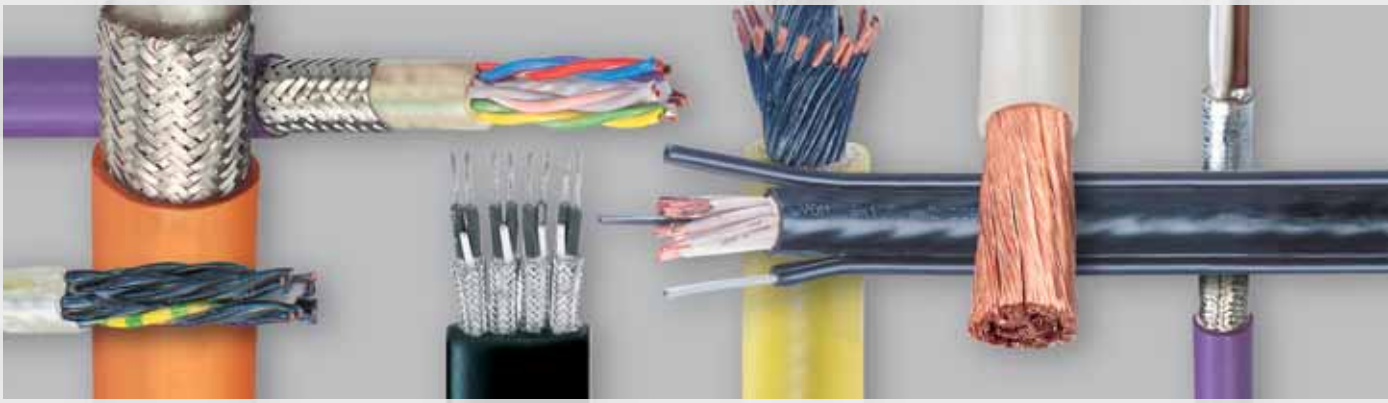
Product Overview
Cables



KAT0130-0002a-E

wampfler

solutions for a moving world

Known brands - provided by experts

Advantage 1
Safe choice of cables

- understanding the needs of our customers´ applications, we offer the safety of the right cable matched to specific requirements

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 optimum energy and data transfer

Advantage 3
Producer independence

- only the performance of the cable is important to us, not its origin - we neutrally choose only the best cables available on the market

Advantage 4
System guarantee

- each complete Wampfler System is provided with a comprehensive guarantee - needless to say, including the cable

Advantage 5
Wampfler cable service

- the graded Wampfler Services ensure the reliability of our systems and the availability of our customers' equipment

Content

At a glance

The right cable for every application

Wampfler cable		Sheath material / Type	Main application	Secondary application	Mechanical load-bearing capacity (low – high)
F-1		PVC / H07VVH6-F	festoon systems	energy guiding chains	
FP-1		PVC / MTTY	pendant control stations		
FX-2		rubber / NGFLGÖU	festoon systems		
T-3		rubber / H07RN-F	festoon systems		
TXG-4		rubber / NGRDGÖU	festoon systems	spring and motorized cable reels	
TXP-4		PUR / 12YHRD11YH	festoon systems	energy guiding chains	
C-5		PVC / YRDMY	energy guiding chains	festoon systems	
CXG-6		rubber / NGRDGÖU	energy guiding chains	festoon systems	
CXP-6		PUR / 11YMSL11Y	energy guiding chains	festoon systems	
R-7		PUR / 12YRDT11Y	spring and motorized cable reels		
RXG-8		rubber / NSHTÖU	spring and motorized cable reels		
RXP-8		PUR / 12YHRDT11YH	spring and motorized cable reels	energy guiding chains	
W-9 hawser		rubber / R-(N)TSCGEWOEU	spring and motorized cable reels		
WX-10 hawser		rubber / (N)TSCGEWÖU	spring and motorized cable reels		

Brand/Type index:

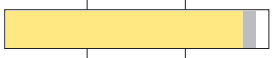
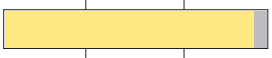
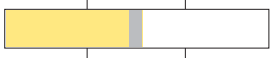
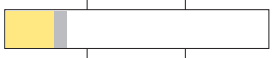
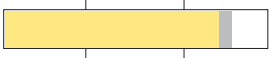
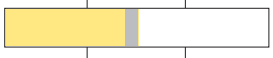
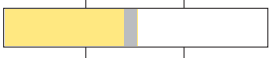
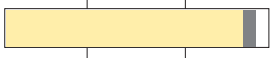
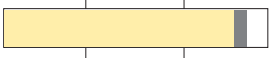
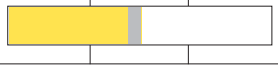
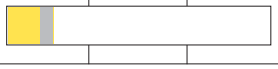
Cordaflex SMK-V	RXG-8
Festoonflex	TXP-4
Protolon SMK	WX-10
Rondoflex Chain	CXG-6
Rondoflex, Optoflex	TXG-4

festoon systems

pendant control stations

energy guiding chains

spring and motorized cable reels

	Dimensions large ... small	Price level high ... low	Suitability for external application	Maximum travel speed v [m/min]	Temperature range, flexing [°C]	Page
			●	180	-20 °C ... +60 °C	8
			●	n.a.	-25 °C ... +60 °C	12
			●	180	-25 °C ... +85 °C	16
			●	120	-30 °C ... +60 °C	20
			●	250	-35 °C ... +60 °C	24
			●	210	-40 °C ... +90 °C	28
			●	180	-5 °C ... +70 °C	34
			●	300	-35 °C ... +80 °C	38
			●	250	-30 °C ... +80 °C	42
			●	100	-20 °C ... +70 °C	50
			●	160 ... 180	-35 °C ... +60 °C	54
			●	180	-40 °C ... +80 °C	58
			●	120	-25 °C ... +60 °C	62
			●	240	-35 °C ... +60 °C	66

● **ideal**

● **limited**

Wampfler Cables
for festoon systems

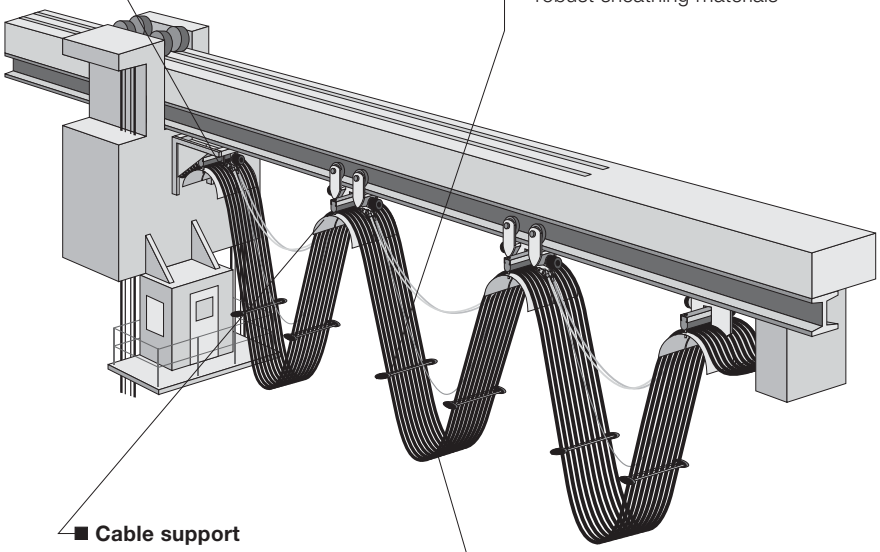
Special points as subject to stress

■ Driver trolley/clamp

- Very high acceleration and travel speed rates in the system, high dynamic bending and tensile stress on the cable
- Largest required clamping force on the support of the festoon trolley

■ Cable clip

- Movement of the cable loop at the cable clips
- Relative movements of the cables respectively to each other require robust sheathing materials



■ Cable support

- Compressive stress resulting from clamping the cable at the support, double clamps utilized in systems with high travel speeds
- Permanent defined bending of the cable, weight is absorbed at the cable support

■ Bottom of the loop

- Uniform alternating bending stress
- Non-uniform, mechanical load caused by jerky movements coupled with forces generated by wind

F-1

FP-1

FX-2

T-3

TXG-4

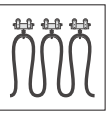
TXP-4

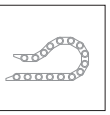
Special features

- low weight and small diameter due to a stranded, layered structure and in the case of power cables, the earth conductor is split into three parts
- resistant to alternating bending loads due to finely stranded conductors
- sheathing compounds with very high resistance to outdoor atmospheric conditions
- notch-resistant sheathing compounds with high resistance to tearing, highly resistant to stress caused by continuous bending at the bottom of the loop
- robust outer sheath designed to absorb impact forces
- high axial rigidity and resilience due to pressure filled extrusion in interstices
- highly resilient cables allow the smallest possible bending radius and therefore, short system lengths

Load-bearing capacity	low		high
Dimensions	large		small
Price level	high		low

Wampfler Cable F-1
PVC flat cable





Compact design by minimised wall thicknesses

Small & favourable sizes of festoon trolleys resulting from minimised wall thicknesses & weights

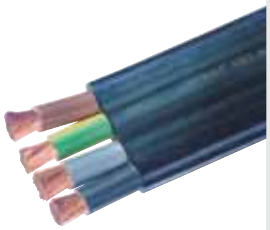
Large range of possible applications thanks to broadband PVC with ductile additives for core insulation and sheathing

Simple insulation by means of coaxial extrusion used for conductor insulation

Durability due to the additives designed to prevent deterioration of the outer sheath

All requirements can be met with a broad range of standard sizes between 0.5 and 95 mm²

Complete series including screened cables and special types



Particularly suitable, if...

- used for standard, indoor applications
- small to medium dynamic loads are applied to the system on a single plane
- the priority is a very cost-effective system
- festoon trolleys / festoon systems need to be kept to the smallest possible size due to space limitations
- the operating temperatures do not exceed 60°C

Characteristics

Resilient PVC flat cable
main application: festoon trolley
secondary application: energy guiding profile Mamba

Typical applications
- indoor crane trolleys
- indoor crane main power supply
- process cranes
- transfer cars
- storage and retrieval systems
- hoists

Electrical parameters
rated voltage: Uo/U = 450/750 V
power/ control cables with a diameter from 1.5 mm² and special cables

Uo/U = 300/500 V
screened cables & control cables with a diameter up to 1 mm²

Mechanical load-bearing capacity
travel speed: up to 180 m/min
minimum bending radii:
d < 8 mm : 3 x d
d = 8 up to 12 mm : 4 x d
d > 12 mm : 5 x d

Thermal / Chemical specifications
ambient temperature
- flexing: - 20 °C... + 60 °C
- fixed: - 30 °C... + 60 °C

resistance to atmospheric corrosion to ozone and water, UV stable

Important features
- self-extinguishing and flame retardant
- resistant to humidity
- resistant to oils and grease
- LBS-free / silicone-free

Design features
conductor: flexible (cat. 5) according to DIN VDE 0295
sheath: ductile PVC compound
core insulation: coaxial PVC extrusion

Type: H05VVH6-F / H07VVH6-F
YCFLY / YFLY / YFLCY

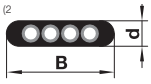
Wampfler Cable F-1
Order information

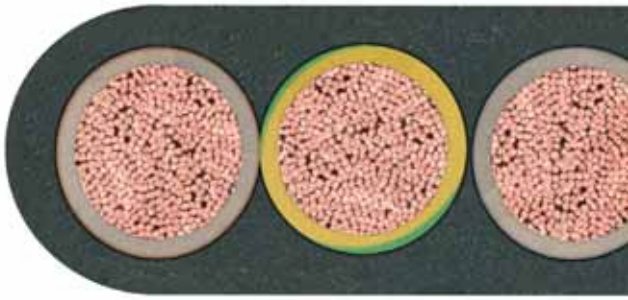
Type of cable	Number of conductors and cross section [mm²]	Order No.	Geometry d - B[2] [mm]	Cu-Number approx. [kg/km]	Weight approx. [kg/km]	Ampacity I_B [A][1]	Permitted tensile load [N]
Control cables **H05VVH6-F**	16 G 1	0331- 16 G 1#	8.1 - 25.6	154	400	7.6	240
	24 G 1	0330- 24 G 1#	4.4 - 70.0	231	600	6.3	360
Control cables **H07VVH6-F**	4 G 1.5	0325- 4 G 1,5#	5.5 - 15.5	58	150	18.9	90
	5 G 1.5	0325- 5 G 1,5#	5.5 - 18.5	72	180	16.1	110
	8 G 1.5	0325- 8 G 1,5#	5.5 - 29.3	115	300	12.3	180
	8 x 1.5	0328- 8 x 1,5#	5.5 - 29.3	115	300	11.6	180
	10 G 1.5	0325- 10 G 1,5#	5.5 - 35.2	144	360	10.5	220
	12 G 1.5	0325- 12 G 1,5#	5.5 - 41.0	173	420	10.0	270
	12 x 1.5	0325- 12 x 1,5#	5.5 - 41.0	173	420	9.5	270
	14 G 1.5	0325- 14 G 1,5#	5.5 - 48.0	202	490	9.5	310
	16 G 1.5	0325- 16 G 1,5#	5.5 - 54.0	230	560	8.9	360
	18 G 1.5	0325- 18 G 1,5#	5.0 - 58.0	260	630	8.9	400
	24 G 1.5	0325- 24 G 1,5#	5.1 - 82.0	346	860	7.6	540
	4 G 2.5	0325- 4 G 2,5#	6.0 - 18.5	96	210	27.3	150
	5 G 2.5	0325- 5 G 2,5#	6.0 - 22.3	120	260	23.2	180
	8 G 2.5	0325- 8 G 2,5#	6.0 - 34.2	192	405	17.7	300
	12 G 2.5	0325- 12 G 2,5#	6.0 - 50.2	288	620	14.4	450
	24 G 2.5	0325- 24 G 2,5#	5.7 - 97.0	576	1.260	10.9	900

preferred series, short-term delivery

[1] The ampacity I_B is based on an ambient temperature of 30°C, individual free cabling in the air at 100% duty. Varying environmental conditions, method of operation and cabling arrangement can result in considerably different ampacities (s. technical exhibit).

[2]



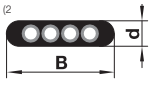


Wampfler Cable F-1
Order information

Type of cable	Number of conductors and cross section [mm²]	Order No.	Geometry d - B[2] [mm]	Cu-Number approx. [kg/km]	Weight approx. [kg/km]	Ampacity I_B [A][1]	Permitted tensile load [N]
Power cables, 1-core **H07VVH6-F**	4 G 4	0325- 4 G 4#	7.0 - 21.0	154	300	35.7	240
	4 G 6	0325- 4 G 6#	7.5 - 23.0	230	385	46.2	360
	4 G 10	0325- 4 G 10#	9.5 - 29.0	384	620	64.1	600
	4 G 16	0325- 4 G 16#	11.0 - 37.0	614	990	86.1	960
	4 G 25	0326- 4 G 25#	13.3 - 42.0	960	1550	113.4	1.500
	4 G 35	0334- 4 G 35#	15.0 - 50.5	1.344	2030	141.8	2.100
	4 G 50	0334- 4 G 50#	16.5 - 55.5	1.920	2650	176.4	3.000
	4 G 70	0334- 4 G 70#	18.5 - 63.5	2.688	3650	217.4	4.200
	4 G 95	0334- 4 G 95#	21.0 - 73.0	3.648	4550	262.5	5.700
	5 G 4	0325- 5 G 4#	7.0 - 25.5	192	380	26.8	300
	5 G 6	0325- 5 G 6#	7.5 - 28.2	288	480	34.7	450
	5 G 10	0325- 5 G 10#	9.5 - 35.5	480	780	48.1	750
	5 G 16	0325- 5 G 16#	11.0 - 43.5	768	1179	73.2	1.200
Screened Control cables,screened individual conductors **YCFLY-O**	4 x 1.5 C	0320- 4 x 1,5C#	6.0 - 18.5	111	220	12.6	60
	8 x 1.5 C	0320- 8 x 1,5C#	6.0 - 34.2	222	430	15.1	90
	12 x 1.5 C	0320- 12 x 1,5C#	6.0 - 50.2	333	650	10.0	270
Screened Power cables, screened individual conductors **YCFLY-J**	4 G 4 x 1 C	0322- 4 G 4x1C#	11.3 - 35.2	315	625	7.4	240
	4 G 2.5 C	0321- 4 G 2,5C#	7.4 - 22.0	168	270	23.2	150
	4 G 4 C	0321- 4 G 4C#	7.5 - 23.0	180	360	35.7	240
	4 G 6 C	0321- 4 G 6C#	9.5 - 29.0	300	580	46.2	360
	4 G 10 C	0321- 4 G 10C#	11.0 - 37.0	460	900	64.1	600
	4 G 16 C	0321- 4 G 16C#	13.3 - 42.0	700	1.280	86.1	960
	4 G 25 C	0321- 4 G 25C#	15.0 - 50.5	952	1.800	113.4	1.500
	4 G 35 C	0321- 4 G 35C#	16.5 - 55.5	1.335	2.300	141.8	2.100
	4 G 50 C	0321- 4 G 50C#	18.0 - 63.0	2.250	2.880	176.4	3.000
Control cables **YFLY-J**	7 x 3 x 1	0503- 7 x 3 x 1#	9.6 - 46.6	202	710	6.6	310
Screened Control cables **YCFLY-O**	5 x 4 x 0.5C	0508- 5 x 4x0,5C#	9.9 - 35.3	168	514	2.1	150
	7 x 4 x 0.5C	0508- 7 x 4x0,5C#	9.9 - 46.8	222	745	2.1	210
	7 x 2 x 0.75C	0508- 7 x 2x0,75#	9.9 - 46.8	235	721	6.6	150
Screened control cables **YFLCY-J**	4 x 2 x 1C	0322- 4 x 2 x 1C#	9,3 - 30.2	92	433	8.0	120
	7 x 3 x 1C	0507- 7 x 3 x 1C#	9.9 - 46.8	275	755	6.6	310
	preferred series, short-term delivery						

[1] The ampacity I_B is based on an ambient temperature of 30°C, individual free cabling in the air at 100% duty. Varying environmental conditions, method of operation and cabling arrangement can result in considerably different ampacities (s. technical exhibit).

[2]



Wampfler Cable F-1
Technical data

			H05VVH6-F/YCFLY	H07VVH6-F	YFLY / YFLCY
Electrical parameters	rated voltage		Uo/U = 300/500 V	Uo/U = 450/750 V	Uo/U = 450/750 V
	maximum permitted AC operating voltage		Uo/U = 318/550 V	Uo/U = 476/825 V	Uo/U = 476/825 V
	maximum permitted DC operating voltage		Uo/U = 413/825 V	Uo/U = 619/1238 V	Uo/U = 619/1238 V
	ampacity		accord. to table data, otherwise accord. to DIN VDE 0298 part 4		
	AC test voltage		2 kV	2.5 kV	2.5 kV
Thermal parameters	ambient temperature	flexing	-20 °C to + 60 °C	-20 °C to + 60 °C	-25 °C to + 70 °C
		fixed	-30 °C to + 60 °C	-30 °C to + 60 °C	-30 °C to + 70 °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		d < 8 mm : 3 x d d = 8 to 12 mm : 4 x d d > 12 mm : 5 x d		
	tensile load-bearing capacity		15 N/mm² conductor cross section during operation for moving cables according to DIN VDE 0298 part 3		
Chemical parameters	LBS-free / silicone-free		yes		
	combustion behaviour		flame retardant and self-extinguishing according to DIN VDE 0482 part 265-2-1, IEC 60332-1		
	resistant to ozone		yes		
	resistant to humidity		yes (waterproof)		
	UV-resistant		yes		
	oil-resistant		yes		
	halogen free		no		
Materials	insulation		base material polyvinylchloride (PVC)		
	outer sheath		base material polyvinylchloride (PVC), colour black RAL9005		
Design features	conductor		bare electrolytic copper, flexible, cat. 5 accord. to DIN VDE 0295		
	shield		copper yarn, coverage of approx. 75 %		tin-plated braided copper wires or copper covering
	stranding		conductors or bundles		
	conductor coding		accord. to DIN VDE 0293, part 308 up to 5 conductors coloured, 6 or more conductors black with white numbers with or without green/yellow		
Standards			**H05VVH6-F** DIN VDE 0281 part 403 **YCFLY** adapted to DIN VDE 0250 **H07VVH6-F** DIN VDE 0281 part 404 **YFLY / YFLCY** adapted to DIN VDE 0250		
Design codes	**harmonised cable** H05VVH6-F / H07VVH6-F		H harmonised standard 05 rated voltage 300 / 500 V 07 rated voltage 450 / 750 V V polyvinylchloride (PVC) H6 flat cable according to HD 359 with 3 or more conductors -F flexible cable, category 5		
	not harmonised cable YCFLY / YFLY / YFLCY		Y PVC material FL flat cable C conducting metallic covering surrounding the stranded core (shield), in form of foil or braid J with a green/yellow identification of the earth/ground conductor O without a green/yellow identification of the earth/ground conductor		

Load-bearing capacity	low		high
Dimensions	large		small
Price level	high		low

Wampfler Cable FP-1

PVC pendant control station round cable

Compact design with the use of a 2-layer stranding

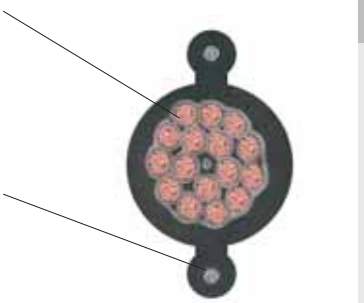
Simple insulation by means of coaxially extruded conductor insulation material

Particularly long free-hanging lengths (50 m) provided by the integration of two resilient steel cables into the outer sheath

Durability due to the additives designed to prevent deterioration of the outer sheath

Easy installation due to the simple separation of the steel supporting cables from the main cable

A broad product line with 5 to 30 conductor configurations available



Particularly suitable, if...

- a control cable needs to be connected hanging freely over a distance of maximum 50 m
- used for standard, indoor applications
- a cost-effective solution for transfer of control signals from a pendant control station is required
- the cable is potentially subject to high tensile stress
- 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 for fixed cabling permitted up to 1.000 V

Mechanical load-bearing capacity

tensile stress	2,500 N
minimum bending radius	5 x d

Thermal / Chemical specifications
ambient temperature

- flexing	- 25 °C... + 60 °C
- fixed	- 40 °C... + 60 °C

resistance to atmospheric corrosion to ozone, UV and water

Important features
- self-extinguishing and flame retardant
- resistant to humidity
- resistant to oils and grease
- LBS-free / silicone-free

Design features

conductor	flexible, category 5
sheath	ductile PVC compound
core insulation	PVC in coaxial extrusion

Type MTTY-O

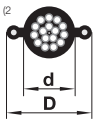
Wampfler Cable FP-1
Order information

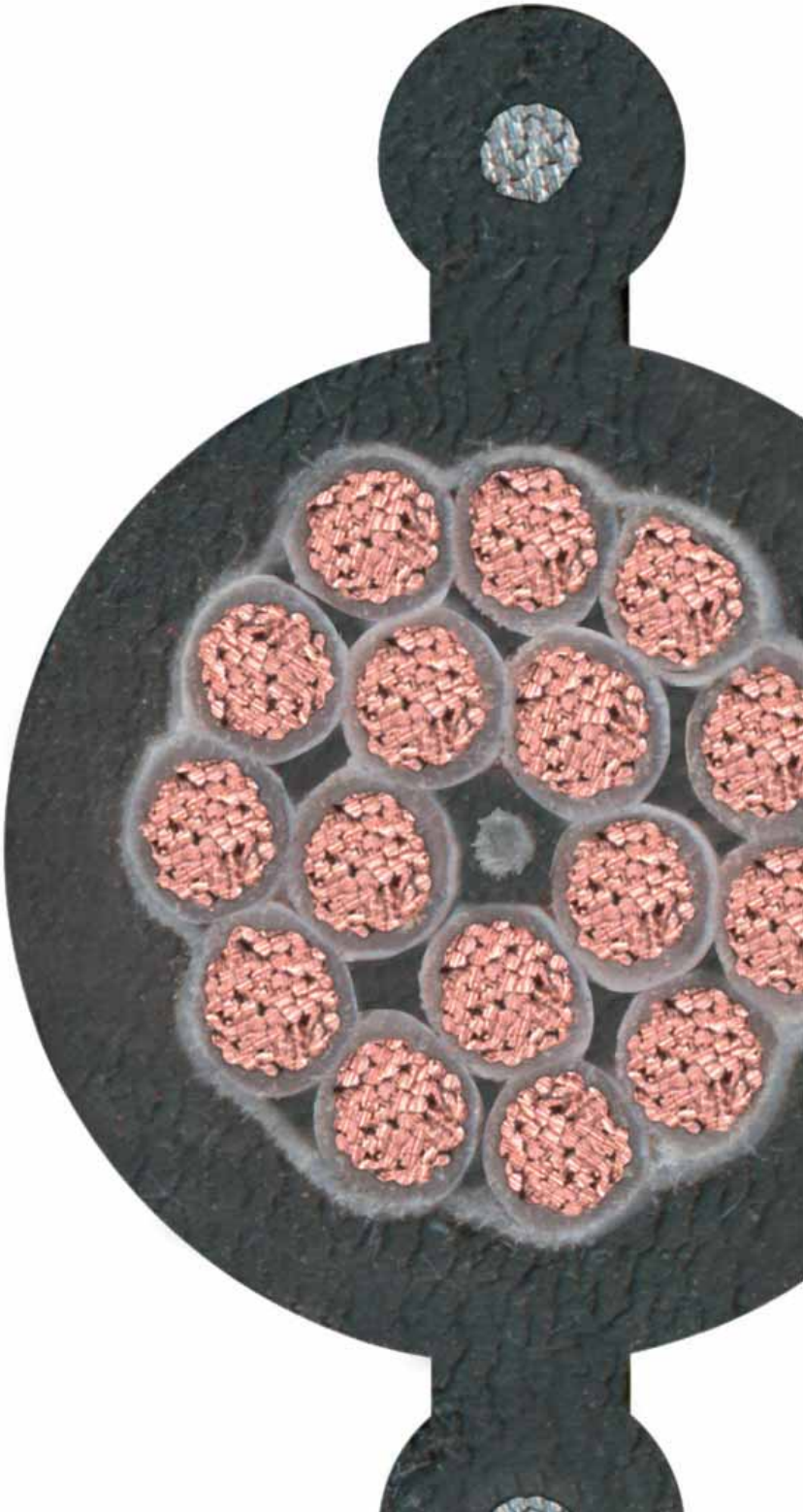
Type of cable	Number of conductors and cross section [mm²]	Order No.	Outer-Ø d / D[2] [mm]	Cu-Number approx. [kg/km]	Weight approx. [kg/km]	Ampacity I_B [A][1]	Permitted tensile load [N]
Control cables **MTTY-O**	5 x 1.5	0609- 5 x 1,5#	11.0 - 21.0	70	210	18.0	2.500
	8 x 1.5	0609- 8 x 1,5#	16.0 - 25.5	110	300	15.0	2.500
	12 x 1.5	0609- 12 x 1,5#	17.0 - 26.5	165	350	12.6	2.500
	16 x 1.5	0609- 16 x 1,5#	17.5 - 27.5	220	440	11.3	2.500
	20 x 1.5	0609- 20 x 1,5#	20.0 - 29.5	270	520	10.6	2.500
	24 x 1.5	0609- 24 x 1,5#	23.8 - 38.8	346	900	9.6	2.500
	30 x 1.5	0609- 30 x 1,5#	23.0 - 33.0	410	700	8.9	2.500

preferred series, short-term delivery

[1] The ampacity I_B is based on an ambient temperature of 30°C, individual free cabling in the air at 100% duty. Varying environmental conditions, method of operation and cabling arrangement can result in considerably different ampacities (s. technical exhibit).

[2]





Wampfler Cable FP-1
Technical data

			MTTY-O
Electrical parameters	rated voltage		Uo/U = 300/500 V
	maximum permitted AC operating voltage		Uo/U = 318/550 V
	maximum permitted DC operating voltage		Uo/U = 413/825 V
	ampacity		accord. to table data, otherwise accord. to DIN VDE 0298 part 4
	AC test voltage		2 kV
Thermal parameters	ambient temperature	flexing	-25 °C to + 60 °C
		fixed	-40 °C to + 60 °C
	maximum permitted operating temperature of the conductor		70 °C
	short-circuit temperature of the conductor		200 °C
Mechanical parameters	minimum bending radius allowing for free movement		5 x d
	tensile load-bearing capacity		15 N/mm² conductor cross section during operation for moving cables according to DIN VDE 0298 part 3, steel support ropes provide 2.500 N of strain relief
Chemical parameters	LBS-free / silicone-free		yes
	combustion behaviour		flame retardant accord. to DIN VDE 0482 part 265-2-1, IEC 60332-1
	resistant to ozone		yes
	resistant to humidity		yes
	UV-resistant		yes
	resistant to oil		yes
	halogen free		no
Materials	insulation		base material polyvinylchloride (PVC) compound YI2
	outer sheath		base material polyvinylchloride (PVC), colour black, compound YM2
Design features	conductor		bare electrolytic copper, flexible, cat. 5 accord. to DIN VDE 0295
	reinforcement		two outer steel cables incorporated into the outer sheath
	conductor coding		accord. to DIN VDE 0293, part 308 up to 5 conductors coulou-red, 6 or more conductors black with white numbers with or without green/yellow
Standards			adapted to DIN VDE 0250
Note	assembly		For proper strain relief the steel support cables must be instal-led in such a way as they absorb the load. The mobility of conductors may not be restricted by clamps.
Design codes	MTTY-O		M sheath cable T reinforcement element Y PVC material -O without earth/ground conductor green/yellow

Load-bearing capacity	low		high
Dimensions	large		small
Price level	high		low

Wampfler Cable FX-2

Neoprene flat cable

Reduced required space by means of flexible and highly flexible conductors for smaller bending radii

High resistance to temperature thanks to core insulation materials, resistant up to 90 °C

Fire resistant with rubber compounds of low flammability

Durability as a result of a robust and wear-resistant outer sheath

Complete assortment of unscreened and screened cables

Broad product line with conductor diameters from 1 mm^2 to 120 mm^2

Particularly suitable, if...

- middle to high dynamic loads are applied to the system on a single plane
- there is a high need for a robust and long term solution
- the festoon trolleys / the festoon systems need to be kept to the smallest possible size due to space limitations
- a UL listed cable is required
- the operating temperatures can reach 85°C

Characteristics

Resilient rubber flat cable
main application: festoon trolleys subject to high tensile load

Typical applications
- power supply for trolleys of indoor and process cranes
- transport systems/transfer cars
- longitudinal scrapers in sewage treatment plants
- car-wash plants
- foundries and steel production plants
- storage and retrieval systems

Electrical parameters

rated voltage	Uo/U = 300/500 V Uo/U = 600/1.000 V on request

Mechanical load-bearing capacity

travel speed	up to 180 m/min (> 180 m/min on request)
minimum bending radii	d < 8 mm : 3 x d d = 8 up to 12 mm: 4 x d d > 12 mm : 5 x d

Thermal / Chemical specifications

ambient temperature	
- flexing	- 25 °C... + 85 °C
- fixed	- 40 °C... + 85 °C

resistance to atmospheric corrosion unlimited

Important features
- fire resistant
- resistant to ozone
- resistant to humidity
- resistant to oil
- UV-resistant
- LBS-free / silicone-free

Design features

conductor	highly flexible (category 6) up to 25 mm^2 flexible (category 5) up to 35 mm^2 according to DIN VDE 0295
sheath core insulation	wear-resistant polychloroprene (PCP) rubber compound, resistant to very high temperatures basis ethylene-propylene-rubber (EPR)
Type	NGFLGÖU GCFLGÖU

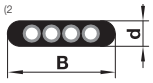
Wampfler Cable FX-2
Order information

Type of cable	Number of conductors and cross section [mm²]	Order No.	Geometry d - B[2] [mm]	Cu-Number approx. [kg/km]	Weight approx. [kg/km]	Ampacity I_B [A][1]	Permitted tensile load [N]
Control cables **NGFLGÖU-J**	4 G 1.5	0401- 4 G 1,5#	6.4 - 17.0	58	190	18.9	90
	5 G 1.5	0401- 5 G 1,5#	6.4 - 21.5	72	240	16.1	115
	7 G 1.5	0401- 7 G 1,5#	6.4 - 29.1	101	300	13.2	160
	8 G 1.5	0401- 8 G 1,5#	6.4 - 32.0	115	340	12.3	180
	10 G 1.5	0401- 10 G 1,5#	7.0 - 40.7	144	465	10.8	225
	12 G 1.5	0401- 12 G 1,5#	7.0 - 47.5	173	550	10.1	270
	24 G 1.5	0407- 6 G 4x1,5#	12.1 - 52.7	346	1.050	7.8	540
	4 G 2.5	0401- 4 G 2,5#	7.8 - 20.7	96	280	27.3	150
	5 G 2.5	0401- 5 G 2,5#	7.8 - 23.0	120	355	23.2	190
	7 G 2.5	0401- 7 G 2,5#	7.8 - 33.0	168	485	18.3	260
	8 G 2.5	0401- 8 G 2,5#	7.8 - 38.0	192	510	17.7	300
	12 G 2.5	0401- 12 G 2,5#	8.2 - 54.8	288	795	14.7	450
	24 G 2.5	0408- 6 G 4x2,5#	15.8 - 69.2	576	1.730	11.2	900
Power cables **NGFLGÖU-J**	4 G 4	0401- 4 G 4#	9.1 - 24.8	154	395	35.7	240
	4 G 6	0401- 4 G 6#	9.9 - 27.9	230	540	46.2	360
	4 G 10	0401- 4 G 10#	11.2 - 33.3	384	775	64.1	600
	4 G 16	0401- 4 G 16#	13.0 - 38.7	614	1.110	86.1	960
	4 G 25	0401- 4 G 25#	14.7 - 46.0	960	1.465	113.4	1.500
	4 G 35	0401- 4 G 35#	17.6 - 53.2	1.344	2.175	141.8	2.100
	4 G 50	0401- 4 G 50#	20.1 - 62.0	1.920	3.020	176.4	3.000
	4 G 70	0401- 4 G 70#	23.0 - 71.0	2.688	4.325	217.4	4.200
	4 G 95	0401- 4 G 95#	25.5 - 81.0	3.648	5.110	262.5	5.700
	4 G 120	0401- 4 G 120#	28.0 - 91.0	4.608	6.340	306.6	7.200
	5 G 4	0401- 5 G 4#	9.0 - 32.0	192	520	30.3	300
	5 G 6	0401- 5 G 6#	9.7 - 34.0	288	650	39.3	450
	5 G 16	0401- 5 G 16#	13.0 - 50.0	768	1.410	73.2	1.200
	5 G 25	0401- 5 G 25#	16.0 - 56.0	1.200	2.200	102.7	1.875

preferred series, short-term delivery

[1] The ampacity I_B is based on an ambient temperature of 30°C, individual free cabling in the air at 100% duty. Varying environmental conditions, method of operation and cabling arrangement can result in considerably different ampacities (s. technical exhibit).

[2]

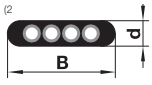


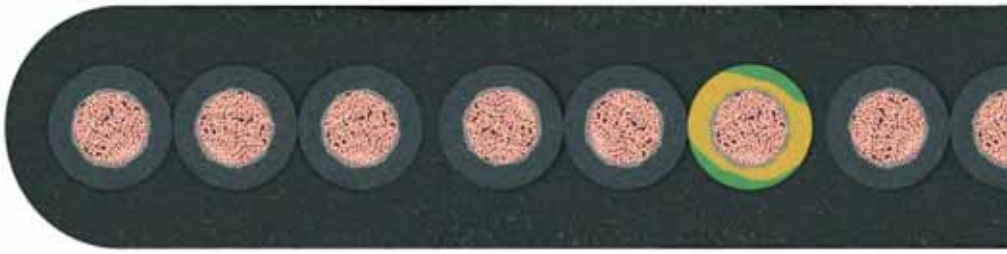
Wampfler Cable FX-2
Order information

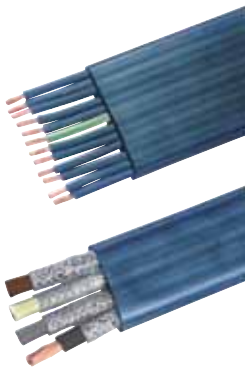
Type of cable	Number of conductors and cross section [mm²]	Order No.	Geometry d - B[2] [mm]	Cu-Number approx. [kg/km]	Weight approx. [kg/km]	Ampacity I_B [A][1]	Permitted tensile load [N]
Screened Control cables, screened individual conductors **GCFLGÖU-J**	4 G 1.5 C	0405- 4 G 1,5C#	8.0 - 22.5	69	291	18.9	90
	8 G 1.5 C	0405- 8 G 1,5C#	8.0 - 41.1	155	537	12.3	180
	12 G 1.5 C	0405- 12 G 1,5C#	8.0 - 59.8	305	795	10.1	270
	4 G 2.5 C	0405- 4 G 2,5C#	8.6 - 24.2	141	437	27.3	150
	12 G 2.5 C	0405- 12 G 2,5C#	8.6 - 65.1	493	1.004	14.7	450
Screened control cables, screened pairs of conductors **GCFLGÖU-O**	4 x 2 x 1C	0406- 4 x 2x1C#	11.4 - 33.8	246	663	9.8	120
	7 x 2 x 1C	0406- 7 x 2x1C#	11.4 - 56.0	477	1.150	7.9	210
Screened power cables, screened individual conductors **GCFLGÖU-J**	4 G 4 C	0405- 4 G 4C#	10.4 - 29.8	242	493	35.7	240
	4 G 6 C	0405- 4 G 6C#	11.0 - 32.2	342	603	46.2	360
	4 G 10 C	0405- 4 G 10C#	12.3 - 37.4	472	946	64.1	600
	4 G 16 C	0405- 4 G 16C#	14.0 - 42.4	703	1.320	86.1	960
	4 G 25 C	0405- 4 G 25C#	15.7 - 50.2	1.105	2.000	113.4	1.500
	4 G 35 C	0405- 4 G 35C#	17.0 - 55.0	1.482	2.700	141.8	2.100
	4 G 50 C	0405- 4 G 50C#	20.7 - 68.0	1.990	3.500	176.4	3.000
	4 G 70 C	0405- 4 G 70C#	24.0 - 76.8	2.600	4.650	217.4	4.200

preferred series, short-term delivery

[1] The ampacity I_B is based on an ambient temperature of 30°C, individual free cabling in the air at 100% duty. Varying environmental conditions, method of operation and cabling arrangement can result in considerably different ampacities (s. technical exhibit).







Wampfler Cable FX-2
Technical data

			NGFLGÖU, (N)GFLGÖU, GCFLGÖU
Electrical parameters	rated voltage		Uo/U = 300/500 V (600/1.000 V on request)
	maximum permitted AC operating voltage		Uo/U = 318/550 V
	maximum permitted DC operating voltage		Uo/U = 413/825 V
	ampacity		accord. to table data, otherwise accord. to DIN VDE 0298 part 4
	AC test voltage		2 kV
Thermal parameters	ambient temperature	flexing fixed	-25 °C to + 85 °C -40 °C to + 85 °C
	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		d < 8 mm : 3 x d d = 8 to 12 mm : 4 x d d > 12 mm : 5 x d
	tensile load-bearing capacity		15 N/mm² conductor cross section during operation for moving cables according to DIN VDE 0298 part 3
Chemical parameters	LBS-free / silicone-free		yes
	combustion behaviour		low flammability according to DIN VDE 0482 part 265-2-1, IEC 60332-1, IEC 60332-1
	resistant to ozone		yes
	resistant to humidity		yes
	UV-resistant		yes
	resistant to oil		yes
	halogen free		no
Materials	insulation		base material ethylene-propylene-rubber (EPR)
	outer sheath		base material polychloroprene (PCP)
Design features	conductor		bare electrolytic copper, highly flexible, category 6 up to 25 mm² according to DIN VDE 0295 bare electrolytic copper, flexible, category 5 up to 35 mm² according to DIN VDE 0295
	shield		tin-plated braided copper wires coverage of approx. 60 % in case of screened conductors coverage of approx. 80 % in case of screened pairs of conductors
	stranding		conductors or bundles
	conductor coding		accord. to DIN VDE 0293, part 308 up to 5 conductors coloured, 6 or more conductors black with white numbers with or without green/yellow
Standards			adapted to DIN VDE 0250, part 809
Design codes	**standardized cable** NGFLGÖU, (N)GFLGÖU, GCFLGÖU		N corresponds with a VDE standard (N) adapted to a VDE standard G rubber sheath FL flat cable G rubber insulation Ö oil-resistant cable U outer sheath of law flammability according to DIN VDE 0472 part 804 C inner shield / screen for individual conductors / screen for pairs of conductors

Load-bearing capacity	low		high
Dimensions	large		small
Price level	high		low

Wampfler Cable T-3
Rubber round cable

Highly stable construction with the use of rubber filler between the conductors and the sheath

Robust standard cable resulting from cross-linked inner and outer sheaths

Good resilience as a result of short strands

Special sheath additives allow for **use in industrial water**

Complete selection of control and power cables

Favourable cost/performance ratio thanks to standardised sheaths and insulation materials

Safe fire-preventing properties as a result of flame retardant and self-extinguishing materials

Particularly suitable, if...

- small to medium dynamic loads are applied to the system on a single plane
- an unlimited resistance to atmospheric corrosion is required
- the priority is a cost-effective but also durable cable
- the application requires the use of cable in or around industrial water
- the cold temperatures reach down to -30 °C

Characteristics

Resilient rubber round cable
main application: festoon trolley

Typical applications
- process cranes, power supply for cranes and trolleys
- dockyard cranes
- travel cars
- longitudinal scrapers in sewage treatment plants
- car-wash plants
- Stackers & Reclaimers

Electrical parameters

rated voltage	Uo/U = 450/750 V Uo/U = 600/1,000 V on request for fixed cabling permitted up to 1,000 V

Mechanical load-bearing capacity

travel speed	up to 120 m/min
minimum bending radii	5 x Ø

Thermal / Chemical specifications

ambient temperature	
- flexing	- 30 °C... + 60 °C
- fixed	- 40 °C... + 60 °C

unlimited resistance to atmospheric corrosion

Important features
- self-extinguishing and flame retardant
- resistant to ozone
- waterproof, suitable also for use in industrial water
- resistant to oil
- UV-resistant
- LBS-free / silicone-free

Design features

conductor	flexible (cat. 5) according to DIN VDE 0295
sheath	polychloroprene (PCP)
core insulation	rubber compound

Type	H07RN-F

Wampfler Cable T-3
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]	Ampacity I_B [A][1]	Permitted tensile load [N]
Control cables **H07RN-F**	3 G 1.5	0601- 3 G 1,5#	9.2 - 11.2	43	157	18.9	65
	4 G 1.5	0601- 4 G 1,5#	10.2 - 12.5	58	192	18.9	90
	5 G 1.5	0601- 5 G 1,5#	11.2 - 13.5	72	238	16.1	110
	7 G 1.5	0602- 7 G 1,5#	14.0 - 17.0	101	371	13.2	155
	12 G 1.5	0602- 12 G 1,5#	17.6 - 20.5	173	516	10.2	270
	19 G 1.5	0602- 19 G 1,5#	25.3 - 27.3	275	788	8.9	430
	24 G 1.5	0602- 24 G 1,5#	24.3 - 28.5	346	968	7.8	540
	3 G 2.5	0601- 3 G 2,5#	10.2 - 12.5	72	217	27.3	110
	4 G 2.5	0601- 4 G 2,5#	12.1 - 14.5	96	269	27.3	150
	5 G 2.5	0601- 5 G 2,5#	13.3 - 16.0	120	329	23.2	185
	7 G 2.5	0602- 7 G 2,5#	17.0 - 20.0	168	499	19.1	260
	12 G 2.5	0602- 12 G 2,5#	20.6 - 23.5	288	719	14.1	450
	18 G 2.5	0602- 18 G 2,5#	26.5 - 29.5	432	1.068	12.8	675
	24 G 2.5	0602- 24 G 2,5#	35.4 - 37.4	576	1.400	11.4	900
Power cables, 1-core **H07RN-F**	1 x 10	0601- 1 x 10#	9.5 - 11.5	96	200	76.7	150
	1 x 16	0601- 1 x 16#	10.8 - 13.0	154	279	102.9	240
	1 x 25	0601- 1 x 25#	12.7 - 15.0	240	396	135.5	375
	1 x 35	0601- 1 x 35#	14.3 - 17.0	336	540	165.9	525
	1 x 50	0601- 1 x 50#	16.5 - 19.5	480	719	207.9	750
	1 x 70	0601- 1 x 70#	18.6 - 22.0	672	947	257.3	1.050
	1 x 95	0601- 1 x 95#	20.8 - 24.0	912	1.230	306.6	1.425
	1 x 120	0601- 1 x 120#	22.8 - 26.5	1.152	1.520	361.2	1.800
	1 x 150	0601- 1 x 150#	25.2 - 29.0	1.440	1.887	410.6	2.250
	1 x 185	0601- 1 x 185#	27.6 - 31.5	1.776	2.300	470.4	2.775

preferred series, short-term delivery

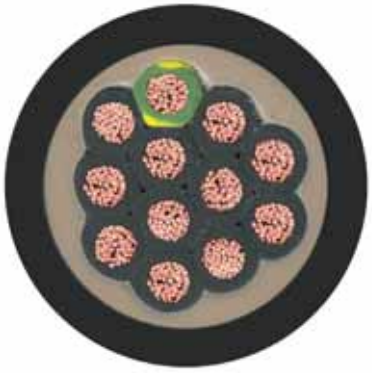
[1] The ampacity I_B is based on an ambient temperature of 30°C, individual free cabling in the air at 100% duty. Varying environmental conditions, method of operation and cabling arrangement can result in considerably different ampacities (s. technical exhibit).

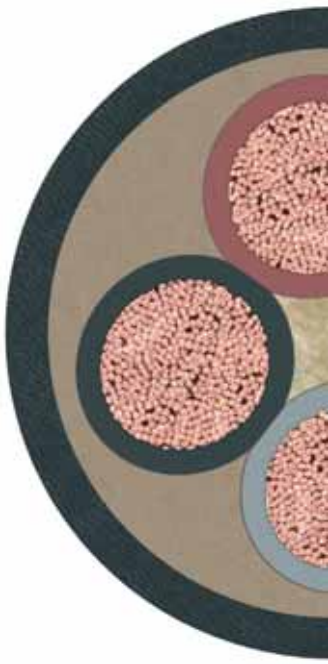


Wampfler Cable T-3
Order information

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]	Ampacity I_B [A][1]	Permitted tensile load [N]
Power cables, 4-core and 5-core **H07RN-F**	4 G 4	0601- 4 G 4#	14.0 - 17.0	154	273	35.7	240
	4 G 6	0601- 4 G 6#	15.7 - 19.0	230	514	46.2	360
	4 G 10	0601- 4 G 10#	20.9 - 24.5	384	898	64.1	600
	4 G 16	0601- 4 G 16#	23.8 - 28.0	614	1.253	86.1	960
	4 G 25	0601- 4 G 25#	28.9 - 33.0	960	1.846	113.4	1.500
	4 G 35	0601- 4 G 35#	32.5 - 36.5	1.344	2.393	141.8	2.100
	4 G 50	0601- 4 G 50#	37.7 - 42.0	1.920	3.284	176.4	3.000
	4 G 70	0601- 4 G 70#	50.0 - 54.0	2.688	4.331	217.4	4.200
	5 G 4	0601- 5 G 4#	15.6 - 19.0	192	466	30.3	300
	5 G 6	0601- 5 G 6#	17.5 - 21.0	288	640	39.3	450
	5 G 10	0601- 5 G 10#	22.9 - 27.0	480	1.107	54.5	750
	5 G 16	0601- 5 G 16#	26.4 - 31.0	768	1.564	73.2	1.200
	5 G 25	0601- 5 G 25#	32.0 - 36.0	1.200	2.291	102.7	1.875
	preferred series, short-term delivery						

[1] The ampacity I_B is based on an ambient temperature of 30°C, individual free cabling in the air at 100% duty. Varying environmental conditions, method of operation and cabling arrangement can result in considerably different ampacities (s. technical exhibit).





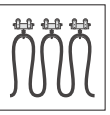
Wampfler Cable T-3
Technical data

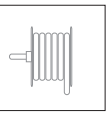
			H07RN-F
Electrical parameters	rated voltage		Uo/U = 450/750 V (600/1.000 V on request)
	maximum permitted AC operating voltage		Uo/U = 476/825 V
	maximum permitted DC operating voltage		Uo/U = 619/1238 V
	ampacity		accord. to table data, otherwise accord. to DIN VDE 0298 part 4
	AC test voltage		2.5 kV
Thermal parameters	ambient temperature	flexing fixed	-30 °C to + 60 °C -40 °C to + 60 °C
	maximum permitted operating temperature of the conductor		60 °C
	short-circuit temperature of the conductor		200 °C
Mechanical parameters	minimum bending radii allowing for free movement		5 x Ø
	tensile load-bearing capacity		15 N/mm² conductor cross section during operation for moving cables according to DIN VDE 0298 part 3
Chemical parameters	LBS-free / silicone-free		yes
	combustion behaviour		flame retardant and self-extinguishing according to DIN VDE 0482 part 265-2-1, IEC 60332-1
	resistant to ozone		yes
	waterproof		yes, including use in (industrial) water
	UV-resistant		yes
	oil-resistant		yes
	halogen free		no
Materials	insulation		base material ethylene-propylene-rubber (EPR)
	outer sheath		polychloroprene
Design features	conductor		bare or tin-plated electrolytic copper, flexible category 5 according to DIN VDE 0295
	stranding		conductor is stranded in layers
	conductor coding		according to DIN VDE 0293, part 308 up to 5 conductors coloured, 6 or more conductors black with white numbers with or without green/yellow
Standards			according to DIN VDE 0282 part 4
Design codes	**harmonised cable** H07RN-F		H harmonised standard 07 rated voltage 450 / 750 V R insulation material natural rubber (NR) or synthetic rubber (SR) N sheath material chloroprene rubber (CR) -F type of conductor: flexible

Load-bearing capacity	low		high
Dimensions	large		small
Price level	high		low

Wampfler Cable TXG-4

Rubber round cable

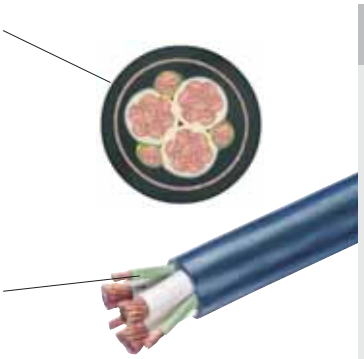




Maximum electromagnetic field (EMF) prevention with the use of a braided outer shield incorporated into the sheath

Maximum stability within the stranded bond resulting from pressure filled extrusion

Small diameter due to a stranded, layered structure and in case of power cables, the earth conductor is split into three parts



Excellent axial rigidity and resilience due to to interlinked co-extruded sheaths

Complete selection of control, power, bus and optic-fibre cables

Durability resulting from a wear-resistant sheathing compound

Suitable for basic reeling applications due to high mechanical strenght

Particularly suitable, if...

- the system is subject to middle to high travel speeds or/and acceleration
- due to a high duty cycle, the cable will be subject to a frequent and continuous bending
- the priority is a robust and durable cable with highest possible reliability
- a very high resistance to atmospheric corrosion is to be expected for a longer period of time
- the operating temperatures reach down to -35 °C, but do not exceed 60 °C

Characteristics

Highly resilient round cable
main application: festoon trolley
secondary application: cable reels

Typical applications
- container crane trolley power supply
- process crane trolleys power supply
- cranes in foundries and steel mills
- Stackers & Reclaimers
- ship unloaders
- transport carriers

Electrical parameters

rated voltage	Uo/U = 600/1,000 V

Mechanical load-bearing capacity

travel speed	up to 250 m/min (from 210 m/min with motorized festoon systems)
minimum bending radii	5 x Ø 125 mm for optical fibre cables

Thermal / Chemical specifications

ambient temperature	
- flexing	- 35 °C... + 60 °C
- fixed	- 50 °C... + 80 °C

unlimited resistance to atmospheric corrosion

Important features
- resistant to ozone
- oil-resistant
- UV-resistant
- LBS-free / silicone-free
- resistant to humidity

Design features

conductor	flexible (cat. 5) according to DIN VDE 0295
sheath	wear-resistant polychloroprene (PCP)
core insulation	resilient ethylene-propylene-rubber (EPR)

Brand	Rondoflex / Optoflex
Type	NGRDGÖU / NGRDCGÖU

Wampfler Cable TXG-4
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]	Ampacity I_B [A][1]	Permitted tensile load [N]
Control cables **NGRDGÖU-J**	12 G 1.5	0624- 12 G 1,5#	16.2 - 18.2	173	440	15.9	270
	18 G 1.5	0624- 18 G 1,5#	18.7 - 20.7	259	615	13.2	405
	24 G 1.5	0624- 24 G 1,5#	22.1 - 24.1	346	805	12.0	540
	12 G 2.5	0624- 12 G 2,5#	17.9 - 19.9	288	580	21.7	450
	18 G 2.5	0624- 18 G 2,5#	21.5 - 23.5	432	865	18.0	675
	24 G 2.5	0624- 24 G 2,5#	24.0 - 27.0	576	1.110	16.4	900
	30 G 2.5	0624- 30 G 2,5#	26.4 - 29.4	720	1.330	15.2	1.125
	36 G 2.5	0624- 36 G 2,5#	28.4 - 31.4	864	1.550	14.8	1.350
Power cables, 1-core **NGRDGÖU-O**	1 x 25	0623- 1 x 25#	11.4 - 12.6	240	330	176.0	375
	1 x 35	0623- 1 x 35#	12.3 - 13.9	336	430	218.0	525
	1 x 50	0623- 1 x 50#	15.0 - 16.6	480	625	276.0	750
	1 x 70	0623- 1 x 70#	16.5 - 18.4	672	835	347.0	1.050
	1 x 95	0623- 1 x 95#	18.9 - 20.9	912	1.070	416.0	1.425
	1 x 120	0623- 1 x 120#	20.8 - 22.8	1.152	1.340	488.0	1.800
	1 x 150	0623- 1 x 150#	22.9 - 24.9	1.440	1.650	566.0	2.250
	1 x 185	0623- 1 x 185#	24.8 - 27.8	1.776	2.010	644.0	2.775
	1 x 240	0623- 1 x 240#	26.6 - 28.6	2.304	2.830	775.0	3.600
Power cables, 4-core and 5-core **NGRDGÖU-J**	4 G 4	0624- 4 G 4#	13.9 - 15.5	154	350	43.0	240
	4 G 6	0624- 4 G 6#	15.9 - 17.9	230	475	55.7	360
	4 G 10	0624- 4 G 10#	18.2 - 20.2	384	680	77.7	600
	4 G 16	0624- 4 G 16#	22.9 - 24.9	614	1.070	104.0	960
	4 G 25	0624- 4 G 25#	26.9 - 29.9	960	1.600	137.6	1.500
	4 G 35	0624- 4 G 35#	30.1 - 33.1	1.344	2.090	170.1	2.100
	4 G 50	0624- 4 G 50#	35.7 - 38.7	1.920	2.970	212.1	3.000
	5 G 4	0624- 4 G 4#	15.7 - 17.7	192	450	33.6	300
	5 G 6	0624- 5 G 6#	17.5 - 19.5	288	575	43.8	450
	5 G 10	0624- 5 G 10#	20.8 - 22.8	480	865	60.9	750
	5 G 16	0624- 5 G 16#	24.6 - 27.6	768	1.300	81.3	1.200
	5 G 25	0624- 5 G 25#	29.5 - 32.5	1.200	1.940	107.8	1.875
	5 G 35	0624- 5 G 35#	35.5 - 37.5	1.680	2.620	132.8	2.625

preferred series, short-term delivery

[1] The ampacity I_B is based on an ambient temperature of 30°C, individual free cabling in the air at 100% duty. Varying environmental conditions, method of operation and cabling arrangement can result in considerably different ampacities (s. technical exhibit).



Wampfler Cable TXG-4
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]	Ampacity I_B [A][1]	Permitted tensile load [N]
Power cables screened 4-core bundles **NGRDGCGÖU-J**	4 G 4 C	0622- 4 G 4C#	14.8 - 17.8	227	485	43.0	240
	4 G 6 C	0622- 4 G 6C#	17.2 - 20.2	402	700	55.7	360
	4 G 10 C	0622- 4 G 10C#	19.7 - 22.7	610	925	77.7	600
	3 x 16 + 3 G2.5C	0622- 4 G 16C#	22.2 - 25.2	758	1.150	104.0	720
	3 x 25 + 3 G 4C	0622- 4 G 25C#	25.3 - 28.3	1.134	1.610	137.6	1.125
	3 x 35 + 3 G 6C	0622- 4 G 35C#	29.3 - 32.3	1.547	2.160	170.1	1.575
	3 x 50 + 3 G 10C	0622- 4 G 50C#	35.0 - 38.0	2.181	3.090	212.1	2.250
	3 x 70 + 3 G 10C	0622- 4 G 70C#	40.9 - 43.9	2.892	4.100	262.5	3.150
Bus cables screened in pairs **NGRDCGÖU-O**	6 x (2 x 0,5) C	0625- 6 x 2x0,5C#	22.1 - 25.1	214	850	4.0	90
	6 x (2 x 1) C	0625- 6 x 2x1C#	28.1 - 31.1	427	1.250	10.1	180
	9 x (2 x 1) C	0625- 9 x 2x1C#	35.9 - 38.9	641	2.010	8.4	270

Type of cable	Number of fiber optics and cross section [mm²]	Order No.	Outer-Ø min./max. [mm]	Weight approx. [kg/km]	Damping capacity max. 1300 nm	Permitted tensile load [N]
Optical fiber cables	LWL 6 G 62.5 / 125	0666- 6 G 62,5#	14.9 - 16.9	240	0.9 dB/km	500
	LWL 6 G 50 / 125	0666- 6 G 50#	14.9 - 16.9	240	0.8 dB/km	500
	LWL 18 G 62.5 / 125	0666- 18 G 62,5#	14.9 - 16.9	240	0.9 dB/km	500
	LWL 18 G 50 / 125	0666- 18 G 50#	14.9 - 16.9	240	0.8 dB/km	500

preferred series, short-term delivery

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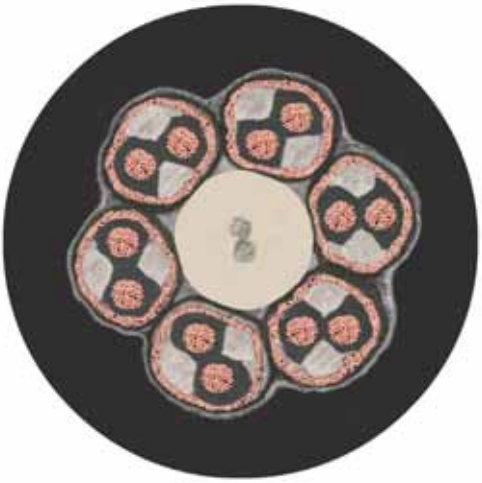
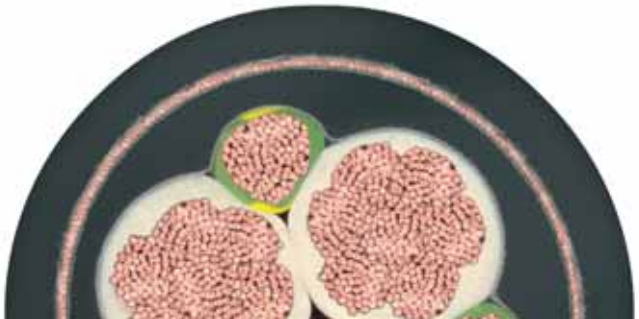




Wampfler Cable TXG-4
Technical data

			NGRDGÖU / NGRDCGÖU		
Electrical parameters	rated voltage		Uo/U = 600/1.000 V		
	maximum permitted AC operating voltage		Uo/U = 700/1.200 V		
	maximum permitted DC operating voltage		Uo/U = 900/1.800 V		
	ampacity		accord. to table data, otherwise accord. to DIN VDE 0298 part 4		
	AC test voltage		2.5 kV over 5 minutes		
Thermal parameters	ambient temperature	flexing	-30 °C to + 60 °C		
		fixed	-40 °C to + 60 °C		
	maximum permitted operating temperature of the conductor		90 °C		
	short-circuit temperature of the conductor		200 °C		
Mechanical parameters	minimum bending radii allowing for free movement		5 x Ø 125 mm for optical fibre cables		
	torsional stress capacity		± 90°/m		
	tensile load-bearing capacity		15 N/mm² conductor cross section during operation for moving cables according to DIN VDE 0298 part 3		
Chemical parameters	LBS-free / silicone-free		yes		
	combustion behaviour		flame retardant and self-extinguishing according to DIN VDE 0482 part 265-2-1, IEC 60332-1		
	resistant to ozone		yes		
	resistant to humidity		yes		
	UV-resistant		yes		
	oil-resistant		yes		
	halogen free		no		
Materials	insulation		material based on ethylene-propylene-rubber (EPR)		
	outer sheath		Polychloroprene PCP (Neoprene) compound 5GM3, black		
Design features	conductor		tin-plated electrolytic copper, flexible, category 5 according to DIN VDE 0295		
	shield		tin-plated braided copper wires coverage of approx. 80 % coupling resistance < 100 mW/m at f ≤ 30 MHz		
	stranding		core is stranded in layers		
	conductor coding		light-coloured insulation with black numbers with or without green/yellow		
Standards	Power cables, control cables and bus cables		adapted to DIN VDE 0250 part 814, VDE Reg.-No. 9809		
	optical fiber cables		adapted to IEC 9314T.3, DIN VDE 0888		
Design codes	standardised cable NGRDGÖU-J / NGRDGÖU-O NGRDCGÖU-J / NGRDCGÖU-O		N VDE standard G rubber insulation RD round cable G inner sheath constructed of rubber C shield of braided copper G outer sheath constructed of rubber Ö oil-resistant sheath material U outer sheath with low flammability according to DIN VDE 0472 -J with a green/yellow identification of the earth/ground conductor -O without a green/yellow identification of the earth/ground conductor		
Fibre optic			Mono-Mode	Multi-Mode	Multi-Mode
	Fiber type (core-Ø / fiber-Ø)		E9/125	50/125	62.5/125
	Damping	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		0.14 ± 0.02	0.20 ± 0.02	0.275 ± 0.02
	Dispersion	at 1300 nm	< 3.5 ps/nm km	-	-
		at 1550 nm	< 3.5 ps/nm km	-	-
	Band width	at 850 nm	-	> 400 MHz km	> 400 MHz km
		at 1300 nm	-	>1.200 MHz km	> 600 MHz km

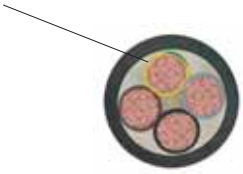
Load-bearing capacity	low		high
Dimensions	large		small
Price level	high		low

Wampfler Cable TXP-4

PUR round cable

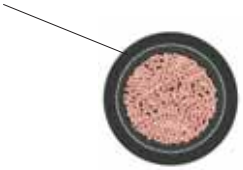
Highly stable construction with the use of rubber filler between the conductors and the sheath

Durability thanks to a wear-resistant sheathing compound



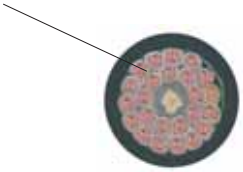
Excellent axial rigidity and resilience due to interlinked co-extruded sheaths

Broad temperature range for numerous possible applications thanks to special materials



Small dimensions due to the use of a 2-layer stranding

Good suitability for energy guiding chains due to short stranding lays with reverse twist



Particularly suitable, if...

- middle to high dynamic travel speed and acceleration forces act on the system
- due to a high duty cycle, frequent and continuous flexing of the cable is expected
- the priority is a robust and durable cable with high reliability
- a halogen-free cable resistant to atmospheric corrosion is important
- the operating temperature range is -40°C to +90°C

Characteristics

Highly resilient round cable
main application: festoon trolley
secondary application: energy guiding chains

Typical applications
- container crane trolley power supply
- process crane trolleys power supply
- cranes in foundries and steel mills
- Stackers & Reclaimers
- ship unloaders
- transfer cars

Electrical parameters

rated voltage	Uo/U = 600/1.000 V

Mechanical load-bearing capacity

travel speed	up to 210 m/min
	> 210 m/min on request
minimum bending radii	5 x Ø for festoon trolleys
	7.5 x Ø for energy guiding chains

Thermal / Chemical specifications

ambient temperature	
- flexing	- 40 °C... + 90 °C
- fixed	- 50 °C... + 90 °C

unlimited resistance to atmospheric corrosion

Important features
- halogen free
- resistant to ozone
- oil-resistant
- UV-resistant
- LBS-free / silicone-free

Design features

conductor	flexible (cat. 5) according to DIN VDE 0295
sheath	polyurethane PUR
core insulation	base material polyester

Brand	Festoonflex
Type	12YHRD11YH / 12YHRDC11YH

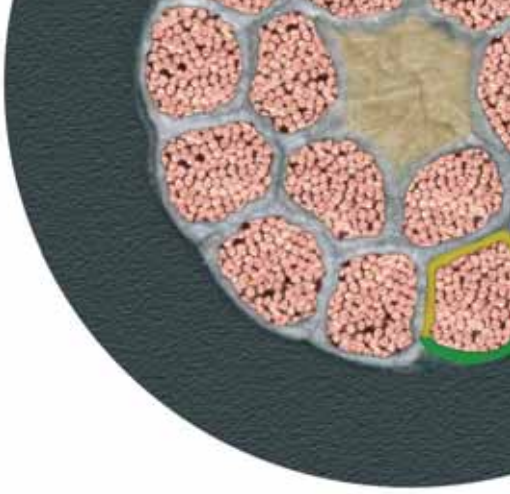
Wampfler Cable TXP-4
Order information

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]	Ampacity I_B [A][1]	Permitted tensile load [N]
Control cables **12YHRD11YH**	4 G 1.5	0674- 4 G 1,5#	8.5 - 9.5	58	140	18.9	90
	12 G 1.5	0674- 12 G 1,5#	14.2 - 15.8	173	260	10.0	270
	18 G 1.5	0674- 18 G 1,5#	15.2 - 16.8	259	340	8.9	400
	24 G 1.5	0674- 24 G 1,5#	16.2 - 17.8	346	480	8.9	540
	4 G 2.5	0674- 4 G 2,5#	9.5 - 10.5	96	190	27.3	150
	5 G 2.5	0674- 5 G 2,5#	9.5 - 10.5	120	210	23.2	180
	7 G 2.5	0674- 7 G 2,5#	11.5 - 12.5	168	295	19.1	260
	12 G 2.5	0674- 12 G 2,5#	16.2 - 17.8	288	463	14.5	450
	18 G 2.5	0674- 18 G 2,5#	16.7 - 18.3	432	576	12.8	675
	24 G 2.5	0674- 24 G 2,5#	19.0 - 21.0	576	758	11.4	900
Power cables, 1-core **12YHRD11YH**	1 x 16	0674- 1 x 16#	9.0 - 10.0	154	175	102.9	240
	1 x 25	0674- 1 x 25#	10.5 - 11.5	240	260	135.5	375
	1 x 35	0674- 1 x 35#	12.5 - 13.5	336	350	165.9	525
	1 x 50	0674- 1 x 50#	14.2 - 15.8	480	551	207.9	750
	1 x 70	0674- 1 x 70#	16.2 - 17.8	672	748	257.3	1.050
	1 x 95	0674- 1 x 95#	18.2 - 19.8	912	998	306.6	1.425
	1 x 120	0674- 1 x 120#	19.5 - 21.5	1.152	1.215	361.2	1.800
	1 x 150	0674- 1 x 150#	21.5 - 23.5	1.440	1.556	410.6	2.250
	1 x 185	0674- 1 x 185#	24.5 - 26.5	1.776	1.850	470.4	2.775
Power cables, 4-core **12YHRD11YH**	4 G 4	0674- 4 G 4#	10.5 - 11.5	154	219	35.7	240
	4 G 6	0674- 4 G 6#	12.0 - 13.0	230	340	46.2	360
	4 G 10	0674- 4 G 10#	15.2 - 16.8	384	550	64.1	600
	4 G 16	0674- 4 G 16#	17.7 - 19.3	614	791	86.1	960
	4 G 25	0674- 4 G 25#	22.5 - 24.5	960	1.078	113.4	1.500
	4 G 35	0674- 4 G 35#	26.5 - 28.5	1.344	1.566	141.8	2.100
	4 G 50	0674- 4 G 50#	31.2 - 33.8	1.920	2.347	176.4	3.000

preferred series, short-term delivery

[1] The ampacity I_B is based on an ambient temperature of 30°C, individual free cabling in the air at 100% duty. Varying environmental conditions, method of operation and cabling arrangement can result in considerably different ampacities (s. technical exhibit).





Wampfler Cable TXP-4
Order information

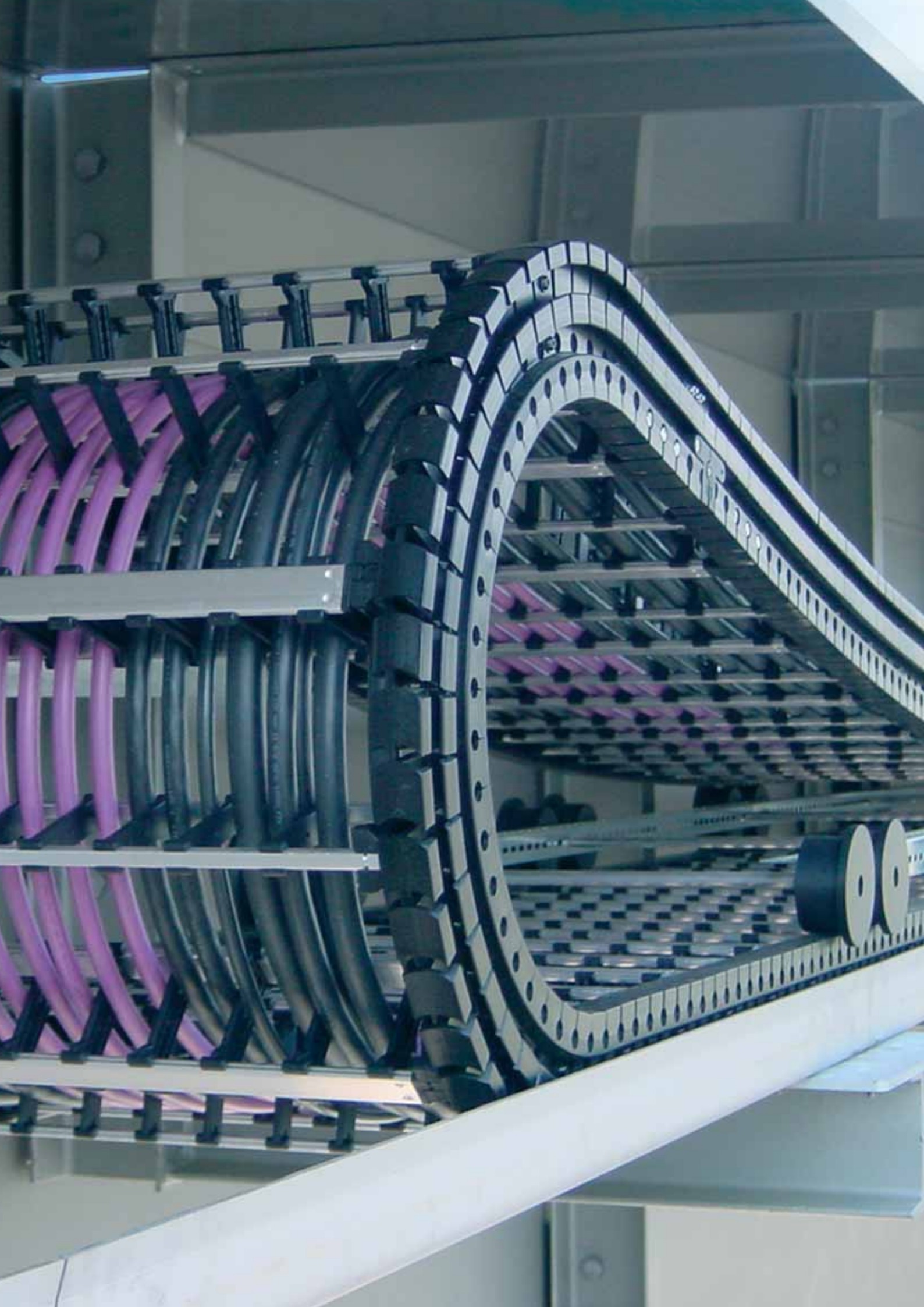
Type of cable	Number of conductors and cross section [mm²]	Order No.	Outer-Ø min./max. [mm]	Cu-Number approx. [kg/km]	Weight approx. [kg/km]	Ampacity I_B [A][1]	Permitted tensile load [N]
Power cables, 5-core **12YHRD11YH**	5 G 4	0674- 5 G 4#	11.5 - 12.5	192	265	30.3	300
	5 G 6	0674- 5 G 6#	13.5 - 14.5	288	388	39.3	450
	5 G 10	0674- 5 G 10#	16.2 - 17.8	480	614	53.8	750
	5 G 16	0674- 5 G 16#	19.0 - 21.0	768	968	73.2	1.200
	5 G 25	0674- 5 G 25#	25.0 - 27.0	1.200	1.466	102.7	1.875
Control cables, screened **12YHRDC11YH**	6 x 0,75 C	0675- 6 x 0,75C#	9.2 - 10.2	92	120	7.8	65
	4 G 1.5 C	0675- 4 G 1,5C#	9.0 - 10.0	118	200	18.9	90
	5 G 1.5 C	0675- 5 G 1,5C#	11.0 - 12.0	177	225	16.1	110
	7 G 1.5 C	0675- 7 G 1,5C#	12.5 - 13.5	192	330	11.9	155
	12 G 1.5 C	0675- 12 G 1,5C#	15.2 - 16.8	336	410	10.0	270
	18 G 1.5 C	0675- 18 G 1,5C#	16.2 - 17.8	428	550	8.9	405
	4 G 2.5 C	0675- 4 G 2,5C#	10.5 - 11.5	157	257	27.3	150
	5 G 2.5 C	0675- 5 G 2,5C#	12.5 - 13.5	290	292	23.2	185
	7 G 2.5 C	0675- 7 G 2,5C#	13.0 - 14.0	245	375	19.1	260
	12 G 2.5 C	0675- 12 G 2,5C#	17.7 - 19.3	370	646	14.5	450
	18 G 2.5 C	0675- 18 G 2,5C#	19.0 - 21.0	502	828	12.8	675
Power cables, 1-core, screened **12YHRDC11YH**	1 x 25 C	0675- 1 x 25 C#	11.0 - 12.0	286	400	135.5	375
	1 x 35 C	0675- 1 x 35 C#	13.0 - 14.0	476	490	165.9	525
	1 x 50 C	0675- 1 x 50 C#	15.2 - 16.8	580	695	207.9	750
	1 x 70 C	0675- 1 x 70 C#	17.2 - 18.8	826	910	257.3	1.050
	1 x 95 C	0675- 1 x 95 C#	19.0 - 21.0	1.066	1.180	306.6	1.425
	1 x 120 C	0675- 1 x 120C#	20.5 - 22.5	1.306	1.331	361.2	1.800
	1 x 150 C	0675- 1 x 150C#	22.0 - 24.0	1.613	1.860	410.6	2.250
	1 x 185 C	0675- 1 x 185C#	25.0 - 27.0	1.903	2.000	470.4	2.775
Power cables, 4-core, screened **12YHRDC11YH**	4 G 4 C	0675- 4 G 4 C#	11.5 - 12.5	221	340	35.7	240
	4 G 6 C	0675- 4 G 6 C#	13.0 - 14.0	300	410	46.2	360
	4 G 10 C	0675- 4 G 10 C#	15.7 - 17.3	454	710	64.1	600
	4 G 16 C	0675- 4 G 16 C#	18.7 - 20.3	694	1.020	86.1	960
	4 G 25 C	0675- 4 G 25 C#	23.5 - 25.5	1.050	1.168	113.4	1.500
	4 G 35 C	0675- 4 G 35 C#	27.5 - 29.5	1.444	1.666	141.8	2.100
	4 G 50 C	0675- 4 G 50 C#	32.8 - 35.2	2.030	2.457	176.4	3.000
Bus cables screened pair of conductors **12YHRDTC11YH**	6 x (2 x 1) C*	0632- 6 x (2x1)C#	22.0 - 23.0	265	640	9.0	300
	*model RXP-8 (s page 60)						

preferred series, short-term delivery

[1] The ampacity I_B is based on an ambient temperature of 30°C, individual free cabling in the air at 100% duty. Varying environmental conditions, method of operation and cabling arrangement can result in considerably different ampacities (s. technical exhibit).

Wampfler Cable TXP-4
Technical data

			12YHRD11YH / 12YHRDC11YH
Electrical parameters	rated voltage		Uo/U = 600/1.000 V
	maximum permitted AC operating voltage		Uo/U = 700/1.200 V
	maximum permitted DC operating voltage		Uo/U = 900/1.800 V
	ampacity		accord. to table data, otherwise accord. to DIN VDE 0298 part 4
	AC test voltage		2.5 kV over 5 minutes
Thermal parameters	ambient temperature	flexing fixed	-40 °C to + 90 °C -50 °C to + 90 °C
	maximum permitted operating temperature of the conductor		90 °C
	short-circuit temperature of the conductor		200 °C
Mechanical parameters	minimum bending radii allowing for free movement		5 x Ø for festoon trolleys 7.5 x Ø for energy guiding chains
	torsional stress capacity		none
	tensile load-bearing capacity		15 N/mm² conductor cross section during operation for moving cables according to DIN VDE 0298 part 3
Chemical parameters	LBS-free / silicone-free		yes
	combustion behaviour		low flammability, adapted to DIN EN 50265-2-1
	resistant to ozone		yes
	resistant to humidity		yes
	UV-resistant		yes
	oil-resistant		yes
	halogen free		yes
Materials	insulation		base material polyester
	outer sheath		polyurethane (PUR)
Design features	conductor		bare electrolytic copper flexible category 5, according to DIN VDE 0295
	shield		tin-plated braided copper wires coverage of approx. 85 %
	stranding		core is stranded in layers
	conductor coding		according to DIN 0293 up to 5 conductors coloured, from the 6th conductor white with black numbers with or without green/yellow
Standards			adapted to DIN VDE 0250
Design codes	12YHRD11YH 12YHRDC11YH		12YH core insulation based on polyester PE, halogen free RD round cable C braided copper shields, inner shield or screened pairs of conductors 11YH outer sheath based on polyurethane PUR, halogen free



Wampfler Cables
for energy guiding chains

Special points as subject to stress

■ Unsupported upper chain links

- reverse deflection of the cable
- cables resting on inner frame stays

■ Apex of outer radius

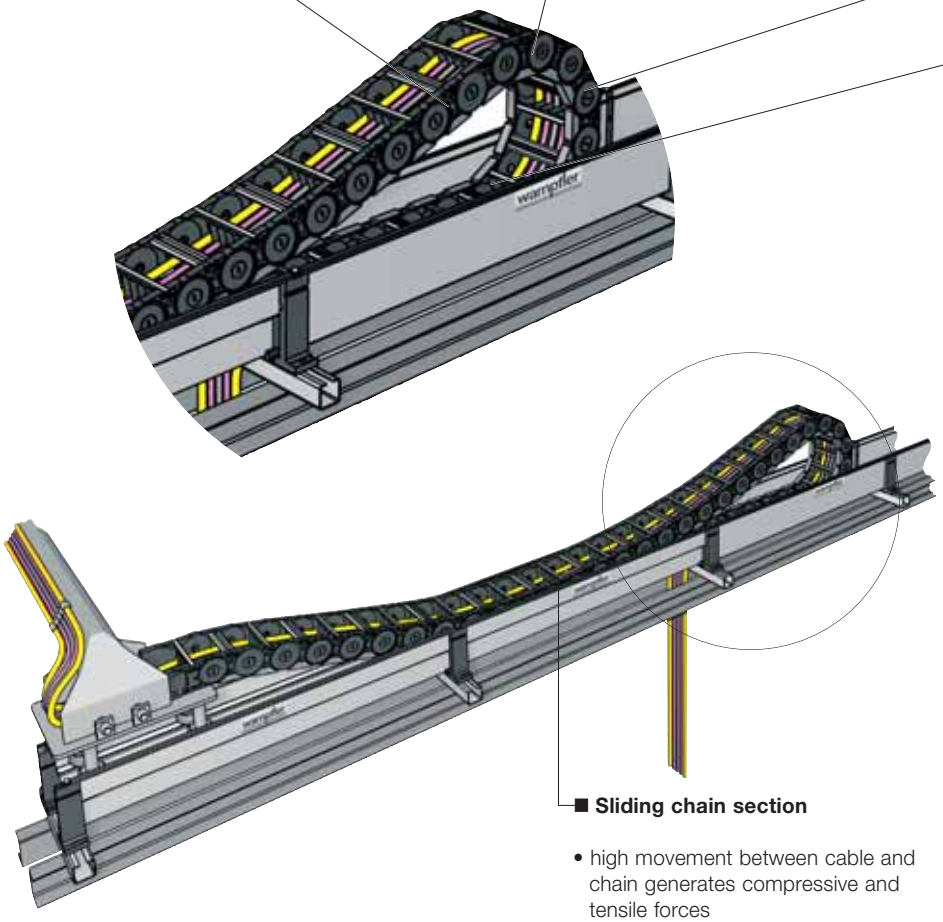
- high horizontal & vertical acceleration
- deflection forces applied to the cable

■ Movement of the chain radius

- relative displacement and friction of the cable compared with the chain
- low shearing and tensile load on the cable
- additional cable acceleration when deflected

■ Beginning of the chain radius

- high horizontal & vertical acceleration
- deflection forces on the cable
- cable supported by outer frame stays of the chain's cross section



■ Sliding chain section

- high movement between cable and chain generates compressive and tensile forces

C-5

CXG-6

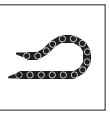
CXP-6

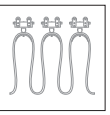
Special features

- low weight and small diameters as a result of particularly thin conductor insulation and sheaths
- best insulation materials for small wall thinckness
- very high resilience due to short lay pitches (7 to 8 x Ø)
- flexible sheath compound with high resistance to tearing and abrasion
- resistance to corkscrews as a result of a stranding with reverse twist
- extruded filler in interstices provides stable construction
- high wear resistance against chain material

Load-bearing capacity	low		high
Dimensions	large		small
Price level	high		low

Wampfler Cable C-5
PVC round cable





Prevention of corkscrews due to twist-free stranding with a reverse twist

Durable stranded bond with high load capacity due to center stress relief element (≥ 5 conductors)

Durability resulting from a PVC sheathing compound resistant to abrasion and flexing

Durable under frequent bending due to short lay pitch

Cores tightly bonded to outer sheath with the use of filler

Resistance to electromagnetic interference due to the use of braided copper screen with 85% coverage

Maximum core stability with the use of an innner sheath covering the core bundle (> 8 conductors)

Particularly suitable, if...

- low to medium travel speeds and acceleration forces act on the system
- the application requires a cable suitable for frequent longitudinal movement
- a cost effective cable solution primarily for indoor use is required
- the outer sheath is subject to frequent abrasion and high resistance to wear is required
- the operating temperatures can reach up to 80 °C

Characteristics

Resilient PVC round cable
main application: energy guiding chains
secondary application: festoon trolleys/systems

Typical applications
- rack feeder
- irrigation systems
- power supply for cranes & trolleys
- standard indoor cranes
- process cranes
- handling equipment

Electrical parameters

rated voltage	Uo/U = 0.6 / 1 kV unscreened types Uo/U = 300/500 V screened types

Mechanical load-bearing capacity

travel speed	up to 150 m/min
minimum bending radii	7.5 x Ø

Thermal / Chemical specifications

ambient temperature	
- flexing	- 5 °C ... + 80 °C
- fixed	- 15 °C ... + 80 °C

resistance to atmospheric corrosion UV-resistant

Important features
- flame retardant
- CFC-free
- oil-resistant
- UV-resistant
- LBS-free / silicone-free

Design features

conductor	flexible category 5, according to DIN VDE 0295
sheath	bending-resistant PVC compound
core insulation	base material PVC

Type YRDMY / YRDMCY

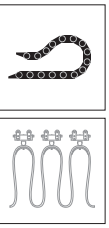
Wampfler Cable C-5
Order information

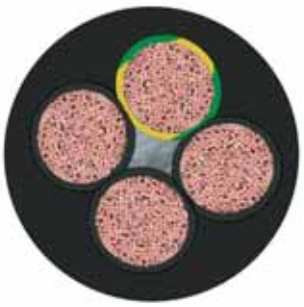
Type of cable	Number of conductors and cross section [mm²]	Order No.	Outer-Ø min./max. [mm]	Cu-Number approx. [kg/km]	Weight approx. [kg/km]	Ampacity I_B [A][1]	Permitted tensile load [N]
Control cables **YRDMY-J**	4 G 1.5	0678- 4 G 1,5#	7.0 - 7.6	60	105	18.0	90
	5 G 1.5	0678- 5 G 1,5#	8.2 - 8.8	72	125	15.3	110
	7 G 1.5	0678- 7 G 1,5#	9.6 - 10.4	105	170	11.3	160
	12 G 1.5	0678- 12 G 1,5#	14.4 - 15.4	180	358	9.5	270
	18 G 1.5	0678- 18 G 1,5#	17.0 - 18.0	289	500	8.5	400
	25 G 1.5	0678- 25 G 1,5#	20.5 - 21.7	405	680	7.2	560
	4 G 2.5	0678- 4 G 2,5#	8.8 - 9.4	100	150	26.0	150
	5 G 2.5	0678- 5 G 2,5#	9.4 - 10.2	120	180	22.1	190
	7 G 2.5	0678- 7 G 2,5#	11.7 - 12.5	168	252	16.4	260
	12 G 2.5	0678- 12 G 2,5#	17.3 - 18.3	300	539	13.8	450
	18 G 2.5	0678- 18 G 2,5#	22.2 - 23.8	450	833	12.2	675
	25 G 2.5	0678- 25 G 2,5#	24.8 - 26.4	625	1.040	10.4	940
Power cables, 4-core **YRDMY-J**	4 G 4	0678- 4 G 4#	10.5 - 11.3	160	230	34.0	240
	4 G 6	0678- 4 G 6#	12.6 - 13.4	231	338	44.0	360
	4 G 10	0678- 4 G 10#	15.6 - 16.6	384	536	61.0	600
	4 G 16	0678- 4 G 16#	19.3 - 20.9	615	854	82.0	960
	4 G 25	0678- 4 G 25#	24.2 - 25.8	960	1.310	108.0	1.500
	4 G 35	0678- 4 G 35#	27.4 - 29.0	1.344	1.785	135.0	2.100
Power cables, 5- and 7-core **YRDMY-J**	5 G 4	0678- 5 G 4#	11.5 - 12.3	192	269	28.9	300
	7 G 4	0678- 7 G 4#	13.8 - 14.6	269	363	21.4	420
	7 G 6	0678- 7 G 6#	16.8 - 17.8	404	560	27.7	630
Control cables screened **YRDMCY-J**	4 G 1.5 C	0679- 4 G 1,5C#	9.1 - 9.7	83	153	18.0	60
	5 G 1.5 C	0679- 5 G 1,5C#	9.7 - 10.3	100	176	15.3	75
	7 G 1.5 C	0679- 7 G 1,5C#	12.4 - 13.2	145	268	11.3	105
	12 G 1.5 C	0679- 12 G 1,5C#	16.7 - 17.7	235	441	9.5	180
	18 G 1.5 C	0679- 18 G 1,5C#	19.8 - 21.0	338	608	8.5	270
	25 G 1.5 C	0679- 25 G 1,5C#	23.3 - 24.9	454	881	7.2	375

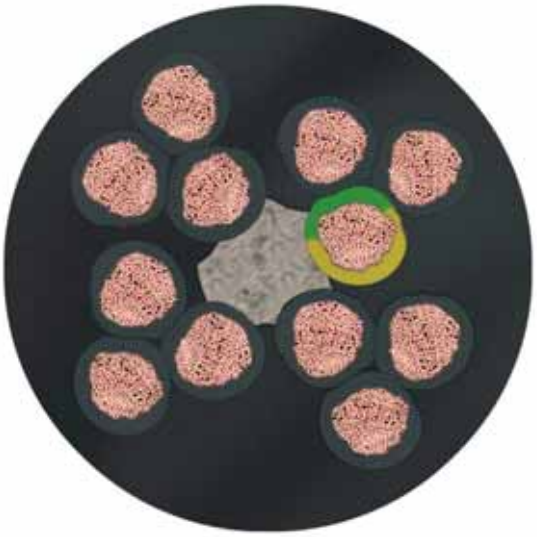
preferred series, short-term delivery

[1]The ampacity I_B is based on an ambient temperature of 30°C with cables laid on an even, flat support at 100% duty. Varying environmental conditions, method of operation and cabling arrangement can result in considerably different ampacities (s. technical exhibit).









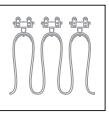
Wampfler Cable C-5
Technical data

			YRDMY-J	YRDMCY-J
Electrical parameters	rated voltage		Uo/U = 600/1.000 V	Uo/U = 300/500 V
	maximum permitted AC operating voltage		Uo/U = 700/1.200 V	Uo/U = 318/550 V
	maximum permitted DC operating voltage		Uo/U = 900/1.800 V	Uo/U = 413/825 V
	ampacity		accord. to table data, otherwise accord. to DIN VDE 0298 part 4	
	AC test voltage		2.5 kV	2.0 kV
Thermal parameters	ambient temperature	flexing	-5 °C up to + 80 °C	
		fixed	-15 °C up to + 80 °C	
	maximum permitted operating temperature of the conductor		70 °C	
	short-circuit temperature of the conductor		150 °C	
Mechanical parameters	minimum radius for flexing operation		7.5 Ø	
	tensile load-bearing capacity		15 N/mm² conductor cross section during operation for moving cables according to DIN VDE 0298 part 3	
Chemical parameters	LBS-free / silicone-free		yes	
	combustion behaviour		flame retardant and self-extinguishing according to DIN VDE 0482 part 265-2-1, IEC 60332-1	
	resistant to ozone		limited	
	CFC-free		yes	
	halogen free		no	
	resistant to humidity		yes	
	UV-resistant		yes	
	oil-resistant		yes	
Materials	insulation		PVC	
	sheath		bending-resistant special high-quality PVC, black	
Design features	conductor		bare electrolytic copper, flexible cat. 5 accord. to DIN VDE 0295	
	shield		without	braided bare copper wires, coverage of approx. 85 %
	stranding		up to 7 conductors stranding in layers with reverse twist, short lay, up to 12 conductors stranding in bundles with reverse twist, short lay	
	conductor coding		black with white numbers with or without green/yellow	
Standards			adapted to DIN VDE 0250 | UL/CSA compliant | DESINA	
Design codes	YRDMY-J / YRDMCY-J		Y insulation material PVC RD round M cable Y Sheath material PVC J with green/yellow earth conductor	Y insulation material PVC RD round M cable C shield of braided copper wires Y Sheathing material PVC J with green/yellow earth conductor

Load-bearing capacity	low		high
Dimensions	large		small
Price level	high		low

Wampfler Cable CXG-6

Rubber round cable



Small size as a result of a compact design with a 2-layer stranding

Prevention of corkcrews due to stranding with a reverse twist reducing tensile force on the core

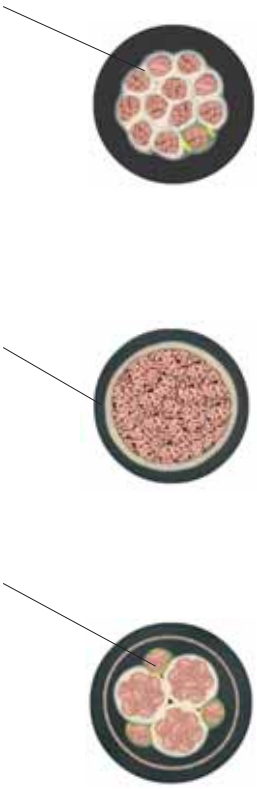
Highly stable bond provided by the protective inner sheath

High durability resulting from an extremely wear-resistant and low-friction EVA sheathing compound

Suitable for wide range of operating temperatures (-35 °C and 80 °C flexing)

Screened cables provide optimised prevention against electromagnetic interference with the earth conductor divided into three parts

Durable in frequent bending applications as a result of resilient construction



Particularly suitable, if...

- medium to very high dynamic travel speed and acceleration forces act on the system
- cable is subject to a very high duty cycle/bending frequency
- high wear resistance and overall durability and reliability are required
- unlimited resistance to atmospheric conditions is required to ensure longer life
- the operating temperature range is between -35°C and 80 °C

Characteristics

Highly resilient rubber round cable
main application: energy guiding chains
secondary application: festoon trolley

Typical applications
- container crane trolley power supply
- process crane trolleys power supply
- process crane power supply
- Stackers & Reclaimers
- steel and rolling mills

Electrical parameters

rated voltage	Uo/U = 600/1,000 V

Mechanical load-bearing capacity

travel speed	up to 300 m/min
minimum bending radii	7.5 x Ø

Thermal / Chemical specifications

ambient temperature	
- flexing	- 35 °C... + 80 °C
- fixed	- 50 °C... + 80 °C

unlimited resistance to atmospheric corrosion

Important features
- flame resistant
- resistant to ozone
- oil-resistant
- UV-resistant
- LBS-free / silicone-free
- extremely wear-resistant
- halogen free

Design features

conductor	flexible (cat. 5) according to DIN VDE 0295
sheath	EVA compounds with high resistance to wear and atmospheric corossion, black
core insulation	resilient EPR compounds

Brand	Rondoflex Chain
Type	(N)GRDGÖU / (N)GRDCGÖU

Wampfler Cable CXG-6
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]	Ampacity I_B [A][1]	Permitted tensile load [N]
Control cables **(N)GRDGÖU-J**	12 G 1.5	0663- 12 G 1,5#	11.7 - 13.7	173	305	15.1	270
	24 G 1.5	0663- 24 G 1,5#	19.9 - 21.9	346	625	11.4	540
	7 G 2.5	0663- 7 G 2,5#	11.3 - 13.3	168	290	25.4	260
	12 G 2.5	0663- 12 G 2,5#	15.4 - 17.4	288	430	20.7	450
	18 G 2.5	0663- 18 G 2,5#	19.5 - 21.5	432	680	17.1	675
	24 G 2.5	0663- 24 G 2,5#	22.5 - 24.5	576	1.010	15.6	900
Power cables, 1-core **(N)GRDGÖU-O**	1 x 16	0663- 1 x 16#	8.7 - 9.7	154	210	125.7	240
	1 x 25	0663- 1 x 25#	10.6 - 12.2	240	325	167.6	375
	1 x 35	0663- 1 x 35#	12.3 - 13.9	336	445	207.6	525
	1 x 50	0663- 1 x 50#	13.9 - 15.9	480	605	262.9	750
	1 x 70	0663- 1 x 70#	15.9 - 17.9	672	830	330.5	1.050
	1 x 95	0663- 1 x 95#	19.1 - 21.1	912	1.120	396.2	1.425
	1 x 120	0663- 1 x 120#	20.8 - 22.8	1.152	1.390	464.8	1.800
	1 x 150	0663- 1 x 150#	23.0 - 26.0	1.440	1.740	539.0	2.250
	1 x 185	0663- 1 x 185#	25.2 - 28.2	1.776	2.090	613.3	2.775
Power cables, 4-core **(N)GRDGÖU-J**	4 G 4	0663- 4 G 4#	12.7 - 14.7	154	325	41.0	240
	4 G 6	0663- 4 G 6#	14.2 - 16.2	230	435	53.0	360
	4 G 10	0663- 4 G 10#	16.7 - 18.7	384	650	74.0	600
	4 G 16	0663- 4 G 16#	20.0 - 22.0	614	960	99.0	960
	4 G 25	0663- 4 G 25#	25.9 - 28.9	960	1.580	131.0	1.500
	3 x 35 + 3 G 6	0663- 4 G 35#	26.4 - 29.4	1.165	1.770	162.0	1.575
	3 x 50 + 3 G 25/3	0663- 4 G 50#	31.5 - 34.5	1.680	2.510	202.0	2.250
Power cables, 5- and 7-core stranded **(N)GRDGÖU-J**	7 G 4	0663- 7 G 4#	16.7 - 18.7	269	535	27.7	420
	5 G 6	0663- 5 G 6#	15.8 - 17.8	288	535	41.7	450
	5 G 10	0663- 5 G 10#	19.7 - 21.7	480	850	58.0	750
	5 G 16	0663- 5 G 16#	22.8 - 24.8	768	1.220	77.4	1.200

preferred series, short-term delivery

[1] The ampacity I_B is based on an ambient temperature of 30 °C with cables laid on an even, flat support at 100% duty. Varying environmental conditions, method of operation and cabling arrangement can result in considerably different ampacities (s. technical exhibit).



Wampfler Cable CXG-6
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]	Ampacity I_B [A][1]	Permitted tensile load [N]
Control cables, screened **(N)GRDCGÖU-J**	4 G 2.5C	0664- 4 G 2,5C#	11.3 - 13.3	281	305	30.5	150
	5 G 2.5C	0664- 5 G 2,5C#	12.7 - 14.7	305	370	29.3	185
Power cables, screened 1-core **(N)GRDCGÖU-O**	1 x 16C	0664- 1 x 16C#	10.1 - 12.1	243	320	125.7	240
	1 x 25C	0664- 1 x 25C#	12.8 - 14.8	328	450	167.6	375
	1 x 35C	0664- 1 x 35C#	13.9 - 15.9	427	555	207.6	525
	1 x 50C	0664- 1 x 50C#	15.7 - 17.7	595	745	262.9	750
	1 x 70C	0664- 1 x 70C#	18.7 - 20.7	870	1.090	330.5	1.050
	1 x 95C	0664- 1 x 95C#	20.8 - 22.8	1.113	1.330	396.2	1.425
	1 x 120C	0664- 1 x 120C#	22.8 - 24.8	1.305	1.580	464.8	1.800
	1 x 150C	0664- 1 x 150C#	25.6 - 28.6	1.625	2.000	539.0	2.250
	1 x 185C	0664- 1 x 185C#	27.8 - 30.8	1.992	2.390	613.3	2.775
Power cables, screened 4-core **(N)GRDCGÖU-J**	4 G 4C	0664- 4 G 4C#	15.7 - 17.7	288	500	41.0	240
	4 G 6C	0664- 4 G 6C#	17.0 - 19.0	397	650	53.0	360
	4 G 10C	0664- 4 G 10C#	19.7 - 21.7	611	865	74.0	600
	3 x 16 + 3 G 2.5C	0664- 4 G 16C#	20.4 - 22.4	761	1.070	99.0	720
	3 x 25 + 3 G 4C	0664- 4 G 25C#	25.8 - 28.8	1.288	1.810	131.0	1.125
	3 x 35 + 3 G 6C	0664- 4 G 35C#	28.6 - 31.6	1.635	2.220	162.0	1.575
	3 x 50 + 3 G 10C	0664- 4 G 50C#	35.0 - 38.0	2.181	2.510	202.0	2.250
	3 x 70 + 3 G 10C	0664- 4 G 70C#	40.9 - 43.9	2.892	4.100	250.0	3.150
	5 G 16C	0664- 5 G 16C#	26.7 - 28.7	970	1.610	77.4	1.200
Bus cables screened and fiber optic cables	1 x (2 x 0.5) C	0665- 1 x 2 x0,5C#	8.0 - 10.0	60	135	6.2	15
	4 x (2 x 0.5) C	0665- 4 x 2 x0,5PC#	19.0 - 21.0	238	625	4.7	60
	6 x (2 x 0.5) C	0665- 6 x 2 x0,5PC#	20.2 - 22.2	291	730	3.8	90
	6 x (2 x 1) C	0665- 6 x 2 x 1PC#	26.3 - 29.3	428	1.120	9.6	180
	LWL 6 G 62.5 / 125	0665- 6 G 62.5#	14.0 - 16.0		240	-	300
	LWL 12 G 62.5 / 125	0665- 12 G 62,5#	14.0 - 16.0		240	-	300
	LWL 6 G 9 / 125	0665- 6 G 9#	14.0 - 16.0		240	-	300
	LWL 12 G 50 / 125	0665- 12 G 50#	14.0 - 16.0		240	-	300
	LWL 18 G 50 / 125	0665- 18 G 50#	14.0 - 16.0		240	-	300

preferred series, short-term delivery

[1] The ampacity I_B is based on an ambient temperature of 30 °C with cables laid on an even, flat support at 100% duty. Varying environmental conditions, method of operation and cabling arrangement can result in considerably different ampacities (s. technical exhibit).

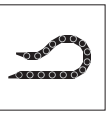
Wampfler Cable CXG-6
Technical data

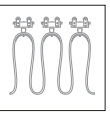
			(N)GRDGÖU / (N)GRDCGÖU		
Electrical parameters	rated voltage		Uo/U = 600/1.000 V		
	maximum permitted AC operating voltage		Uo/U = 700/1.200 V		
	maximum permitted DC operating voltage		Uo/U = 900/1.800 V		
	ampacity		accord. to table data, otherwise accord. to DIN VDE 0298 part 4		
	AC test voltage		2.5 kV		
Thermal parameters	ambient temperature	flexing	-35 °C to + 80 °C		
		fixed	-50 °C to + 80 °C		
	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		7.5 x Ø		
	tensile load-bearing capacity		15 N/mm² conductor cross section during operation for moving cables according to DIN VDE 0298 part 3		
Chemical parameters	LBS-free / silicone-free		yes		
	combustion behaviour		flame retardant and self-extinguishing according to DIN VDE 0482 part 265-2-1, IEC 60332-1		
	resistant to ozone		yes		
	resistant to humidity		yes		
	UV-resistant		yes		
	oil-resistant		yes		
	halogen free		yes		
Materials	insulation		resilient EPR compounds (minimum 3GI3)		
	inner sheath		material basis EPR, type of compound GM1b, black		
	outer sheath		EVA compound with high resistance to wear and atmospheric corossion, black		
Design features	conductor		bare electrolytic copper, flexible, category 5 according to DIN VDE 0295		
	shield		tin-plated braided copper wires, coverage > 80 %, coupling resistance < 100 Ω/m at 30 MHz		
	stranding		conductors stranded in layers		
	conductor coding		according to DIN VDE 0293, part 308 up to 5 conductors couloured, 6 or more conductors black with white numbers with or without green/yellow		
Standards	Power cables, control cables and bus cables		adapted to DIN VDE 0250		
	optical fiber cables		adapted to IEC 9314T.3, DIN VDE 0888		
Design codes	(N)GRDGÖU-J / (N)GRDCGÖU-J (N)GRDGÖU-O / (N)GRDCGÖU-O		(N) adapted to a VDE standard G core insulation constructed of a rubber compound (EPR) RD round cable C shield of braided copper G outer sheathing material EVA-rubber compound Ö oil-resistant outer sheath U outer sheath of law flammability (“fire-proof”) -O without a green/yellow identification of the earth/ground conductor -J with a green/yellow identification of the earth/ground conductor		
Fibre optic			Mono-Mode	Multi-Mode	Multi-Mode
	Fiber type (core-Ø / fiber-Ø)		E9/125	50/125	62.5/125
	Damping	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		0.14 ± 0.02	0.20 ± 0.02	0.275 ± 0.02
	Dispersion	at 1300 nm	< 3.5 ps/nm km	-	-
		at 1550 nm	< 3.5 ps/nm km	-	-
	Band width	at 850 nm	-	> 400 MHz km	> 400 MHz km
		at 1300 nm	-	>1.200 MHz km	> 600 MHz km

Load-bearing capacity	low		high
Dimensions	large		small
Price level	high		low

Wampfler Cable CXP-6

PUR round cable





Small size due to a compact bundle structure

Durable, wear-resistant, low-friction PUR outer sheath

Highly stable bond provided by the protective inner sheath

Prevention of corkscrews- thanks to a twist-free stranding with a reverse twist

Durable in frequent bending applications as a result of resilient construction with short lay of length

Complete selection of power, control, data communications and fibre-optic cables

Highly resilient flexible cable (category 6)

Particularly suitable, if...

- medium to high dynamic travel speed and acceleration forces act on the system
- due to a high duty cycle, frequent and continuous flexing of the cable is expected
- a halogen-free cable is required
- unlimited resistance to atmospheric effects is required
- if a UL listed cable is required
- the operating temperatures can reach up to 80 °C

Characteristics

Highly resilient PUR round cable
main application: energy guiding chains
secondary application: festoon trolley

Typical applications
- container crane trolley power supply
- process crane trolleys power supply
- process crane power supply
- steel and rolling mills
- transfer cars

Electrical parameters

rated voltage	Uo/U = 0.6 / 1 kV
from a diameter of 1.5 mm²	Uo/U = 300/500 V
up to a diameter of 1.0 mm²	U = 300 V for bus cables

Mechanical load-bearing capacity

travel speed	up to 250 m/min
	> 250 m/min on request
minimum bending radii	7.5 x Ø
	10 x Ø Profibus
	14 x Ø Koax

Thermal / Chemical specifications

ambient temperature	
- flexing	- 30 °C... + 80 °C
- fixed	- 35 °C... + 85 °C

unlimited resistance to atmospheric corrosion

Important features
- self-extinguishing and flame retardant
- resistant to ozone
- DESINA compliant
- CFC-free
- oil-resistant
- UV-resistant
- LBS-free / silicone-free
- halogen free
- UL/CSA listed

Design features

conductor	highly flexible category 6 according to DIN VDE 0295
sheath	polyurethane (PUR) with sliding properties
core insulation	TPE basis, thermoplastic compound

Type 11YMSL11Y / 11YMSLC11Y

Wampfler Cable CXP-6
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]	Ampacity I_B [A][1]	Permitted tensile load [N]
Control cables **11YMSL11Y-J**	5 G 1	0667- 5 G 1#	6.7 - 7.7	56	95	12.8	75
	7 G 1	0667- 7 G 1#	7.3 - 8.3	68	109	9.8	105
	12 G 1	0667- 12 G 1#	11.0 - 11.8	125	230	8.0	180
	18 G 1	0667- 18 G 1#	13.8 - 14.6	210	330	7.1	270
	25 G 1	0667- 25 G 1#	15.7 - 16.7	302	445	6.0	375
	3 G 1.5	0667- 3 G 1,5#	7.1 - 7.7	43	87	18.0	65
	4 G 1.5	0667- 4 G 1,5#	7.8 - 8.4	58	110	18.0	90
	5 G 1.5	0667- 5 G 1,5#	8.5 - 9.1	72	130	15.3	110
	7 G 1.5	0667- 7 G 1,5#	9.9 - 10.7	105	175	11.3	155
	12 G 1.5	0667- 12 G 1,5#	13.4 - 14.2	195	320	9.5	270
	18 G 1.5	0667- 18 G 1,5#	17.0 - 18.0	270	450	8.5	405
	25 G 1.5	0667- 25 G 1,5#	20.0 - 21.2	411	650	7.2	560
	4 G 2.5	0667- 4 G 2,5#	9.1 - 9.7	75	128	26.0	150
	5 G 2.5	0667- 5 G 2,5#	9.8 - 10.6	100	155	22.1	185
	7 G 2.5	0667- 7 G 2,5#	11.8 - 12.6	175	260	16.4	260
	12 G 2.5	0667- 12 G 2,5#	16.4 - 17.4	300	490	13.8	450
	18 G 2.5	0667- 18 G 2,5#	21.8 - 23.0	450	745	12.2	675
	25 G 2.5	0667- 25 G 2,5#	24.6 - 26.2	625	1.000	10.4	935
Power cables, 1-core **11YMSL11Y-O**	1 x 6	0667- 1 x 6#	6.5 - 7.1	60	85	54.0	90
	1 x 10	0667- 1 x 10#	7.9 - 8.5	96	137	73.0	150
	1 x 16	0667- 1 x 16#	9.2 - 10.0	154	195	98.0	240
	1 x 25	0667- 1 x 25#	11.0 - 11.8	240	285	129.0	375
	1 x 35	0667- 1 x 35#	12.2 - 13.0	350	390	158.0	525
	1 x 50	0667- 1 x 50#	13.8 - 14.6	500	520	198.0	750
	1 x 70	0667- 1 x 70#	16.2 - 17.2	672	810	245.0	1.050
	1 x 95	0667- 1 x 95#	18.4 - 19.4	912	950	292.0	1.425
	1 x 120	0667- 1 x 120#	22.0 - 23.6	1.152	1.315	344.0	1.800
	1 x 150	0667- 1 x 150#	23.3 - 24.9	1.440	1.590	391.0	2.250

preferred series, short-term delivery

[1] The ampacity I_B is based on an ambient temperature of 30 °C with cables laid on an even, flat support at 100% duty. Varying environmental conditions, method of operation and cabling arrangement can result in considerably different ampacities (s. technical exhibit).



Wampfler Cable CXP-6
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]	Ampacity I_B [A][1]	Permitted tensile load [N]
Power cables 4-core **11YMSL11Y-J**	4 G 4	0667- 4 G 4#	10.4 - 11.2	154	222	34.0	240
	4 G 6	0667- 4 G 6#	12.6 - 13.4	230	330	44.0	360
	4 G 10	0667- 4 G 10#	15.4 - 16.4	384	525	61.0	600
	4 G 16	0667- 4 G 16#	20.0 - 21.2	640	825	82.0	960
	4 G 25	0667- 4 G 25#	23.7 - 25.3	1.000	1.250	108.0	1.500
	4 G 35	0667- 4 G 35#	27.8 - 29.4	1.344	1.750	135.0	2.100
Power cables 5- and 7-core **11YMSL11Y-J**	5 G 6	0667- 5 G 6#	14.0 - 14.8	300	400	37.4	450
	5 G 10	0667- 5 G 10#	17.1 - 18.1	480	640	44.1	750
	5 G 16	0667- 5 G 16#	22.0 - 23.2	768	1.050	69.7	1.200
	7 G 4	0667- 7 G 4#	13.6 - 14.6	269	360	21.4	420
	7 G 6	0667- 7 G 6#	16.8 - 17.8	404	555	27.7	630
	preferred series, short-term delivery						

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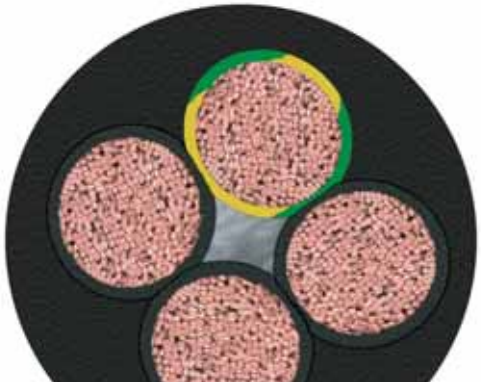


Wampfler Cable CXP-6

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]	Ampacity I_B [A][1]	Permitted tensile load [N]
Control cables screened **11YMSLC11Y-J**	3 G 0,75C	0668- 3 G 0,75C#	7.6 - 8.6	48	103	12.0	35
	5 G 0,75C	0668- 5 G 0,75C#	8.2 - 9,2	68	125	10.2	55
	7 G 0,75C	0668- 7 G 0,75C#	9.3 - 10.3	91	155	7.8	80
	7 G 1C	0668- 7 G 1C#	10.2 - 11.2	112	195	9.8	105
	12 G 1C	0668- 12 G 1C#	13.0 - 13.8	195	305	8.0	180
	18 G 1C	0668- 18 G 1C#	16.8 - 17.8	288	475	7.1	270
	25 G 1C	0668- 25 G 1C#	18.5 - 19.5	389	610	6.0	375
	3 G 1.5C	0668- 3 G 1,5C#	9.2 - 9.8	75	140	18.0	65
	4 G 1.5C	0668- 4 G 1,5C#	9.6 - 10.0	95	165	18.0	90
	5 G 1.5C	0668- 5 G 1,5C#	10.4 - 11.2	106	191	15.3	110
	12 G 1.5C	0668- 12 G 1,5C#	15.9 - 16.9	257	430	9.5	270
	18 G 1.5C	0668- 18 G 1,5C#	20.9 - 22.1	385	665	8.5	405
	25 G 1.5C	0668- 25 G 1,5C#	23.8 - 25.4	540	900	7.2	560
	4 G 2.5C	0668- 4 G 2,5C#	10.9 - 11.7	144	220	26.0	150
Power cables 1-core screened **11YMSLC11Y-O**	1 x 35C	0668- 1 x 35C#	12.9 - 13.7	393	430	158.0	525
	1 x 50C	0668- 1 x 50C#	14.5 - 15.5	560	575	198.0	750
	1 x 70C	0668- 1 x 70C#	17.5 - 18.5	788	900	245.0	1.050
	1 x 95C	0668- 1 x 95C#	18.8 - 19.8	1.019	1.065	292.0	1.425
	1 x 120C	0668- 1 x 120C#	22.8 - 24.0	1.272	1.428	344.0	1.800
	1 x 150C	0668- 1 x 150C#	24.4 - 26.0	1.578	1.750	391.0	2.250
Power cables screened **11YMSLC11Y-J**	4 G 4C	0668- 4 G 4C#	12.5 - 13.3	221	305	34.0	240
	4 G 6C	0668- 4 G 6C#	15.0 - 16.0	302	435	44.0	360
	4 G 10C	0668- 4 G 10C#	18.5 - 19.5	490	700	61.0	600
	4 G 16C	0668- 4 G 16C#	23.6 - 24.8	771	1.060	82.0	960
	4 G 25C	0668- 4 G 25C#	27.2 - 28.8	1.145	1.520	108.0	1.500
	4 G 35C	0668- 4 G 35C#	30.7 - 32.7	1.555	2.120	135.0	2.100

preferred series, short-term delivery

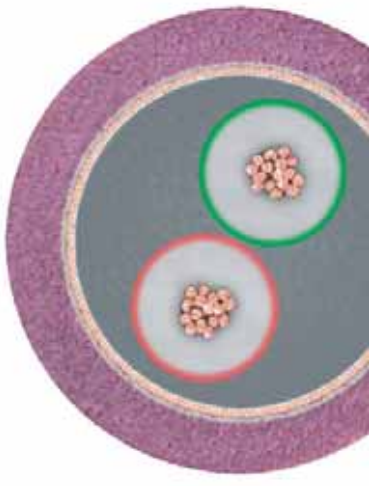
[1] The ampacity I_B is based on an ambient temperature of 30 °C with cables laid on an even, flat support at 100% duty. Varying environmental conditions, method of operation and cabling arrangement can result in considerably different ampacities (s. technical exhibit).

Wampfler Cable CXP-6
Order information

Type of cable	Number of conductors and cross section [mm²]	Order No.	Outer-Ø max. [mm]	Cu-Number approx. [kg/km]	Weight approx. [kg/km]	Ampacity I_B [A][1]	Permitted tensile load [N]
Data cables screened **11YMSLC11Y-O**	3 x 2 x 0.5C	0669- 3 x 2 x 0,5C#	9.1 - 9.7	58	130	4.5	45
	4 x 2 x 0.5C	0669- 4 x 2 x 0,5C#	9.6 - 10.4	74	155	3.6	60
	12 x 2 x 0.5C	0669- 12 x 2 x 0,5C#	14.7 - 15.7	191	367	1.3	180
	4 x 2 x 0.75C	0669- 4 x 2 x 0,75C#	10.6 - 11.4	100	190	7.2	90
	6 x 2 x 0.75C	0669- 6 x 2 x 0,75C#	12.3 - 13.1	149	250	6.4	135
	3 x (2 x 0.25)C	0669- 3 x (2 x 0,25)C#	11.6 - 12.4	82	194	2.5	20
	4 x (2 x 0.5)C	0669- 4 x (2 x 0,5)C#	14.0 - 14.8	134	280	3.6	60
	16 x (2 x 0.5)C	0669- 16 x (2 x 0,5)C#	19.8 - 20.6	397	530	1.3	240
Bus cables screened and fiber optic cables	CAN BUS 1 x 2 x 0.5C	0669- 1 x 2 x 0,5C CAN#	8.6 - 9.2	37	56	6.0	15
	CAN BUS 2 x 2 x 0.5C	0669- 2 x 2 x 0,5C CAN#	9.2 - 9.8	47	62	5.1	30
	Devicenet (2x1) + (2x0.75)C	0669- (2x1)+(2x0,75)C DN#	13.6 - 14.4	110	210	10.2	50
	Profibus Typ A 1 x 2 x 0.5C	0669- 1 x 2 x 0,5C P#	9.3 - 9.9	39	94	6.0	15
	Profibus SINELEC L2 1 x 2 x 0.5C	0669- 1 x 2 x 0,5C SP#	10.7 - 11.5	48	140	6.0	15
	CAT5 4 x 2 x 0,25C	0669- 4 x 2 x0,25C CAT5#	8.9 - 9.5	55	116	1.5	30
	Coax 3 x (1 x HF75)C	0669- 3 x (1 x HF75)C#	10.6 - 11.4	31	110		20
	LWL 6G 50-125	0669- 6G 50-125#	12.6 - 13.4	0	130		100
	LWL 6G 62.5-125	0669- 6G 62,5-125#	12.6 - 13.4	0	130		100

preferred series, short-term delivery

[1] The ampacity I_B is based on an ambient temperature of 30 °C with cables laid on an even, flat support at 100% duty. Varying environmental conditions, method of operation and cabling arrangement can result in considerably different ampacities (s. technical exhibit).



Wampfler Cable CXP-6

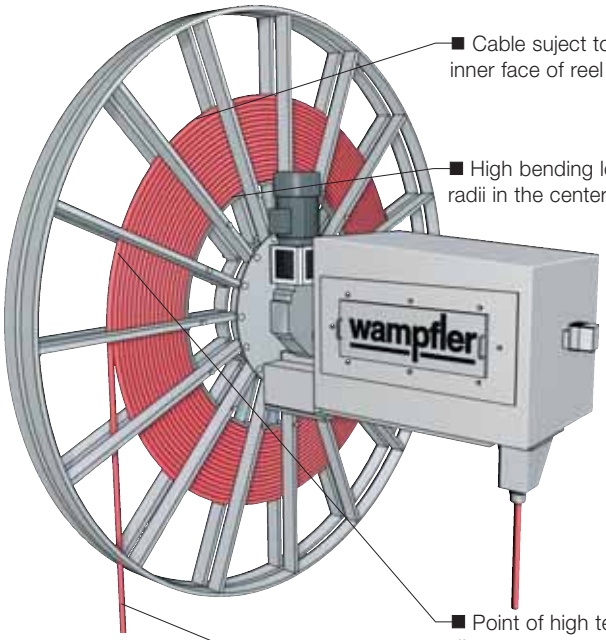
Technical data

			11YMSL11Y / 11YMSLC11Y
Electrical parameters	rated voltage		Uo/U = 600/1.000 V
	maximum permitted AC operating voltage		Uo/U = 700/1.200 V
	maximum permitted DC operating voltage		Uo/U = 900/1.800 V
	ampacity		accord. to table data, otherwise accord. to DIN VDE 0298 part 4
	AC test voltage		2.5 kV
Thermal parameters	ambient temperature	flexing fixed	-30 °C to + 80 °C -35 °C to + 85 °C
	maximum permitted operating temperature of the conductor		90 °C
	short-circuit temperature of the conductor		200 °C
Mechanical parameters	minimum bending radii allowing for free movement		7.5 x Ø | Profibus 10 x Ø | Koax 14 x Ø
	tensile load-bearing capacity		15 N/mm² conductor cross section during operation for moving cables according to DIN VDE 0298 part 3
Chemical parameters	LBS-free / silicone-free		yes
	combustion behaviour		flame retardant and self-extinguishing according to DIN VDE 0482 part 265-2-1, IEC 60332-1
	resistant to ozone		yes
	resistant to humidity		yes
	UV-resistant		yes
	oil-resistant		yes
	halogen free		yes
	CFC-free		yes
Materials	insulation		thermoplastic polymer compound (TPM), halogen free
	outer sheath		polyurethane PUR, resistant to bending and tearing, halogen free, - data cables, profibus, devicenet and CANBUS - screened control cables up to 1mm²: - screened control and power cables up to 1.5mm²:
			: black : purple : grey : orange
Design features	conductor		bare electrolytic copper, highly flexible category 6 according to DIN VDE 0295
	shield		braided bare copper wires, coverage of approx. 85 %
	stranding		up to 7 conductors stranding in layers with reverse twist, short lay up to 12 conductors stranding in bundles with reverse twist, short lay
	conductor identification		black with white numbers with or without green/yellow
Standards			adapted to DIN VDE 0250 | UL/CSA compliant | DESINA
Design codes	11YMSL11Y 11YMSLC11Y		11Y insulation material thermoplastic polymer (halogen free) MSL sheath round cable C shield of braided copper wires 11Y outer sheathing material polyurethane, (halogen free)


SAFETY FIRST

Wampfler Cables
for cable reels

Special points as subject to stress



■ Cable suject to abrasion against inner face of reel spokes

■ High bending loads due to small radii in the center of the reel

■ Point of high tensile load and bending stress

■ High torsional stress due to diversion of cable in cable guides

■ High forces on the cable caused by changing bending direction

■ Maximum tensile forces caused by high travel speeds and vertical operation

Special features

- reduced diameter and weight as a result of ideal insulation and sheathing materials
- resistance to corkscrews as a result of a stranding with reverse twist
- stable construction as a result of extruded filler
- outer sheath is highly resistant to wear even where highly mechanical forces exist
- highly resistant to torsional forces with the use of a textile mesh between inner and outer sheath
- centrally positioned load-bearing elements provide high tensile stress
- extremely high resilience thanks to a very short lay stranding
- high axial rigidity thanks to interlinked inner and outer sheaths

R-7
RXG-8
RXP-8
W-9
WX-10

Load-bearing capacity	low		high
Dimensions	large		small
Price level	high		low

Wampfler Cable R-7

PUR round reeling cable

Highly stable bond provided by the inner sheath

Small size as a result of optimised wall thicknesses for sheathing and core insulation

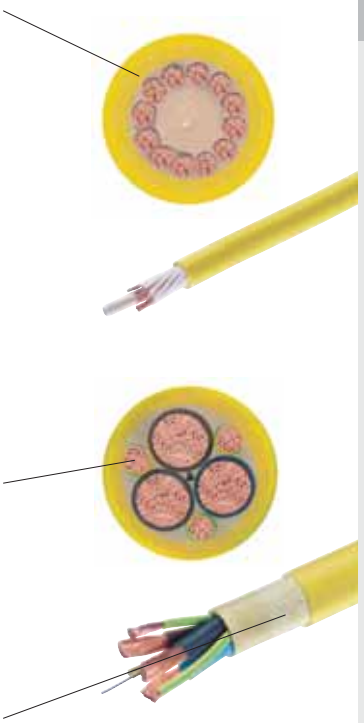
Good resilience as a result of short length of lays

Durability thanks to an outer sheath which is resistant to wear and cracking

Compact construction due to a split earth/ground conductor divided into three parts from a cross section of 3x25 mm² + 3G6

Broad product line with cross sections up to 3x240 mm²

High torsional rigidity with the use of a supporting mesh vulcanised between inner and outer sheaths



Particularly suitable, if...

- small to medium dynamic loads act on the system
- the cable is subject to high tension, bending and torsional forces
- the priority is a cost-effective cable
- a small diameter cable, providing a compact reeling system is required
- the operating temperatures do not exceed 70 °C
- systems are designed with an end feed

Characteristics

Resilient PUR round cable
main application: Standard spring and motorized cable reels
secondary application: energy guiding chains

Typical applications
- transfer car
- hoisting gear with small to middle hoisting heights
- longitudinal scrapers in sewage treatment plants
- stage and theatre applications
- handling systems

Electrical parameters

rated voltage	Uo/U = 600/1.000 V Uo/U = 300/500 V for design code 12YRDT11YH

Mechanical load-bearing capacity

travel speed	up to 100 m/min (> 100 m/min on request)
minimum bending radii	8 x ∅ for reeling

Thermal / Chemical specifications

ambient temperature	
- flexing	- 20 °C... + 70 °C
- fixed	- 30 °C... + 70 °C

unlimited resistance to atmospheric corrosion

Important features
- resistant to ozone
- resistant to humidity
- oil-resistant
- UV-resistant
- LBS-free / silicone-free

Design features

conductor	flexible (cat. 5) according to DIN VDE 0295
sheath	polyurethane (PUR)
core insulation	special polymer

Type 12YRDT11Y / 12YRDT11YH

Wampfler Cable R-7
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]	Ampacity I_B [A][1]	Permitted tensile load [N]
Control cables PUR **12YRDT11Y**	7 x 1.5	0642- 7 x 1,5#	11.5 - 13.0	101	210	10.1	210
	12 x 1.5	0642- 12 x 1,5#	16.0 - 17.5	173	330	7.7	360
	18 x 1.5	0642- 18 x 1,5#	16.0 - 17.5	259	410	6.7	540
	24 x 1.5	0642- 24 x 1,5#	19.0 - 21.5	346	680	6.0	720
	36 x 1.5	0642- 36 x 1,5#	22.0 - 24.0	518	900	5.4	1.080
	4 G 2.5	0642- 4 G 2,5#	10.0 - 11.5	96	180	20.7	200
	5 G 2.5	0642- 5 G 2,5#	11.0 - 12.5	120	220	17.6	250
	7 x 2.5	0642- 7 x 2,5#	12.5 - 14.0	168	300	14.5	350
	12 x 2.5	0642- 12 x 2,5#	18.5 - 20.5	250	610	11.1	600
	18 x 2.5	0642- 18 x 2,5#	18.5 - 20.5	432	740	10.0	900
	24 x 2.5	0642- 24 x 2,5#	22.5 - 24.5	576	1.050	8.8	1.200
	36 x 2.5	0642- 36 x 2,5#	25.0 - 28.0	720	1.430	7.7	1.800
Combined PUR control cables **12YRDT11Y**	26 x 2.5 + 4 x 1.5C	0643- 26x2,5+4x1,5C	22.5 - 24.5	598	970	8.2 + 5.4	1.420
Power cables PUR black outer sheath **12YRDT11YH** Uo/U = 300/500V	14 G 4	0643- 14 G 4#	21,0 - 23,0	538	743	17,0	1.120
	14G4 +2 x (2x0,25)C	0643- 14G4+2x(2x0,25)C#	22,9 - 24,9	568	856	17,0	1.120
	20 G 4	0643- 20 G 4#	23,8 - 25,8	768	1.036	15,3	1.600
	25 G 4	0643- 25 G 4#	28,5 - 30,5	805	1.500	13,6	2.000
	13 G 6	0643- 13 G 6#	23,1 - 25,1	749	982	22,9	1.560

preferred series, short-term delivery

[1] The ampacity I_B is based on an ambient temperature of 30°C, a monospiral reel coil at 100% duty. Varying environmental conditions, method of operation and cabling arrangement can result in considerably different ampacities (s. technical exhibit).

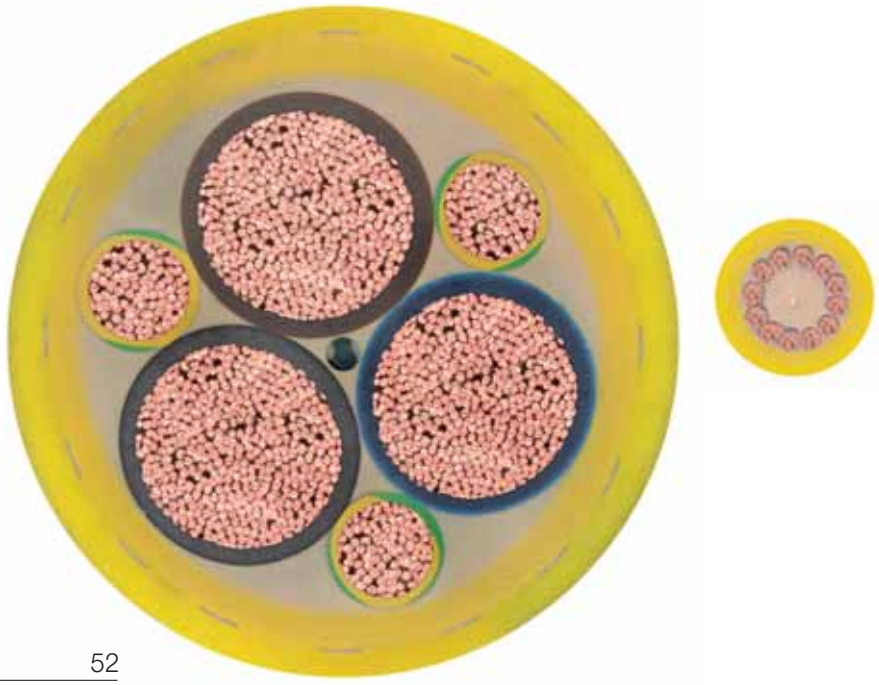


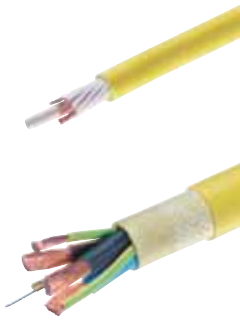
Wampfler Cable R-7
Order information

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]	Ampacity I_B [A][1]	Permitted tensile load [N]
Power cables PUR **12YRDT11Y**	4 G 4	0642- 4 G 4#	11.5 - 13.0	154	260	27.3	320
	4 G 6	0642- 4 G 6#	13.0 - 14.5	230	370	35.3	480
	4 G 10	0642- 4 G 10#	15.5 - 17.0	380	580	48.8	800
	4 G 16	0642- 4 G 16#	19.5 - 21.5	610	920	65.6	1.280
	5 G 6	0642- 5 G 6#	15.0 - 16.5	288	450	29.9	600
	5 G 16	0642- 5 G 16#	22.0 - 24.0	768	1.100	55.8	1.600
Power cables PUR with an earth conductor divided into three parts **12YRDT11Y**	3 x 25 + 3 G 6	0644- 4 G 25#	23.5 - 25.5	880	1.240	86.4	1.500
	3 x 35 + 3 G 6	0644- 4 G 35#	27.0 - 29.5	1.160	1.640	108.1	2.100
	3 x 50 + 3 G 10	0644- 4 G 50#	30.0 - 32.5	1.710	2.240	134.4	3.000
	3 x 70 + 3 G 16	0644- 4 G 70#	35.0 - 37.5	2.450	3.100	165.6	4.200
	3 x 95 + 3 G 16	0644- 4 G 95#	39.0 - 43.0	3.130	3.890	200.0	5.700
	3 x 120 + 3 G 25	0644- 4 G 120#	44.0 - 48.0	4.150	5.080	233.6	7.200
	3 x 150 + 3 G 25	0644- 4 G 150#	49.0 - 53.0	4.980	6.160	268.1	9.000
	3 x 185 + 3 G 35	0644- 4 G 185#	54.5 - 59.0	5.500	7.680	305.6	11.100
	3 x 240 + 3 G 50	0644- 4 G 240#	60.5 - 65.0	7.250	9.870	362.4	14.400

preferred series, short-term delivery

[1] The ampacity I_B is based on an ambient temperature of 30°C, a monospiral reel coil at 100% duty. Varying environmental conditions, method of operation and cabling arrangement can result in considerably different ampacities (s. technical exhibit).





Wampfler Cable R-7
Technical data

			12YRDT11Y	12YRDT11YH
Electrical parameters	rated voltage		Uo/U = 600/1.000 V	Uo/U = 300/500 V
	maximum permitted AC operating voltage		Uo/U = 700/1.200 V	Uo/U = 318/550 V
	maximum permitted DC operating voltage		Uo/U = 900/1.800 V	Uo/U = 413/825 V
	ampacity		accord. to table data, otherwise accord. to DIN VDE 0298 part 4	
	AC test voltage		2.5 kV	
Thermal parameters	ambient temperature	flexing	-20 °C to + 70 °C	
		fixed	-30 °C to + 70 °C	
	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		8 x Ø	
	tensile load-bearing capacity		20 N/mm² conductor cross section during operation for flexing cables	
Chemical parameters	LBS-free / silicone-free		yes	
	combustion behaviour		flame retardant and self-extinguishing according to DIN VDE 0482 part 265-2-1, IEC 60332-1	
	resistant to ozone		yes	
	resistant to humidity		yes	
	UV-resistant		yes	
	oil-resistant		yes	
	halogen free		no	outer sheath halogen free
Materials	insulation		base material polyester (PE)	
	inner sheath		polyurethane over filler	
	supportive braid		thread vulcanised between the sheaths	
	outer sheath		wear-resistant polyurethane PUR, yellow	wear-resistant polyurethane PUR, black, halogen free
Design features	conductor		bare electrolytic copper, flexible cat.5 accord. to DIN VDE 0295	
	reinforcement		central textile element	
	shield		tin-plated braided copper wires, coverage of approx. 80 %	
	stranding		core is stranded in layers	
	conductor coding		according to DIN VDE 0293, part 308 up to 5 conductors coloured, 6 or more conductors white with black numbers with or without green/yellow	
Standards			adapted to DIN VDE 0250	
Design codes	12YRDT11Y 12YRDT11YH		12Y core insulation based on polyester RDT round cables for use on reels 11Y inner sheath based on PUR, outer sheath PUR H outer sheath halogen free	

Load-bearing capacity	low		high
Dimensions	large		small
Price level	high		low

Wampfler Cable RXG-8

Round reeling cable

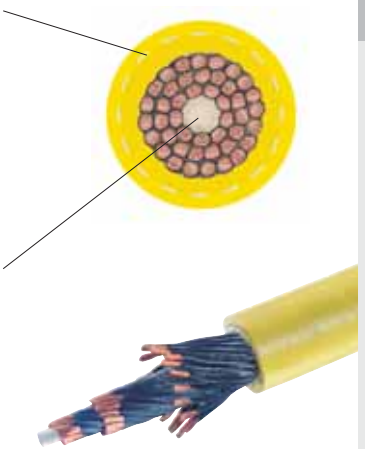
Maximum torsional rigidity due to supporting polyester fibers vulcanised into the sheath

Insensitive to external mechanical load due to a robust and wear-resistant sheathing material

Maximum load-bearing capacity as a result of Aramid reinforcement with a break strength of 20 kN

Very high rigidity as a result of a very small stranding lay

High axial rigidity due to optimally interlinked inner and outer sheaths in a 2-layer “sandwich” structure



Characteristics

Highly resilient round cables with high tensile strength for use on reels
main application: motorized cable reels

Typical applications
- vertical applications operating at high speed and acceleration
- vertical power supply for spreader operations
- up to 70 m of freely suspended cable subject to wind
- grab cranes with vertical power supply
- Haupteinspeisungen und Steuersignale für Schwermaschinen im Bulk-Material Handling und Krane

Electrical parameters

rated voltage	Uo/U = 600/1.000 V

Mechanical load-bearing capacity

travel speed	up to 180 m/min horizontal reeling up to 160 m/min vertical reeling (> 180 m/min on request)
minimum bending radii	6 x Ø for reeling 7.5 x Ø on diversion rollers assemblies 20 x Ø for s-shaped track curves
tensile load-bearing capacity	20 kN reinforcement element

Thermal / Chemical specifications

ambient temperature	
- flexing	- 35 °C... + 60 °C
- fixed	- 50 °C... + 80 °C

unlimited resistance to atmospheric corrosion

Important features
- resistant to ozone
- waterproof
- oil-resistant
- UV-resistant
- LBS-free / silicone-free
- of low flammability

Design features

conductor	particularly flexible (cat. FS) according to Prysmian specifications
sheath	wear-resistant rubber compound base material PCP
core insulation	special compound based on EPR
Brand	Cordaflex SMK-V / SMK
Type	NSHTÖU

Particularly suitable, if...

- very high combined tensile and bending loads occur during the operation (Spreader)
- extreme torsional forces exist which must be absorbed with a specially designed cable constructed of high quality materials
- very high acceleration forces exist and need to be absorbed by strain relief members, not the conductor
- cable is operating through diversion rollers

Wampfler Cable RXG-8
Order information

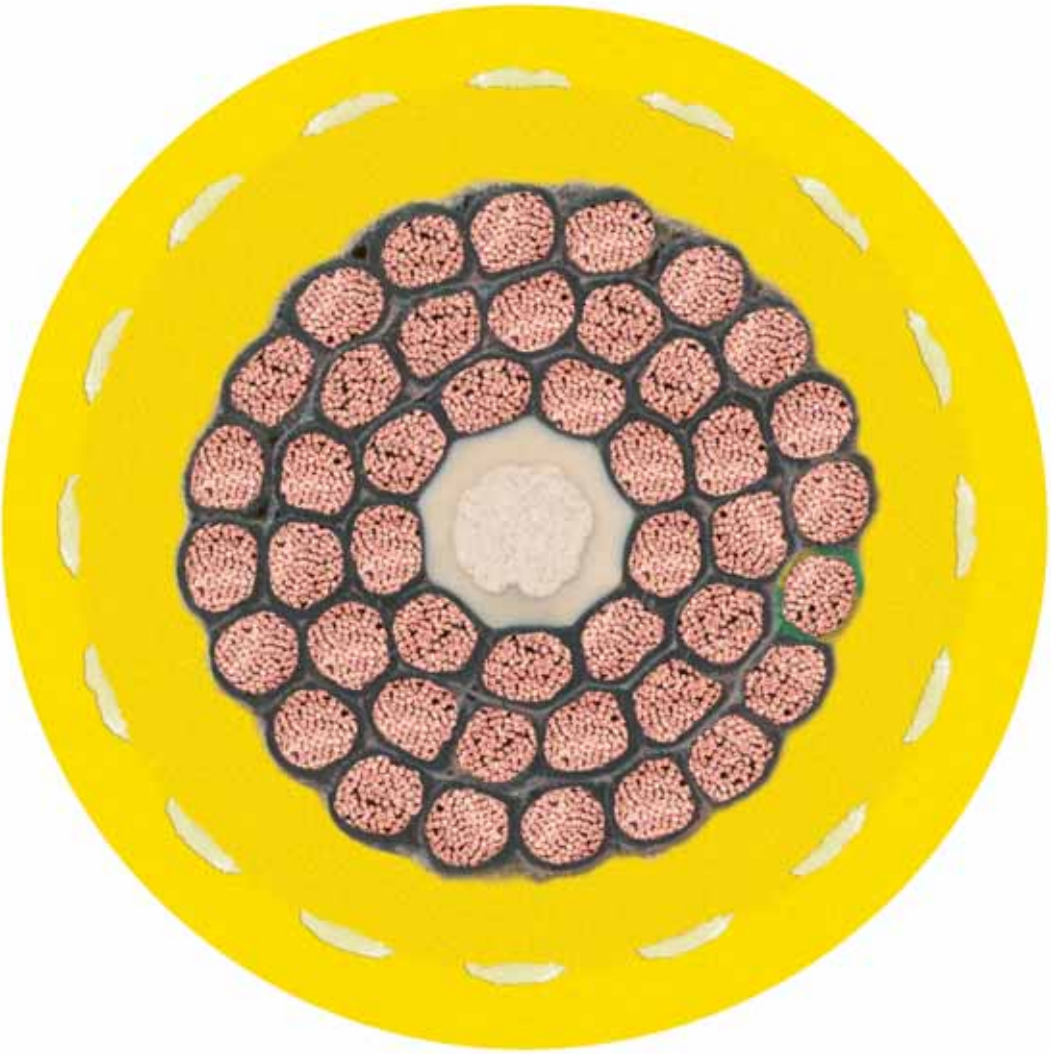
Type of cable	Number of conductors and cross section [mm²]	Order No.	Outer-Ø min./max. [mm]	Cu-Number approx. [kg/km]	Weight approx. [kg/km]	Ampacity I_B [A][1]	Permitted tensile load [N]
Control cables with a reinforcement of 20 kN[2] **(N)SHTÖU-J SMK-V**	49 G 1	0617- 49 G 1 - 20 kN#	26.6 - 29.6	580	1.190	4.0	3.200
	24 G 2.5	0617- 24 G 2,5 - 20 kN#	26.2 - 29.2	672	1.290	8.3	3.600
	30 G 2.5	0617- 30 G 2,5 - 20 kN#	29.4 - 32.4	848	1.610	7.7	4.100
	44 G 2.5	0617- 44 G 2,5 - 20 kN#	34.1 - 37.1	1.243	2.160	7.1	5.100
	56 G 2.5	0617- 56 G 2,5 - 20 kN#	40.1 - 43.1	1.567	2.840	6.5	6.000
Combined control cables **(N)SHTÖU-J SMK**	30 G 1.5 + 7x(2x1)C	0618- 30 G 1,5+7x(2x1)C	42.5 - 45.5	612	2.800	5.7	1.770
	12 G 2.5 + 12x1C	0618- 12 G 2,5+12x1C#	26.2 - 29.2	527	1.290	11.0	900
	19 G 2.5 + 5x1C	0618- 19 G 2,5+5x1C#	26.2 - 29.2	585	1.290	9.7	1.575
	20 G 2.5 + FO18E9	0618- 20 G 2,5+FO18E9#	30.5 - 33.5	564	1.500	9.7	1.500
	25 G 2.5 + 5x1C	0618- 25 G 2,5+5x1C#	29.4 - 32.4	736	1.620	9.7	2.025
Power cables **(N)SHTÖU-J SMK**	3 x 35 + 3 G 6	0619- 3 x 35 + 3 G 6#	28.5 - 31.5	1.217	2.160	108.1	3.150
	3 x 50 + 3 G 10	0619- 3 x 50 + 3 G 10#	34.4 - 37.4	1.680	2.850	134.4	4.500
	3 x 70 + 3 G 16	0619- 3 x 70 + 3 G 16#	39.7 - 42.7	2.470	3.920	165.6	6.300
	3 x 95 + 3 G 16	0619- 3 x 95 + 3 G 16#	44.3 - 47.3	3.216	4.960	200.0	8.550
	3 x 120 + 3 G 25	0619- 3 x 120 + 3 G 25#	51.0 - 55.0	4.334	6.630	233.6	10.800
	3 x 150 + 3 G 25	0619- 3 x 150 + 3 G 25#	53.9 - 57.9	5.242	7.560	268.1	13.500
	3 x 185 + 3 G 35	0619- 3 x 185 + 3 G 35#	58.9 - 62.9	6.240	9.310	305.6	16.650
	3 x 240 + 3 G 50	0619- 3 x 240 + 3 G 50#	67.4 - 71.4	8.064	12.200	362.4	21.600

preferred series, short-term delivery

[1] The ampacity I_B is based on an ambient temperature of 30°C, 1-layer winding on a cylindrical reel at 100% duty. Varying environmental conditions, method of operation and cabling arrangement can result in considerably different ampacities (s. technical exhibit).

[2] Due to the strong mechanical reciprocal effects of the cable with adjacent system components, in particular in vertical reeling with frequently returning courses of motion during high dynamic load, caused by intensive relative motions between the cable and the reel body, in addition, also within the structure of the cable, the cable represents a wear part. As a consequence the warranty is limited to the maximum of 2.000 operating hours.





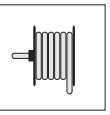
Wampfler Cable RXG-8
Technical data

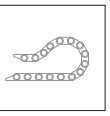
			(N)SHTÖU
Electrical parameters	rated voltage		Uo/U = 600/1.000 V
	maximum permitted AC operating voltage		Uo/U = 700/1.200 V
	maximum permitted DC operating voltage		Uo/U = 900/1.800 V
	ampacity		accord. to table data, otherwise accord. to DIN VDE 0298 part 4
	AC test voltage		2.5 kV
Thermal parameters	ambient temperature	flexing fixed	-35 °C to + 80 °C -50 °C to + 80 °C
	maximum permitted operating temperature of the conductor		90 °C
	short-circuit temperature of the conductor		200 °C
Mechanical parameters	minimum radii for continuous flexing		6 x Ø for reeling 7.5 x Ø diversion rollers assemblies 20 x Ø for s-shaped track curves
	torsional stress		± 50 °/m
	tensile load-bearing capacity		30 N/mm² conductor cross section during operation for flexing cables
Chemical parameters	LBS-free / silicone-free		yes
	combustion behaviour		of low flammability according to DIN VDE 0482 part 265-2-1, IEC 60332-1, IEC 60332-1
	resistant to ozone		yes
	resistant to humidity		yes
	UV-resistant		yes
	suitability for use in water		yes
	oil-resistant		yes
	halogen free		no
Materials	insulation		ethylene-propylene-rubber (EPR)
	inner sheath		polychloroprene (PCP)
	supportive braid		protective braid agaist torsional stress, constructed of polyester fibers and incorporated during vulcanisation
	outer sheath		wear-resistant polychloroprene (PCP), yellow
Design features	conductor		bare electrolytic copper, very flexible, more flexible then category 5 according to DIN VDE 0295
	reinforcement		central Aramid reinforcement for maximum mechanical properties
	stranding		conductors stranded in layers, very short lay
	conductor coding		according to DIN VDE 0293 part 308, 6 or more conductors black with white numbers with green/yellow
Standards			adapted to DIN VDE 0250
Design codes	(N)SHTÖU		(N) adapted to a VDE standard SHT 1 kV cable suitable for use on reels (heavy hand cable for use on reels) Ö oil-resistant outer sheath acording to DIN VDE 0472 part 803 U outer sheath of law flammability acording to DIN VDE 0472 part 804, “fire-proof”

Load-bearing capacity	low		high
Dimensions	large		small
Price level	high		low

Wampfler Cable RXP-8

Round reeling cable





Maximum torsional rigidity due to supporting braid with high tensile strength vulcanised into the sheath

Insensitive to dirt as a result of adhesion-free sheath surface

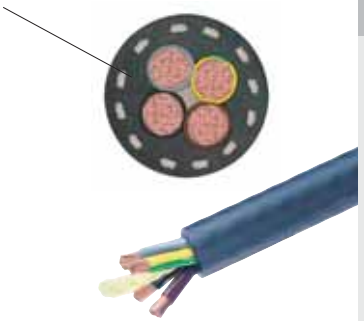
Smallest & favourable reel dimensions as a result of minimized cable diameter and weight

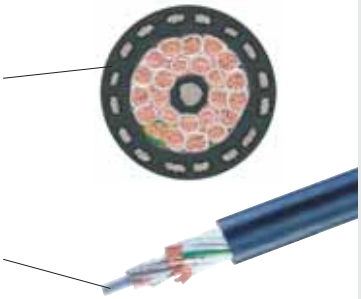
Broad application possibilities due to high quality materials used for core insulation and outer sheath

High axial rigidity thanks to optimally interlinked inner and outer sheaths

Good resilience as a result of flexible short lay cores

Maximum rigidity due to textile reinforcement member located centrally





Particularly suitable, if...

- application applies high combined tensile and bending forces
- high torsional loads need to be absorbed
- very high acceleration forces need to be absorbed by reinforcements
- cable is operating through diversion rollers
- reel sizes need to be kept to the smallest possible size due to space limitations
- the priorities are reliability and durability
- the operating temperatures can reach up to 80 °C

Characteristics

Very resilient round cable suitable for use on reels

main application:	spring or motorized cable reels
secondary application:	energy guiding chains

Typical applications

- vertically operating hoisting gear
- spreader vertical transfer
- sewage plants
- magnet grabs
- Stackers & Reclaimers
- ship unloaders
- transfer cars
- lifting equipment

Electrical parameters

rated voltage	Uo/U = 600/1.000 V

Mechanical load-bearing capacity

travel speed	up to 180 m/min
minimum bending radii	6 x Ø for reeling
	7.5 x Ø diversion rollers assemblies
	20 x Ø for s-shaped track curves

Thermal / Chemical specifications

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

unlimited resistance to atmospheric corrosion

Important features

- halogen free
- flame retardant
- CFC-free
- oil-resistant
- UV-resistant
- LBS-free / silicone-free
- resistant to humidity

Design features

conductor	flexible (cat. 5) according to DIN VDE 0295
sheath	wear-resistant PUR compounds
core insulation	halogen-free polyester

Type	12YHRDT11YH
	12YHRDTC11YH

Wampfler Cable RXP-8
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]	Ampacity I_B [A][1]	Permitted tensile load [N]
Control cables **12YHRDT11YH**	4 G 1.5	0632- 4 G 1,5#	10.0 - 11.2	58	155	14.4	150
	5 G 1.5	0632- 5 G 1,5#	10.6 - 11.8	81	178	12.2	187
	7 G 1.5	0632- 7 G 1,5#	12.1 - 13.5	115	218	10.1	262
	12 G 1.5	0632- 12 G 1,5#	15.4 - 17.0	196	363	7.6	450
	18 G 1.5	0632- 18 G 1,5#	16.3 - 18.1	271	459	6.8	675
	24 G 1.5	0632- 24 G 1,5#	18.7 - 20.9	392	590	6.0	900
	30 G 1.5	0632- 30 G 1,5#	20.6 - 23.0	450	720	5.4	1.125
	42 G 1.5[2]	0638- 42 G 1,5#	29.0 - 30.0	604	1.056	5.2	1.575
	4 G 2.5	0632- 4 G 2,5#	11.1 - 12.3	99	208	20.8	250
	5 G 2.5	0632- 5 G 2,5#	11.8 - 13.0	125	230	17.7	312
	7 G 2.5	0632- 7 G 2,5#	13.3 - 14.7	180	315	14.6	437
	12 G 2.5	0632- 12 G 2,5#	18.4 - 20.4	308	485	11.0	750
	18 G 2.5	0632- 18 G 2,5#	18.5 - 20.5	451	679	9.8	1.125
	24 G 2.5	0632- 24 G 2,5#	21.2 - 23.6	616	860	8.7	1.500
	30 G 2.5	0632- 30 G 2,5#	24.0 - 26.8	771	1.080	7.7	1.875
	36 G 2.5	0632- 36 G 2,5#	27.0 - 30.0	930	1.320	7.7	2.250
	48 G 2.5	0632- 48 G 2,5#	41.5 - 43.5	1.152	2.485	6.8	3.000

preferred series, short-term delivery

[1] The ampacity I_B is based on an ambient temperature of 30°C, a monospiral reel coil at 100% duty. Varying environmental conditions, method of operation and cabling arrangement can result in considerably different ampacities (s. technical exhibit).

[2] sheath colour yellow, UL listed



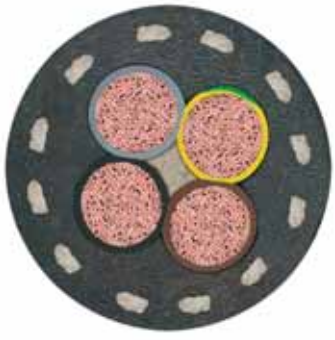
Wampfler Cable RXP-8
Order information

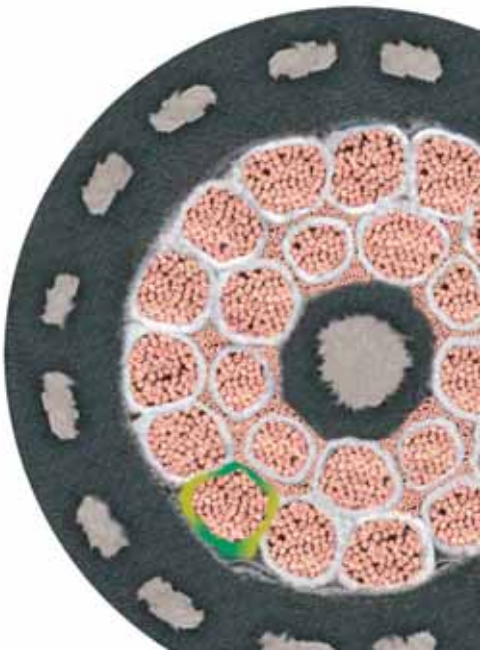
Type of cable	Number of conductors and cross section [mm²]	Order No.	Outer-Ø min./max. [mm]	Cu-Number approx. [kg/km]	Weight approx. [kg/km]	Ampacity I_B [A][1]	Permitted tensile load [N]
Power cables **12YHRDT11YH**	4 G 4	0632- 4 G 4#	12.2 - 13.6	160	281	27.2	400
	4 G 6	0632- 4 G 6#	13.3 - 14.9	241	372	35.2	600
	4 G 10	0632- 4 G 10#	17.5 - 18.9	404	615	48.8	1.000
	4 G 16	0632- 4 G 16#	19.9 - 22.1	645	924	65.6	1.600
	4 G 25	0632- 4 G 25#	22.9 - 25.5	1.005	1.270	86.4	2.500
	4 G 35	0632- 4 G 35#	27.2 - 30.0	1.417	1.778	108.0	3.500
	5 G 4	0632- 5 G 4#	13.1 - 14.5	200	318	23.1	500
	5 G 6	0632- 5 G 6#	15.8 - 17.4	317	435	29.9	750
	5 G 10	0632- 5 G 10#	18.5 - 20.5	528	704	41.5	1.250
	5 G 16	0632- 5 G 16#	21.8 - 24.2	844	1.067	55.8	2.000
	7 G 6[2]	0638- 7 G 6#	20.4 - 21.4	429	715	27.7	1.050
Combined cables, conductors unscreened and screened PUR **12YHRDTC11YH**	19G2.5 + 5x1.5C	0632- 19G2,5+5x1,5C#	21.2 - 23.8	563	850	8.3 + 5.8	1.375
	4G6 + 4x(2x1.5)C	0632- 4G6+2x(2x1,5)C#	22.7 - 24.3	435	820	35.2 + 7.5	900
	4G16 + 2x(4x1.5)C	0632- 4G16+2x(4x1,5)C#	24.0 - 25.3	840	1.200	65.6 + 7.5	1.900
	4G35 + 2x(4x1,5)C	0632- 4G35+2x(4x1,5)C#	33.5 - 36.5	1.572	2.029	108.0	3.800
	6 x (2 x 1) C	0632- 6 x (2 x 1)C#	22.0 - 23.0	265	640	6.9	300

preferred series, short-term delivery

[1] The ampacity I_B is based on an ambient temperature of 30°C, a monospiral reel coil at 100% duty. Varying environmental conditions, method of operation and cabling arrangement can result in considerably different ampacities (s. technical exhibit).

[2] sheath colour yellow, UL listed





Wampfler Cable RXP-8
Technical data

			12YHRDT11YH
Electrical parameters	rated voltage		Uo/U = 600/1.000 V
	maximum permitted AC operating voltage		Uo/U = 700/1.200 V
	maximum permitted DC operating voltage		Uo/U = 900/1.800 V
	ampacity		accord. to table data, otherwise accord. to DIN VDE 0298 part 4
	AC test voltage		2.5 kV
Thermal parameters	ambient temperature	flexing fixed	-40 °C to + 80 °C -50 °C to + 80 °C
	maximum permitted operating temperature of the conductor		80 °C
	short-circuit temperature of the conductor		200 °C
Mechanical parameters	minimum radii for continuous flexing		6 x Ø for reeling 7.5 x Ø diversion rollers assemblies 20 x Ø for s-shaped track curves
	tensile load-bearing capacity		25 N/mm² conductor cross section during operation for flexing cables
Chemical parameters	LBS-free / silicone-free		yes
	combustion behaviour		flame retardant and self-extinguishing according to DIN VDE 0482 part 265-2-1, IEC 60332-1
	resistant to ozone		yes
	resistant to humidity		yes
	UV-resistant		yes
	oil-resistant		yes
	halogen free		yes
Materials	insulation		base material polyester, halogen free
	inner sheath		wear-resistant polyurethane PUR, halogen free, black
	supportive braid		textile protective braid against torsional stress
	outer sheath		wear-resistant polyurethane PUR, halogen free, black
Design features	conductor		bare electrolytic copper, flexible cat. 5 accord. to DIN VDE 0295
	reinforcement		central textile element
	shield		tin-plated braided copper wires coverage of approx. 80 %
	stranding		core is stranded in layers
	conductor coding		according to DIN VDE 0293, part 308 up to 5 conductors coloured, 6 or more conductors black with white numbers with or without green/yellow
Standards			adapted to DIN VDE 0250
Design codes	12YHRDT11YH		12YH core insulation based on polyester, halogen free RDT round cables for use on reels 11YH material for inner and outer sheathing polyurethane, halogen free

Load-bearing capacity	low		high
Dimensions	large		small
Price level	high		low

Wampfler Cable W-9

Round high voltage reeling cable

Highl torsional rigidity with the use of a supporting mesh vulcanised between inner and outer sheaths

Easy separation of individual layers of core insulation thanks to a special EPR-based compound

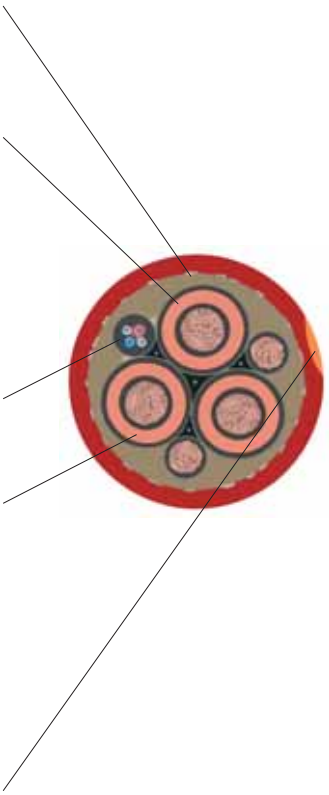
Small & favourable reel dimensions as a result of minimised cable diameter & weight

High capacity of data transfer with 12 optic fibres in the standard range

Best mechanical stability of core insulation sheathings thanks to simultaneous 3-layer extrusion

Very high tensile strength- resulting from compact and ideally inerconnected reinforcements with high-quality materials

High system availability due to longitudinal colored indicator strip



Particularly suitable, if...

- small to medium dynamic loads are expected during reel operation
- the reeling duty cycle is in the low to medium range
- a reliable and durable, yet cost effective cable is desired
- the cable is requested to operate max. through one diversion roller assembly
- up to 12 optic fibres are required
- the operating temperatures do not exceed 60 °C

Characteristics

Resilient cable suitable for use on reels
Main application: motorized cable reels

Typical applications
- container cranes main power supply with low mounting heights (< 7 m) and low to medium travel speeds
- heavy mining equipment
- Stackers & Reclaimers
- ship unloaders

Electrical parameters

rated voltage	Uo/U = 3.6 / 6 kV
	Uo/U = 6.0 / 10.0 kV
	Uo/U = 8.7 / 15.0 kV
	Uo/U = 12.0 / 20.0 kV

higher voltage grades available on request

Mechanical load-bearing capacity

travel speed	up to 120 m/min
	(> 120 m/min on request)
minimum bending radii	6 x Ø static
	12 x Ø on the reel
	15 x Ø at a track curve
	20 x Ø at an S-track curve

Thermal / Chemical specifications

ambient temperature	
- flexing	- 25 °C... + 80 °C
- fixed	- 40 °C... + 80 °C

unlimited resistance to atmospheric corrosion

Important features
- flame retardant
- CFC-free
- oil-resistant
- UV-resistant
- LBS-free / silicone-free
- resistant to humidity

Design features

conductor	highly flexible, finely stranded (more flexible then category 5 according to DIN VDE 0295)
sheath	wear-resistant PCP compound (polychloroprene)
core insulation	triple and simultaneously extruded insulation constructed of HV-EPR, semiconducting inner and outer layer
Type	R-(N)TSCGEWÖU / R-(N)TSCGEWÖU-Fo

Wampfler Cable W-9
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]	Ampacity I_B [A][1]	Permitted tensile load [N]
Round Reeling Cable **R-(N)TSCGEWÖU** **3.6 / 6 kV**	3 x 25 x 3G25/3	0684- 4 G 25#	39 - 42	960	2.410	108.8	1.875
	3 x 35 x 3G25/3	0684- 4 G 35#	42 - 45	1.248	2.995	129.6	2.625
	3 x 50 x 3G25/3	0684- 4 G 50#	45 - 48	1.680	3.645	161.6	3.750
	3 x 70 x 3G35/3	0684- 4 G 70#	50 - 54	2.352	4.760	200.0	5.250
	3 x 95 x 3G50/3	0684- 4 G 95#	54 - 58	3.216	5.580	240.8	7.125
	3 x 120 x 3G70/3	0684- 4 G 120#	58 - 62	4.128	6.690	281.6	9.000
	3 x 150 x 3G70/3	0684- 4 G 150#	63 - 67	4.992	7.990	323.2	11.250
Round Reeling Cable **R-(N)TSCGEWÖU** **6 / 10 kV**	3 x 25 x 3G25/3	0685- 4 G 25#	40 - 43	960	2.450	104.8	1.875
	3 x 35 x 3G25/3	0685- 4 G 35#	43 - 46	1.248	3.035	129.6	2.625
	3 x 50 x 3G25/3	0685- 4 G 50#	46 - 49	1.680	3.690	161.6	3.750
	3 x 70 x 3G35/3	0685- 4 G 70#	51 - 55	2.352	4.800	200.0	5.250
	3 x 95 x 3G50/3	0685- 4 G 95#	55 - 59	3.216	5.620	240.8	7.125
	3 x 120 x 3G70/3	0685- 4 G 120#	59 - 63	4.128	6.740	281.6	9.000
	3 x 150 x 3G70/3	0685- 4 G 150#	64 - 68	4.992	8.040	323.2	11.250
Round Reeling Cable **R-(N)TSCGEWÖU** **8.7 / 15 kV**	3 x 25 x 3G25/3	0686- 4 G 25#	42 - 45	960	2.700	111.2	1.875
	3 x 35 x 3G25/3	0686- 4 G 35#	45 - 48	1.248	3.100	137.6	2.625
	3 x 50 x 3G25/3	0686- 4 G 50#	50 - 54	1.680	3.960	172.8	3.750
	3 x 70 x 3G35/3	0686- 4 G 70#	55 - 59	2.352	5.050	212.0	5.250
	3 x 95 x 3G50/3	0686- 4 G 95#	60 - 64	3.216	6.050	255.2	7.125
	3 x 120 x 3G70/3	0686- 4 G 120#	64 - 68	4.128	7.265	296.8	9.000
	3 x 150 x 3G70/3	0686- 4 G 150#	68 - 72	4.992	8.500	342.4	11.250
Round Reeling Cable **R-(N)TSCGEWÖU** **12 / 20 kV**	3 x 25 x 3G25/3	0687- 4 G 25#	45 - 48	960	3.050	111.2	1.875
	3 x 35 x 3G25/3	0687- 4 G 35#	48 - 51	1.248	3.490	137.6	2.625
	3 x 50 x 3G25/3	0687- 4 G 50#	52 - 56	1.680	4.340	172.8	3.750
	3 x 70 x 3G35/3	0687- 4 G 70#	56 - 60	2.352	5.320	212.0	5.250
	3 x 95 x 3G50/3	0687- 4 G 95#	60 - 64	3.216	6.360	255.2	7.125
	3 x 120 x 3G70/3	0687- 4 G 120#	66 - 70	4.128	7.810	296.8	9.000
	3 x 150 x 3G70/3	0687- 4 G 150#	69 - 73	4.992	8.900	342.4	11.250

preferred series, short-term delivery

[1] The ampacity I_B is based on an ambient temperature of 30°C, a monospiral reel coil at 100% duty. Varying environmental conditions, method of operation and cabling arrangement can result in considerably different ampacities (s. technical exhibit).

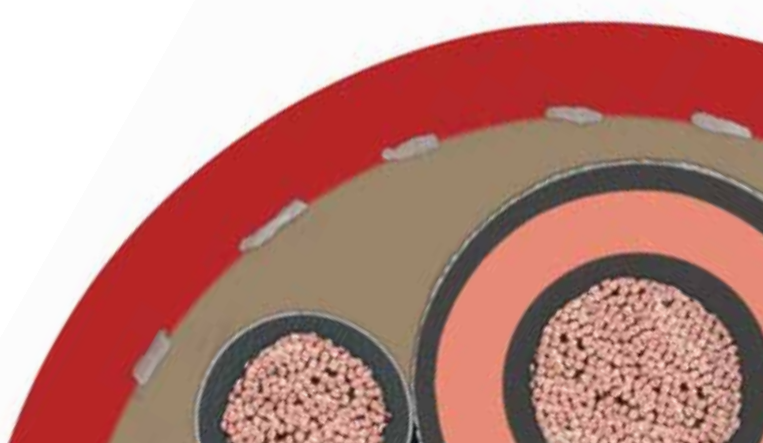


Wampfler Cable W-9
Order information

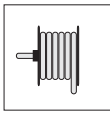
Type of cable	Number of conductors and cross section [mm²]	Order No.	Outer-Ø min. / max. [mm]	Cu-Number approx. [kg/km]	Weight approx. [kg/km]	Ampacity I_B [A][1]	Permitted tensile load [N]
Round Reeling Cable **R-(N)TSCGEWOEU-FO** **3.6 / 6 kV**	3x25+2 G 25/2+12FO	0684- 4 G 25+12FO#	39 - 42	960	2.410	104.8	1.875
	3x35+2 G 25/2+12FO	0684- 4 G 35+12FO#	42 - 45	1.248	2.995	129.6	2.625
	3x50+2 G 25/2+12FO	0684- 4 G 50+12FO#	45 - 48	1.680	3.645	161.6	3.750
	3x70+2 G 35/2+12FO	0684- 4 G 70+12FO#	50 - 54	2.352	4.760	200.0	5.250
	3x95+2 G 50/2+12FO	0684- 4 G 95+12FO#	54 - 58	3.216	5.580	240.8	7.125
	3x120+2 G 70/2+12FO	0684- 4 G 120+12FO#	58 - 62	4.128	6.690	281.6	9.000
	3x150+2 G 70/2+12FO	0684- 4 G 150+12FO#	63 - 67	4.992	7.990	323.2	11.250
Round Reeling Cable **R-(N)TSCGEWOEU-FO** **6 / 10 kV**	3x25+2 G 25/2+12FO	0685- 4 G 25+12FO#	40 - 43	960	2.450	104.8	1.875
	3x35+2 G 25/2+12FO	0685- 4 G 35+12FO#	43 - 46	1.248	3.035	129.6	2.625
	3x50+2 G 25/2+12FO	0685- 4 G 50+12FO#	46 - 49	1.680	3.690	161.6	3.750
	3x70+2 G 35/2+12FO	0685- 4 G 70+12FO#	51 - 55	2.352	4.800	200.0	5.250
	3x95+2 G 50/2+12FO	0685- 4 G 95+12FO#	55 - 59	3.216	5.620	240.8	7.125
	3x120+2 G 70/2+12FO	0685- 4 G 120+12FO#	59 - 63	4.128	6.740	281.6	9.000
	3x150+2 G 70/2+12FO	0685- 4 G 150+12FO#	64 - 68	4.992	8.040	323.2	11.250
Round Reeling Cable **R-(N)TSCGEWOEU-FO** **8.7 / 15 kV**	3x25+2 G 25/2+12FO	0686- 4 G 25+12FO#	42 - 45	960	2.700	111.2	1.875
	3x35+2 G 25/2+12FO	0686- 4 G 35+12FO#	45 - 49	1.248	3.100	137.6	2.625
	3x50+2 G 25/2+12FO	0686- 4 G 50+12FO#	50 - 54	1.680	3.960	172.8	3.750
	3x70+2 G 35/2+12FO	0686- 4 G 70+12FO#	55 - 59	2.352	5.050	212.0	5.250
	3x95+2 G 50/2+12FO	0686- 4 G 95+12FO#	60 - 64	3.216	6.050	255.2	7.125
	3x120+2 G 70/2+12FO	0686- 4 G 120+12FO#	64 - 68	4.128	7.265	296.8	9.000
	3x150+2 G 70/2+12FO	0686- 4 G 150+12FO#	68 - 72	4.992	8.500	342.4	11.250
Round Reeling Cable **R-(N)TSCGEWOEU-FO** **12 / 20 kV**	3x25+2 G 25/2+12FO	0687- 4 G 25+12FO#	45 - 48	960	3.050	111.2	1.875
	3x35+2 G 25/2+12FO	0687- 4 G 35+12FO#	48 - 51	1.248	3.490	137.6	2.625
	3x50+2 G 25/2+12FO	0687- 4 G 50+12FO#	52 - 56	1.680	4.340	172.8	3.750
	3x70+2 G 35/2+12FO	0687- 4 G 70+12FO#	56 - 60	2.352	5.320	212.0	5.250
	3x95+2 G 50/2+12FO	0687- 4 G 95+12FO#	60 - 64	3.216	6.360	255.2	7.125
	3x120+2 G 70/2+12FO	0687- 4 G 120+12FO#	66 - 70	4.128	7.810	296.8	9.000
	3x150+2 G 70/2+12FO	0687- 4 G 150+12FO#	69 - 73	4.992	8.900	342.4	11.250
	minimum order quantity 300 m; delivery times on request						

[1] The ampacity I_B is based on an ambient temperature of 30°C, monospiral reel coil at 100% duty. Varying environmental conditions, method of operation and cabling arrangement can result in considerably different ampacities (s. technical exhibit).

Fiber types E9/125, 50/125 or 62.5/125 are possible.



Wampfler Cable W-9
Technical data



			R-(N)TSCGEWOEUS			
Electrical parameters	rated voltage Uo/U		3.6/ 6.0 kV	6.0 / 10.0 kV	8.7/ 15.0 kV	12.0/ 20.0 kV
	maximum permitted AC operating voltage Uo/U		4.2/ 7.2 kV	7.0 / 12.0 kV	10.2/ 18.0 kV	14.0/ 24.0 kV
	maximum permitted DC operating voltage Uo/U		5.4/ 10.8 kV	9.0 / 18.0 kV	13.0/ 26.0 kV	18.0/ 36.0 kV
	ampacity		accord. to table data, otherwise accord. to DIN VDE 0298 part 4			
	AC test voltage		acording to DIN VDE 0250 part 813			
Thermal parameters	ambient temperature	flexing	-25 °C to + 80 °C			
		fixed	-40 °C to + 80 °C			
	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 static 12 x Ø on the reel 15 x Ø at a track curve 20 x Ø at an S-track curve			
	torsional stress		± 100 °/m			
	tensile load-bearing capacity		20 N/mm² conductor cross section during operation for flexing cables			
Chemical parameters	LBS-free / silicone-free		yes			
	combustion behaviour		flame retardant and self-extinguishing according to DIN VDE 0482 part 265-2-1, IEC 60332-1			
	resistant to ozone		yes			
	UV-resistant		yes			
	oil-resistant		yes			
	resistant to humidity		yes			
Materials	insulation		Inner conducting layer consists of a semiconducting rubber, compound (acc. to DIN VDE 0207 part 20), outer conducting layer of conducting rubber, to be able to be stripped cold (simple stripping method)			
	sheathing system		Inner sheath consisting of a special red EPR compound, 5GM3, with polyester reinforced braid for protection against torsional forces. Braid is vulcanised between the inner and outer sheaths in a sandwich structure. Outer sheath of abrasion-resistant PCP based compound offering excellent resilience, 5GM5			
Design features	conductor		bore soft electrolytic copper, particularly flexible FS conductor exceeding category 5 flexibility and resilience standards, according to DIN VDE 0295			
	stranding		conductors in layers stranded with small lay, earth conductor divided into three parts in the interstices (without optic fibres) or halved in the interstices (with optic fibers)			
	conductor coding		black insulation with white numbers			
Standards			acording to DIN VDE 0250 part 813			
Design codes	R-(N)TSCGEWOEU R-(N)TSCGEWOEU-FO		R- cable suitable for use on reels (N) adapted to a standard TS heavy duty cable CGE conducting non-metallic covering surrounding the insulations of the outer conductors W resistant to atmospheric corrosion OE oil-resistant outer sheath U outer sheath of low flammability according to DIN VDE 0472 part 804 (fire-proof) FO with fibre optic			
Fibre optic			Mono-Mode	Multi-Mode	Multi-Mode	
	Fiber type (core-Ø / fiber-Ø)		E9/125	50/125	62.5/125	
	Damping	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		-	0.20 ± 0.02	0.27 ± 0.02	
	Dispersion	at 1300 nm	3.5 ps/nm km	-	-	
		at 1550 nm	18.0 ps/nm km	-	-	
	Band width	at 850 nm	400 MHz km	400 MHz km	200 MHz km	
		at 1300 nm	60 - 1.500 MHz km	60 - 1.500 MHz km	600 MHz km	

Load-bearing capacity	low		high
Dimensions	large		small
Price level	high		low

Wampfler Cable WX-10

Round high voltage reeling cable

Maximum torsional rigidity due to supporting polyester fibers vulcanised into the sheath

High electric strength resulting from special insulation materials designed for high-voltage applications

Fast and easy termination due to an outer layer consisting of semiconducting and cold-strip NBR (easy strip)

Durable and stabilised stranded bond due to EPR core element and reinforcement in the center of the cable

Reliable data transmission via integrated fiber-optic cores with 250 micron protective coating

Unique combination of resilience and resistance by the use of a 3-layer PROTOFIRM "sandwich" design

Excellent resilience with the use of very flexible extremely short lay cores

Particularly suitable, if...

- medium to high dynamic loads are expected during reel operation
- continuous operation under high loads is to be expected
- a reliable, robust and very durable cable is required
- the cable is required to operate through several diversion rollers assemblies
- the maximum availability of the equipment is the most important criteria
- the operating temperatures can reach down to -35 °C

Characteristics

Very resilient cable suitable for use on reels
main application: motorized cable reels

Typical applications
- container cranes main power supply, high travel speeds, high mounting location
- heavy equipment in mining
- Stackers & Reclaimers
- ship unloaders

Electrical parameters

rated voltage	Uo/U = 6.0 /10.0 kV
	Uo/U = 8.7 /15.0 kV
	Uo/U =12.0 /20.0 kV

high voltage grades available on request

Mechanical load-bearing capacity

travel speed	up to 240 m/min
	(> 240 m/min on request)
minimum bending radii	6 x Ø static
	12 x Ø on the reel
	15 x Ø at diversion roller assemblies
	20 x Ø at an S-track curve

Thermal / Chemical specifications

ambient temperature	
- flexing	- 35 °C... + 60 °C
- fixed	- 50 °C... + 80 °C

unlimited resistance to atmospheric corrosion

Important features
- flame retardant
- CFC-free
- oil-resistant
- UV-resistant
- silicone-free
- suitable for use in water

Design features

conductor	highly flexible, finely stranded (exceeding cat. 5 according to DIN VDE 0295)
sheath	high wear-resistant PCP compound (polychloroprene)
core insulation	base material EPR in a sandwich process of high-voltage quality
Brand	Protolon SMK
Type	(N)TSCGEWÖU / (N)TSCGEWÖU-FO

Wampfler Cable WX-10
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]	Ampacity I_B [A][1]	Permitted tensile load [N]
Round Reeling Cable **(N)TSCGEWÖU** **6 / 10 kV**	3 x 25 + 3 G 25/3	0694- 4 G 25#	38.4 - 41.4	1.008	2.380	104.8	1.500
	3 x 35 + 3 G 25/3	0694- 4 G 35#	40.9 - 43.9	1.411	2.880	129.6	2.100
	3 x 50 + 3 G 25/3	0694- 4 G 50#	44.4 - 47.4	1.764	3.480	161.6	3.000
	3 x 70 + 3 G 35/3	0694- 4 G 70#	49.4 - 53.4	2.621	4.590	200.0	4.200
	3 x 95 + 3 G 50/3	0694- 4 G 95#	53.7 - 57.7	3.377	5.660	240.8	5.700
	3 x 120 + 3 G 70/3	0694- 4 G 120#	57.2 - 61.2	4.334	6.830	281.6	7.200
	3 x 150 + 3 G 70/3	0694- 4 G 150#	62.5 - 66.5	5.242	8.180	323.2	9.000
Round Reeling Cable **(N)TSCGEWÖU** **8.7 / 15 kV**	3 x 25 + 3 G 25/3	0695- 4 G 25#	41.8 - 44.8	1.008	2.670	111.2	1.500
	3 x 35 + 3 G 25/3	0695- 4 G 35#	44.4 - 47.4	1.411	3.130	137.6	2.100
	3 x 50 + 3 G 25/3	0695- 4 G 50#	47.9 - 50.9	1.764	3.810	172.8	3.000
	3 x 70 + 3 G 35/3	0695- 4 G 70#	52.9 - 56.9	2.621	4.960	212.0	4.220
	3 x 95 + 3 G 50/3	0695- 4 G 95#	57.2 - 61.2	3.377	6.070	255.2	5.700
	3 x 120 + 3 G 70/3	0695- 4 G 120#	62.1 - 66.1	4.334	7.480	296.8	7.200
	3 x 150 + 3 G 70/3	0695- 4 G 150#	65.9 - 69.9	5.242	8.630	342.4	9.000
Round Reeling Cable **(N)TSCGEWÖU** **12 / 20 kV**	3 x 25 + 3 G 25/3	0696- 4 G 25#	44.8 - 47.8	1.008	2.940	111.2	1.500
	3 x 35 + 3 G 25/3	0696- 4 G 35#	47.4 - 50.4	1.411	3.420	137.6	2.100
	3 x 50 + 3 G 25/3	0696- 4 G 50#	51.8 - 55.8	1.764	4.300	172.8	3.000
	3 x 70 + 3 G 35/3	0696- 4 G 70#	55.9 - 59.9	2.621	5.300	212.0	5.250
	3 x 95 + 3 G 50/3	0696- 4 G 95#	61.9 - 65.6	3.377	6.660	255.2	5.700
	3 x 120 + 3 G 70/3	0696- 4 G 120#	65.1 - 69.1	4.334	7.800	296.8	7.200
	3 x 150 + 3 G 70/3	0696- 4 G 150#	69.0 - 73.0	5.242	9.060	342.4	9.000

preferred series, short-term delivery

[1] The ampacity I_B is based on an ambient temperature of 30°C, a monospiral reel coil at 100% duty. Varying environmental conditions, method of operation and cabling arrangement can result in considerably different ampacities (s. technical exhibit).



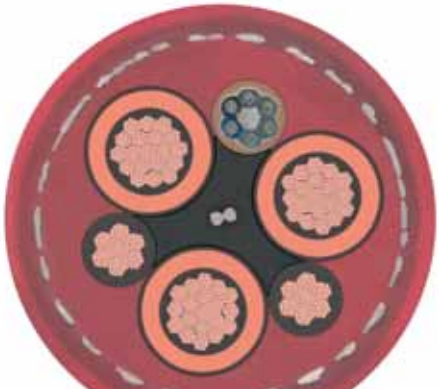
Wampfler Cable WX-10
Order information

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]	Ampacity I_B [A][1]	Permitted tensile load [N]
Round Reeling Cable **(N)TSKCGEWÖU-FO** **6 / 10 kV**	3x25+2 x 25/2+6FO	0694- 4 G 25+6FO#	40.7 - 43.7	1.008	2.610	104.8	1.500
	3x35+3 x 25/2+6FO	0694- 4 G 35+6FO#	42.7 - 45.7	1.411	3.010	129.6	2.100
	3x50+3 x 25/2+6FO	0694- 4 G 50+6FO#	46.1 - 49.1	1.764	3.680	161.6	3.000
	3x70+3 x 35/2+6FO	0694- 4 G 70+6FO#	51.1 - 55.1	2.621	4.810	200.0	4.200
	3x95+3 x 50/2+6FO	0694- 4 G 95+6FO#	56.1 - 60.1	3.377	6.000	240.8	5.700
	3x120+3 x 70/2+6FO	0694- 4 G 120+6FO#	60.9 - 64.9	4.334	7.410	281.6	7.200
	3x150+3 x 70/2+6FO	0694- 4 G 150+6FO#	64.8 - 68.8	5.242	8.750	323.2	9.000
Round Reeling Cable **(N)TSKCGEWÖU-FO** **8.7 / 15 kV**	3x25+2 x 25/2+6FO	0695- 4 G 25+6FO#	43.5 - 46.5	1.008	2.860	111.2	1.500
	3x35+3 x 25/2+6FO	0695- 4 G 35+6FO#	46.1 - 49.1	1.411	3.330	137.6	2.100
	3x50+3 x 25/2+6FO	0695- 4 G 50+6FO#	50.5 - 54.5	1.764	4.210	172.8	3.000
	3x70+3 x 35/2+6FO	0695- 4 G 70+6FO#	55.2 - 59.2	2.621	5.270	212.0	4.200
	3x95+3 x 50/2+6FO	0695- 4 G 95+6FO#	60.9 - 64.9	3.377	6.640	255.2	5.700
	3x120+3 x 70/2+6FO	0695- 4 G 120+6FO#	64.4 - 68.4	4.334	7.870	296.8	7.200
	3x150+3 x 70/2+6FO	0695- 4 G 150+6FO#	68.8 - 72.8	5.242	9.130	342.4	9.000
Round Reeling Cable **(N)TSKCGEWÖU-FO** **12 / 20 kV**	3x25+2 x 25/2+6FO	0696- 4 G 25+6FO#	46.6 - 49.6	1.008	3.150	111.2	1.500
	3x35+3 x 25/2+6FO	0696- 4 G 35+6FO#	50.1 - 54.1	1.411	3.810	137.6	2.100
	3x50+3 x 25/2+6FO	0696- 4 G 50+6FO#	54.1 - 58.1	1.764	4.610	172.8	3.000
	3x70+3 x 35/2+6FO	0696- 4 G 70+6FO#	58.2 - 62.2	2.621	5.640	212.0	4.200
	3x95+3 x 50/2+6FO	0696- 4 G 95+6FO#	64.0 - 68.0	3.377	7.050	255.2	5.700
	3x120+3 x 70/2+6FO	0696- 4 G 120+6FO#	68.0 - 72.0	4.334	8.360	296.8	7.200
	3x150+3 x 70/2+6FO	0696- 4 G 150+6FO#	73.3 - 77.3	5.242	9.840	342.4	9.000

preferred series, short-term delivery

[1] The ampacity I_B is based on an ambient temperature of 30°C, a monospiral reel coil at 100% duty. Varying environmental conditions, method of operation and cabling arrangement can result in considerably different ampacities (s. technical exhibit).

Fiber types E9/125, 50/125 or 62.5/125 are possible.



Wampfler Cable WX-10
Technical data

			(N)TSCGEWÖU / (N)TSKCGEWÖU		
Electrical parameters	rated voltage Uo/U		6.0 / 10.0 kV	8.7 / 15.0 kV	12.0 / 20.0 kV
	maximum permitted AC operating voltage Uo/U		7.0 / 12.0 kV	10.2 / 18.0 kV	14.0 / 24.0 kV
	maximum permitted DC operating voltage Uo/U		9.0 / 18.0 kV	13.0 / 26.0 kV	18.0 / 36.0 kV
	ampacity		accord. to table data, otherwise accord. to DIN VDE 0298 part 4		
	AC test voltage		acording to DIN VDE 0250 part 813		
Thermal parameters	ambient temperature	flexing	-35 °C to + 60 °C		
		fixed	-50 °C to + 80 °C		
	maximum permitted operating temperature of the conductor		90 °C		
	short-circuit temperature of the conductor		200 °C		
Mechanical parameters	minimum radii for continuous flexing		6 x Ø static 12 x Ø on the reel 15 x Ø at diversion roller assemblies 20 x Ø at an S-track curve		
	torsional stress		± 25 °/m		
	tensile load-bearing capacity		20 N/mm² conductor cross section during operation for flexing cables		
Chemical parameters	LBS-free / silicone-free		yes		
	combustion behaviour		flame retardant and self-extinguishing according to DIN VDE 0482 part 265-2-1, IEC 60332-1		
	resistant to ozone		yes		
	UV-resistant		yes		
	oil-resistant		yes		
	suitable for use in water		yes		
Materials	insulation		base material ethylene-propylene-rubber (EPR), suitable for high-voltage (3GI3 minimum)		
	field control		Inner conducting layer consists of semiconducting EPR, outer conducting layer of semiconducting NBR, to be able to be stripped cold (simple stripping method)		
	sheathing system		*Inner sheath* consisting of a red EPR compound (5GM3 submersible) with polyester reinforced braid for protection against torsional forces. Braid is vulcanised between the inner and outer sheaths in a sandwitch structure. *Middle and outer sheath* are abrasion and tear resistant PCP (5GM5) based compounds offering excellent resilience (colour: bright red)		
Design features	conductor		finely stranded tin-plated electrolytic copper offering high flexibility (exceeding DIN VDE 0295 category 5)		
	stranding		conductors in layers stranded with lay 7 x D (core diameter), earth conductor divided into three parts in the interstices (without optic fibres) or halved in the interstices (with optic fibres)		
	conductor coding		black insulation, with white numbers		
Standards	optical fiber cable		adapted to DIN VDE 0250 part 814, VDE Reg.-No. 9809 adapted to IEC 9314T.3, DIN VDE 0888		
Design codes	(N)TSCGEWÖU (N)TSKCGEWÖU-Fo		(N) adapted to a standard TS heavy duty cable K rubber cross in the core of the cable CGE conducting non-metallic covering surrounding the insulations outer conductor W resistant to atmospheric corrosion Ö oil-resistant outer sheath U outer sheath of low flammability according to DIN VDE 0472 part 804 (fire-proof) Fo with fiber optic		
Fibre optic			Mono-Mode	Multi-Mode	Multi-Mode
	Fiber type (core-Ø / fiber-Ø)		E9/125	50/125	62.5/125
	Damping	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		0.14 ± 0.02	0.20 ± 0.02	0.275 ± 0.02
	Dispersion	at 1300 nm	< 3.5 ps/nm km	-	-
		at 1550 nm	< 3.5 ps/nm km	-	-
	Band width	at 850 nm	-	> 400 MHz km	> 400 MHz km
		at 1300 nm	-	>1.200 MHz km	> 600 MHz km

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 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 1-4** (p.71 - S.73) 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 RXP-8 consisting of several conductors and suitable for use on reels, cross section 4G50 mm², at temperatures of up to 40 °C, wound in 2-layers on a cylindrical **motorized cable reel**, with an on-time of 35 % for 10 minutes.

	Affecting criteria	**feature**	**Catalogue page**	**Factor**
Step 1	ambient temperature = 40 °C	Cable RXP-8 | maximum operating temperature for this cable = 80 °C	page 71, **table 1**	**f_1 = 0.89**
	type of cabling	2-layer coils (cylindrical reel)	page 71, **table 2**	**f_2 = 0.76**
	intermittent operation	on-time = 35 %, duration = 10 minutes cross section of 50 mm²	page 72, **table 3b**	**f_3 = 1.30**
	cable configuration	one cable = single layer	page 73, **table 4**	**f_4 = 1.00**
			F_{total} = $f_1 \times f_2 \times f_3 \times f_4$	**= 0.897**
Step 2	ampacity benchmark I_B	4G50 mm²	page 60, **data sheet**	**I_B = 134.4 A**
	total ampacity	**$I_T = F_{total} \times I_B$** = 0.897 x 134.4 A = **118 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**
	T3	F-1	TXP-4	FX-2 | TXG-4
		FP-1		
		C-5		CXP-6 | CXG-6
			RXP-8	R-7 | RXG-8 | W-9 | WX-10
10 °C	**1.29**	**1.22**	**1.18**	**1.15**
15 °C	**1.22**	**1.17**	**1.14**	**1.12**
20 °C	**1.15**	**1.12**	**1.10**	**1.08**
25 °C	**1.08**	**1.06**	**1.05**	**1.04**
30 °C	**1.00**	**1.00**	**1.00**	**1.00**
35 °C	**0.91**	**0.94**	**0.95**	**0.96**
40 °C	**0.82**	**0.87**	**0.89**	**0.91**
45 °C	**0.71**	**0.79**	**0.84**	**0.87**
50 °C	**0.58**	**0.71**	**0.77**	**0.82**
55 °C	**0.41**	**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**	**coiled on a reel**				
cable	F-1 | FP-1 | FX-2 | T-3 | TXG-4 | TXP-4	C-5 | CXG-6 | CXP-6	R-7 | RXG-8 | RXP-8 | W-9 | WX-10				
			1-layer or spiral coil	**2-layers**	**3-layers**	**4-layers**	**5-layers**
Conversion factors f_2	1.00	1.00	1.00	**0.76**	0.61	0.53	0.48

Attention: The typical ampacities I_B in the tables relating to cables for reeling applications have a factor of 0.80 applied (for monospiral reeling). Coils with several layers on the reel need to be multiplied by the **conversion factor f_2**.

Technical exhibit

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

table 3a

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

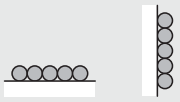
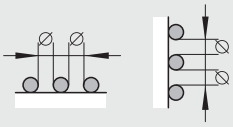
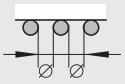
table 3b

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 4

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

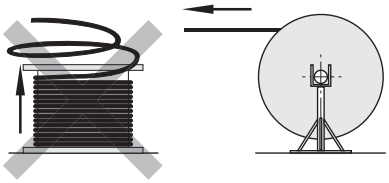
Advice for the installation of flexible energy guiding systems

General advice

The cables in flexible energy supply systems must be able to perform a good deal - permanent dynamical loads produce forces onto the cables, which our products can endure for many years provided that layout, assembly and commissioning have been made accordingly.

The correct arrangement of the cable in flexible energy supply systems is decisive for the lifetime of the system. The optimum reliability and lifetime can be achieved by observing the following rules.

Cables are supplied on rings or transport reels. It is not allowed to lift those cables in spiral loops from the rings or reels above face level, but have to be rolled off. Rolling off the cables will allow a cable layout free of twists in the respective systems. It is recommended, but not compulsory to lay or hang out the cables.



The marking of the cable along the outer sheath does not serve as an orientation guide for a straight layout, since due to the production process the marking can be in an elongated spiral around the outer sheath.

Keeping the minimum bending radii is urgently required for the fixed layout as well as for the flexible operation. Larger radii than the minimum bending radii will have a positive influence on the lifetime of the cables.

1. Festoon systems

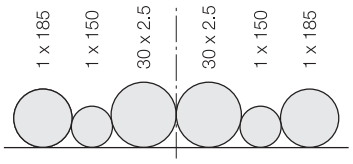
General advice

1.1. 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.

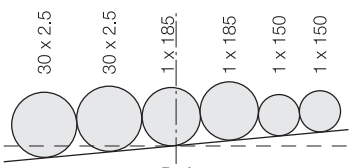
1.2. The cables must be placed on the cable supports free of twists - identifiable from a uniform cable loop between two cable supports.

1.3. 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.

1.4. 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.



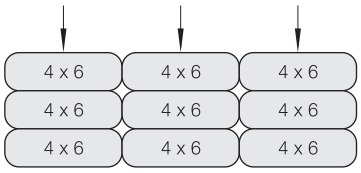
Very good



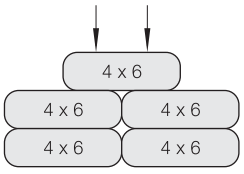
Bad

Flat cables

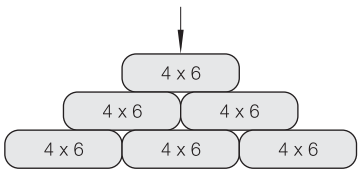
1.5. The flat cable package must be arranged on the supports, so that all the cables can be clamped tight on the cable supports and cannot slip out. The cable packages must be stacked in width rather than in height, in order to assure a firm clamping even under dynamic conditions.



Very good - 100% clamping

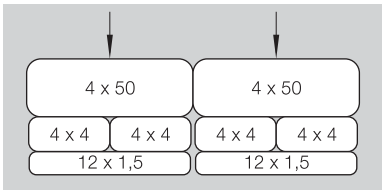


Good - 50% clamping



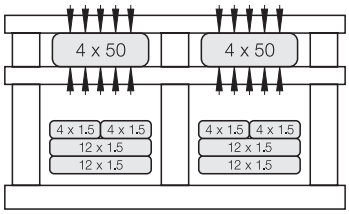
Bad

1.6. 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.



1.7. 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).

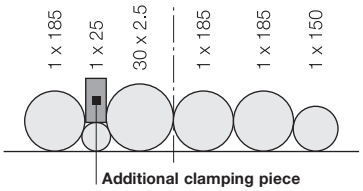
1.8. A cable clamp holds the cables together in a cable loop and is fixed in the upper window by the clamping of the strongest cable (e.g. 4G50). All the other cables must be able to move freely -geometrically guided - in the lower window.



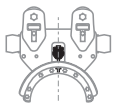
1.9. Screened cables should not be clamped in the cable clamp of the cable loop.

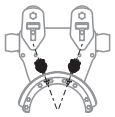
Round cables

1.10. 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.



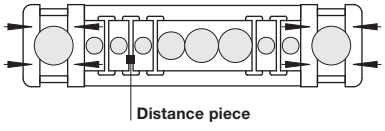
1.11. Depending on the cable layout and the dynamical parameters of the system the cable will be installed on the cable support with a single or double clamping, in order to guarantee a safe installation of the cables during the system's service life.


Single clamping


Double clamping

1.12. 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.

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



2. Energy guiding chain systems

General advice

2.1. 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.

2.2. 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.

2.3. 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.

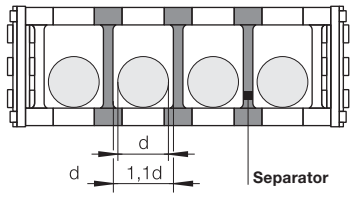
Technical exhibit

2. Energy guiding chain systems

Arrangement in the chain cross section

2.4. 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.

2.5. 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.

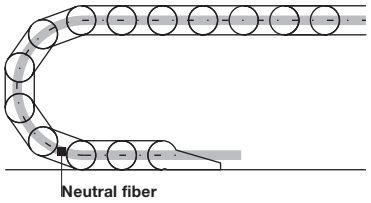


2.6. Depending on the chain type, the travel distance and the cable load, the cables in the chain cross section require different room in height. The best performance is achieved if the cable has an optimum mobility in the vertical direction. The free room above the cables should be min. 20 % of the 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.

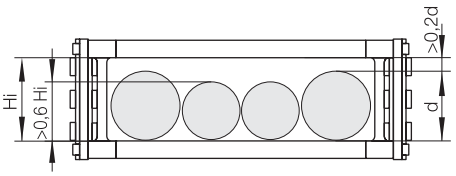
2.7. The distribution of the cable weights in the chain cross section must be in balance of moments, with the heavy loads being placed outside. If required, it can be useful the separate the energy cables from the control, data an bus cables.

Correct length of cable in the chain

2.8. 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.



2.9. 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.



2.10. 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.

2.11. 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

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

2.13. 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.

2.14. 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 Wampfler project engineers.

2.15. 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.

2.16. 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.

3. Cable Reel systems

General advice

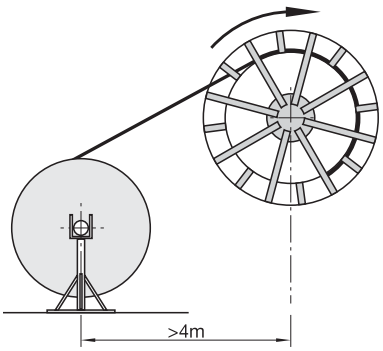
3.1. It is only allowed to use cables that are permitted for the operation on cable reels and are constructed in accordance with DIN VDE 0250 (see table pages 4-5). These cables fulfill the requirements on cable reel system with all adjoining system components both in view of their construction and the selection of the sheath material.

3.2. The capacities of the reel bodies must be designed for taking up the required cable length. The specified winding length plus 2 windings for tension relief can therefore be taken up.

3.3. The cables are supplied on reels (if necessary in rings), that have to be rolled into the direction marked on the reel. Ideally the reel will be transported to the place of application with an appropriate transport device.

Winding upon the operation reel

3.5. The cable is pulled off from the cable reel from the top and wound onto the operation reel in the same direction of winding. The cable must not be rewound S-shaped (wrong direction of winding) or in another plane (axles not parallel).



3.6. The connection is made free of twists at the slip ring body of the reel; for this purpose the cable must be partly dismantled if required - depending on the diameter of the lead-through at the reel body / hollow drive shaft and the cable (connection of the cable according to the operating instructions for motor cable reels).

3.7. For the installation and fixation of the cable by means of cable glands and cable collars it is essential to keep the required minimum bending radii (6 x ∅).

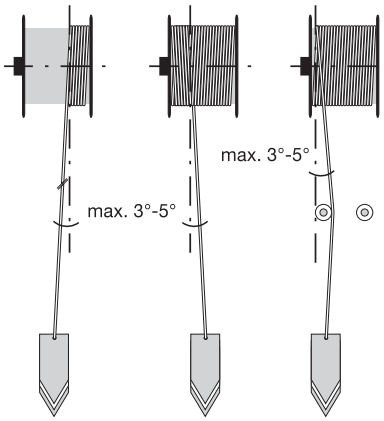
3.8. The first two windings on the reel (smallest bending radius) serve for the tension relief of the cable and are not wound during operation. However for the layout this area must be calculated with a minimum bending radius, which corresponds to the case of operation in motion (depending on the cable type 12 … 24 x ∅).

3.9. When winding up the cable onto the operation reel it must be assured, that the cable is wound up free of twists; the marking on the cable can at best serve as an orientation, since, caused by the production, this can be somehow spirally around the cable axle.

3.10. The spiral reel wheel must be adjusted exactly to the defined interior width, in order to allow a proper winding of the cable. Reel wheels that are adjusted too wide can cause an improper winding behavior, the cable can possibly move out between the reel spokes and clamping and damage of the cable may occur.

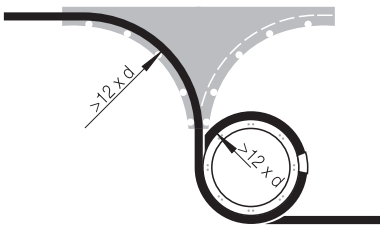
Feed point / fixed point

3.11. On the random winding reel it must be guaranteed that the cable, regardless of the operating condition, will never have a larger deviating angle than 3 … 5 ° (depending on the cable-∅) between the direction of the pull-off and the vertical line to the reel axle. A proper winding of the cable can thus be assured. The maximum deviating angle is also valid if guide rollers are applied.



3.12. In case of center feeding it is required to use cable funnels at the fixed point for a gentle deviation. The cable funnel must have a minimum bending radius of 12 x cable-∅.

3.13. After the pick-up, for tension relief the cable must be wound twice around a tension relief reel (minimum bending radius: 12 x cable-∅) and the cable must be clamped to the reel over a large area at the end of the winding.



Customized Service

Expertise
The breadth and depth of 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 to the specific system for energy and data transfer: correct cable lengths, physical dimensions, bending radii and tensile loads

Pre-assembly
- assembly of cables packages onto cable-trolley systems; shippment on C-rails or I-beams for easier and faster final assembly
- assembly of cables onto spring and motorized cable reels; shippment of complete assembly with cables connected to the slip rings
- complete assembly of energy guiding chain with cables; strain-reliefs optionally pre-assembled, shipments on special plug&play transport and assembly racks or wooden transport drums

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

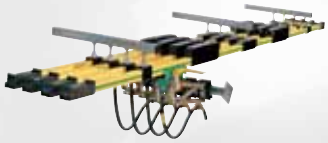
Your Applications - our Solutions

Wampfler Cables are but one component of the wide range of the Wampfler energy, data and media supply systems. The right solution for your application always ensues from the wholly specific application at hand. And many times, it is precisely the combination of several Wampfler systems that will render very convincing benefits. You can find consulting and engineering competence in our companies and subsidiaries worldwide - just like our solutions!

Festoon systems
It's hard to imagine Wampfler cable trolleys not being used in virtually every industrial application: They're reliable and robust in an enormous variety of dimensions and designs.

Cable reels
Motorized reels and spring cable reels by Wampfler hold their own wherever energy, data and media have to cover the most diverse distances within a short amount of time - in all directions, fast and safe.

Slip ring bodies
Whenever things are really moving "in circles", the proven slip ring bodies by Wampfler ensure the flawless transfer of energy and data. Here, everything revolves around flexibility and reliability!



Conductor rails
Whether they're enclosed conductor rails or expandable single-pole systems, the proven conductor rails by Wampfler reliably move people and material.

Energy guiding chains
The "Jack of all trades" when it comes to transferring energy, data and media. With their wide range, these energy guiding chains hold their own in industrial applications.

Inductive Power Transfer IPT®
The no-contact system for transferring energy and data. For all tasks that depend on high speeds and absolute resistance to wear.

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