Energy Supply Systems

SPRING CABLE REELS

6100

wampfler

solutions for a moving world

Wampfler Cable Reels: A Wide Range of Reels with Versatile Accessories for Many Varied Applications
- The reel bodies have diameters ranging from 180 to 500 mm for cables from 1 to 35 mm²
- Travel speeds up to 63 m/min and accelerations to 0.3 m/sec² for horizontal and vertical lift applications
- Dust and moisture protection to IP55 and IP65 as standard
- Special slip rings for communication and data transmission
- For your convenience, spring cable reels can be supplied with cable pre-wired to slip ring
- Many versatile accessories

Encapsulated Safety Springs
- Special long life springs are encapsulated into an easy to handle patented safety cassette.
- Replacement of springs is safe and easy
- Springs will not be damaged by turning the reel in the wrong direction

Slip Ring Assembly:
- Standard slip ring assembly housings are made of impact-resistant plastic to prevent condensation
- Cable connection through a side-mounted cable gland
- Easy connection of the conductors and simple replacement of the current collectors

Spool
- Optimum reeling performance for the cable
- Lifetime lubricated bearings
- Compact, flange-mounted reels with variable adaption possibilities for easy installation
- High degree of corrosion protection - all metal sheet and plate parts are galvanized or plastic coated
- Change of reeling direction possible

**Wampfler
Cable Reels**

Advanced Design

Simple Installation
Simple To Set-up
Patented Spring Safety Cassette
Safe Spring Replacement
Long Spring Life
Maintenance Friendly
High Grade Corrosion Protection
Economical

Table of Contents

All technical data contained herein may be subject to change without notice.

Spring Cable Reels General Information

Spring cable reels are used for the automatic reeling of cables on various types of moving equipment. These include most hoisting and other material handling devices; e.g. portal cranes, grabs, magnets, lift and working platforms, machinery, excavators, mobile cranes, transfer cars, transport systems and skimmers in purifying plants.

Mostly these machines are track-based and operate in a straight line. The orientation of these applications for the transfer of electric power and control signals by reeling can be horizontal or vertical. In addition to the cables listed in this catalogue, others can be offered for special demands and requirements including fibre optics.

Cable Access Hole

Customer Supplied Mounting Surface
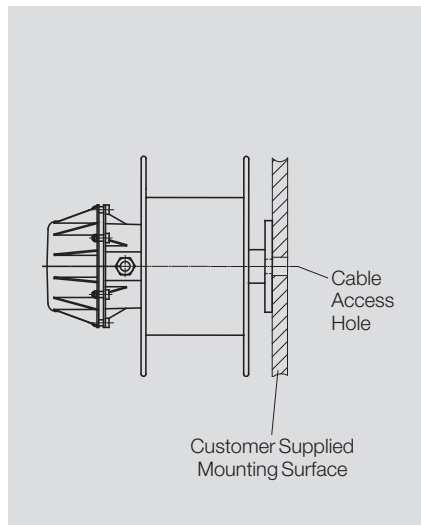
In addition to the reels presented in this catalogue, we can supply:
• Hose reels for liquids and gases
• Reels for machines of non-linear movement (reels with rotation of 360° or more)
• Monospiral reels
• Reels for corrosive ambient conditions
• Other special applications

The BEF 6100 type spring cable reels are in accordance with all relevant quality and safety standards.

Technical Characteristics

A BEF type spring cable reel consists of the following components:
• Cable drum
• Spring motor
• Slip ring assembly
• Mounting flange
• Various optional accessories

Cable Drum:
The cable drum is based on a heavy gauge sheet metal design. The drum body is epoxy coated for corrosion protection and the flanges are galvanised. The flanges are bolted to the drum body and the inside is exclusively used for the springs. It is mounted on both sides with lifetime lubricated ball bearings.

Spring Motor:
The spring motor consists of individually encapsulated springs made of special spring steel using the latest in steel making and spring technology. This guarantees long service-life (approx. 50,000 stress cycles or 100,000 movements). The fully encapsulated springs provide a safe handling and replacement.

Slip Ring Assembly:
The slip ring is needed to transfer electric power and control signals from the fixed supply to the rotating reel. The reference voltage and the operating voltage are 415 VAC to 660 VAC, respectively; and the current carrying capacity ranges from 50 mA to 150 A nominal at +30°C. Multi-layer coated slip rings in combination with silver collector shoes for data transmission are available upon request. Slip ring assemblies are designed for insulation group C and are all rated at 100% duty cycle.
The slip ring housing made of impact-resistant plastic has a dust and moisture protection grade of IP65. Slip ring types 16 and 19, in galvanized sheet metal housing, have a dust and moisture protection grade of IP55.

Mounting Flange:
Cable reels are supplied with easy installation mounting flange. Special requirements or modified adaptations such as backstops, fixed or swivel guide arms with cable roller guides are available.

Accessories:
Mounting stand, swivel mounts, space heater, ratchets, limit switches, etc. are available

Regulations

Spring cable reels conform to the low-voltage directives 73/23/EWG and also with the CE-marking standard, both valid since 01.01.1997. The CE-mark is supplied in the documentation accompanying the cable drum.
By stating an EU manufacturer-declaration in accordance to the machinery directive EGH0b00-0001 and EGH0b00-0002 our products do not become liable to the machinery directive automatically.

Spring cable reels are considered exclusively to be built into other machinery. It is forbidden to take the product in operation as long as the conformity of the final product with the machinery directive 089/392/EWG is not ascertained.

All cable reels are delivered in standard unwinding-direction (left), as shown on the slip ring assembly housing unwinding counter-clockwise. All reels listed are calculated in accordance to the permissible cable tension and minimum bending radius stated by the cable manufacturers. Some cable manufacturers offer cables for higher tensions and smaller radii. This may make more economic reel solutions possible. On request we will calculate cable reels using this opportunity. The reeling will be random winding. For tension relief purposes when the reel is completely unwound there must be two additional cable windings remaining on the reel.

Spring Cable Reels General Information

Portal crane with two spring cable reels for main and control current supply to the main grab.

Main spring cable power feed for a skimmer in a water treatment facility.

Spring cable reel on a mobile crane for the control of load-level end positioning of the telescopic boom.

Two spring cable reels in operation on a mobile traffic sign bridge.
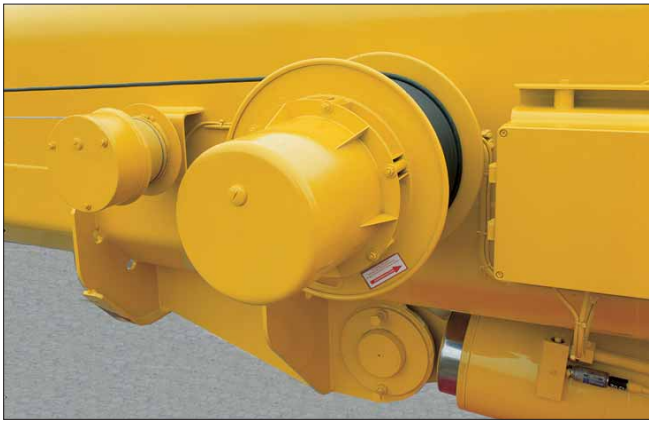
Spring cable reel for the signal transmission and length measurement.

Spring Cable Reels General Information

Cable reel applications for the different arrangements of cable reels and cables are shown in this section. Cable reels as well as the most common cables for applications 1, resp 9 and 8 are included in the selection tables. Other applications on request.

Application 1

Horizontal retrieval to one or both sides

Cable laying on ground.
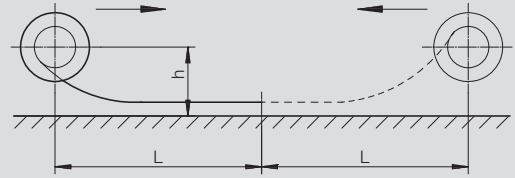
Application 3

Horizontal retrieval on support rollers
or curved supports

Support spacing of rollers, l_1 = approx. 1 m.
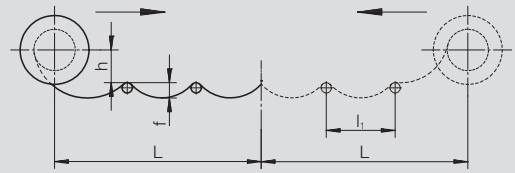
Application 6

Free retrieval to one or both sides
Cable unsupported

Only suitable for relatively short span distances.
The sag f must be checked by calculation.
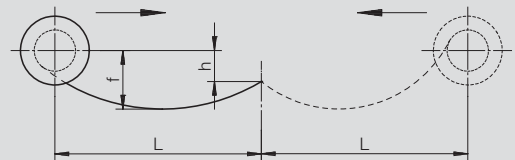
Application 7

Free retrieval to one or both sides
Cable unsupported

Only suitable for relatively short span distances.
The sag f must be checked by calculation.
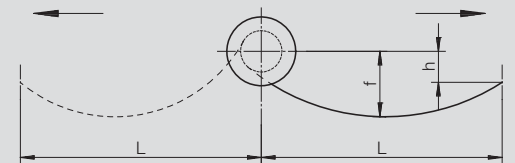
Application 8

Vertical lift
h   = suspended cable length
L_w = winding length

If an additional weight is suspended at the end this must be added
to the cable weight. The total weight has to be adjusted to the
balancers Fa and Fe on page 31.
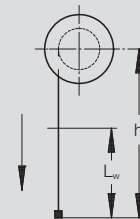
Application 9

Vertical retrieval to the top
Cable reel moves up and down, power feed is fixed.
h   = suspended cable length
L_w = winding length

This arrangement allows longer winding lengths, since the cable weights do
not have any effect on the dimensioning of the spring tension. The lengths
L_w given in the table can be increased by reducing the pre-tension windings
nv and the required spare windings.
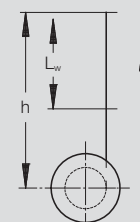
Cable Selection

General

Cables most commonly associated with reeling applications are normally available from stock and can be supplied immediately. Most spring cable reels can be provided with reeled up and connected cable.

Different Types of Cable

Neoprene, flexible, non-reeling cable without tension relief
A typical cable of this type is the H07RN-F, which is offered by some reel manufacturers. Wampfler offers this cable with some restrictions.

Neoprene, flexible restricted reeling cable with tension relief
Cables of this type are the FLGöu-J (MTGöu-J). These can be used for simple applications without frequent and strong loads. The advantages of this cable are the small diameter and the low weight. This will allow for a small and cost-effective reel. The cable itself is also cost-effective.

Neoprene, flexible reeling cable with tension relief
These are cables with the designation NSHTöu, which are characterised as being good quality at a medium price. Cordaflex (SMK) cables are also available, which are also suitable for special loads. The advantages are the small diameter and the low weight of these cables.

Polyurethane cables
These include PUR and PUR(NSHTöu) cables with Polyurethane outer material. This material allows a low wall thickness and consequently a smaller diameter and weight of the cables. The PUR (NSHTöu) cable has better properties than the standard NSHTöu, but is more expensive.

Reeling Cable PUR(NSHTöu) for Reels

The reeling cable PUR (NSHTöu) combines the approved characteristics of the NSHTöu with the benefits of the sheathing material Polyurethane. The PUR material and the improved construction are responsible for better tension relief values and mechanical properties.

This cable is therefore recommended for high and extraordinary mechanical load. The thermal load capacity will also allow applications at a temperature range of –40° to +80°C.

Moreover this cable has optimum values with regard to weight and dimensions. This means, the reels and their drives can have smaller dimensions, which will also reduce costs.

Another advantage of the PUR(NSHTöu) cable is halogen-free composition, which helps to meet the ever increasing requirements.

Performance and price of different cables

Cable Type	Spring Reel Load		Motor Reel Load			Price
	Low	High	Low	High	Extreme	
MTGöu / NGFLöu	++	o	-	-	-	Low
PUR[1]	++	o	+	o	-	Low
PUR(NSHTöu)	+	++	+	++	++	High
NSHTöu	+	++	++	+	o	Medium
Cordaflex(SMK) (N)SHTöu-J	+	++	+	+	++	High

++ main application   + suitable   o with restrictions   - not suitable

1) reeling only possible with restrictions according to VDE

Load Low	Load High	Load Extreme
• Pull-off horizontally • Speed up to 60 m/min • Without deflection	• Pull-off horizontally and vertically • Speed up to 100 m/min • With deflection	• Pull-off horizontally and vertically • Speed up to 180 m/min • With several deflections

Cable Selection

Which cables are to be used?

Based on the VDE standards and the latest technology the following cables are applicable in accordance with the mode of operation and the consumer.
- as reeling cable: Cordaflex(SMK) (N)SHTöu-J; NSHTöu-J; PUR(NSHTöu)
- of limited reeling cable: Neoprene cable with support element FLGÖu-J (MTGöu-J); PUR

For the proper selection of cables the operating conditions must be stated. For the selection of the correct cable cross-section it is required to consider the current load and the voltage drop over the total cable length.

Current Carrying Capacity

The current load of a drive often determines the cross-section for the main power supply. A corresponding calculation for control cables is unnecessary in most cases.

Table 1 – Guide Values of Current Load on AC Motors at Full Power for the Most Common Voltages											
Motor Capacity	Effi-ciency	Power Factor	Nominal Voltage								
			230 V		400 V		500 V		690 V		
[kW]	[η]	[cos φ]	I [A]	A [mm²]	I [A]	A [mm²]	I [A]	A [mm²]	I [A]	A [mm²]
0.37	0.66	0.7	2		1.1		0.9		0.7	
0.55	0.69	0.7	2.7		1.5		1.2		0.9	
0.75	0.74	0.7	3.2		1.9		1.5		1.1	
1.1	0.74	0.81	4.6	1.5[1)]	2.6		2.1		1.5	
1.5	0.74	0.81	6.3		3.6	1.5[1)]	2.9	1.5[1)]	2.1	1.5[1)]
2.2	0.78	0.81	8.7		5		4		2.9	
3.0	0.80	0.81	11.5		6.5		5.3		3.8	
4.0	0.83	0.82	14.8	1.5	8.5		6.8		4.9	
5.5	0.86	0.82	19.6	2.5	11.3		9		6.5	
7.5	0.87	0.82	26.4	4	15.2	2.5	12.1	1.5	8.8	
11	0.87	0.82	38	10	21.7	4	17.4	2.5	12.6	1.5
15	0.88	0.84	51	16	29.3	6	23.4	4	17	2.5
18.5	0.88	0.84	63	16	36	10	28.9	6	20.9	4
22	0.92	0.84	71	25	41	10	33	6	23.8	4
30	0.92	0.84	96	35	55	16	44	10	32	6

1) Prefered cross-section (lower cross-sections are also possible in theory)

These values are guide values for a duty ratio of 100% at an ambient temperature of 30ºC. They consider 3 loaded cores on a monospiral winding. Other operating conditions have to be calculated by means of the following tables.

Calculation of the Current Loads of AC and DC Motors

Alternating Current

$$I = \frac{P \times 1000}{\sqrt{3} \times U \times \cos\varphi}$$

Direct Current

$$I = \frac{P \times 1000}{U \times \eta}$$

I = Current in A • U = Voltage in V • P = motor power in kW

$$\cos\varphi = \text{power factor} = \frac{\text{true power}}{\text{apparent power}}$$

$$\eta = \text{efficiency} = \frac{\text{power out}}{\text{power in}}$$

When calculating the necessary cross-section, the operating conditions must be considered in any case. They are considered with the help of the de-rating factors stated in VDE0298 part4. The necessary cross-section must be determined in accordance to table 2, in consideration of the maximum permanent load after revision of the maximum permissible current. For the operation of the reel the self-heating of the reel cable is the most important factor. It must always be within the operating limits of the cable used. The table contains values for the current carrying capacity Iz of insulated cables with copper cross-sections and of cables that are not laid underground for flexible energy supply systems at ambient temperatures of +30°C.

Table 2 - Current Carrying Capacity of Flexible Cables with Nominal Currents up to 1000 V															
Max. Permanent Load	[A]	15	18	26	34	44	61	82	108	135	168	207	250	292	60°C allowed Ambient Conductor Temperature
Cross-Section	[mm²]	1	1.5	2.5	4	6	10	16	25	35	50	70	95	120	

In accordance with VDE 0298 Part 4 (table 9, column 5)

Cable Selection

The following tables contain de-rating factors for current carrying capacity of cables:
- De-rating factor for intermittent operation (Table 3)
- De-rating factors for variation from ambient temperature (Table 4)
- De-rating factors for multi-conductor cable with conductor cross sections up to 10 mm² (Table 5)
- De-rating for multi-layers of cable (Table 6)

Table 3 - De-Rating Factors for Interrupted Operation

Cross-section [mm²]	Duty Cycle [%]			
	60	40	25	15
1.0	1.00	1.00	1.00	1.00
1.5	1.00	1.00	1.00	1.00
2.5	1.00	1.00	1.04	1.07
4.0	1.00	1.03	1.05	1.19
6.0	1.00	1.04	1.13	1.27
10.0	1.03	1.09	1.21	1.44
16	1.07	1.16	1.34	1.62
25	1.10	1.23	1.46	1.79
35	1.13	1.28	1.53	1.90

The values are for continuous operation (100% duty cycle). The above stated de-rating factors can be used for the calculation of the current carrying capacity.
- Ambient temperature +30°C
- Maximum cycle duration 10 min

Table 4 - De-Rating Factors for Variation from Ambient Temperatures

Permissible Operation Temperature In °C	60°C	70°C	80°C	90°C
Ambient Temperature In °C	De-Rating Factor			
10	1,29	1,22	1,18	1,15
15	1,22	1,17	1,14	1,12
20	1,15	1,12	1,10	1,08
25	1,08	1,06	1,05	1,04
30	1,00	1,00	1,00	1,00
35	0,91	0,94	0,95	0,96
40	0,82	0,87	0,89	0,91
45	0,71	0,79	0,84	0,87
50	0,58	0,71	0,77	0,82
55	0,41	0,61	0,71	0,76
60	-	0,50	0,63	0,71
70	-	-	0,45	0,58
80	-	-	-	0,41

In accordance with VDE 0298 Part 4 (table 15)

Table 5 - De-Rating Factors for Multi-Conductor Cable with Conductor Cross Sections up to 10 mm²

Number Of Conductors	De-Rating Factor
5	0.75
7	0.65
10	0.55
14	0.50
19	0.45
24	0.40
40	0.30

In accordance with VDE 0298 Part 4 (table 20)

Table 6 - De-Rating Factor for Multi-Layers of Cable

No. Of Layers Lz	De-Rating Factor
1	0.80
2	0.61
3	0.49
4	0.40

In accordance with VDE 0298 Part 4 (table 21)

Example

Power is supplied to the motor through a cable reel, both of which are mounted onto a moving transfer car. A 35 m length of cable is required to supply 2.2 kW of power to the motor. The following data is known:
- P = 2.2 kW
- U = 380 VAC
- Power factor, cosφ = 0.89
- Efficiency, η = 0.8
- Ambient temperature = +50°C
- Resultant operating temperature of cable = +60°C
- 7-Core cable (5 cores in operation)
- 60% Duty cycle

Correction
An increased cable cross-section is necessary because of the operating conditions and the size of the reel.
De-Rating Factors:
- De-rating factor for 60% duty cycle operation, from Table 3 $f_{ED} = 1.0$
- De-rating factor for variation from ambient temperature, from Table 4 (operating temperature +60°C) $f_T = 0.58$
- De-rating factor for multi-conductor cable, Table 5 (number of cores in operation) $f_{Ad} = 0.75$
- De-rating factor for multi-layers of cable, Table 6 (3 layers) $f_{Lz} = 0.49$

Resulting Current Load:

$$I = \frac{P \times 1000}{\sqrt{3} \times U \times \cos\varphi}$$

$$I = \frac{2.2 \times 1000}{\sqrt{3} \times 380 \times 0.89 \times 0.8}$$

I = 4.7 A

Calculation of the Necessary Cable Cross-Section:

$$I_K = \frac{I}{f_{ED} \times f_T \times f_{Ad} \times f_{Lz}}$$

$$I_k = \frac{4,7}{1.0 \times 0.58 \times 0.75 \times 0.49}$$

I_K = 22 A

Resulting Cable Cross-Section (From Table 2):
2.5 mm² (max 26 A)

Cables

Cross-Section	Mat.-No.	Delivery Time	dl [mm]	ql [kg/m]	Cu-Weight [kg/km]
4x1.5	2158791	2	13	0.24	60
5x1.5	1158792	2	13.8	0.28	75
7x1.5	2158793	2	16.2	0.38	106
12x1.5	1158794	2	22.4	0.71	182
18x1.5	2158795	2	22.3	0.76	272
24x1.5	1158797	2	25.3	0.99	363
30x1.5	2158797	OR	28.1	1.22	454
36x1.5	3007794	OR	28	1.26	543
4x2.5	2158805	2	14	0.3	101
5x2.5	2158806	2	15	0.35	126
7x2.5	1158807	2	17.6	0.51	176
12x2.5	1158808	2	24.4	0.92	302
18x2.5	1158809	2	24.3	1.05	454
24x2.5	1158810	2	27.7	1.32	605
19x2.5+5x1 (C)	2158823	2	27.7	1.29	585
3X35+3X16/3	2158834	2	30	2.16	1217
4x4	2158825	2	17	0.45	161
4x6	2158826	2	18.4	0.57	242
4x10	2158827	2	22.6	0.9	424
4x16	2158828	2	25.2	1.24	645
4x25	2158829	2	30	1.85	1068
5x4	3007796	2	18.4	0.43	201
5x6	2158831	2	20	0.69	302
5x10	2158832	2	24.4	1.08	503
5x16	2158833	2	27.6	1.5	805

Delivery Time: S = Ex-Stock; 2 = 2 Weeks; OR = On Request

- Design: to DIN/VDE0250, Part 814
- Nominal voltage: U_0/U = 600/1000V
- Test voltage: 2500 V
- Permissible operating temperature on the conductor: +90°C
- Ambient temperature range: -35°C to +50°C
- Continuous tension force: 15 N/mm² to DIN/VDE 0298, Part 3 (20 N/mm² per supplier)
- Minimum bending radius: to DIN/VDE 0298, Part 3

Specially designed reeling cable for hoists and other mechanically demanding material handling applications for outdoor use in dry, humid and wet environments.

Sample applications are electro-hydraulic grabs, hoist magnets, cranes, etc.

Cross-Section	Mat.-No.	Delivery Time	dl [mm]	ql [kg/m]	Cu-Weight [kg/km]
4x1.5	1037434	S	13.5	0.24	58
5x1.5	1037436	S	14.6	0.28	72
7x1.5	1037437	S	18	0.45	101
12x1.5	1037438	S	21	0.65	173
18x1.5	1037439	S	24.3	0.87	259
24x1.5	1037440	S	28	1.12	346
30x1.5	1037441	S	30	1.32	432
4x2.5	1037443	S	16.2	0.35	96
5x2.5	1037444	S	17.4	0.41	120
7x2.5	1037445	S	20.2	0.6	168
8x2.5	1146968	2	23	0.7	192
12x2.5	1037446	S	23.8	0.86	288
18x2.5	1037447	S	28.7	1.24	432
4x4	1037451	S	19.1	0.49	154
5x4	1037452	S	21.5	0.64	192
4x6	1037454	S	20.7	0.61	230
5x6	1040625	2	21.8	0.75	317
4x10	1037455	S	25	0.94	384
5x10	1043882	2	30.5	1.23	528
4x16	1037456	S	29	1.32	614
5x16	1037458	2	34.5	1.63	844

Delivery Time: S = Ex-Stock; 2 = 2 Weeks; OR = On Request

- Design: to DIN/VDE0250, Part 814
- Nominal voltage: 1000 V
- Test voltage: 2500 V
- Permissible operating temperature on the conductor: +90°C
- Ambient temperature range: -35°C to +50°C
- Continuous tension force: 15 N/mm² to DIN/VDE 0298, Part 3 (25 N/mm² per supplier)
- Minimum bending radius: to DIN/VDE 0298, Part 3

Specially designed reeling cable for hoists and other mechanically demanding material handling applications for outdoor use in dry, humid and wet environments.

Sample applications are electro-hydraulic grabs, hoist magnets, cranes, etc.

Cables

Cross-Section	Mat.-No.	Delivery Time	dl [mm]	ql [kg/m]	Cu-Weight [kg/km]
4x1.5	1157365	2	10.5	0.15	58
5x1.5	1157366	2	11.2	0.18	81
7x1.5	1157367	S	12.6	0.23	115
12x1.5	1157368	S	16.1	0.36	196
18x1.5	1157369	S	17	0.47	271
24x1.5	1157370	2	21.5	0.59	392
30x1.5	1157371	2	23	0.71	450
4x2.5	1157375	S	11.5	0.21	99
5x2.5	1157376	S	12.2	0.24	125
7x2.5	1157377	S	13.3	0.31	180
12x2.5	1157378	S	19.9	0.48	308
18x2.5	1157379	S	19.5	0.68	451
24x2.5	1157380	S	24.3	0.82	616
30x2.5	1157381	2	27.3	0.97	771
19x2.5+5x1 (C)	1160149	2	24.3	0.82	635
4x4	1157382	2	12.7	0.28	160
4x6	1157384	2	14	0.37	241
4x10	1157386	S	17.9	0.61	404
4x16	1157388	2	22.3	0.92	645
4x25	1157390	2	25.8	1.27	1005
4x35	2157391	2	28.3	1.72	1417
5x4	1157383	2	13.8	0.32	200
5x6	1157385	S	15.3	0.43	317
5x16	3005099	2	24.3	1.07	844

Delivery Time: S = Ex-Stock; 2 = 2 Weeks; OR = On Request

- Conductor design:
  finely stranded flexible copper according DIN VDE 0295 Class 5
- Sheath:
  Polyurethan, matt black, flame-retardant
- Nominal voltage: $U_0/U = 600/1000$ V
- Permissible operating temperature on the conductor: +80° C
- Continuous tension force:
  up to 25 mm² - 25 N/mm²,
  35 mm² and larger - 20 N/mm²
- Minimum bending radius:
  to DIN/VDE 0298, Part 3

Specially designed reeling cable for hoists and other mechanically demanding material handling applications for outdoor use in dry, humid and wet environments.

Sample applications are electro-hydraulic grabs, hoist magnets, cranes, etc.

Cross-Section	Mat.-No.	Delivery Time	dl [mm]	ql [kg/m]	Cu-Weight [kg/km]
3x1.0	1037404	2	9.5	0.12	31
7x1.0	1037408	S	14	0.24	67
9x1.0	1037409	OR	14	0.27	91
12x1.0	1037410	2	15.9	0.4	115
16x1.0	1037411	2	16.4	0.44	154
18x1.0	1037412	2	17.3	0.49	173
24x1.0	1037413	2	20.6	0.66	230
36x1.0	1037414	2	24.3	0.96	346
3x1.5	1037415	2	10	0.14	46
4x1.5	1037416	2	11	0.22	58
5x1.5	1037417	S	12	0.23	72
7x1.5	1037418	S	13	0.28	101
8x1.5	1037419	2	14	0.32	115
9x1.5	1037420	2	15	0.35	130
12x1.5	1037421	S	19	0.52	173
18x1.5	1037422	S	21	0.64	259
24x1.5	1037423	S	23	0.84	346
4x2.5	1037424	S	13	0.32	96
7x2.5	1037426	2	15	0.39	168
12x2.5	1037427	2	22	0.72	288
18x2.5	1037429	OR	25	0.9	432
24x2.5	1037433	2	27	1.22	576

Delivery Time: S = Ex-Stock; 2 = 2 Weeks; OR = On Request

- Conductor design: finely stranded flexible copper in neoprene (Chloroprene-Rubber)
- Integral support design: Hemp or sisal cord Sheath: neoprene (Chloroprene-Rubber); abrasion and oil resistant, flame retardant, flexible at low temperatures, black colour
- Nominal voltage: 500 V
- Test voltage: 3000 V
- Permissible operating temperature on the conductor: +60°C
- Ambient temperature range:
  -25°C to +60°C
- Continuous tension force: 15 N/mm²
  to DIN/VDE 0298, Part 3
- Minimum bending radius:
  to DIN/VDE 0298, Part 3

Limited reel cable. For light to medium applications with a limited number of movements. For outdoor use in dry, humid and wet environments.

Cables / Mechanical Criteria

Cross-Section	Mat.-No.	Delivery Time	dl [mm]	ql [kg/m]	Cu-Weight [kg/km]
4x2.5	1150410	S	9	0.18	92
12x2.5	1150408	2	18	0.58	276
18x2.5	1150409	S	18	0.64	432
36x2.5	1150529	2	25	1.3	828
26x2.5+4x2.5(C)	171837	S	24.5	1.22	675
4x4	1150411	2	11.5	0.23	148
4x6	1150412	S	13	0.32	221
4x10	1150413	S	15.5	0.5	368
4x16	1150414	S	19	0.8	588
3x25+3G6	1150796	2	21.5	1.04	837
3x35+3G6	1150540	2	25	1.41	1132
3x25+3G6	150796	2	26	1.26	837
3x35+3G6	150540	2	29	1.68	1132
3x50+3G10	151848	2	33	2.35	1658
3x70+3G16	-	2	39	3.4	2373

Delivery Time: S = Ex-Stock; 2 = 2 Weeks; OR = On Request

- Conductor design: flexible copper-litz to IEC228 cl.5; Insulation made of Polyethylene
- Sheath: high quality polyurethane (PUR) per HD22-10 S1 or VDE 02 82 Kl. 10; abrasion and oil resistant, yellow colour
- Nominal voltage: $U_0/U = 600/1000$ V
- Permissible operating temperature on the conductor: +85°C
- Ambient temperature range: -30°C to +60°C
- Continuous tension force: 20 N/mm²
- Minimum bending radius: to DIN/VDE 0298, Part 3

Specially designed reeling cable for hoists and other mechanically demanding material handling applications for outdoor use in dry, humid and wet environments.

Sample applications are electro-hydraulic grabs, hoist magnets, cranes, etc.

Lw: Maximum operational winding length of cable [m]]
na: Maximum number working turns of the spring motor
nv: Required number of pre-turns for pre-loading of the spring motor
Fa : Remaining spring motor force if cable is fully wound-up (during winding)
nr : Number of remaining reserve turns when max. winding length of cable is achieved
Fe : Retarding spring motor force if cable is fully unwound (during unwinding)
Za : Required force if cable is fully wound-up (during unwinding)
Z : Required spring motor force if cable is fully unwound (during unwinding).
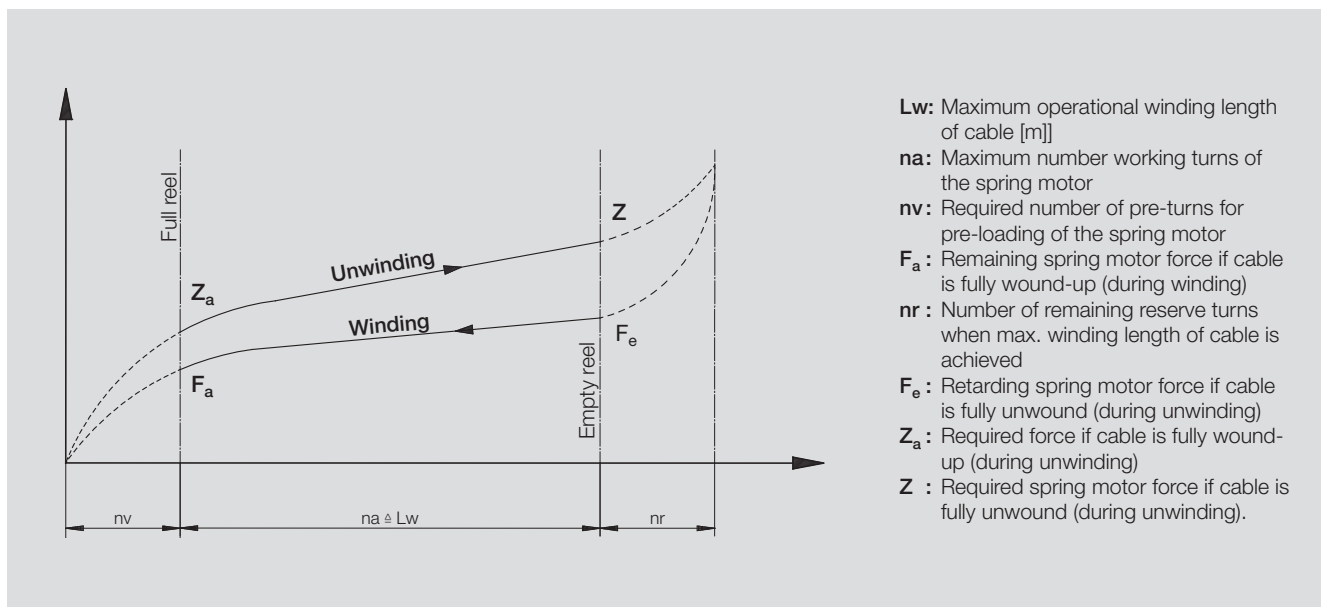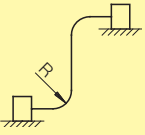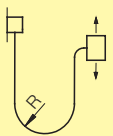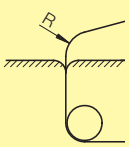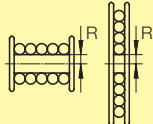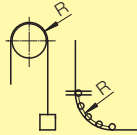
The diagram above illustrates the characteristics of the spring used. The torque during unwinding of the cable (spring is tensioned) is higher than during winding. The maximum cable tension is reached when the cable is fully unwound. This factor is significant when considering the cable to be used.

The diagram shows schematically what happens to the spring motors during the reeling operation. When the cable is being unwound, the spring resistance acts as shown in the top curve. The spring tension starts at Z_a and reaches its maximum at Z. This is the maximum force that acts on the cable when the reel is fully unwound and the springs are fully wound.

When the cable is being wound onto the reel, the resulting forces behave as depicted on the bottom curve. It should be considered to determine whether the spring force is sufficient for the operation given the selected cable.

Mechanical Criteria

Max. OD of Round Cable or Thickness or Flat Cable [mm]		Nominal Voltage (U_0/U)				
		≤ 0.6 / 1 kV				> 0.6 / 1 kV
		≤ 8	> 8 ≤ 12	> 12 ≤ 20	> 20	
	Hard Wiring	3 x d	3 x d	4 x d	4 x d	6 x d
	Free Movement Looping	3 x d	4 x d	5 x d	5 x d	10 x d
	At Centre Feed	3 x d	3 x d	5 x d	5 x d	10 x d
	Cable Reels	5 x d	5 x d	5 x d	5 x d	12 x d
	Roller Guides and Sheaves	7,5 x d	7,5 x d	7,5 x d	7,5 x d	15 x d

(in accordance to DIN/VDE 0298 part 3)

Recommendations for proper roller guide or sheave roller location.
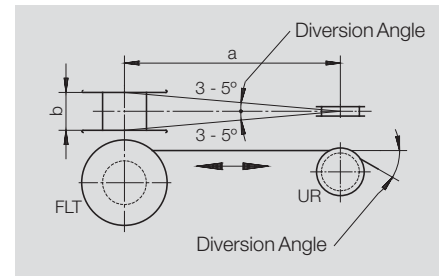
b	a [mm]	
[mm]	3° Diversion Angle	5° Diversion Angle
45	450	250
75	750	450
100	1000	600
130	1250	750
150	1450	850
220	2100	1250
250	2400	1450
320	3050	1850
380	3650	2200

Applications for roller guides with a deviation angle > 5°:
- Cables up to 20 mm
  Reel diameter = 10 x cable OD
- Cables > 20 mm
  Reel diameter = 12 x cable OD
- Cable independent
  Roller or sheave diameter = 15 x cable OD
  (to DIN/VDE 0298 part 3)

When roller guides or sheave rollers are used, the reel spring force must be checked.
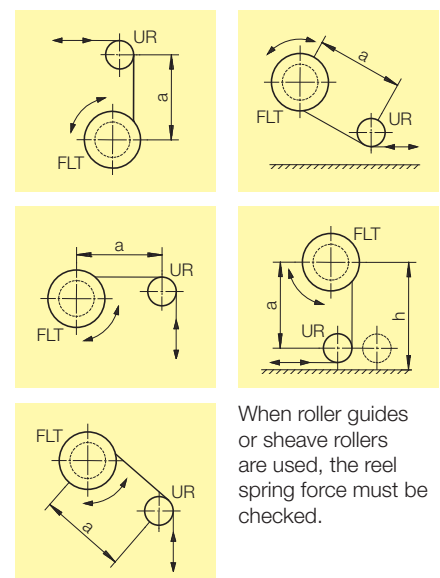
In accordance to VDE 0298 (Part 3) a continuous tension of 15 N/mm² on the cable is permissible for moving equipment based upon the total copper cross-section of the cable.
Depending on the type of cable this value could be higher. Supplier should be consulted.
Cable screens, concentric conductors, divided conductors, additional control cores and/or supervising cores must be taken into consideration.

Selection Tables for Reels

The cable reel selection tables contain the most common applications 1 and 9 (horizontal and vertical retrieve) and 8 (vertical lift). The maximum acceleration when the cable is unwinding is 0.3 m/sec² and the maximum speed is 63 m/min. We must be consulted about all other applications. The tables contain the most common cables, provide information on the reels to be used, the spring mechanism and slip-ring assemblies based upon the required winding length.

Selection Procedure:
1. Determine the number of cores, cross section and type of cable
2. Establish application type and the winding length while observing installation hints.
3. Go to appropriate application table
   - Look for required cable type. If you use a different cable, check diameter and weight if there are serious discrepancies.
   - Now (determine winding length and) look for the next longer winding length in the table (and determine the required total length of cable to also take into account the pre-turns of the reel).
   - Read off the spring cable reel, slip ring assembly and spring motor from the table.
   - Spring motor pre-turns, spring motor working turns and the maximum cable tension Fz are noted
4. Re-check the voltage and current rating of the slip ring page 31.
5. Determine the part number designation as follows

Cable Reel Typ BEF

Standard Model   Options
BEF264622 - 0405 - 2EL(T)H / R / 1 L / H / E

- with limit switch
- with space heater
- with air vent
- right-hand (clockwise) cable unwinding rotation only, left-hand unwinding (counterclockwise) is standard
- spring motor type
- slip ring assembly type
- reel type
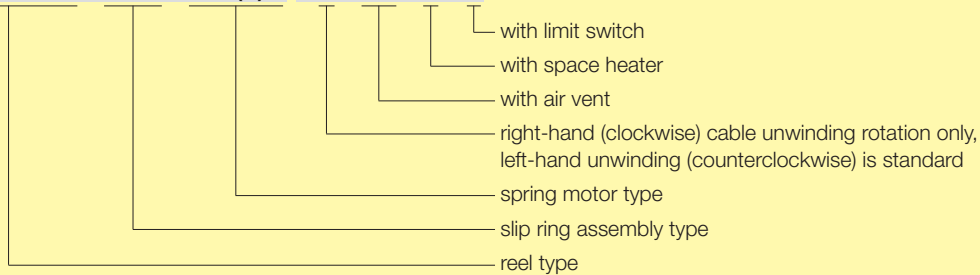
Application 1 and 9: Horizontal and Vertical Retrieval

Application 1:
Horizontal Retrieval (Reel is mounted to moving equipment)
Installation height, h ≤ 1.0 m
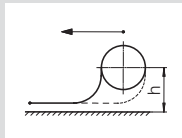
Application 9:
Vertical Retrieval (Cable is unwound vertically upward, reel is on buttom)

Maximum Unwinding Speed, v_{max} = 63 m/min; Maximum Acceleration, b_{max} = 0.3 m/sec²

Z x A [mm²]	Cables Type	ø [mm]	m [kg/m]	Cable Length Lw [m]	Lz	Spring Cable Reel Spool - SRK - Springs	Spring Motor nv	na	Fz [N]
7x1.0	FLGöu-J (MTGöu-J)	14	0.24	8	2.6	BEF152809-4507-1QB	3	15	49
				17	3.0	BEF152815-4507-2QBH	6	30	49
				30	2.7	BEF224320-4507-3EH(T)H	9	39	91
				42	3.0	BEF264622-0407-3EL(T)H	9	51	73
				57	3.9	BEF264622-0407-4EL(T)H	12	68	72
				68	3.7	BEF325524-0407-3DI(T)H	12	60	100
12x1.0	FLGöu-J (MTGöu-J)	15.9	0.4	9	1.6	BEF183616-4512-2EI(T)H	4	16	95
				18	2.0	BEF224320-4512-2EH(T)H	6	26	87
				29	3.0	BEF224320-4512-3EH(T)H	9	39	87
				39	3.2	BEF264622-0412-3DH(T)H	12	41	126
				51	3.9	BEF264622-0412-4DH(T)H	16	54	123
				66	4.0	BEF325524-0412-3DI(T)H	12	60	97
18x1.0	FLGöu-J (MTGöu-J)	17.3	0.49	8	1.5	BEF183616-4518-2EI(T)H	4	16	89
				19	2.3	BEF224320-4518-2EH(T)H	6	26	88
				28	3.1	BEF224320-4518-3IC(T)H	9	33	107
				41	2.8	BEF325524-0418-2DI(T)H	8	40	95
				58	3.8	BEF325524-0418-3DI(T)H	17	55	95
				68	2.8	BEF406532-0418-3CC(T)H	9	54	150

Z = no. of conductors   nv = required turns for spring preload   Lw = winding length   Fz = max. cable tension   A = Cross-section   na = max. working turns   Lz = cable layers

Selection Tables for Reels

Z x A [mm²]	Cables Type	ø [mm]	m [kg/m]	Cable Length Lw [m]	Lz	Spring Cable Reel Spool - SRK - Springs	Spring Motor nv	na	Fz [N]
24x1.0	FLGöu-J (MTGöu-J)	20.6	0.66	11	1.4	BEF264622-1824-1DH(T)	4	14	119
				23	2.5	BEF264622-1824-2DH(T)H	8	27	117
				37	3.0	BEF325524-1824-2DI(T)H	15	33	98
				51	3.1	BEF406525-1824-2CC(T)H	6	36	157
				67	3.2	BEF406532-1824-3CC(T)H	10	53	147
36x1.0	FLGöu-J (MTGöu-J)	24.3	0.96	9	1.1	BEF325524-1836-1DI(T)	12	12	91
				21	2.2	BEF325524-1836-2DI(T)	4	20	187
				33	2.5	BEF406525-1836-2CC(T)H	11	31	137
				48	2.7	BEF406532-1836-3CC(T)H	21	42	142
				63	2.8	BEF508032-1836-2BD(T)H	16	42	188
3x1.5	FLGöu-J (MTGöu-J)	10	0.14	8	1.9	BEF152109-4503-1QB	3	15	52
				16	3.3	BEF152809-4503-2QBH	6	30	50
				21	3.0	BEF152813-4503-3QBH	9	45	48
				32	1.7	BEF264622-0403-3EL(T)H	9	51	67
4x1.5	FLGöu-J (MTGöu-J)	11	0.22	11	2.7	BEF152809-4504-2QBH	6	30	43
				16	2.7	BEF152813-4504-2QBH	6	30	50
				22	1.7	BEF224320-4504-3EH(T)H	9	39	84
				30	1.8	BEF264622-0404-2EL(T)H	6	34	81
				46	2.6	BEF264622-0404-3EL(T)H	9	51	80
4x1.5	NSHTöu-J	13.5	0.24	9	2.8	BEF152809-4504-1QB	3	15	51
				18	2.9	BEF152815-4504-2QBH	6	30	51
				20	1.9	BEF224320-4504-2EH(T)H	6	26	93
				31	2.2	BEF264622-0404-2EL(T)H	6	34	80
				44	3.0	BEF264622-0404-3EL(T)H	9	51	76
				70	3.6	BEF325524-0404-3DI(T)H	12	60	102
4x1.5	(SMK) (N)SHTöu-J	13	0.24	10	2.7	BEF152809-4504-2QBH	6	30	41
				16	2.9	BEF152813-4504-2QBH	6	30	49
				21	1.9	BEF224320-4504-3IC(T)H	9	33	100
				31	2.7	BEF224320-4504-3EH(T)H	9	39	94
				44	3.0	BEF264622-0404-3EL(T)H	9	51	76
				70	3.4	BEF325524-0404-4DI(T)H	16	80	91
4x1.5	PUR(NSHTöu)	10.5	0.15	8	2.1	BEF152809-4504-1QB	3	15	52
				15	3.4	BEF152809-4504-2QBH	6	30	48
				21	3.2	BEF152813-4504-3QBH	9	45	47
				30	2.1	BEF224320-4504-3EH(T)H	9	39	95
				44	2.5	BEF264622-0404-3EL(T)H	9	51	79
				54	3.0	BEF264622-0404-4EL(T)H	12	68	74
				66	2.8	BEF325524-0404-3DI(T)H	12	60	102
5x1.5	FLGöu-J (MTGöu-J)	12	0.23	6	1.9	BEF152809-4505-1QB	3	15	45
				12	2.3	BEF152813-4505-2QBH	6	30	45
				18	2.8	BEF152815-4505-3QBH	9	45	44
				30	1.9	BEF264622-0405-2EL(T)H	6	34	80
				44	2.2	BEF325524-0405-2DI(T)H	8	40	102
				68	3.2	BEF325524-0405-3DI(T)H	12	60	102
5x1.5	NSHTöu-J	14.6	0.28	5	1.8	BEF152809-4505-1QB	3	15	41
				10	2.0	BEF152815-4505-2QBH	6	30	41
				20	2.1	BEF224320-4505-2EH(T)H	6	26	92
				32	2.4	BEF264622-0405-2EL(T)H	6	34	80
				45	2.6	BEF325524-0405-2DI(T)H	8	40	101
				70	3.8	BEF325524-0405-3DI(T)H	12	60	101
5x1.5	(SMK) (N)SHTöu-J	13.8	0.28	9	2.8	BEF152809-4505-1QB	3	15	51
				17	3.0	BEF152815-4505-2QBH	6	30	49
				32	2.9	BEF224320-4505-3EH(T)H	9	39	94
				45	3.2	BEF264622-0405-3EL(T)H	9	51	76
				68	3.5	BEF325524-0405-3DI(T)H	12	60	100

Z = no. of conductors   nv = required turns for spring preload   Lw = winding length   Fz = max. cable tension   A = Cross-section   na = max. working turns   Lz = cable layers

Selection Tables for Reels

Z x A [mm²]	Cables Type	ø [mm]	m [kg/m]	Cable Length Lw [m]	Lz	Spring Cable Reel Spool - SRK - Springs	nv	na	Fz [N]
5x1.5	PUR(NSHTöu)	11.2	0.18	6	1.7	BEF152809-4505-1QB	3	15	46
				12	2.8	BEF152809-4505-2QBH	6	30	45
				25	2.0	BEF224320-4505-3IC(T)H	9	33	111
				45	2.7	BEF264622-0405-3EL(T)H	9	51	79
				67	3.1	BEF325524-0405-3DI(T)H	12	60	102
7x1.5	FLGöu-J (MTGöu-J)	13	0.28	5	1.6	BEF152809-4507-1QB	3	15	42
				11	2.9	BEF152809-4507-2QBH	6	30	42
				16	2.9	BEF152813-4507-2QBH	6	30	49
				20	1.8	BEF224320-4507-2EH(T)H	6	26	94
				31	2.7	BEF224320-4507-3EH(T)H	9	39	94
				38	2.6	BEF264622-0407-3EL(T)H	9	51	71
				54	2.8	BEF325524-0407-3DI(T)H	12	60	93
				70	3.4	BEF325524-0407-4DI(T)H	16	80	91
7x1.5	NSHTöu-J	18	0.45	11	2.2	BEF183616-4507-2EI(T)H	4	16	100
				18	2.1	BEF224320-4507-2IC(T)H	6	22	108
				32	2.6	BEF264622-0407-3EL(T)H	23	37	71
				48	3.2	BEF325524-0407-2DI(T)H	8	40	101
				56	3.6	BEF325524-0407-3DI(T)H	12	60	90
				62	2.2	BEF508032-0407-2CC(T)H	6	36	126
				71	3.0	BEF508032-0407-2BD(T)H	8	50	152
7x1.5	(SMK) (N)SHTöu-J	16.2	0.38	11	2.0	BEF183616-4507-2EI(T)H	4	16	103
				20	2.2	BEF224320-4507-2EH(T)H	6	26	91
				31	3.1	BEF224320-4507-3EH(T)H	9	39	90
				45	3.6	BEF264622-0407-4EL(T)H	30	50	76
				56	3.5	BEF325524-0407-3DI(T)H	12	60	91
				68	2.7	BEF406532-0407-3CC(T)H	9	54	152
7x1.5	PUR(NSHTöu)	12.6	0.23	5	1.6	BEF152809-4507-1QB	3	15	42
				12	2.3	BEF152813-4507-2QBH	6	30	44
				21	2.0	BEF224320-4507-3IC(T)H	9	33	101
				32	2.2	BEF264622-0407-3EL(T)H	9	51	65
				56	3.5	BEF264622-0407-4EL(T)H	12	68	73
				70	3.5	BEF325524-0407-4DI(T)H	16	80	92
12x1.5	FLGöu-J (MTGöu-J)	19	0.52	8	1.2	BEF224320-4512-1IC(T)	3	11	104
				18	2.3	BEF224320-4512-2IC(T)H	6	22	106
				26	2.6	BEF264622-0412-2DH(T)H	8	27	125
				31	3.0	BEF264622-0412-3EL(T)H	29	31	80
				51	3.6	BEF325524-0412-3DI(T)H	21	51	94
				65	3.0	BEF406532-0412-3CC(T)H	9	54	145
12x1.5	NSHTöu-J	21	0.65	12	1.5	BEF264622-0412-1DH(T)	4	14	122
				26	2.7	BEF264622-0412-2DH(T)H	8	27	122
				35	2.8	BEF325524-0412-2DI(T)H	14	34	94
				43	2.9	BEF406525-0412-2CC(T)H	6	36	143
				56	2.7	BEF406532-0412-3CC(T)H	9	54	133
				70	2.7	BEF508032-0412-2BD(T)H	8	50	180
12x1.5	(SMK)-(N)SHTöu-J	22.4	0.71	12	1.3	BEF325524-0412-1DI(T)	4	20	79
				26	2.4	BEF325524-0412-2DI(T)H	17	31	89
				35	2.4	BEF406525-0412-2CC(T)H	6	36	129
				46	2.4	BEF406532-0412-2CC(T)H	6	36	148
				58	3.0	BEF406532-0412-3CC(T)H	9	54	134
				70	2.9	BEF508032-0412-2BD(T)H	8	50	179
12x1.5	PUR(NSHTöu)	16.1	0.36	8	1.6	BEF183616-4512-2EI(T)H	4	16	90
				20	2.2	BEF224320-4512-2EH(T)H	6	26	91
				31	3.1	BEF224320-4512-3EH(T)H	9	39	90
				48	3.8	BEF264622-0412-4EL(T)H	27	53	76
				65	3.9	BEF325524-0412-3DI(T)H	12	60	96
				70	2.7	BEF406532-0412-3CC(T)H	9	54	154

Z = no. of conductors   nv = required turns for spring preload   Lw = winding length   Fz = max. cable tension   A = Cross-section   na = max. working turns   Lz = cable layers

Selection Tables for Reels

Z x A [mm²]	Cables Type	ø [mm]	m [kg/m]	Cable Length Lw [m]	Lz	Spring Cable Reel Spool - SRK - Springs	nv	na	Fz [N]
18x1.5	FLGöu-J (MTGöu-J)	21	0.64	12	1.5	BEF264622-0418-1DH(T)	4	13.5	122
				26	2.7	BEF264622-0418-2DH(T)H	8	27	122
				36	2.9	BEF325524-0418-2DI(T)H	14	34	95
				44	2.9	BEF406525-0418-2CC(T)H	6	36	144
				63	3.0	BEF406532-0418-3CC(T)H	9	54	141
18x1.5	NSHTöu-J	24.3	0.87	16	1.8	BEF325524-0418-1DI(T)	10	14	99
				28	2.7	BEF325524-0418-2MB(T)H	11	29	121
				41	2.9	BEF406525-0418-2CC(T)H	9	33	144
				68	3.0	BEF508032-0418-2BD(T)H	13	45	187
18x1.5	(SMK) (N)SHTöu-J	22.3	0.76	16	1.6	BEF325524-0418-1DI(T)	6	18	91
				28	2.5	BEF325524-0418-2DI(T)H	21	27	95
				41	2.7	BEF406525-0418-2CC(T)H	6	36	139
				58	3.0	BEF406532-0418-3CC(T)H	12	51	139
				67	2.8	BEF508032-0418-2BD(T)H	9	49	177
18x1.5	PUR(NSHTöu)	17	0.47	12	2.1	BEF183616-4518-2FD(T)H	9	19	63
				26	2.9	BEF224320-4518-3IC(T)H	9	33	104
				36	3.2	BEF264622-0418-3DH(T)H	12	40.5	121
				45	3.1	BEF325524-0418-2DI(T)H	8	40	99
				56	3.7	BEF325524-0418-3DI(T)H	13	59	91
				70	2.4	BEF508032-0418-2BD(T)H	8	50	185
24x1.5	FLGöu-J (MTGöu-J)	23	0.84	17	1.7	BEF325524-1824-1DI(T)	9	15	99
				26	2.4	BEF325524-1824-2MB(T)H	9	31	115
				36	2.7	BEF406525-1824-2CC(T)H	7	35	132
				54	3.0	BEF406532-1824-3CC(T)H	15	48	139
				67	3.0	BEF508032-1824-2BD(T)H	12	46	184
24x1.5	NSHTöu-J	28	1.12	19	1.9	BEF406525-1824-1CC(T)	6	15	147
				32	1.8	BEF406525-1824-2CC(T)	17	25	186
				41	2.2	BEF406532-1824-2BE(T)H	6	29	192
				58	3.0	BEF508032-1824-2BD(T)H	22	36	193
24x1.5	(SMK) (N)SHTöu-J	25.3	0.99	18	1.7	BEF406525-1824-1CC(T)	4	17	137
				32	2.6	BEF406525-1824-2CC(T)H	12	30	137
				46	2.7	BEF406532-1824-3CC(T)H	22	41	141
				62	3.0	BEF508032-1824-2BD(T)H	17	41	188
24x1.5	PUR(NSHTöu)	21.5	0.59	15	1.8	BEF264622-1824-2EL(T)	3	17	149
				26	2.7	BEF264622-1824-2DH(T)H	8	27	122
				36	2.5	BEF406525-1824-2CC(T)H	6	36	131
				47	2.5	BEF406532-1824-2CC(T)H	6	36	151
				57	2.4	BEF508032-1824-2CC(T)H	8	34	122
				66	2.8	BEF508032-1824-2BD(T)H	8	50	174
30x1.5	NSHTöu-J	30	1.32	17	1.7	BEF406525-1830-1CC(T)	8	13	150
				25	2.4	BEF406525-1830-2CC(T)	3	18	299
				32	2.4	BEF406532-1830-2BE(T)	7	28	199
				40	2.4	BEF508032-1830-2BE(T)H	13	22	204
				50	2.9	BEF508032-1830-2BD(T)H	28	30	197
30x1.5	(SMK) (N)SHTöu-J	28.1	1.22	17	1.7	BEF406525-1830-1CC(T)	7	14	146
				25	1.8	BEF406532-1830-2CC(T)	3	18	308
				43	2.8	BEF406532-1830-2BE(T)H	6	29	257
				52	2.7	BEF508032-1830-2BD(T)H	24	34	191
30x1.5	PUR(NSHTöu)	23	0.71	12	1.3	BEF325524-1830-1DI(T)	4	20	79
				24	2.2	BEF325524-1830-2DI(T)H	17	31	88
				38	2.8	BEF406525-1830-2CC(T)H	6	36	133
				54	3.0	BEF406532-1830-3CC(T)H	9	54	129
				70	3.1	BEF508032-1830-2BD(T)H	10	48	182

Z = no. of conductors   nv = required turns for spring preload   Lw = winding length   Fz = max. cable tension   A = Cross-section   na = max. working turns   Lz = cable layers

Selection Tables for Reels

Z x A [mm²]	Cables Type	ø [mm]	m [kg/m]	Cable Length Lw [m]	Lz	Spring Cable Reel Spool - SRK - Springs	nv	na	Fz [N]
36x1.5	(SMK) (N)SHTöu-J	28	1.26	15	1.6	BEF406525-1836-1CC(T)	7	14	140
				26	2.5	BEF406525-1836-2CC(T)	3	18	308
				35	2.4	BEF406532-1836-2BE(T)H	6	29	231
				44	2.9	BEF406532-1836-3BE(T)H	11	41	215
				58	3.0	BEF508032-1836-2BD(T)H	27	31	206
4x2.5	FLGöu-J (MTGöu-J)	13	0.32	8	2.3	BEF152809-4504-1QB	3	15	50
				16	2.9	BEF152813-4504-2QBH	6	30	49
				20	1.8	BEF224320-4504-2EH(T)H	6	26	94
				32	2.7	BEF224320-4504-3EH(T)H	9	39	95
				38	2.6	BEF264622-0404-3EL(T)H	10	50	72
				54	2.8	BEF325524-0404-3DI(T)H	12	60	93
4x2.5	NSHTöu-J	16.2	0.35	11	2.0	BEF183616-4504-2EI(T)H	4	16	103
				17	1.9	BEF224320-4504-2IC(T)H	6	22	107
				28	2.9	BEF224320-4504-3IC(T)H	9	33	109
				40	3.2	BEF264622-0404-3EL(T)H	17	43	77
				57	3.5	BEF325524-0404-3DI(T)H	12	60	92
				70	2.7	BEF406532-0404-3CC(T)H	9	54	154
4x2.5	(SMK) (N)SHTöu-J	14	0.3	11	1.7	BEF183616-4504-2FD(T)H	6	22	60
				17	1.7	BEF224320-4504-2IC(T)H	6	22	110
				28	2.6	BEF224320-4504-3EH(T)H	9	39	88
				40	2.9	BEF264622-0404-3EL(T)H	9	51	72
				56	3.8	BEF264622-0404-4EL(T)H	18	62	76
				70	3.8	BEF325524-0404-3DI(T)H	12	60	101
4x2.5	PUR	9	0.18	11	2.2	BEF152809-4504-2QBH	6	30	45
				20	2.7	BEF152813-4504-3QBH	9	45	48
				29	1.9	BEF224320-4504-3EH(T)H	9	39	96
				37	1.8	BEF264622-0404-3EL(T)H	9	51	73
				54	2.6	BEF264622-0404-4EL(T)H	12	68	76
				68	2.5	BEF325524-0404-4DI(T)H	16	80	94
4x2.5	PUR(NSHTöu)	11.5	0.21	10	2.5	BEF152809-4504-2QBH	6	30	42
				15	2.6	BEF152813-4504-2QBH	6	30	49
				21	2.9	BEF152815-4504-3QBH	9	45	47
				30	2.4	BEF224320-4504-3EH(T)H	9	39	95
				42	2.5	BEF264622-0404-3EL(T)H	9	51	76
				56	3.2	BEF264622-0404-4EL(T)H	12	68	75
				67	3.1	BEF325524-0404-3DI(T)H	12	60	102
5x2.5	NSHTöu-J	17.4	0.41	11	2.0	BEF183616-4505-2EI(T)H	4	16	102
				22	2.5	BEF224320-4505-2EH(T)H	6	26	93
				33	3.5	BEF224320-4505-3EH(T)H	9	39	91
				39	3.4	BEF264622-0405-3DH(T)H	12	41	124
				47	3.2	BEF325524-0405-2DI(T)H	8	40	100
				56	3.7	BEF325524-0405-3DI(T)H	12	60	90
				70	2.9	BEF406532-0405-3CC(T)H	9	54	152
5x2.5	(SMK) (N)SHTöu-J	15	0.35	11	1.8	BEF183616-4505-2FD(T)H	6	22	59
				22	2.2	BEF224320-4505-3IC(T)H	9	33	100
				34	2.7	BEF264622-0405-3EL(T)H	13	47	69
				45	3.4	BEF264622-0405-4EL(T)H	23	57	72
				66	3.8	BEF325524-0405-3DI(T)H	12	60	98
5x2.5	PUR(NSHTöu)	12.2	0.24	8	2.3	BEF152809-4505-1QB	3	15	50
				16	2.9	BEF152813-4505-2QBH	6	30	49
				26	2.2	BEF224320-4505-3IC(T)H	9	33	111
				38	2.4	BEF264622-0405-3EL(T)H	9	51	72
				55	3.3	BEF264622-0405-4EL(T)H	12	68	73
				69	3.3	BEF325524-0405-4DI(T)H	16	80	92

Z = no. of conductors   nv = required turns for spring preload   Lw = winding length   Fz = max. cable tension   A = Cross-section   na = max. working turns   Lz = cable layers

Selection Tables for Reels

Z x A [mm²]	Cables Type	ø [mm]	m [kg/m]	Cable Length Lw [m]	Lz	Spring Cable Reel Spool - SRK - Springs	Spring Motor nv	na	Fz [N]
7x2.5	FLGöu-J (MTGöu-J)	15	0.39	10	1.7	BEF183616-4507-2EI(T)H	4	16	101
				21	2.1	BEF224320-4507-2EH(T)H	6	26	94
				33	3.1	BEF224320-4507-3EH(T)H	9	39	93
				39	3.0	BEF264622-0407-3EL(T)H	17	43	77
				46	2.8	BEF325524-0407-2DI(T)H	8	40	102
				69	3.9	BEF325524-0407-3DI(T)H	12	60	99
7x2.5	NSHTöu-J	20.2	0.6	12	1.5	BEF264622-0407-1DH(T)	4	13.5	123
				27	2.8	BEF264622-0407-2DH(T)H	8	27	124
				39	3.1	BEF325524-0407-2DI(T)H	14	34	98
				46	2.8	BEF406525-0407-2CC(T)H	6	36	149
				62	3.0	BEF406532-0407-3CC(T)H	9	54	140
				70	2.8	BEF508032-0407-2BD(T)H	8	50	181
7x2.5	(SMK) (N)SHTöu-J	17.6	0.51	12	1.6	BEF224320-4507-2IC(T)H	6	22	92
				23	2.6	BEF224320-4507-3IC(T)H	9	33	99
				34	3.0	BEF264622-0407-3DH(T)H	12	40.5	118
				58	3.8	BEF325524-0407-3DI(T)H	20	52	97
				69	2.8	BEF406532-0407-3CC(T)H	9	54	151
7x2.5	PUR(NSHTöu)	13.3	0.31	9	2.5	BEF152809-4507-2QBH	6	30	40
				20	1.8	BEF224320-4507-2EH(T)H	6	26	94
				32	2.7	BEF224320-4507-3EH(T)H	9	39	95
				41	2.8	BEF264622-0407-3EL(T)H	9	51	73
				55	3.6	BEF264622-0407-4EL(T)H	18	62	76
				70	3.6	BEF325524-0407-3DI(T)H	12	60	102
12x2.5	FLGöu-J (MTGöu-J)	22	0.72	12	1.5	BEF264622-0412-1DH(T)	4	14	122
				25	2.7	BEF264622-0412-2DH(T)H	8	27	120
				33	2.9	BEF325524-0412-2DI(T)H	19	29	97
				42	2.8	BEF406525-0412-2CC(T)H	6	36	140
				63	3.2	BEF406532-0412-3CC(T)H	13	50	146
12x2.5	NSHTöu-J	23.8	0.86	16	1.8	BEF325524-0412-1DI(T)	10	14	99
				28	2.7	BEF325524-0412-2MB(T)H	10	30	119
				41	3.0	BEF406525-0412-2CC(T)H	9	33	144
				55	3.0	BEF406532-0412-3CC(T)H	17	46	143
				70	3.1	BEF508032-0412-2BD(T)H	15	43	195
12x2.5	(SMK) (N)SHTöu-J	24.4	0.92	28	2.7	BEF325524-0412-2MB(T)H	13	27	125
				42	2.4	BEF406532-0412-2CC(T)H	11	31	153
				55	3.0	BEF406532-0412-3CC(T)H	20	43	148
				68	3.0	BEF508032-0412-2BD(T)H	15	43	192
12x2.5	PUR	18	0.58	12	1.5	BEF224320-4512-2IC(T)H	6	22	92
				25	2.8	BEF224320-4512-3IC(T)H	9	33	102
				35	2.5	BEF325524-0412-2DI(T)H	11	37	93
				47	3.2	BEF325524-0412-3DI(T)H	26	46	96
				64	2.8	BEF406532-0412-3CC(T)H	9	54	145
12x2.5	PUR(NSHTöu)	19.9	0.48	12	1.7	BEF224320-4512-2IC(T)H	6	22	90
				25	3.0	BEF224320-4512-3IC(T)H	9	33	99
				35	2.8	BEF325524-0412-2DI(T)H	8	40	88
				47	2.9	BEF406525-0412-2CC(T)H	6	36	151
				64	2.9	BEF406532-0412-3CC(T)H	9	54	143
18x2.5	FLGöu-J (MTGöu-J)	25	0.9	15	1.7	BEF325524-0418-1DI(T)	11	13	99
				27	2.6	BEF325524-0418-2MB(T)H	12	28	121
				42	3.0	BEF406525-0418-2CC(T)H	11	31	150
				51	3.0	BEF406532-0418-3CC(T)H	19	44	141
				62	3.0	BEF508032-0418-2BD(T)H	14	44	180
18x2.5	NSHTöu-J	28.7	1.24	14	1.5	BEF406525-0418-1CC(T)	7	14	136
				27	2.5	BEF406525-0418-2CC(T)H	20	22	147
				40	2.6	BEF406532-0418-2BE(T)H	7	28	251
				58	3.0	BEF508032-0418-2BD(T)H	26	32	203

Z = no. of conductors   nv = required turns for spring preload   Lw = winding length   Fz = max. cable tension   A = Cross-section   na = max. working turns   Lz = cable layers

Selection Tables for Reels

Z x A [mm²]	Cables Type	ø [mm]	m [kg/m]	Cable Length Lw [m]	Cable Length Lz	Spring Cable Reel Spool - SRK - Springs	Spring Motor nv	Spring Motor na	Spring Motor Fz [N]
18x2.5	(SMK) (N)SHTöu-J	24.3	1.05	14	1.4	BEF325524-0418-1DI(T)	6	18	87
				23	2.1	BEF325524-0418-2DI(T)	4	20	197
				34	2.9	BEF325524-0418-2MB(T)H	8	32	125
				43	2.8	BEF406525-0418-2CC(T)H	6	36	142
				56	2.9	BEF406532-0418-3CC(T)H	12	51	137
				70	2.9	BEF508032-0418-2BD(T)H	9	49	181
18x2.5	PUR	18	0.64	12	1.5	BEF224320-4518-2IC(T)H	6	22	92
				25	2.8	BEF224320-4518-3IC(T)H	11	31	105
				35	2.5	BEF325524-0418-2DI(T)H	15	33	98
				43	2.9	BEF325524-0418-3DI(T)H	27	45	94
				58	3.8	BEF325524-0418-3MB(T)H	12	48	134
				64	2.8	BEF406532-0418-3CC(T)H	9	54	145
18x2.5	PUR(NSHTöu)	19.5	0.68	12	1.7	BEF224320-4518-2IC(T)H	6	22	90
				25	3.0	BEF224320-4518-3IC(T)H	14	28	108
				35	2.6	BEF325524-0418-2MB(T)H	8	32	130
				53	3.7	BEF325524-0418-3MB(T)H	16	44	134
				70	3.1	BEF406532-0418-3CC(T)H	14	49	158
24x2.5	FLGöu-J (MTGöu-J)	27	1.22	7	1.0	BEF325524-1824-1MB(T)	8	12	110
				21	2.4	BEF325524-1824-2DI(T)	4	20	184
				34	2.7	BEF406525-1824-2BE(T)H	6	29	225
				43	2.8	BEF406532-1824-2BE(T)H	6	29	257
				55	2.9	BEF508032-1824-2BD(T)H	24	34	195
24x2.5	(SMK) (N)SHTöu-J	27.7	1.32	10	1.0	BEF406525-1824-1CC(T)	7	14	124
				22	1.9	BEF406525-1824-2CC(T)	3	18	286
				30	2.5	BEF406525-1824-2BE(T)H	6	29	212
				42	2.7	BEF406532-1824-3BE(T)H	12	40.5	214
				54	2.8	BEF508032-1824-2BD(T)H	28	30	204
				58	3.0	BEF508032-1824-2AB(T)H	8	40	324
24x2.5	PUR(NSHTöu)	24.3	0.82	9	1.1	BEF325524-1824-1DI(T)	7	17	80
				20	2.1	BEF325524-1824-2DI(T)	4	20	184
				33	2.5	BEF406525-1824-2CC(T)H	7	35	127
				44	2.5	BEF406532-1824-2CC(T)H	8	34	148
				56	3.0	BEF406532-1824-3CC(T)H	15	48	139
				68	3.0	BEF508032-1824-2BD(T)H	11	47	181
30x2.5	PUR(NSHTöu)	27.3	0.97	10	1.0	BEF406525-1830-1CC(T)	3	18	104
				25	2.1	BEF406525-1830-2CC(T)	3	18	305
				45	2.9	BEF406532-1830-3CC(T)H	22	41	138
				57	3.0	BEF508032-1830-2BD(T)H	16	42	177
36x2.5	PUR	25	1.3	5	0.7	BEF325524-1836-1DI(T)	17	7	94
				21	2.2	BEF325524-1836-2DI(T)	5	19	191
				34	2.5	BEF406525-1836-2BE(T)H	6	29	229
				51	3.0	BEF406532-1836-3BE(T)H	12	40.5	237
4x4	NSHTöu-J	19.1	0.49	10	1.5	BEF224320-4704-1EH(T)	3	13	91
				18	2.3	BEF224320-4704-2IC(T)H	6	22	106
				31	3.0	BEF264622-0704-3EL(T)H	27	33	77
				38	2.8	BEF325524-0704-2DI(T)H	8	40	91
				51	3.6	BEF325524-0704-3DI(T)H	17	55	91
				69	3.1	BEF406532-0704-3CC(T)H	9	54	149
4x4	(SMK) (N)SHTöu-J	17	0.45	10	1.8	BEF183616-4704-2EI(T)H	4	16	98
				18	2.2	BEF224320-4704-2IC(T)H	6	22	109
				29	3.2	BEF224320-4704-3IC(T)H	9	33	109
				39	2.7	BEF325524-0704-2DI(T)H	8	40	94
				59	3.8	BEF325524-0704-3DI(T)H	12	60	92
				70	2.9	BEF406532-0704-3CC(T)H	9	54	153

Z = no. of conductors   nv = required turns for spring preload   Lw = winding length   Fz = max. cable tension   A = Cross-section   na = max. working turns   Lz = cable layers

Selection Tables for Reels

Cables Z x A [mm²]	Cables Type	ø [mm]	m [kg/m]	Cable Length Lw [m]	Cable Length Lz	Spring Cable Reel Spool - SRK - Springs	Spring Motor nv	Spring Motor na	Spring Motor Fz [N]
4x4	PUR	11.5	0.23	10	2.5	BEF152809-4704-2QBH	6	30	42
				20	1.6	BEF152813-4704-3QBH	9	33	100
				38	2.3	BEF264622-0704-3EL(T)H	9	51	72
				55	3.2	BEF264622-0704-4EL(T)H	12	68	74
				69	3.1	BEF325524-0704-4DI(T)H	16	80	92
4x4	PUR(NSHTöu)	12.7	0.28	11	2.9	BEF152809-4704-2QBH	6	30	43
				27	2.4	BEF224320-4704-3EH(T)H	9	39	89
				42	2.7	BEF264622-0704-3EL(T)H	9	51	75
				53	3.3	BEF264622-0704-4EL(T)H	13	67	72
				67	3.3	BEF325524-0704-3DI(T)H	12	60	101
5x4	NSHTöu-J	21.5	0.64	12	1.5	BEF264622-0705-1DH(T)	4	13.5	122
				25	2.6	BEF264622-0705-2DH(T)H	8	27	120
				36	2.5	BEF406525-0705-2CC(T)H	6	36	131
				55	2.8	BEF406532-0705-3CC(T)H	9	54	132
				64	2.7	BEF508032-0705-2BD(T)H	8	50	171
5x4	(SMK) (N)SHTöu-J	18.4	0.43	12	2.3	BEF183616-4705-2FD(T)H	7	21	60
				26	2.6	BEF264622-0705-2EL(T)H	13	27	78
				44	3.2	BEF325524-0705-2DI(T)H	8	40	97
				55	3.9	BEF325524-0705-3DI(T)H	12	60	89
				68	2.9	BEF406532-0705-3CC(T)H	9	54	149
5x4	PUR(NSHTöu)	13.8	0.32	12	2.5	BEF152813-4705-2QBH	6	30	44
				24	2.3	BEF224320-4705-3IC(T)H	9	33	106
				30	2.8	BEF224320-4705-3EH(T)H	9	39	92
				44	3.1	BEF264622-0705-3EL(T)H	13	47	79
				63	3.3	BEF325524-0705-3DI(T)H	12	60	97
4x6	NSHTöu-J	20.7	0.61	12	1.5	BEF264622-0704-1DH(T)	4	13.5	123
				26	2.7	BEF264622-0704-2DH(T)H	8	27	122
				37	2.9	BEF325524-0704-2DI(T)H	11	37	93
				46	2.8	BEF406525-0704-2CC(T)H	6	36	148
				63	3.0	BEF406532-0704-3CC(T)H	9	54	141
4x6	(SMK) (N)SHTöu-J	18.4	0.57	25	2.5	BEF264622-0704-2DH(T)H	8	27	123
				33	2.5	BEF325524-0704-2DI(T)H	10	38	90
				48	3.4	BEF325524-0704-3DI(T)H	26	46	96
				57	3.9	BEF325524-0704-3MB(T)H	12	48	132
				65	2.8	BEF406532-0704-3CC(T)H	9	54	146
				70	2.5	BEF508032-0704-2BD(T)H	8	50	184
4x6	PUR	13	0.32	5	1.6	BEF152809-4704-1QB	3	15	43
				17	2.8	BEF152815-4704-2QBH	6	30	51
				28	2.4	BEF224320-4704-3EH(T)H	9	39	90
				39	2.7	BEF264622-0704-3EL(T)H	10	50	73
				56	3.7	BEF264622-0704-4EL(T)H	19	61	78
				70	3.4	BEF325524-0704-4DI(T)H	16	80	91
4x6	PUR(NSHTöu)	14	0.37	8	1.3	BEF183616-4704-2EI(T)H	4	16	92
				18	1.8	BEF224320-4704-2EH(T)H	6	26	89
				28	2.6	BEF224320-4704-3EH(T)H	9	39	88
				40	2.9	BEF264622-0704-3EL(T)H	15	45	77
				54	3.7	BEF264622-0704-4EL(T)H	26	54	81
				70	3.8	BEF325524-0704-3DI(T)H	12	60	101
5x6	(SMK) (N)SHTöu-J	20	0.69	10	1.4	BEF224320-4705-2EH(T)	3	13	181
				23	2.8	BEF224320-4705-3IC(T)H	15	27	106
				36	2.9	BEF325524-0705-2MB(T)H	8	32	131
				49	3.0	BEF406525-0705-2CC(T)H	6	36	154
				70	3.1	BEF406532-0705-3CC(T)H	15	48	159

Z = no. of conductors   nv = required turns for spring preload   Lw = winding length   Fz = max. cable tension   A = Cross-section   na = max. working turns   Lz = cable layers

Selection Tables for Reels

Z x A [mm²]	Cables Type	ø [mm]	m [kg/m]	Cable Length Lw [m]	Lz	Spring Cable Reel Spool - SRK - Springs	Spring Motor nv	na	Fz [N]
5x6	PUR(NSHTöu)	15.3	0.43	9	1.6	BEF183616-4705-2EI(T)H	4	16	96
				20	2.1	BEF224320-4705-2EH(T)H	6	26	92
				31	2.9	BEF224320-4705-3EH(T)H	9	39	91
				43	3.2	BEF264622-0705-4EL(T)H	33	47	77
				54	3.9	BEF264622-0705-4DH(T)H	16	54	126
				68	3.9	BEF325524-0705-3DI(T)H	12	60	99
4x10	NSHTöu-J	25	0.94	13	1.5	BEF325524-1504-1DI(T)	12	12	97
				24	2.4	BEF325524-1504-2DI(T)	4	20	196
				42	3.0	BEF406525-1504-2CC(T)H	12	30	152
				51	3.0	BEF406532-1504-3CC(T)H	21	42	144
				64	3.0	BEF508032-1504-2BD(T)H	17	41	191
4x10	(SMK) (N)SHTöu-J	22.6	0.9	15	1.5	BEF325524-1504-1DI(T)	10	14	98
				26	2.4	BEF325524-1504-2MB(T)H	11	29	120
				34	2.9	BEF325524-1504-3MB(T)H	19	41	116
				44	2.9	BEF406525-1504-2CC(T)H	10	32	153
				59	3.0	BEF406532-1504-3CC(T)H	19	44	152
				70	2.9	BEF508032-1504-2BD(T)H	14	44	194
4x10	PUR	15.5	0.5	12	1.1	BEF264622-1504-1EL(T)	6	14	79
				26	2.1	BEF264622-1504-3EL(T)H	24	36	72
				38	2.9	BEF264622-1504-3DH(T)H	12	40.5	125
				51	3.7	BEF264622-1504-4DH(T)H	16	54	124
				61	3.5	BEF325524-1504-3DI(T)H	17	55	98
				70	4.0	BEF325524-1504-4DI(T)H	28	68	96
4x10	PUR(NSHTöu)	17.9	0.61	12	1.3	BEF264622-1504-1DH(T)	4	13.5	125
				25	2.3	BEF264622-1504-2DH(T)H	8	27	124
				37	2.6	BEF325524-1504-2DI(T)H	14	34	98
				50	2.9	BEF406525-1504-2CC(T)H	6	36	158
				64	2.8	BEF406532-1504-3CC(T)H	9	54	145
5x10	(SMK) (N)SHTöu-J	24.4	1.08	11	1.3	BEF325524-1505-1MB(T)	6	14	117
				24	2.4	BEF325524-1505-2DI(T)	4	20	197
				37	2.7	BEF406525-1505-2CC(T)H	15	27	153
				46	2.6	BEF406532-1505-3CC(T)H	26	37	148
				55	3.0	BEF406532-1505-3BE(T)H	9	43.5	237
				68	3.0	BEF508032-1505-2BD(T)H	21	37	207
5x10	PUR(NSHTöu)	19.5	0.7	18	1.9	BEF264622-1505-2DH(T)	8	27	110
				28	2.7	BEF264622-1505-3DH(T)H	12	40.5	109
				38	2.8	BEF325524-1505-2MB(T)H	8	32	135
				52	3.6	BEF325524-1505-3MB(T)H	17	43	134
				68	3.1	BEF406532-1505-3CC(T)H	15	48	157
4x16	NSHTöu-J	29	1.32	17	1.8	BEF406525-1604-1CC(T)	8	13	151
				25	1.8	BEF406532-1604-2CC(T)	3	18	307
				40	2.6	BEF406532-1604-2BE(T)H	8	27	256
				58	3.0	BEF508032-1604-2AB(T)H	8	40	322
4x16	(SMK) (N)SHTöu-J	25.2	1.24	16	1.5	BEF406525-1604-1CC(T)	7	14	145
				24	2.1	BEF406525-1604-2CC(T)	3	18	302
				41	2.5	BEF406532-1604-2BE(T)H	6	29	255
				55	2.7	BEF508032-1604-2BD(T)H	24	34	197
				62	3.0	BEF508032-1604-2AB(T)H	8	40	340
4x16	PUR	19	0.8	19	1.2	BEF406525-1604-1CC(T)	3	18	141
				40	2.3	BEF406525-1604-2CC(T)H	7	35	143
				64	2.9	BEF406532-1604-3CC(T)H	17	46	157
4x16	PUR(NSHTöu)	22.3	0.92	18	1.4	BEF406525-1604-1CC(T)	3	18	135
				33	2.3	BEF406525-1604-2CC(T)H	9	33	134
				41	2.2	BEF406532-1604-2CC(T)H	10	32	151
				53	2.7	BEF406532-1604-3CC(T)H	19	44	146
				65	2.7	BEF508032-1604-2BD(T)H	14	44	188

Z = no. of conductors   nv = required turns for spring preload   Lw = winding length   Fz = max. cable tension   A = Cross-section   na = max. working turns   Lz = cable layers

Selection Tables for Reels

	Application 1 and 9: Horizontal and Vertical Retrieval									

Z x A [mm²]	Cables Type	ø [mm]	m [kg/m]	Cable Length Lw [m]	Lz	Spring Cable Reel Spool - SRK - Springs	Spring Motor nv	na	Fz [N]
5x16	SMK (N)SHTöu-J	27.6	1.5	16	1.5	BEF406525-1605-1BE(T)	3	14.5	227
				30	2.5	BEF406525-1605-2BE(T)H	9	26	228
				43	2.8	BEF406532-1605-3BE(T)H	16	36.5	230
				58	3.0	BEF508032-1605-2AB(T)H	8	40	324
5x16	PUR (NSHTöu)S	24.3	1.07	21	1.7	BEF406525-1605-1CC(T)	5	16	153
				33	2.5	BEF406525-1605-2CC(T)H	14	28	144
				45	2.5	BEF406532-1605-3CC(T)H	25	38	146
				54	2.9	BEF406532-1605-3BE(T)H	9	43.5	235
				63	2.8	BEF508032-1605-2BD(T)H	20	38	199
4x25	SMK (N)SHTöu-J	30	1.85	13	1.4	BEF406525-1904-1BE(T)	5	12.5	223
				22	1.7	BEF406532-1904-2CC(T)	3	18	285
				30	1.9	BEF508032-1904-1AB(T)	4	20	337
				44	2.6	BEF508032-1904-2BD(T)	5	24	408
				53	3.0	BEF508032-1904-2AB(T)H	13	35	333
4x25	PUR (NSHTöu)S	25.8	1.27	13	1.3	BEF406525-1904-1CC(T)	7	14	135
				25	2.1	BEF406525-1904-2CC(T)	3	18	307
				37	2.9	BEF406525-1904-2BE(T)H	6	29	236
				49	2.9	BEF406532-1904-3BE(T)H	11	41.5	228
				58	2.8	BEF508032-1904-2BD(T)H	26	32	206
4x35	PUR (NSHTöu)S	28.3	1.72	18	1.8	BEF406525-1904-2CC(T)	3	18	259
				29	2.7	BEF406525-1904-2BE(T)H	12	23	239
				44	2.8	BEF406532-1904-3BE(T)H	21	31.5	250
				55	2.9	BEF508032-1904-2AB(T)H	10	38	326
19x2.5+5x1(C)	SMK (N)SHTöu-J	27.7	1.29	10	1.0	BEF406525-1824-1CC(T)	7	14	124
				21	1.9	BEF406525-1824-2CC(T)	3	18	280
				31	2.5	BEF406525-1824-2BE(T)H	6	29	215
				44	2.8	BEF406532-1824-3BE(T)H	11	41.5	215
				58	3.0	BEF508032-1824-2AB(T)H	8	40	324
26x2.5+4x2.5(C)	PUR	24.5	1.22	12	1.4	BEF325524-1830-1DI(T)	13	11	98
				25	2.5	BEF325524-1830-2MB(T)H	16	24	126
				41	2.9	BEF406525-1830-2CC(T)H	13	29	154
				51	2.8	BEF406532-1830-3CC(T)H	24	39	150
				68	3.0	BEF508032-1830-2BD(T)H	18	40	200
3x25+3G6	PUR	21.5	1.04	18	1.4	BEF406525-1904-1CC(T)	4	17	140
				34	2.4	BEF406525-1904-2CC(T)H	12	30	143
				44	2.4	BEF406532-1904-3CC(T)H	22	41	142
				62	3.2	BEF406532-1904-3BE(T)H	9	43.5	258
				70	2.9	BEF508032-1904-2BD(T)H	19	39	208
3x35+3x16/3	SMK (N)SHTöu-J	30	2.16	12	1.3	BEF406525-1904-1BE(T)	7	10.5	238
				23	1.8	BEF406532-1904-2CC(T)	5	16	311
				30	1.9	BEF508032-1904-1AB(T)	6	18	359
				53	3.0	BEF508032-1904-2AB(T)H	18	30	362
3x35+3G6	PUR	25	1.41	14	1.2	BEF406525-1904-1CC(T)	8	13	144
				22	1.8	BEF406525-1904-2CC(T)	3	18	291
				30	2.3	BEF406525-1904-2BE(T)H	7	28	222
				43	2.6	BEF406532-1904-3BE(T)H	13	39.5	224
				52	2.6	BEF508032-1904-2BD(T)H	29	29	207

Z = no. of conductors   nv = required turns for spring preload   Lw = winding length   Fz = max. cable tension   A = Cross-section   na = max. working turns   Lz = cable layers

The reel types presented in these tables have been categorised according to their maximum spring forces, maximum winding capabilities and maximum permissible cable tension. The part numbers all refer to the standard reel which unwinds counterclockwise.

Selection Tables for Reels

Application 8:
Vertical Lift (Reel is mounted stationary and cable is unwound vertically downward)
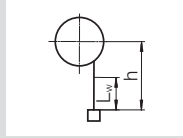
Note: For the dimensioning it was assumed that **h** is not longer than **Lw**. Additional weight on the cable has not been taken into account.

Maximum Unspooling Speed, v_{max} = 63 m/min; Maximum Acceleration, b_{max} = 0.3 m/sec^2

Z x A [mm²]	Cables Type	ø [mm]	m [kg/m]	Cable Length Lw [m]	Lz	Spring Cable Reel Spool - SRK - Springs	Spring Motor nv	na	Fz [N]
7x1.0	FLGöu-J (MTGöu-J)	14	0.24	4	1.6	BEF152809-4507-1QB	3	15	39
				12	2.5	BEF152813-4507-2UAH	6	22	84
				17	3.0	BEF152815-4507-3UAH	9	33	80
				24	2.3	BEF224320-4507-3IC(T)H	9	33	105
12x1.0	FLGöu-J (MTGöu-J)	15.9	0.4	9	1.6	BEF183616-4512-2EI(T)H	4	16	95
				15	1.7	BEF224320-4512-2IC(T)H	6	22	102
				23	1.6	BEF325524-0412-2MB(T)H	17	23	132
				28	1.5	BEF406525-0412-2CC(T)H	18	24	153
18x1.0	FLGöu-J (MTGöu-J)	17.3	0.49	12	1.6	BEF224320-4518-2IC(T)H	6	22	92
				17	1.7	BEF264622-0418-2DH(T)H	16	19	126
				21	1.6	BEF325524-0418-2DI(T)	4	20	197
				23	1.4	BEF406525-0418-1CC(T)	3	18	156
				40	2.2	BEF406525-0418-2BE(T)H	6	29	265
24x1.0	FLGöu-J (MTGöu-J)	20.6	0.66	9	1.2	BEF264622-1824-1DH(T)	4	14	110
				19	1.7	BEF325524-1824-2DI(T)	4	20	186
				24	1.6	BEF406525-1824-2CC(T)	3	18	313
				29	1.9	BEF406525-1824-2BE(T)H	12	23	252
36x1.0	FLGöu-J (MTGöu-J)	24.3	0.96	10	1.2	BEF325524-1836-2DI(T)	4	20	150
				19	2.0	BEF325524-1836-3DI(T)	4	20	271
				25	2.0	BEF406525-1836-2CC(T)	3	18	315
				28	1.4	BEF508032-1836-3CC(T)	3	18	355
3x1.5	FLGöu-J (MTGöu-J)	10	0.14	6	1.5	BEF152109-4503-1QB	3	15	47
				14	3.0	BEF152809-4503-2QBH	6	30	48
				21	3.0	BEF152813-4503-3QBH	9	45	48
				32	1.7	BEF264622-0403-3EL(T)H	9	51	67
4x1.5	FLGöu-J (MTGöu-J)	11	0.22	12	2.9	BEF152809-4504-2QBH	6	30	45
				17	1.4	BEF224320-4504-2EH(T)H	6	26	90
				26	2.0	BEF224320-4504-3EH(T)H	9	39	89
4x1.5	NSHTöu-J	13.5	0.24	5	1.8	BEF152809-4504-1QB	3	15	42
				11	2.3	BEF152813-4504-2QBH	6	30	43
				17	2.8	BEF152815-4504-3UAH	9	33	81
				21	2.0	BEF224320-4504-3IC(T)H	9	33	100
				27	2.5	BEF224320-4504-3EH(T)H	13	35	92
				31	2.2	BEF264622-0404-3DH(T)H	12	41	119
4x1.5	SMK (N)SHTöu-J	13	0.24	3	1.1	BEF152809-4504-1QB	3	15	37
				11	2.9	BEF152809-4504-2QBH	6	30	42
				17	2.8	BEF152815-4504-3UAH	9	33	82
				20	1.8	BEF224320-4504-2EH(T)H	6	26	94
				27	2.4	BEF224320-4504-3EH(T)H	12	36	92
				32	2.3	BEF264622-4504-3DH(T)H	12	41	120
4x1.5	PUR (NSHTöu)S	10.5	0.15	6	1.7	BEF152109-4504-1QB	3	15	46
				14	3.2	BEF152809-4504-2QBH	6	30	47
				21	3.2	BEF152813-4504-3QBH	9	45	47
				30	2.1	BEF224320-4504-3EH(T)H	9	39	95
5x1.5	FLGöu-J (MTGöu-J)	12	0.23	4	1.4	BEF152809-4505-1QB	3	15	40
				15	2.8	BEF152813-4505-2QBH	6	30	48
				20	1.7	BEF224320-4505-2EH(T)H	6	26	95
				28	2.3	BEF224320-4505-3EH(T)H	10	38	92

Z = no. of conductors   nv = required turns for spring preload   Lw = winding length   Fz = max. cable tension   A = Cross-section   na = max. working turns   Lz = cable layers

Selection Tables for Reels

Z x A [mm²]	Cables Type	ø [mm]	m [kg/m]	Cable Length Lw [m]	Lz	Spring Cable Reel Spool - SRK - Springs	nv	na	Fz [N]
5x1.5	NSHTöu-J	14.6	0.28	5	1.0	BEF183616-4505-1EI(T)	2	8	104
				11	1.8	BEF183616-4505-2FD(T)H	6	22	59
				18	1.9	BEF224320-4505-2EH(T)H	6	26	88
				28	2.1	BEF264622-0405-3DH(T)H	16	37	119
				35	1.7	BEF406525-0405-2CC(T)H	6	36	136
5x1.5	(SMK) (N)SHTöu-J	13.8	0.28	5	1.8	BEF152809-4505-1QB	3	15	42
				11	2.3	BEF152813-4505-2QBH	8	28	44
				18	1.8	BEF224320-4505-2EH(T)H	6	26	89
				27	2.5	BEF224320-4505-3IC(T)H	9	33	111
				35	1.6	BEF406525-0405-2CC(T)H	6	36	137
5x1.5	PUR(NSHTöu)	11.2	0.18	5	1.4	BEF152809-4505-1QB	3	15	43
				13	3.0	BEF152809-4505-2QBH	6	30	46
				20	3.3	BEF152813-4505-3QBH	19	35	51
				30	2.3	BEF224320-4505-3EH(T)H	9	39	94
7x1.5	FLGöu-J (MTGöu-J)	13	0.28	4	1.4	BEF152809-4507-1QB	3	15	39
				12	2.3	BEF152813-4507-2QBH	10	26	47
				17	2.8	BEF152815-4507-3UAH	9	33	82
				20	1.8	BEF224320-4507-2EH(T)H	6	26	94
				26	2.3	BEF224320-4507-3IC(T)H	9	33	110
				30	2.2	BEF264622-0407-3DH(T)H	19	34	127
				37	1.6	BEF406525-0407-2CC(T)H	6	36	141
7x1.5	NSHTöu-J	18	0.45	5	1.2	BEF183616-4507-1EI(T)	2	8	100
				11	2.2	BEF183616-4507-2EI(T)H	6	14	101
				17	2.0	BEF224320-4507-2IC(T)H	6	22	105
				22	1.7	BEF325524-0407-2DI(T)	4	20	200
				26	1.6	BEF406525-0407-2CC(T)H	22	20	158
7x1.5	(SMK) (N)SHTöu-J	16.2	0.38	5	1.1	BEF183616-4507-1EI(T)	2	8	102
				11	2.0	BEF183616-4507-2EI(T)H	4	16	103
				17	1.9	BEF224320-4507-2IC(T)H	6	22	107
				22	1.6	BEF325524-0407-2DI(T)	4	20	202
				29	1.6	BEF406525-0407-2CC(T)H	17	25	152
7x1.5	PUR(NSHTöu)	12.6	0.23	9	2.5	BEF152809-4507-2QBH	6	30	40
				17	2.8	BEF152815-4507-3UAH	9	33	82
				20	1.8	BEF224320-4507-2EH(T)H	6	26	94
				27	2.4	BEF224320-4507-3EH(T)H	9	39	89
				32	2.2	BEF264622-0407-3DH(T)H	12	41	121
12x1.5	FLGöu-J (MTGöu-J)	19	0.52	9	1.3	BEF224320-4512-1EH(T)	3	13	87
				15	2.0	BEF224320-4512-2IC(T)H	9	19	106
				22	1.8	BEF325524-0412-2DI(T)	4	20	199
				33	2.0	BEF406525-0412-2BE(T)H	6	29	236
12x1.5	NSHTöu-J	21	0.65	12	1.5	BEF264622-0412-1DH(T)	4	14	122
				16	1.9	BEF264622-0412-2EL(T)	3	17	155
				20	1.8	BEF325524-0412-2DI(T)	5	19	193
				23	2.0	BEF325524-0412-3DI(T)	4	20	299
				26	1.9	BEF406525-0412-2BE(T)H	9	26	224
12x1.5	(SMK) (N)SHTöu-J	22.4	0.71	11	1.5	BEF264622-0412-1DH(T)	4	14	117
				16	2.0	BEF264622-0412-2EL(T)	4	16	156
				19	1.8	BEF325524-0412-2DI(T)	8	16	199
				23	2.1	BEF325524-0412-3DI(T)	4	20	295
				26	1.9	BEF406525-0412-2BE(T)H	13	22	244
				37	1.7	BEF508032-0412-2BD(T)	4	25	380

Z = no. of conductors   nv = required turns for spring preload   Lw = winding length   Fz = max. cable tension   A = Cross-section   na = max. working turns   Lz = cable layers

Selection Tables for Reels

Z x A [mm²]	Cables Type	ø [mm]	m [kg/m]	Cable Length Lw [m]	Lz	Spring Cable Reel Spool - SRK - Springs	Spring Motor nv	na	Fz [N]
12x1.5	PUR(NSHTöu)	16.1	0.36	5	1.1	BEF183616-4512-1EI(T)	2	8	102
				12	2.1	BEF183616-4512-2FD(T)H	9	19	64
				18	2.0	BEF224320-4512-2EH(T)H	9	23	92
				21	2.3	BEF224320-4512-3IC(T)H	13	29	104
				23	2.0	BEF264622-0412-2DH(T)H	9	26	124
				40	1.7	BEF406532-0412-3BE(T)H	9	44	216
18x1.5	FLGöu-J (MTGöu-J)	21	0.64	12	1.5	BEF264622-0418-1DH(T)	4	14	122
				16	1.9	BEF264622-0418-2EL(T)	3	17	155
				21	1.8	BEF325524-0418-2DI(T)	6	18	200
				23	2.0	BEF325524-0418-3DI(T)	4	20	299
				27	1.9	BEF406525-0418-2BE(T)H	9	26	227
				40	1.7	BEF508032-0418-2BD(T)	4	25	400
18x1.5	NSHTöu-J	24.3	0.87	8	1.0	BEF325524-0418-1MB(T)	5	15	103
				18	1.9	BEF325524-0418-2MB(T)	4	16	262
				23	2.3	BEF325524-0418-3DI(T)	4	20	291
				30	1.5	BEF508032-0418-1AB(T)	6	18	376
				34	1.7	BEF508032-0418-3BD(T)	4	25	539
18x1.5	(SMK) (N)SHTöu-J	22.3	0.76	8	0.9	BEF325524-0418-1DI(T)	14	10	94
				18	1.8	BEF325524-0418-2MB(T)	4	16	266
				23	2.1	BEF325524-0418-3DI(T)	4	20	296
				30	1.4	BEF508032-0418-1AB(T)	4	20	351
				39	1.8	BEF508032-0418-2BD(T)	7	22	417
18x1.5	PUR(NSHTöu)	17	0.47	8	1.6	BEF183616-4518-2EI(T)H	4	16	89
				17	2.1	BEF224320-4518-2IC(T)H	7	21	108
				22	1.7	BEF325524-0418-2DI(T)	4	20	201
				25	1.5	BEF406525-0418-2CC(T)H	23	19	160
				40	2.2	BEF406525-0418-2BE(T)H	6	29	265
24x1.5	FLGöu-J (MTGöu-J)	23	0.84	9	1.0	BEF325524-1824-1MB(T)	6	14	111
				18	1.8	BEF325524-1824-2MB(T)	4	16	265
				23	2.1	BEF325524-1824-3DI(T)	4	20	294
				29	1.5	BEF508032-1824-1AB(T)	5	19	355
				35	1.7	BEF508032-1824-2BD(T)	9	20	416
24x1.5	NSHTöu-J	28	1.12	13	1.4	BEF406525-1824-1BE(T)	3	15	204
				20	2.0	BEF406525-1824-2CC(T)	6	15	301
				24	1.7	BEF406532-1824-3CC(T)	3	18	453
				32	1.8	BEF508032-1824-2AB(T)	4	20	705
24x1.5	(SMK) (N)SHTöu-J	25.3	0.99	13	1.3	BEF406525-1824-1BE(T)	3	15	207
				21	1.9	BEF406525-1824-2CC(T)	3	18	283
				24	1.3	BEF508032-1824-2BE(T)	3	15	405
				32	1.7	BEF508032-1824-2AB(T)	4	20	716
24x1.5	PUR(NSHTöu)	21.5	0.59	12	1.5	BEF264622-1824-1DH(T)	4	14	122
				16	1.9	BEF264622-1824-2EL(T)	3	17	155
				21	2.0	BEF325524-1824-2DI(T)	4	20	191
				24	1.8	BEF406525-1824-2CC(T)	3	18	311
				27	1.9	BEF406525-1824-2BE(T)H	6	29	211
				40	1.8	BEF508032-1824-2BD(T)	4	25	398
30x1.5	NSHTöu-J	30	1.32	13	1.4	BEF406525-1830-1BE(T)	6	12	234
				20	2.0	BEF406525-1830-2BE(T)	3	15	499
				24	1.6	BEF508032-1830-2BE(T)	4	14	410
				32	2.0	BEF508032-1830-2AB(T)	4	20	696
30x1.5	(SMK) (N)SHTöu-J	28.1	1.22	11	1.3	BEF406525-1830-1BE(T)	3	15	190
				21	2.1	BEF406525-1830-2BE(T)	3	15	517
				32	1.8	BEF508032-1830-2AB(T)	4	20	705

Z = no. of conductors   nv = required turns for spring preload   Lw = winding length   Fz = max. cable tension   A = Cross-section   na = max. working turns   Lz = cable layers

Selection Tables for Reels

Z x A [mm²]	Cables Type	ø [mm]	m [kg/m]	Cable Length Lw [m]	Lz	Spring Cable Reel Spool - SRK - Springs	Spring Motor nv	na	Fz [N]
30x1.5	PUR(NSHTöu)	23	0.71	11	1.2	BEF325524-1830-1MB(T)	5	15	114
				19	1.8	BEF325524-1830-2DI(T)	8	16	199
				24	1.9	BEF406525-1830-2CC(T)	3	18	307
				29	1.5	BEF508032-1830-1AB(T)	4	20	343
				38	1.8	BEF508032-1830-2BD(T)	4	25	383
36x1.5	(SMK) (N)SHTöu-J	28	1.26	10	1.2	BEF406525-1836-1BE(T)	3	14.5	182
				21	1.6	BEF406532-1836-3CC(T)	3	18	434
				33	1.9	BEF508032-1836-2AB(T)	4	20	717
4x2.5	FLGöu-J (MTGöu-J)	13	0.32	9	2.5	BEF152809-4504-2QBH	7	29	41
				17	2.8	BEF152815-4504-3UAH	9	33	82
				20	1.8	BEF224320-4504-2EH(T)H	6	26	94
				24	1.8	BEF264622-0404-2DH(T)H	8	27	128
				31	1.3	BEF406525-0404-2CC(T)H	8	34	135
4x2.5	NSHTöu-J	16.2	0.35	5	1.1	BEF183616-4504-1EI(T)	2	8	102
				11	2.0	BEF183616-4504-2EI(T)H	4	16	103
				18	2.0	BEF224320-4504-2EH(T)H	7	25	89
				24	2.1	BEF264622-0404-2DH(T)H	9	26	126
				34	1.8	BEF406525-0404-2CC(T)H	17	25	160
				37	1.3	BEF508032-0404-1BD(T)	4	25	196
4x2.5	(SMK) (N)SHTöu-J	14	0.3	5	0.9	BEF183616-4504-1FD(T)	3	11	59
				11	1.7	BEF183616-4504-2FD(T)H	6	22	60
				18	1.8	BEF224320-4504-2EH(T)H	6	26	89
				24	2.3	BEF224320-4504-3IC(T)H	9	33	105
				34	1.6	BEF406525-0404-2CC(T)H	8	34	140
				37	1.1	BEF508032-0404-1BD(T)	4	25	198
4x2.5	PUR	9	0.18	5	1.2	BEF152109-4504-1QB	3	15	44
				12	2.4	BEF152809-4504-2QBH	6	30	46
				17	2.4	BEF152813-4504-3QBH	9	45	45
				26	1.7	BEF224320-4504-3EH(T)H	9	39	91
				35	1.7	BEF264622-0404-3DH(T)H	12	41	130
				40	1.5	BEF325524-0404-3MB(T)H	12	48	125
4x2.5	PUR(NSHTöu)	11.5	0.21	6	1.7	BEF152809-4504-1QB	3	15	46
				12	2.8	BEF152809-4504-2QBH	6	30	44
				19	3.1	BEF152813-4504-3UAH	9	33	87
				31	2.4	BEF224320-4504-3EH(T)H	9	39	96
				37	2.2	BEF264622-0404-3DH(T)H	12	41	130
5x2.5	NSHTöu-J	17.4	0.41	5	1.1	BEF183616-4505-1EI(T)	2	8	101
				11	2.0	BEF183616-4505-2EI(T)H	4	16	102
				19	2.2	BEF224320-4505-3IC(T)H	18	24	107
				23	1.7	BEF325524-0405-2MB(T)H	19	21	135
				28	1.6	BEF406525-0405-2CC(T)H	20	22	157
				35	2.0	BEF406525-0405-2BE(T)H	6	29	247
5x2.5	(SMK) (N)SHTöu-J	15	0.35	5	1.0	BEF183616-4505-1EI(T)	2	8	104
				11	1.8	BEF183616-4505-2FD(T)H	6	22	59
				19	2.0	BEF224320-4505-2EH(T)H	8	24	94
				21	1.8	BEF264622-0405-2DH(T)H	8	27	119
				23	1.5	BEF325524-0405-2MB(T)H	9	31	117
				28	1.4	BEF406525-0405-2CC(T)H	10	32	133
				39	1.9	BEF406525-0405-2BE(T)H	6	29	266
5x2.5	PUR(NSHTöu)	12.2	0.24	6	1.8	BEF152809-4505-1QB	3	15	45
				15	2.8	BEF152813-4505-2QBH	9	27	51
				19	2.9	BEF152815-4505-3UAH	9	33	87
				26	2.2	BEF224320-4505-3IC(T)H	9	33	111
				35	2.2	BEF264622-0405-3DH(T)H	13	40	127

Z = no. of conductors   nv = required turns for spring preload   Lw = winding length   Fz = max. cable tension   A = Cross-section   na = max. working turns   Lz = cable layers

Selection Tables for Reels

Z x A [mm²]	Cables Type	ø [mm]	m [kg/m]	Cable Length Lw [m]	Lz	Spring Cable Reel Spool - SRK - Springs	nv	na	Fz [N]
7x2.5	FLGöu-J (MTGöu-J)	15	0.39	5	1.0	BEF183616-4507-1EI(T)	2	8	104
				11	1.8	BEF183616-4507-2FD(T)H	9	19	63
				17	1.8	BEF224320-4507-2IC(T)H	6	22	109
				21	1.8	BEF264622-0407-2DH(T)H	10	25	123
				29	1.5	BEF406525-0407-2CC(T)H	17	25	153
				39	1.9	BEF406525-0407-2BE(T)H	6	29	266
7x2.5	NSHTöu-J	20.2	0.6	12	1.5	BEF264622-0407-1DH(T)	3	15	123
				16	1.9	BEF264622-0407-2EL(T)	3	17	156
				22	1.9	BEF325524-0407-2DI(T)	4	20	197
				27	1.8	BEF406525-0407-2BE(T)H	6	29	213
				33	1.7	BEF406532-0407-2BE(T)H	11	24	263
7x2.5	(SMK) (N)SHTöu-J	17.6	0.51	12	1.3	BEF264622-0407-1DH(T)	4	14	126
				16	1.6	BEF264622-0407-2DH(T)H	16	19	123
				22	1.7	BEF325524-0407-2DI(T)	4	20	201
				27	1.6	BEF406525-0407-2BE(T)H	6	29	216
				36	1.3	BEF508032-0407-2BD(T)	4	25	383
7x2.5	PUR(NSHTöu)	13.3	0.31	9	2.5	BEF152809-4507-2QBH	6	30	40
				15	3.0	BEF152813-4507-3UAH	9	33	76
				23	2.1	BEF224320-4507-3IC(T)H	9	33	104
				27	2.0	BEF264622-0407-3DH(T)H	22	31	127
				33	1.5	BEF406525-0407-2CC(T)H	8	34	139
				40	1.4	BEF406532-0407-3BE(T)H	9	44	220
12x2.5	FLGöu-J (MTGöu-J)	22	0.72	10	1.3	BEF264622-0412-1DH(T)	4	14	114
				15	1.8	BEF264622-0412-2EL(T)	4	16	154
				18	1.8	BEF325524-0412-2DI(T)	7	17	193
				23	2.2	BEF325524-0412-3DI(T)	4	20	296
				30	1.4	BEF508032-0412-1AB(T)	4	20	352
				35	1.6	BEF508032-0412-2BD(T)	4	25	369
12x2.5	NSHTöu-J	23.8	0.86	9	1.1	BEF325524-0412-1MB(T)	7	13	114
				18	1.9	BEF325524-0412-2MB(T)	4	16	263
				23	2.3	BEF325524-0412-3DI(T)	4	20	291
				28	1.4	BEF508032-0412-1AB(T)	5	19	347
				41	2.0	BEF508032-0412-3BD(T)	4	25	598
12x2.5	(SMK) (N)SHTöu-J	24.4	0.92	9	1.1	BEF325524-0412-1MB(T)	9	11	122
				18	1.9	BEF325524-0412-2MB(T)	4	16	261
				22	2.3	BEF325524-0412-3DI(T)	6	18	297
				28	1.4	BEF508032-0412-1AB(T)	7	17	369
				41	1.9	BEF508032-0412-3BD(T)	4	25	597
12x2.5	PUR	18	0.58	13	1.7	BEF224320-4512-2IC(T)H	10	18	104
				17	1.3	BEF325524-0412-2DI(T)	4	20	182
				23	1.5	BEF406525-0412-2CC(T)	3	18	311
				32	1.9	BEF406525-0412-2BE(T)H	8	27	245
				40	1.5	BEF508032-0412-2BD(T)	4	25	406
12x2.5	PUR(NSHTöu)	19.9	0.48	10	1.4	BEF224320-4512-1EH(T)	3	13	90
				16	2.1	BEF224320-4512-2IC(T)H	8	20	105
				20	1.8	BEF325524-0412-2DI(T)	4	20	190
				24	1.6	BEF406525-0412-1CC(T)	3	18	157
				36	2.3	BEF406525-0412-2BE(T)H	6	29	245
18x2.5	FLGöu-J (MTGöu-J)	25	0.9	8	1.0	BEF325524-0418-1MB(T)	6	14	106
				18	1.9	BEF325524-0418-2MB(T)	4	16	261
				22	2.2	BEF325524-0418-3DI(T)	5	19	291
				24	1.9	BEF406525-0418-2CC(T)	3	18	304
				27	1.5	BEF508032-0418-1AB(T)	6	18	350
				41	2.1	BEF508032-0418-3BD(T)	4	25	593

Z = no. of conductors   nv = required turns for spring preload   Lw = winding length   Fz = max. cable tension   A = Cross-section   na = max. working turns   Lz = cable layers

Selection Tables for Reels

	Cables			Cable Length		Spring Cable Reel	Spring Motor		
Z x A [mm²]	Type	ø [mm]	m [kg/m]	Lw [m]	Lz	Spool - SRK - Springs	nv	na	Fz [N]
18x2.5	NSHTöu-J	28.7	1.24	13	1.4	BEF406525-0418-1BE(T)	4	14	214
				21	2.1	BEF406525-0418-2BE(T)	3	15	515
				25	1.5	BEF508032-0418-2BE(T)	3	15	409
				33	1.9	BEF508032-0418-2AB(T)	4	20	715
18x2.5	(SMK) (N)SHTöu-J	24.3	1.05	13	1.5	BEF325524-0418-2DI(T)	12	12	195
				20	2.1	BEF325524-0418-3DI(T)	7	17	296
				26	1.3	BEF508032-0418-1AB(T)	9	15	377
				33	1.6	BEF508032-0418-2AB(T)	4	20	733
18x2.5	PUR	18	0.64	12	1.5	BEF224320-4518-2IC(T)H	12	16	106
				15	1.5	BEF264622-0418-2EL(T)	3	17	155
				20	1.5	BEF325524-0418-2DI(T)	4	20	193
				24	1.5	BEF406525-0418-2CC(T)	3	18	318
				27	1.7	BEF406525-0418-2BE(T)H	9	26	232
				32	1.2	BEF508032-0418-1AB(T)	4	20	371
				40	1.5	BEF508032-0418-2BD(T)	4	25	406
18x2.5	PUR(NSHTöu)	19.5	0.68	13	1.5	BEF264622-0418-2EL(T)	3	17	141
				20	1.6	BEF325524-0418-2DI(T)	6	18	200
				29	1.9	BEF406525-0418-2BE(T)H	13	22	259
				36	1.5	BEF508032-0418-2BD(T)	4	25	380
24x2.5	FLGöu-J (MTGöu-J)	27	1.22	6	0.9	BEF325524-1824-1MB(T)	8	12	107
				14	1.7	BEF325524-1824-2MB(T)	5	15	240
				19	2.2	BEF325524-1824-3MB(T)	4	16	393
				24	1.7	BEF406532-1824-3CC(T)	3	18	455
				33	1.9	BEF508032-1824-2AB(T)	4	20	720
24x2.5	(SMK) (N)SHTöu-J	27.7	1.32	9	1.0	BEF406525-1824-1BE(T)	3	15	176
				20	1.8	BEF406525-1824-2BE(T)	3	15	508
				25	1.5	BEF508032-1824-3BE(T)	3	15	615
				35	2.0	BEF508032-1824-2AB(T)	4	20	741
24x2.5	PUR(NSHTöu)	24.3	0.82	9	1.1	BEF325524-1824-1MB(T)	5	15	106
				18	1.9	BEF325524-1824-2MB(T)	4	16	262
				24	2.4	BEF325524-1824-3DI(T)	4	20	295
				34	1.7	BEF508032-1824-2BD(T)	7	22	390
30x2.5	PUR(NSHTöu)	27.3	0.97	12	1.2	BEF406525-1830-1CC(T)	12	9	157
				21	1.9	BEF406525-1830-2CC(T)	3	18	281
				30	1.7	BEF508032-1830-2BD(T)	12	17	413
				40	2.2	BEF508032-1830-3BD(T)	4	25	577
36x2.5	PUR	25	1.3	6	0.8	BEF325524-1836-1MB(T)	10	10	116
				13	1.5	BEF325524-1836-2MB(T)	5	15	238
				19	2.0	BEF325524-1836-3MB(T)	4	16	400
				24	1.6	BEF406532-1836-3CC(T)	3	18	461
				33	1.7	BEF508032-1836-2AB(T)	4	20	728
4x4	NSHTöu-J	19.1	0.49	9	1.3	BEF224320-4704-1EH(T)	3	13	87
				16	2.1	BEF224320-4704-2IC(T)H	9	19	108
				22	1.8	BEF325524-0704-2DI(T)	4	20	198
				34	2.0	BEF406525-0704-2BE(T)H	6	29	240
4x4	(SMK) (N)SHTöu-J	17	0.45	9	1.7	BEF183616-4704-2EI(T)H	4	16	94
				16	2.0	BEF224320-4704-2IC(T)H	6	22	103
				22	1.7	BEF325524-0704-2DI(T)	4	20	201
				34	1.9	BEF406525-0704-2BE(T)H	6	29	243
4x4	PUR	11.5	0.23	5	1.4	BEF152809-4704-2UA	3	11	164
				11	2.0	BEF152813-4704-2QBH	6	30	44
				19	1.6	BEF224320-4704-2EH(T)H	6	26	94
				27	2.1	BEF224320-4704-3EH(T)H	9	39	90
				30	1.9	BEF264622-0704-3DH(T)H	12	41	119
				38	1.8	BEF325524-0704-3MB(T)H	17	43	127

Z = no. of conductors   nv = required turns for spring preload   Lw = winding length   Fz = max. cable tension   A = Cross-section   na = max. working turns   Lz = cable layers

Selection Tables for Reels

Z x A [mm²]	Cables Type	ø [mm]	m [kg/m]	Cable Length Lw [m]	Lz	Spring Cable Reel Spool - SRK - Springs	Spring Motor nv	na	Fz [N]
4x4	PUR(NSHTöu)	12.7	0.28	5	1.6	BEF152809-4704-1QB	3	15	42
				11	2.9	BEF152809-4704-2QBH	8	28	44
				20	1.8	BEF224320-4704-2EH(T)H	6	26	94
				24	1.7	BEF264622-0704-2DH(T)H	8	27	128
				30	2.0	BEF264622-0704-3DH(T)H	19	34	128
				39	1.7	BEF406525-0704-2CC(T)H	7	35	148
5x4	NSHTöu-J	21.5	0.64	12	1.5	BEF264622-0705-1DH(T)	4	14	122
				16	1.9	BEF264622-0705-2EL(T)	3	17	155
				21	2.0	BEF325524-0705-2DI(T)	6	18	200
				23	2.2	BEF325524-0705-3DI(T)	4	20	297
				26	1.9	BEF406525-0705-2BE(T)H	9	26	223
				30	1.7	BEF406532-0705-2BE(T)H	12	23	256
				40	1.8	BEF508032-0705-2BD(T)	4	25	398
5x4	(SMK) (N)SHTöu-J	18.4	0.43	12	1.7	BEF224320-4705-2IC(T)H	6	22	91
				17	1.8	BEF264622-0705-2DH(T)H	9	26	110
				21	1.7	BEF325524-0705-2DI(T)	4	20	196
				26	1.6	BEF406525-0705-2CC(T)H	20	22	153
				29	1.1	BEF508032-0705-1BD(T)	6	23	180
				40	1.5	BEF508032-0705-2BD(T)	4	25	406
5x4	PUR(NSHTöu)	13.8	0.32	10	1.6	BEF183616-4705-2EI(T)H	4	16	102
				16	1.6	BEF224320-4705-2IC(T)H	6	22	107
				21	2.0	BEF224320-4705-3IC(T)H	9	33	99
				30	1.7	BEF325524-0705-2MB(T)H	12	27	138
				38	1.7	BEF406525-0705-2BE(T)H	6	29	265
4x6	NSHTöu-J	20.7	0.61	12	1.5	BEF264622-0704-1DH(T)	4	14	123
				16	1.9	BEF264622-0704-2EL(T)	3	17	155
				22	1.9	BEF325524-0704-2DI(T)	5	19	200
				28	1.9	BEF406525-0704-2BE(T)H	8	27	227
				40	1.7	BEF508032-0704-2BD(T)	4	25	400
4x6	(SMK) (N)SHTöu-J	18.4	0.57	13	1.8	BEF224320-4704-2IC(T)H	10	18	104
				15	1.6	BEF264622-0704-2EL(T)	3	17	153
				22	1.8	BEF325524-0704-2DI(T)	4	20	199
				28	1.7	BEF406525-0704-2BE(T)H	6	29	219
				40	1.5	BEF508032-0704-2BD(T)	4	25	406
4x6	PUR	13	0.32	5	1.6	BEF152809-4704-1QB	3	15	42
				11	2.9	BEF152809-4704-2QBH	15	21	49
				18	2.9	BEF152815-4704-3UAH	9	33	84
				23	2.1	BEF224320-4704-3IC(T)H	9	33	104
				32	1.4	BEF406525-0704-2CC(T)H	9	33	140
				38	1.6	BEF406525-0704-2BE(T)H	6	29	266
4x6	PUR(NSHTöu)	14	0.37	6	1.1	BEF183616-4704-1FD(T)	3	11	63
				12	1.8	BEF183616-4704-2FD(T)H	9	19	66
				19	1.9	BEF224320-4704-3IC(T)H	10	32	97
				23	1.8	BEF264622-0704-2DH(T)H	9	25	129
				32	1.5	BEF406525-0704-2CC(T)H	18	24	161
				40	1.5	BEF406532-0704-3BE(T)H	9	44	219
5x6	(SMK) (N)SHTöu-J	20	0.69	6	1.4	BEF183616-4705-1FD(T)	4	10	62
				11	1.6	BEF224320-4705-2IC(T)H	13	15	104
				18	1.6	BEF325524-0705-2DI(T)	5	19	187
				23	2.0	BEF325524-0705-3DI(T)	4	20	301
				32	1.3	BEF508032-0705-1AB(T)	4	20	368
				39	1.6	BEF508032-0705-2BD(T)	4	25	397

Z = no. of conductors   nv = required turns for spring preload   Lw = winding length   Fz = max. cable tension   A = Cross-section   na = max. working turns   Lz = cable layers

Selection Tables for Reels

	Cables							Spring Motor		
Z x A [mm²]	Type	ø [mm]	m [kg/m]	Cable Length Lw [m]	Lz	Spring Cable Reel Spool - SRK - Springs		nv	na	Fz [N]
5x6	PUR(NSHTöu)	15.3	0.43	10	1.7	BEF183616-4705-2EI(T)H		4	16	100
				14	1.5	BEF224320-4705-2IC(T)H		6	22	100
				19	1.6	BEF264622-0705-2DH(T)H		12	23	123
				26	1.4	BEF406525-0705-2CC(T)H		19	23	152
				34	1.7	BEF406525-0705-2BE(T)H		6	29	246
				40	1.6	BEF406532-0705-3BE(T)H		12	41	228
4x10	NSHTöu-J	25	0.94	8	1.0	BEF325524-1504-1MB(T)		7	13	110
				18	1.9	BEF325524-1504-2MB(T)		4	16	261
				24	1.9	BEF406525-1504-2CC(T)		3	18	304
				30	1.6	BEF508032-1504-3CC(T)		4	17	375
				41	2.1	BEF508032-1504-3BD(T)		4	25	593
4x10	(SMK) (N)SHTöu-J	22.6	0.9	8	0.9	BEF325524-1504-1MB(T)		6	14	108
				18	1.8	BEF325524-1504-2MB(T)		4	16	265
				24	1.8	BEF406525-1504-2CC(T)		3	18	309
				30	1.4	BEF508032-1504-3CC(T)		3	18	372
				40	1.8	BEF508032-1504-3BD(T)		4	25	595
4x10	PUR	15.5	0.5	11	1.1	BEF264622-1504-1EL(T)		7	13	79
				15	1.3	BEF264622-1504-2EL(T)		3	17	158
				21	1.4	BEF325524-1504-2DI(T)		4	20	200
				29	1.5	BEF406525-1504-2BE(T)H		6	29	227
				39	1.6	BEF406532-1504-3BE(T)H		21	32	258
4x10	PUR(NSHTöu)	17.9	0.61	12	1.3	BEF264622-1504-1DH(T)		4	14	125
				15	1.5	BEF264622-1504-2EL(T)		3	17	155
				22	1.7	BEF325524-1504-2DI(T)		4	20	200
				29	1.8	BEF406525-1504-2BE(T)H		8	27	234
				39	1.5	BEF508032-1504-2BD(T)		4	25	400
5x10	(SMK) (N)SHTöu-J	24.4	1.08	8	1.0	BEF325524-1505-1MB(T)		11	9	127
				17	1.8	BEF325524-1505-2MB(T)		5	15	263
				24	1.5	BEF406532-1505-3CC(T)		3	18	464
				32	1.6	BEF508032-1505-2AB(T)		4	20	720
				40	1.9	BEF508032-1505-3BD(T)		5	24	604
5x10	PUR(NSHTöu)	19.5	0.7	11	1.3	BEF264622-1505-1DH(T)		4	14	120
				16	1.7	BEF264622-1505-2EL(T)		3	17	158
				22	1.8	BEF325524-1505-3DI(T)		4	20	297
				28	1.9	BEF406525-1505-2BE(T)H		14	21	260
				39	1.6	BEF508032-1505-2BD(T)		4	25	397
4x16	NSHTöu-J	29	1.32	12	1.4	BEF406525-1604-1BE(T)		4	14	207
				21	2.1	BEF406525-1604-2BE(T)		3	15	515
				25	1.5	BEF508032-1604-3BE(T)		3	15	612
				33	1.9	BEF508032-1604-1AB(T)		4	20	715
4x16	(SMK) (N)SHTöu-J	25.2	1.24	12	1.2	BEF406525-1604-1BE(T)		3	15	200
				20	1.8	BEF406525-1604-2BE(T)		3	15	514
				24	1.3	BEF508032-1604-2BE(T)		3	15	405
				33	1.7	BEF508032-1604-2AB(T)		4	20	728
4x16	PUR	19	0.8	12	0.9	BEF406525-1604-1CC(T)		6	15	130
				19	1.2	BEF406525-1604-1BE(T)		3	15	261
				24	1.5	BEF406525-1604-2CC(T)		3	18	317
				27	1.1	BEF508032-1604-1AB(T)		4	20	337
				40	1.6	BEF508032-1604-3BD(T)		4	25	606
4x16	PUR(NSHTöu)	22.3	0.92	12	1.0	BEF406525-1604-1CC(T)		10	11	148
				19	1.4	BEF406525-1604-1BE(T)		3	15	256
				24	1.8	BEF406525-1604-2CC(T)		3	18	310
				27	1.3	BEF508032-1604-1AB(T)		6	18	355
				40	1.8	BEF508032-1604-3BD(T)		4	25	595

Z = no. of conductors   nv = required turns for spring preload   Lw = winding length   Fz = max. cable tension   A = Cross-section   na = max. working turns   Lz = cable layers

Selection Tables for Reels

Z x A [mm²]	Cables Type	ø [mm]	m [kg/m]	Cable Length Lw [m]	Lz	Spring Cable Reel Spool - SRK - Springs	nv	na	Fz [N]
5x16	(SMK) (N)SHTöu-J	27.6	1.5	12	1.2	BEF406525-1605-1BE(T)	7	11	241
				22	1.6	BEF406532-1605-3CC(T)	3	18	434
				33	1.9	BEF508032-1605-2AB(T)	4	20	718
5x16	PUR(NSHTöu)	24.3	1.07	12	1.1	BEF406525-1605-1BE(T)	3	15	201
				19	1.6	BEF406525-1605-2CC(T)	3	18	273
				24	1.5	BEF406532-1605-3CC(T)	3	18	464
				27	1.4	BEF508032-1605-2BD(T)	13	16	413
				40	1.9	BEF508032-1605-3BD(T)	5	24	604
4x25	(SMK) (N)SHTöu-J	30	1.85	12	0.9	BEF508032-1904-2BE(T)	4	14	302
				20	1.4	BEF508032-1904-3BE(T)	3	15	540
				33	2.0	BEF508032-1904-3AB(T)	4	20	1062
4x25	PUR(NSHTöu)	25.8	1.27	12	1.2	BEF406525-1904-1BE(T)	3	15	199
				18	1.7	BEF406525-1904-2CC(T)	7	14	303
				23	1.5	BEF406532-1904-3CC(T)	3	18	450
				35	1.8	BEF508032-1904-2AB(T)	4	20	750
4x35	PUR(NSHTöu)	28.3	1.72	11	1.3	BEF406525-1904-1BE(T)	9	9	253
				20	2.0	BEF406525-1904-2BE(T)	3	15	503
				30	1.7	BEF508032-1904-2AB(T)	6	18	726
19x2.5+5x1(C)	(SMK) (N)SHTöu-J	27.7	1.29	7	0.8	BEF406525-1824-1CC(T)	9	12	123
				12	1.2	BEF406525-1824-1BE(T)	4	14	209
				17	1.6	BEF406525-1824-2CC(T)	7	14	294
				24	1.7	BEF406532-1824-3CC(T)	3	18	453
				33	1.9	BEF508032-1824-2AB(T)	4	20	718
26x2.5+4x2.5(C)	PUR	24.5	1.22	8	1.0	BEF325524-1830-1MB(T)	8	12	115
				14	1.6	BEF325524-1830-2MB(T)	4	16	237
				20	2.1	BEF325524-1830-3DI(T)	7	17	296
				24	1.9	BEF406525-1830-2CC(T)	4	17	315
				33	1.6	BEF508032-1830-2AB(T)	4	20	732
3x25+3G6	PUR	21.5	1.04	7	0.7	BEF406525-1904-1CC(T)	4	17	101
				12	1.0	BEF406525-1904-1BE(T)	3	15	204
				20	1.2	BEF406532-1904-2CC(T)	3	18	286
				24	1.4	BEF406532-1904-3CC(T)	3	18	471
				33	1.5	BEF508032-1904-2AB(T)	4	20	742
3x35+3x16/3	(SMK) (N)SHTöu-J	30	2.16	9	1.1	BEF406525-1904-1BE(T)	11	7	257
				14	1.5	BEF406525-1904-2BE(T)	3	15	418
				20	1.6	BEF406532-1904-3BE(T)	3	15	760
				33	2.0	BEF508032-1904-3AB(T)	4	20	1062
3x35+3G6	PUR	25	1.41	9	0.9	BEF406525-1904-1BE(T)	3	15	178
				15	1.3	BEF406525-1904-2CC(T)	7	14	285
				20	1.6	BEF406525-1904-2BE(T)	3	15	518
				33	1.7	BEF508032-1904-2AB(T)	4	20	728

Z = no. of conductors   nv = required turns for spring preload   Lw = winding length   Fz = max. cable tension   A = Cross-section   na = max. working turns   Lz = cable layers

The reel types presented in these tables have been categorised according to their maximum spring forces, maximum winding capabilities and maximum permissible cable tension. The part numbers all refer to the standard reel which unwinds counterclockwise.

Springs and Slip Ring Bodies

Spring Motors and Spring Forces

Reel Type	Spring Motor	Spring Data			Spring Force		
		nBlock	nv	nr	Fe [N]	Fa [N]	Fz [N]
BEF 152109	1QB(T)	19	3	1	67	31	115
BEF 152813	1UA(T)	15	3	1	52	14	95
BEF 152815	3QB(T)H	57	9	3	67	29	115
BEF 183616	1EI(T)	11	2	1	98	44	107
	2EI(T)H	22	4	2	98	40	107
	2FD(T)H	30	6	2	58	27	69
BEF 224320	1EH(T)	17	3	1	84	38	95
	1IC(T)	15	3	1	101	47	111
	2EH(T)H	34	6	2	84	34	95
	2IC(T)H	30	6	2	101	43	111
	3EH(T)H	51	9	3	84	31	95
	3IC(T)H	45	9	3	101	39	111
BEF 264622	1DH(T)	18.5	4	1	107	60	129
	2DH(T)H	37	8	2	107	57	129
	2EL(T)	21	3	1	144	53	161
	2EL(T)H	42	6	2	72	24	81
	3DH(T)H	55.5	12	3	107	52	129
	3EL(T)H	63	9	3	72	22	81
BEF 325524	1MB(T)	22	4	2	121	62	138
	2DI(T)	26	4	2	173	90	204
	2DI(T)H	52	8	4	86	41	102
	2MB(T)	22	4	2	243	124	276
	2MB(T)H	44	8	4	121	58	138
	3DI(T)	26	4	2	259	135	307
	3DI(T)H	78	12	6	86	38	102
	3MB(T)	22	4	2	364	186	413
	3MB(T)H	66	12	6	121	54	138
BEF 406525	1BE(T)	18.5	3	1	216	71	254
	1CC(T)	21	3	1	151	52	177
	2BE(T)	18.5	3	1	432	142	507
	2BE(T)H	37	6	2	216	72	254
	2CC(T)	21	3	1	302	105	355
	2CC(T)H	42	6	2	151	49	177
BEF 406532	2BE(T)H	37	6	2	216	74	254
	2CC(T)H	42	6	2	151	51	177
	3BE(T)H	55.5	9	3	216	69	254
	3CC(T)	21	3	1	454	160	532
	3CC(T)H	63	9	3	151	48	177
BEF 508032	1AB(T)	23.5	4	1	277	96	326
	1BE(T)	18.5	3	1	171	57	200
	2AB(T)	23.5	4	1	543	169	637
	2AB(T)H	47	8	2	277	96	326
	2BD(T)	28	4	1	314	99	369
	2BD(T)H	56	8	2	161	54	189
	2BE(T)	18.5	3	1	334	103	392
	2BE(T)H	37	6	2	171	59	200
	2CC(T)	21	3	1	239	84	280
	3AB(T)	23.5	4	1	832	287	977
	3BD(T)	28	4	1	482	171	566
	3BE(T)	18.5	3	1	512	172	601
	3BE(T)H	55.5	9	3	171	56	200
	3CC(T)	21	3	1	358	127	421
	3CC(T)H	63	9	3	119	39	140

Terminology, Spring Data:
- nBlock: Maximum number of spring turns
- nv: Required number of pre-turns for pre-loading the spring motor
- nr: Number of remaining spare windings when maximum winding length of cable is achieved

Terminology, Spring Forces:
- Fe: Retarding spring motor force if cable is fully unwound (during unwinding)
- Fa: Remaining spring motor force if cable is fully wound-up (during winding)
- Fz: Maximum cable tension when cable is fully unwound from reel

All stated forces refer to the specific drum diameter of reels noted at minimum pre-turns.

Slip Ring Bodies

Type	Arrangement [V~]	Terminal Connect.
0403	2 x 25 A+SL 415V	yes
0404	3 x 25 A+SL 415V	yes
0405	4 x 25 A+SL 415V	yes
0407	6 x 25 A+SL 415V	yes
0412	11 x 25 A+SL 415V	yes
0418	17 x 25 A+SL 415V	yes
0704	3 x 47 A+SL 660V	yes
0705	4 x 47 A+SL 660V	yes
1304	3 x 50 A+SL 500V	-
1305	4 x 50 A+SL 500V	-
1504	3 x 90 A+SL 500V	-
1604	3 x 100 A+SL 660V	-
1824	23 x 25 A+SL 500V	yes
1830	29 x 25 A+SL 500V	yes
1904	3 x 150 A+SL 660V	-
4503	2 x 25 A+SL 415V	yes
4504	3 x 25 A+SL 415V	yes
4505	4 x 25 A+SL 415V	yes
4507	6 x 25 A+SL 415V	yes
4512	11 x 25 A+SL 415V	yes
4704	3 x 47 A+SL 660V	yes

Dimensional Details

Standard Unwinding,
Counterclockwise

Installation Dimensions
BEF1521...

Mounting Flange
Dimensions

Overall Cable Reel Dimensions

Type	Reel			Mounting Flange					
	ø d [mm]	ø D [mm]	b [mm]	a [mm]	ø g [mm]	ø h [mm]	i [mm]	ø k [mm]	F_M [mm]
BEF 152109	150	210	95	48	115	98	8	9	M20x1.5
BEF 152809		280							
BEF 152813			130						
BEF 152815			150						

Types and Dimensions of the Slip Ring Assemblies

Slip Ring Assembly	I [A]	U [V]	ø c [mm]	L_M	f_1 [mm]	Max. Poles / f_2	
45/1	25	415	182	M20x1.5	47	5 / 105	12 / 215
45/2		1000				3 / 105	7 / 215
45/3	47					-	5 / 215

Dimensional Details

Spring Cable Reels BEF 180 to 500

Standard Unwinding, Counterclockwise

Model with Plastic Slip Ring Cover

Mounting Flange Dimensions

Oblong Hole $4 \times \varnothing h_2 \varnothing h_3$

Model with Metal Slip Ring Housing, Type 16 and 19

$4 \times \varnothing k_1$ $(\varnothing h_1)$
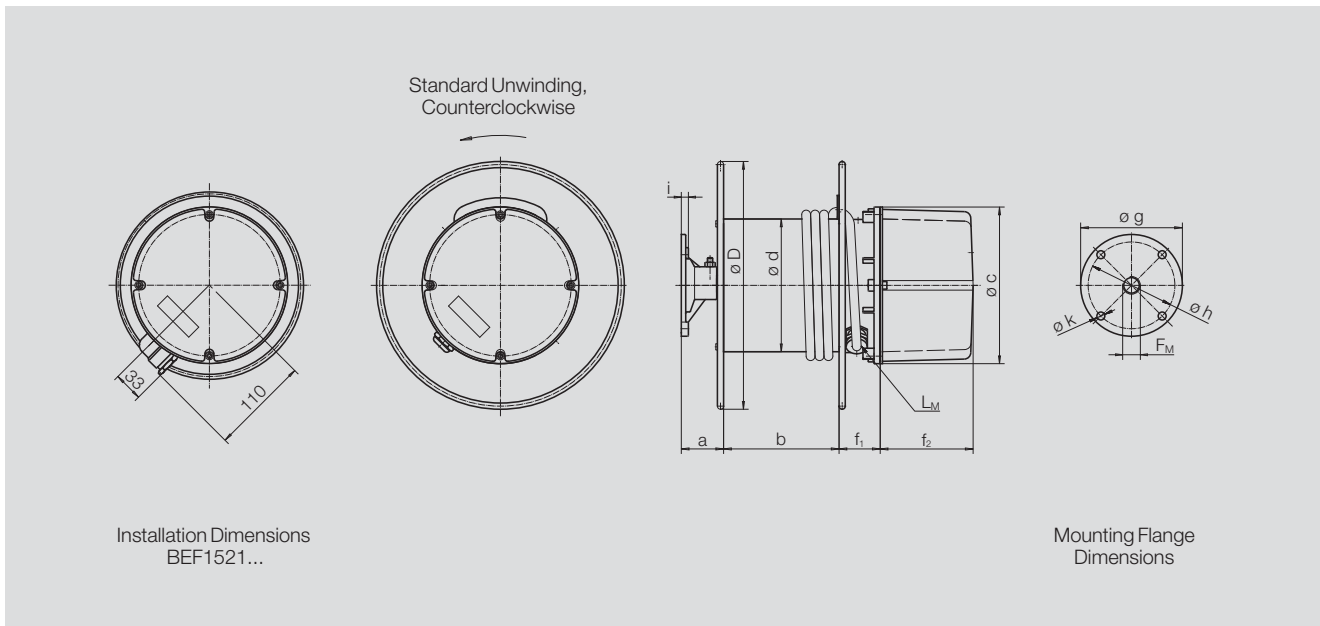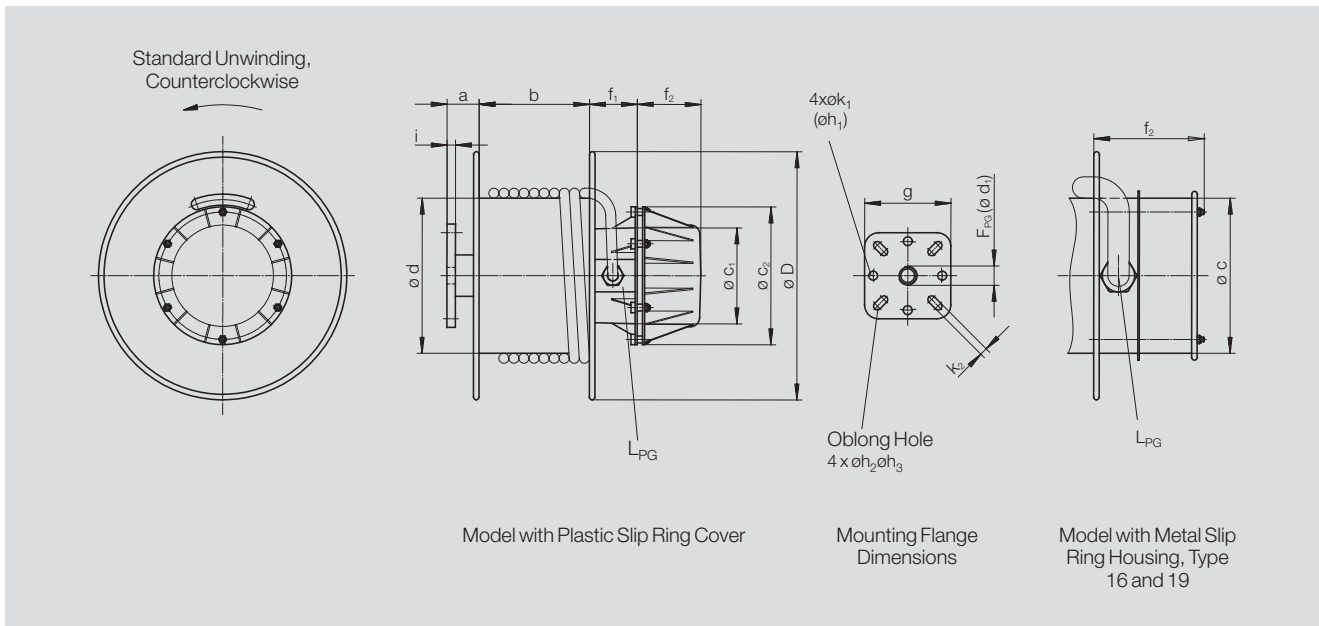
Overall Cable Reel Dimensions

Type	Reel ⌀ d [mm]	⌀ D [mm]	b [mm]	Mounting Flange a [mm]	g [mm]	⌀ h_1 [mm]	⌀ h_2 [mm]	⌀ h_3 [mm]	i [mm]	⌀ k_1 [mm]	⌀ k_2 [mm]	F_{PG} ⌀ d_1 [mm]
BEF 183616	185	360	160	46.5	125	100	98	125	12.3	13	11	21 (27)
BEF 224320	225	430	200									
BEF 264622	265	460	220									29 (36)
BEF 325524	325	550	235									
BEF 406525	400	650	252	63.5	160	-	140	180	20	-	17	36 (45)
BEF 406532	400	650	320									
BEF 508032	510	800	320									

Types and Dimensions of the Slip Ring Assemblies

Reel Type	Type	Slip Ring Assembly Max. Poles	I [A]	U [V]	f_1 [mm]	L_{PG}	Cover ⌀ c [mm]	⌀ c_1 [mm]	⌀ c_2 [mm]	Max. Poles / f_2 [f_2 = mm]				Mat[1]
18....	45	12	25	415	69	21/29	-	140	200	5/90	9/150	12/190	-	
22....	45	12	25	415						5/90	9/150	12/190	-	
	46	7	25	660	69	21/29	-	140	200	3/90	5/150	6/190	7/280	
	47	4	47	660						4/150	-	-	-	
26....32	4	18	25	415						5/90	9/150	12/190	18/280	
	5	7	25	660	69			140	200	3/90	5/150	6/190	7/280	
	7	5	47	660		21/29	-			4/150	5/190	-	-	
	13	5	50	500	71					5/125	-	-	-	
	15	5	90	500				216	255	5/125	-	-	-	
	18	36	25	500	69					18/190	24/280	-	-	KS
					114					36/280	-	-	-	
40....50	4	18	25	415	69					4/90	8/150	11/190	18/280	
	5	7	25	660				140	200	3/90	5/150	6/190	7/280	
	7	5	47	660		21/29	-			3/150	4/190	5/280	-	
	13	5	50	500	71					5/125	-	-	-	
	15	5	90	500				216	255	5/125	-	-	-	
	18	36	25	500	69					18/190	24/280	-	-	
					114					36/280	-	-	-	
	16	5	100	660	-	36	400	-	-	4/260	5/350	-	-	BI
	19		150	660										

Slip Ring Assemblies are rated at 100% Duty Cycle.

1) KS = Plastic; Bl = Sheet Metal

Accessories

Cable Grips (Z100)

Type Z1 With One Eyelet
Type Z2 With Two Eyelets
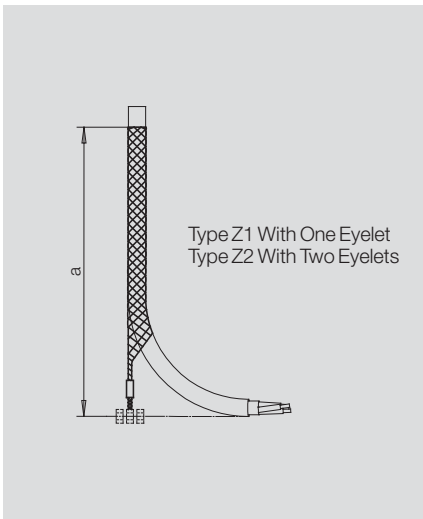
Type	Mat.-No.	Cable Diameter [mm]	Perm. Load [kg]	a [mm]	Eyelet ø [mm]	Dia. No.	Weight [kg]
Z1-10	1036968	10	200	650	9 -16	1	0.05
Z1-15	1036969	10 - 15	250	700	9 -16	1	0.08
Z1-20	1036970	15 - 20	400	700	9 -16	1	0.09
Z1-30	93702	20 - 30	500	700	16 - 20	1	0.10
Z1-40	1036972	30 - 40	750	700	16 - 20	1	0.15
Z1-50	1036973	40 - 50	1300	700	20 - 24	1	0.20
Z1-60	1036974	50 - 60	1500	700	20 - 24	1	0.30
Z2-27	1036975	21-27	500	700	16 - 18	2	0.16
Z2-35	1036976	28-35	750	700	14 - 20	2	0.20
Z2-45	1036977	36-45	1300	700	14 - 20	2	0.20
Z2-55	1036978	46-55	1500	700	17 - 20	2	0.30

The cable grips are made of galvanised steel wire for the distribution of dynamic stresses over a sufficient jacket surface area to inhibit cable damage.

Cable Collars (Z105)
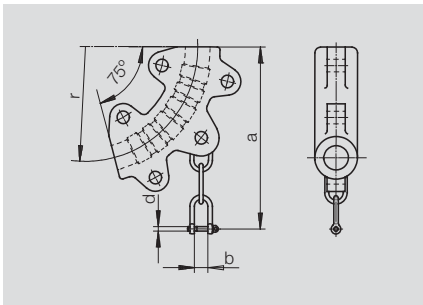
Type	Mat.-No.	Cable Diameter [mm]	r [mm]	a [mm]	d [mm]	b [mm]	Weight [kg]
LS 1	1012370	-21.5	100	205	10	14	1.6
LS 2	1012371	> 21.5-28	130	225	10	14	2.8
LS 3	1012372	> 28-36.5	170	265	12	17	3.5
LS 4	1012373	> 36.5-48	220	300	12	17	5.5
LS 5	1012374	> 48.0-63	290	405	16	21	8.5

Deflection Pulley < 1kV (Z410)
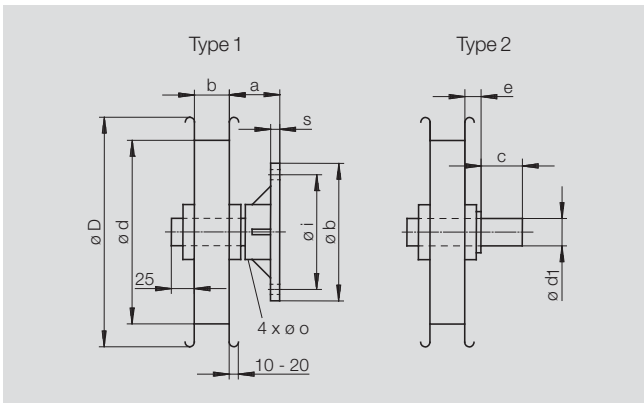
Type 1   Type 2

Type	Mat.-No.	
	Type 1	Type 2
UR-200	1020400	1036987
UR-260	1020883	1036988
UR-385	1029377	1029911
UR-510	1029912	1029913

Type	d [mm]	D [mm]	a [mm]	b [mm]	c [mm]	e [mm]	d₁ [mm]	i [mm]	m [mm]	o [mm]	s [mm]	Weight [kg]
UR-200	200	250	55	38	31	14	30[1]	125	150	11	10	3
UR-260	260	300	4	38	31	14	30[1]	125	150	11	10	4
UR-385	385	450	70	45	43	19	45[2]	140	175	17	16	15
UR-510	510	580	1	45	43	19	45[2]	140	175	17	16	19

Tolerance: 1) 30 $^{+0}_{-52}$

2) 45 $^{+0}_{-62}$

Accessories
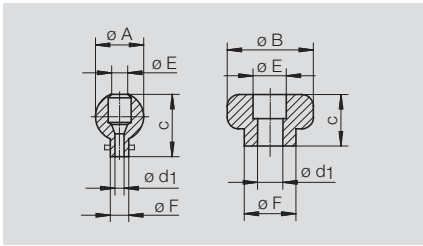
Type	Mat.-No.	Cable or Wire Diameter-ø		Dimensions [mm]					
		from [mm]	to [mm]	ø A	ø B	C	ø d₁	ø E	ø F
Limit Stop G1	040278	4	6	42	-	50	6	18	13
Limit Stop G2	040279	6	8	42	-	50	8	20	16
Limit Stop G3	040280	10	14	49	-	50	14	14	22
Limit Stop G4	040281	12	15	49	-	50	15	19	22
Limit Stop G5	2040282	13	17	-	75	45	17	20	40
Limit Stop G6	020963	18	22	-	75	35	22	24	4

Support Rollers (Z480)
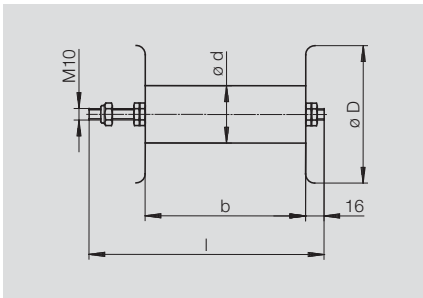
Roller Guide Type [kg]	Mat.-No.	Dimensions [mm]				Weight [kg]
		ø d	ø D	b	l	
50 x 140	1145960	50	120	140	205	0.55
50 x 190	1145961			190	255	0.62
50 x 290	1145962			290	355	0.77

Roller: plastic
Flanges and hardware: galvanized steel

Cable roller guides are of a synthetic insulating material with mainte-nance free bearings. The roll body is insulated from the axle.
Roller guides in longer lengths and diameters, as well as in heavy-duty design, with and without flanges are available.

Roller Nozzles (Z600)
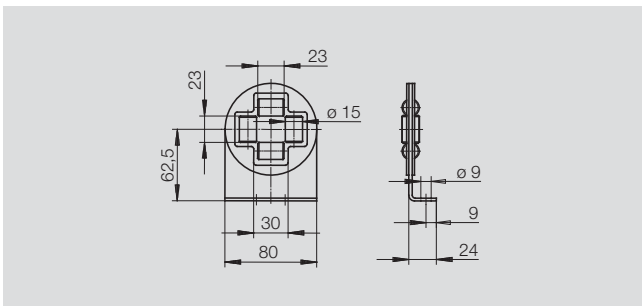
Type 001, Mat.-No.: 1018356
• Housing: galvanized steel
• Rollers: synthetic
• Temperature range: -40°C to +60°C
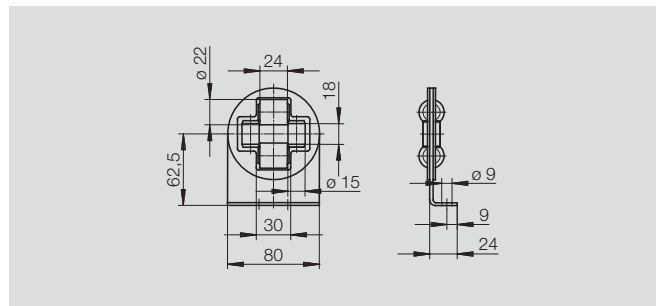
Type 001-A, Mat.-No.: 92026
• Housing: galvanized steel
• Rollers: synthetic with overlapping edges
• Temperature range: -40°C to +60°C
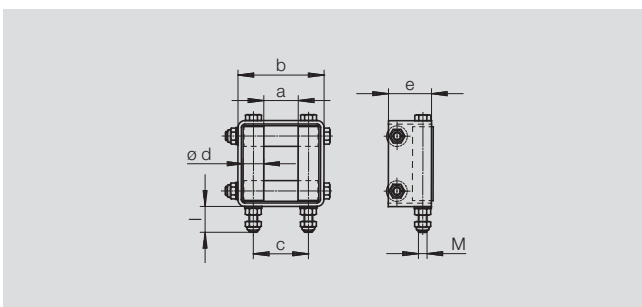
Type	Mat.-No.	Dimensions [mm]						
		a	b	c	d	e	l	M
003	92027	10	40	22	12	25	15	5
004	92028	20	50	32				6
005	1018357	32	70	47	15	29	20	
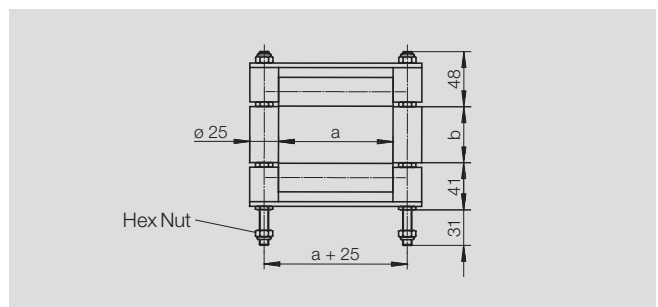
Type	Mat.-No.	Dimensions [mm]	
		a	b
002-1305	1018358	130	45
002-2205	1036348	220	45
002-0606	1036351	60	60
Special Dimensions On Request			

• Housing: galvanized steel
• Rollers: synthetic
• Temperature range: -40° to +60° C

• Brackets and screws: galvanized steel
• Rollers and pieces: synthetic
• Temperature range: -40°C to +60°C
• Measurements a + b can be adjusted to your needs.

Roller guides have various applications including telescopic crane booms as well as manual hose and cable reels.

Accessories
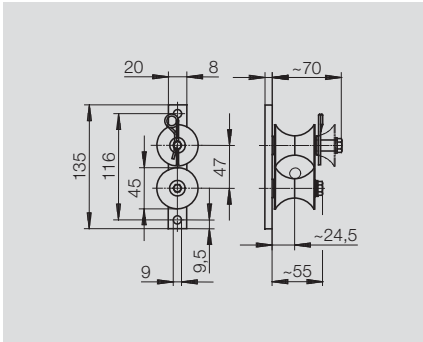
Type A3-720, Mat.-No.: 1036413
For max. cable diameter of: 12 mm
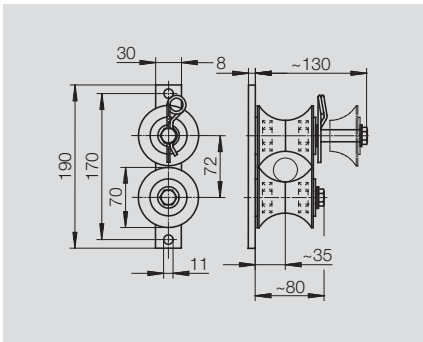
Type A3-702, Mat.-No.: 1036412
Maximum cable diameter of 28 mm with plug can be added to this guide roller later on without any problems by removing retaining clip and sliding off roller.
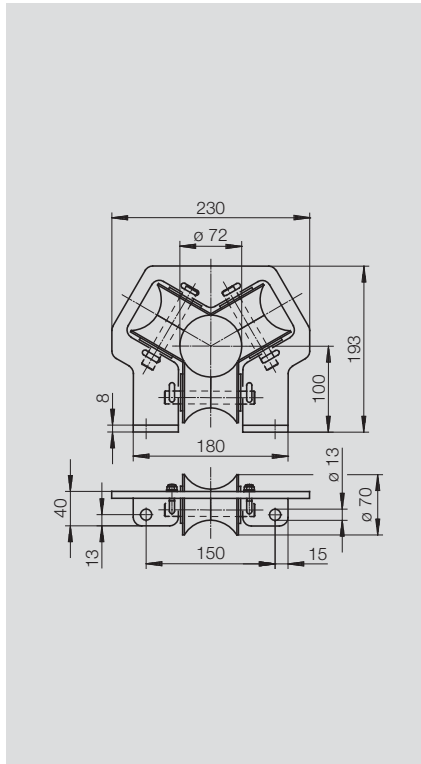
Type A4-774, Mat.-No.: 1042940
Round opening guide rollers with sealed bearings and opening diameter of 72 mm. The lower roller can be easily removed when fitting the cable.
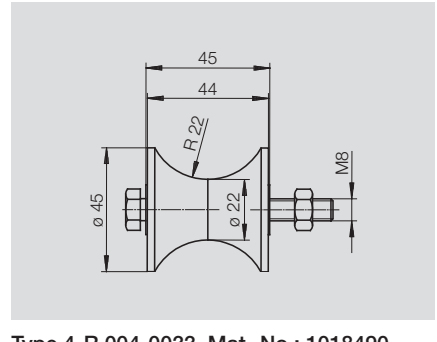
Type 4-R 004-0033, Mat.-No.: 1018490
Individual synthetic roller (Macrolon) with distance-tube and M8 x 70 screw, DIN 931
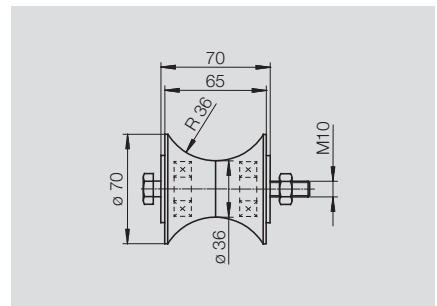
Type A4-859, Mat.-No.: 92037
Individual synthetic roller (Macrolon) with complete bearing and M10 x 100 screw, DIN 931.

Terminal Box Mounting Flange (Z630)

Installation arrangement with standard flange.
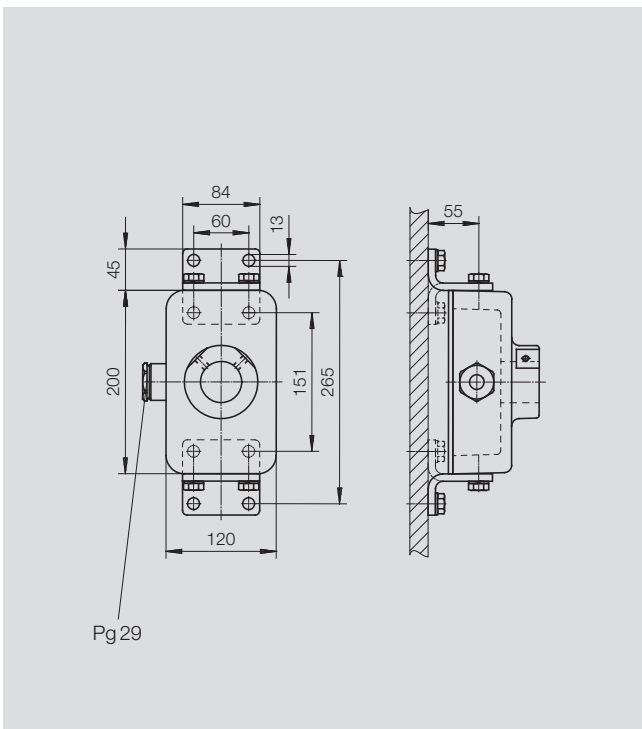
Terminal box with side entry cable connection.
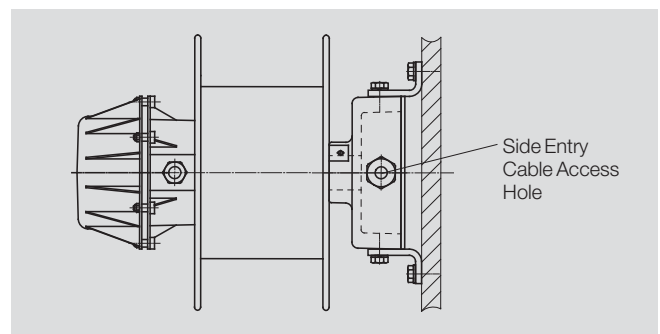
Installation arrangement with terminal box mounting flange.

Accessories
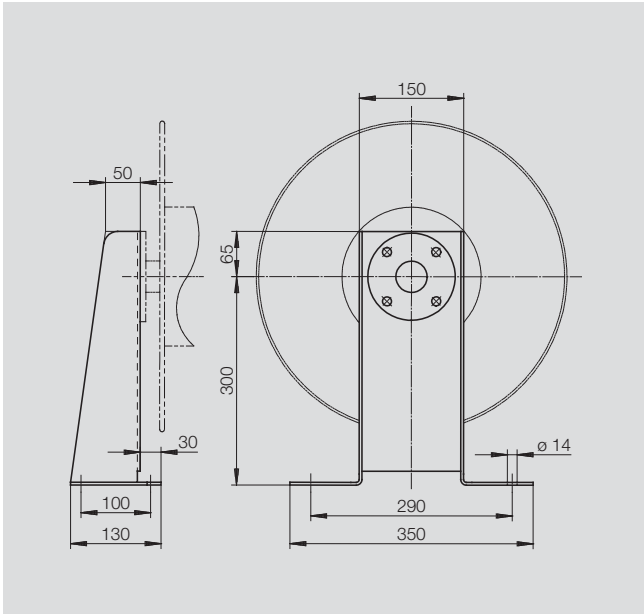
Typ 300, Mat.-Nr.: 36945
Maximum 550 mm round cable diameter
for reel types
BEF15.., BEF 18.., BEF 22.., BEF 26.., BEF 32..
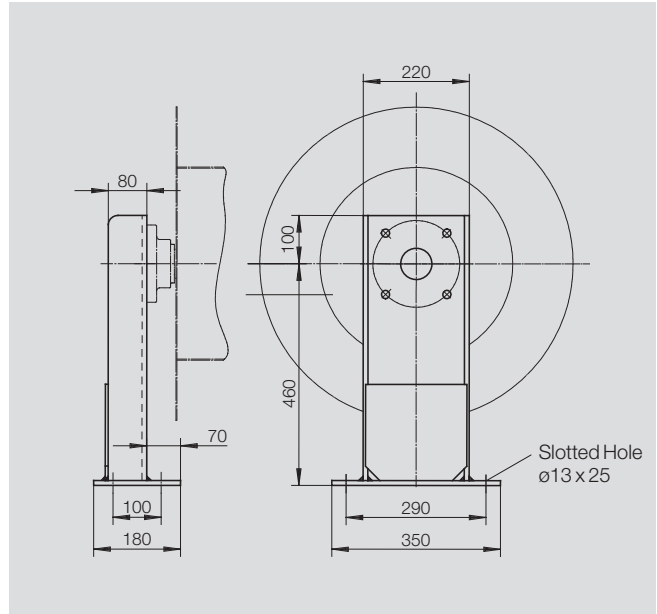
Type 450, Mat.-No.: 1153243
Maximum 800 mm round cable diameter
for reel types
BEF 40.., BEF 50..

Slotted Hole
ø13 x 25

Heater Units (Z700)
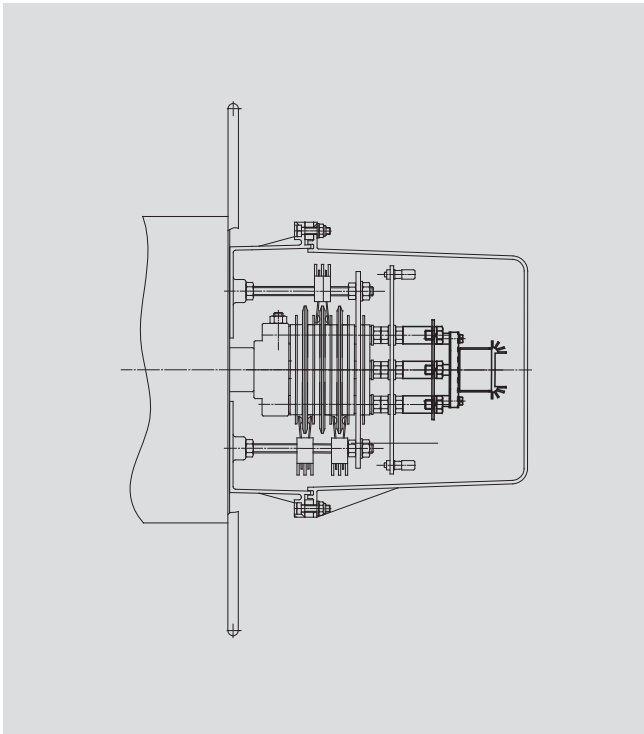
Thermostatically controlled resistance heater with automatic shut-off.
Suitable for tropical locations.
• Shut-off point approx. +50ºC (within slip ring housing)
• Turn-on point at approx. +25ºC
• Capacity: 20 Watt, for slip ring cover volumes of
  10 to 30 litres
• Voltage: Standard 220 to 240 V AC
• All units available in DC (=)

Limit-Switches (Z720)
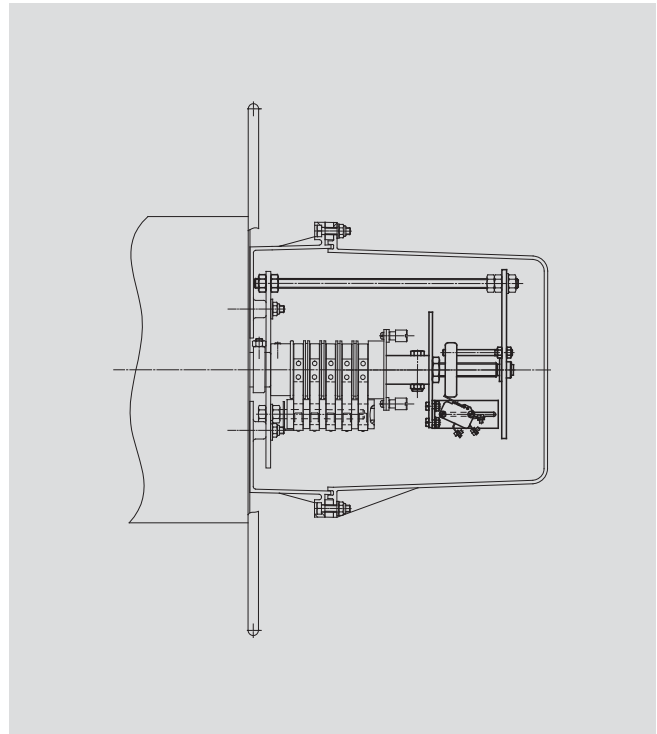
• Electrical connection: UP to maximum 500 V, 50 Hz, 10 A
• Switch range: One meter to maximum cable length shown
  in the selection tables
• Service life: 10,000,000 switch cycles
• Also available with two limit switches

Note:
The dimension (f_2) in the dimension drawings (pages 32 and 33) may
increase by +200 mm depending on the equipped slip rings.

Accessories

At this locking position the lock can be easily opened while reversing.

Ratchet cam

Ratchet Lock

Mounting Flange

Guide Arm

Take-off

Free-Falling Ratchet Device

Spring operated Ratchet Device
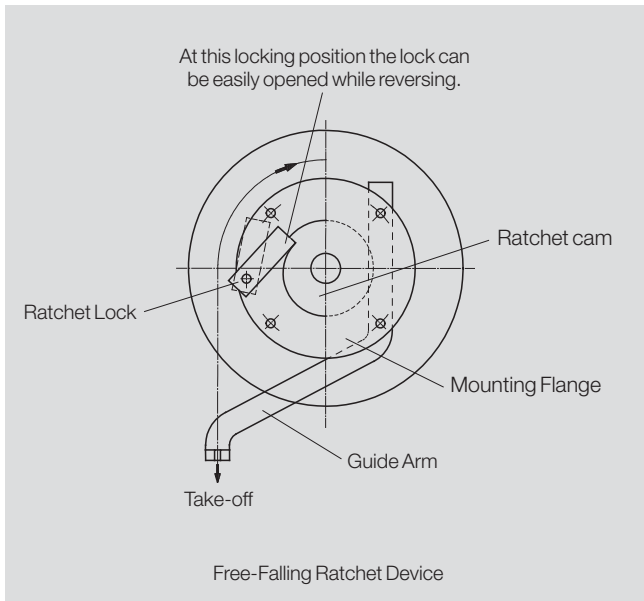
Typ 150
For reel type BEF15...
(One locking position per reel rotation)
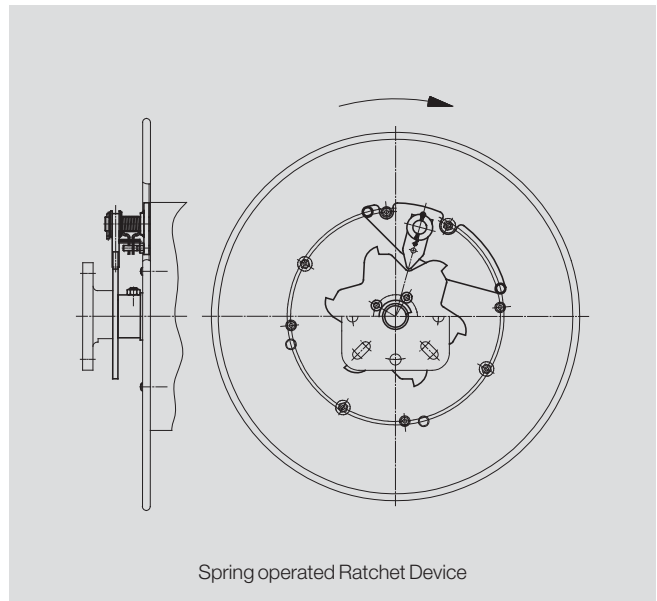
Reel Type	Mat.-No.	Locking Positions per Rotation
BEF 18...	1149737	4
BEF 22...		
BEF 26...	1149739	6
BEF 32...		
BEF 40...	1152795	6
BEF 50...	1153466	6

Rigid Guide Arm (Z910)
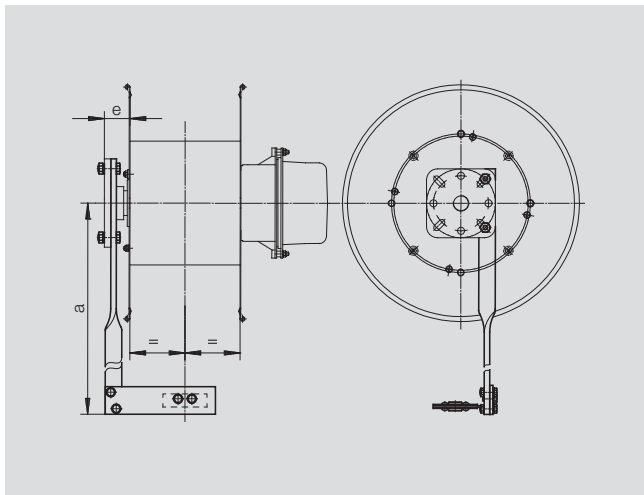
Reel Type	a [mm]	e[1] [mm]	e[2] [mm]
BEF 15...	410	48	58
BEF 18...	800	47	80
BEF 22...			
BEF 26...	1000		
BEF 32...			
BEF 40...	500[3]	64	112
BEF 50...			

1) = With Ratchet
2) = Without Ratchet
3) 1000 mm with type BEF406525-... and roller guide 005

Swivelling Guide Arm (Z920)
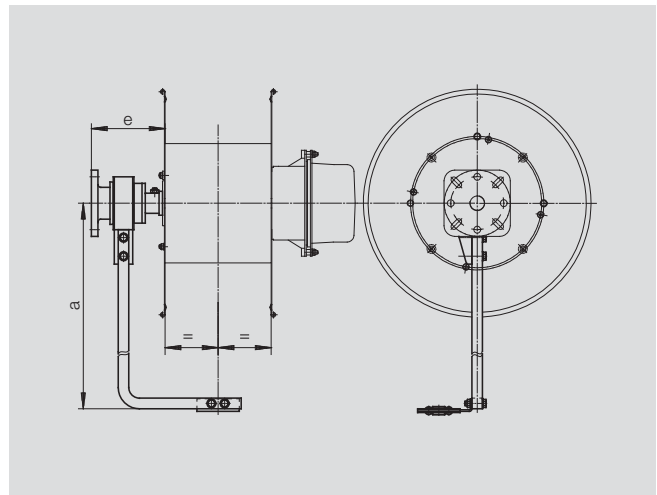
Reel Type	a [mm]	e[1] [mm]	e[2] [mm]
BEF 15...	428	85	85
BEF 18...	800	109	141
BEF 22...			
BEF 26...	1000	109	139
BEF 32...			
BEF 40...	500[3]	131,5	180
BEF 50...			

1) = With Ratchet
2) = Without Ratchet
3) 1000 mm with type BEF406525-... and roller guide 005

Accessories

Terminal Box

Rigid or Swivelling Guide Arm with Travel Limit Available

125

12

ø 100 (4 x ø13)

H

~a

*1) 1000 mm with type BEF406525-...
and roller guide 005*
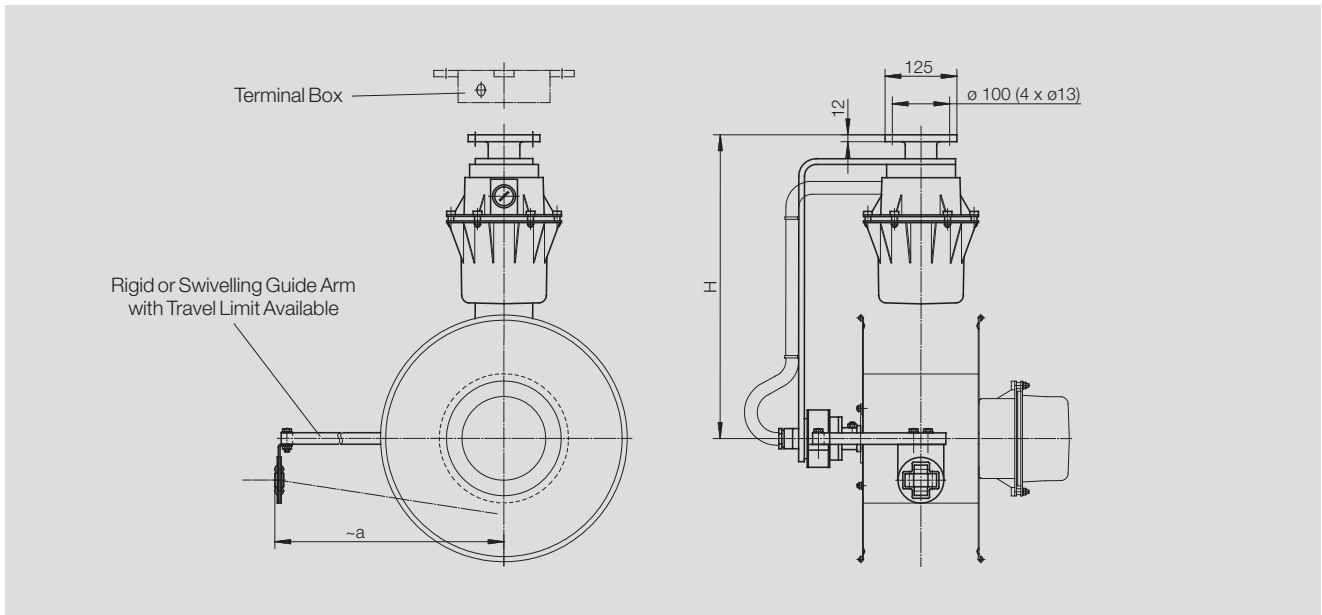
Reel Type	H [mm]	a [mm] Rigid	a [mm] Swivelling
BEF 15...	Dimensions available upon request. The dimensions vary depending on cable and slip ring body assembly.	410	428
BEF 18...		800	800
BEF 22...			
BEF 26...		1000	1000
BEF 32...			
BEF 40...		500[1]	500[1]
BEF 50...			

Terminal Box

Rigid or Swivelling Guide Arm with Travel Limit Available

ø g

ø h

4 x ø K

~H

~a

350° Max. Rotation

*1) 1000 mm with type BEF406525-...
and roller guide 005*

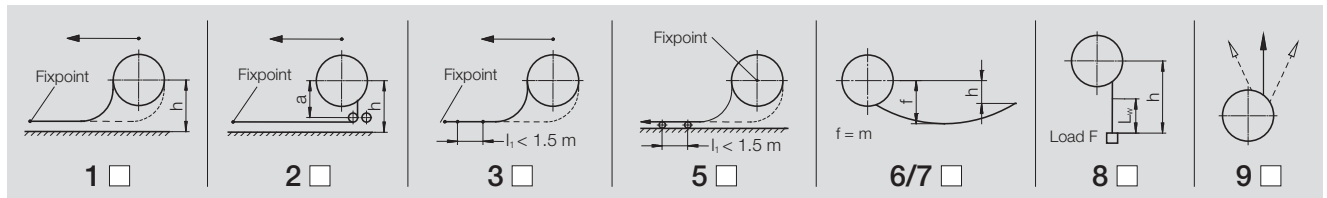| Reel Type	ø g [mm]	ø h [mm]	l [mm]	ø k [mm]	H [mm]	a [mm] Rigid	a [mm] Swivelling
BEF 15...	150	125	12	11.5	260	410	428
BEF 18...					350	800	800
BEF 22...							
BEF 26...						1000	1000
BEF 32...					500		
BEF 40...	240	180	20	17		500[1]	500[1]
BEF 50...					580		

Questionnaire

Please fill in the questionaire as completely as possible, so that we are able to submit our detailed quotation. In case of any questions please contact us.

Cable

- Type _____
- No. of Cross-Section _____ [mm^2]
- Outer Diameter _____ [mm]
- Weight _____ [kg/m]
- Winding Length, L_w _____ [m]
- Track Length _____ [m]
- Installation Height, h _____ [m]
- Cable Term. Length _____ [m]
- Sag, f _____ [m]
- Tension, F _____ [N]

Electrical Data

- Power _____ [kW]
- Duty Cycle _____ [% ED]
- Current . . . . . . ❑ AC   ❑ DC
- Voltage _____ [V]
- Voltage Drop _____ [%]
- Frequency _____ [Hz]

Operating Conditions

- Kind of Equipment _____
- Traveling Speed _____ [m/min]
- Run-Up time _____ [sec]
- Acceleration _____ [m/s^2]
- Brake Time _____ [sec]
- Random Winding Reel . . . . ❑
- Monospiral Winding Reel . . . . ❑
- Hand-Operated Reel . . . . ❑

Application Arrangement (Please Mark)

| 1 ❑ | 2 ❑ | 3 ❑ | 5 ❑ | 6/7 ❑ | 8 ❑ | 9 ❑ |

Special

- Pull-Off Direction (looking onto Slip ring)
  Counterclockwise (Standard) . . . . ❑
  Clockwise (Special) . . . . ❑
- Endfeed . . . . ❑
- Centre Feed . . . . ❑
- Ambient Temperature from _____ [ºC]
                                    to _____ [ºC]
- Temperature Changes _____ [ºC]
- Strong Vibrations . . . . ❑
- Dust . . . . ❑
- Humidity _____ [%]

Slip Ring Assembly

- Number of Poles _____
- Earth . . . . ❑ yes   ❑ no
- Max. Slip rings Amps _____ [A]
- Duty Ratio _____ [% ED]
- Insulation Voltage _____ [V]
- Space Heater . . . . ❑
- Shut-Off Device . . . . ❑
- Special Conditions:

  _____
  _____
  _____
  _____

Accessories

- Cable . . . . ❑
- Cable Grip . . . . ❑
- Cable Anchor . . . . ❑
- Center Feed Anchor . . . . ❑
- End Stop . . . . ❑
- Roller Guide . . . . ❑
- Easy Mount Guide Roller . . . . ❑
- Opening Guide Roller . . . . ❑
- Termination Box . . . . ❑
- Mounting Stand . . . . ❑
- Ratchet Device . . . . ❑
- Guide Arm . . . . ❑

When requesting a cable, please state the total cable length

LL = _____ [m] (Winding length + 2 reserve turns for tension relief + termination length)

Special Conditions: _____

Please send your quotation to the following address:

Company: _____

Department/Attention of: _____

Address: _____

Telephone: _____   Facsimile: _____

Your Applications
– our Solutions

Cable reels systems from Wampfler represent only one of the many solutions made possible by the broad spectrum of Wampfler components for the transport of energy, data and media supply systems. The solutions we deliver for your applications are of course based on your specific requirements.

In many cases, a combination of several different Wampfler systems can prove advantageous. You can count on all of Wampfler's Business Units for hands-on engineering support - coupled with the perfect solution to meet your energy management and control needs.

Festoon systems
It is 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 and spring cable reels by Wampfler are proven solutions 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. This broad range of energy guiding chains are proven performers 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.

The easy way:
www.wampfler.com

wampfler

solutions for a moving world