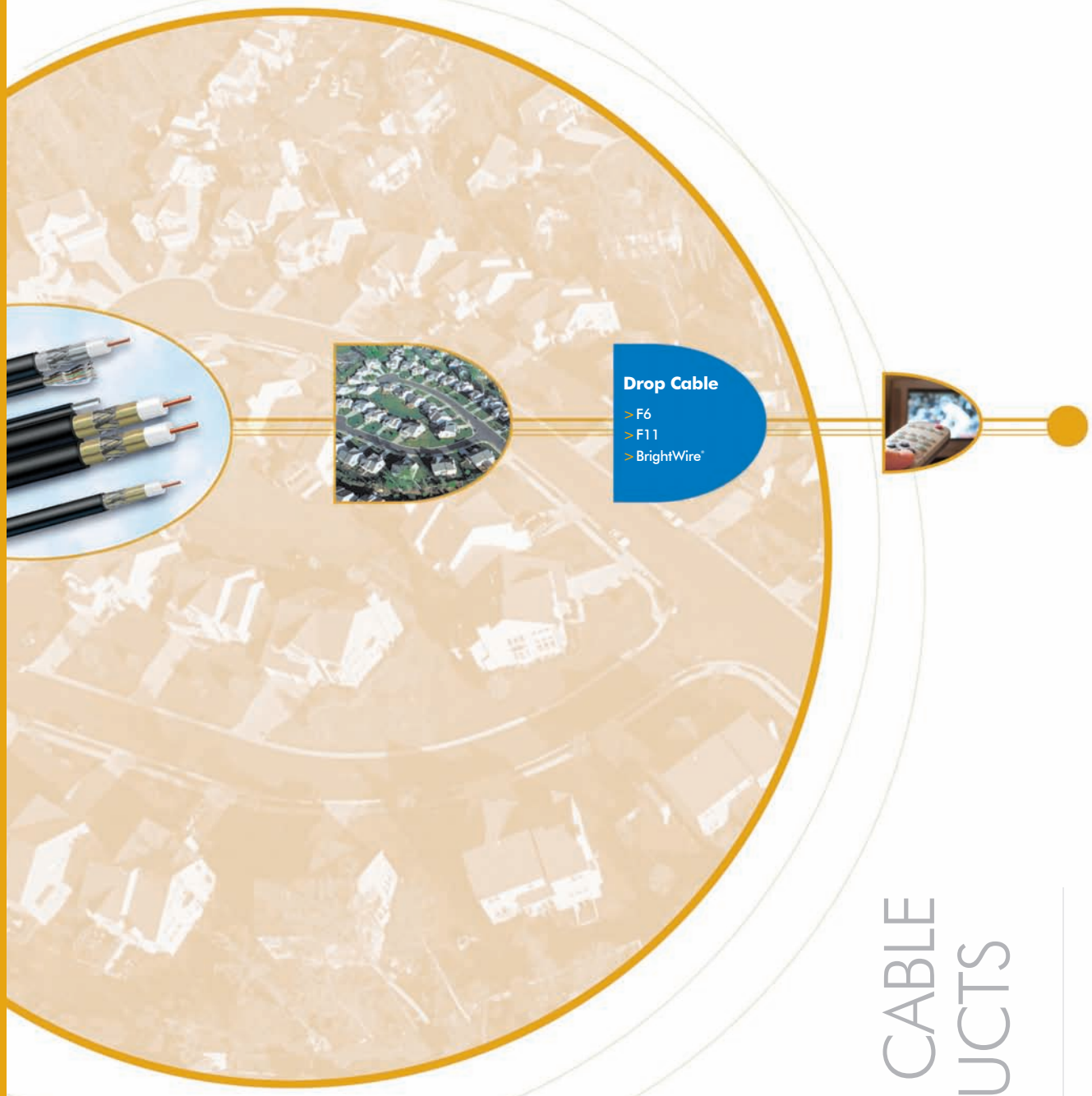
CommScope Drop Cable Products



DROP CABLE PRODUCTS

For more information, call Customer Service at 800.982.1708 or 828.324.2200 • Fax 828.328.3400 • custserv@commscope.com

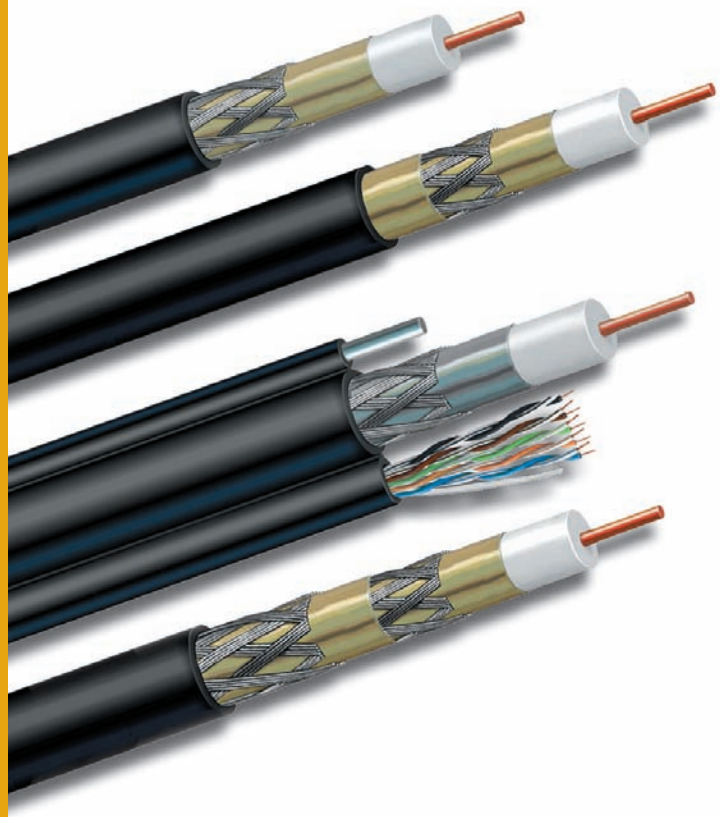
Drop Cable

CommScope Drop Cable Products
Overview

Never Underestimate the Importance of the Last Hundred Feet

Drop cables carry video, voice and data signals within the last hundred feet to end users. Keenly aware of the critical aspects inherent to this section of the network, CommScope engineers asked probing questions and took your concerns to the lab. They emerged with BrightWire®, an innovative treatment designed to protect the integrity of the drop plant while lowering operating and installation costs. BrightWire anti-corrosive treatment is available in several shielding types (standard, Tri-Shield, Super-Shield) and drop cable sizes including the most popular 6 and 11 series. All CommScope drop cable features a standard bonded tape and rugged jackets that withstand exposure to sunlight, atmosphere temperature, and ground chemicals.

brightWire®
Specify the GOLD Standard.



CommScope's last mile infrastructure products have been proven over years of use to be reliable for the delivery of bi-directional high bandwidth information services. This long record of demonstrated success will continue as new services are deployed. Additionally, more than any other brand, CommScope drop cable is installed worldwide and tested in virtually every geographic location. This unequivocally validates CommScope's reliability and performance.

In addition to offering a full spectrum of high performance braided coax, we offer National Electrical Code (NEC) 830 compliant products as well as MultiReach®, and other hybrids which can be custom-engineered as needed. Our drop cable products are engineered to be flexible and durable while possessing and maintaining the electrical performance you require.

Take a "Hardline" On Your Drop Plant with QR® 320 Drop Cable

CommScope knows the importance of offering a high performance, highly shielded digital feeder cable that performs more effectively than a traditional drop cable design. Our QR 320 cable is engineered for tight bends and severe turns typical in demanding drop settings. Combining the superior benefits of QR reliability with superb flexibility, low DC loop resistance, and high shielding effectiveness, QR 320 will exceed your expectations for drop cable.

CommScope Drop Cable Products
Overview

Twisted Copper Pairs and Coax Are Self-Contained In MultiReach®

This multi-leg cable is comprised of coax and twisted copper pairs to provide one physically-contained cable through which video, data, VoIP and power can be locally distributed. This eliminates multiple installation runs, thereby reducing labor costs and easing installation planning.

Request a FREE Broadband Applications & Construction Library

CommScope's Broadband Applications & Construction Library includes a 4-piece set of valuable reference manuals plus a DVD containing essential training videos on topics such as connectorization, expansion loop formation and fiber optic splicing. These tools teach you how to protect the integrity of your broadband plant while lowering operating/installation costs. From construction and installation practices, to performance and testing of cable – CommScope Construction Manuals are simply a "must-have" for anyone upgrading or maintaining broadband networks. Download a PDF version at our website: http://www.commscope.com or request a set by phone at 1-800-982-1708.

ConQuest®

CommScope drops are available pre-installed in ConQuest conduit or in versions suitable for direct burial, aerial, indoor and applications where messenger cables are needed. Our high quality drop cable exceeds SCTE specifications to ensure reliable, long-life performance. All CommScope drop cable features a standard bonded tape and rugged jackets that withstand exposure to sunlight, intense temperature and ground chemicals.

CommScope's Digital Broadband Resource Center™

This repository of experience, knowledge, services & tools is provided to CommScope customers to assist installers, technicians, engineers, designers or managers of broadband service providers. Tools in various media and formats include: SpanMaster® software for cable sag & tension calculations; attenuation slide rules; & call center spec assistance & review. Call us at 1-866-333-DBRC (3272) or e-mail DBRC@commscope.com for answers to product questions or issues related to any CommScope broadband product.

Ordering Basic CommScope Drop Cable

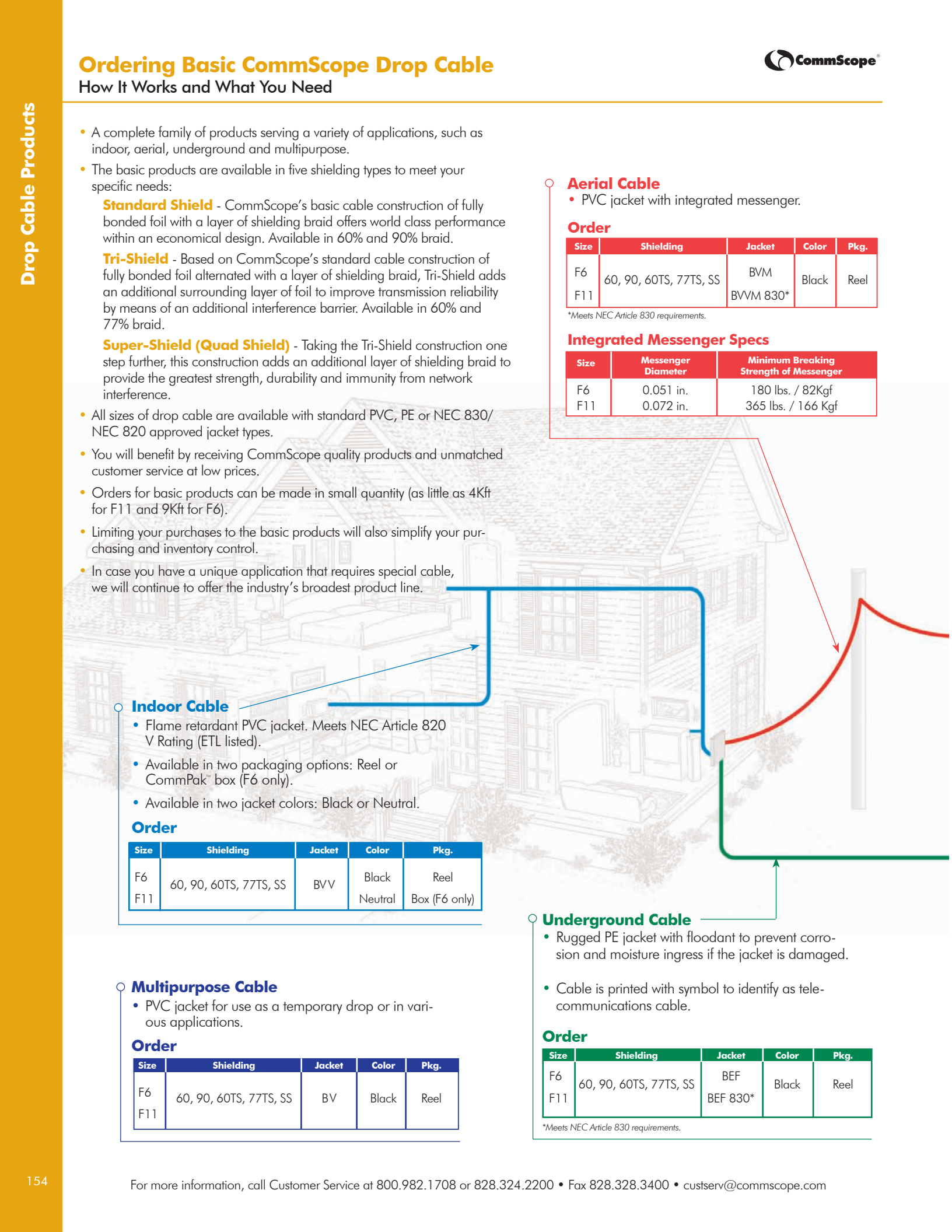
How It Works and What You Need

- A complete family of products serving a variety of applications, such as indoor, aerial, underground and multipurpose.
- The basic products are available in five shielding types to meet your specific needs:

  Standard Shield - CommScope's basic cable construction of fully bonded foil with a layer of shielding braid offers world class performance within an economical design. Available in 60% and 90% braid.

  Tri-Shield - Based on CommScope's standard cable construction of fully bonded foil alternated with a layer of shielding braid, Tri-Shield adds an additional surrounding layer of foil to improve transmission reliability by means of an additional interference barrier. Available in 60% and 77% braid.

  Super-Shield (Quad Shield) - Taking the Tri-Shield construction one step further, this construction adds an additional layer of shielding braid to provide the greatest strength, durability and immunity from network interference.
- All sizes of drop cable are available with standard PVC, PE or NEC 830/ NEC 820 approved jacket types.
- You will benefit by receiving CommScope quality products and unmatched customer service at low prices.
- Orders for basic products can be made in small quantity (as little as 4Kft for F11 and 9Kft for F6).
- Limiting your purchases to the basic products will also simplify your purchasing and inventory control.
- In case you have a unique application that requires special cable, we will continue to offer the industry's broadest product line.



Aerial Cable

- PVC jacket with integrated messenger.

Order

Size	Shielding	Jacket	Color	Pkg.
F6 F11	60, 90, 60TS, 77TS, SS	BVM BVVM 830*	Black	Reel

**Meets NEC Article 830 requirements.*

Integrated Messenger Specs

Size	Messenger Diameter	Minimum Breaking Strength of Messenger
F6 F11	0.051 in. 0.072 in.	180 lbs. / 82Kgf 365 lbs. / 166 Kgf

Indoor Cable

- Flame retardant PVC jacket. Meets NEC Article 820 V Rating (ETL listed).
- Available in two packaging options: Reel or CommPak™ box (F6 only).
- Available in two jacket colors: Black or Neutral.

Order

Size	Shielding	Jacket	Color	Pkg.
F6 F11	60, 90, 60TS, 77TS, SS	BVV	Black Neutral	Reel Box (F6 only)

Underground Cable

- Rugged PE jacket with floodant to prevent corrosion and moisture ingress if the jacket is damaged.
- Cable is printed with symbol to identify as telecommunications cable.

Order

Size	Shielding	Jacket	Color	Pkg.
F6 F11	60, 90, 60TS, 77TS, SS	BEF BEF 830*	Black	Reel

**Meets NEC Article 830 requirements.*

Multipurpose Cable

- PVC jacket for use as a temporary drop or in various applications.

Order

Size	Shielding	Jacket	Color	Pkg.
F6 F11	60, 90, 60TS, 77TS, SS	BV	Black	Reel

For more information, call Customer Service at 800.982.1708 or 828.324.2200 • Fax 828.328.3400 • custserv@commscope.com

Size

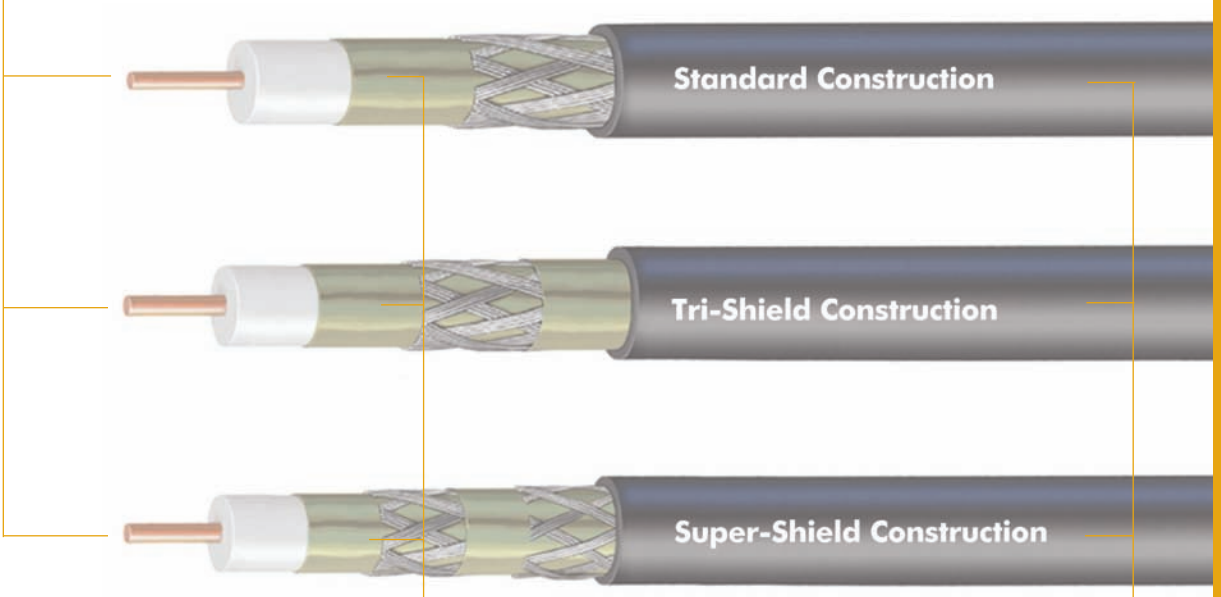
Attenuation is primarily a function of cable size. Basic products are available in the two most widely used sizes, 6 and 11. 6 series cable will meet most of your needs. For longer drops, choose 11 due to the lower attenuation values. Basic products feature copper clad steel center conductor and foam polyethylene dielectric.

Attenuation (@ 68° F [20 C])

Frequency (MHz)	6 Series		11 Series	
	dB/100 ft	dB/100 m	dB/100 ft	dB/100 m
55	1.6	5.25	.96	3.15
450	4.4	14.44	2.75	9.02
750	5.65	18.54	3.65	11.98
1000	6.55	21.49	4.35	14.27

Other Electrical and Mechanical Characteristics

Impedance: 75 ohms • Velocity of Propagation: 85%



Shielding

The minimum recommended shielding for drop cable is an inner shield of aluminum-polypropylene-aluminum laminated tape bonded to the dielectric and a 60 percent braid of 34 AWG bare aluminum braid wire. This level of shielding is adequate for most of your applications and meets SCTE requirements.

Additional shielding is available to provide greater protection against signal ingress and egress.

All Basic Products are available in 4 shielding options:

GOOD Bonded tape + 60 percent braid

BETTER Bonded tape + 60 percent braid + 77 percent braid + non-bonded tape (Tri-Shield)

BEST Bonded tape + 60 percent braid+non-bonded tape+40 percent braid (Super-Shield)

Jacket

- High quality PVC with flame retardant jacket for indoor applications.
- PVC jacket for outdoor aerial applications.
- PE jacket for underground applications to resist abrasion and cuts.

Drop Cable Catalog Number Key

Steps to Build the Catalog Number for the Cable You Need

Sample Product Constructions

Prefix

For 59, 6, 7 & 11 Series

F = Gas Expanded Polyethylene Dielectric Foam

F2 = Dual Cable

59, 6 = Drop Cable Series 7, 11

For QR 320 Drop Only

QR® = Quantum Reach Cable Series

F660BEF (830BMU)

- F — Foam
- 6 — 6 Series Drop Cable
- 60 — % Braid Coverage
- B — Bonded
- E — Polyethylene Jacket
- F — Flooded
- (830BMU) — NEC 830 Approved (underground)

F660BVVM (830BM)

- F — Foam
- 6 — 6 Series Drop Cable
- 60 — % Braid Coverage
- B — Bonded
- VV — V-Tray Jacket
- M — Messenger
- (830BM) — NEC 830 Approved (aerial)

F7SSVR

- F — Foam
- 7 — 7 Series Drop Cable
- SS — Super-Shield Construction
- V — Polyvinylchloride Jacket
- R — Riser

F2-6TSVV BW

- F2 — Foam Dual Cable
- 6 — 6 Series Drop Cable
- TS — Tri-Shield Construction
- VV — V-Tray Jacket
- BW — BrightWire

QR 320 JCAM 083 EHS

- QR® — QR®
- 320 — Size (diameter over shield)
- JC — PE Jacket
- A — Copper Aluminum
- M — Messenger
- 083 — Messenger Size
- EHS — Extra High Strength

Suffix

For 59, 6, 7 & 11 Series

First 2 digits = Percentage of Braid Coverage (e.g. 53, 60, 67, 90, 95)

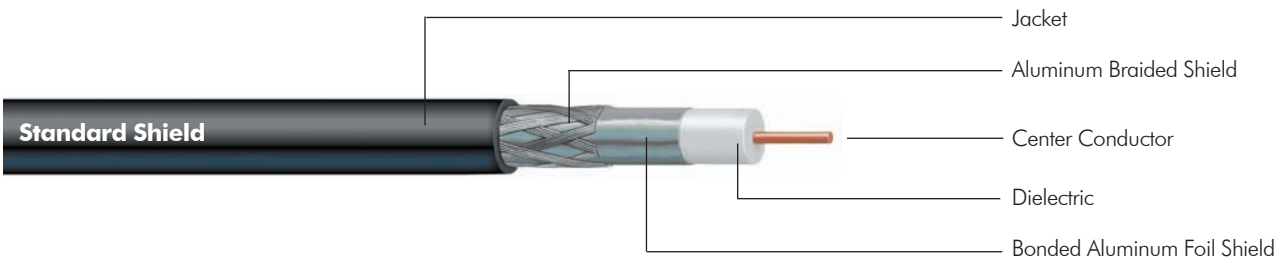
B = Bonded Foil
E = Polyethylene Jacket
V = Polyvinylchloride Jacket
M = Messenger
F = Flooded
SS = Super-Shield
TS = Tri-Shield
BW = BrightWire®
APD = Amorphous Polypropylene Drop
VV = NEC CATV (V-Tray Jacket)
R = NEC CATVR
CMH = CSA Flame Test FT-1
CMG = CSA Flame Test FT-4
830BM = Meets NEC Article 830 Aerial Requirements
830BMU = Meets NEC Article 830 Underground Requirements

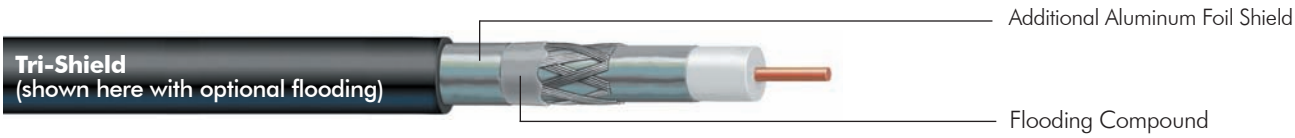
For QR 320 Drop Only

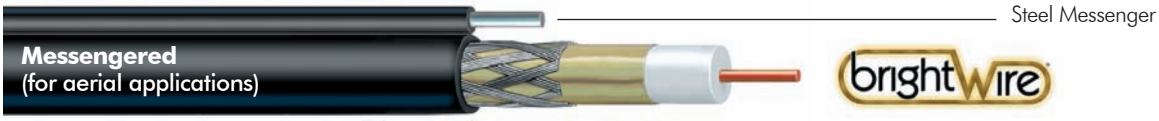
J = Jacketed
CA = Copper Aluminum
M = Messenger
083 = Size of Messenger *(also available in 109)*
EHS = Extra High Strength

(This is a sample list. Other options are available.)

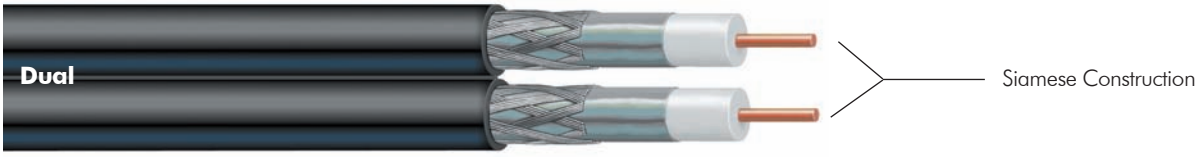
Drop Cable
Construction Diagrams

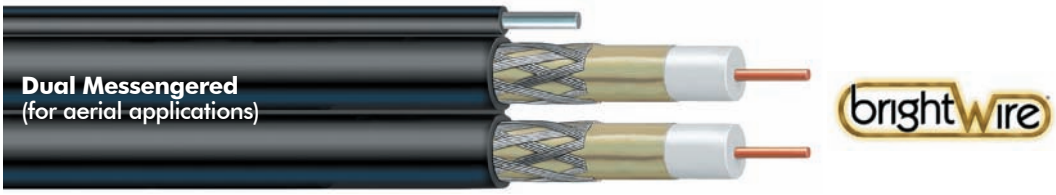




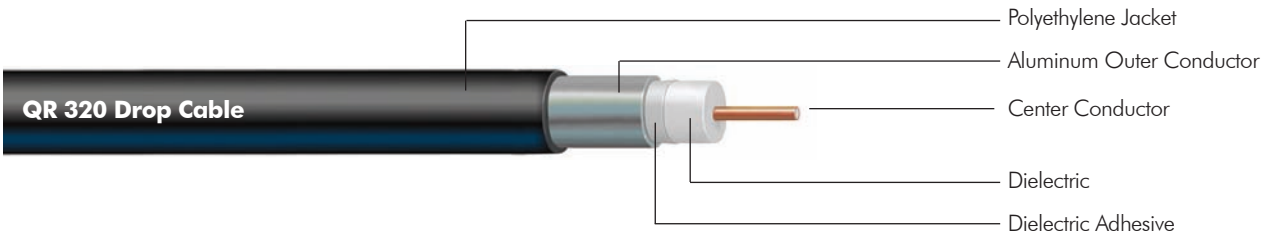


(shown here with BrightWire® treatment)





(shown here with BrightWire® treatment)



59 Series Drop Cable
Product Descriptions

Bonded Foil Standard Construction - 67% Braid (95% Braid also Available)

Catalog Number	Description	Cable Weight lbs/kft (kg/km)	Shipping Wt. lbs/kft (kg/km)
F5967BV 	Bonded tape, 67% braid, PVC jacket	22 (33)	25 (38)
F5967BVV	Bonded tape, 67% braid, flame retardant PVC jacket, meets NEC Article 820 V Rating (ETL listed)	22 (33)	25 (38)
F5967BVM BW 	Bonded tape, 67% braid, PVC jacket, .051 inch messenger	34 (51)	38 (57)
F5967BEF	Bonded tape, 67% braid, flooded for underground, PE jacket	18 (27)	21 (32)

Bonded Foil Tri-Shield Construction - 67% Braid

Catalog Number	Description	Cable Weight lbs/kft (kg/km)	Shipping Wt. lbs/kft (kg/km)
F59TSV 	Bonded tape, 67% braid, non-bonded tape, PVC jacket	21 (32)	24 (36)
F59TSVV	Bonded tape, 67% braid, non-bonded tape, flame retardant PVC jacket, meets NEC Article 820 V Rating (ETL listed)	22 (33)	25 (38)
F59TSVM BW 	Bonded tape, 67% braid, non-bonded tape, PVC jacket, .051 inch messenger	32 (48)	36 (54)
F59TSEF	Bonded tape, 67% braid, non-bonded tape, flooded for underground, PE jacket	19 (29)	22 (33)

Bonded Foil Super-Shield Construction - 53% + 40% Braid

Catalog Number	Description	Cable Weight lbs/kft (kg/km)	Shipping Wt. lbs/kft (kg/km)
F59SSV 	Bonded tape, 53% braid, non-bonded tape, 40% braid, PVC jacket	27 (41)	30 (45)
F59SSVV	Bonded tape, 53% braid, non-bonded tape, 40% braid, flame retardant PVC jacket, meets NEC Article 820 V Rating (ETL listed)	28 (42)	31 (47)
F59SSEF	Bonded tape, 53% braid, non-bonded tape, 40% braid, flooded for underground, PE jacket	23 (35)	26 (39)

NOTE: *NEC Article 830 products are available to meet the requirements of Network Powered Broadband Communications Systems.*

59 Series Drop Cable
Product Specifications

Standard Construction
20 gauge [0.032 in. (0.81 mm)] copper covered steel center conductor; gas expanded polyethylene dielectric; inner shield aluminum-polymer-aluminum laminated tape with overlap bonded to dielectric; outer shield of 34 AWG bare aluminum braid wire; jacket of black polyvinylchloride or polyethylene (flooded). Nominal O.D. 0.240 in. (6.10 mm).

Physical Dimensions

Component	Standard Shield Inches	mm	Tri-Shield Inches	mm	Super-Shield Inches	mm
Nominal Center Conductor Diameter	0.032	0.81	0.032	0.81	0.032	0.81
Nominal Diameter Over Dielectric	0.144	3.66	0.144	3.66	0.144	3.66
Nominal Diameter Over First Shield (Tape)	0.151	3.84	0.151	3.84	0.151	3.84
Nominal Diameter Over Jacket	0.240	6.10	0.240	6.10	0.265	6.73
Nominal Jacket Wall Thickness	0.032	0.81	0.032	0.81	0.034	0.86
Nominal Diameter of Steel Messenger	0.051 (single) 0.072 (dual)	1.30 1.83	0.051 (single) 0.072 (dual)	1.30 1.83	0.051 (single) 0.072 (dual)	1.30 1.83

Mechanical Characteristics

Minimum Breaking Strength of Messenger	(0.051)	180 lbs.	82kg$_f$
	(0.072)	365 lbs.	166kg$_f$

Electrical Characteristics

Nominal Impedance	75 ohms
Nominal Velocity of Propagation	85%

Corrosion Resistance
Many products are available with a choice of two corrosion resistant treatments. Contact our Customer Service Department for specific information.

- **BrightWire**® is a dry, anti-corrosive treatment that chemically combines with metal components to form a protective shield against water and subsequent corrosion. (Exceeds the SCTE requirement for corrosion resistant cable.) BrightWire treatment is available on all PVC jacket products and can be recognized by its gold colored tape.

- **APD**® is a non-flowing, amorphous polypropylene flooding compound.

Specify BrightWire or APD when ordering product:

F5967BV-BW (BrightWire® anti-corrosive treatment)
F5967BV-APD (APD anti-corrosive treatment)

Attenuation [@ 68° F. (20° C.)]

Frequency (MHz)	Maximum (dB/100 ft)	Maximum (dB/100 m)
5	0.86	2.82
55	2.05	6.73
83	2.45	8.04
187	3.60	11.81
211	3.80	12.47
250	4.10	13.45
300	4.45	14.60
350	4.80	15.75
400	5.10	16.73
450	5.40	17.72
500	5.70	18.70
550	5.95	19.52
600	6.20	20.34
750	6.97	22.87
865	7.52	24.67
1000	8.12	26.64

Specifications are subject to change without notice.

6 Series Drop Cable
Product Descriptions

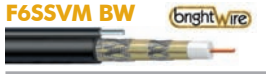
Bonded Foil Standard Construction - 60% Braid (90% Braid also Available)

Catalog Number	Description	Cable Weight lbs/kft (kg/km)	Shipping Wt. lbs/kft (kg/km)
F660BV 	Bonded tape, 60% braid, PVC jacket	26 (39)	29 (44)
F660BVV	Bonded tape, 60% braid, flame retardant PVC jacket, meets NEC Article 820 V Rating (ETL listed)	27 (41)	30 (45)
F660BVM BW 	Bonded tape, 60% braid, PVC jacket, .051 inch messenger	38 (57)	42 (63)
F660BEF	Bonded tape, 60% braid, flooded for underground, PE jacket	23 (35)	26 (39)
F2-660BVV 	Dual cable, bonded tape, 60% braid, flame retardant PVC jacket, meets NEC Article 820V Rating (ETL listed)	54 (81)	60 (90)
F2-660BEF	Dual cable, bonded tape, 60% braid, flooded for underground, PE jacket	45 (67)	51 (76)
F2-660BVM 	Dual cable, bonded tape, 60% braid, PVC jacket, .072 inch messenger	72 (108)	81 (121)

Bonded Foil Tri-Shield Construction - 60% Braid (77% Braid also Available; Example: F677TSVV)

Catalog Number	Description	Cable Weight lbs/kft (kg/km)	Shipping Wt. lbs/kft (kg/km)
F6TSV 	Bonded tape, 60% braid, non-bonded tape, PVC jacket	27 (41)	30 (45)
F6TSVV	Bonded tape, 60% braid, non-bonded tape, flame retardant PVC jacket, meets NEC Article 820 V Rating (ETL listed)	28 (42)	31 (47)
F6TSVM BW 	Bonded tape, 60% braid, non-bonded tape, PVC jacket, .051 inch messenger	39 (58)	43 (64)
F6TSEF	Bonded tape, 60% braid, non-bonded tape, flooded for underground, PE jacket	25 (38)	28 (42)
F2-6TSVV 	Dual cable, bonded tape, 60% braid, non-bonded tape, flame retardant PVC jacket, meets Article 820 V rating (ETL listed)	55 (82)	61 (91)
F2-6TSEF	Dual cable, bonded tape, 60% braid, non-bonded tape, flooded for underground, PE jacket	49 (73)	55 (82)
F2-6TSVM 	Dual cable, bonded tape, 60% braid, non-bonded tape, PVC jacket, .072 inch messenger	74 (111)	83 (124)

Bonded Foil Super-Shield Construction - 60% + 40% Braid

Catalog Number	Description	Cable Weight lbs/kft (kg/km)	Shipping Wt. lbs/kft (kg/km)
F6SSV 	Bonded tape, 60% braid, non-bonded tape, 40% braid, PVC jacket	32 (48)	35 (53)
F6SSVV	Bonded tape, 60% braid, non-bonded tape, 40% braid, flame retardant PVC jacket, meets NEC Article 820 V Rating (ETL listed)	33 (50)	36 (54)
F6SSVM BW 	Bonded tape, 60% braid, non-bonded tape, 40% braid, PVC jacket, .051 inch messenger	44 (66)	48 (72)
F6SSEF	Bonded tape, 60% braid, non-bonded tape, 40% braid, flooded for underground, PE jacket	28 (42)	31 (47)
F2-6SSVV 	Dual cable, bonded tape, 60% braid, non-bonded tape, 40% braid, flame retardant PVC jacket, meets NEC Article 820 V Rating (ETL listed)	66 (99)	75 (112)
F2-6SSEF	Dual cable, bonded tape, 60% braid, non-bonded tape, 40% braid, flooded for underground, PE jacket	56 (84)	65 (97)
F2-6SSVM 	Dual cable, bonded tape, 60% braid, non-bonded tape, 40% braid, PVC jacket, .072 inch messenger	84 (125)	93 (139)

NOTE: *NEC Article 830 products are available to meet the requirements of Network Powered Broadband Communications Systems.*

6 Series Drop Cable
Product Specifications

Standard Construction
18 gauge [0.040 in. (1.02 mm)] copper covered steel center conductor; gas expanded polyethylene dielectric; inner shield aluminum-polymer-aluminum laminated tape with overlap bonded to dielectric; outer shield of 34 AWG bare aluminum braid wire; jacket of black polyvinylchloride or polyethylene (flooded). Nominal O.D. 0.272 in. (6.91 mm).

Physical Dimensions

Component	Standard Shield Inches	mm	Tri-Shield Inches	mm	Super-Shield Inches	mm
Nominal Center Conductor Diameter	0.040	1.02	0.040	1.02	0.040	1.02
Nominal Diameter Over Dielectric	0.180	4.57	0.180	4.57	0.180	4.57
Nominal Diameter Over First Shield (Tape)	0.187	4.75	0.187	4.75	0.187	4.75
Nominal Diameter Over Jacket	0.272	6.91	0.278	7.06	0.297	7.54
Nominal Jacket Wall Thickness	0.030	0.76	0.030	0.76	0.033	0.84
Nominal Diameter of Steel Messenger	0.051 (single) 0.072 (dual)	1.30 1.83	0.051 (single) 0.072 (dual)	1.30 1.83	0.051 (single) 0.072 (dual)	1.30 1.83

Mechanical Characteristics

Minimum Breaking Strength of Messenger	(0.051) (0.072)	180 lbs. 365 lbs.	82kg$_f$ 166kg$_f$

Electrical Characteristics

Nominal Impedance	75 ohms
Nominal Velocity of Propagation	85%

Corrosion Resistance
Many products are available with a choice of two corrosion resistant treatments. Contact our Customer Service Department for specific information.

- **BrightWire**® is a dry, anti-corrosive treatment that chemically combines with metal components to form a protective shield against water and subsequent corrosion. (Exceeds the SCTE requirement for corrosion resistant cable.) BrightWire treatment is available on all PVC jacket products and can be recognized by its gold colored tape.

- **APD**® is a non-flowing, amorphous polypropylene flooding compound.

Specify BrightWire or APD when ordering product:

F660BV-BW (BrightWire® anti-corrosive treatment)
F660BV-APD (APD anti-corrosive treatment)

Attenuation [@ 68° F. (20° C.)]

Frequency (MHz)	Maximum (dB/100 ft)	Maximum (dB/100 m)
5	0.58	1.90
55	1.60	5.25
83	1.95	6.40
187	2.85	9.35
211	3.05	10.00
250	3.30	10.82
300	3.55	11.64
350	3.85	12.63
400	4.15	13.61
450	4.40	14.43
500	4.66	15.29
550	4.90	16.08
600	5.10	16.73
750	5.65	18.54
865	6.10	20.01
1000	6.55	21.49

Specifications are subject to change without notice.

7 Series Drop Cable
Product Descriptions

Bonded Foil Standard Construction - 60% Braid (90% Braid also Available)

Catalog Number	Description	Cable Weight lbs/kft (kg/km)	Shipping Wt. lbs/kft (kg/km
F760BV 	Bonded tape, 60% braid, PVC jacket	36 (54)	40 (60)
F760BVV	Bonded tape, 60% braid, flame retardant PVC jacket, meets NEC Article 820 V Rating ETL listed	36 (54)	40 (60)
F760BVM BW brightwire 	Bonded tape, 60% braid, PVC jacket, .072 inch messenger	56 (84)	60 (90)
F760BEF	Bonded tape, 60% braid, flooded for underground, PE jacket	31 (47)	35 (53)
F2-760BVV 	Dual cable, bonded tape, 60% braid, flame retardant PVC jacket, meets NEC Article 820 V Rating (ETL listed)	73 (109)	82 (123)
F2-760BEF	Dual cable, bonded tape, 60% braid, flooded for underground, PE jacket	61 (91)	70 (105)
F2-760BVM 	Dual cable, bonded tape, 60% braid, PVC jacket, .109 inch messenger	111 (166)	129 (192)

Bonded Foil Tri-Shield Construction - 60% Braid

Catalog Number	Description	Cable Weight lbs/kft (kg/km)	Shipping Wt. lbs./1000′
F7TSV 	Bonded tape, 60% braid, non-bonded tape, PVC jacket	35 (53)	39 (59)
F7TSVV	Bonded tape, 60% braid, non-bonded tape, flame retardant PVC jacket, meets NEC Article 820 V Rating (ETL listed)	36 (54)	40 (60)
F7TSVM BW brightwire 	Bonded tape, 60% braid, non-bonded tape, PVC jacket, .072 inch messenger NEC Article 830 available	56 (84)	62 (93)

Bonded Foil Super-Shield Construction - 60% + 40% Braid

Catalog Number	Description	Cable Weight lbs/kft (kg/km)	Shipping Wt. lbs/kft (kg/km)
F7SSV 	Bonded tape, 60% braid, non-bonded tape, 40% braid, PVC jacket	42 (63)	47 (70)
F7SSVV	Bonded tape, 60% braid, non-bonded tape, 40% braid, flame retardant PVC jacket, meets NEC Article 820 V Rating (ETL listed)	43 (64)	48 (72)
F7SSVM BW brightwire 	Bonded tape, 60% braid, non-bonded tape, 40% braid, PVC jacket, .072 inch messenger	63 (94)	72 (108)
F7SSEF	Bonded tape, 60% braid, non-bonded tape, 40% braid, flooded for underground, PE jacket	36 (54)	39 (59)

NOTE: *NEC Article 830 products are available to meet the requirements of Network Powered Broadband Communications Systems.*

7 Series Drop Cable
Product Specifications

Standard Construction
16 gauge [0.051 in. (1.29 mm)] copper covered steel center conductor; gas expanded polyethylene dielectric; inner shield aluminum-polymer-aluminum laminated tape with overlap bonded to dielectric; outer shield of 34 AWG bare aluminum braid wire; jacket of black polyvinylchloride or polyethylene (flooded). Nominal O.D. 0.319 in. (8.10 mm).

Physical Dimensions

Component	Standard Shield Inches		mm	Tri-Shield Inches		mm	Super-Shield Inches		mm
Nominal Center Conductor Diameter	0.051		1.29	0.051		1.29	0.051		1.29
Nominal Diameter Over Dielectric	0.225		5.72	0.225		5.72	0.225		5.72
Nominal Diameter Over First Shield (Tape)	0.232		5.89	0.232		5.89	0.232		5.89
Nominal Diameter Over Jacket	0.320		8.13	0.323		8.20	0.340		8.64
Nominal Jacket Wall Thickness	0.030		0.76	0.032		0.81	0.034		0.86
Nominal Diameter of Steel Messenger	0.072 0.109	(single) (dual)	1.83 2.72	0.072 0.109	(single) (dual)	1.83 2.72	0.072 0.109	(single) (dual)	1.83 2.77

Mechanical Characteristics

Minimum Breaking Strength of Messenger	(0.072) (0.109)	365 lbs. 1800 lbs.	166kg$_f$ 818kg$_f$

Electrical Characteristics

Nominal Impedance	75 ohms
Nominal Velocity of Propagation	85%

Corrosion Resistance
Many products are available with a choice of two corrosion resistant treatments. Contact our Customer Service Department for specific information.

- **BrightWire**® is a dry, anti-corrosive treatment that chemically combines with metal components to form a protective shield against water and subsequent corrosion. (Exceeds the SCTE requirement for corrosion resistant cable.) BrightWire treatment is available on all PVC jacket products and can be recognized by its gold colored tape.

- **APD**® is a non-flowing, amorphous polypropylene flooding compound.

Specify BrightWire or APD when ordering product:

F760BV-BW (BrightWire® anti-corrosive treatment)
F760BV-APD (APD anti-corrosive treatment)

Attenuation [@ 68° F. (20° C.)]

Frequency (MHz)	Maximum (dB/100 ft)	Maximum (dB/100 m)
5	0.47	1.54
55	1.25	4.10
83	1.50	4.92
187	2.22	7.28
211	2.36	7.74
250	2.56	8.40
300	2.82	9.25
350	3.05	10.01
400	3.27	10.73
450	3.46	11.35
500	3.67	12.04
550	3.85	12.63
600	4.05	13.28
750	4.57	14.99
865	4.93	16.17
1000	5.32	17.45

Specifications are subject to change without notice.

11 Series Drop Cable
Product Descriptions

Bonded Foil Standard Construction - 60% Braid (90% Braid also Available)

Catalog Number	Description	Cable Weight lbs/kft (kg/km)	Shipping Wt. lbs/kft (kg/km)
F1160BV 	Bonded tape, 60% braid, PVC jacket	54 (81)	60 (90)
F1160BVV	Bonded tape, 60% braid, flame retardant PVC jacket, meets NEC Article 820 V Rating (ETL Listed)	55 (82)	61 (91)
F1160BVM BW brightwire 	Bonded tape, 60% braid. PVC jacket, .072 inch messenger	77 (115)	86 (128)
F1160BEF	Bonded tape, 60% braid, flooded for underground, PE jacket	47 (70)	53 (79)
F2-1160BVV 	Dual cable, bonded tape, 60% braid, flame retardant PVC jacket, meets NEC Article 820 V Rating (ETL listed)	112 (167)	130 (194)
F2-1160BEF	Dual cable, bonded tape, 60% braid, flooded for underground, PE jacket	93 (139)	111 (166)
F2-1160BVM 	Dual cable, bonded tape, 60% braid, PVC jacket, .109 inch messenger	153 (228)	171 (255)

Bonded Foil Tri-Shield Construction - 60% Braid

Catalog Number	Description	Cable Weight lbs/kft (kg/km)	Shipping Wt. lbs./1000'
F11TSV 	Bonded tape, 60% braid, non-bonded tape, PVC jacket	53 (79)	59 (88)
F11TSVV	Bonded tape, 60% braid, non-bonded tape, flame retardant PVC jacket, meets NEC Article 820 V Rating (ETL listed)	54 (81)	60 (90)
F11TSVM BW brightwire 	Bonded tape, 60% braid, non-bonded tape, PVC jacket, .072 inch messenger	76 (114)	85 (127)
F11TSEF	Bonded tape, 60% braid, non-bonded tape, flooded for underground, PE jacket	48 (72)	54 (81)
F2-11TSVM 	Dual cable, bonded tape, 60% braid, non-bonded tape, PVC jacket, .109 inch messenger	148 (221)	166 (248)

Bonded Foil Super-Shield Construction - 60% + 40% Braid

Catalog Number	Description	Cable Weight lbs/kft (kg/km)	Shipping Wt. lbs/kft (kg/km)
F11SSVV	Bonded tape, 60% braid, non-bonded tape, 40% braid, flame retardant PVC jacket, meets NEC Article 820 V Rating (ETL listed)	59 (88)	65 (97)
F11SSVM 	Bonded tape, 60% braid, non-bonded tape, 40% braid, PVC jacket, .072 inch messenger	80 (120)	89 (133)
F11SSEF BW brightwire 	Bonded tape, 60% braid, non-bonded tape, 40% braid, flooded for underground, PE jacket	50 (75)	56 (84)

NOTE: *NEC Article 830 products are available to meet the requirements of Network Powered Broadband Communications Systems.*

11 Series Drop Cable
Product Specifications

Standard Construction
14 gauge [0.064 in. (1.63 mm)] copper covered steel center conductor; gas expanded polyethylene dielectric; inner shield aluminum-polymer-aluminum laminated tape with overlap bonded to dielectric; outer shield of 34 AWG bare aluminum braid wire; jacket of black polyvinylchloride or polyethylene (flooded). Nominal O.D. 0.400 in. (10.16 mm).

Physical Dimensions

Component	Standard Shield Inches		Standard Shield mm	Tri-Shield Inches		Tri-Shield mm	Super-Shield Inches		Super-Shield mm
Nominal Center Conductor Diameter	0.064		1.63	0.064		1.63	0.064		1.63
Nominal Diameter Over Dielectric	0.280		7.11	0.280		7.11	0.280		7.11
Nominal Diameter Over First Shield (Tape)	0.287		7.29	0.287		7.29	0.287		7.29
Nominal Diameter Over Jacket	0.400		10.16	0.400		10.16	0.407		10.34
Nominal Jacket Wall Thickness	0.042		1.07	0.039		0.99	0.037		0.94
Nominal Diameter of Steel Messenger	0.072 0.109	(single) (dual)	1.83 2.77	0.072 0.109	(single) (dual)	1.83 2.77	0.072 0.109	(single) (dual)	1.83 2.77

Mechanical Characteristics

Minimum Breaking Strength of Messenger	(0.072)	365 lbs.	166kg$_f$
	(0.109)	1800 lbs.	818kg$_f$

Electrical Characteristics

Nominal Impedance	75 ohms
Nominal Velocity of Propagation	85%

Corrosion Resistance
Many products are available with a choice of two corrosion resistant treatments. Contact our Customer Service Department for specific information.

- **BrightWire**® is a dry, anti-corrosive treatment that chemically combines with metal components to form a protective shield against water and subsequent corrosion. (Exceeds the SCTE requirement for corrosion resistant cable.) BrightWire treatment is available on all PVC jacket products and can be recognized by its gold colored tape.

- **APD**® is a non-flowing, amorphous polypropylene flooding compound.

Specify BrightWire or APD when ordering product:

F1160BV-BW (BrightWire® anti-corrosive treatment)
F1160BV-APD (APD anti-corrosive treatment)

Attenuation [@ 68° F. (20° C.)]

Frequency (MHz)	Maximum (dB/100 ft)	Maximum (dB/100 m)
5	0.38	1.25
55	0.96	3.15
83	1.18	3.87
187	1.75	5.74
211	1.90	6.23
250	2.05	6.72
300	2.25	7.38
350	2.42	7.94
400	2.60	8.53
450	2.75	9.02
500	2.90	9.51
550	3.04	9.97
600	3.18	10.43
750	3.65	11.97
865	3.98	13.05
1000	4.35	14.27

Specifications are subject to change without notice.

QR® 320 Series Drop Cable
Product Descriptions

CommScope's patented QR® coaxial cable was developed to meet the increasing demands of tomorrow's broadband networks. QR has the highest reliability and flexibility of any coaxial cable and low RF attenuation.

All QR cable products offer tough polyethylene jackets and a standardized, environmentally sealed connector interface engineered for reliability and craft friendliness.

QR 320 Drop Cable is optimized for use in long drop applications. QR 320 Drop Cable offers unmatched flexibility, reliability and cost effectiveness, as well as superior shielding effectiveness.

Standard Construction

A precision aluminum strip is formed and continuously RF welded around a high compression micro-cellular foam dielectric core, eliminating RF leakage, and the rigidity common in traditional coaxial products. The shield is fully bonded to the dielectric core, as is the copper clad aluminum center conductor. A tough polyethylene jacket is applied standard, which enhances cable reliability and allows QR's unique connector technology to form an environmental seal.

Aerial Installation

Catalog Number	Description	Cable Weight	Shipping Weight	Standard Length*
QR 320 JCA 	offers all of QR's standard construction features	47 lbs/kft (70 kg/km)	63 lbs/kft (94 kg/km)	1000 ft (305 m)
QR 320 JCAM083 EHS 	has a co-extruded galvanized steel messenger for self-supporting applications	74 lbs/kft (111 kg/km)	88 lbs/kft (131 kg/km)	1000 ft (305 m)
QR 320 JCAM109 (Also Available)		89 lbs/kft (133 kg/km)	107 lbs/kft (159 kg/km)	1000 ft (305 m)

Underground Installation

Catalog Number	Description	Cable Weight	Shipping Weight	Standard Length*
QR 320 JCASS 	features CommScope's Migra-Heal® floodant that seals jacket damage to inhibit corrosion	47 lbs/kft (70 kg/km)	63 lbs/kft (94 kg/km)	1000 ft (305 m)

**Longer (or shorter) lengths are available.*

QR® 320 Series Drop Cable
Product Specifications

Physical Dimensions

Component	Inches	mm
Nominal Center Conductor Diameter	0.071	1.80
Nominal Diameter Over Dielectric	0.294	7.47
Nominal Diameter Over Outer Conductor	0.320	8.13
Nominal Outer Conductor Thickness	0.013	0.34
Nominal Diameter Over Jacket	0.395	10.03
Nominal Jacket Wall Thickness	0.0375	0.95
Messenger Version		
Diameter of Steel Messenger	0.083 0.109	2.11 2.77

Mechanical Characteristics

Minimum Bending Radius		3.0 in.	76.2 mm
Maximum Pulling Tension		120 lbs.	54.5 kg_f
Minimum Breaking Strength of Messenger	(0.083) (0.109)	1,000 lbs. 1,800 lbs.	453 kg_f 816 kg_f

Electrical Characteristics

Capacitance	15.3 ±1.0 pf/ft	50 ±3.0 nf/km
Impedance	75 ± 2 ohms	
Velocity of Propagation	87%	

Nominal D.C. Resistance @ 68°F (20°C)

Copper Clad

Inner Conductor	3.28 ohms/1000 ft.	10.76 ohms/km
Outer Conductor	0.99 ohms/1000 ft.	3.25 ohms/km
Loop	4.27 ohms/1000 ft.	14.01 ohms/km

Attenuation [@ 68° F. (20° C.)]

Frequency (MHz)	(dB/100 ft) Nominal	(dB/100 ft) Maximum	(dB/100 m) Nominal	(dB/100 m) Maximum
5	0.23	0.24	0.76	0.79
55	0.81	0.84	2.67	2.76
83	1.04	1.07	3.41	3.51
211	1.68	1.73	5.51	5.68
250	1.80	1.86	5.92	6.10
300	1.98	2.04	6.49	6.69
350	2.18	2.25	7.16	7.38
400	2.31	2.38	7.57	7.81
450	2.44	2.52	8.02	8.27
500	2.64	2.72	8.66	8.92
550	2.76	2.85	9.07	9.35
600	2.89	2.98	9.48	9.78
750	3.24	3.34	10.63	10.96
865	3.51	3.62	11.52	11.88
1000	3.77	3.89	12.38	12.76

Specifications are subject to change without notice.

NEC Riser 6 and 11 Series Drop Cable
Product Descriptions

6 Riser Series - CATVR

18 gauge [0.0359 in. (0.91 mm)] copper covered steel center conductor; gas expanded polyethylene dielectric; inner shield aluminum-polymer-aluminum laminated tape with overlap bonded to dielectric; outer shield of bare aluminum braid wire; jacket of flame retardant black polyvinylchloride. Nom. O.D. 0.272 in. (6.91 mm).

Catalog Number	Description	Cable Weight lbs/kft (kg/km)	Shipping Weight lbs/kft (kg/km)
F660BVR 	Bonded tape, 60% braid, flame retardant PVC jacket	28 (42)	31 (47)
F2-660BVR 	Dual cable, bonded tape, 60% braid, flame retardant PVC jacket	55 (82)	61 (91)
F6TSVR 	Bonded tape, 60% braid, non-bonded tape, flame retardant PVC jacket	28 (42)	31 (47)
F6SSVR 	Bonded tape, 60% braid, non-bonded tape, 40% braid, flame retardant PVC jacket	34 (51)	38 (57)

11 Riser Series - CATVR

14 gauge [0.064 in. (1.63 mm)] copper covered steel center conductor; gas expanded polyethylene dielectric; inner shield aluminum-polymer-aluminum laminated tape with overlap bonded to dielectric; outer shield of bare aluminum braid wire; jacket of flame retardant black polyvinylchloride. Nom. O.D. 0.395 in. (10.03 mm).

Catalog Number	Description	Cable Weight lbs/kft (kg/km)	Shipping Weight lbs/kft (kg/km)
F1160BVR 	Bonded tape, 60% braid, flame retardant PVC jacket	57 (85)	63 (94)
F11SSVR 	Bonded tape, 60% braid, non-bonded tape, 40% braid, flame retardant PVC jacket	60 (90)	66 (99)

Meets NEC Article 820 Riser Rating (ETL listed).

NEC Riser 6 and 11 Series Drop Cable
Product Specifications

6 Series Riser

Physical Dimensions

Component	Standard Shield Inches	mm	Super-Shield Inches	mm
Nominal Center Conductor Diameter	0.040	1.02	0.040	1.02
Nominal Diameter Over Dielectric	0.180	4.57	0.180	4.57
Nominal Diameter Over First Shield (Tape)	0.187	4.75	0.187	4.75
Nominal Diameter Over Jacket	0.272	6.91	0.297	7.54
Nominal Jacket Wall Thickness	0.030	0.76	0.033	0.84

Electrical Characteristics

Nominal Impedance	75 ohms
Nominal Velocity of Propagation	85%

Attenuation [@ 68° F. (20° C.)]

Frequency (MHz)	Maximum (dB/100 ft)	Maximum (dB/100 m)
5	0.58	1.90
55	1.60	5.25
83	1.95	6.40
187	2.85	9.35
211	3.05	10.00
250	3.30	10.82
300	3.55	11.64
350	3.85	12.63
400	4.15	13.61
450	4.40	14.43
500	4.66	15.29
550	4.90	16.08
600	5.10	16.73
750	5.65	18.54
865	6.10	20.01
1000	6.55	21.49

11 Series Riser

Physical Dimensions

Component	Standard Shield Inches	mm	Super-Shield Inches	mm
Nominal Center Conductor Diameter	0.064	1.63	0.064	1.63
Nominal Diameter Over Dielectric	0.280	7.11	0.280	7.11
Nominal Diameter Over First Shield (Tape)	0.287	7.29	0.287	7.29
Nominal Diameter Over Jacket	0.395	10.03	0.405	10.29
Nominal Jacket Wall Thickness	0.042	1.07	0.037	0.94

Electrical Characteristics

Nominal Impedance	75 ohms
Nominal Velocity of Propagation	85%

Attenuation [@ 68° F. (20° C.)]

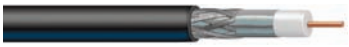
Frequency (MHz)	Maximum (dB/100 ft)	Maximum (dB/100 m)
5	0.38	1.25
55	0.96	3.15
83	1.18	3.87
187	1.75	5.74
211	1.90	6.23
250	2.05	6.76
300	2.25	7.38
350	2.42	7.94
400	2.60	8.53
450	2.75	9.02
500	2.90	9.51
550	3.04	9.97
600	3.18	10.43
750	3.65	11.97
865	3.98	13.05
1000	4.35	14.27

Specifications are subject to change without notice.

NEC Plenum Series Drop Cable
Product Descriptions

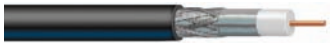
59 Series Plenum - CATVP (Plenumax®)

20 gauge [0.032 in. (0.81 mm)] copper covered steel center conductor; gas expanded Teflon® dielectric (FEP); inner shield aluminum laminated tape with overlap bonded to dielectric; outer shield of 34 AWG bare aluminum braid wire; jacket of plenum rated material. Nom. O.D. 0.202 in. (5.26 mm).

Catalog Number	Description	Cable Weight lbs/kft (kg/km)	Shipping Weight lbs/kft (kg/km)
2020V (Vinyl Jacket Version)  **2020K** (Kynar® Jacket Version) 	Foam FEP dielectric, bonded tape, 65% braid, plenum rated jacket	21 (31)	24 (36)
2022V (Vinyl Jacket Version)  **2022K** (Kynar Jacket Version) 	Foam FEP dielectric, bonded tape, 60% braid, non-bonded tape, 40% braid, plenum rated jacket	25 (37)	28 (42)

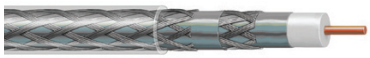
6 Series Plenum - CATVP (Plenumax®)

18 gauge [0.040 in. (1.02 mm)] copper covered steel center conductor; gas expanded Teflon dielectric (FEP); inner shield aluminum laminated tape with overlap bonded to dielectric; outer shield of 34 AWG bare aluminum braid wire; jacket of plenum rated material. Nom. O.D. 0.237 in. (6.20 mm).

Catalog Number	Description	Cable Weight lbs/kft (kg/km)	Shipping Weight lbs/kft (kg/km)
2275V (Vinyl Jacket Version) 	Foam FEP dielectric, bonded tape, 60% braid, plenum rated jacket	29 (43)	33 (49)
2276V (Vinyl Jacket Version) 	Foam FEP dielectric, bonded tape, 90% braid, plenum rated jacket	30 (45)	33 (49)
2227V (Vinyl Jacket Version)  **2227K** (Kynar Jacket Version) 	Foam FEP dielectric, bonded tape, 60% braid, non-bonded tape, 40% braid, plenum rated jacket	32 (48)	35 (52)

11 Series Plenum - CATVP (Plenumax®)

14 gauge [0.064 in. (1.45 mm)] copper covered steel center conductor; gas expanded Teflon dielectric (FEP); inner shield aluminum laminated tape with overlap bonded to dielectric; outer shield of 34 AWG bare aluminum braid wire; jacket of plenum rated material. Nom. O.D. of 0.351 in. (8.92 mm).

Catalog Number	Description	Cable Weight lbs/kft (kg/km)	Shipping Weight lbs/kft (kg/km)
2285K (Kynar Jacket Version) 	Foam FEP dielectric, bonded tape, 60% braid, plenum rated jacket	57 (85)	64 (95)
2287K (Kynar Jacket Version) 	Foam FEB dielectric, bonded tape, 60% braid, non-bonded tape, 40% braid, plenum rated jacket	66 (98)	73 (109)

Meets NEC Article 820 Plenum Rating (UL listed).
NOTE: *Must use connectors designed for use with plenum cable.*

Kynar® is a registered trade name of Atofina®
Teflon® is a registered trade name of du Pont de Nemours and Company®

59 Series Plenum

Physical Dimensions

Component	Standard Shield Inches	Standard Shield mm	Super-Shield Inches	Super-Shield mm
Nominal Center Conductor Diameter	0.032	0.81	0.032	0.81
Nominal Diameter Over Dielectric	0.135	3.63	0.135	3.43
Nominal Diameter Over First Shield (Tape)	0.141	3.84	0.141	3.58
Nominal Diameter Over Jacket	0.202	5.26	0.228	5.79
Nominal Jacket Wall Thickness	0.015	0.41	0.016	0.41

Electrical Characteristics

Nominal Impedance	75 ohms
Nominal Velocity of Propagation	84%

Attenuation [@ 68° F. (20° C.)]

Frequency (MHz)	Typical (dB/100 ft)	Typical (dB/100 m)
1	0.48	1.56
10	0.88	2.87
50	1.85	6.07
100	2.51	8.24
200	3.58	11.73
400	5.50	18.04
700	7.45	24.44
900	8.70	28.54
1000	9.31	30.55

6 Series Plenum

Physical Dimensions

Component	Standard Shield Inches	Standard Shield mm	Super-Shield Inches	Super-Shield mm
Nominal Center Conductor Diameter	0.040	1.02	0.040	1.02
Nominal Diameter Over Dielectric	0.170	4.57	0.180	4.57
Nominal Diameter Over First Shield (Tape)	0.176	4.75	0.187	4.75
Nominal Diameter Over Jacket	0.237	6.20	0.284	7.21
Nominal Jacket Wall Thickness	0.016	0.41	0.020	0.51

Electrical Characteristics

Nominal Impedance	75 ohms
Nominal Velocity of Propagation	84%

Attenuation [@ 68° F. (20° C.)]

Frequency (MHz)	Typical (dB/100 ft)	Typical (dB/100 m)
1	0.38	1.25
10	0.70	2.30
50	1.48	4.85
100	2.01	6.59
200	2.86	9.38
400	4.23	13.87
700	5.96	19.55
900	6.96	22.83
1000	7.45	24.44

11 Series Plenum

Physical Dimensions

Component	Standard Shield Inches	Standard Shield mm	Super-Shield Inches	Super-Shield mm
Nominal Center Conductor Diameter	0.064	1.63	0.064	1.63
Nominal Diameter Over Dielectric	0.280	7.11	0.280	7.11
Nominal Diameter Over First Shield (Tape)	0.286	7.26	0.287	7.29
Nominal Diameter Over Jacket	0.351	8.92	0.372	9.45
Nominal Jacket Wall Thickness	0.020	0.51	0.020	0.51

Electrical Characteristics

Nominal Impedance	75 ohms
Nominal Velocity of Propagation	82%

Attenuation [@ 68° F. (20° C.)]

Frequency (MHz)	Typical (dB/100 ft)	Typical (dB/100 m)
1	0.20	0.66
10	0.45	1.48
50	0.90	2.95
100	1.28	4.20
200	1.85	6.07
400	2.75	9.02
700	3.92	12.86
900	4.72	15.48
1000	5.04	16.53

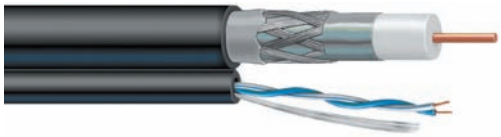
Specifications are subject to change without notice.

MultiReach® Drop Cable Catalog Numbering Key
For Underground and Indoor/Outdoor Cables

F Series 6, 7, or 11 coax with one (1) thru six (6) 22, 24, or 26 AWG solid copper twisted pair conductors. MultiReach® products are available in underground, indoor/outdoor, and aerial designs.

Underground MultiReach®
(flooded, 1 pair version shown)

The Underground MultiReach® design includes a flooded polyethylene jacketed product with coax and twisted pair members.



F660BE (1) F (2) 1/22 (3) APD (4)

POSITION 1
Coax Type
F6990BE
F6TSE
F760BE
F11TSE
F1160BE
F1190BE
F11SSE
Etc.

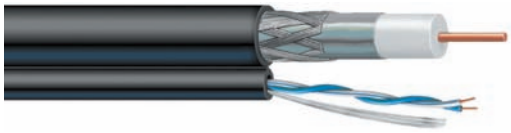
POSITION 2
Floodant Over Coax Core
F = Migra-Heal® (Standard Floodant)
APD=Amorphous Polypropylene
Note: Design May Dictate Floodant Type

POSITION 3
Pair Count/AWG
Pairs = 1 through 6 pair
AWG=22, 24, or 26

POSITION 4
Floodant Over Pairs
APD = Amorphous Polypropylene
ETPR=Extended Thermoplastic Rubber
Note: Design May Dictate Floodant Type

Indoor/Outdoor MultiReach®
(non-flooded, one pair version shown)

The Indoor/Outdoor MultiReach® design includes a flooded or non-flooded polyvinyl-chloride (PVC) jacketed product with coax and twisted pair members.



F660B (1) V (2) APD (3) 1/22 (4) APD (5)

POSITION 1
Coax Type
F690B
F6TS
F11TS
F1160B
F1190B
F11SS
Etc.

POSITION 2
Jacket Type
E = Polyethylene (PE)
V=Polyvinylchloride (PVC)
VW=Flame Retardant PVC Jacket (NEC CATV & CM)

POSITION 3
Floodant Over Coax Core
APD = Amorphous Polypropylene
BW = BrightWire® (Coating not a Floodant)
= (Left Blank) No Floodant Required

POSITION 4
Pair Count/AWG
Pairs = 1 through 6 pair
AWG=22, 24, or 26

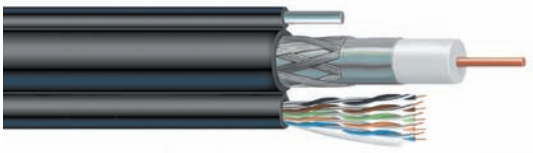
POSITION 4
Floodant Over Pairs
APD = Amorphous Polypropylene
= (Left Blank)
No Floodant Required

Notes:
BE = Bonded Tape with Polyethylene (PE) Jacket
BV = Bonded Tape with Polyvinylchloride (PVC) Jacket
PVC Jacketed cables are designed to be flooded or non-flooded

MultiReach® Drop Cable Catalog Numbering Key
For Aerial Cables

Aerial MultiReach®
(messengered, five pair version shown)

The aerial MultiReach® design includes a flooded or non-flooded polyvinylchloride (PVC) jacketed product with twisted pair, coax, and messenger members.



F660B	V	M	APD	1/22	APD
1	2	3	4	5	6

POSITION 1
Coax Type
F690B
F6TS
F11TS
F1160B
F1190B
F11SS
Etc.

POSITION 2
Jacket Type
V = Polyvinylchloride (PVC)
VV = Flame Retardant PVC Jacket (NEC CATV & CM)

POSITION 3
M = Standard Messenger
Engineer Determines Size

POSITION 4
Floodant Over Coax Core
APD = Amorphous Polypropylene
BW = BrightWire® (Coating not a Floodant)
= (Left Blank) No Floodant Required

POSITION 5
Pair Count/AWG
Pairs = 1 through 6 pair
AWG = 22, 24, or 26

POSITION 6
Floodant Over Pairs
APD = Amorphous Polypropylene
= (Left Blank) No Floodant Required

Nominal Diameter over Outer Jacket

Pairs			Web Width	Coaxial Cable	Messengers for Aerial Products
22 AWG	**24 AWG**	**26 AWG**	0.045 for Underground	F6 ..... 0.272	.051 Steel ..... 0.111 Dia.
1 - 0.152	1 - 0.144	1 - 0.159		F7 ..... 0.320	.072 Steel ..... 0.132 Dia.
2 - 0.190	2 - 0.195	2 - 0.177		F11 ..... 0.400	.083 Steel ..... 0.163 Dia.
3 - 0.210	3 - 0.225	3 - 0.194	0.035 for Indoor/Outdoor and Aerial	F6TS 0.278	.109 Steel ..... 0.189 Dia.
4 - 0.235	4 - 0.209	4 - 0.205		F7TS 0.323	
5 - 0.260	5 - 0.266	5 - 0.229		F11TS 0.400	Note: Two (2) Webs are used when Messenger is used
6 - 0.310	6 - 0.295	6 - 0.235		F6SS 0.297	
				F7SS 0.340	
				F11SS 0.407	

Pairs

Description
Solid copper conductor, polyethylene (PE) insulation, unshielded twisted pair with a rip cord.

Solid Conductor

22 AWG	0.0253 inches (.643 mm)
24 AWG	0.0201 inches (.511 mm)
26 AWG	0.0159 inches (.404 mm)

Number of Pairs Available
1 - 6

Standard Length
1000 ft/Reel

Pair Number	Color Combination
1	Blue + White/Blue Stripe
2	Orange + White/Orange Stripe
3	Green + White/Green Stripe
4	Brown + White/Brown Stripe
5	Slate + White/Slate Stripe
6	Blue + Red/Blue Stripe

Calculating Overall Cable Width

Non-Messenger MultiReach®
Add: Coax and pair jacket diameters plus one (1) web.

Specifications are subject to change without notice.

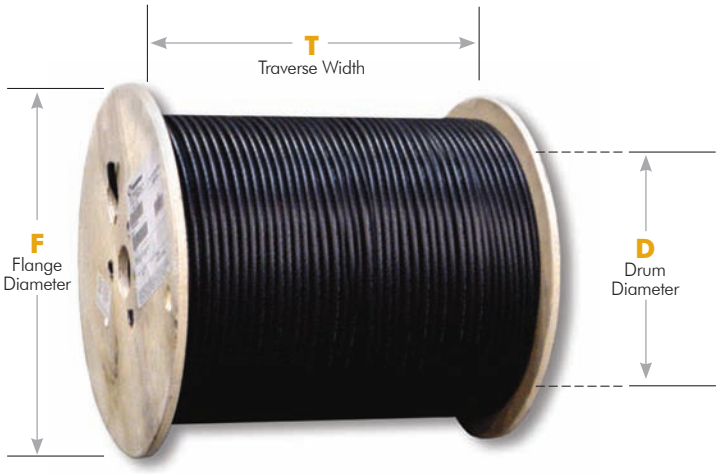
Drop Cable
Packaging and Shipping Information

Reel Size Example

F x D x T
Flange Drum Traverse

F = Flange Diameter (in inches)
D = Drum Diameter (in inches)
T = Traverse inside distance between flanges (in inches)

Note: T is inside dimension, not overall width



Minimum Purchase Quantity

Basic Products

Size	Round and Messenger	
	Reels	Boxes
F6	9	16
F11	4	N/A

Basic Products available in SMALL Quantity Purchases.

Size	Reels	
	Round	Messenger
QR 320 Drop	8 (4)	8 (4)

Other Products

CommScope offers a wide variety of products for your unique applications. Options available include custom print, jacket color, sequential marking, etc. Additional charges may apply for these features and a higher minimum quantity is required.

Size	Round and Messenger			Dual	Multi-Reach
	Reels	Boxes	Coils*	Reels Only	Reels Only
F59	27 (9)	32 (16)	32 (8)	48 (12)	48 (12)
F6	27 (9)**	32 (16)	32 (8)	48 (12)	48 (12)
F11	24 (4)	N/A	N/A	48 (12)	48 (12)

Example: The minimum order quantity for F6 is 27 reels (or 27,000 ft). For a quantity greater than 27, increments of 9 should be used (36, 45, 54, etc.).

**Indicates the minimum number of coils per order. Actual footage per coil varies by product.*
***Exception: Minimum reel quantity for F6SSVM is 27 (9).*

Freight Policy

- Shipments of $5,000 or more are f.o.b. factory, freight allowed if destination is within the continental United States.
- Shipments of less than $5,000 are f.o.b. factory.
- Standard lengths are 1,000 feet (304.8 meters) plus or minus 10%. Standard length per coil varies by product.
- Not more than 5% of each shipment shall be other than standard lengths, with no lengths shorter than 500 feet (152 meters) on 1,000 foot (304.8 meters) reels. Orders for custom print may receive lengths down to 300 feet.
- Method of shipment at discretion of shipper.
- Inspection and final acceptance shall be made at factory prior to shipment.

Drop Cable
Packaging and Shipping Information

59 Series

Product Type	Reel Dimensions (F x D x T)		Reels/Pkg	Package Dimensions (l x w x h)	
	Inches	cm		Inches	cm
Single	12x4x9	30x10x23	27	36 x 36 x 35	91 x 91 x 89
Single Messenger	14½x4x11	37x10x28	27	44 x 44 x 41	112 x 112 x 104
Single Tri-Shield	12x4x9	30x10x23	27	36 x 36 x 35	91 x 91 x 89
Single Super-Shield	12 x 4 x12	30x10x30	27	36 x 36 x 44	91 x 91 x 112

6 Series

Product Type	Reel Dimensions (F x D x T)		Reels/Pkg	Package Dimensions (l x w x h)	
	Inches	cm		Inches	cm
Single	12x4x12	30x10x30	27	36x36x44	91x91x112
Single Messenger	14½x4x11	37 x10 x28	27	44x44x41	112x112x104
Single Tri-Shield	12x4x12	30x10x30	27	36x36x44	91x91x112
Single Super-Shield	12x4x12	30x10x30	27	36x36x44	91x91x112
Super-Shield Messenger	14½ x 4 x 11	37x10x28	27	44 x 44 x 41	112x112x104

7 Series

Product Type	Reel Dimensions (F x D x T)		Reels/Pkg	Package Dimensions (l x w x h)	
	Inches	cm		Inches	cm
Single	14½x4x11	37 x 10 x 28	27	44 x 44 x 41	112 x 112 x 104
Single Messenger	18x6x11	46 x 15 x 28	12	36 x 36 x 41	91 x 91 x 104
Single Tri-Shield	14½x4x11	37 x 10 x 28	27	44 x 44 x 41	112 x 112 x 104
Single Super-Shield	16x6x11	41 x 15 x 28	24	48 x 44 x 41	122 x 112 x 104
Dual	30 x 12 x 12	76 x 30 x 30	3	30 x 30 x 41	76 x 76 x 104

11 Series

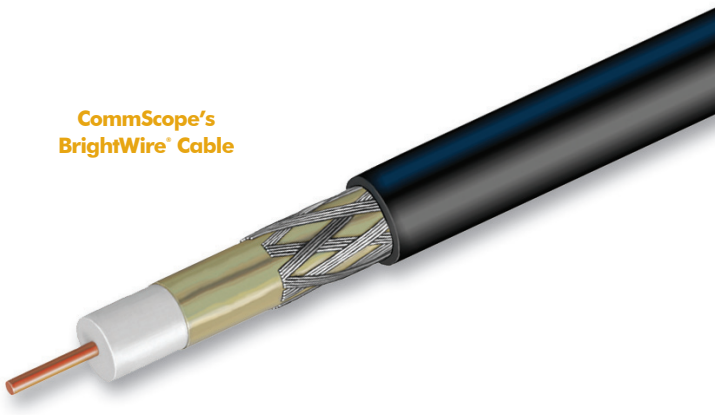
Product Type	Reel Dimensions (F x D x T)		Reels/Pkg	Package Dimensions (l x w x h)	
	Inches	cm		Inches	cm
Single	18 x 6 x 11	46 x 15 x 28	12	36 x 36 x 41	91 x 91 x 104
Single Messenger	20 x 6 x 12	51 x 15 x 30	12	40 x 40 x 45	101 x 101 x 114
Single Tri-Shield	18 x 6 x 11	46 x 15 x 28	12	36 x 36 x 41	91 x 91 x 104
Single Super-Shield	18 x 6 x 11	46 x 15 x 28	12	36 x 36 x 41	91 x 91 x 104
Super-Shield Messenger	20 x 6 x 12	51 x 15 x 30	12	40 x 40 x 45	101 x 101 x 114

QR 320 Series

Product Type	Reel Dimensions (F x D x T)		Reels/Pkg	Package Dimensions (l x w x h)	
	Inches	cm		Inches	cm
Round	24 x 12 x 13	61 x 31 x 33	8	48 x 48 x 33	122 x 122 x 84
Messenger	24 x 12 x 13	61 x 31 x 33	8	48 x 48 x 33	122 x 122 x 84

Corrosion Performance of CommScope Drop Cables
Technical Report

Introduction
Drop cables are deployed in a wide variety of climates, but just three installation environments - aerial, underground and indoor. While each environment offers unique challenges and conditions, they all share a common concern – corrosion. Fortunately, modern subscriber access cables offer a variety of treatment methods to combat corrosion, each with its own unique features. The performance and features of these treatments will assist the installer in determining which treatment is appropriate for their environment.


CommScope's BrightWire® Cable

Standards for Corrosion Resistance
Any discussion of corrosion resistance must begin with a review of applicable performance standards. The SCTE Engineering Committee IPS (Interface Practices Subcommittee) has written and adopted the "Test Method for Moisture Inhibitor Corrosion Resistance", IPS-TP-017. This test method requires that a cable sample with slots cut in the jacket be exposed to a salt fog environment for 144 hours. Once complete, the shielding surrounding the slot must not show any visible signs of corrosion.

All CommScope corrosion resistant treatments meet and exceed the requirements as defined in this standard.

Available Treatments
CommScope Drop Cables are available with the following corrosion resisting treatments. Treatments are available for all shielding configurations (as shown below in Table 1).

The common applications listed are recommended and typical for the industry, although any treatment may be substituted as a matter of customer preference, and all treatments have proven reliable in all conditions.

BrightWire® is a dry chemical treatment that is applied to the metals prior to cable assembly. BrightWire resists oxidation in the presence of water, and is the cleanest and least obtrusive treatment available today. BrightWire is best utilized in aerial and indoor applications where corrosion resistance is desired without the mess flooding compounds can create during cable preparation.

Available Corrosion Resistant Treatments

Trade Name	Description	IPS-TP-017	Associated Jacket Material	Preferential Application
BrightWire®	F6TSVV-**BW** F677TSVV-**BW**	Exceed	PVC or PE	Indoor or Aerial
Migra-Heal®	F6TSE**F** F677TSE**F**	Exceed	PE only	Underground
APD®	F6TSE-**APD** F677TSE-**APD**	Exceed	PVC or PE	General purpose
ETPR	F6TSE-**ETPR** (1/22-**ETPR**) F677TSE-**ETPR** (1/22-**ETPR**)	Exceed	PE only	Underground with hybrid twisted pairs

Table 1

Migra-Heal® is a viscous flooding compound which coats the aluminum shield elements where applied. Migra-Heal forms a moisture barrier, preventing water from contacting and corroding shield elements. Migra-Heal is only available with a PE jacket material. Migra-Heal's viscous nature provides superior moisture and corrosion resistance, and is often preferred in underground plant where standing water is common.

APD™ is a waxy filling compound which coats the aluminum shield elements where applied. APD, like Migra-Heal, forms a moisture barrier, preventing water from contacting and corroding shield elements. APD is easily cleaned off, is available with all jacket materials, and is often preferred in aerial plant. APD is often chosen as an excellent general purpose flooding compound.

ETPR is a traditional flooding compound from the telephony industry. It is chosen where twisted pair hybrid cables are utilized, primarily because it wipes clean easily. ETPR, like all CommScope flooding compounds, meets and exceeds the requirements of IPS-TP-017.

Conclusion

CommScope offers a variety of corrosion resistant treatments for our drop cables. Each treatment is proven and effective for the prevention of corrosion, exceeding the requirements defined in the SCTE "Test Method for Moisture Inhibitor Corrosion Resistance", IPS-TP-017. The treatments offer unique features and performance attributes that have caused them to be preferentially deployed in specific environments over the years.

For more information about specific deployment or treatment options, please refer to the following documents or contact the Digital Broadband Resource Center at 866-333-DBRC (866-333-3272).

Shielding Effectiveness in Broadband Networks

Technical Report

Introduction

The convergence of voice, video and data technologies into the broadband network has raised the standards of performance for the components of these exciting new networks. Signal integrity has become a focal point for service providers in ensuring that customer satisfaction can be guaranteed. A drop cable's performance is a function of its design and is a major part of that signal integrity.

The Cable Evolution

Historically, the predominant drop cable is the RG6 size, 60% braided drop cable, commonly known as the F660. The F660 drop cable, whether it is flooded, fire resistant, direct burial, or messengered is the workhorse in the 75-ohm world of drop cable. It is a great compromise between cost and performance. More than adequate for many applications, the F660 design falls short in performance compared to cables like "Tri-Shield" and "Super-Shield" variations. However, these high-performance cables come with added cost. From these facts comes two questions, how much better are these designs, and how much do they cost? The following discussion will answer these questions by comparing the list price to the average shielding effectiveness of the three cable designs.

Aging of Cable

Like everything else, cables experience degradation throughout their life. While handling and installation of a cable creates stress on the cable's components, most degradation is attributed to constant exposure to the environment. To that point, shielding performance after handling and flexure is of greater importance than shielding performance before installation or flexure.

It is not practical to rely on the actual aging of cable for research and development of products, and engineering case studies. Obtaining accurate test results in the shortest period of time requires the use of simulated aging techniques.

Cable aging is accelerated at CommScope by placing a section of drop cable into a piece of conduit bent in a parabolic shape, then rotating the sample. The resulting flexure has been shown to simulate 10 years in the plant after 10,000 rotations.

The Laminated Shielding Tape (LST)

Laminated shielding tapes are a crucial element of the drop cable shield. The tape is made up of two separate layers of aluminum tape that are bonded to either side of a substrate material. The relatively thin layers of aluminum provide the necessary electrical characteristics to allow signal propagation and reduce signal ingress and egress while still maintaining a high degree of flexibility. Laminated shielding tapes provide high frequency shielding, but must be supported to last through the rigors of installations. Without support, the tape will develop microcracks or "gaps", increasing DC resistance, resistivity and attenuation.

The Braid

The braid in drop cables provides both electrical and mechanical benefits critical to the cables performance.

Electrically, the aluminum braid provides low frequency signal shielding, improved DC loop resistance and better long term shielding.

Mechanically, the braid greatly enhances the tensile strength the cable requires. It also provides the mechanical base for connectors to grip.

A cumulative effect of the electrical and mechanical characteristics of drop cable braid can be most clearly seen in long-term conductivity. Without a braid, the laminated shielding tape cannot withstand the effects of physical stress produced by the environment and installation. That stress results in substantially increased DC resistance for cables without braid.

CommScope has many years of testing experience that demonstrates the critical relationship between the braid and the laminated shielding tape.

Shielding Effectiveness

Drop cable shielding is a function of the condition of, as well as the amount of shielding material present. The majority of the high frequency shielding in a drop cable comes from aluminum composite tapes, so their integrity must be maintained. Braid wire in a drop cable, rather than damaging the tape will support and extend the life of the tape when correctly applied.

For more information, call Customer Service at 800.982.1708 or 828.324.2200 • Fax 828.328.3400 • custserv@commscope.com

The measure of drop cable shielding is shielding effectiveness. Shielding effectiveness may be directly measured utilizing a broadband device like CommScope's GTEM, or calculated with a transfer impedance measurement. Either measurement can reveal both the shielding effectiveness of a new piece of cable, and perhaps more important, a piece of aged cable.

Cable Design	dB Shielding Effectiveness Before Flexure	dB Shielding Effectiveness After 10,000 Cycle Flexure
F6 Super-Shield	110 - 120	93 - 98
F6 77% Tri-Shield	112-118	86 - 95
F6 Tri-Shield	109 - 115	77 - 85
F6 90% Shield	95 - 100	73 - 81
F6 60% Shield	85 - 93	69 - 72

Figure 1

The data in Figure 1 compares the shielding effectiveness of five shielding styles of drop cable before and after accelerated aging. The rotary flex fatigue test was employed to obtain the results of aged cable. Clearly the braid is performing its intended function bridging the gaps and physically reducing the effects of flexure on the laminated shielding tapes. Test results indicate shielding effectiveness degrades to a certain point with no further degradation with flexure. The data in Figure 1 also shows that the shielding effectiveness of the various cables is maintained in a relative close approximation to one another even after flexure.

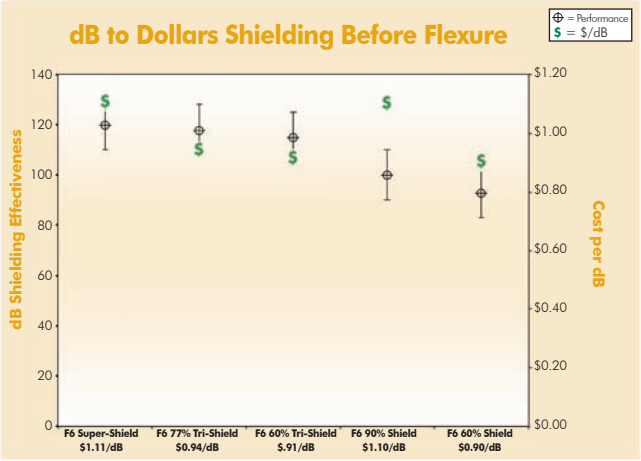


Figure 2

Dollar for dB

Just how much bang for the buck do the various shielding levels provide? Using the standard list price for these CommScope products, we divided the list price by the dB shielding effectiveness of each cable before and after flexure. We can now compare the "Dollar for the dB" of these five cable designs on a linear scale (Figure 2).

As the graph (Figure3) clearly indicates, 77% Tri-Shield cable offers the most shielding performance for the dollar. As stated before, the F660 design is more than adequate in many applications but the 77% Tri-Shield cable design is clearly superior in performance versus price at ~$1.17 per dB after flexure. In some applications, Quad shield cables are more appropriate than other designs, such as extreme noisy environments, which are typically more commonplace indoors.

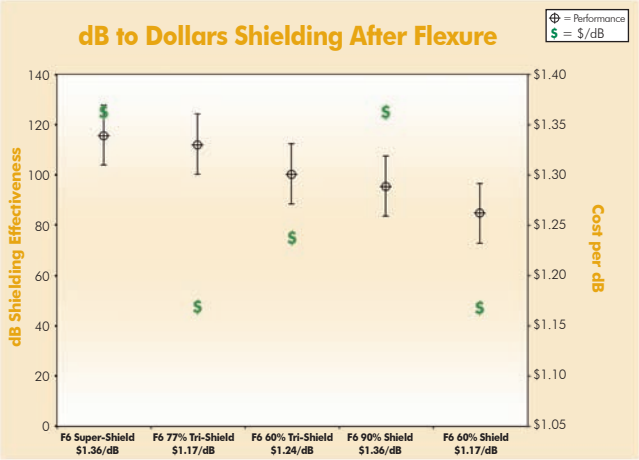


Figure 3

Summary

Shielding is an important consideration when selecting a cable to deploy into a broadband network. The most important measurement of shielding is shielding effectiveness and the most critical measurement of that is after flexure. For most applications in today's broadband networks, 77% Tri-Shield cable provides the best performance/price based cabling solution.

NEC Article 830
Technical Report

Introduction
What is NEC Article 830?
Article 830 is a new addition to the National Electric Code for 1999. NEC 830 is a re-classification of cables used in network-powered broadband communications systems. While the cables covered under Article 830 are similar to the cables covered in NEC Article 820, there are important differences.

Prior to the explosion of communication and entertainment options now being offered, the telephone company delivered phone service over a low-voltage circuit (providing equipment power), while the cable company piped in milliwatt RF signals that provided programming for the TV. Because drop coax was basically a pipeline for broadcast signals, it carried limited voltage.

Changes in deregulation and the arrival of the internet led to the telephone and cable companies' competition to be the customer's multimedia link to the information age.

The key to all of this is powered broadband cable. CATV, HDTV, telephone, internet and other services can be transmitted and received over a single coaxial cable. The cable runs from the tap to a device called the Network Interface Unit (NIU) which resides in the customer premises and is the distribution point for all these services. The NIU can be powered by the drop, which potentially carries as much as 150 volts of power. Article 830 was written to cover drop cables operating at these higher voltages.

What are the Changes?
Article 820 covers indoor cables that carry only RF signals, limited voltage <90V. However, Article 830 defines cables that run from the tap to the NIU. Because these cables may carry higher voltage, the level of power is a very important factor in the classification.

Article 830 cables are divided into low and medium power rated cables, with low being from 0 to 100 volts and medium being from 0 to 150 volts.

The second consideration in the creation of Article 830 is the installed location of the cable. Article 830 creates classifications depending on where and how the cable is to be installed. Six classifications for Article 830 medium powered cables were created. (See chart below.)

BMU
Broadband Medium-voltage Underground cables for buried installation.

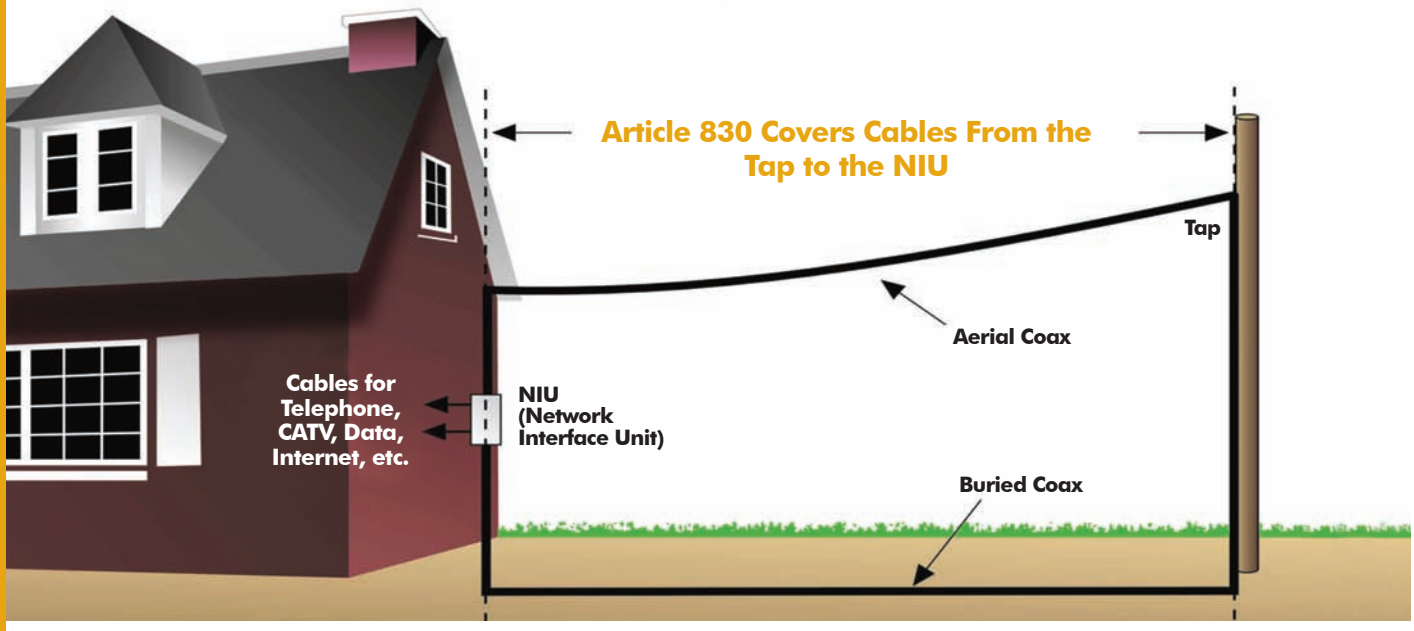
BM
Broadband Medium-voltage cables for general use (except for risers and plenums) determined to be flame retardant through the UL-1581 flame test.

BMR
Broadband Medium-voltage Riser for vertical runs in shafts from floor to floor.

BLU
Broadband Low-voltage Underground cables for buried installation.

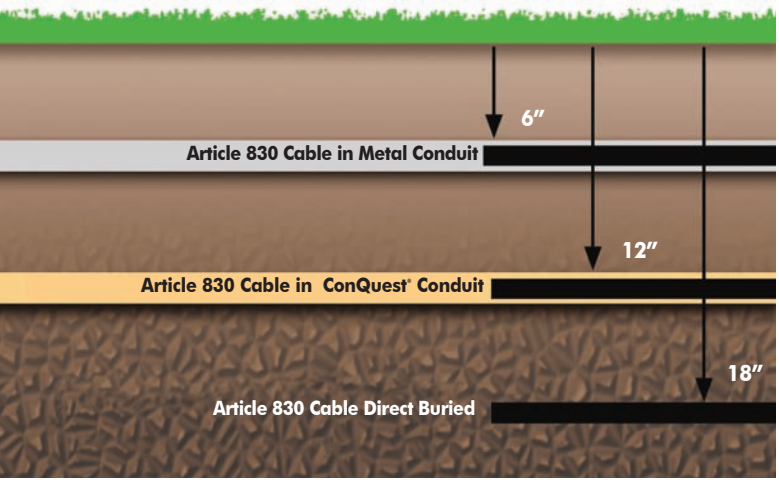
BLX
Broadband Low-voltage cables for residential outdoor and raceway usage determined to be flame retardant through the VW-1 flame test.

BLP
Broadband Low-voltage Plenum cables with low smoke properties for us in plenum/duct spaces.



There are specific classifications for buried cables under Article 830. The power-carrying nature of Article 830 cables adds complexity to underground installation. The depth of burial has been revised for direct buried cable, conduit or other raceways. They must be installed to meet the minimum cover requirements as shown in the charts below.

Other than meeting the new depth requirements in Article 830, provisions to utilize a form of surge protection device is an acceptable option (burial depth of 12 inches). This protection device is to be placed between the NIU and the system tap-off device. In the event of a short of the center conductor to ground/sheath or opening in the center conductor, the powering voltage is automatically disconnected from the cable.



Burial Location	Direct Burial	ConQuest® Cable-In-Conduit	Metal* Conduit
All locations not specified below	18″	12″	6″
Trench below 2″ of concrete (or equivalent)	12″	6″	6″
Under a Building (raceway ONLY)	0″	0″	0″
Under a 4″ min. concrete slab/no vehicular traffic	12″	4″	4″
One/two family dwellings, driveways, outdoor parking areas	12″	12″	12″

**rigid and intermediate metal*

Direct buried cables emerging from the ground must be encased in either metal or flame-retardant nonmetallic conduit from their minimum buried depth to a height of 8 feet (2.44 meters) above the ground. Generally, direct buried cables must be kept at least 12 inches (305 millimeters) from power and light circuits unless armored, and cannot be placed within 5 feet (1.52 meters) from a swimming pool.

The low-powered cables (BLU rated) do not have to meet these minimum depth requirements if a listed fault protection device is installed on the network side of the connection to the tap. Any short or interruption should immediately trip the breaker.

Grandfathering

Existing cables that were installed prior to January 1, 2000 will be grandfathered if:

- Cable carries less than 100 volts
- Cable has been properly installed in accordance with Article 820.

NEC Article 830 Compliant Products From CommScope

CommScope, the world leader in manufacturing high speed, high bandwidth cables, will offer Article 830-compliant cables pre-installed in conduit ready for burial. ConQuest® Cable-In-Conduit permits Article 830 drop cable to be installed at a more shallow depth than direct buried cables. Our ConQuest line features high density polyethylene material, saving installation time and costs. For more information on NEC Article 830, consult a complete copy of the 1999 National Electrical Code or contact the NEC directly at 800-344-3555

CommScope
Drop Cable-In-Conduit