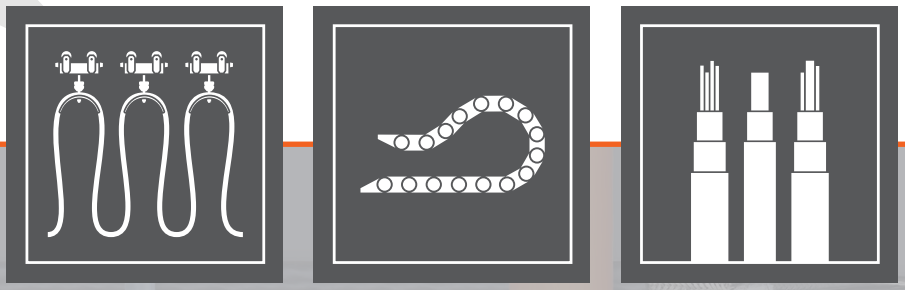
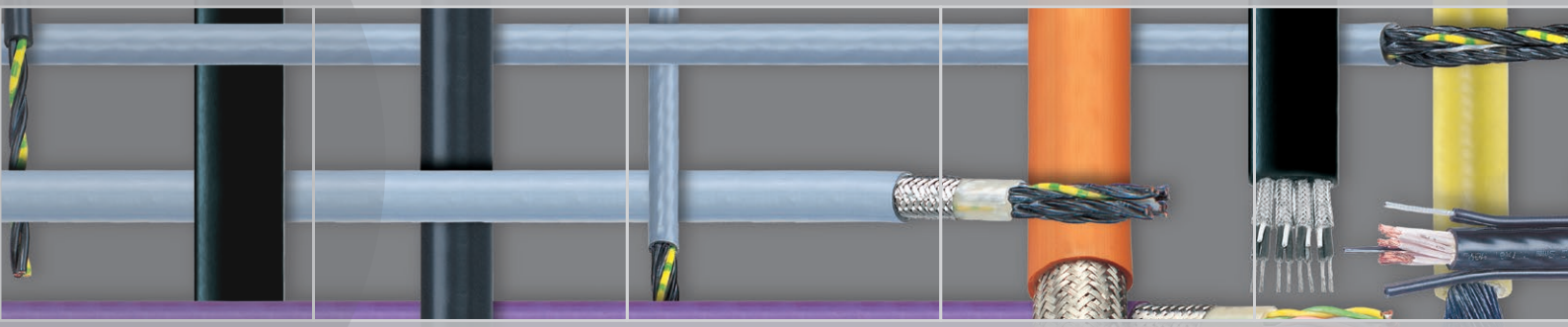
Conductix-Wampfler Cables

for Festoon Systems, Energy Guiding Chains & Others





CONDUCTIX wampfler


WIMO

Cables for systems in motion
selected from experts

Advantage 1 Secure choice of cables

- Comprehension of our customers applications and needs is the foundation of our choice. We offer the safety for the complete package, system and cables matching perfectly your application.

Advantage 2 System compatibility

- The cable design can significantly influence the performance of the energy and/or data supply system – we ensure the proper alignment of the cable to the system for an optimized energy and data transfer.

Advantage 3 Manufacturer independence

- Important to us is only the performance of the cable, not its origin – we neutrally select only the technically most qualified cables available on the market.

Advantage 4 System guarantee

- Each complete Conductix-Wampfler system is provided with a comprehensive guarantee – needless to say, including the cable.

Advantage 5 Conductix-Wampfler cable service

- Conductix-Wampfler services ensure the reliability of our energy supply systems and the availability of our customers equipment.

Contents

At a glance
Conductix-Wampfler Cables

Application	Basic Festoon		Heavy Duty Festoon			Heavy Duty Chain		Specials		
Power / Control										
	FV	TG	FXG	TXP	TXG	CXP		PV	SXP	SXG
Composite Power + Control + Data										
	FV-D		FXG-D	TXP-D	TXG-D	CXP-D			SXP-D	
Label respectively Design	H05VVH6-F YCFLY H07VVH6-F YFLY / YFLCY	H07RN-F	NGFLGOEU-J (UL) (N)GLFGOEU-J (UL) M(StD)HOEU (UL) GCFLGOEU	12YHRD11YH 12YHRDC11YH	(N)GRDGOEU-J/O (N)GRDGCGOEU-J/O (N3GRD5G (N3GRDGC5G	12YMSL11Y 13YMSL13Y		MTTY-O FYMYTW	YSLTOE-J/O YSLZ3SOE-J	NTMCWOEU
Outer jacket material	PVC	Rubber	Rubber	PUR	Rubber	PUR / TPE		PVC	PUR	Rubber
Suitable for use outdoors	●	●	●	●	●	●		●	●	●
Voltage range	up to 450/750 V	up to 450/750 V	up to 0.6/1 kV	up to 0.6/1 kV	up to 0.6/1 kV	up to 0.6/1 kV		mV up to 35 kV	mV up to 0.6/1 kV	mV up to 35 kV
Tensile load capacity max. [N / mm²]	15	15	15	15	15 up to 20	15		15 up to 30	15 up to 30	15
Travel speed max. [m / min]	120	80	180	210	240	up to 300		various	various	-
Temperature range flexing [°C]	-25 up to 60	-30 up to 60	-35 up to 80	-40 up to 90	-35 up to 80	-35 up to 80		various	various	-25 up to 80
Page	6	12	16	20	24	28	32	38	42	46

● ideal ● limited

Special impacts on cables for Festoon systems...

- Very high acceleration and travel speed rates in the system, high dynamic bending and tensile stress on the cable
- Compressive stress resulting from clamping the cable at the support, double clamps utilized in systems with high travel speeds
- At the bottom of the loop uniform alternating bending stress, non-uniform mechanical load cause by jerky movements couple with forces generate by wind

... are met with dedicated features

- Low weight and small diameter de to a stranded layered structure and in the case of power cables, the earth conductor is split into three parts
- Alternating bending loads are taken care of by finely stranded conductors
- Sheathing compounds are being chosen by their abilities to withstand very high demands for outdoor atmospheric conditions
- Notch-resistant sheathing compounds with high resistance to tearing
- Robust outer sheath designed to absorb impact forces

Special impacts on cables for Energy Guiding Chains...

- High horizontal & vertical acceleration cause deflection forces which are applied onto the cable
- Continuous friction and small bending radii
- Excessive movement between cable and chain generates compressive and tensile forces

... are met with dedicated features

- Low weight and small diameters as a result of particularly thin conductor insulation and sheathing
- Best insulation materials for small wall thicknesses
- Very high resilience due to short lay pitches
- Highly flexible sheath compounds with excellent resistance to tearing and abrasion, including wear against chain material
- Low risk of corkscrew effect as a result of standing by reverse twist
- Stable construction due to extruded fillers in interstices

Special impacts on cables for Specialties...

- Basket spreader applications demand particular coiling abilities combined with a very sturdy sheathing concept to withstand constraints while being vertically suspended
- Single core connecting cables in medium voltage require high flexibility to bend into small spaces and provide reliable, secure and long lasting power transmission

... are met with dedicated features

Basket spreader cables are...

- equipped with with finely stranded copper conductors
- based on concept with bundle assembly of conductors and short length of lay and provide so best coiling behavior
- Special synthetic threads increase the breaking load and provide additional safety

Single core connecting cables consist of...

- Finely stranded tinned copper conductors with an conductive rubber layer on it
- Insulation based on EPR plus another layer of conductive rubber; this multi extrusion process results in the concept being free of partial discharges
- A screen of close spiral tinned copper wire wrapping
- A robust PCP (Polychloroprene) sheath

Highly overall resilient cables allow the smallest possible bending radius and therefore short system lengths

Conductix-Wampfler Cable FV / FV-D

PVC flat cable for basic duty festoon

- Proven concept and well balanced wall thicknesses and weight relation for applications with medium mechanical stresses
- Sturdy PVC sheath and very good flexing behavior therefore also long-lasting
- Particular range with Low Smoke Zero Halogene (LSOH) sections available

Particularly suitable,

- Used for standard, indoor applications
- Small to medium dynamic loads are applied to the system on a single plane
- The priority is a cost efficient system
- Target is the smallest possible festoon system size due to space limitations
- The operating temperatures do not exceed 60°C max

Characteristics

Resilient PVC flat cable
Main application: festoon system

Typical applications
- Indoor crane trolleys
- Main power supply for indoor cranes
- Process cranes
- Storage and retrieval systems

Electrical parameters

Rated voltage	0.5 mm² core	300 V
	1 mm² core	Uo/U = 300/500 V
	≥ 1.5 mm² core	Uo/U = 450/750 V
	for LSOH Types	Uo/U = 600/1000 V

Mechanical load-bearing capacity

Travel speed	up to 120 m/min
Minimum bending radius	acc. to DIN EN 50565-1 - shielded types and LSOH: 10 x Ø

Thermal specifications
Ambient temperature

H07VVH6-F / KYFLCY / KYFLTCY	- flexing -25°C... +60°C - fixed -35°C... +60°C
H05VVH6-F	- flexing -5°C... +60°C - fixed -15°C... +60°C
LSOH	- flexing -25°C... +70°C - fixed -40°C... +70°C
	other temperatures on request

Chemical specifications

	• self-extinguishing and flame retardant acc. to IEC 60332-1
KYFLCY	• flame retardant acc. to IEC 60332-3-24 Category C • oil-resistant acc. to EN 60811-404 • free from lacquer damaging substances and silicone (during production) • conform to RoHS
LSOH	• free of halogen • smoke density acc. to IEC 61034-2
Color	Black
Type	H07VVH6-F / H05VVH6-F LSOH shielded types KYFLCY / KYFLTCY

Conductix-Wampfler Cable FV
Order information

Type of cable	Number of conductors and cross section [mm²]	Part No.	Geometry d x B(1 max [mm]	Cu – Number approx. [kg/km]	Weight approx. [kg/km]	Permitted tensile load [N]	Minimum Order Quantity required
Power Cable FV Uo/U 450/750 V H07VVH6-F	4 G 4	131150-F4G4#	6.9 x 20.0	154	300	240	-
	4 G 6	131150-F4G6#	7.2 x 22.8	230	390	360	-
	4 G 10	131150-F4G10#	10.4 x 31.5	384	615	600	-
	4 G 16	131150-F4G16#	11.0 x 37.0	614	990	960	-
	4 G 25	131150-F4G25#	13.5 x 46.0	960	1550	1500	-
	4 G 35	131150-F4G35#	14.8 x 51.0	1344	2030	2100	-
	4 G 50	131150-F4G50#	17.0 x 57.0	1920	2650	3000	-
	4 G 70	131150-F4G70#	18.5 x 64.0	2700	3650	4200	-
	5 G 4	131150-F5G4#	7.0 x 26.0	192	380	300	-
	5 G 6	131150-F5G6#	8.4 x 30	288	500	450	-
	5 G 10	131150-F5G10#	10.5 x 38.3	480	780	750	-
	5 G 16	131150-F5G16#	11.0 x 43.0	770	1200	1200	-
	7 G 4	131150-F7G4#	7.6 x 37.5	269	570	420	-
	7 G 6	131150-F7G6#	8.5 x 42.5	403	700	630	-

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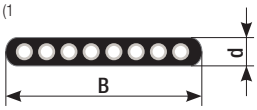

Conductix-Wampfler Cable FV
Order information

Type of cable	Number of conductors and cross section [mm²]	Part No.	Geometry d x B(1 max [mm]	Cu – Number approx. [kg/km]	Weight approx. [kg/km]	Permitted tensile load [N]	Minimum Order Quantity required
							-
Screened Power Cable FV Uo/U 450/750 V KYFLCY	4 G 2.5C	131151-F4G2,5C#	6.8 x 20.8	168	250	150	-
	4 G 4C	131151-F4G4C#	7.4 x 23.1	208	320	240	-
	4 G 6C	131151-F4G6C#	8.2 x 26.5	325	480	360	-
	4 G 10C	131151-F4G10C#	11.8 x 37.5	522	840	600	-
	4 G 16C	131151-F4G16C#	11.4 x 38.6	720	950	960	-
	4 G 25C	131151-F4G25C#	13.8 x 47.0	1100	1550	1500	-
	4 G 35C	131151-F4G35C#	18.5 x 58.0	1510	1860	2100	-
Control Cable FV Uo/U 450/750 V H07VVH6-F	4 G 1.5	131250-F4G1,5#	5.8 x 15.6	58	150	60	-
	5 G 1.5	131250-F5G1,5#	5.8 x 18.6	72	180	90	-
	7 G 1,5	131250-F7G1,5#	5.8 x 26.0	101	260	110	-
	8 G 1.5	131250-F8G1,5#	5.8 x 28.3	115	300	180	-
	10 G 1.5	131250-F10G1,5#	5.8 x 35.0	144	360	220	-
	12 G 1.5	131250-F12G1,5#	5.8 x 41.4	173	420	270	-
	14 G 1.5	131250-F14G1,5#	5.6 x 49.5	202	490	210	-
	16 G 1.5	131250-F16G1,5#	5.8 x 54.0	230	560	360	-
	18 G 1.5	131250-F18G1,5#	5.8 x 60.2	259	620	400	-
	24 G 1.5	131250-F24G1,5#	5.8 x 83.0	346	790	540	-
	4 G 2.5	131250-F4G2,5#	6.0 x 18.2	96	210	150	-
	5 G 2.5	131250-F5G2,5#	7.1 x 22.7	120	275	187	-
	7 G 2.5	131250-F7G2,5#	7.1 x 33.6	168	340	262	-
	8 G 2.5	131250-F8G2,5#	7.1 x 36.8	192	380	300	-
	12 G 2.5	131250-F12G2,5#	7.1 x 52.0	288	570	450	-
	24 G 2.5	131250-F24G2,5#	7.1 x 105.0	576	950	900	-
Control & Data Cable FV-D Uo/U 300/500 V H05VVH6-F							
	4 X (4G1)	131250-F16G1#	8.4 x 25.3	154	400	240	-
	24 G 1	131250-F24G1#	5.6 x 68.1	231	600	360	-
Screened Control Cable FV Uo/U 450/750 V KYFLCY							
	4 x 1.5C	131251-F4X1,5C#	5.7 x 17.5	91	169	90	-
	8 x 1.5C	131251-F8XG1,5C#	5.7 x 32.8	220	382	180	-
	12 x 1.5C	131251-F12X1,5C#	5.7 x 48.1	330	560	270	-
Screened Control & Data Cable FV-D Uo/U 450/750 V KYFLCY							
	4 x 4G1C	131151-F4X4X1C#	32.6 x 10.5	248	570	240	-
Screened Control & Data Cable FV-D Uo/U 300/500 V KYFLTCY / KYFLCY							
	5X4 X 0,5C	131353-F5X4X0,5C#	8.0 x 40.0	175	450	150	-
	7X4 X 0,5C	131353-F7X4X0,5C#	8.7 x 54.1	277	710	210	-

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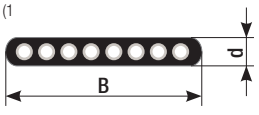

Conductix-Wampfler Cable FV-L(LSOH*)

*Low Smoke Zero Halogen

Order information

Type of cable	Number of conductors and cross section [mm²]	Part No.	Geometry d x B(1 max [mm]	Cu – Number approx. [kg/km]	Weight approx. [kg/km]	Permitted tensile load [N]	Minimum Order Quantity required
Control cable LSOH FV-L Uo/U 0,6/1 kV	4 G 1.5	131270-F4G1,5#	5.8 x 16.9	58	110	90	-
	8 G 1.5	131270-F8G1,5#	5.8 x 30.5	115	220	180	-
	12 G 1.5	131270-F12G1,5#	5.8 x 43.6	175	320	270	-
	4 G 2.5	131270-F4G2,5#	6.0 x 19.2	96	170	150	-
	8 G 2.5	131270-F8G2,5#	6.0 x 35.6	192	330	300	-
	12 G 2.5	131270-F12G2,5#	6.0 x 52.3	290	490	450	-
Power cable LSOH FV-L Uo/U 0,6/1kV	4 G 4	131170-F4G4#	7.5 x 23.4	154	250	240	-
	4 G 6	131170-F4G6#	8.1 x 26.6	230	330	360	-
	4 G 10	131170-F4G10#	10.0 x 30.6	384	550	600	-
	4 G 16	131170-F4G16#	11.6 x 36.9	615	800	960	-
	4 G 25	131170-F4G25#	12.9 x 43.3	960	1350	1500	-

Other cross-sections on request.

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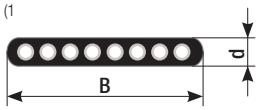
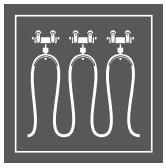




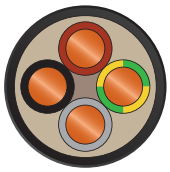
Conductix-Wampfler Cable FV / FV-D

Additional technical data

Electrical parameters	AC test voltage	H07VVH6-F, KYFLCY, LSOH: 2.5 kV / H05VVH6-F, KYFLTCY: 2 kV
	ampacity	according to DIN VDE
Thermal specifications	max. permitted operating temperature of the conductor	70°C / for LSOH: 90°C
Design features	conductor	stranded bare copper; conductor class 5 acc. to VDE 0295
	core arrangement	cores resp. bundles prallel side by side
	insulation	PVC / for LSOH: special compound
	conductor coding	acc. to VDE 0293-308, up to 5 cores: colored, ≥ 6 cores: black with white numerals with/without GN/YE
	outer sheath	PVC / for LSOH: Polyolefin
for shielded types	shield	single core or bundle with copper braid or wrapped wire bare or tinned, coverage min. 70%

Conductix-Wampfler Cable TG

Rubber round cable basic festoon



- Standardized rubber cable for control and power applications
- Very robust design for applications with medium mechanical stresses, suitable for spring reels and festoon systems
- Good resilience and flexing behavior as a result of short length of lay
- Broad range of control and power sections available

Particularly suitable,

- if smaller or medium dynamic loads are applied to the equipment
- if the system requires UV, Oil and ozone resistance
- when moisture or humidity (industrial water) are a constant threat to the system
- for „medium“ cold environment (-35°C)

Characteristics

Cable designed for continuous standard duty environment, moisture and humidity proof, cost efficient and durable

Typical applications
- Power supply and control cable for cranes and trolleys
- Travel cars
- Dockyard cranes
- All horizontal operating machinery with travel speed up to 80 m/min on festoon system

Electrical parameters

Rated voltage	Uo/U = 450/750 V

Mechanical load-bearing capacity

Travel speed	up to 80 m/min (festoon application) up to 60 m/min (reeling application)
Minimum bending radius, dynamic	acc. to DIN VDE 0298 part 3

Thermal specifications

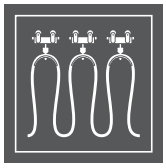
Ambient temperature	- flexing: - 30°C... + 60°C - fixed: - 40°C... + 60°C

Chemical specifications
- resistant to ozone acc. To EN 60811-2-1
- oil-resistant acc. to DIN EN 60811-404
- UV-resistant
- flame retardant acc. to IEC 60332-1
- free from silicone

Color	black
Type	H07RN-F

Conductix-Wampfler Cable TG
Order information

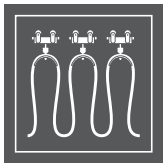
Type of cable	Number of conductors and cross section [mm²]	Part No.	Outer – Ø min./max. [mm]	Cu – Number approx. [kg/km]	Weight approx. [kg/km]	Permitted tensile load [N]	Minimum Order Quantity required
Control cable TG Uo/U 450/750 V	3 G 1.5	131210-R3G1,5#	9.2 / 11.9	43	157	67	-
	4 G 1.5	131210-R4G1,5#	10.2 / 13.1	58	192	90	-
	5 G 1.5	131210-R5G1,5#	12.2 / 14.4	72	238	112	-
	7 G 1.5	131210-R7G1,5#	14.5 / 17.5	101	371	157	-
	12 G 1.5	131210-R12G1,5#	17.6 / 22.4	173	516	270	-
	19 G 1.5	131210-R19G1,5#	20.7 / 26.3	275	788	427	-
	24 G 1.5	131210-R24G1,5#	24.3 / 30.7	346	968	540	-
							-
	3 G 2.5	131210-R3G2,5#	10.9 / 14.0	72	217	112	-
	4 G 2.5	131210-R4G2,5#	12.1 / 15.5	96	269	150	-
	5 G 2.5	131210-R5G2,5#	13.3 / 17.0	120	329	187	-
	7 G 2.5	131210-R7G2,5#	16.5 / 20.0	168	499	262	
	12 G 2.5	131210-R12G2,5#	20.3 / 26.2	288	719	450	-
	24 G 2.5	131210-R24G2,5#	28.8 / 36.4	576	1400	900	-



Conductix-Wampfler Cable TG

Order information

Type of cable	Number of conductors and cross section [mm²]	Order–No.	Outer – Ø min./max. [mm]	Cu – Number approx. [kg/km]	Weight approx. [kg/km]	Permitted tensile load [N]	Minimum Order Quantity required
Power cable TG Uo/U 450/750 V	4 G 4	131110-R4G4#	14.0 / 17.9	154	373	240	–
	4 G 6	131110-R4G6#	15.7 / 20.0	230	514	360	–
	4 G 10	131110-R4G10#	20.9 / 26.5	384	898	600	–
	4 G 16	131110-R4G16#	23.8 / 30.1	614	1253	960	–
	4 G 25	131110-R4G25#	28.9 / 36.6	960	1846	1500	–
	4 G 35	131110-R4G35#	32.5 / 41.1	1344	2393	2100	–
	4 G 50	131110-R4G50#	37.7 / 47.5	1920	3284	3000	–
	4 G 70	131110-R4G70#	42.7 / 54.0	2688	4331	4200	–
	4 G 95	131110-R4G95#	48.4 / 61.0	3648	5712	5700	–
	4 G 120	131110-R4G120#	53.0 / 66.0	4608	6828	7200	–
	4 G 150	131110-R4G150#	58.0 / 73.0	5760	8319	9000	–
	5 G 4	131110-R5G4#	15.6 / 19.9	192	466	300	–
	5 G 6	131110-R5G6#	17.5 / 22.2	288	640	450	–
	5 G 10	131110-R5G10#	22.9 / 29.1	480	1107	750	–
	5 G 16	131110-R5G16#	26.4 / 33.3	768	1564	2000	–
	5 G 25	131110-R5G25#	32.0 / 40,4	1200	2291	1875	–
	1 x 6	131110-R1X6#	7.9 / 9.8	58	129	90	–
	1 x 10	131110-R1X10#	9.5 / 11.9	96	200	150	–
	1 x 16	131110-R1X16#	10.8 / 13.4	154	279	240	–
	1 x 25	131110-R1X25#	12.7 / 15.8	240	396	375	–
	1 x 35	131110-R1X35#	14.3 / 17.9	336	540	525	–
	1 x 50	131110-R1X50#	16.5 / 20.6	480	719	750	–
	1 x 70	131110-R1X70#	18.6 / 23.3	672	947	1050	–
	1 x 95	131110-R1X95#	20.8 / 26.0	912	1230	1425	–
	1 x 120	131110-R1X120#	22.8 / 28.6	1152	1520	1800	–
	1 x 150	131110-R1X150#	25.2 / 31.4	1440	1887	2250	–
	1 x 185	131110-R1X185#	27.6 / 34.4	1776	2300	2775	–
	1 x 240	132110-R1X240#	30.6 / 38.3	2304	2960	3600	–



Conductix-Wampfler Cable TG

Additional technical data

Electrical parameters	AC test voltage	2.5 kV
	ampacity	according to VDE 0298-4
Thermal specifications		
	maximum permitted operating temperature of the conductor	60°C
	short-circuit temperature of the conductor	200°C
Design features	conductor	finely stranded bare electrolytic copper; conductor class 5 acc. to VDE 0295
	core arrangement	in layers
	insulation	rubber compound
	conductor coding	up to 5 cores: colored acc. to VDE 0293-308 from 6 cores: with numerals with/without GN/YE
	outer sheath	special rubber compound
Standards / Approvals		acc. to DIN EN 50525-2-21

Conductix-Wampfler Cable FXG / FXG-D

Neoprene flat cable for heavy duty festoon

- Reduced necessity for space due to smaller bending radii
- Very robust design for applications with higher mechanical stresses
- High resistance to temperature thanks to core insulation materials resistant up to 85°C
- Complete range of unscreened and screened sections
- Robust and wear resistant outer sheath

Particularly suitable,

- if medium to higher dynamic loads are applied to the system on a single plane
- if the expectation is for a longterm solution
- if the festoon system needs to be kept to the smallest possible size due to space limitations
- if operating temperatures can reach 85°C

Characteristics

Resilient neoprene flat cable for festoon systems

Typical applications
- Power supply for trolleys of indoor an process cranes
- Transport systems / transfer cars
- Longitudinal scrapers in sewage treatment plants
- Foundries and steel production plants
- Storage and retrieval systems

Electrical parameters

Rated voltage	Uo/U = 300 / 500 V acc. DIN VDE also suitable for 0.6/1 kV

Mechanical load-bearing capacity

Travel speed	up to 180 m/min
Minimum bending radius, dynamic	acc. to DIN VDE 0298 part 3

Thermal specifications

Ambient temperature	- flexing -30°C... +85°C - fixed -40°C... +85°C other temperatures on request

Chemical specifications
- Resistant to Ozone
- Oil resistant acc EN 60811-404
- UV-resistant
- Flame retardant acc. to IEC 60332-1
- Conforms to RoHS

Color

black

Types

NGFLGÖU-J/-O
(N)GFLCGÖU-J/-O (EMV)
M(StD)HÖU (EMV)

Conductix-Wampfler Cable FXG / FXG-D

Order information

Type of cable	Number of conductors and cross section [mm²]			Part No.	Geometry d x B(1 max [mm]	Cu – Number approx. [kg/km]	Weight approx. [kg/km]	Permitted tensile load [N]	Minimum Order Quantity required(2
Control cable FXG Uo/U 0.6/1 kV	4	G	1.5	131220-F4G1,5#	6.4 x 17.5	58	220	180	-
	5	G	1.5	131220-F5G1,5#	6.4 x 22.0	72	280	225	-
	7	G	1.5	131220-F7G1,5#	6.0 x 29.1	101	380	315	-
	8	G	1.5	131220-F8G1,5#	6.4 x 32.0	115	420	360	-
	10	G	1.5	131220-F10G1,5#	7.0 x 41.5	144	580	450	-
	12	G	1.5	131220-F12G1,5#	7.0 x 48.5	173	690	540	-
	24	G	1.5	131220-F6G4X1,5#	13.0 x 55.0	346	1330	1080	-
	4	G	2.5	131220-F4G2,5#	8.2 x 21.2	96	350	300	-
	5	G	2.5	131220-F5G2,5#	8.2 x 26.0	120	430	375	-
	7	G	2.5	131220-F7G2,5#	8.2 x 34.0	168	560	525	-
	8	G	2.5	131220-F8G2,5#	8.2 x 38.5	192	630	600	-
	12	G	2.5	131220-F12G2,5#	8.8 x 56.8	288	1020	900	-
	24	G	2.5	131220-F6G4X2,5#	17.0 x 72.5	576	2300	1800	-
Screened Control cable FXG Uo/U 0.6/1 kV	4	G	1.5C	131221-F4G1,5C#	8.0 x 21.5	99	290	90	-
	8	G	1.5C	131221-F8G1,5C#	8.0 x 39.6	228	550	180	-
	12	G	1.5C	131221-F12G1,5C#	8.0 x 57.1	342	800	270	-
	4	G	2.5C	131221-F4G2,5C#	8.7 x 24.8	163	370	150	-
	12	G	2.5C	131221-F12G2,5C#	9.5 x 69.5	500	1061	450	-
Data cable FXG-D Uo/U 300/500 V	4	x	(2x1)C	131322-F4X(2X1)C-P#	11.3 x 33.8	273	640	120	-
	7	x	(2x1)C	131322-F 7X(2X1)C#	12.5 x 59.0	430	1060	210	-

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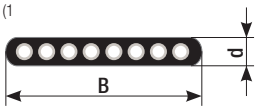

Conductix-Wampfler Cable FXG

Order information

Type of cable	Number of conductors and cross section [mm2]	Part No.	Geometry d x B(1 max [mm]	Cu – Number approx. [kg/km]	Weight approx. [kg/km]	Permitted tensile load [N]	Minimum Order Quantity required(2
Power cable FXG Uo/U 0.6/1 kV	4 G 4	131120-F4G4#	9.4 x 25.3	154	490	480	-
	4 G 6	131120-F4G6#	10.3 x 28.0	230	600	720	-
	4 G 10	131120-F4G10#	11.2 x 33.4	384	840	1200	-
	4 G 16	131120-F4G16#	13.1 x 38.8	614	1210	1920	-
	4 G 25	131120-F4G25#	15.0 x 48.1	960	1650	3000	-
	4 G 35	131120-F4G35#	17.0 x 53.3	1344	2200	4200	-
	4 G 50	131120-F4G50#	19.6 x 61.5	1920	3000	6000	-
	4 G 70	131120-F4G70#	22.6 x 70.5	2688	4250	8400	-
	4 G 95	131120-F4G95#	25.2 x 78.7	3648	5300	11400	-
	4 G 120	131120-F4G120#	27.6 x 86.7	4608	6050	14400	-
	5 G 4	131120-F5G4#	9.4 x 32.2	192	630	600	-
	5 G 6	131120-F5G6#	10.3 x 35.0	288	780	900	-
	5 G 10	131120-F5G10#	11.2 x 41.5	480	1060	1500	-
	5 G 16	131120-F5G16#	12.8 x 47.8	768	1540	2400	-
	7 G 4	131120-F7G4#	9.4 x 41.5	269	830	840	-
	7 G 6	131120-F7G6#	10.3 x 45.8	404	1010	1260	-
	7 G 16	131120-F7G16#	13.7 x 64.4	1075	2140	3360	-
Screened Power cable FXG Uo/U 0.6/1 kV	4 G 4C	131121-F4G4C#	11.6 x 31.9	241	505	240	-
	4 G 6C	131121-F4G6C#	11.6 x 34.1	353	610	360	-
	4 G 10C	131121-F4G10C#	12.7 x 39.6	497	920	600	-
	4 G 16C	131121-F4G16C#	14.9 x 45.7	805	1320	960	-
	4 G 25C	131121-F4G25C#	16.5 x 51.7	1200	1720	1500	-
	4 G 35C	131121-F4G35C#	18.7 x 60.5	1657	2540	2100	-
	4 G 50C	131121-F4G50C#	20.5 x 66.1	2261	3120	3000	-
	4 G 70C	131121-F4G70C#	24.0 x 77.0	3259	4680	4200	
	4 G 95C	131121-F4G95C#	25.3 x 81.9	4311	5540	5700	

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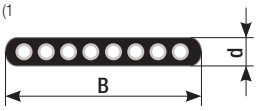


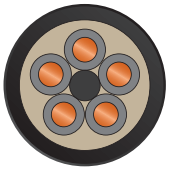
Conductix-Wampfler Cable FXG / FXG-D

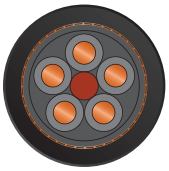
Additional technical data

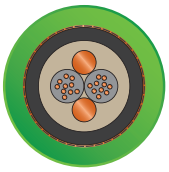
Electrical parameters	AC test voltage	3 kV
	ampacity	according to DIN VDE 0298-4
Thermal specifications	max. permitted operating temperature of the conductor	90°C
	short-circuit temperature of the conductor	250°C
Design features	conductor	bare copper strands; conductor class 6 acc. to VDE 0295, ≥ 25 mm^2 class 5
	core arrangement	cores resp. bundles prallel side by side
	insulation	rubber compound 3GI3
	conductor coding	acc. VDE 0293-308, up to 5 cores: colored, ≥ 6 cores: black with white numerals + GN/YE
	outer sheath	abrasion-resistant rubber compound 5GM3
for shielded types	shield (N)GFLCGÖU-J/-O	braid of tinned copper wires, coverage min. 80%
	shield M(StD)HÖU	coated foil and wrapped tinned wire

Conductix-Wampfler Cable TXP / TXP-D

PUR round cable for heavy duty festoon







- Small dimensions and bending radii
- Highly flexible copper conductors
- Abrasion and cutproof outer sheath material PUR
- Wide temperature range thanks to special materials
- Halogen free sheathing materials

Particularly suitable,

- when a halogen free cable with resistance to atmospheric corrosion is important
- if the priority is a robust and durable system with high reliability
- if dynamic travel speed and acceleration force act on the system
- when frequent and continuous bending of the cable is expected

Characteristics

Cable designed for continuous heavy duty environment, specially adapted for use in conveying machinery

Typical applications
- All horizontal or vertical operating machinery with energy guiding chains such as container crane trolley power supply
- Theatres or other scenic applications with moveable machinery where “halogene free” and “flame retardant” compounds are a must
- Process cranes and conveyor equipment indoors and outdoors with wide temperature range, with severe atmospheric conditions

Electrical parameters

Rated voltage	Uo/U = 0.6 / 1 kV

Mechanical load-bearing capacity

Travel speed	up to 210 m/min

Minimum bending radius, dynamic

TXP	6 x Ø
TXP-D	10 x Ø

Thermal specifications

Ambient temperature

TXP	flexing	-40°C... +80°C
	fixed	-50°C... +80°C
TXP-D	flexing	-30°C... +70°C
	fixed	-40°C... +80°C

Chemical specifications
- free of halogen
- resistant to ozone
- oil-resistant acc. to DIN EN 60811-2-1
- UV-resistant
- free from lacquer damaging substances and silicone (during production)

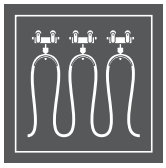
TXP • flame retardant acc. to IEC 60332-1

TXP-D • flame retardant acc. to IEC 60332-2-1

Color	black
Type	D12Y11Y

Conductix-Wampfler Cable TXP
Order information

Type of cable	Number of conductors and cross section [mm²]	Part No.	Outer – Ø min./max. [mm]	Cu – Number approx. [kg/km]	Weight approx. [kg/km]	Permitted tensile load [N]	Minimum Order Quantity
Control cable TXP Uo/U 0.6/1 kV	12G1,5	131240-R12G1,5#	14.3 - 15.5	173	320	270	-
	18G1,5	131240-R18G1,5#	14.5 - 15.7	259	380	400	-
	24G1,5	131240-R24G1,5#	16.5 - 17.8	346	500	540	-
	4G2,5	131240-R4G2,5#	9.2 - 10.2	96	160	150	-
	5G2,5	131240-R5G2,5#	9.8 - 11.0	120	180	180	-
	7G2,5	131240-R7G2,5#	11.5 - 12.7	168	250	260	-
	12G2,5	131240-R12G2,5#	16.5 - 17.7	288	460	450	-
	18G2,5	131240-R18G2,5#	16.7 - 17.9	432	580	670	-
	24G2,5	131240-R24G2,5#	19.2 - 20.4	576	760	900	-
Screened Control cable TXP Uo/U 0.6/1 kV	7G1,5C	131249-R7G1,5C#	10.9 - 12.1	192	220	150	-
	12G1,5C	131249-R12G1,5C#	15.0 - 16.2	250	360	270	-
	18G1,5C	131249-R18G1,5C#	15.0 - 16.2	341	420	400	-
							-
	4G2,5C	131249-R4G2,5C#	12.1 - 13.2	157	250	150	-
	5G2,5C	131249-R5G2,5C#	12.8 - 14.0	190	280	180	-
	12G2,5C	131249-R12G2,5C#	17.4 - 18.6	250	530	450	-
	18G2,5C	131249-R18G2,5C#	17.5 - 18.8	341	650	670	-



Conductix-Wampfler Cable TXP / TXP-D

Order information

Type of cable	Number of conductors and cross section [mm²]	Part No.	Outer – Ø min./max. [mm]	Cu – Number approx. [kg/km]	Weight approx. [kg/km]	Permitted tensile load [N]	Minimum Order Quantity required(2
Power cable TXP Uo/U 0.6/1 kV	1 x 25	131140-R1X25#	9.9 – 11.1	240	270	370	-
	1 x 35	131140-R1X35#	11.7 – 12.9	336	380	520	-
	1 x 50	131140-R1X50#	13.9 – 15.1	480	530	750	-
	1 x 70	131140-R1X70#	16.2 – 17.4	672	740	1.050	-
	1 x 95	131140-R1X95#	17.9 – 19.1	912	940	1.420	-
	1 x 120	131140-R1X120#	20.2 – 21.5	1.152	1.200	1.800	-
	1 x 150	131140-R1X150#	21.8 – 23.2	1.440	1.490	2.250	-
	4 G 4	131140-R4G4#	10.3 – 11.5	154	230	240	-
	4 G 6	131140-R4G6#	12.1 – 13.2	230	320	360	-
	4 G 10	131140-R4G10#	15.0 – 16.2	384	520	600	-
	4 G 16	131140-R4G16#	17.7 – 18.9	614	750	960	-
	4 G 25	131140-R4G25#	21.1 – 22.5	960	1.160	1.500	-
	4 G 35	131140-R4G35#	25.8 – 27.4	1.344	1.650	2.100	-
	4 G 50	131140-R4G50#	31.0 – 33.0	1.920	2.410	3.000	-
	5 G 4	131140-R5G4#	11.6 – 12.7	192	290	300	-
	5 G 6	131140-R5G6#	14.0 – 15.2	288	420	450	-
	5 G 16	131140-R5G16#	19.4 – 20.6	768	920	1.200	-
Screened Power cable TXP Uo/U 0.6/1 kV	1 x 25C	131141-R1X25C#	10.3 – 11.5	310	330	370	-
	1 x 35C	131141-R1X35C#	12.3 – 13.5	406	430	520	-
	1 x 50C	131141-R1X50C#	15.4 – 16.6	550	610	750	-
	1 x 70C	131141-R1X70C#	17.0 – 18.3	747	810	1.050	-
	1 x 95C	131141-R1X95C#	18.9 – 20.1	1.066	1.030	1.420	-
	4 G 4C	131149-R4G4C#	13.6 – 14.7	221	330	240	-
	4 G 6C	131149-R4G6C#	15.1 – 16.3	300	420	360	-
	4 G 10C	131149-R4G10C#	18.4 – 19.6	454	640	600	-
	4 G 16C	131149-R4G16C#	21.2 – 22.5	694	940	960	-
	4 G 25C	131149-R4G25C#	24.5 – 26.2	1.050	1.360	1.500	-
	4 G 35C	131249-R4G35C#	29.6 – 31.6	1.444	1.870	2.100	-
	4 G 50C	131149-R4G50C#	35.1 – 37.6	2.030	2.560	3.000	-
Data cable TXP-D Uo/U 300 V	* 2X2X0,75C PN IE TP	131349-R2X2X0,75C-TP#	6.3 – 6.7	29	68	150	-
	12G62,5/125	131340-R12G62,5/125#	13.0 – 15.0	-	170	300	-
	12G50/125	131340-R12G50/125#	13.0 – 15.0	-	170	300	-

* PVC outer sheath, color green

Other cross-sections available. Please contact us.

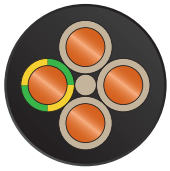
Conductix-Wampfler Cable TXP / TXP-D

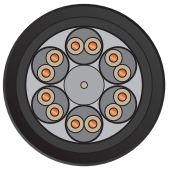
Additional technical data

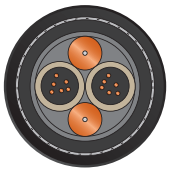
Electrical parameters	AC test voltage		2.5 kV		
	ampacity		according to DIN VDE 0298-4		
Thermal specifications	maximum permitted operating temperature of the conductor		90°C		
	short-circuit temperature of the conductor		250°C		
Mechanical parameters	minimum bending radii allowing for free movement		6 x Ø for fixed installation 6 x Ø for festoon 7.5 x Ø for energy guiding chains		
Design features	conductor		finely stranded bare copper; conductor class 5 acc. to VDE 0295		
	core arrangement		cores twisted around central element		
	insulation		compound based on polyester, free of halogen		
	conductor coding		up to 5 cores: colored acc. to VDE 0293-308 from 6 cores: light-colored insulation with black numerals with/without GN/YE		
	outer sheath		Polyurethane, free of halogen		
Design features - addition for shielded types	inner sheath		PUR; only for cables with 2,3,4 and 5 cores and cables with twisted pairs		
	protection against contact		PETP-foil		
	shield		tinned copper braid, coverage approx. 80%		
	protection against contact		polyesterfleece		
Fiber optic		**fiber type (core-Ø / fiber-Ø)**	**singlemode**	**multimode**	**multimode**
			E9/125	50/125	62.5/125
	max.attentuation				
	at 850 nm		-	3.0 dB/km	3.5 dB/km
	at 1300 nm		0.5 dB/km	1.0 dB/km	1.5 dB/km
	at 1550 nm		0.3 dB/km	-	-
	numeric aperture +/- 0.02		-	0.2	0.27
	band width				
	at 850 nm		-	400 MHz	200 MHz
	at 1300 nm		-	1500 MHz	600 MHz

Conductix-Wampfler Cable TXG / TXG-D

Neoprene round cable for heavy duty festoon







- Resistance to electromagnetic interference due to the use of braided copper screen
- Small diameter due to a stranded, layered structure, screened power cables 3 phase plus split earth conductors
- Complete selection of control, power, bus and optical fibre versions
- Durability resulting from a wear resistant sheathing compound

Particularly suitable,

- when system is subject to middle to high travel speeds and / or acceleration
- when the cable will be subject to a frequent and continuous bending due to a high duty cycle
- if a very high resistance to atmospheric corrosion is to be expected for a longer period of time
- if the operating temperatures reach down to -35°C

Characteristics

Highly resilient festoon cable for continuous heavy duty environment

Typical applications
- Container crane trolley power supply
- Process crane trolleys power supply
- Cranes in foundries and steel mills
- Stacker & Reclaimers
- Car Dumpers, Ship unloaders
- Transport carriers

Electrical parameters

Rated voltage	Uo/U = 0.6 / 1 kV

Mechanical load-bearing capacity

Travel speed	up to 240 m/min
Minimum bending radius, dynamic	acc. to DIN VDE 0298 part 3 125 mm for optical fibre cables

Thermal specifications

Ambient temperature	TXG (flexing)	-35°C... +80°C
	TXG (fixed)	-50°C... +80°C
	TXG-D 24 FO (flexing)	-30°C... +60°C
	TXG-D 24 FO (fixed)	-40°C... +80°C

Chemical specifications
- resistant to ozone
- oil resistant acc. to DIN EN 60811-404
- UV-resistant
- flame retardant acc. to IEC 60332-1
- free from silicone

Unlimited resistance to atmospheric corrosion

Highest allowance on operational temperature at conductor:	90 °C
Short circuit temperature at conductor:	250 °C

Design features

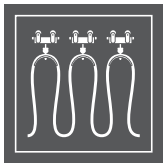
Conductor	flexible bare copper class 5 acc to VDE 0295
Sheath	wear-resistant synthetic rubber compound
Color	black
Core insulation	on base of EPR
Shielded Types	Overall shield tinned copper braid, opt. cover approx 85%
Type	(N)GRDGOEU, (N)GRDGCGOEU

Conductix-Wampfler Cable TXG / TXG-D

Order information

Type of cable	Number of conductors and cross section [mm²]	Part No.	Outer – Ø min./max. [mm]	Cu – Number approx. [kg/km]	Weight approx. [kg/km]	Permitted tensile load [N]	Minimum Order Quantity [m]
Control cable TXG Uo/U 0.6/1 kV	12G2,5	131220-R12G2,5#	18.0 - 20.0	288	600	450	-
	18G2,5	131220-R18G2,5#	21.5 - 23.5	432	870	670	-
	24G2,5	131220-R24G2,5#	24.0 - 27.0	576	1140	900	-
	30G2,5	131220-R30G2,5#	26.4 - 29.4	720	1360	1120	-
	36G2,5	131220-R36G2,5#	28.7 - 31.7	864	1550	1350	500
Data cable TXG-D	6X(2X0,5)C	131222-R6X(2X0,5)C#	21.6 - 24.6	358	800	90	500
	6X(2X1)C	131322-R6X(2X1)C#	27.0 - 30.2	427	1230	180	-
	9X(2X1)C	131322-R9X(2X1)C#	35.3 - 38.3	641	1930	270	300
	* 24G62,5/125	131320-R24G62,5/125-X#	10.0 - 11.0	-	110	2000	-
	* 24G50/125	131320-R24G50/125-X#	10.0 - 11.0	-	110	2000	-
	* 24E9/125	131320-R24E9/125-X#	10.0 - 11.0	-	110	2000	-

Note: On request FO cables also available with 12, 18 or 24 fibers. Please contact us.
* color orange



Conductix-Wampfler Cable TXG / TXG-D

Order information

Type of cable	Number of conductors and cross section [mm²]	Part No.	Outer – Ø min./max. [mm]	Cu – Number approx. [kg/km]	Weight approx. [kg/km]	Permitted tensile load [N]	Minimum Order Quantity [m]
Power cable TXG Uo/U 0.6/1 kV	1x35	131120-R1X35#	12.3 - 13.9	336	430	520	-
	1x70	131120-R1X70#	16.3 - 18.3	672	830	1050	-
	1x95	131120-R1X95#	18.5 - 20.5	912	1070	1420	-
	1x120	131120-R1X120#	20.3 - 22.3	1152	1330	1800	-
	1x150	131120-R1X150#	22.7 - 24.7	1440	1640	2250	-
	1x185	131120-R1X185#	24.6 - 27.6	1776	2010	2770	500
	4G4	131120-R4G4#	13.6 - 15.2	154	350	240	-
	4G6	131120-R4G6#	15.9 - 17.9	230	480	360	-
	4G10	131120-R4G10#	18.0 - 20.0	384	680	600	-
	4G16	131120-R4G16#	23.3 - 25.3	614	1110	960	-
	4G25	131120-R4G25#	26.9 - 29.9	960	1610	1500	-
	4G35	131120-R4G35#	30.1 - 33.1	1344	2100	2100	300
	4G50	131120-R4G50#	36.1 - 39.1	1920	3010	3000	-
	5G4	131120-R5G4#	15.7 - 17.7	192	450	300	-
	5G6	131120-R5G6#	17.5 - 19.5	288	580	450	-
	5G10	131120-R5G10#	20.2 - 22.2	480	860	750	1000
	5G16	131120-R5G16#	24.5 - 27.5	768	1340	1200	-
	5G25	131120-R5G25#	29.9 - 32.9	1200	1990	1870	-
	5G35	131120-R5G35#	34.7 - 37.7	1680	2700	2620	500
Screened power cable TXG Uo/U 0.6/1 kV	4G4C	131129-R4G4C#	14.8 - 17.8	277	480	240	1000
	4G6C	131129-R4G6C#	16.2 - 19.2	402	640	360	1000
	4G10C	131129-R4G10C#	19.6 - 22.6	610	890	600	-
	3x16+3G2,5C	131129-R3X16+3G2,5C#	22.4 - 25.4	758	1150	720	-
	3x25+3G4C	131129-R3X25+3G4C#	25.4 - 28.4	1134	1590	1125	-
	3x35+3G6C	131129-R3X35+3G6C#	29.3 - 32.3	1547	2160	1575	500
	3x50+3G10C	131129-R3X50+3G10C#	35.4 - 38.4	2181	3060	2250	500

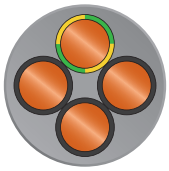
Conductix-Wampfler Cable TXG / TXG-D

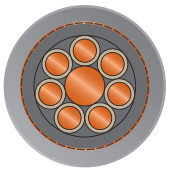
Additional technical data

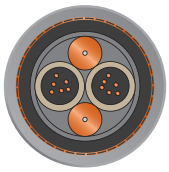
Electrical parameters	AC test voltage	3.5 kV
	ampacity	acc. to DIN VDE 0298-4
Thermal specifications	max. permitted operating temperature of the conductor	90°C
	short-circuit temperature of the conductor	250°C
Design features	conductor	finely stranded bare electrolytic copper; conductor class 5 acc. to VDE 0295
	core arrangement	in layers
	insulation	EPR compound
	conductor coding	up to 5 cores: colored acc. to VDE 0293 from 6 cores: light colored insulation with black numerals with/without GN/YE
	outer sheath	abrasion-resistant special rubber compound (at least 5GM3)
Shielded types		tinned copper braid,
	overall shield	surface covered: at least 80%
	individually screened cores	surface covered: at least 60%
	twisted and shielded pairs	surface covered: at least 80%
Standards/approvals	TXG	acc. to DIN VDE 0250-814; GOST-R
	TXG-D 24 FO	acc. to DIN VDE 0888; UL

Conductix-Wampfler Cable CV / CV -D

PVC round cable for energy guiding chains







- Small dimensions and bending radii
- Highly flexible copper conductors
- Durable through PVC outer sheath
- Resistance to electromagnetic interference due to the use of braided copper screen with 85% coverage

Particularly suitable,

- when low to medium travel speeds and acceleration forces act on the system
- if frequent and continuous bending in a longitudinal movement is needed
- when a cost effective system primarily for indoors is required
- if high resistance to wear is expected and outer sheath is subject to abrasion
- if system requires UL or CSA approvals

Characteristics

Cable designed for continuous medium duty environment, specially adapted for use in energy guiding chains

Typical applications
- Rack feeders
- Irrigation systems
- Power supply for trolleys and cranes
- Standard indoor cranes, process cranes
- Handling equipment

Electrical parameters

Rated voltage	Uo/U = 0.6 / 1 kV

Mechanical load-bearing capacity

Travel speed	up to 140 m/min (> 140 m/min on request)
Minimum bending radii	5 x Ø fixed installation 10 x Ø flexing in energy guiding chains

Thermal / Chemical specifications

Ambient temperature	- flexing	-5°C... +80°C
	- fixed	-10°C... +80°C

Highest allowance on operational temperature at conductor: 70 °C
Short circuit temperature at conductor: 150 °C

Important features
- Resistant to Ozone
- Oil resistant acc DIN EN 60811-2-1
- Low flammability acc. IEC 60332-1 plus FT1 Flame test UL 758 and FT1 CSA C.22.2 N° 210

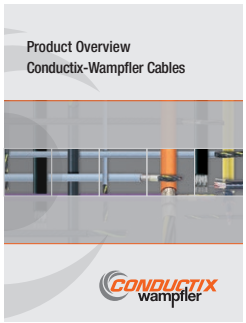
Design features

Conductor	flexible copper class 5
Sheath	abrasion-resistant PVC, Acc. UL1581
Color	grey RAL 7040
Core insulation	Polyolefine
Shielded Types	Overall shield tinned copper braid approx 85% coverage

UL / CSA 80°C 1000V style 21179 DESINA approved

Conductix-Wampfler Cable CV
Order information

Type of cable	Number of conductors and cross section [mm²]	Part No.	Outer – Ø min./max. [mm]	Cu – Number approx. [kg/km]	Weight approx. [kg/km]	Permitted tensile load [N]	Minimum Order Quantity required(2
Control Cable CV I 0.6/1 kV	4 G 1.5	133250-R4G1.5#	7.0 – 7.7	58	105	90	-
	5 G 1.5	133250-R5G1.5#	8.0 – 8.0	72	127	112	-
	7 G 1.5	133250-R7G1.5#	10.0 – 10.4	101	168	157	-
	12 G 1.5	133250-R12G1.5#	11.9 – 12.3	175	275	270	-
	18 G 1.5	133250-R18G1.5#	13.9 – 14.4	260	403	405	-
	25 G 1.5	133250-R25G1.5#	16.9 – 17.3	360	550	563	-
	4 G 2.5	133250-R4G2.5#	9.2 – 9.7	96	154	150	-
	5 G 2.5	133250-R5G2.5#	10.0 – 10.4	120	193	190	-
	7 G 2.5	133250-R7G2.5#	12.3 – 12.5	168	254	260	-
	12 G 2.5	133250-R12G2.5#	15.0 – 15.5	280	421	450	-
	18 G 2.5	133250-R18G2.5#	17.2 – 17.9	432	615	675	-
	25 G 2.5	133250-R25G2.5#	22.0 – 22.5	600	843	940	-
Power Cable CV I 0.6/1 kV	4 G 4	133150-R4G4#	11.2 – 11.5	154	239	240	-
	4 G 6	133150-R4G6#	13.2 – 13.6	231	519	360	-
	4 G 10	133150-R4G10#	16.9 – 17.4	384	580	600	-
	4 G 16	133150-R4G16#	20.5 – 20.9	615	836	960	-
	4 G 25	133150-R4G25#	24.9 – 25.5	960	1.313	1.500	-
	4 G 35	133150-R4G35#	28.2 – 28.6	1.344	1.716	2.100	-
	5 G 4	133150-R5G4#	12.4 – 12.7	192	289	300	-
	7 G 4	133150-R7G4#	14.5 – 15.0	269	395	420	-
	7 G 6	133150-R7G6#	17.5 – 17.9	404	799	630	-
Screened Control Cable CV I 0.6/1 kV	4 G 1.5C	133253-R4G1.5C#	8.2 – 8.5	75	133	90	-
	5 G 1.5C	133253-R5G1.5C#	9.0 – 9.5	101	171	112	-
	7 G 1.5C	133253-R7G1.5C#	10.3 – 10.8	136	228	157	-
	12 G 1.5C	133253-R12G1.5C#	12.5 – 12.9	216	339	270	-
	18 G 1.5C	133253-R18G1.5C#	14.9 – 15.4	311	478	405	-
	25 G 1.5C	133253-R25G1.5C#	18.0 – 18.5	422	640	563	-



Conductix-Wampfler Cable CV-D
Order information

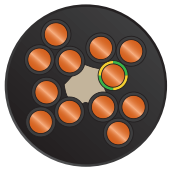
Type of cable	Number of conductors and cross section [mm²]	Part No.	Outer – Ø min./max. [mm]	Cu – Number approx. [kg/km]	Weight approx. [kg/km]	Permitted tensile load [N]	Minimum Order Quantity required(2
Data Cable CV-D I 0.6/1 kV	4 x 2 x 0.34C	133259-R4x2x0.34#	8.9 – 9.2	52	120	41	-
	8 x 2 x 0.34C	133259-R8x2x0.34#	11.5 – 11.9	99	195	82	-
	14 x 2 x 0.34C	133259-R14x2x0.34#	13.3 – 13.6	159	277	143	-
	4 x 2 x 0.5C	133259-R4x2x0.5#	10.0 – 10.3	77	156	60	-
	8 x 2 x 0.5C	133259-R8x2x0.5#	12.9 – 13.2	137	248	120	-
	14 x 2 x 0.5C	133259-R14x2x0.5#	14.9 – 15.3	226	361	210	-

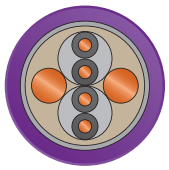
Conductix-Wampfler Cable CV / CV -D
Technical data

Electrical parameters	rated voltage Uo/U	0.6 / 1kV
	maximum permitted AC operating voltage Uo/U	0. 7 / 1.2kV
	maximum permitted DC operating voltage Uo/U	0. 9 / 1.8kV
	ampacity	according to table data, otherwise according to DIN VDE 0298 part 4
	AC test voltage power	2.5 kV in AC
	AC test voltage control	2.0 kV in AC
Thermal parameters	ambient temperature	flexing -5°C to +80°C fixed -10°C to +80°C
	maximum permitted operating temperature of the conductor	70°C
	short-circuit temperature of the conductor	150°C
Mechanical parameters	minimum bending radii allowing for free movement	5 x Ø for fixed installation 10 x Ø for movement in chain
Chemical parameters	Silicone-free	yes
	combustion behaviour	of low flammability according IEC 60332-1 plus FT1
	resistant to ozone	yes
	UV-resistant	yes
	oil-resistant	yes, Yes, DIN EN 60811-2-1; 80°C UL758
	resistant to humidity	yes
Materials	insulation	Polyolefine
	outer sheath	PVC (Polivinylchlorid), color gray
Design features	conductor	bare electrolytic copper, class 6 acc. DIN VDE 0295 / EN 60228
	stranding	n layers up to 11 conductors, > 12 conductors bundle layering, optimized length of lay
	conductor coding	acc. DIN VDE 0293 part 308, > 5 conductors black numbered cores with green/yellow earth conductor
Standards		UL / CSA – cURus 80°C 1000V style 21179
Design codes		DESINA approved

Conductix-Wampfler Cable CXP / CXP-D

PUR or TPE round cable for energy guiding chains





- Small dimensions and bending radii
- Highly flexible copper conductors
- Abrasion and cutproof outer sheath material PUR or TPE
- Bundle layering for higher resilience
- Durable in frequent bending applications as a result of sturdy construction with adapted length of lay
- complete range

Particularly suitable,

- for energy guiding chains for up to 100 m (PUR) and 400 m (TPE) travel lengths
- if high dynamic travel speed and acceleration force act on the system
- if frequent and continuous bending with small bending radii of the cable is expected
- for applications with moveable machinery where “halogene free” and “flame retardant” compounds are a must
- if system requires UL or CSA approval

Characteristics

Cable designed for continuous heavy duty environment, specially adapted for use in moving machinery

Typical applications
- Container crane trolley power supply
- Theatres or other scenic
- Process cranes and conveyor equipment indoors and outdoors with wide temperature range, and high resistance requirements

Electrical parameters

Rated voltage	CXP	Uo/U =0.6 / 1 kV acc. to UL: 600 V
	CXP-D	Uo/U = 300/500 V acc. to UL: 300 V

Mechanical load-bearing capacity

Travel speed	up to 300 m/min
Minimum bending radius, dynamic	(TPE) 7.5 x Ø (PUR) 7.5 x Ø < 10 m TL 10 x Ø > 10 m TL
Maximum travel length	50 m (PUR) I 400 m (TPE)

Thermal specifications

Ambient temperature (TPE)	- flexing	-40°C... +90°C
	- fixed	-45°C... +90°C
(PUR)	- flexing	-40°C... +80°C
	- fixed	-50°C... +80°C
max. permitted operating temperature of the conductor		(TPE) 90°C (PUR 80°C

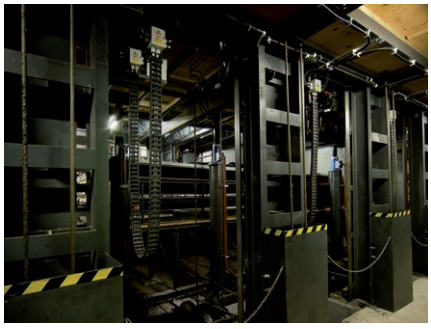
Chemical specifications
- free of halogen
- oil-resistant acc. to DIN EN 60811-404
- UV-resistant
- free from lacquer damaging substances and silicone
- (TPE) flame retardant acc. to IEC 60332-1
- (PUR) flame retardant acc. to IEC 60332-1-2

Color (TPE) black
(PUR) grey

Conductix-Wampfler Cable CXP
Order information

Type of cable	Number of conductors and cross section [mm²]	Part No.	Outer – Ø min./max. [mm]	Cu – Number approx. [kg/km]	Weight approx. [kg/km]	Minimum Order Quantity required
Power cable CXP Uo/U 0,6/1 kV (TPE)	1 x 6	133100-R1X6#	6.7 – 7.4	60	96	-
	1 x 10	133100-R1X10#	7.6 – 8.4	100	142	-
	1 x 16	133100-R1X16#	9.0 – 10.0	160	211	-
	1 x 25	133100-R1X25#	10.9 – 12.1	250	323	
	1 x 35	133100-R1X25#	11.9 – 13.1	350	323	-
	1 x 50	133100-R1X50#	13.8 – 15.2	500	598	-
	1 x 70	133100-R1X70#	15.7 – 17.3	700	801	-
	1 x 95	133100-R1X95#	18.1 – 20.0	950	1061	
	1 x 120	133100-R1X120#	20.4 – 22.6	1200	1280	-
	1 x 150	133100-R1X150#	21.9 – 24.2	1500	1605	-
	4 G 4	133100-R4G4#	10.3 – 11.4	158	232	-
	4 G 6	133100-R4G6#	12.7 – 14.1	231	348	-
	4 G 10	133100-R4G10#	16.3 – 18.1	384	570	-
	4 G 16	133100-R4G16#	19.3 – 21.4	614	849	-
	4 G 25	133100-R4G25#	23.2 – 25.7	960	1206	-
	5 G 4	133100-R5G4#	11.4 – 12.7	192	295	-
	5 G 6	133100-R5G6#	14.2 – 15.8	288	436	-
	5 G 10	133100-R5G10#	18.3 – 20.3	480	721	-
	5 G 16	133100-R5G16#	21.8 – 24.2	768	1056	-
Screened Power cable CXP Uo/U 0,6/1 kV (TPE)	1 x 35C	133101-R1X35C#	12.9 – 14.3	390	483	-
	1 x 50C	133101-R1X50C#	14.2 – 15.8	541	639	-
	1 x 70C	133101-R1X70C#	16.6 – 18.4	744	880	-
	1 x 95C	133101-R1X95C#	19.4 – 21.5	1028	1109	-
	1 x 120C	133101-R1X120C#	21.4 – 23.7	1277	1410	-
	1 x 150C	133101-R1X150C#	22.8 – 25.2	1572	1736	-
	4 G 4C	133109-R4G4C#	13.0 – 14.4	212	325	-
	4 G 6C	133109-R4G6C#	15.3 – 17.0	305	461	-
	4 G 10C	133109-R4G10C#	18.9 – 20.9	513	692	-
	4 G 16C	133109-R4G16C#	21.3 – 23.6	805	1093	-
	4 G 25C	133109-R4G25C#	26.2 – 29.0	1147	1473	-
	4 G 35C	133109-R4G35C#	32.8 – 36.3	1650	2290	-
	5 G 6C	133109-R5G6C#	16.9 – 18.7	378	561	-

Other cross-sections available on request. Please contact us.

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Conductix-Wampfler Cable CXP
Order information

Type of cable	Number of conductors and cross section [mm²]	Part No.	Outer – Ø min./max. [mm]	Cu – Number approx. [kg/km]	Weight approx. [kg/km]	Minimum Order Quantity required
Control cable CXP Uo/U 0,6/1 kV (PUR)	7 G 0,5	133340-R7G0,5#	7.4 – 8.2	34	78	-
	12 G 0,5	133340-R12G0,5#	8.7 – 9.7	58	121	-
	18 G 0,5	133340-R18G0,5#	10.4 – 11.6	87	172	-
	25 G 0,5	133340-R25G0,5#	12.3 13.7	120	245	-
	36 G 0,5	133340-R36G0,5#	14.2 – 15.8	173	321	-
	7 G 1	133340-R7G1#	9.0 – 10.0	67	129	-
	12 G 1	133340-R12G1#	10.8 – 12.0	115	202	-
	18 G 1	133340-R18G1#	13.0 – 14.4	173	296	-
	25 G 1	133340-R25G1#	15.6– 17.2	240	426	-
	3 G 1,5	133240-R3G1,5#	6.6 – 7.4	43	78	-
	4 G 1,5	133240-R4G1,5#	7.4 – 8.2	58	100	-
	5 G 1,5	133240-R5G1,5#	8.5 – 9.3	72	122	-
	7 G 1,5	133240-R7G1,5#	10.3 – 11.3	101	178	-
	12 G 1,5	133240-R12G1,5#	12.0 – 13.3	173	276	-
	18 G 1,5	133240-R18G1,5#	14.7 – 16.3	259	405	-
	25 G 1,5	133240-R25G1,5#	17.6 – 19.4	360	580	-
	36 G 1,5	133240-R36G1,5#	20.1 – 22.3	519	771	
	3 G 2,5	133240-R3G2,5#	8.0 – 8.9	72	122	-
	4 G 2,5	133240-R4G2,5#	8.9 – 9.9	96	154	-
	5 G 2,5	133240-R5G2,5#	10.2 – 11.2	120	192	-
	7 G 2,5	133240-R7G2,5#	12.3 – 13.5	168	272	-
	12 G 2,5	133240-R12G2,5#	14.7– 16.3	288	436	-
	18 G 2,5	133240-R18G2,5#	17.9 – 19.7	432	628	-
	25 G 2,5	133240-R25G2,5#	21.4 – 23.6	600	903	-
Screened Control cable CXP Uo/U 0,6/1 kV (PUR)	7 G 0,75C	133349-R7G0,75C#	8.8 – 9.8	85	129	-
						-
	12 G 1C	133349-R12G1C#	11.5 – 12.7	161	229	-
	18 G 1C	133349-R18G1C#	14.0 – 15.4	244	343	-
	25 G 1C	133349-R25G1C#	16.3 – 18.1	331	462	-
	3 G 1,5C	133249-R3G1,5C#	7.4 – 8.2	72	100	-
	4 G 1,5C	133249-R4G1,5C#	8.0 – 8.8	86	121	-
	5 G 1,5C	133249-R5G1,5C#	9.0 – 10.0	106	148	-
	7 G 1,5C	133249-R7G1,5C#	10.9 – 12.1	141	199	-
	12 G 1,5C	133249-R12G1,5C#	12.8 – 14.2	244	323	-
	18 G 1,5C	133249-R18G1,5C#	15.7 – 17.3	340	455	-
	25 G 1,5C	133249-R25G1,5C#	18.5 – 20.5	461	620	-
	4 G 2,5C	133249-R4G2,5C#	9.5 – 10.5	131	177	-
	7 G 2,5C	133249-R7G2,5C#	13.2 – 14.6	219	301	-

Conductix-Wampfler Cable CXP-D

Order information

Type of cable	Number of conductors and cross section [mm²]	Part No.	Outer – Ø min./max. [mm]	Cu – Number approx. [kg/km]	Weight approx. [kg/km]	Permitted tensile load [N]	Minimum Order Quantity required
Data cable CXP-D Uo/U 300/500 V (PUR)	3 x 2 x 0,5C	133349-R3X2X0,5C#	7.3 – 8.1	55	74	45	-
	4 x 2 x 0,5C	133349-R4X2X0,5C#	8.2 – 9.0	67	90	60	-
	6 x 2 x 0,5C	133349-R6X2X0,5C#	9.8 – 10.8	99	125	90	-
	8 x 2 x 0,5C	133349-R8X2X0,5C#	11.6 – 12.8	127	169	120	-
	14 x 2 x 0,5C	133349-R14X2X0,5C#	13.7 – 15.1	197	258	210	-
	4 x 2 x 0,75C	133349-R4X2X0,75C#	9.0 – 10.0	94	178	90	-
	6 x 2 x 0,75C	133349-R6X2X0,75C#	11.0 – 12.2	134	234	135	-
	8 x 2 x 0,75C	133349-R8X2X0,75C#	13.0 – 14.4	169	243	180	-
Data cable CXP–D I 300/300 V (PUR)	(4X(2XAWG26))C CAT5	133346-R(4x(2xAWG26))C	7.0 – 8.0	11	70	16.8	-
	(4X(2XAWG26))C CAT6	133346-R(4x(2xAWG26))C	7.0 – 8.0	11	70	16.8	-
Data cable CXP–D I 500/500 V (PUR)	(4X(2X0.5))C*	133346-R(4x(2x0.5))CD	15.0 – 15.9	160	345	60	-
	(14X(2X0.5))C*	133346-R(14x(2x0.5))CD	17.3 – 18.2	365	550	210	-
Data cable CXP–D I 300/300 V (PUR)	CAN BUS 1X2X0.5C 120Ohm	133342-R(1x2x0.5)CCAN	8.0 – 8.4	34	85	15	-
	CAN BUS 2X2X0.5C 120Ohm	133342-R(2x2x0.5)CCAN	8.0 – 8.4	45	95	30	-
	1X2X0.64C PB	133342-R(1x2x0.64)CPB	8.0 – 8.5	13	70	19.2	-
	(2X1)+(2X0.75)C DN	133342-R(2x1)+(2x0.75)CDN	13.0 – 14.5	33.6	186	45	-
Data cable CXP–D I 250/250 V (PUR)	KOAX 3X(1XHF75)C	133345-R(3x1HF75)CKOAX	11.1 – 11.5	63	143		-
	KOAX 5X(1XHF75)C	133345-R(5x1HF75)CKOAX	11.7 – 12.3	95.5	177		-
Data cable CXP–D (PUR)	6FOG62.5/125	133340-R6G62.5/125	6.0 – 6.3		38	950	-
	6FOG50/125	133340-R6G50/125	6.0 – 6.3		38	950	-
	6FOE9/125	133340-R6GE9/125	6.0 – 6.3		38	950	-
	12FOG62.5/125	133340-R12G62.5/125	13.0 – 15.0		170	300	-
	12FOG50/125	133340-R12G50/125	13.0 – 15.0		170	300	-
	12FOE9/125	133340-R12E9/125	13.0 – 15.0		170	300	-

* Double screen: twisted screened pairs plus overall screen

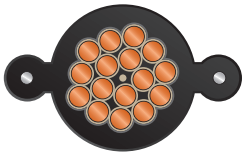
Conductix-Wampfler Cable CXP / CXP-D

Additional technical data

Electrical parameters	AC test voltage CXP	2.5 kV
	AC test voltage CXP-D	1.5 kV
	ampacity	acc. to DIN VDE 0298-4
TPE Design features		
	conductor	extra finely stranded bare copper; conductor class 6 acc. to VDE 0295
	core arrangement	cores twisted around tensile strength element
	insulation	TPE
	conductor coding	black with white numerals + GNYE; natural color for single core cables
	outer sheath	TPE
	Addition for shielded types:	
	inner sheath	TPE
	shield	tinned copper braid, coverage approx. 85%
PUR Design features		
	conductor	extra finely stranded bare copper; conductor class 6 acc. to VDE 0295
	core arrangement	cores stranded in layers
	core arrangement CXP-D	cores twisted to pairs, pairs stranded in layers
	insulation	special polyester elastomer compound
	conductor coding	black with white numerals + GNYE
	conductor coding CXP-D	colored acc. to DIN 47100
	outer sheath	PUR
	Addition for shielded types:	
	shield	tinned copper braid, coverage approx. 85%
Standards/ approvals		
	CXP	UL/CSA - cURus 80°C, 1000 V
	CXP-D	UL/CSA - cURus 80°C, 300 V

Conductix-Wampfler Cable PV

PVC pendant control station cable



- Compact design with the use of a concentric layer stranding
- Simple insulation by means of coaxially extruded conductor insulation material
- Particularly long free-hanging lengths (50 m) provided by the integration of two resilient steel cables into the outer sheath
- Easy installation due to the simple separation of the steel supporting cables from the main cable

Particularly suitable,

- if a control cable needs to be connected hanging freely over a distance of maximum 50 m
- when used for standard, indoor applications
- if a cost-effective solution for transfer of control signals from a pendant control station is required
- if the cable is potentially subject to high tensile stress
- when the operating temperatures do not exceed 60°C

Characteristics

Resilient PVC round cable with two integrated steel ropes

Main application: pendant control station for crane systems

Typical applications
- pendant control station for trolleys of indoor cranes
- passenger and goods hoists
- applications with up to 50 m of vertical freely hanging cable

Electrical parameters

Rated voltage	Uo/U = 300/500 V

Mechanical load-bearing capacity

Minimum bending radius	dynamic	12 x Ø
	fixed	12 x Ø

Tensile load-bearing capacity 2.800 N (support steel ropes)

Thermal specifications

Ambient temperature	flexing:	- 25°C... + 60°C
	fixed:	- 25°C... + 60°C

Chemical specifications
- oil-resistant acc. to DIN EN 60811-404
- free from lacquer damaging substances and silicone (during production)
- self-extinguishing and flame retardant acc. to IEC 60332-1
- conform to RoHS

Color black

Type FYMYTW

Conductix-Wampfler Cable PV
Order information

Type of cable	Number of conductors and cross section [mm²]	Part-No.	Outer – Ø d / D(1 [mm]	Cu – Number approx. [kg/km]	Weight approx. [kg/km]	Permitted tensile load [N]	Minimum Order Quantity required
Control cable PV Uo/U 300/500 V	5 x 1.5	131250-P5X1,5#	14.3 / 23.3	77	349	2800	–
	8 x 1.5	131250-P8X1,5#	15.5 / 28.5	115	419		–
	12 x 1.5	131250-P12X1,5#	16.7 / 31.5	173	515		–
	16 x 1.5	131250-P16X1,5#	18.5 / 32.0	230	594		–
	20 x 1.5	131250-P20X1,5#	21.8 / 37.5	288	798		–
	24 x 1.5	131250-P24X1,5#	22.0 / 32.0	346	750		–
	30 x 1.5	131250-P30X1,5#	24.7 / 35.5	450	980		–

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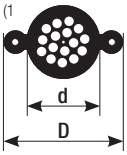
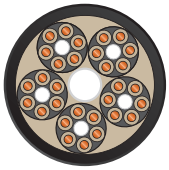


Conductix-Wampfler Cable PV
Additional technical data

Electrical parameters	AC test voltage	2 kV
	ampacity	according to VDE 0298-4
Thermal specifications		
	maximum permitted operating temperature of the conductor	70°C
	short-circuit temperature of the conductor	160°C
Design features		
	conductor	finely stranded bare copper; conductor class 5 acc. to VDE 0295
	core arrangement	cores stranded in layers
	insulation	Thermoplast
	conductor coding	acc. to DIN VDE 0293, with numerals with/without GN/YE
	supporting element	two outer steel ropes, incorporated into the outer sheath
	outer sheath	PVC

Conductix-Wampfler Cable SXP / SXP-D

PUR round cable for basket applications



- Special control cable for load lifting machines
- Vertical gravity-fed collector basket operation very robust construction
- Heavy duty construction designed for best torsional properties
- Particularly suitable for marine environments, e.g. ship to shore cranes

Particularly suitable,

- for spreader basket application
- if free fall into basket requirements are requested
- when cable is faced with torsional stresses and tensile load strains

Characteristics

Heavy duty control cable designed for load lifting devices outdoors, gravity-fed basket or special container coiling capacities

Typical applications
- Vertical feeding control cable for load lifting equipment with high mechanical stress in spreader basket operation

Electrical parameters

Rated voltage	Uo/U = 0.6 / 1 kV Special versions for data transmission (BUS) available on request

Mechanical load-bearing capacity

Travel speed	up to 160 m/min vertical
Min. bending radius, dynamic	acc. DIN VDE 0298-3
Breaking load	The breaking load provides a safety factor of 5 when the cable is suspended vertically for 50 m

Thermal specifications

Ambient temperature	- flexing -40°C... +80°C - fixed -50°C... +80°C

Chemical specifications
- Oil resistant acc DIN EN 60811-404
- Resistant to moisture
- Resistant to Ozone
- UV-resistant
- free from lacquer damaging substances and silicone (during production)

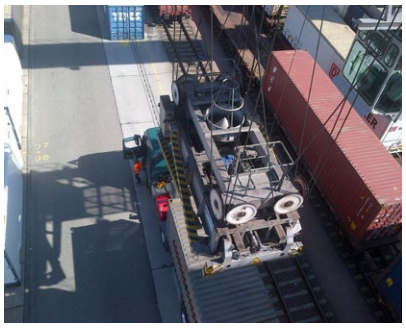
Certifications / Approvals	GOST-R
Color	Black
Type	3GSLTOE-J

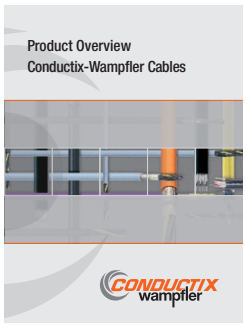
Conductix-Wampfler Cable SXP / SXP-D

Order information

Type of cable	Number of conductors and cross section [mm²]	Part No.	Outer – Ø min./max. [mm]	Cu – Number approx. [kg/km]	Weight approx. [kg/km]	Permitted tensile load [N]	Minimum Order Quantity required [m]
Control cable SXP Uo/U 0,6/1 kV	48G1	137240-R48G1#	31.1 – 34.1	461	2340	720	–
	30G2,5	137240-R30G2,5#	31.1 – 34.1	720	2260	1125	–
	36G2,5	137240-R36G2,5#	34.5 – 37.5	864	2780	1350	–
	42G2,5	137240-R42G2,5#	36.8 – 39.8	1008	3490	1575	–
	54G2,5	137240-R54G2,5#	45.5 – 48.5	1296	3890	2025	–
	30G3,5	137240-R30G3,5#	34.3 – 37.3	1008	2970	1575	300
	36G3,5	137240-R36G3,5#	37.9 – 40.9	1210	3750	1890	–
	42G3,5	137240-R42G3,5#	42.4 – 45.4	1411	4510	2205	–
Control & Data cable SXP-D Uo/U 0,6/1 kV	24G2,5+4x(2x1)C	137440-R24G2,5+4x(2x1)C#	41.2 – 44.2	850	3600	900	300
	36G2,5+FO	137440-R36G2,5+12G62,5#	36.8 – 39.8	864	3360	1350	300
	48G2,5+FO	137440-R48G2,5+12G62,5#	45.5 – 48.5	1152	3940	1800	300

Other cross-sections available on request. Please contact us.






DB
MAERSK SEALAND
MAERSK
DB SCHENKER
NYK LOGISTICS

Conductix-Wampfler Cable SXP / SXP-D

Additional technical data

Electrical parameters	rated voltage	0.6 / 1 kV
	maximum permitted AC operating voltage	0.7 / 1.2 kV
	maximum permitted DC operating voltage	0.9 / 1.8 kV
	AC test voltage	3.5 kV
	ampacity	according to DIN VDE 0298-4
	data transmission	with special bus elements: ASI-Bus, Profibus or Fiber optic elements
Thermal specifications		
	maximum permitted operating temperature of the conductor	90°C
	short-circuit temperature of the conductor	250°C
Design features	conductor	extremely finely stranded bare copper; conductor class FS
	core arrangement	cores in bundles, laid-up around the central element
	insulation	special EPR compound based on type 3GI3
	conductor coding	light-colored insulation with black numerals with/without GN/YE
	screen	tinned copper braid; coverage approx. 60% for shielded cores, 80% for twisted pairs
	supporting element	aramid threads
	outer sheath	special PUR compound

		fiber type (core-Ø / fiber-Ø)	singlemode E9/125	multimode 50/125	multimode 62.5/125
Fiber optic	max. attenuation	at 850 nm	–	2.8 dB/km	3.3 dB/km
		at 1300 nm	0.4 dB/km	0.8 dB/km	0.9 dB/km
		at 1550 nm	0.3 dB/km	–	–
	numeric aperture ± 0.02		0.14	0.2	0.275
	band width	at 850 nm	–	400 MHz	400 MHz
		at 1300 nm	–	1200 MHz	600 MHz

Installation notes

The cable must be laid into the basket in a counter-clockwise direction

Conductix-Wampfler Cable SXG

Flexible single core connecting cable high voltage

- Special single core cable are used in short lengths to connect mobile transformer substations
- Unrestricted use outdoors and indoors
- Highly flexible connection for switch gear units or generators in the medium voltage range

Particularly suitable,

- for confined connection spaces where small bending radii are required
- if a flexible medium voltage connection to a motor or transformer needs to be realized
- when single core including screen version in 6/10 KV and 12/20 KV is needed
- if a single core medium voltage cable is required in a festoon system

Characteristics

Flexible single core screened medium voltage cables are designed acc. DIN VDE 0250 chapter 813

Typical applications
Medium voltage connection of minisubs or generators,
transformer units indoor and outdoor, secondary use on festoon systems

Electrical parameters

Rated voltage	Uo/U = 6 / 10 kV
	Uo/U = 12 / 20 kV
	UoU = 14 / 25 kV
	UoU = 20 / 35 kV
	other voltages on request

Mechanical load-bearing capacity

Travel speed	up to 120 m/min for festoon application
Minimum bending radii	acc. to DIN VDE 0298-3

Thermal specifications

Ambient temperature	flexing:	- 25°C... + 80°C
	fixed:	- 40°C... + 80°C

Chemical specifications

oil-resistant acc. to EN 60811-404
flame retardant acc. to IEC 60332-1-2
UV-resistant
resistant to moisture
resistant to ozone

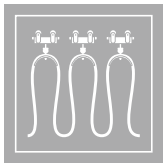
Highest allowance on operational temperature at conductor:	90 °C
Short circuit temperature at conductor:	250 °C

Resistance to atmospheric corrosion to ozone, UV and water

Design features

Conductor	copper tinned wire class 5 acc DIN VDE 0295
Inner layer	special conductive rubber compound
Core insulation	Rubber
Outer layer	special conductive rubber
Sheath	Rubber acc DIN VDE 0207
Color	red

Brand	Feltoflex or similar
Type	NTMCWOEU



Conductix-Wampfler Cable SXG

Order information

Type of cable	Number of conductors and cross section [mm²]	Part No.	Conductor – Ø max. [mm]	Outer – Ø min./max. [mm]	Cu-number approx. [kg/km]	Weight approx. [kg/km]	Permitted tensile load [N]	Conductor Resistance at 20°C max. [Ω/km]	Current carrying capacity [A] [1]	Short circuit current (conductor)[kA]
Power cable SXG 6 / 10 kV	1 x 35/16C	137121-RF1X35/16C#	7.5	17.1 - 23.1	518	1000	525	0.565	220	5
	1 x 50/16C	137121-RF1X50/16C#	9.0	18.7 - 26.1	662	1250	750	0.393	275	7.2
	1 x 70/16C	137121-RF1X70/16C#	10.6	20.5 - 28.3	854	1450	1050	0.277	340	10
	1 x 95/16C	137121-RF1X95/16C#	12.6	22.3 - 29.4	1094	1700	1425	0.21	409	13.6
	1 x 120/16C	137121-RF1X120/16C#	14.8	24.2 - 31.6	1334	2000	1800	0.164	479	17.2
	1 x 150/25C	137121-RF1X150/25C#	16.0	25.9 - 33.3	1723	2400	2250	0.132	549	21.5
	1 x 185/25C	137121-RF1X185/25C#	17.7	27.7 - 35.1	2069	2750	2775	0.108	627	26.5
	1 x 240/25C	137121-RF1X240/25C#	20.3	29.5 - 38.7	2587	3400	3600	0.082	741	34.3
	1 x 300/25C	137121-RF1X300/25C#	22.5	32.2 - 40.9	3163	4050	4500	0.0654	853	42.9
	1 x 400/35C	137121-RF1X400/35C#	26.5	34.9 - 44.3	4314	5120	6000	0.05	1023	57.2
	1 x 500/35C	137121-RF1X500/35C#	29.3	37.7 - 47.7	5194	5950	7500	0.0391	1178	71.5
	1 x 630/35C	137121-RF1X630/35C#	33.9	42.3 - 52.2	6442	7860	9450	0.0292	1264	90.1
Power cable SXG 12 / 20 kV										
	1 x 35/16C	137121-RH1X35/16C#	7.5	27.6 - 30.1	518	1250	525	0.565	234	5
	1 x 50/16C	137121-RH1X50/16C#	9.0	29.3 - 31.8	662	1450	750	0.393	292	7.2
	1 x 70/16C	137121-RH1X70/16C#	10.6	33.5 - 36.0	854	1800	1050	0.277	360	10
	1 x 95/16C	137121-RH1X95/16C#	12.6	34.6 - 37.1	1094	2050	1425	0.21	434	13.6
	1 x 120/16C	137121-RH1X120/16C#	14.8	36.4 - 38.9	1334	2350	1800	0.164	505	17.2
	1 x 150/25C	137121-RH1X150/25C#	16.0	38.9 - 41.4	1723	2900	2250	0.132	582	21.5
	1 x 185/25C	137121-RH1X185/25C#	17.7	40.1 - 42.6	2069	3200	2775	0.108	664	26.5
	1 x 240/25C	137121-RH1X240/25C#	20.3	43.3 - 45.8	2587	4850	3600	0.082	781	34.3
	1 x 300/25C	137121-RH1X300/25C#	22.5	44.9 - 47.4	3163	4400	4500	0.0654	898	42.9
	1 x 400/35C	137121-RH1X400/35C#	26.5	48.0 - 52.0	4314	6100	6000	0.05	1074	57.2
	1 x 500/35C	137121-RH1X500/35C#	29.3	52.0 - 56.0	5194	7010	7500	0.0391	1224	71.5
	1 x 630/35C	137121-RH1X630/35C#	35.2	58.5 - 61.5	6442	8660	9450	0.0292	1360	90.1
Power cable SXG 14 / 25 kV										
	1 x 35/16C	137121-RI1X35/16C#	7.5	31.5 - 34.0	518	1500	525	0.565	234	5
	1 x 50/16C	137121-RI1X50/16C#	9.0	32.9 - 35.4	662	1700	750	0.393	292	7.2
	1 x 70/16C	137121-RI1X70/16C#	10.6	34.6 - 37.1	854	1950	1050	0.277	360	10
	1 x 95/16C	137121-RI1X95/16C#	12.6	37.6 - 40.1	1094	2300	1425	0.21	434	13.6
	1 x 120/16C	137121-RI1X120/16C#	14.8	39.8 - 42.3	1334	2650	1800	0.164	505	17.2
	1 x 150/25C	137121-RI1X150/25C#	16.0	41.1 - 43.6	1723	3050	2250	0.132	582	21.5
	1 x 185/25C	137121-RI1X185/25C#	17.7	42.9 - 45.4	2069	3450	2775	0.108	664	26.5
	1 x 240/25C	137121-RI1X240/25C#	20.3	45.5 - 48.0	2587	4050	3600	0.082	781	34.3
	1 x 300/25C	137121-RI1X300/25C#	22.5	48.7 - 51.2	3163	4800	4500	0.0654	898	42.9
	1 x 400/35C	137121-RI1X400/35C#	26.5	49.2 - 53.2	4314	5300	6000	0.05	1074	57.2
	1 x 500/35C	137121-RI1X500/35C#	29.3	52.0 - 56.0	5194	5500	7500	0.0391	1224	71.5
	1 x 630/35C	137121-RI1X630/35C#	33.9	56.6 - 60.6	6442	5800	9450	0.0292	1360	90.1
Power cable SXG 20 / 35 kV										
	1 x 95/16C	137121-RK1X95/16C#	12.9	41.0 - 44.0	1094	2900	1425	0.21	434	13.6
	1 x 150/25C	137121-RK1X150/25C#	16.2	43.3 - 46.3	1723	3600	2250	0.132	582	21.5
	1 x 240/25C	137121-RK1X240/25C#	20.6	47.7 - 51.7	2587	5000	3600	0.082	781	34.3

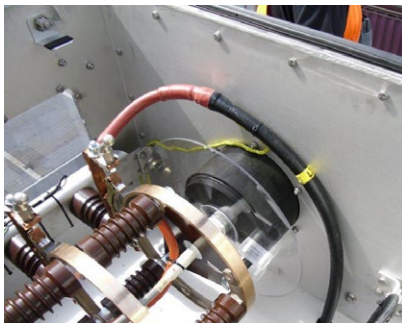
[1] valid for continuous duty at 30°C ambient temperature for rubber-insulated single core, stretched laying


CONDUCTIX
wampfler
DELACHAUX GROUP

Conductix-Wampfler Cable SXG

Additional technical data

Electrical parameters	AC testing voltage	for 6/10 kV: 17 kV
	for 12/20 kV:	29 kV
	for 14/25 kV:	36 kV
	for 20/35 kV:	50 kV
	current carrying ampacity	according to DIN VDE 0298-4
Thermal parameters		
	maximum permitted operating temperature of the conductor	90°C
	maximum conductor temperature during short circuit	250°C
Mechanical parameters		
	torsional stress	± 25°/m
	maximum tensile load on the conductor	up to 15 N/mm² (please refer to the technical data)
Design features		
	conductor	finely stranded tinned copper; conductor class 5 acc. to DIN VDE 0295
	conductor screen	special rubber compound, semiconductive
	insulation	rubber type EPR-3GI3
	insulation screen	special rubber compound, semiconductive, cold stripable
	core identification	according to DIN VDE 0250 part 813, natural color
	screen	spinning of tinned copper wires
	outer sheath	rubber, compound type 5GM5 acc. To DIN VDE 0207 part 21
Standards/ approvals		
		according to DIN VDE 0250-813
		GOST K, GOST B



Technical exhibit

Comparison of AWG-numbers and metrical cross sections

AWG-number	25	24	23	22	21	20	19	18	17	16	15	14	13
Cross section mm²	0.163	0.205	0.259	0.325	0.412	0.519	0.653	0.823	1.04	1.31	1.65	2.08	2.62
Nominal cross section metrical	0.25			0.5		0.75		1		1.5		2.5	

AWG-number	12	11	10	9	8	7	6	5	4	3	2	1
Cross section mm²	3.30	4.15	5.26	6.63	8.37	10.6	13.3	16.8	21.2	26.7	33.6	42.4
Nominal cross section metrical	4		6		10		16		25		35	50

AWG-number	1/0	2/0	3/0	4/0	250	300	350	400	500	600	750	1000
Cross section mm²	53.4	67.5	85	107	127	152	178	203	254	304	380	507
Nominal cross section metrical	50	70	95	120		150	185		240	300	400	500

Calculation of current carrying capacity (of Conductix-Wampfler Cables)

Typical ampacities I_B can be found in the tables as contained in this catalogue. The values are valid for the ambient temperature of 30°C stated in the foot notes, for standard cabling arrangements, and for continuous duty.

The **actual required ampacity** can significantly deviate if other application parameters exist. For such cases, please refer to **tables 1-3** (p.51 - S.53) for adjustment factors.

Step 1

All conversion factors for a specific application are multiplied:

$$F_{Gesamt} = f_1 \times f_2 \times f_3 \times f_4$$

Step 2

The **actual ampacity** I_T is calculated from the product of the total factor F_{total} with the typical ampacities I_B:

$$I_T = F_{Gesamt} \times I_B$$

Example Cable TXG consisting of several conductors and suitable for use on festoon systems, cross section 4G50 mm², at temperatures of up to 40 °C, with an on-time of 35 % for 10 minutes.

	Affecting criteria	feature	Catalogue page	Factor
Step 1	ambient temperature = 40 °C	Cable TXP I maximum operating temperature for this cable = 90 °C	page 51, **table 1**	f_1 = **0.91**
	type of cabling	free in air	page 51, **table 2**	f_2 = **1.00**
	intermittent operation	on-time = 35 %, duration = 10 minutes cross section of 50 mm²	page 52, **table 2b**	f_3 = **1.30**
	cable configuration	one cable = single layer	page 53, **table 4**	f_4 = **1.00**
			$F_{total} = f_1 \times f_2 \times f_3 \times f_4$	= **1.183**
Step 2	ampacity benchmark I_B	4G50 mm²	page 27, **data sheet**	I_B = **212.1 A**
	total ampacity	$I_T = F_{total} \times I_B = 1.183 \times 212.1$ A = **250.91 A**		

Conversion factors f_1 for varying ambient temperatures
acc. to DIN VDE 0298 T4 08.03, table 17

table 1

ambient temperature	Conversion factors f_1 according to the max. permitted operating temperature of the conductor			
	60 °C	**70 °C**	**80 °C**	**90 °C**
	TG	FV		FXG I TXP I TXG
		CV		CXP
		PV I SXP		SXG
10 °C	**1.29**	**1.22**	**1.18**	**1.15**
15 °C	**1.22**	**1.17**	**1.14**	**1.12**
20 °C	**1.08**	**1.12**	**1.10**	**1.08**
25 °C	**1.00**	**1.06**	**1.05**	**1.04**
30 °C	**0.91**	**1.00**	**1.00**	**1.00**
35 °C	**0.82**	**0.94**	**0.95**	**0.96**
40 °C	**0.71**	**0.87**	**0.89**	**0.91**
45 °C	**0.58**	**0.79**	**0.84**	**0.87**
50 °C	**0.41**	**0.71**	**0.77**	**0.82**
55 °C		**0.61**	**0.71**	**0.76**
60 °C		**0.50**	**0.63**	**0.71**
65 °C		**0.35**	**0.55**	**0.65**
70 °C			**0.45**	**0.58**
75 °C			**0.32**	**0.50**
80 °C				**0.41**
85 °C				**0.29**

The maximum permitted operating temperature of the conductor can be found in the respective data sheet.

Conversion factors f_2 for the type of cabling configuration/application
adapted to DIN VDE 0298 T4 08.03 table 27

table 2

type of cabling	free in the air	longitudinal at a support
cable	FV I FXG I TG I TXG I TXP I SXG	CV I CXG I CXP
Conversion factors f_2	1.00	1.00

Technical exhibit

Converstion factors f_3 for intermittent operation
adapted from DIN VDE 0298 T4 08.03 table 16

table 2a

duration of 5 minutes

On-time	100 %	85 %	80 %	60 %	35 %	20 %	8 %
cross section conductor mm²	conversion factors f_3						
≤ 1.5	1.00	1.00	1.00	1.00	1.00	1.00	1.00
2.5	1.00	1.00	1.00	1.00	1.02	1.06	1.20
4.0	1.00	1.00	1.00	1.00	1.04	1.12	1.45
6.0	1.00	1.00	1.00	1.00	1.07	1.20	1.70
10.0	1.00	1.01	1.02	1.06	1.19	1.43	2.06
16.0	1.00	1.02	1.03	1.09	1.28	1.57	2.32
25.0	1.00	1.03	1.05	1.13	1.35	1.69	2.55
35.0	1.00	1.05	1.06	1.16	1.41	1.78	2.70
50.0	1.00	1.05	1.07	1.18	1.45	1.85	2.84
70.0	1.00	1.06	1.08	1.20	1.50	1.92	2.96
95.0	1.00	1.06	1.08	1.21	1.53	1.98	3.07
120.0	1.00	1.06	1.09	1.23	1.55	2.01	3.13
150.0	1.00	1.07	1.09	1.23	1.57	2.04	3.18
185.0	1.00	1.07	1.10	1.24	1.59	2.07	3.23
240.0	1.00	1.07	1.10	1.24	1.61	2.10	3.28

Converstion factors f_3 for intermittent operation
adapted from DIN VDE 0298 T4 08.03 table 16

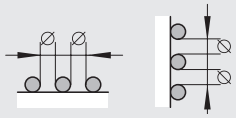
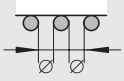
table 2b

duration of 10 minutes

On-time	100 %	85 %	80 %	60 %	**35 %**	20 %	8 %
cross section conductor mm²	conversion factors f_3						
≤ 1.5	1.00	1.00	1.00	1.00	1.00	1.00	1.00
2.5	1.00	1.00	1.00	1.00	1.02	1.04	1.17
4.0	1.00	1.00	1.00	1.00	1.04	1.07	1.26
6.0	1.00	1.00	1.00	1.00	1.05	1.09	1.38
10.0	1.00	1.00	1.00	1.01	1.06	1.18	1.58
16.0	1.00	1.01	1.01	1.02	1.10	1.27	1.78
25.0	1.00	1.01	1.02	1.05	1.18	1.41	2.03
35.0	1.00	1.02	1.03	1.08	1.24	1.50	2.21
50.0	1.00	1.03	1.04	1.11	**1.30**	1.60	3.39
70.0	1.00	1.03	1.05	1.13	1.36	1.70	2.56
95.0	1.00	1.04	1.06	1.16	1.41	1.78	2.70
120.0	1.00	1.05	1.07	1.18	1.44	1.83	2.81
150.0	1.00	1.05	1.07	1.19	1.47	1.88	2.89
185.0	1.00	1.06	1.08	1.20	1.50	1.92	2.97
240.0	1.00	1.06	1.08	1.23	1.53	1.96	3.05

Converstion factors f_4 for cable configuration
adapted from DIN VDE 0298 T4 08.03 table 21

table 3

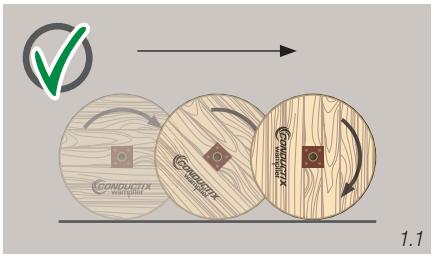
cabling arrangement		Number of cables with several conductors or number of alternating or rotary circuits in 1-core cables (2 or 3 conducting cables)														
		1	2	3	4	5	6	7	8	9	10	12	14	16	18	20
		conversion factors f_4														
	Bundled directly on the wall, on the floor, in a conduit on or in the wall	1.00	0.80	0.70	0.65	0.60	0.57	0.54	0.52	0.50	0.48	0.45	0.43	0.41	0.39	0.38
	1-layer on the wall or floor, laying on a surface	**1.00**	0.85	0.79	0.75	0.73	0.72	0.72	0.71	0.70	0.70	0.70	0.70	0.70	0.70	0.70
	1-layer on the wall or floor, separated by a distance equal to or greated than the cable diameter	1.00	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
	1-layer beneath the ceiling, in contact with the surface	0.95	0.81	0.72	0.68	0.66	0.64	0.63	0.62	0.61	0.61	0.61	0.61	0.61	0.61	0.61
	1-layer beneath the ceiling, separated by a distance equal to or greater than the cable diameter	0.95	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85

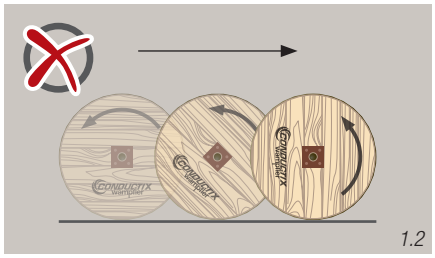
Technical exhibit

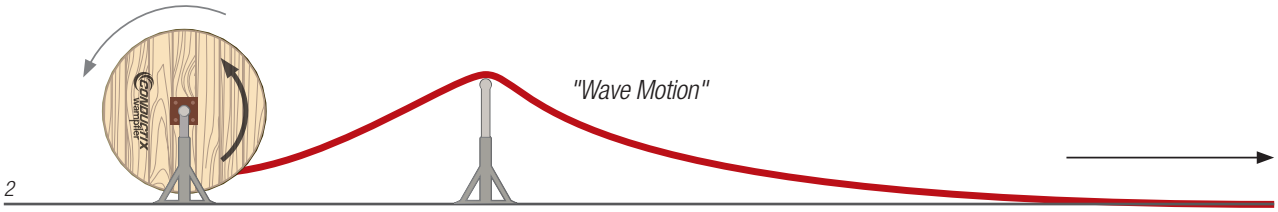
Handling Instructions

A transport reel with cables should always be rolled in the winding direction of the cable (usually marked with an arrow). *(1.1)*

In rare cases, it may occur that there is already a twist on the transport reel. This can generally be noted by the fact that the cable winding there is already irregular and shows stress or twisting. Here, we recommend entirely unreeling the cable as shown *(2)*, stretching it out, and removing the twist.







Festoon systems

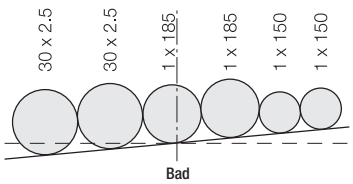
General advice

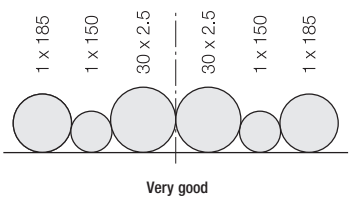
F.1. Only cables permitted for the installation in cable trolleys are allowed (see general view pages 4-5). These cables meet all requirements on modern festoon systems both in view of their construction and in the selection of sheath material.

F.2. The cables must be placed on the cable supports free of twists - identifiable from a uniform cable loop between two cable supports.

F.3. When installing the cables these must not be dragged across edges, which might damage the outer sheath of the cable. Nor should the cables be bended by more than the permissible bending radii, in order to prevent damage of the stranded elements.

F.4. For the arrangement of the cables it is required to observe the balance of moments, i.e. the cable weight must be distributed equally on the cable support.

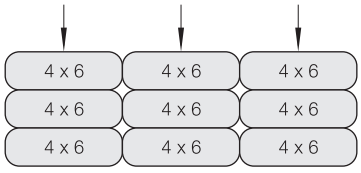




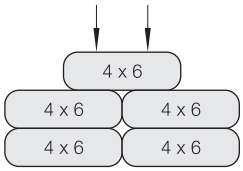
Flat cables

F.5. The flat cable package must be arranged on the supports, so that all the cables can be clamped tight on the cable supports and cannot slip out. The cable packages must be stacked in width rather than in height, in order to assure a firm clamping even under dynamic conditions.

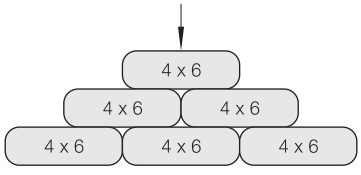
F.6. Large energy cables must always be put on top of the cable package, in order to better dissipate the heat from the cables and to clamp smaller cables more securely. Due to the slightly shorter cable length of the upper heavier cables these are more likely subject to dynamical forces from the movement of the system.



Very good - 100% clamping



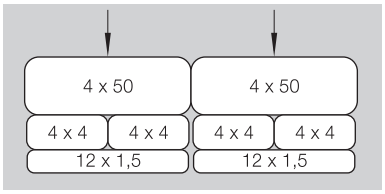
Good - 50% clamping



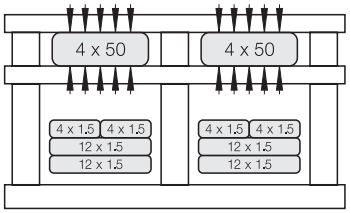
Bad

F.7. Fewer wider cables are easier to stack, clamp and guide than many small cables (e.g. a cable 12x1.5 is better than three cables 4x1.5).

F.8. A cable clamp holds the cables together in a cable loop and is fixed in the upper window by the clamping of the strongest cable (e.g. 4G50). All the other cables must be able to move freely -geometrically guided - in the lower window.

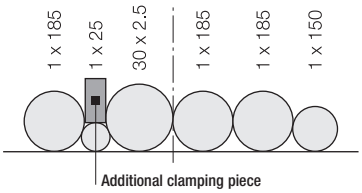


F.9. Screened cables should not be clamped in the cable clamp of the cable loop.

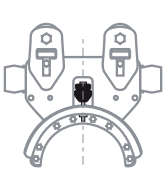


Round cables

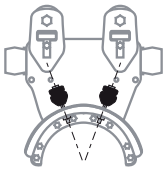
F.10. Cables with more or less the same diameter allow a better clamping on the cable support than cables which differ strongly in diameter. If the differences in diameter of adjacent cables exceed 15 mm it is required to install additional clamping pieces over the smaller cables to guarantee a safe clamping.



F.11. Depending on the cable layout and the dynamical parameters of the system the cable will be installed on the cable support with a single or double clamping, in order to guarantee a safe installation of the cables during the system's service life.



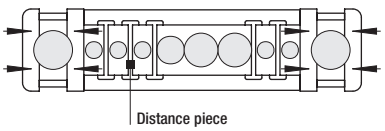
Single clamping



Double clamping

F.12. A cable clamp holds the cables together in the cable loop and is fixed by the clamping of two exterior - preferably unscreened - energy cables with larger copper cross sections (e.g. 1x120). All the other cables are geometrically guided in the inner window and can move freely.

F.13.The mutual twisting of cables within the cable clamp, especially in case of larger differences in diameter will be prevented by using distance pieces.



Technical exhibit

Energy Guiding Chain Systems

General advice

E.1. Only cables permitted for operation in energy guiding chains are allowed (see general tables pages 4-5). These cables fulfill the requirements on chain systems with all adjoining system components both in view of their construction and the selection of the sheath material.

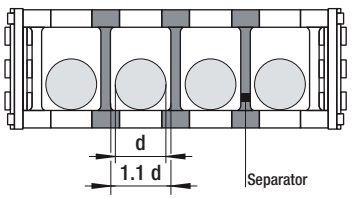
E.2. Depending on the application it makes sense to achieve smaller bending radii and consequently smaller installation dimensions for the system by the separation of large multi-core cables into smaller single-core cables.

E.3. Cables must be secured against twisting; hitting one another, jamming of the cables or just a restriction of the required movements must be avoided by a correct design of the system.

Arrangement in the chain cross section

E.4. The optimum lifetime of the cables is achieved by a 1-layer arrangement. Multi-layer arrangements cause large forces onto the cables as well as larger relative movement of the cables and consequently a stronger wear at the cable sheathing.

E.5. If the cables fill up less than 60 % of the free chain inner height, they will be separated laterally from each other in the chain cross section by separators. The space between the separators must be 10 … 15 % larger than the max. cable diameter, however at least 1 mm.

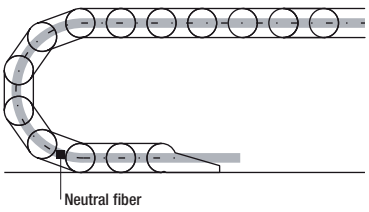


E.6. Depending on the chain type, the travel distance and the cable load, the cables in the chain cross section require different room in height. The best performance is achieved if the cable has an optimum mobility in the vertical direction. The free room above the cables should be min. 20 % of the max. cable diameter, on high-pressure hydraulic hoses 25 %. Less room is only allowed for very short travel distances and after having consulted our specialist staff.

E.7. The distribution of the cable weights in the chain cross section must be in balance of moments, with the heavy loads being placed outside. If required, it can be useful the separate the energy cables from the control, data an bus cables.

Correct length of cable in the chain

E.8. In the retracted condition of the system the cables should be placed in the neutral fiber of the chain, in order to minimize the relative movement of the cables and prevent the cables from damage. The neutral fiber is the connecting line through all the joints of the chain and ideally has the same length as the installed cables.



E.9. The cables must be able to freely pass the chain bend and must at no time be under tensile stress due to a too short cable length.

E.10. The adjustment of the correct cable length is achieved by a readjustment after the run-in of the system; the length will be adjusted after approaching the final position with maximum upper run length.

E.11. Due to setting processes in the joints of the chain links it is recommended prior to running-in the system to install a little bit more than the ideal cable length in the chain (Rule: +1cm per 10 m travel distance). Consequently the cables are rather installed in the outer area of the chain bend and have more tolerance than required.

Tension relief of the cable

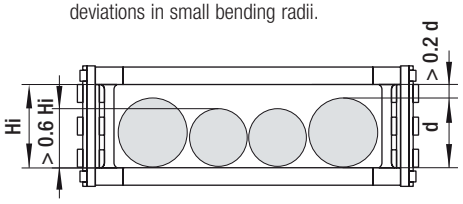
E.12. The clamping of the cables must not cause any crushing or damage of the cores, while the outer sheathing must be secured from shifting.

E.13. Cables in energy guiding chains must be tension-relieved. For simple applications it is sufficient to fix them with a cable tie to the chain connectors. In most cases the fixation has to be made with appropriate cable clamps in a single row, in case of medium to high dynamical loads in two rows.

E.14. Tension reliefs are basically provided at the driver side and at the fixed point; in case of longer distances and depending on the cable package it is recommended to fix the cables at the fixed point or driver with only one tension relief and just guide the cables axially on the opposite side; this layout should only be realized after consultation with the Conductix-Wampfler project engineers.

E.15. In case of hydraulic high-pressure hoses it is only permitted to use single-sided tension relief devices; an axial guidance is required on the second side, however no clamping.

E.16. In the area of the fixed cable laying after the tension relief the cables should be guided in a straight line for at least 500 mm to calm them down, before effecting another laying with deviations in small bending radii.



Fiber optic cables

Fiber optic cables have become essential for today's telecommunications and data transmission applications.

The reason for this is the ever more rapidly increasing quantity of data and associated transmission speeds, which have now hit the limits of economical feasibility with conventional copper cables.

Structure of a fiber optic cable *(1)*

The glass fibers themselves are manufactured from high-purity quartz glass. The glass core (A) is surrounded by a glass sheath (cladding (B)) and is then enclosed in a plastic layer, the so-called primary coating (C). The glass cladding is responsible for guidance of the light waves. The plastic coating provides the fibers with flexibility and robustness. Without this coating, the glass would break if bent.

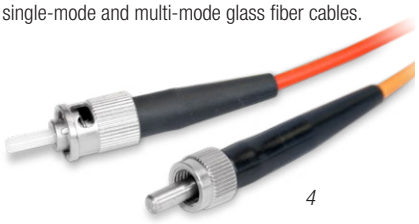
The fiber types used in our area are multi-mode 50/125µ, 62,5/125µ and single- or mono-mode E9/125µ. *(3)*

Multi-mode fibers with a gradient index fiber have a core of 50 or 62.5µm, which many modes (= light waves) propagate. The index of refraction is parabolic, that is, it falls off from the center of the core to the mantle. This equalizes the transmission times of the modes. The light beams bend generally outwards and then return to the middle of the glass core.
Despite the differing path lengths, the rays reach the other end of the optical fiber at the same time. The attenuation values are about 0.8 dB (1300 nm).

Connectors

In fiber optic technology, there are a wide variety of connector types used around the world. The most frequently used are the following types *(4)*:

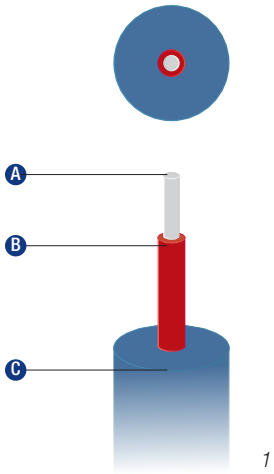
- ST: these are especially widespread in local networks (LAN). This connector is suitable for single-mode and multi-mode glass fiber cables.



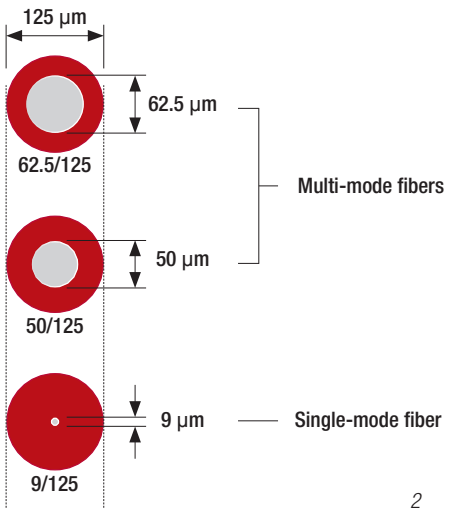
4

General features

- High transmission capacity
- High resistance to eavesdropping
- Low signal attenuation (resistance)
- Not sensitive to electromagnetic or high-frequency interferences
- No conducting connection (complete potential isolation) between the transmitter and the receiver, so no potential problems (ground loop)
- No short circuits, so no risk in potentially explosive environments
- Low weight, lower space requirements (in comparison with copper)

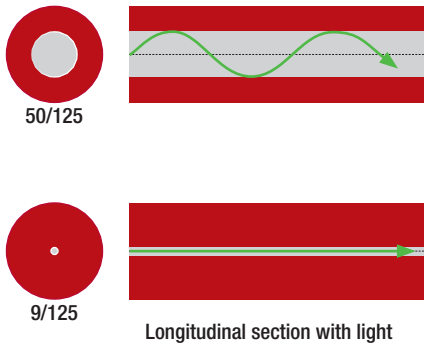


1



2

Single-mode fibers have a smaller core of 9µm and are thus most difficult to manufacture, lay, and splice. These fibers only work with one mode, which permits almost no modal dispersion and a very small optical attenuation of about 0.4dB (1300nm). This fiber optic cable is suitable for high bandwidths of over 1000GHz/km and distances of well over 50km.



Longitudinal section with light dispersion

3

- The SC connector can be used for multi-mode and monomode fibers. Its advantage over the ST connector is its push/pull technology, that is, the connector automatically interlocks when plugged in and unlocks when pulled out (ST = bayonet connection).
- The LC connector is a compact "small form factor" (SFF) connector. Other types are available upon request.

Customized Service

Expertise
The breadth and depth of Conductix-Wampfler´s service is geared to the requirements and desires of our customers. The service varies from consulting and project planning to long-term service contracts for complete systems for energy and data transfer.

Project planning
- Selection of suitable cables considering the installation and environmental requirements
- Calculation of our cables´ ampacity for the respective application on request
- Complete selection of cables compatible with the specific system for energy and data transfer: correct cable lengths, physical dimensions, bending radii and tensile loads

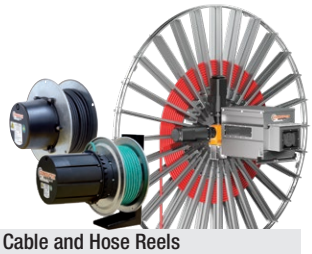
Pre-assembly
- Assembly of cables onto spring and motorized cable reels
- Shipment of complete assembly with cables pre-confectioned and connected to the slip rings
- Pre-confectioned cables with sealing ends for safe „plug&play“ to a connection box on site (copper conductors and/or fiber optics)

Final assembly
- Complete installation as well as start-up operation carried out by trained and qualified personnel
- Acceptance together with the customer
- On site instruction and training

Inspection & Servicing
- Regular inspections of the facility coupled with expert service, increase the availability and reliability of every system

Your Applications – our Solutions

The solutions we deliver for your applications are based on your specific requirements. In many cases, a combination of several different Conductix-Wampfler systems can prove advantageous. You can count on Conductix-Wampfler for hands-on engineering support together with the optimum solution to safely meet your needs.

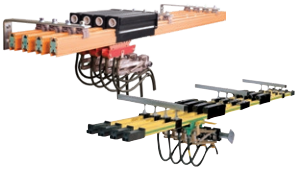


Cable and Hose Reels

Motor driven and spring driven reels by Conductix-Wampfler provide energy, data and media over a variety of distances, in all directions, fast and safe.

Festoon Systems

Conductix-Wampfler cable trolleys can be used in virtually every industrial application. They are reliable, robust and available in an enormous variety of dimensions and designs.



Conductor Rails

Available as enclosed or multiple unipole systems, Conductix-Wampfler conductor rails reliably move people and material.

Inductive Power Transfer

The no-contact system for transferring energy and data. For all tasks that depend on high speeds and absolute resistance to wear. Flexible installation when used with Automated Guided Vehicles.

Non-insulated Conductor Rails

Robust, non-insulated aluminum conductor rails with stainless steel cap provide the ideal basis for power supply of people movers and transit networks.

Radio Remote Controls

Safety remote control solutions customized to meet our customer needs with modern ergonomic design.

Reels, Retractors and Balancers

Available for hoses and cables, as classical reels or high-precision positioning aids for tools, we offer a complete range of reels and spring balancers.

Jib Booms

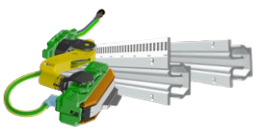
Complete with tool transporters, reels or an entire media supply system – safety and flexibility are key to the completion of difficult tasks.

Slip Ring Assemblies

Whenever things are really “moving in circles”, the proven slip ring assemblies by Conductix-Wampfler ensure the flawless transfer of energy and data. Here, everything revolves around flexibility and reliability!

Mobile Control Systems

Mobile control solutions for your plant – wether straightforward or intricate. Control and communication systems from LJU have been tried and tested in the automotive industry for decades.



ProfiDAT

This data transfer system is a compact slotted waveguide and furthermore can be used as Grounding rail (PE) as well as positioning rail at the same time.

www.conductix.com

Conductix-Wampfler
has just one critical mission:
To provide you with energy and data transmission systems that will keep your operations up and running 24/7/365.

To contact your nearest sales office, please refer to:
www.conductix.contact

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