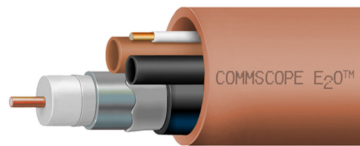


E20® Coaxial/Microduct Hybrid Buried Cable



- E20 is a solution that enables service providers the ability to bridge HFC networks to FTTx. The E20 composite coaxial/fiber product line combines fiber, microducts, and coaxial cable preinstalled in conduit.
- Serves businesses in a new commercial serving area
- Mitigates future cost of fiber installation
- Pre-installed in high density PE conduit for added physical protection
- One-step installation saves on construction cost
- Ideal for commercial data customers that also require video
- All products tested to industry standards

Product Classification

Product Type	Coaxial fiber cable-in-conduit
Product Brand	E20®

General Specifications

Cable Series	QR 715
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Dimensions

Height	60.325 mm 2.375 in
Width	60.325 mm 2.375 in
Outer Jacket Thickness, nominal	4.724 mm 0.186 in

Material Specifications

Outer Jacket Material	High density polyethylene (HDPE)
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Mechanical Specifications

Minimum Bend Radius	660.4 mm 26 in
Pulling Tension, maximum	1,170.268 kg 2580 lb

Environmental Specifications

Environmental Space	Buried
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Packaging and Weights

Weight, gross	1,211.365 kg/km 814 lb/kft
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Regulatory Compliance/Certifications

Agency	Classification
ISO 9001:2015	Designed, manufactured and/or distributed under this quality management system



Included Products

359998100 16MT DUCT EMPTY	-	ConQuest® Empty Conduit, 16 mm, SDR 11, terracotta
359998400 16MT DUCT EMPTY	-	ConQuest® Empty Conduit, 16 mm, SDR 11, terracotta
360000000 12.7MB DUCT EMPTY	-	ConQuest® Empty Conduit, 12.7 mm, black
360000013 12.7MB DUCT EMPTY	-	ConQuest® Empty Conduit, 12.7 mm, black
5513592 QR® 715 JCASS	-	75 Ohm QR® Trunk and Distribution Cable, black PE jacket, flooded for underground
8220001 PP Coated Tone Wire 0.0403 CCS	-	E20® Coaxial/Microduct Hybrid Buried Cable
CX3799839 200T135 EMPTY DUCT COEX	-	ConQuest® Empty Conduit, 2 in, SDR 13.5, terracotta

359998100 | 16MT DUCT EMPTY

ConQuest® Empty Conduit, 16 mm, SDR 11, terracotta



Product Classification

Product Type	Empty conduit
Product Brand	ConQuest®

General Specifications

Color	Terracotta
Conduit Type	Non-toneable
Density Test Method	ASTM D792A
Density, maximum	0.955 g/cm ³ 0.035 lb/in ³
Density, minimum	0.941 g/cm ³ 0.034 lb/in ³
Design Standard	ASTM D3350-05
Wall Type	Smooth

Dimensions

Length	1,828.8 m 6000 ft
Inner Diameter, nominal	12.725 mm 0.501 in
Outer Diameter, nominal	15.875 mm 0.625 in
Wall Thickness Designation	SDR 11
Wall Thickness, minimum	1.397 mm 0.055 in
Nominal Size	16 mm

Material Specifications

Flexural Modulus, minimum	551.581 N/mm ² 80000 psi
Flexural Property Test Method	ASTM D790
Hydrostatic Design Basis	Not pressure rated
Hydrostatic Design Test Method	ASTM D2837

359998100 | 16MT DUCT EMPTY

Material Type	High density polyethylene (HDPE)
Melt Flow Rate Test Method	ASTM D1238
Melt Flow Rate, maximum	0.39 g/10 min

Mechanical Specifications

Minimum Bend Radius, unsupported	203.2 mm 8 in
Tensile Property Test Method	ASTM D638
Tensile Strength at yield, minimum	20.684 N/mm² 3000 psi
Pulling Tension, maximum	95.254 kg 210 lb

Environmental Specifications

Environmental Stress Crack Resistance	Failure rate of 10% within 96 hours
Environmental Stress Test Method	ASTM D1693, ESCR Condition B

Packaging and Weights

Weight, net	68.456 kg/km 46 lb/kft
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Regulatory Compliance/Certifications

Agency	Classification
ISO 9001:2015	Designed, manufactured and/or distributed under this quality management system



* Footnotes

Environmental Stress Crack Resistance	ESCR—Environmental Stress Crack Resistance
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ConQuest® Empty Conduit, 16 mm, SDR 11, terracotta



Product Classification

Product Type	Empty conduit
Product Brand	ConQuest®

General Specifications

Color	Terracotta
Conduit Type	Non-toneable
Density Test Method	ASTM D792A
Density, maximum	0.955 g/cm³ 0.035 lb/in³
Density, minimum	0.941 g/cm³ 0.034 lb/in³
Design Standard	ASTM D3350-05
Wall Type	Smooth

Dimensions

Inner Diameter, nominal	12.725 mm 0.501 in
Outer Diameter, nominal	15.875 mm 0.625 in
Wall Thickness Designation	SDR 11
Wall Thickness, minimum	1.397 mm 0.055 in
Nominal Size	16 mm

Material Specifications

Flexural Modulus, minimum	551.581 N/mm² 80000 psi
Flexural Property Test Method	ASTM D790
Hydrostatic Design Basis	Not pressure rated
Hydrostatic Design Test Method	ASTM D2837
Material Type	High density polyethylene (HDPE)

359998400 | 16MT DUCT EMPTY

Melt Flow Rate Test Method	ASTM D1238
Melt Flow Rate, maximum	0.39 g/10 min

Mechanical Specifications

Minimum Bend Radius, unsupported	203.2 mm 8 in
Tensile Property Test Method	ASTM D638
Tensile Strength at yield, minimum	20.684 N/mm² 3000 psi
Pulling Tension, maximum	95.254 kg 210 lb

Environmental Specifications

Environmental Stress Crack Resistance	Failure rate of 10% within 96 hours
Environmental Stress Test Method	ASTM D1693, ESCR Condition B

Packaging and Weights

Weight, net	68.456 kg/km 46 lb/kft
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Regulatory Compliance/Certifications

Agency	Classification
ISO 9001:2015	Designed, manufactured and/or distributed under this quality management system



* Footnotes

Environmental Stress Crack Resistance	ESCR—Environmental Stress Crack Resistance
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ConQuest® Empty Conduit, 12.7 mm, black



Product Classification

Product Type	Empty conduit
Product Brand	ConQuest®

General Specifications

Color	Black
Conduit Type	Non-toneable
Density Test Method	ASTM D792A
Density, maximum	0.955 g/cm³ 0.035 lb/in³
Density, minimum	0.941 g/cm³ 0.034 lb/in³
Design Standard	ASTM D3350-05
Wall Type	Smooth

Dimensions

Inner Diameter, nominal	10.008 mm 0.394 in
Outer Diameter, nominal	12.7 mm 0.5 in
Wall Thickness, minimum	1.346 mm 0.053 in
Nominal Size	12.7 mm

Material Specifications

Flexural Modulus, minimum	551.581 N/mm² 80000 psi
Flexural Property Test Method	ASTM D790
Hydrostatic Design Basis	Not pressure rated
Hydrostatic Design Test Method	ASTM D2837
Material Type	High density polyethylene (HDPE)
Melt Flow Rate Test Method	ASTM D1238

Melt Flow Rate, maximum0.39 g/10 min

Mechanical Specifications

Minimum Bend Radius, unsupported152.4 mm | 6 in

Tensile Property Test MethodASTM D638

Tensile Strength at yield, minimum20.684 N/mm² | 3000 psi

Pulling Tension, maximum86.183 kg | 190 lb

Environmental Specifications

Environmental Stress Crack ResistanceFailure rate of 10% within 96 hours

Environmental Stress Test MethodASTM D1693, ESCR Condition B

Packaging and Weights

Weight, net46.133 kg/km | 31 lb/kft

Regulatory Compliance/Certifications

AgencyClassification

ISO 9001:2015Designed, manufactured and/or distributed under this quality management system



* Footnotes

Environmental Stress Crack Resistance ESCR—Environmental Stress Crack Resistance

ConQuest® Empty Conduit, 12.7 mm, black



Product Classification

Product Type	Empty conduit
Product Brand	ConQuest®

General Specifications

Color	Black
Conduit Type	Non-toneable
Density Test Method	ASTM D792A
Density, maximum	0.955 g/cm³ 0.035 lb/in³
Density, minimum	0.941 g/cm³ 0.034 lb/in³
Design Standard	ASTM D3350-05
Wall Type	Smooth

Dimensions

Inner Diameter, nominal	10.008 mm 0.394 in
Outer Diameter, nominal	12.7 mm 0.5 in
Wall Thickness, minimum	1.346 mm 0.053 in
Nominal Size	12.7 mm

Material Specifications

Flexural Modulus, minimum	551.581 N/mm² 80000 psi
Flexural Property Test Method	ASTM D790
Hydrostatic Design Basis	Not pressure rated
Hydrostatic Design Test Method	ASTM D2837
Material Type	High density polyethylene (HDPE)
Melt Flow Rate Test Method	ASTM D1238

Melt Flow Rate, maximum

0.39 g/10 min

Mechanical Specifications

Minimum Bend Radius, unsupported

152.4 mm | 6 in

Tensile Property Test Method

ASTM D638

Tensile Strength at yield, minimum

20.684 N/mm² | 3000 psi

Pulling Tension, maximum

86.183 kg | 190 lb

Environmental Specifications

Environmental Stress Crack Resistance

Failure rate of 10% within 96 hours

Environmental Stress Test Method

ASTM D1693, ESCR Condition B

Packaging and Weights

Weight, net

46.133 kg/km | 31 lb/kft

Regulatory Compliance/Certifications

Agency

ISO 9001:2015

Classification

Designed, manufactured and/or distributed under this quality management system



* Footnotes

Environmental Stress Crack Resistance

ESCR—Environmental Stress Crack Resistance

75 Ohm QR® Trunk and Distribution Cable, black PE jacket, flooded for underground



Product Classification

Product Type	Coaxial hardline cable
Product Brand	QR®

General Specifications

Cable Type	715 series
Construction Type	Welded
Jacket Color	Black
Short Description	QR 715 JCASS SM PR997

Dimensions

Cable Length	914.4 m 3000 ft
Diameter Over Center Conductor, nominal	4.216 mm 0.166 in
Diameter Over Dielectric, nominal	17.424 mm 0.686 in
Diameter Over Jacket, nominal	19.939 mm 0.785 in
Diameter Over Outer Conductor, nominal	18.161 mm 0.715 in
Jacket Thickness, nominal	0.889 mm 0.035 in
Outer Conductor Thickness, nominal	0.368 mm 0.014 in

Electrical Specifications

Capacitance	50.197 pF/m 15.3 pF/ft
Capacitance Tolerance	±1.0 pF/ft
Characteristic Impedance	75 ohm
Characteristic Impedance Tolerance	±2 ohm
dc Resistance Note	Nominal values based on a standard condition of 20 °C (68 °F)
dc Resistance, Inner Conductor, nominal	1.903 ohms/km 0.58 ohms/kft

5513592 | QR® 715 JCASS

dc Resistance, Loop, nominal	3.281 ohms/km 1 ohms/kft
dc Resistance, Outer Conductor, nominal	1.378 ohms/km 0.42 ohms/kft
Jacket Spark Test Voltage	5000 Vac
Nominal Velocity of Propagation (NVP)	88 %
Operating Frequency Band	5–3000 MHz
Structural Return Loss	26 dB @ 1002–1218 MHz 30 dB @ 5–1002 MHz

Attenuation

Frequency (MHz)	Attenuation (dB/100 m)	Attenuation (dB/100 ft)
5.0	0.36	0.11
55.0	1.21	0.37
83.0	1.48	0.45
85.0	1.51	0.46
204.0	2.4	0.73
211.0	2.43	0.74
250.0	2.66	0.81
300.0	2.92	0.89
350.0	3.18	0.97
400.0	3.44	1.05
450.0	3.67	1.12
500.0	3.9	1.19
550.0	4.1	1.25
600.0	4.3	1.31
750.0	4.89	1.49
865.0	5.31	1.62
1000.0	5.74	1.75
1218.0	6.22	1.9
1300.0	6.45	1.96
1400.0	6.72	2.05
1500.0	6.98	2.13
1600.0	7.23	2.2
1700.0	7.48	2.28
1794.0	7.71	2.35
1880.0	7.72	2.35
2000.0	8.2	2.5

2200.0	8.65	2.64
2400.0	9.08	2.77
2600.0	9.51	2.9
2800.0	9.92	3.02
3000.0	10.32	3.15

Material Specifications

Center Conductor Material	Copper-clad aluminum
Dielectric Material	Foam PE
Jacket Material	PE
Outer Conductor Material	Aluminum

Mechanical Specifications

Pulling Tension, maximum	154.221 kg 340 lb
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Environmental Specifications

Corrosion Protection	Migraheal®
Environmental Space	Buried

Packaging and Weights

Packaging Type	Reel
Weight, gross	305.074 kg/km 205 lb/kft

Regulatory Compliance/Certifications

Agency	Classification
ISO 9001:2015	Designed, manufactured and/or distributed under this quality management system



E2O® Coaxial/Microduct Hybrid Buried Cable



- E2O is a solution that enables service providers the ability to bridge HFC networks to FTTx. The E2O composite coaxial/fiber product line combines fiber, microducts, and coaxial cable preinstalled in conduit.
- Serves businesses in a new commercial serving area
- Mitigates future cost of fiber installation
- Pre-installed in high density PE conduit for added physical protection
- One-step installation saves on construction cost
- Ideal for commercial data customers that also require video
- All products tested to industry standards

Product Classification

Product Type	Coaxial fiber cable-in-conduit
Product Brand	E2O®

General Specifications

Conductor Elongation, maximum	1 %
Conductor Type	Solid
Insulation Elongation, minimum	200 %

Dimensions

Conductor Diameter	1.024 mm 0.04 in
Insulation Thickness, nominal	0.008 mm 0 in
Conductor Gauge	18 AWG

Electrical Specifications

Conductor Resistance	87.598 ohms/km 26.7 ohms/kft
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Material Specifications

Insulation Material Type	Polypropylene coated copper-clad steel wire
Outer Jacket Material	High density polyethylene (HDPE)

Mechanical Specifications

Conductor Tensile Strength, minimum	827.371 N/mm² 120000 psi
Insulation Tensile Strength, minimum	31.026 N/mm² 4500 psi

8220001 | PP Coated Tone Wire 0.0403 CCS

Environmental Specifications

Environmental Space Buried

Regulatory Compliance/Certifications

Agency	Classification
ISO 9001:2015	Designed, manufactured and/or distributed under this quality management system



ConQuest® Empty Conduit, 2 in, SDR 13.5, terracotta



Product Classification

Product Type	Empty conduit
Product Brand	ConQuest®

General Specifications

Color	Terracotta
Conduit Type	Non-toneable
Density Test Method	ASTM D792A
Density, maximum	0.955 g/cm³ 0.035 lb/in³
Density, minimum	0.941 g/cm³ 0.034 lb/in³
Design Standard	ASTM D3350-05
Wall Type	Smooth

Dimensions

Length	762 m 2500 ft
Inner Diameter, nominal	50.876 mm 2.003 in
Outer Diameter, nominal	60.325 mm 2.375 in
Wall Thickness Designation	SDR 13.5
Wall Thickness, minimum	4.47 mm 0.176 in
Nominal Size	2 in

Material Specifications

Flexural Modulus, minimum	551.581 N/mm² 80000 psi
Flexural Property Test Method	ASTM D790
Hydrostatic Design Basis	Not pressure rated
Hydrostatic Design Test Method	ASTM D2837

CX3799839 | 200T135 EMPTY DUCT COEX

Material Type	High density polyethylene (HDPE)
Melt Flow Rate Test Method	ASTM D1238
Melt Flow Rate, maximum	0.39 g/10 min

Mechanical Specifications

Minimum Bend Radius, unsupported	660.4 mm 26 in
Tensile Property Test Method	ASTM D638
Tensile Strength at yield, minimum	20.684 N/mm² 3000 psi
Pulling Tension, maximum	1,170.268 kg 2580 lb

Environmental Specifications

Environmental Stress Crack Resistance	Failure rate of 10% within 96 hours
Environmental Stress Test Method	ASTM D1693, ESCR Condition B

Packaging and Weights

Weight, net	791.703 kg/km 532 lb/kft
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Regulatory Compliance/Certifications

Agency	Classification
ISO 9001:2015	Designed, manufactured and/or distributed under this quality management system



* Footnotes

Environmental Stress Crack Resistance	ESCR—Environmental Stress Crack Resistance
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