commscope.com/catalog/doc/pdf/16409/TC-96272-IP_Flex_Frame_Splice_Cabinet.pdf
- Floor Mount FEC Series Fiber Entrance Cabinet (OMX) User Manuals:
 - https://www.commscope.com/catalog/doc/pdf/15407/TC-96219-IP_OMX_Splice_Bay_Ribbon_Cable_High_Density_Application.pdf
 - https://www.commscope.com/catalog/doc/pdf/15408/TC-96240-IP_Round_Splice_Tray.pdf

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