

Rosenberger

RosenbergerSLink™

MobileCom Infrastructure Site Solutions



Rosenberger Sales Worldwide

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Company Profile

Rosenberger, founded in 1958, is one of the leading manufacturers of high-frequency coaxial connectors worldwide. Our products play a keyrole in many high-tech industries, e. g. telecommunication, automotive electronics, test & measurement applications, medical electronics, data systems, etc.

The product range includes high-frequency coaxial connectors and cables, RF- test & measurement products, automotive connectors, as well as mobilecom infrastructure site solutions, e. g. connectors, cables or accessories for radio base stations. In addition, fiber optic products as well as cable assemblies are also available.

Our headquarters - with research & development, production and administrative departments - are located in Fridolfing, in the south-eastern part of Bavaria, Germany. Approximately 2.600 employees in our headquarters, manufacturing plants and sales offices in Europe, Asia as well as in North and South America take care of development, production and sales of our products.

Rosenberger is certified according to ISO/TS 16949:2002, ISO 9001 and ISO 14001.

Company Area



Quality

The quality of our products and services is an essential part of our corporate strategy. Rosenberger's quality philosophy is not just to optimize components and products, but to continuously improve and optimize all processes to ensure customer satisfaction: from product development, planning, purchasing, production, sales, logistics and service to environmental policy – all in all, to offer maximum benefit to our customers all over the world.

Furthermore, our quality responsibility includes being proactive in protecting our environment and natural resources. We endeavour to avoid or minimize environmental pollution – even beyond the requirements of legal regulations whenever possible.

Environmental Directives

Connectors and cable assemblies manufactured by Rosenberger correspond to the following directives:

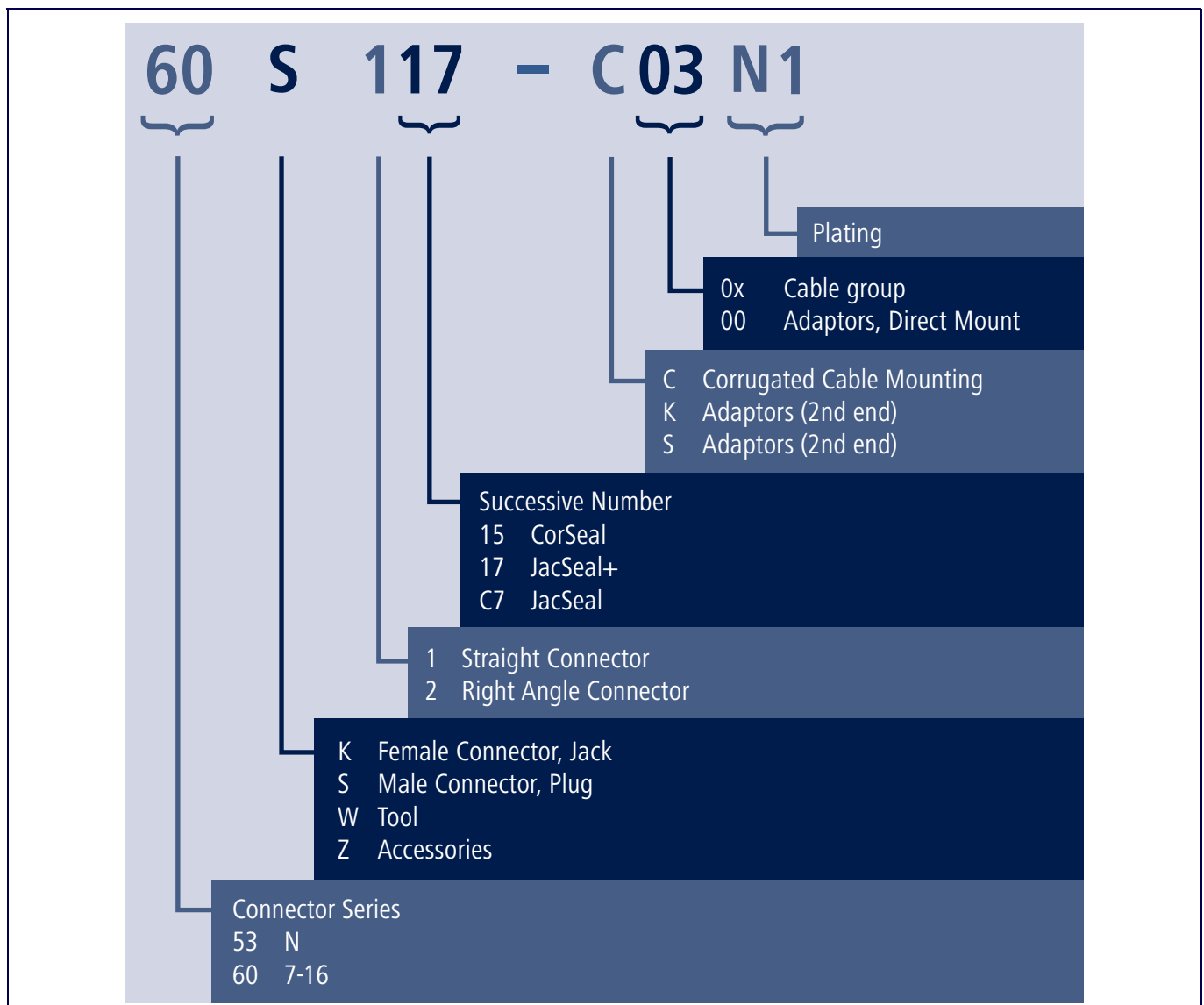
- 2002/95/EG – Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS)
- 2002/96/EG – Waste Electrical and Electronic Equipment (WEEE)
- 2003/11/EG and 2000/53/EC – End of Life Vehicle (ELV)
- IEC 61760-1 – max. soldering temperature + 260 °C for 10 sec. for PCB connectors.

The objective of the above mentioned directives is to avoid or to limit the use of the following hazardous substances:

- Lead
- Mercury
- Cadmium
- Chrome VI
- PBB (Polybrominated Biphenyls)
- PBDE (Polybrominated Diphenyl Ethers)



Number Designation



Cable Groups

Cable Group	Impedance	Cable Type
C01	50 Ω	Flexible Corrugated Cable 1/4"R
C02	50 Ω	Super Flexible Corrugated Cable 3/8"S
C03	50 Ω	Flexible Corrugated Cable 1/2"R
C05	50 Ω	Flexible Corrugated Cable 7/8"R
C06	50 Ω	Flexible Corrugated Cable 1 1/4"R
C07	50 Ω	Flexible Corrugated Cable 1 5/8"R
C08	50 Ω	Super Flexible Corrugated Cable 1/2"S
C09	50 Ω	Super Flexible Corrugated Cable 1/4"S

Plating Code

The used platings of outer and center contacts of Rosenberger connectors can be identified by each part number.

Example:

60 S 117- C03 N1

Plating outer contact: White bronze (N)

Plating center contact: Silver (1)

Standard plating codes of Rosenberger connectors

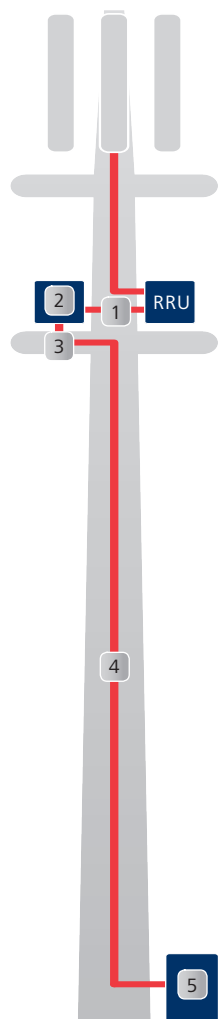
Outer Contact

Code	Plating	Symbol	Layer thickness	Magnetic properties
B	Silver	Ag	3.00 μ m	Non magnetic
N	White bronze (e.g. Optalloy ®) Flash white bronze over silver (e.g. Optargen ®)			Non magnetic

Center Contact

Code	Plating	Symbol	Layer thickness	Magnetic properties
1	Silver	Ag	3.00 μ m	Non magnetic
3	Gold	Au	1.27 μ m	
5	Gold	Au	0.15 μ m	non magnetic

Universal FTTA Solution



1

Outdoor connection/ jumper cables for remote radio units

Assembly properties:

- 2 fiber outdoor cable for use in harsh environment
- Available with dedicated fiber-optic outdoor connector (RDC) or any other standard duplex connector

Packaging, delivery:

- Multi-fiber backbone cables can be packaged on plywood drums.
- The multi-fiber cable is spooled onto a drum. The outdoor distribution box can be fitted on the outer plywood wheel. Outdoor connection/jumper cables can be preinstalled in distribution boxes and mounted to the plywood drum, protected by an extra cover against mechanical influences.



2

Weather proof distribution box

- Enclosure: sturdy box with mounts
- Door: hinged, 180° opening angle, cam lock to be opened by common tools, key-lock available
- Splash waterproof, air flow control for moisture release
- Built-in patching device, available with all common connector interfaces (e.g. LC, SC)
- Pre-installed latches for wall mounting or pole mounting



3

Pulling sock

The pulling sock is designed to be hoisted by hand or by any other common hoisting device



4

Multi fiber optical backbone cable for fast on-site installation

- The Rosenberger PreCONNECT® fiber-optic cabling system consists of factory-assembled loose tube cables with up to 24 fibers
- For safe installation, the fiber-optic connectors, fan-out legs and the cable dividers are protected inside an installation tube
- The installation tube is waterproof in conformity with IP67



5

Excess cable storage

- Holds overlength of the fiber-optic backbone cable
- Available in various sizes and for wall mounting or rack



6

Fiber-optic equipment outlet enclosure

Transition point between outdoor backbone cable (4) and equipment jumpers (7) enable independence of the installed backbone regardless of changes in hardware interface. Ensures cabling remains within building regulations.



7

Indoor equipment jumper cable

- Cable properties: in compliance with most building regulations are available
- Connectors: all common standardized connectors available
- Equipment access cables guarantee the independence

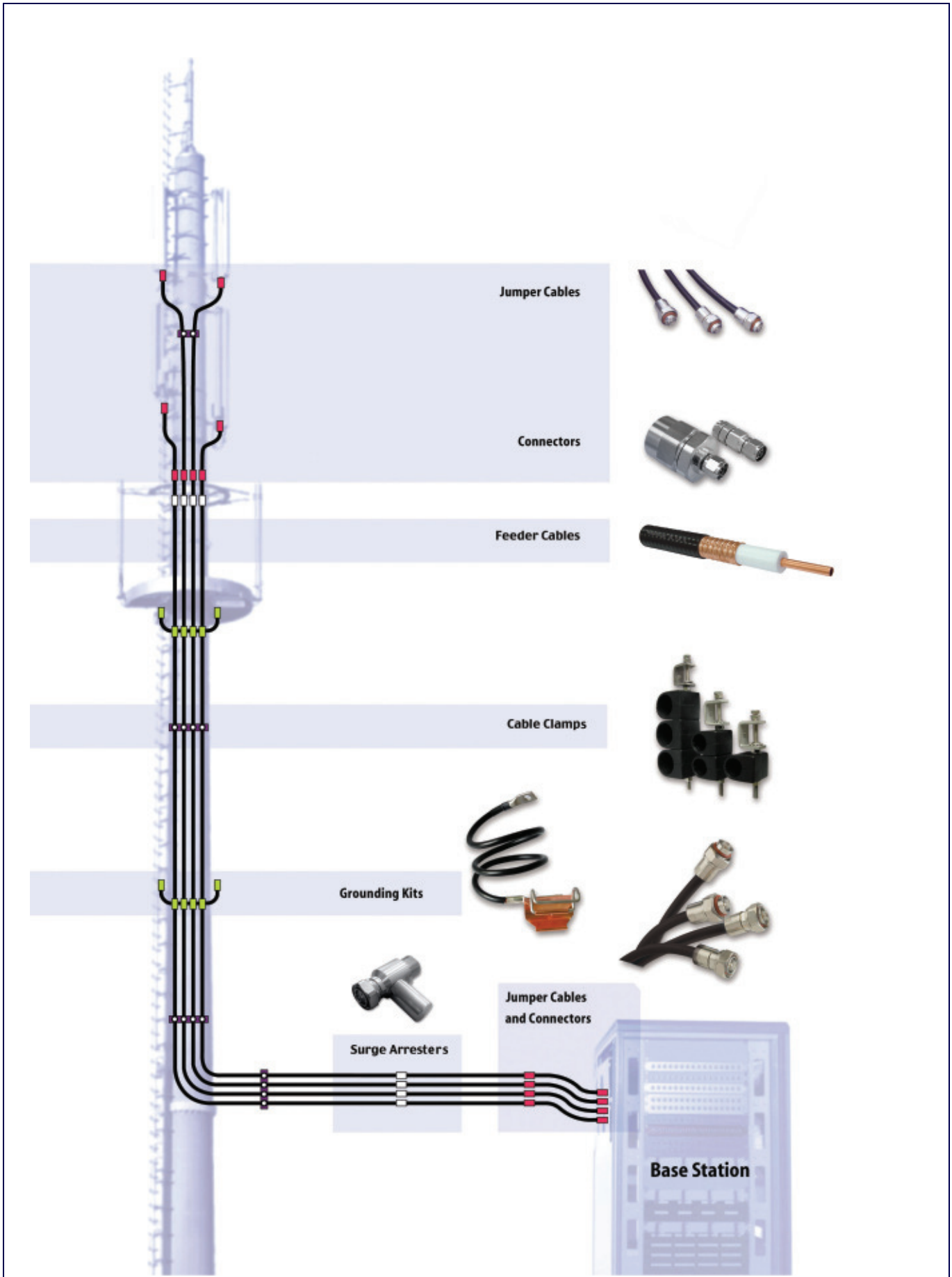


Benefits of structured antenna mast cabling, product description

- Using well-known structured FO cabling technology
- Fundamental future-oriented technology that keeps its value even when active equipment is replaced
- Independent of specific applications
- Sturdy multi-fiber cable
- Interchangeable equipment access cables
- Connector interfaces conform to international standards at all interconnections

Detailed product information on request

Corrugated Cable Solution



Corrugated Cable Overview

	1/4"R	1/4"S	3/8"R	3/8"S	1/2"R	1/2"S	7/8"R	7/8"S	1 1/4"R	1 5/8"R
Jacket Flame retardend	SL 014R FRNC	SL 014S FRNC	SL 038R FRNC	SL 038S FRNC	SL 012R FRNC	SL 012S FRNC	SL 078R FRNC	SL 078S FRNC	SL 114R FRNC	SL 158R FRNC
Jacket PE	SL 014R PE	SL 014S PE	SL 038R PE	SL 038S PE	SL 012R PE	SL 012S PE	SL 078R PE	SL 078S PE	SL 114R PE	SL 158R PE
Jacket Flame retardend Low Loss							SL 078R L FRNC		SL 114R L FRNC	SL 158R L FRNC
Jacket PE Low Loss							SL 078R L PE		SL 114R L PE	SL 158R L PE

R = ring corrugation = Flexible Corrugated Cable

S = spiral corrugation = Super Flexible Corrugated Cable

Rosenberger SLink™ Flexible Corrugated Cables

RosenbergerSLink™ flexible cables feature annularly corrugated outer conductor and mainly used for cellular and personal communications, land mobile radio, earth station antenna jumpers, equipment room and antenna jumper etc.

Rosenberger offers a complete cable range from 1/4" R to 1 5/8" R. And the cables are constructed with inner conductor, foam dielectric, outer conductor and protective jacket.

The inner conductor is made of a copper clad aluminum wire, a smooth or corrugated copper tube according to cable size. With high conductivity copper, it can guarantee excellent low loss.

This foam insulator consists of a mixture of low dielectric polyethylene melted and extruded with an insert gas injection process. With low density, close and homogenous cell dielectric can ensure remarkable low loss and prevent water penetration.

The outer conductor is made of annularly welded copper tubes that provide excellent screening while offering flexibility.

R = ring corrugation

S = spiral corrugation



Flexible Corrugated Cables 1/4" R

Ordering Number	Remarks	
SL 014R PE	Standard polyethylene jacket	
SL 014R FRNC	Flame retardant, non-corrosive jacket	



Mechanical Data		
Inner conductor	Copper clad alu wire	2.4 mm
Dielectric	Foamed PE	6.4 mm
Diameter over outer conductor	Ring corrugated copper tube	7.5 mm
Diameter over outer jacket	PE / FRNC	10.2 mm
UV resistant and halogen free	PE / FRNC	
Cable weight	PE	107 kg/km
	FRNC	129 kg/km
Tensile strength		600 N
Min. bending radius, single		50 mm
Min. bending radius, repeated		120 mm
Number of bends, minimum (typical)		15 (50)
Bending moment		2 Nm
Flat plate crush strength		10 N/mm
Recommended hanger spacing		0.6 m
Permissible temperature range, installation		– 40 °C to + 60 °C
Permissible temperature range, operation		– 55 °C to + 85 °C

Electrical Data			
Impedance	50 ±1 Ω	DC breakdown voltage	2200 V
Relative velocity of propagation	83 %	Jacket spark, volts RMS	5000 V
Capacitance	80 pF/m	Inner conductor DC- resistance	5.7 Ω/km
Inductance	0.195 H/m	Outer conductor DC- resistance	3.5 Ω/km
Maximum operating frequency	15.8 GHz	Insulation resistance	≥ 10 GΩ/km
Cut off frequency	19.0 GHz	Return loss 800 –1000 MHz	26 dB
Peak power rating	10.5 KW	Return loss 1700 – 2500 MHz	24 dB

Attenuation value and power rating

Frequency [MHz]	100	200	300	400	450	800	900	1000	1800	2000	2200	2500
Attenuation, typical [dB/100m]	4.22	6.02	7.45	8.64	9.15	12.6	13.4	14.2	19.4	20.7	21.7	23.3
Mean power [kW]	1.79	1.25	1.00	0.85	0.82	0.58	0.55	0.52	0.38	0.35	0.34	0.31

- Attenuation, ambient temperature: 20°C
- Average power, ambient temperature: 40°C
- Average power, inner conductor temperature: 100°C
- Maximum attenuation value shall be 105% of the nominal attenuation value
- Other frequencies on request

Flexible Corrugated Cables 3/8" R

Ordering Number	Remarks	
SL 038R PE	Standard polyethylene jacket	
SL 038R FRNC	Flame retardant, non- corrosive jacket	

Mechanical Data		
Inner conductor	Copper clad alu wire	3.1 mm
Dielectric	Foamed PE	7.2 mm
Diameter over outer conductor	Ring corrugated copper tube	9.5 mm
Diameter over outer jacket	PE / FRNC	11.2 mm
UV resistant and halogen free	PE / FRNC	
Cable weight	PE	127 kg/km
	FRNC	132 kg/km
Tensile strength		600 N
Min. bending radius, single		50 mm
Min. bending radius, repeated		110 mm
Number of bends, minimum (typical)		15 (50)
Bending moment		2.5 Nm
Flat plate crush strength		20 N/mm
Recommended hanger spacing		0.6 m
Permissible temperature range, installation		– 40 °C to + 60 °C
Permissible temperature range, operation		– 55 °C to + 85 °C

Electrical Data			
Impedance	50 ±1 Ω	DC breakdown voltage	2500 V
Relative velocity of propagation	88 %	Jacket spark, volts RMS	5000 V
Capacitance	76 pF/m	Inner conductor DC- resistance	3.8 Ω/km
Inductance	0.195 H/m	Outer conductor DC- resistance	2.9 Ω/km
Maximum operating frequency	13.5 GHz	Insulation resistance	≥ 10 GΩ/km
Cut off frequency	15.1 GHz	Return loss 800 – 1000 MHz	26 dB
Peak power rating	15.4 KW	Return loss 1700 – 2500 MHz	24 dB

Attenuation value and power rating

Frequency [MHz]	100	200	300	400	450	800	900	1000	1800	2000	2200	2500
Attenuation, typical [dB/100m]	3.45	4.92	6.12	7.05	7.50	10.3	10.8	11.5	15.8	16.8	17.8	18.9
Mean power [kW]	2.16	1.51	1.23	1.05	0.99	0.72	0.69	0.65	0.47	0.44	0.41	0.39

- Attenuation, ambient temperature: 20°C
- Average power, ambient temperature: 40°C
- Average power, inner conductor temperature: 100°C
- Maximum attenuation value shall be 105% of the nominal attenuation value
- Other frequencies on request

Flexible Corrugated Cables 1/2" R

Ordering Number	Remarks	
SL 012R PE	Standard polyethylene jacket	
SL 012R FRNC	Flame retardant, non-corrosive jacket	

Mechanical Data		
Inner conductor	Copper clad alu wire	4.8 mm
Dielectric	Foamed PE	12.1 mm
Diameter over outer conductor	Ring corrugated copper tube	13.8 mm
Diameter over outer jacket	PE / FRNC	16.0 mm
UV resistant and halogen free	PE / FRNC	
Cable weight	PE	237 kg/km
	FRNC	266 kg/km
Tensile strength		1150 N
Min. bending radius, single		50 mm
Min. bending radius, repeated		125 mm
Number of bends, minimum (typical)		15 (50)
Bending moment		5 Nm
Flat plate crush strength		20 N/mm
Recommended hanger spacing		0.8 m
Permissible temperature range, installation		– 40 °C to + 60 °C
Permissible temperature range, operation		– 55 °C to + 85 °C

Electrical Data			
Impedance	50 ±1 Ω	DC breakdown voltage	6000 V
Relative velocity of propagation	88 %	Jacket spark, volts RMS	8000 V
Capacitance	76 pF/m	Inner conductor DC- resistance	1.5 Ω/km
Inductance	0.190 H/m	Outer conductor DC- resistance	1.9 Ω/km
Maximum operating frequency	8.8 GHz	Insulation resistance	≥ 10 GΩ/km
Cut off frequency	10.0 GHz	Return loss 800 –1000 MHz	26 dB
Peak power rating	40 KW	Return loss 1700 – 2500 MHz	24 dB

Attenuation value and power rating

Frequency [MHz]	100	200	300	400	450	800	900	1000	1800	2000	2200	2500
Attenuation, typical [dB/100m]	2.17	3.11	3.81	4.46	4.75	6.46	6.85	7.28	10.1	10.7	11.2	12.1
Mean power [kW]	3.53	2.45	1.99	1.72	1.59	1.17	1.10	1.04	0.75	0.71	0.67	0.62

- Attenuation, ambient temperature: 20°C
- Average power, ambient temperature: 40°C
- Average power, inner conductor temperature: 100°C
- Maximum attenuation value shall be 105% of the nominal attenuation value
- Other frequencies on request

Flexible Corrugated Cables 7/8" R

Ordering Number	Remarks	
SL 078R PE	Standard polyethylene jacket	
SL 078R FRNC	Flame retardant, non- corrosive jacket	

Mechanical Data		
Inner conductor	Copper tube	9.0 mm
Dielectric	Foamed PE	22.4 mm
Diameter over outer conductor	Ring corrugated copper tube	24.9 mm
Diameter over outer jacket	PE / FRNC	27.5 mm
UV resistant and halogen free	PE / FRNC	
Cable weight	PE	530 kg/km
	FRNC	587 kg/km
Tensile strength		1450 N
Min. bending radius, single		120 mm
Min. bending radius, repeated		250 mm
Number of bends, minimum (typical)		15 (50)
Bending moment		18 Nm
Flat plate crush strength		14 N/mm
Recommended hanger spacing		1.0 m
Permissible temperature range, installation		- 40 °C to + 60 °C
Permissible temperature range, operation		- 55 °C to + 85 °C

Electrical Data			
Impedance	50 ±1 Ω	DC breakdown voltage	10000 V
Relative velocity of propagation	88 %	Jacket spark, volts RMS	8000 V
Capacitance	76 pF/m	Inner conductor DC- resistance	1.21 Ω/km
Inductance	0.190 H/m	Outer conductor DC- resistance	1.17 Ω/km
Maximum operating frequency	5.0 GHz	Insulation resistance	≥ 10 GΩ/km
Cut off frequency	5.2 GHz	Return loss 800 –1000 MHz	26 dB
Peak power rating	91 KW	Return loss 1700 – 2500 MHz	24 dB

Attenuation value and power rating

Frequency [MHz]	100	200	300	400	450	800	900	1000	1800	2000	2200	2500
Attenuation, typical [dB/100m]	1.17	1.69	2.11	2.48	2.64	3.63	3.86	4.12	5.75	6.11	6.46	6.95
Mean power [kW]	9.17	6.27	4.51	3.97	3.73	2.48	2.34	2.19	1.73	1.63	1.40	1.33

- Attenuation, ambient temperature: 20°C
- Average power, ambient temperature: 40°C
- Average power, inner conductor temperature: 100°C
- Maximum attenuation value shall be 105% of the nominal attenuation value
- Other frequencies on request

Flexible Corrugated Cables 1 1/4" R

Ordering Number	Remarks	
SL 114R PE	Standard polyethylene jacket	
SL 114R FRNC	Flame retardant, non-corrosive jacket	

Mechanical Data		
Inner conductor	Copper tube	13.1 mm
Dielectric	Foamed PE	32.5 mm
Diameter over outer conductor	Ring corrugated copper tube	35.8 mm
Diameter over outer jacket	PE / FRNC	39.0 mm
UV resistant and halogen free	PE / FRNC	
Cable weight	PE	980 kg/km
	FRNC	1117 kg/km
Tensile strength		2500 N
Min. bending radius, single		200 mm
Min. bending radius, repeated		380 mm
Number of bends, minimum (typical)		15 (50)
Bending moment		50 Nm
Flat plate crush strength		20 N/mm
Recommended hanger spacing		1.2 m
Permissible temperature range, installation		- 40 °C to + 60 °C
Permissible temperature range, operation		- 55 °C to + 85 °C

Electrical Data			
Impedance	50 ±1 Ω	DC breakdown voltage	10000 V
Relative velocity of propagation	88 %	Jacket spark, volts RMS	10000 V
Capacitance	76 pF/m	Inner conductor DC- resistance	0.7 Ω/km
Inductance	0.190 H/m	Outer conductor DC- resistance	0.54 Ω/km
Maximum operating frequency	3.3 GHz	Insulation resistance	≥ 10 GΩ/km
Cut off frequency	3.7 GHz	Return loss 800 –1000 MHz	26 dB
Peak power rating	200 KW	Return loss 1700 – 2500 MHz	24 dB

Attenuation value and power rating

Frequency [MHz]	100	200	300	400	450	800	900	1000	1800	2000	2200	2500
Attenuation, typical [dB/100m]	0.82	1.19	1.55	1.81	1.92	2.66	2.85	3.03	4.27	4.48	4.75	5.14
Mean power [kW]	12.9	8.81	6.37	5.69	5.40	3.90	3.70	3.50	2.40	2.30	2.20	2.03

- Attenuation, ambient temperature: 20°C
- Average power, ambient temperature: 40°C
- Average power, inner conductor temperature: 100°C
- Maximum attenuation value shall be 105% of the nominal attenuation value
- Other frequencies on request

Flexible Corrugated Cables 1 5/8" R

Ordering Number	Remarks	
SL 158R PE	Standard polyethylene jacket	
SL 158R FRNC	Flame retardant, non- corrosive jacket	

Mechanical Data		
Inner conductor	Spiral corrugated copper tube	17.3 mm
Dielectric	Foamed PE	43.5 mm
Diameter over outer conductor	Ring corrugated copper tube	46.5 mm
Diameter over outer jacket	PE / FRNC	50.0 mm
UV resistant and halogen free	PE / FRNC	
Cable weight	PE	1185 kg/km
	FRNC	1349 kg/km
Tensile strength		3500 N
Min. bending radius, single		300 mm
Min. bending radius, repeated		510 mm
Number of bends, minimum (typical)		15 (50)
Bending moment		60 Nm
Flat plate crush strength		20 N/mm
Recommended hanger spacing		1.2 m
Permissible temperature range, installation		– 40 °C to + 60 °C
Permissible temperature range, operation		– 55 °C to + 85 °C

Electrical Data			
Impedance	50 ±1 Ω	DC breakdown voltage	15000 V
Relative velocity of propagation	88 %	Jacket spark, volts RMS	10000 V
Capacitance	76 pF/m	Inner conductor DC- resistance	0.85 Ω/km
Inductance	0.190 H/m	Outer conductor DC- resistance	0.55 Ω/km
Maximum operating frequency	2.70 GHz	Insulation resistance	≥ 10 GΩ/km
Cut off frequency	3.0 GHz	Return loss 800 –1000 MHz	23 dB
Peak power rating	310 KW	Return loss 1700 – 2500 MHz	23 dB

Attenuation value and power rating

Frequency [MHz]	100	200	300	400	450	800	900	1000	1800	2000	2200	2500
Attenuation, typical [dB/100m]	0.68	0.99	1.23	1.45	1.56	2.18	2.34	2.49	3.57	3.81	4.05	4.41
Mean power [kW]	18.0	11.8	9.46	8.02	7.45	5.33	4.97	4.67	3.26	3.05	2.87	2.64

- Attenuation, ambient temperature: 20°C
- Average power, ambient temperature: 40°C
- Average power, inner conductor temperature: 100°C
- Maximum attenuation value shall be 105% of the nominal attenuation value
- Other frequencies on request

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