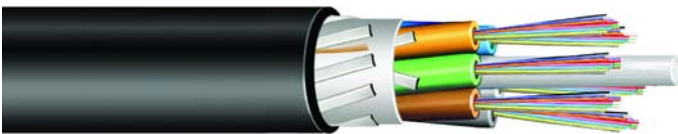


Gel-Filled vs Gel-Free Cables

CommScope offers a family of loose tube cables using gel-free water blocking technology. The cables meet the requirements of ANSI/ICEA S-87-640, Telcordia GR-20-CORE, and EN 187105. The product change is welcomed by cable installers who have traditionally had to tolerate working with the messy gel used inside the buffer tubes for many years.

The newest addition to the product line is the dielectric jacket and single armor/single jacket constructions, available with reduced diameter buffer tubes in cables with up to 288 fibers. Installers may want to note that installation and splicing procedures are the same – except there is now no gel to clean up after the installation.



D-072-LN-XY-FZZNS
All Dry Outside Plant Stranded Loose Tube
Non-Armored All Dielectric Cable



D-072-LA-XY-FZZNS
All Dry Outside Plant Stranded Loose Tube
Armored Cable

Removing this gel completely from loose tube cables is part of an evolution in fiber optic cable design. The expanded offering of gel-free outdoor fiber optic cables use dry materials, such as cloth tapes and binding threads, that incorporates super-absorbent polymers (SAPs). CommScope has upgraded its processing equipment to be able to manufacture gel-free buffer tubes with a variety of buffer tube materials – allowing for both outside plant and plenum (indoor/outdoor) cables.

Why Use Gel-Free Cables?

There are several advantages to gel-free outdoor cables. The primary benefit is that cable splicing crews save a significant amount of time by not having to clean gel at every splice point. It is a very tedious and time-consuming process to clean the loose fibers before splicing. There is also now no stray gel to clean off the work area or splicing equipment.

Also, the lack of gel makes installation of the fan-out kits easier. With gel-filled cables, the loose fibers must be thoroughly cleaned. With gel-free cables, no cleaning of the fibers is required, and the loose fibers can be easily threaded through the 900-micron protective tubing in lengths of 4 feet or more.

Cable Size and Weight

The charts below indicate the diameter and weight reduction that is made possible with the smaller buffer tubes and the elimination of the filling gel.

Dielectric Jacket Diameter and Weight Comparison

Fiber Count	Construction	Gel-Free OD (in)	Gel-Filled OD (in)	Diameter Reduction %	Gel-Free Wt. (lb/kft)	Gel-Filled Wt. (lb/kft)	Weight Reduction %
002-060	5 tubes	0.41	0.46	9.48	47	61	23.08
062-072	6 tubes	0.43	0.49	13.49	52	74	30.00
074-096	8 tubes	0.49	0.57	14.38	69	101	31.33
098-120	10 tubes	0.55	0.66	15.57	87	125	30.11
122-144	12 tubes	0.62	0.74	16.49	104	152	31.72
146-216	12 around 6	0.63	0.74	14.36	93	145	36.11
218-288	15 around 9	0.73	0.86	15.14	127	196	34.93

Single Armor/Single Jacket Diameter and Weight Comparison

Fiber Count	Construction	Gel-Free OD (in)	Gel-Filled OD (in)	Diameter Reduction %	Gel-Free Wt. (lb/kft)	Gel-Filled Wt. (lb/kft)	Weight Reduction %
002-060	5 tubes	0.47	0.51	8.40	85	102	16.45
062-072	6 tubes	0.49	0.55	11.43	90	118	23.86
074-096	8 tubes	0.55	0.63	13.66	113	152	25.55
098-120	10 tubes	0.61	0.71	14.84	134	182	26.47
122-144	12 tubes	0.68	0.80	15.27	159	218	27.08
146-216	12 around 6	0.69	0.80	13.30	148	211	29.94
218-288	15 around 9	0.78	0.91	14.16	190	272	29.88

Bottom Line: Gel-Free vs. Gel-Filled Cable

How does the new gel-free technology stack up against gel-filled cables? A variety of gel-filled and gel-free cables were tested to the point of failure to determine the performance margin. All cables passed with good margins above and beyond what the standards require.

Gel-free cables provide the best balance of fiber protection and ease of installation for outside plant applications, and eliminate the cost of labor and consumables required to clean traditional gel-filled cables.



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