弹簧卷筒和滑环

CAVOTEC

大连锐实科技有限公司

Spring Driven Cable Reels

Who we are

Cavotec is a multi-national group of companies serving the following industries: mining and tunnelling, ports and maritime, steel and aluminium, energy and offshore, airports, general industry and automation. In the early 1960's our main focus was the design and production of motorised cable reels primarily for manufacturers of tower cranes, harbour cranes and mining equipment.
Today, Cavotec is connecting mobile equipment around the world in many diverse applications.

Where we are

The Cavotec Group consists of 7 manufacturing "Centres of Excellence" located in Canada, France, Germany, Italy, Norway and Sweden and by 5 local manufacturing units located in Australia, China, Germany and the USA. For the distribution of products and providing support to customers Cavotec has 27 sales companies which, together with a network of distributors, serve more than 30 countries in five continents.
The ultimate objective is to be perceived as "local everywhere".

How we work

Our aim is to work closely with our customers in order to build long-term partnerships. To achieve this aim we have created a working environment that attracts the best people, encourages them to stay and brings out their best qualities. By producing totally reliable systems and backing them with efficient service, we strive to create true customer satisfaction.

Cavotec Alfo

Established in 1991, Cavotec Alfo is a modern manufacturing company in the specialised field of spring reels and slipring columns. In 1997 Cavotec Alfo became a member of the Cavotec Group, a world leader in mobile power technology, as one of its manufacturing units.

The Cavotec Alfo FLT spring reels reflect the company's strong commitment to quality. Standard components produced in large series, enabling Cavotec Alfo to serve the market and meet both
standard and special requirements at competitive prices and with short delivery times. The spring reels are strong and well designed guaranteeing the highest reliability even in difficult applications. All reels are equipped with two, totally sealed bearings which are lubricated for life. Cavotec Alfo has been the first manufacturer to build its sliprings in a totally sealed and modular unit, fully separated from any mechanical parts. Protection of sliprings and reel is IP65/66.

Cavotec Alfo spring driven cable reels meet all applicable IEC international norms and standards and comply to the latest EU-requirements (CE-marking).

Standards and norms
Spring driven cable reels are subject to the standards and norms set forth in VDE 0100 and the UVV in their latest edition.

Warranty
Our warranty follows the general delivery conditions of the electric industry for products and services. Wear parts are exempted from the warranty. See also our Terms of Delivery.

General installation instructions
The drum shall be installed in such a way to ensure that the cable is reeled and unreeled to/from the drum freely and unhampered. **Forced guidance and too small bending radii on sheaves and roller guides should be avoided.** The Cavotec Alfo spring reels allows the feeding point of the cable to be placed on either side of the drum. The following selection tables cover only wide cable drums, with random wrapped layers, taking in consideration these typical application cases.

Horizontal application Cable unreeling horizontally (Case 1)
Drum mounted on a mobile vehicle, cable resting on a continuous surface or on supports having a distance of less than 1 m. Mounting height between drum centre and surface level $h \leq 1.0$ m.
$v < 63$ m/min, $a < 0.3$ m/s²

Vertical application (Case 8)
Drum above feeding point, cable unreeled vertically downwards.
Please take note of measure "H".
$v < 30$ m/min, $a < 0.3$ m/s²

Vertical application (Case 9)
Drum below feeding point, cable unreeled vertically upwards. For drum selection, use the tables for horizontal application.
Please contact us for information about all other application cases using the questionnaire on page 11.

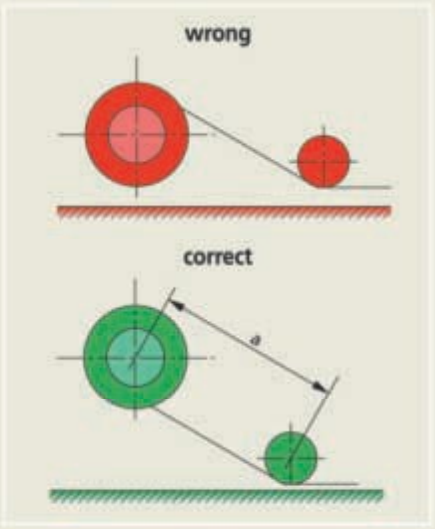
Recommendation on cable safety
Do not reel more cable onto the drum than necessary. **For tension relief,** 1 or 2 additional reeling turns ($d \cdot \pi \cdot 2$) will remain on the drum when the maximum travelling distance has been reached.

Cable selection
When selecting the cable, please take in consideration the cable data and the instructions provided by the manufacturer. In order to make the correct reel selection it is absolutely necessary to know the correct conditions of use. It is important to take in consideration the heating of the cable due to the number of layers on the drum. Also when selecting the cable it is important not to exceed the maximum allowed tension of the cable.
The data contained in the selection tables are related to flexible cables of short lengths. The ambient temperature is assumed to be within +30°C to -10°C. Lower temperatures may require a higher spring force due to the higher rigidity of the cable.

The drum selection tables have been calculated with the maximum values (of each bracket) of diameter and weight. Consequently there could be significant deviations in particular cases. A correlation of the cable diameters is given on page 10.

Reeling cable on drum
It is absolutely necessary to reel the cable onto the drum without twists or bends. To this end, lay out the complete cable straight along the travel length. When reeling the cable on the drum be sure to maintain the same reeling direction used on the wooden drum delivered by the manufacture.

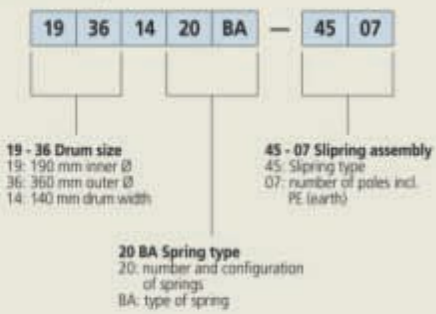
Reeling through roller guides and sheaves
When roller guides and sheaves are used, it is important to avoid reverse bending whenever possible.

Example


Selection of the cable cross-section
When selecting the cable cross-section it is important to take in consideration the maximum current allowed (thermal heating) and the voltage drop limits, as well as the maximum tension allowed. The most important factors are:

1. Maximum current load allowed according to norms and/or manufacturer's data.
2. Reduction factors due to duty cycle
3. Ambient temperature
4. Number of cable layers on the drum
   Important:
   The number of layers Lz= 4 should not be exceeded. With Lz > 4 gives higher current reduction and worse reeling conditions. You will find the upper limits in the selection tables.
5. Reduction factor when using multi-core cables.

Relevant values are given by the cable manufacturer.

Code key


Cavotec Alfo range of cables
Our cable range includes a wide variety of flexible cables for reeling applications which will stand the highest mechanical stresses and harsh ambient conditions.

Drum design
Modular hot-dip galvanised steel drum design for all standard Cavotec Alfo spring reels. Springs made of high-grade spring steel having a long lifetime. The springs can be replaced without removing the drum.

Unreeling direction
Standard direction= left
Standard unreeling direction is anticlockwise, when looking into the slipring body, i.e. to the left when unreeling the cable.

Protection type
Standard for drums and slipring bodies: **IP66**.

Surface treatment
Standard treatment for drums: hot-dip galvanized steel and with slipring assembly housing in glasfiber reinforced polyamid.

Operating voltages
Please find the operating voltages in the respective slipring data tables.

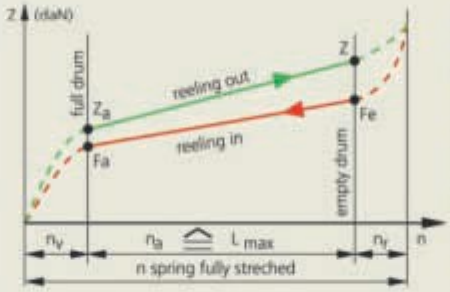
Maximum current values
All drums and slipring bodies are designed for the maximum allowed current values of the cable at 100% ED. (duty cycle). Please find the maximum allowed values in the respective slipring data tables.

Protective earth conductor and number of poles
All drums and slipring bodies for voltages > 24V are manufactured with an un-insulated protective earth conductor (PE). Number of poles = number of insulated poles including PE. In your order form, please state: number of poles, protective earth conductor, and operating voltage.

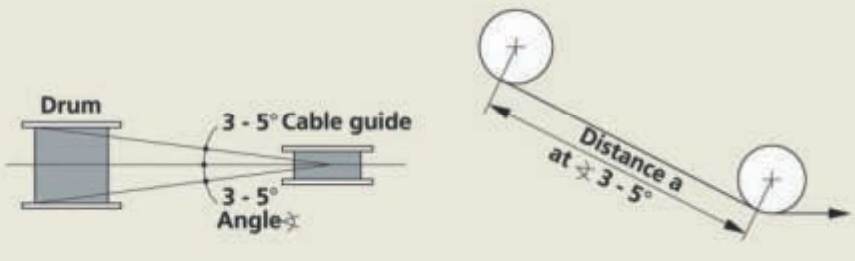
Environmental and extreme operating conditions
Extreme environmental and operating conditions must be given additional attention. The following factors are of primary importance:
- extreme high and low temperatures
- significant temperature variations
- high air humidity
- strong vibrations
- heavily polluted and aggressive air
- use on the sea or in marine environment

The force of the springs in spring reeling drums, may have to be increased, if:
- the unit is moving at very low speed v < 10 m/min
- significant deflections of the cable is necessary
- at high acceleration and speeds
- the temperature is lower than -10°C.

Spring diagram



Lmax= *max. operating reeling length (m)*
na= *operational reeling turns*
nv= *spring preload turns*
nr= *extra spare turns*
Fa= *Remaining spring load at full drum*
Fe= *Remaining spring load at empty drum*
Z= *necessary pulling force at vertical application (cable fully unreeled)*
Please note: *Spring forces refers to the corresponding inner drum Ø*



Warning
When spring reels are mounted low, the cable must always leave the drum from the top. When roller guides or sheaves are used it is important to respect a minimum distance (a) between drum and guide.

APPLICATION EXAMPLES

Case 1 - Case 2
Horizontal mobile application
Cable is unreeled on a flat continuous surface. The cable is unreeled horizontally in either travelling directions.

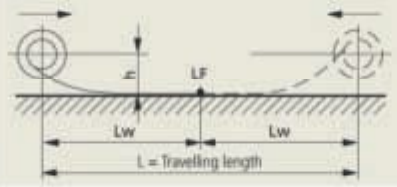
Case 3 - Case 4
Horizontal mobile application
The cable is reeled out on supports (L1 < 1m) or on rollers or rounded smooth supports (L1 = 1 to 3 m, depending on the cable size). The cable is unreeled horizontally in either travelling directions.

Case 5
Stationary application (cable fixed point on the mobile vehicle) The cable is unreeled from the drum horizontally in either travelling directions through support rollers (L1 = 1 to 3 m, depending on the cable size). This type of application is not recommended.

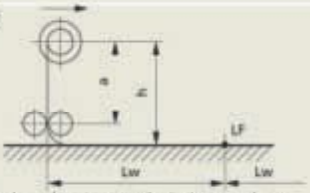
Case 6 - Case 7
Horizontal mobile application
The cable is unreeled horizontally above the ground and without support in either travelling directions. The catenerary f1 must be calculated accurately. As a rule the value of f_{max} is approx. 10% of L.

Case 8 - Case 9
Vertical application
Cable unreeled vertically downwards or in applications with strong inclination downwards. Cable unreeled vertically upwards or in applications with strong inclination upwards.

Case 1

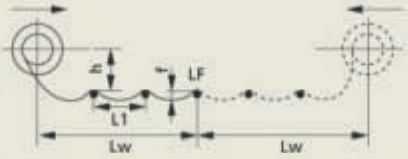


Case 2

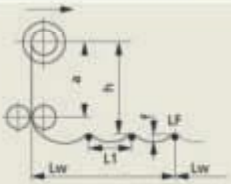


At high h - please note deviation angle ◁

Case 3

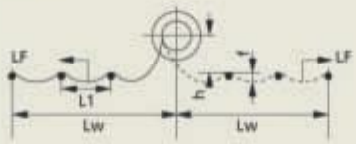


Case 4



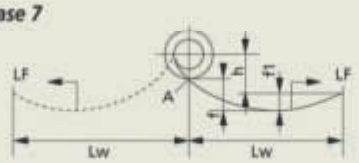
At high h - please note deviation angle ◁

Case 5



Case 6

Case 7



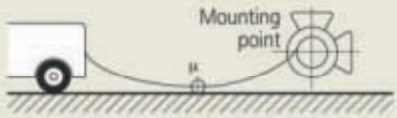
Stationary

***Case 8** - Vertical application – reel on top*
***Case 9** - Vertical application – reel at bottom*

***Case 10** - Manual operation*

Stationary reel, manually operated

***Case 11** - Automatic operation*



Stationary reel, automatic unreeling. Please give type of ground surface or the surface friction (μ).

Explanation of the symbols (case 1 to 7):
Lw= *maximum reeling cable length [m], (reeling length for reels travelling in both directions = one-half of the total travelling length);*
h= *(installation height) distance between lowest cable end position and drum centre [m];*
LF= *cable feeding point;*
f= *maximum cable sag [m], in case 6 and 7 related to position A in drawing;*
f1= *maximum cable sag [m], related to cable feeding point LF;*
L1= *roller or support distance [m]*

Calculation formula $f/f1\ (m) = \dfrac{10 \times Lw^2 \times g}{8 \times F}$

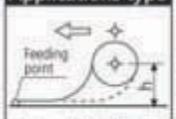
L= *support distance [m];*
g= *cable weight [kg/m];*
F= *pulling force [Newton]*

Explanation of the symbols (case 8 and 9):
Lw= *maximum reeling cable length [m];*
H8/9= *maximum cable length hanging down from the drum [m].*
The drum is selected according to the total cable weight of the hanging cable.
Additional weight (F3) must be considered and added to the cable weight.

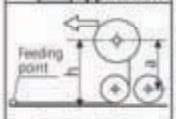
From:	
Fax:	
Tel:	
Date:	Inquiry No
Person in charge:	

To:	CAVOTEC ALFO
	D-51491 Overath
Attention:	
Tel: 0049 - (0)2206/60950	
Fax: 0049 - (0)2206/609522	

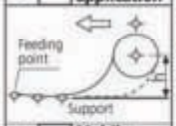
Applications type



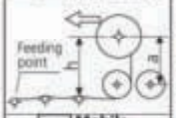
1 ☐ **Mobile application**



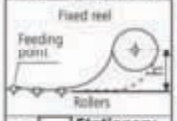
2 ☐ **Mobile application**



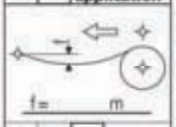
3 ☐ **Mobile application**



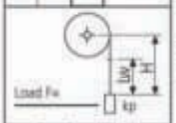
4 ☐ **Mobile application**



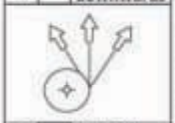
5 ☐ **Stationary application**



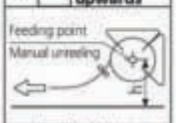
6 7 ☐



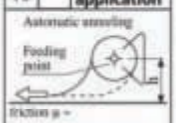
8 ☐ **Vertical downwards**



9 ☐ **Vertical upwards**



10 ☐ **Stationary application**



11 ☐ **Stationary application**

Questionnaire for spring-driven cable reels

Quantity: ☐ Delivered with cable ☐ without cable ☐

Cable

Cable type: _____ Cross section: x mm², Outside dia ø ☐ mm, Weight ☐ kg/m

Total length of the cable L1,Σ= ☐ m

(L1,Σ= reeling length + 2 dead turns as tension relief + connections and/or installed cable outside of the cable reel)

Slipring collector

Number of isolated poles ☐ + earth conductor yes ☐ no ☐

Current min. ☐ mA max ☐ A Voltage min/max. ☐ / ☐ V,

Mounting

Horizontal track length L= ☐ m, of which travel distance Lw= ☐ m

Installation height h= ☐ m, roller guide yes ☐ no ☐ Distance a= ☐ m

In case that "h" is < 0,6m the cable should always run off the cable reel from the top.

Applications type

Horizont

electrical end supply ☐ electrical supply at centre ☐ of which travel distance Lw1= ☐ m Lw2= ☐ m

Vertical

vertical hoist height H= ☐ m hoist distance Lw= ☐ m additional load F= ☐ kg

travel hoist speed v= ☐ m/min acceleration b= ☐ m/s²

Special requirement

Automatic operation ☐ manual operation ☐ return locking only manual operation ☐ application outdoors ☐ indoors ☐

temp. – / + ℃ wide drum ☐ monospiral reel ☐ hot-dip galvanised + polyester coating ☐

marine environment ☐ high number of operations ☐ operations/per year ☐ strong vibration ☐ dusty air ☐

humidity ☐ % other: _____

Direction of unreeling (seen from slipring unit)

standard anticlockwise ☐ clockwise ☐

sketch (please fill in, important): max. installation dimensions: Ø = ☐ mm total width: ☐ mm

Note

CABLE CALCULATION TABLES

Selecting the correct cable for your application is extremely important. This page shows the Cavotec Alfo range of cables and their relative technical specifications. For specific help in selecting the correct cable or, if you have any special requirement for your type of application, please contact your local Cavotec office.

Special reeling cables - NSHT

Cross sec.	kg/km	Ø (mm)	Max. allowed tension N
4 x 1,5	157	10,2	150
5 x 1,5	176	10,8	190
7 x 1,5	245	12,9	265
12 x 1,5	337	16,8	450
18 x 1,5	526	18,6	675
24 x 1,5	662	21,3	900
30 x 1,5	901	24,6	1125
36 x 1,5 (Bd)	950	29,0	1890
42 x 1,5	1056	26,5	1575
42 x 1,5 (Bd)	1192	29,5	2200
4 x 2,5	208	11,7	250
5 x 2,5	263	12,7	315
7 x 2,5	327	14,8	440
12 x 2,5	533	20	750
18 x 2,5	725	20,4	1125
24 x 2,5	988	24,8	1500
30 x 2,5 (Bd)	1325	28,2	2250
36 x 2,5	950	29,0	1890
36 x 2,5 (Bd)	1411	32,4	3150
4 x 4	270	12,5	600
5 x 4	362	14,3	900
4 x 6	409	16,9	900
5 x 6	511	17,8	750
7 x 6	715	20,9	1050
4 x 10	633	19,6	1000
5 x 10	766	20,9	1250
4 x 16	936	23,8	1600
5 x 16	1173	25,5	2000
4 x 25	1483	27,7	2500
4 x 35	2115	30,1	3500
49 x 2,5 (Bd)	2156	38,0	4280

Calculation table for multi-layer reels/drums (VDE 0298 part 4 1995 table 19)

No. of layers	1	2	3	4	5
Correction factor	0,76	0,58	0,47	0,4	0,38

* VDE 298 Part 4 1995 table 19

Current capacity correction factor for multi-core cables*°

No. loaded conductors	5	7	10	14	19	24	40	61
Correction factor	0,75	0,65	0,55	0,50	0,45	0,40	0,35	0,30

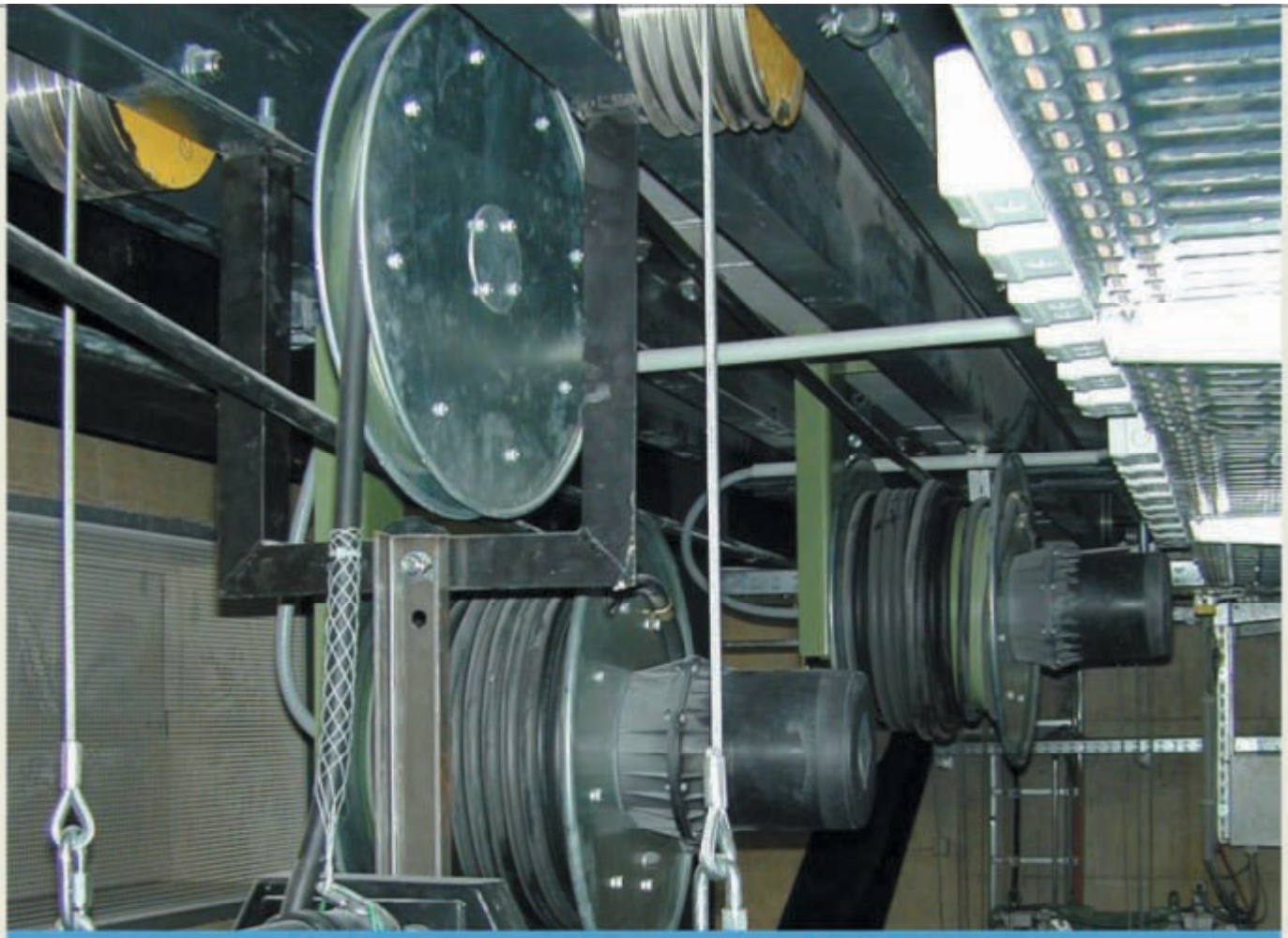
* VDE 298 part 4 1995 table 18

° max. conductor size 10 mm²

Ambient temperature for NSHT cable

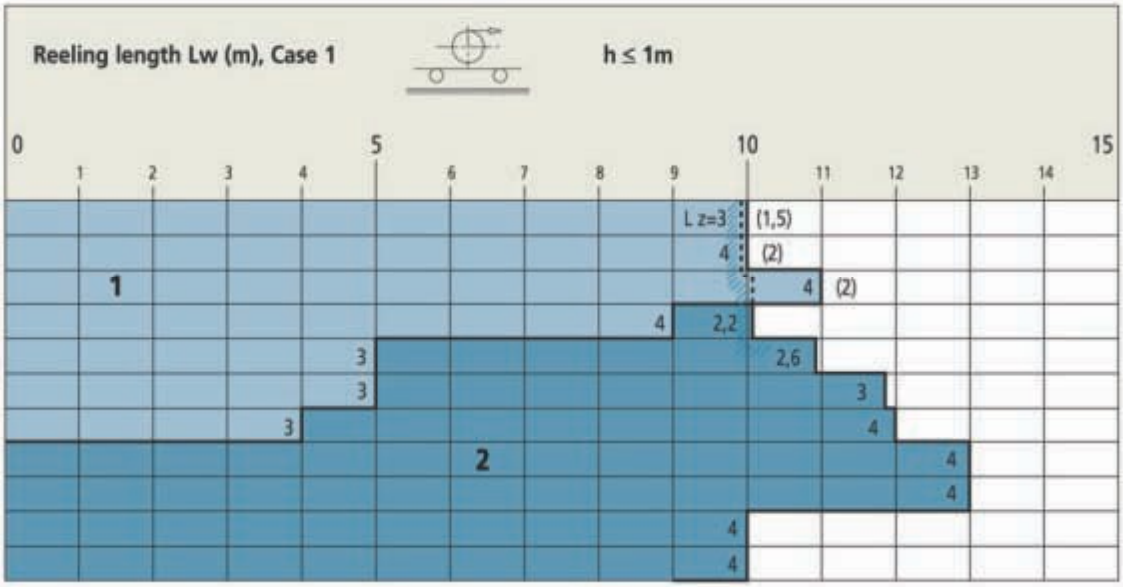
Temperature °C	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75
Correction factor	1	0,95	0,98	0,84	0,77	0,71	0,63	0,55	0,45	0,32

* VDE 298 part 4 1995 table 13



CHOICE OF CABLE REEL ACCORDING TO SEARCH KEY 1 AND 2

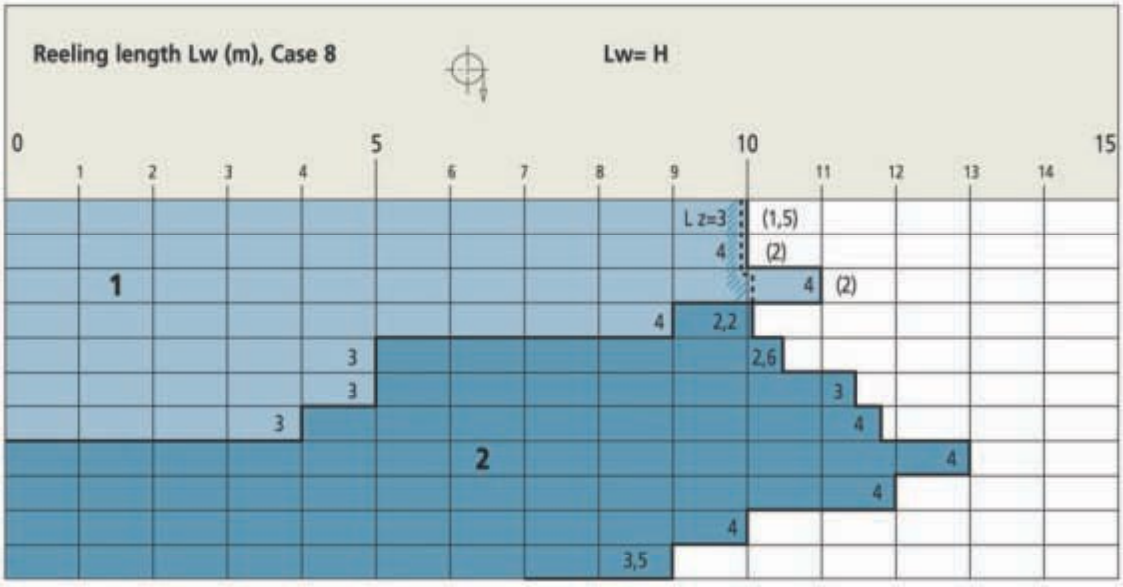
Cable (*) ø (mm) from ... to ...	Weight kg/m max.
<3	
4	
5	0.05
6	0.08
7	0.10
8	0.12
9	0.14
10	0.20
11	0.23
12	0.25
<13	0.30



L z= N° of layers

= *Grey background: diameter of axis hole is 9 mm*

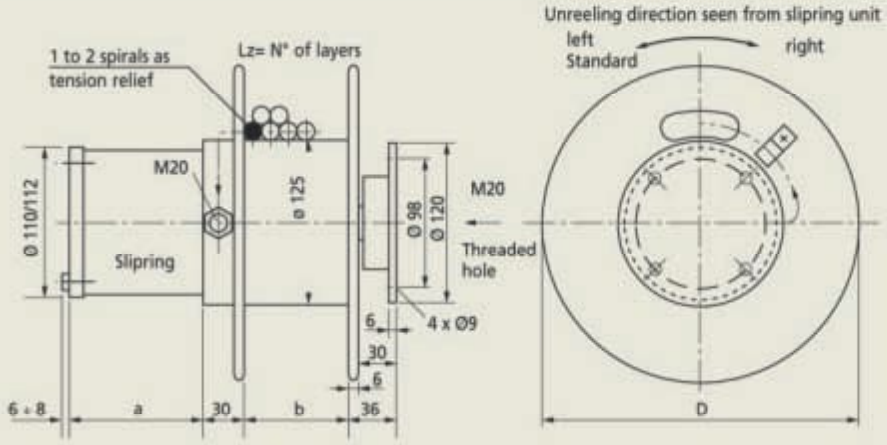
Cable (*) ø (mm) from ... to ...	Weight kg/m max.
<3	
4	
5	0.05
6	0.08
7	0.10
8	0.12
9	0.14
10	0.20
11	0.23
12	0.25
<13	0.30



L z= N° of layers

= *Grey background: diameter of axis hole is 9 mm*

(*) The correct cable data are given by each cable manufacturer and should be compared with the values in the tables.
For vertical applications the cable weight (kg/m) and additional load must be considered. Always check actual reeling length when near capacity limits.



Technical data:
Drum in hot-dip galvanised steel.
Two bearings on each side in aluminium housings. Springs are made of high-grade steel for long lifetime.

Slipring housing in strong glassfiber reinforced plastic material.
Protection: IP55
Axis hole Slipring Type 30: ø 9 mm
Axis hole Slipring Type 58: ø 11 mm

Special dimensions
b = 70
D = 220

Search key	Drum type	Slipring type	Dimensions (mm) d ø	Dø	b	Spring force (daN) Za	Fa	Fe	Z	Number of spring turns n vor	n Res.	n turns	Weight (kg)
1	**12180410AA –**	30	125	180	36	0,8	0,7	2,2	2,6	2 u.>	1	30	3,6
2	**12240812AA –**		125	240	80	1,6	1,4	4,3	5,2	2 u.>	1	30	4,8
Special	**12240410AA –**	58	125	240	36	0,8	0,7	2,2	2,6	2 u.>	1	30	3,8
Special	**12180812AA –**		125	180	80	1,6	1,4	4,3	5,2	2 u.>	1	30	4,6

Technical data for Sliprings

Drum type	Slipring type	N° of poles	Current 100% ED, max. A	Cross sec mm²	Max. voltage V	Housing Ø (mm)
12...-	**30**	10	50mA-16A	1,5	380	110
	58	12	30mA-16A	1,5	125/380/500	110

◤ *Sliprings connected to cable terminals*

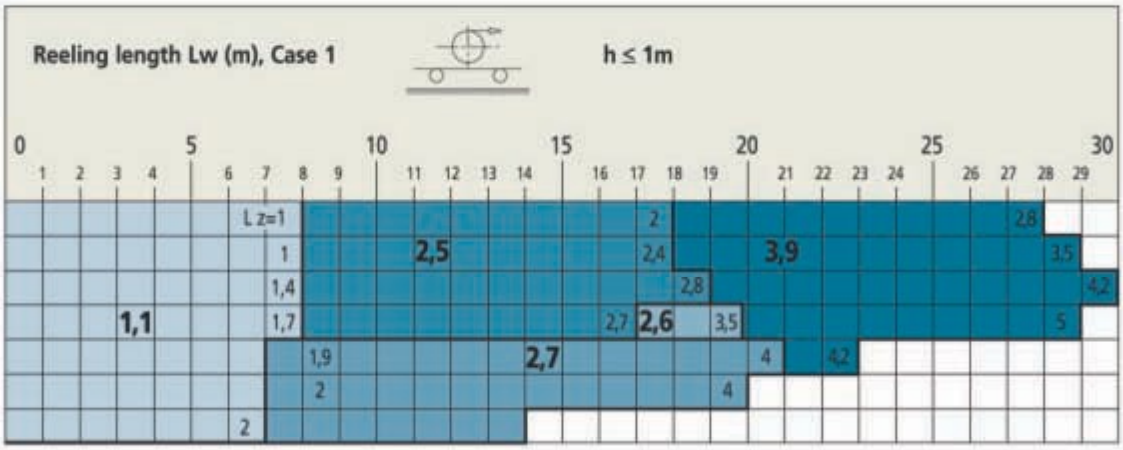
Housing dimensions

Dimension a – Standard depth of housing in relation to N° of poles												Gland
Poles	Dim.	Poles	Dim.	Poles	Dim.	Poles	Dim.	Poles	Dim.	Poles	Dim.	
3	110	4	120	5	125	6	150	7	160	10	195	M20
4/–/–		6/4/–		8/6/4		12/10/8		–/12/10		–/–/12	140	M20

CHOICE OF CABLE REEL ACCORDING TO SEARCH KEY 1.1 TO 3.10

Cable (*) ø (mm) from ... to ...	Weight kg/m max.
<8	0.09
8 - 10	0.15
10 - 12	0.25
12 - 14	0.30
14 - 16	0.40
16 - 18	0.45
18 - 20	0.55

Reeling length Lw (m), Case 1 — **h ≤ 1m**

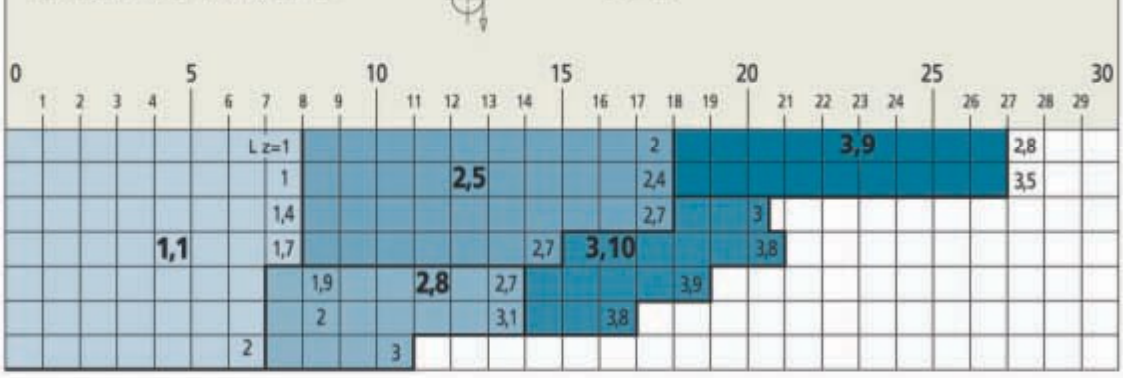


L z= N° of layers

= Grey background: diameter of axis hole is 15 mm

Cable (*) ø (mm) from ... to ...	Weight kg/m max.
<8	0.09
8 - 10	0.15
10 - 12	0.25
12 - 14	0.30
14 - 16	0.40
16 - 18	0.45
18 - 20	0.55

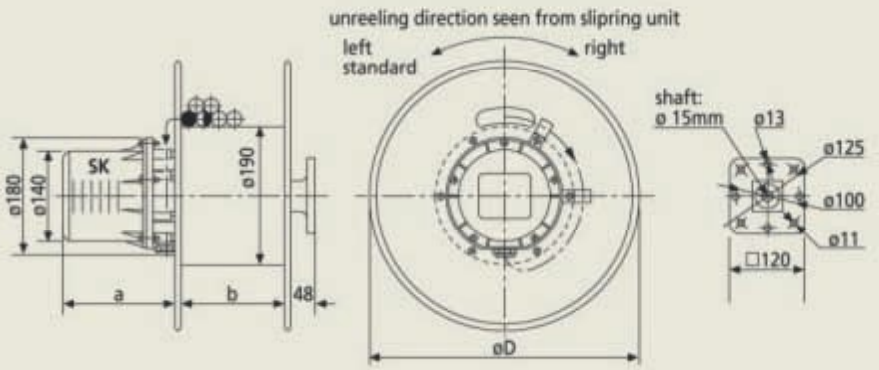
Reeling length Lw (m), Case 8 — **Lw= H**



L z= N° of layers

= Grey background: diameter of axis hole is 15 mm

(*) The correct cable data are given by each cable manufacturer and should be compared with the values in the tables.
For vertical applications the cable weight (kg/m) and additional load must be considered. Always check actual reeling length when near capacity limits.



Technical data:
Drum in hot-dip galvanised steel.
Two bearings on each side of axis.
Springs are made of high-grade steel for long lifetime and mounted in separate housing.

Slipring housing in strong glassfiber reinforced plastic material.
Protection: IP65/66
Axis hole: ø 15 mm

Special dimensions
b =110/ 180/ 215

Search key	Drum type	Slipring type	Dimensions (mm) d ø	Dø	b	Spring force (daN) Za	Fa	Fe	Z	Number of spring turns n vor	n Res.	n turns	Weight (kg)
1.1	**19291410BA –**	45	190	290	136	3,4	2,9	6,8	7,8	3	1	17,5	10,0
2.5	**19291420BA –**	46	190	290	136	3,4	2,9	6,8	7,8	6	2	35	12,5
2.6	**19331420BA –**	47	190	330	136	3,4	2,9	6,8	7,8	6	2	35	13,1
2.7	**19361420BA –**	58	190	360	136	3,4	2,9	6,8	7,8	6	2	35	13,7
2.8	**19361420DA –**		190	360	136	5,0	3,7	11,0	12,0	4	2	26	15,0
3.9	**19361430BA –**	special	190	360	136	3,4	2,9	6,8	7,8	9	3	53	15,8
3.10	**19361430DA –**		190	360	136	5,0	3,7	11,0	12,0	6	3	39	18,0

Standard model

Technical data for Sliprings

Drum type	type	N° of poles	Current 100% ED, max. A	Cross sec mm²	Max. voltage V	Housing Ø (mm)
19..-	**45**	18	50mA-25A	(2,5²)	415	140
	46	5	50mA-25A	(4²)	415	140
	47	5	50mA-50A	(6²)	500	140
	58	24	30mA-16A	(1,5²)	125/380/500	140

Housing dimensions

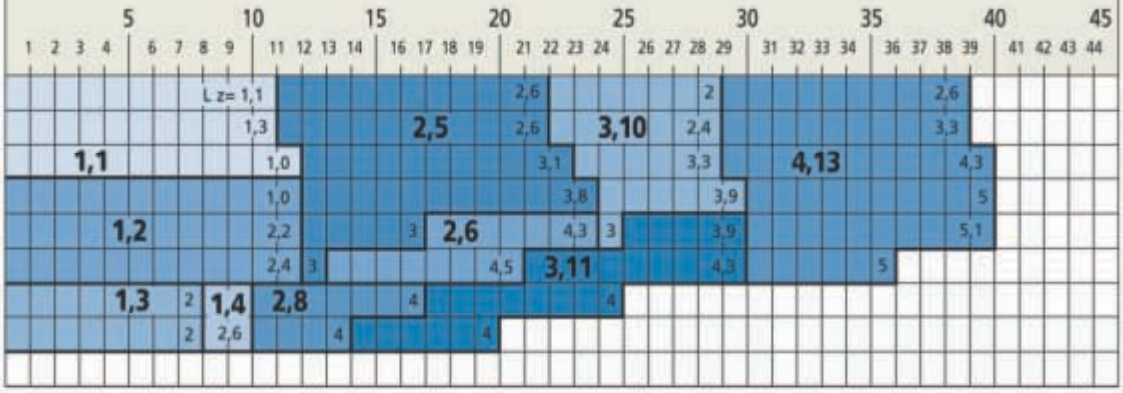
Dimension a – Standard depth of housing in relation to N° of poles										Gland
Poles	Dim.	Poles	Dim.	Poles	Dim.	Poles	Dim.	Poles	Dim.	
4	130	5	150	8	190	12	245	18	325	M25
4	130	5	150	—	—	—	—	—	—	M25
3	130	4	150	5	190	—	—	—	—	M25
8/8/6	130	12/10/8	150	22/18/14	190	24/24/24	245	—	—	M25

▼ *Sliprings connected to cable terminals*
For size 58 only up to 24 poles

CHOICE OF CABLE REEL ACCORDING TO SEARCH KEY 1.1 TO 4.13

Cable (*) ø (mm) from ... to ...	Weight kg/m max.
<8	0.09
8 - 10	0.15
10 - 12	0.25
12 -14	0.30
14 - 16	0.40
16 - 18	0.45
18 - 20	0.55
20 - 22	0.70
22 - 24	0.80

Reeling length Lw (m), Case 1  **h ≤ 1m**

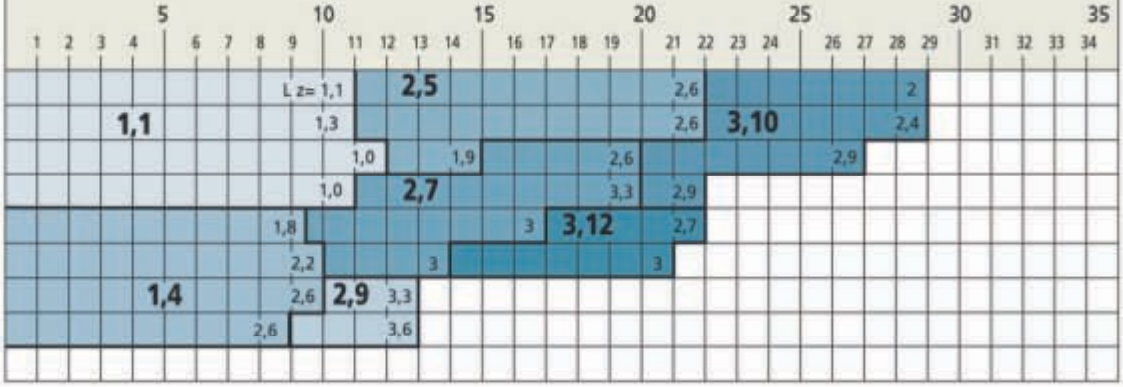


L z= N° of layers

= Grey background: diameter of axis hole is 15 mm

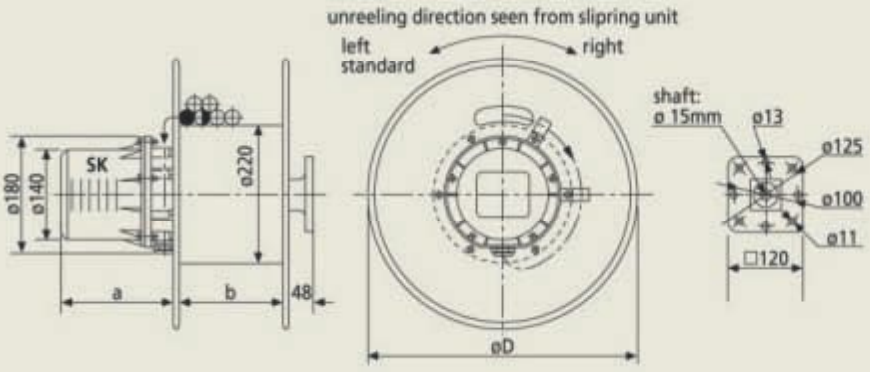
Cable (*) ø (mm) from ... to ...	Weight kg/m max.
<8	0.09
8 - 10	0.15
10 - 12	0.25
12 -14	0.30
14 - 16	0.40
16 - 18	0.45
18 - 20	0.55
20 - 22	0.70
22 - 24	0.80

Reeling length Lw (m), Case 8  **Lw= H**



L z= N° of layers

= Grey background: diameter of axis hole is 15 mm



Technical data:
Drum in hot-dip galvanised steel.
Two bearings on each side of axis.
Springs are made of high-grade steel for long lifetime and mounted in separate housing.

Slipring housing in strong glassfiber reinforced plastic material.
Protection: IP65/66
Axis hole: ø 15 mm

Special dimensions
b = 215

Search key	Drum type	Slipring type	Dimensions (mm)			Spring force (daN)				Number of spring turns			Weight (kg)
			d ø	Do	b	Za	Fa	Fe	Z	n vor	n Res.	n turns	
1.1	22301410BC –	45	220	300	136	2,5	2,4	5,8	6,1	3	1,5	20,5	12
1.2	22361410BC –		220	360	136	2,5	2,4	5,8	6,1	3	1,5	20,5	12,6
1.3	22361410DC –		220	360	136	3,5	3,3	10,3	10,8	2	1,5	16,5	12,8
1.4	22431410DC –		220	430	136	3,5	3,3	10,3	10,8	2	1,5	16,5	13
2.5	22361420BC –	46	220	360	136	3	2,7	5,8	6,1	8	3	41	14,7
2.6	22431420BC –		220	430	136	3	2,7	5,8	6,1	8	3	41	15
2.7	22361420DC –	47	220	360	136	3,5	3,3	10,3	10,8	4	3	33	15
2.8	22431420DC –		220	430	136	3,5	3,3	10,3	10,8	4	3	33	16
2.9	22431420EB –	58	220	430	136	6,1	5,7	14,5	15	5	2	25	18
3.10	22361830DC –		220	360	180	3,5	3,3	10,3	10,8	6	4,5	49,5	19,5
3.11	22431830DC –		220	430	180	3,5	3,3	10,3	10,8	6	4,5	49,5	20
3.12	22431830EB –	special	220	430	180	6,1	5,7	14,5	15	7,5	3	37,5	22
4.13	22431840DC –		220	430	180	3,5	3,3	10,3	10,8	8	6	66	25
4.14	22431840EB –		220	430	180	6,1	5,7	14,5	15	10	4	50	30

Standard model

Technical data for Sliprings

Drum type	Slipring type	N° of poles	Current 100% ED, max. A	Cross sec mm²	Max. voltage V	Housing Ø (mm)
22...-	45	18	50mA-25A	2,5	415	140
	46	5	50mA-25A	4	415	140
	47	5	50mA-50A	6	500	140
	58	24	30mA-16A	1,5	125/380/500	140

Housing dimensions

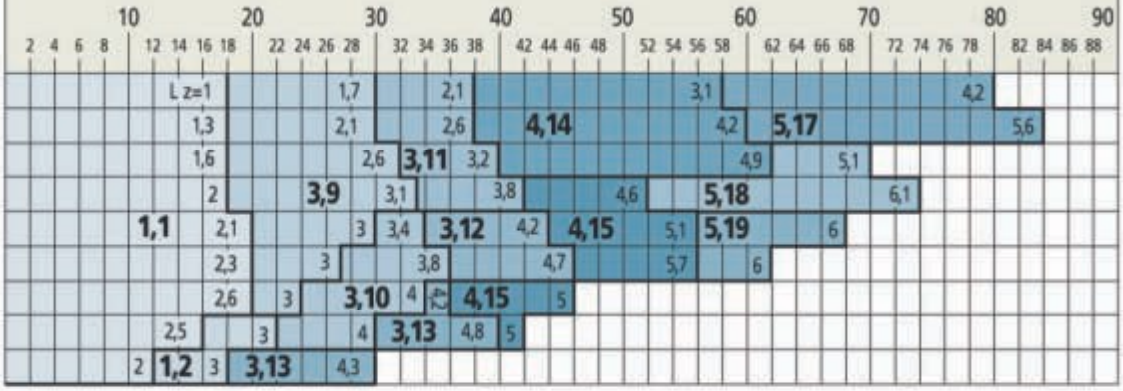
Dimension a – Standard depth of housing in relation to N° of poles										Gland
Poles	Dim.	Poles	Dim.	Poles	Dim.	Poles	Dim.	Poles	Dim.	
4	130	5	150	8	190	12	245	18	325	M25 M32
4	130	5	150	—	—	—	—	—	—	M25 M32
3	130	4	150	5	190	—	—	—	—	M32
8/8/6	130	12/10/8	150	22/18/14	190	24/24/24	245	—	—	M25 M32

Sliprings connected to cable terminals
For size 58 only up to 24 poles

CHOICE OF CABLE REEL ACCORDING TO SEARCH KEY 1.1 TO 5.19

Cable (*) ø (mm) from ... to ...	Weight kg/m max.
<8	0.09
8 - 10	0.15
10 - 12	0.25
12 -14	0.30
14 - 16	0.40
16 - 18	0.45
18 - 20	0.55
20 - 22	0.70
22 - 24	0.80

Reeling length Lw (m), Case 1  **h ≤ 1m**

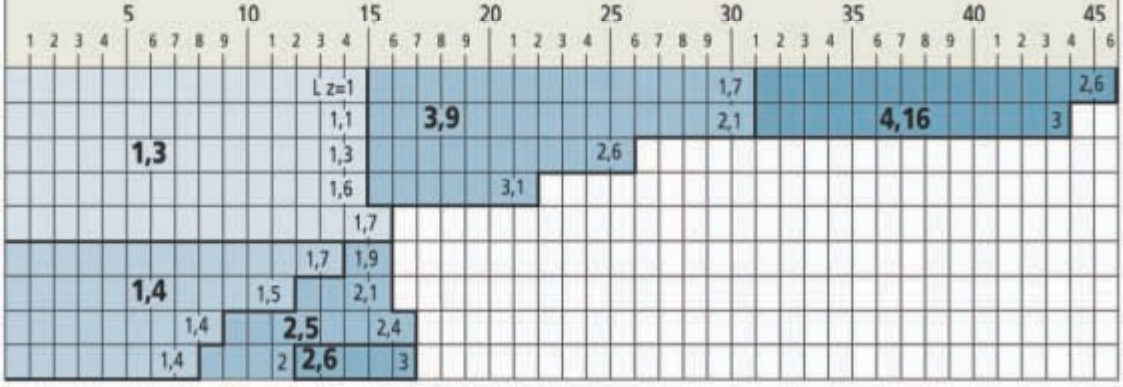


L z= N° of layers

= Grey background: diameter of axis hole is 20 mm

Cable (*) ø (mm) from ... to ...	Weight kg/m max.
<8	0.09
8 - 10	0.15
10 - 12	0.25
12 -14	0.30
14 - 16	0.40
16 - 18	0.45
18 - 20	0.55
20 - 22	0.70
22 - 24	0.80

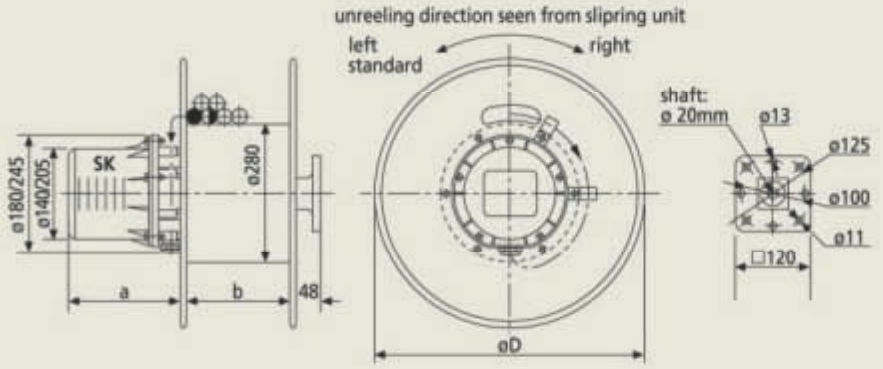
Reeling length Lw (m), Case 8  **Lw= H**



L z= N° of layers

= Grey background: diameter of axis hole is 20 mm

(*) The correct cable data are given by each cable manufacturer and should be compared with the values in the tables.
For vertical applications the cable weight (kg/m) and additional load must be considered. Always check actual reeling length when near capacity limits.



Technical data:
Drum in hot-dip galvanised steel.
Two bearings on each side of axis.
Springs are made of high-grade steel for long lifetime and mounted in separate housing.

Slipring housing in strong glassfiber reinforced plastic material.
Protection: IP65/66
Axis hole: ø 20 mm

Special dimensions b = 136/ 215/ 250, D = 460

Search key	Drum type	Slipring type	Dimensions (mm)			Spring force (daN)				Number of spring turns			Weight (kg)
			d ø	Dø	b	Za	Fa	Fe	Z	n vor	n Res.	n turns	
1.1	28431810DB —		280	430	180	3,0	2,5	7,0	9,0	3	1,0	24,5	21,0
1.2	28501810DB —		280	500	180	3,0	2,5	7,0	9,0	3	1,0	24,5	22,0
1.3	28361810EA —	02	280	360	180	4,5	4,0	10,0	12,0	3	1,5	21	21,0
1.4	28431810EA —		280	430	180	4,5	4,0	10,0	12,0	3	1,5	21	21,5
2.5	28431812EA —	03	280	430	180	9,0	8,0	20,0	24,0	3	1,5	21	26,0
2.6	28501812EA —		280	500	180	9,0	8,0	20,0	24,0	3	1,5	21	27,0
3.9	28431820EA —	45	280	430	180	4,5	4,0	10,0	12,0	6	3,0	42,5	26,0
3.10	28501820EA —		280	500	180	4,5	4,0	10,0	12,0	6	3,0	42,5	27,0
3.11	28431820DB —	46	280	430	180	3,0	2,5	7,0	9,0	6	2,0	49,5	27,0
3.12	28501820DB —		280	500	180	3,0	2,5	7,0	9,0	6	2,0	49,5	28,0
3.13	28551820EA —	47	280	550	180	4,5	4,0	10,0	12,0	6	3,0	42,5	28,0
4.14	28431830DB —		280	430	180	3,0	2,5	7,0	9,0	9	3,0	74,5	30,0
4.15	28551830EA —	58	280	550	180	4,5	4,0	10,0	12,0	9	4,5	64	32,5
4.16	28431830EA —		280	430	180	4,5	4,0	10,0	12,0	9	4,5	64	31,0
5.17	28431840DB —	98	280	430	180	3,0	2,5	7,0	9,0	12	4,0	99,5	34,5
5.18	28501840EA —		280	500	180	4,5	4,0	10,0	12,0	12	6,0	85,5	36,5
5.19	28551840EA —		280	550	180	4,5	4,0	10,0	12,0	12	6,0	85,5	37,0

Standard model

Technical data for Sliprings

Drum type	type	Slipring N° of poles	Slipring Current 100% ED, max. A	Slipring Cross sec mm²	Slipring Max. voltage V	Housing Ø (mm)
28...-	02	7	50	max 10²	500	205/245
	03	5	90	max 16²	500	205/245
	◤45	18	25	(2,5²)	415	140/180
	◤46	5	25	(4²)	415	140/180
	◤47	5	50	(6²)	500	140/180
	◤58	26	16	(1,5²)	125/380/500	140/180
	◤98	36	20 (25)	(2,5²)	500	205/245

Housing dimensions

Dimension a – Standard depth of housing in relation to N° of poles														Gland
Poles	Dim.	Poles	Dim.	Poles	Dim.	Poles	Dim.	Poles	Dim.	Poles	Dim.	Poles	Dim.	
—	—	7	205	—	—	—	—	—	—	—	—	—	—	M32 M40
—	—	6	205	—	—	—	—	—	—	—	—	—	—	M32 M40
4	130	5	150	8	190	—	—	12	245	—	—	18	325	M25 M32
4	130	5	150	—	—	—	—	—	—	—	—	—	—	M25 M32
3	130	4	150	5	190	—	—	7	245	—	—	—	—	M32
8 8 6	130	12 10 8	150	22 18 14	190	—	—	27 27 27	245	—	—	—	—	M25 M32
—	—	12	205	24	295	24	295	36	385	—	—	—	—	M32 M40

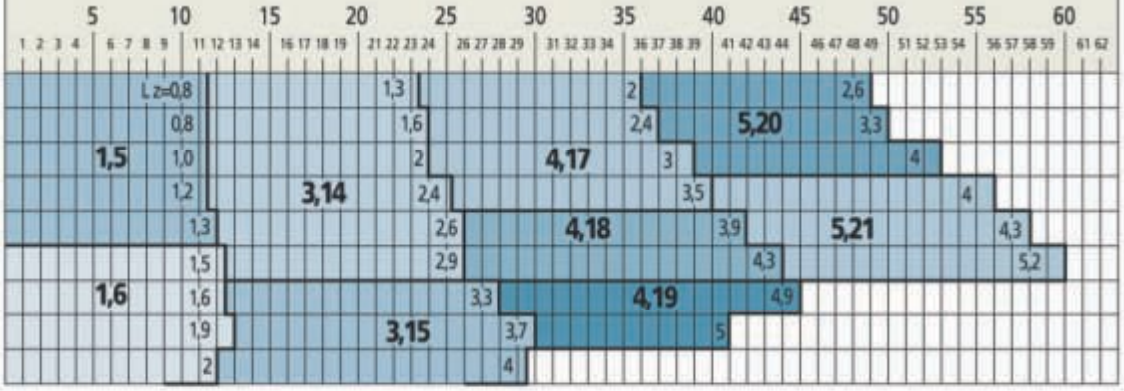
◤ *Sliprings connected to cable terminals*
For size 58 only up to 24 poles

Spring cable reel
Type 280 HA (with higher spring force)

CHOICE OF CABLE REEL ACCORDING TO SEARCH KEY 1.5 TO 6.22

Cable (*) ø (mm) from ... to ...	Weight kg/m max.
<8	0.09
8 - 10	0.15
10 - 12	0.25
12 -14	0.30
14 - 16	0.40
16 - 18	0.45
18 - 20	0.55
20 - 22	0.70
22 - 24	0.80

Reeling length Lw (m), Case 1  **h ≤ 1m**

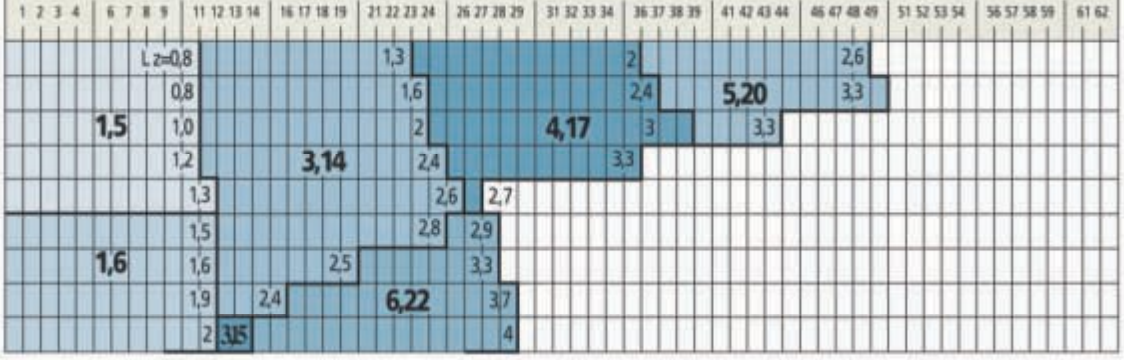


L z= N° of layers

= Grey background: diameter of axis hole is 20 mm

Cable (*) ø (mm) from ... to ...	Weight kg/m max.
<8	0.09
8 - 10	0.15
10 - 12	0.25
12 -14	0.30
14 - 16	0.40
16 - 18	0.45
18 - 20	0.55
20 - 22	0.70
22 - 24	0.80

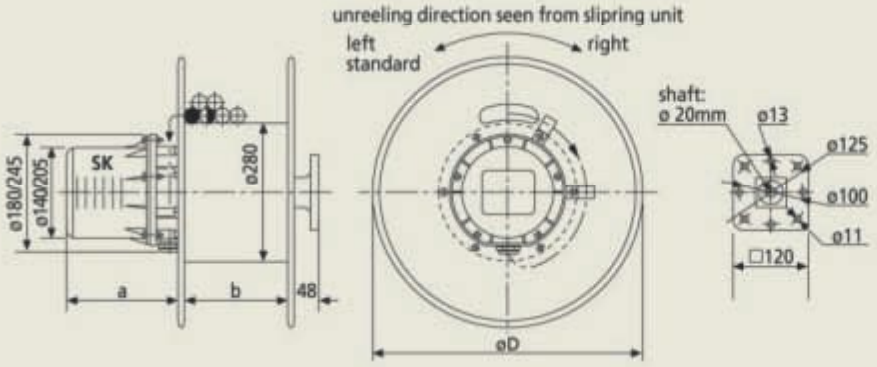
Reeling length Lw (m), Case 8  **Lw= H**



L z= N° of layers

= Grey background: diameter of axis hole is 20 mm

(*) The correct cable data are given by each cable manufacturer and should be compared with the values in the tables.
For vertical applications the cable weight (kg/m) and additional load must be considered. Always check actual reeling length when near capacity limits.



Technical data:
Drum in hot-dip galvanised steel.
Two bearings on each side of axis.
Springs are made of high-grade steel for long lifetime and mounted in separate housing.

Slipring housing in strong glassfiber reinforced plastic material.
Protection: IP65/66
Axis hole: ø 20 mm

The reels of type 280 HA have springs with higher spring force and should be used in special and heavy-duty applications. For example in cases where speed is very low, or where the cable is guided through guiding systems with high friction losses, or in extremely low or high ambient temperature.

Special dimensions b = 136/ 215/ 250, D = 460

Search key	Drum type	Slipring type	Dimensions (mm) d ø	Dø	b	Spring force (daN) Za	Fa	Fe	Z	Number of spring turns n vor	n Res.	n turns	Weight (kg)
1.5	28361810HA –		280	360	180	7,1	6,8	17,5	19	3	1,5	17	21,5
1.6	28431810HA –	02	280	430	180	7,1	6,8	17,5	19	3	1,5	17	21,8
3.14	28431820HA –	03	280	430	180	7,1	6,8	17,5	19	6	3	34,5	28
3.15	28551820HA –	45	280	550	180	7,1	6,8	17,5	19	6	3	34,5	29
4.17	28431830HA –	46	280	430	180	7,1	6,8	17,5	19	9	4,5	52	32
4.18	28501830HA –	47	280	500	180	7,1	6,8	17,5	19	9	4,5	52	32,5
4.19	28551830HA –	58	280	550	180	7,1	6,8	17,5	19	9	4,5	52	33
5.20	28431840HA –		280	430	180	7,1	6,8	17,5	19	12	6	69,5	38
5.21	28552140HA –	98	280	550	215	7,1	6,8	17,5	19	12	6	69,5	39
6.22	28551822HA –		280	550	180	14	13,5	35	38	6	3	34,5	39

Standard model

Technical data for Sliprings

Drum type	Slipring type	N° of poles	Current 100% ED, max. A	Cross sec mm²	Max. voltage V	Housing Ø (mm)
28...-	02	7	50mA-50A	max 10²	500	205/245
	03	5	50mA-90A	max 16²	500	205/245
	◤45	18	50mA-25A	(2,5²)	415	140/180
	◤46	5	50mA-25A	(4²)	415	140/180
	◤47	5	50mA-50A	(6²)	500	140/180
	◤58	26	50mA-16A	(1,5²)	125/380/500	140/180
	◤98	36	50mA-25A	(2,5²)	500	205/245

Housing dimensions

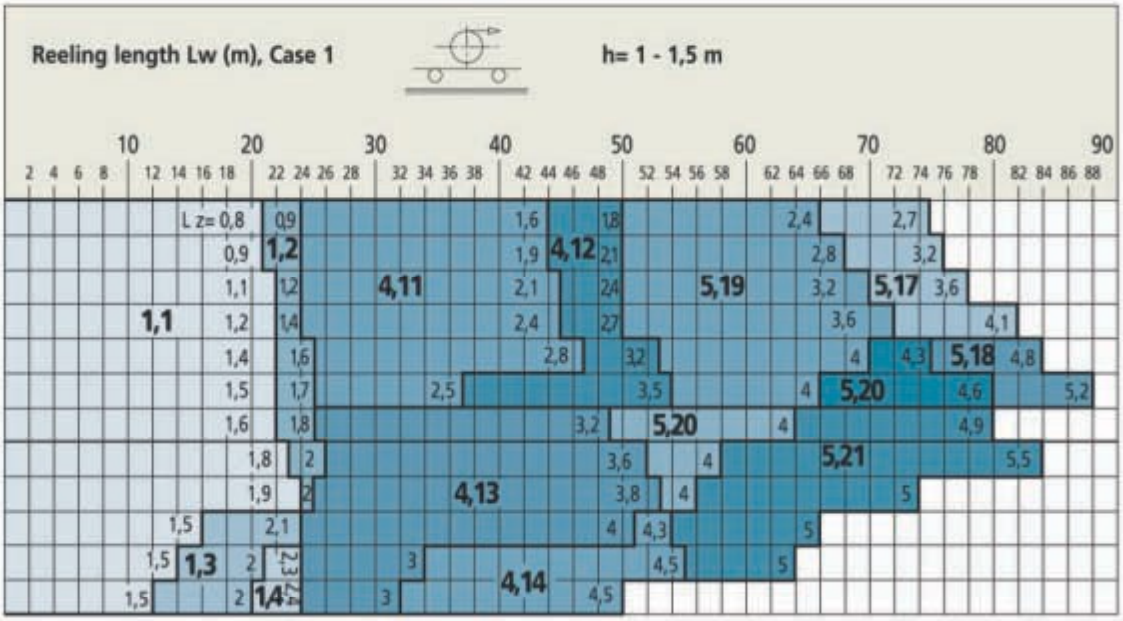
Dimension a – Standard depth of housing in relation to N° of poles														Gland
Poles	Dim.	Poles	Dim.	Poles	Dim.	Poles	Dim.	Poles	Dim.	Poles	Dim.	Poles	Dim.	
—	—	7	205	—	—	—	—	—	—	—	—	—	—	M32 M40
—	—	6	205	—	—	—	—	—	—	—	—	—	—	M32 M40
4	130	5	150	8	190	—	—	12	245	—	—	18	325	M25 M32
4	130	5	150	—	—	—	—	—	—	—	—	—	—	M25 M32
3	130	4	150	5	190	—	—	7	245	—	—	—	—	M32
8 8 6	130	12 10 8	150	22 18 14	190	—	—	27 27 27	245	—	—	—	—	M25 M32
—	—	12	205	24	295	24	295	36	385	—	—	—	—	M32 M40

◤ *Sliprings connected to cable terminals*
For size 58 only up to 24 poles

CHOICE OF CABLE REEL ACCORDING TO SEARCH KEY 1.1 TO 5.21

Cable (*) ø (mm) from ... to ...	Weight kg/m max.
10 - 12	0.25
12 -14	0.30
14 - 16	0.40
16 - 18	0.45
18 - 20	0.55
20 - 22	0.70
22 - 24	0.80
24 - 26	0,95
26 - 28	1,10
28 - 30	1,30
30 - 32	1,50
32 - 34	1,60

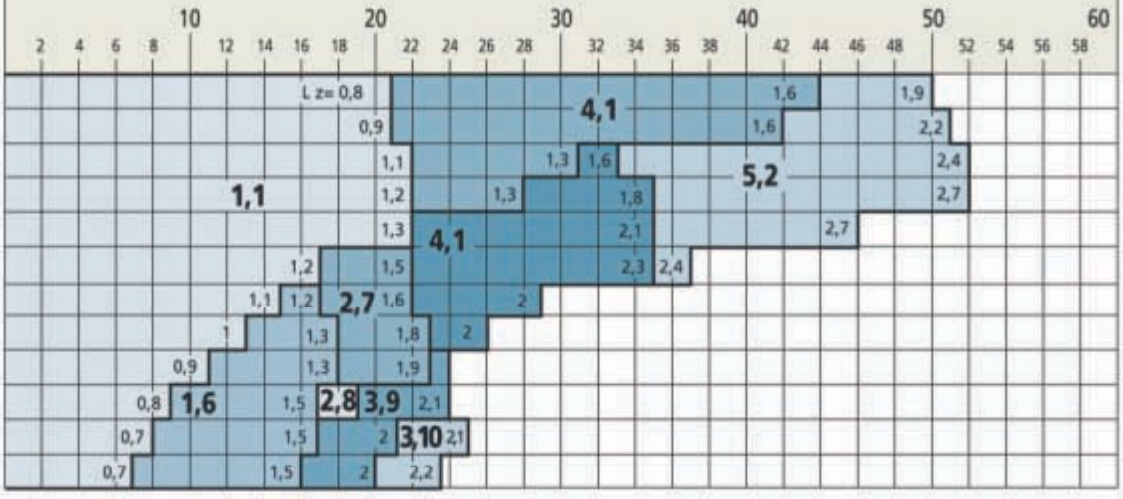
Reeling length Lw (m), Case 1 — **h= 1 - 1,5 m**



L z= N° of layers = *Grey background: diameter of axis hole is 20 mm*

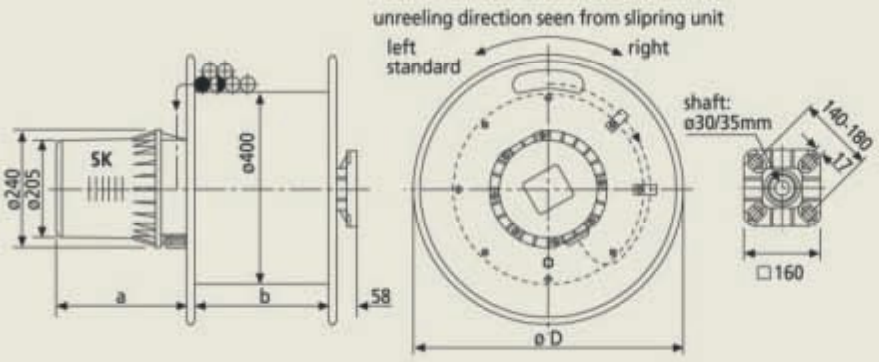
Cable (*) ø (mm) from ... to ...	Weight kg/m max.
10 - 12	0.25
12 -14	0.30
14 - 16	0.40
16 - 18	0.45
18 - 20	0.55
20 - 22	0.70
22 - 24	0.80
24 - 26	0,95
26 - 28	1,10
28 - 30	1,30
30 - 32	1,50
32 - 34	1,60

Reeling length Lw (m), Case 8 — **Lw= H**



L z= N° of layers = *Grey background: diameter of axis hole is 20 mm*

(*) The correct cable data are given by each cable manufacturer and should be compared with the values in the tables.
For vertical applications the cable weight (kg/m) and additional load must be considered. Always check actual reeling length when near capacity limits.



Technical data:
Drum in hot-dip galvanised steel.
Two bearings on each side of axis.
Springs are made of high-grade steel for long lifetime and mounted in separate housing.

Slipring housing in strong glassfiber reinforced plastic material.
Protection: IP65/66
Axis hole: inner diameter
Serial: ø 35 mm
Parallel: ø 35 mm

Special dimensions b = 215/ 340/ 150

Search key	Drum type	Slipring type	Dimensions (mm) d ø	Dø	b	Spring force (daN) Za	Fa	Fe	Z	Number of spring turns n vor	n Res.	n turns	Weight (kg)
1.1	40562810TA –		400	560	280	7	6	20	24	2,5	1,5	21	54
1.2	40562810SA –		400	560	280	6	5	13	15	3,5	1,5	25	52
1.3	40632810TA –		400	630	280	7	6	20	24	2,5	1,5	21	56
1.4	40712810TA –	02	400	710	280	7	6	20	24	2,5	1,5	21	58
1.6	40632810UA –		400	630	280	16	13	39	46	2,5	1,0	16,5	59
2.7	40562812TA –	03	400	560	280	14	12	40	48	2,5	1,5	21	68
2.8	40632812TA –		400	630	280	14	12	40	48	2,5	1,5	21	70
3.9	40632813TA –	05	400	630	280	21	18	60	72	2,5	1,5	21	83
3.10	40712813TA –		400	710	280	21	18	60	72	2,5	1,5	21	84
4.11	40562820TA –	09	400	560	280	7	6	20	24	5	3	42	68
4.12	40632820SA –		400	630	280	6	5	13	15	7	3	50	65
4.13	40712820TA –	(45)	400	710	280	7	6	20	24	5	3	42	72
4.14	40802820TA –		400	800	280	7	6	20	24	5	3	42	75
4.15	40562820UA –	80	400	560	280	16	13	39	46	5	2	33	74
5.17	40632830SA –		400	630	280	6	5	13	15	10,5	4,5	75	75
5.18	40712830SA –	98	400	710	280	6	5	13	15	10,5	4,5	75	78
5.19	40632830TA –		400	630	280	7	6	20	24	7,5	4,5	63	83
5.20	40712830TA –		400	710	280	7	6	20	24	7,5	4,5	63	84
5.21	40802830TA –		400	800	280	7	6	20	24	7,5	4,5	63	86
5.22	40632830UA –		400	630	280	16	13	39	46	7	3,5	49,5	92

Standard model

Technical data for Sliprings

Drum type	Slipring type	N° of poles	Current 100% ED, max. A	Cross sec mm²	Max. voltage V	Housing Ø (mm)
40...-	02	24	50mA-50A	max 10²	500	205
	03	17	50mA-90A	max 16²	500	205
	06	7 u.>	50mA-200A	max 35²	660	360
	◤ 45	18	50mA-25A	2,5²	415	205
	◤ 80	32	50mA-16A	1,5²	125/380/500	205
	◤ 98	42/60	30mA-25A	2,5²/1,5²	500	205

Housing dimensions

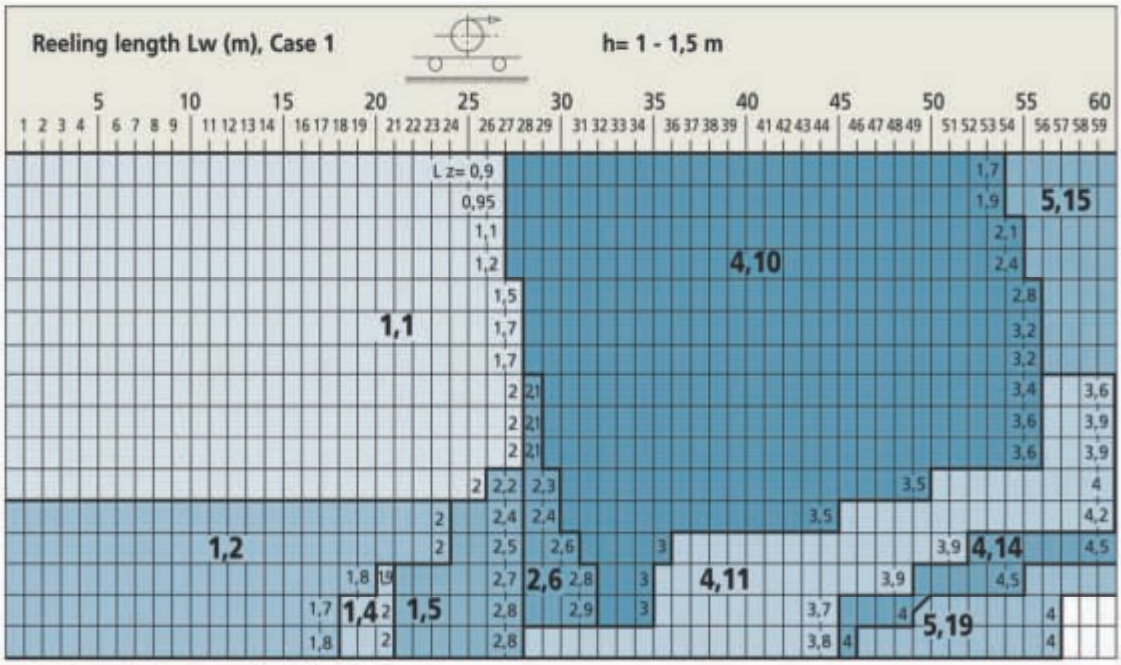
Dimension a – Standard depth of housing in relation to N° of poles								Gland
Poles	Dim.	Poles	Dim.	Poles	Dim.	Poles	Dim.	
7	205	11	295	16	390	19	430	M20
6	205	10	295	14	390	17	430	M25
								M25
								M32
4	225	7	350					M40
7	205	13	295	18	390			M63
24/22/18	205	32	295					M63
12	205	24	295	36	390	42	430	M48

◤ *Sliprings connected to cable terminals*

Spring cable reel
Type 500 – Horizontal application

CHOICE OF CABLE REEL ACCORDING TO SEARCH KEY 1.1 TO 5.19 (FOR REELING LENGTH UP TO 60 M)

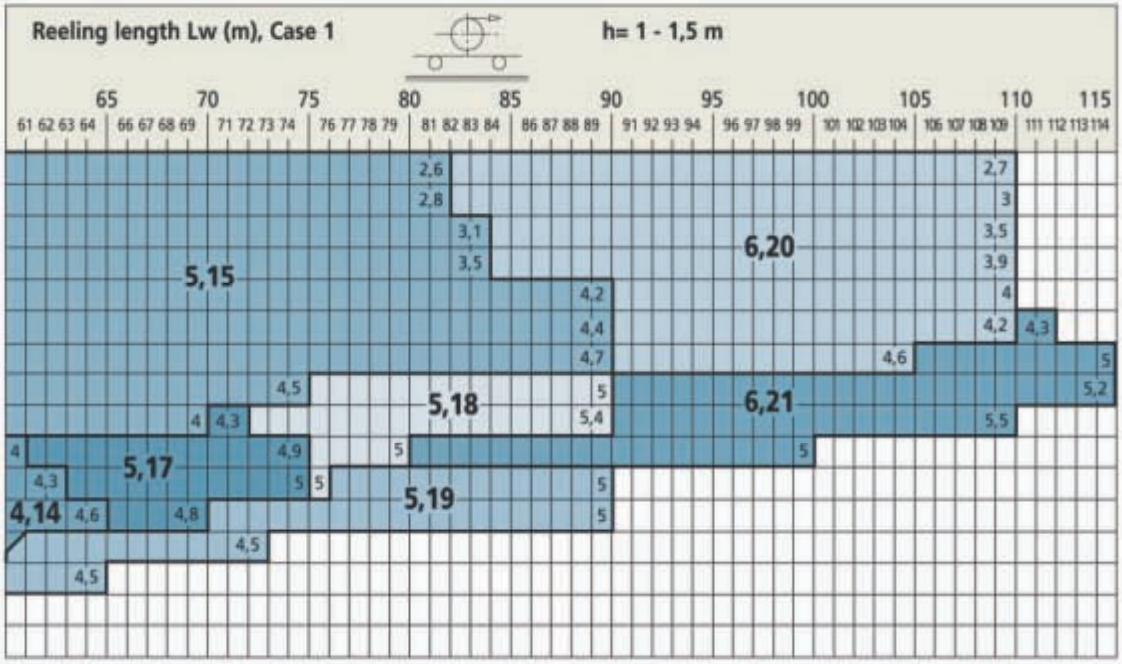
Cable (*) ø (mm) from ... to ...	Weight kg/m max.
10 - 12	0.25
12 -14	0.30
14 - 16	0.40
16 - 18	0.45
18 - 20	0.55
20 - 22	0.70
22 - 24	0.80
24 - 26	0,95
26 - 28	1,10
28 - 30	1,30
30 - 32	1,50
32 - 34	1,60
34 - 36	1,80
36 - 38	2,25
38 - 40	2,50
40 - 42	2,80



L z= N° of layers = *Grey background: diameter of axis hole is 30 mm*

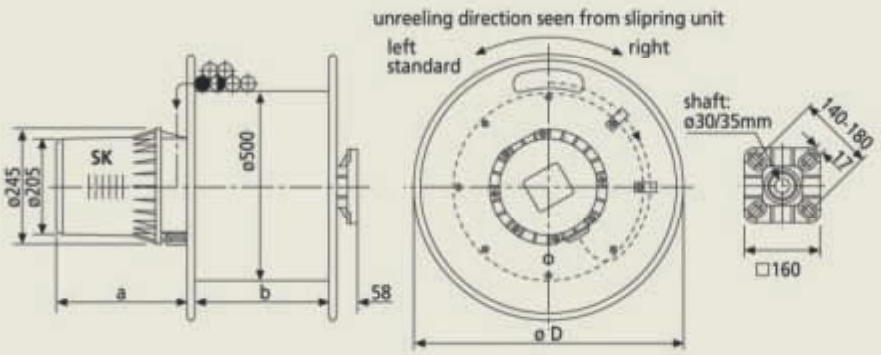
CHOICE OF CABLE REEL ACCORDING TO SEARCH KEY 4.14 TO 6.21 (FOR REELING LENGTH 61 TO 115 M)

Cable (*) ø (mm) from ... to ...	Weight kg/m max.
10 - 12	0.25
12 -14	0.30
14 - 16	0.40
16 - 18	0.45
18 - 20	0.55
20 - 22	0.70
22 - 24	0.80
24 - 26	0,95
26 - 28	1,10
28 - 30	1,30
30 - 32	1,50
32 - 34	1,60
34 - 36	1,80
36 - 38	2,25
38 - 40	2,50
40 - 42	2,80



L z= N° of layers = *Grey background: diameter of axis hole is 30 mm*

(*) The correct cable data are given by each cable manufacturer and should be compared with the values in the tables.
For vertical applications the cable weight (kg/m) and additional load must be considered. Always check actual reeling length when near capacity limits.



Technical data:
Drum in hot-dip galvanised steel.
Two bearings on each side of axis.
Springs are made of high-grade steel for long lifetime and mounted in separate housing.

Slipring housing in strong glassfiber reinforced plastic material.
Protection: IP65/66
Axis hole: inner diameter
Serial: ø 35 mm
Parallel: ø 35 mm

Special dimension b= 215, D= > 900

Search key	Drum type	Slipring type	Dimensions (mm) d ø	Dø	b	Spring force (daN) Za	Fa	Fe	Z	Number of spring turns n vor	n Res.	n turns	Weight (kg)
1.1	50712810TA –		500	710	280	6	5	17	20	2,5	1,5	21	78
1.2	50802810TA –		500	800	280	6	5	17	20	2,5	1,5	21	80
1.3	50712810UA –		500	710	280	14	11	31	38	2,5	1	16,5	82
1.4	50802810UA –		500	800	280	14	11	31	38	2,5	1	16,5	84
1.5	50902810UB –	02	500	900	280	10	8,5	29	35	2,5	1,5	20	88
2.6	50802812TA –		500	800	280	12	10	34	40	2,5	1,5	21	84
2.7	50802812UA –	03	500	800	280	28	22	62	76	2,5	1	16,5	90
3.8	50802813TA –	05	500	800	280	18	15	51	60	2,5	1,5	21	88
3.9	50802813UA –		500	800	280	42	33	93	114	2,5	1	16,5	110
4.10	50802820TA –	09	500	800	280	6	5	17	20	5	3	42	84
4.11	50902820TA –	(45)	500	900	280	6	5	17	20	5	3	42	90
4.12	50802820UA –		500	800	280	14	11	31	38	5	2	33	90
4.13	50802820UB –		500	800	280	10	8,5	29	35	5	3	40	95
4.14	50902820UB –	80	500	900	280	10	8,5	29	35	5	3	40	102
5.15	50802830TA –		500	800	280	6	5	17	20	7,5	4,5	63	88
5.16	50802830UA –	98	500	800	280	14	11	31	38	7,5	3	49,5	110
5.17	50902830UA –		500	900	280	14	11	31	38	7,5	3	49,5	115
5.18	50902830UB –		500	900	280	10	8,5	29	35	7,5	4,5	60	118
5.19	50903430UB –		500	900	340	10	8,5	29	35	7,5	4,5	60	125
6.20	50803440TA –		500	800	340	6	5	17	20	10	6	84	115
6.21	50903440UB –		500	900	340	10	8,5	29	35	10	6	80	148

Standard model

Technical data for Sliprings

Drum type	Slipring type	N° of poles	Current 100% ED, max. A	Cross sec mm²	Max. voltage V	Housing Ø (mm)
	02	24	50mA-50A	max 10²	500	205
	03	17	50mA-90A	max 16²	500	205
50...-	06	7	50mA-200A	max 35²	660	360
	45	18	50mA-25A	2,5²	415	205
	80	32	30mA-16A	1,5²	125/380/500	205
	98	42 60	30mA-25A	2,5²/1,5²	500	205

◤ *Sliprings connected to cable terminals*

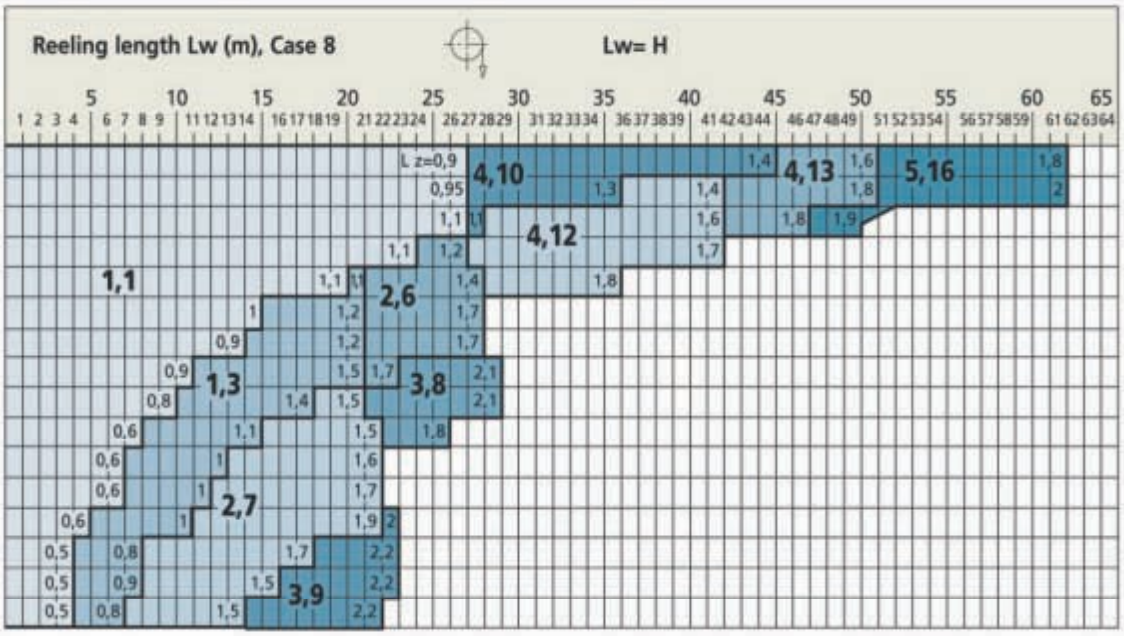
Housing dimensions

Dimension a - Standard depth of housing in relation to N° of poles								Gland
Poles	Dim.	Poles	Dim.	Poles	Dim.	Poles	Dim.	
7	205	11	295	16	385	19	430	M20
6	205	10	295	14	385	17	430	M25
								M25
4	225	7	350					M32
7	205	13	295	18	385			M40
24/22/18	205	32	295					M63
12	205	24	295	36	385	42	430	M63 M48

Spring cable reel
Type 500 – Vertical application

CHOICE OF CABLE REEL ACCORDING TO SEARCH KEY 1.1 TO 5.16

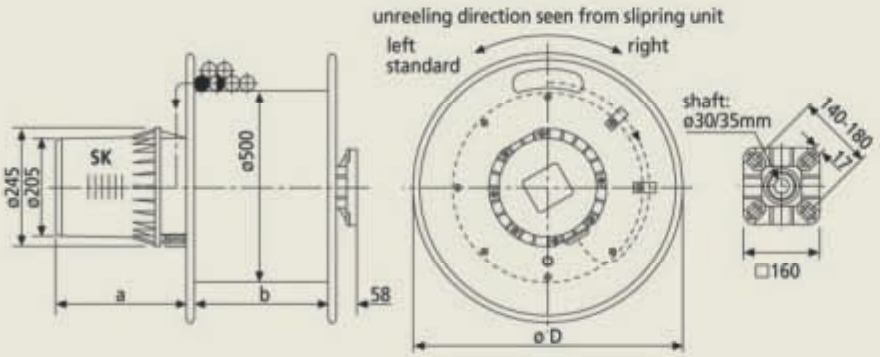
Cable (*) ø (mm) from ... to ...	Weight kg/m max.
10 - 12	0.25
12 -14	0.30
14 - 16	0.40
16 - 18	0.45
18 - 20	0.55
20 - 22	0.70
22 - 24	0.80
24 - 26	0,95
26 - 28	1,10
28 - 30	1,30
30 - 32	1,50
32 - 34	1,60
34 - 36	1,80
36 - 38	2,25
38 - 40	2,50
40 - 42	2,80



L z= N° of layers

= Grey background: diameter of axis hole is 30 mm

(*) The correct cable data are given by each cable manufacturer and should be compared with the values in the tables.
For vertical applications the cable weight (kg/m) and additional load must be considered. Always check actual reeling length when near capacity limits.



Technical data:
Drum in hot-dip galvanised steel.
Two bearings on each side of axis.
Springs are made of high-grade steel for long lifetime and mounted in separate housing.

Slipring housing in strong glassfiber reinforced plastic material.
Protection: IP65/66
Axis hole: inner diameter
Serial: ø 35 mm
Parallel: ø 35 mm

Special dimension b= 215

Search key	Drum type	Slipring type	Dimensions (mm) d ø	Dø	b	Spring force (daN) Za	Fa	Fe	Z	Number of spring turns n vor	n Res.	n turns	Weight (kg)
1.1	50712810TA –		500	710	280	6	5	17	20	2,5	1,5	21	78
1.2	50802810TA –		500	800	280	6	5	17	20	2,5	1,5	21	80
1.3	50712810UA –		500	710	280	14	11	31	38	2,5	1	16,5	82
1.4	50802810UA –		500	800	280	14	11	31	38	2,5	1	16,5	84
1.5	50902810UB –	02	500	900	280	10	8,5	29	35	2,5	1,5	20	88
2.6	50802812TA –		500	800	280	12	10	34	40	2,5	1,5	21	84
2.7	50802812UA –	03	500	800	280	28	22	62	76	2,5	1	16,5	90
3.8	50802813TA –	05	500	800	280	18	15	51	60	2,5	1,5	21	88
3.9	50802813UA –		500	800	280	42	33	93	114	2,5	1	16,5	110
4.10	50802820TA –	09	500	800	280	6	5	17	20	5	3	42	84
4.11	50902820TA –	(45)	500	900	280	6	5	17	20	5	3	42	90
4.12	50802820UA –		500	800	280	14	11	31	38	5	2	33	90
4.13	50802820UB –	(47)	500	800	280	10	8,5	29	35	5	3	40	95
4.14	50902820UB –	80	500	900	280	10	8,5	29	35	5	3	40	102
5.15	50802830TA –		500	800	280	6	5	17	20	7,5	4,5	63	88
5.16	50802830UA –	98	500	800	280	14	11	31	38	7,5	3	49,5	110
5.17	50902830UA –		500	900	280	14	11	31	38	7,5	3	49,5	115
5.18	50902830UB –		500	900	280	10	8,5	29	35	7,5	4,5	60	118
5.19	50903430UB –		500	900	340	10	8,5	29	35	7,5	4,5	60	125
6.20	50803440TA –		500	800	340	6	5	17	20	10	6	84	115
6.21	50903440UB –		500	900	340	10	8,5	29	35	10	6	80	148

Standard model

Technical data for Sliprings

Drum type	type	Slipring N° of poles	Current 100% ED. max. A	Cross sec mm²	Max. voltage V	Housing Ø (mm)
	02	24	50mA-50A	max 10²	500	250
	03	17	50mA-90A	max 16²	500	250
	06	7u.>	50mA-200A	max 35²	660	360
50...-	45	18	50mA-25A	2,5²	415	250
	47	7	50mA-50A	6²	500	250
	80	32	30mA-16A	1,5²	125/380/500	250
	98	42 - 2,5² 60 - 1,5²	30mA-25A	2,5²/1,5²	500	250

◤ *Sliprings connected to cable terminals*

Housing dimensions

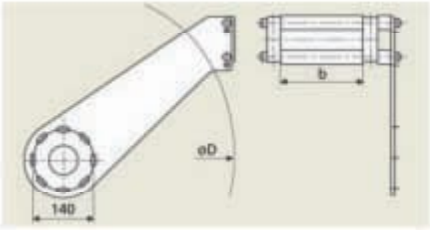
Dimension a – Standard depth of housing in relation to N° of poles								Gland
Poles	Dim.	Poles	Dim.	Poles	Dim.	Poles	Dim.	
7	205	11	295	16	385	19	430	M20
6	205	10	295	14	385	17	430	M25
								M25
4	225	7	350					M32
7	205	13	295	18	385			M40
5	205	7 u.>	295					M63
24/22/18	205	32	295					M63
12	205	24	295	36	385	42	430	M48

Roller guides

Art. Nr.
RM550-6 (left)
RM530-26-4 (middle)
RM530-26-4zö (right)

Cable Grip

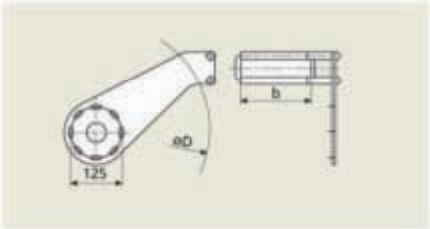
Art. Nr.	Type	Cable Ø
A09-8-Z0810-1	Type - 08	8-10 mm
A09-8-Z1013-1	Type - 12	10-13 mm
A09-8Z1216-1	Type - 15	12-16 mm
A09-8-Z1518-1	Type - 17	15-18 mm
A09-8-Z1822-1	Type - 20	18-22 mm
A09-8-Z2228-1	Type - 25	22-28 mm
A09-8-Z2733-1	Type - 30	27-33 mm
A09-8-Z3338-1	Type - 35	33-38 mm



Guide arm short version for SR 40/50

Type	Art.-Nr.
Guide arm 40/50-80-21 Ø 800	A06-A408021-OZ
Guide arm 40/50-80-28 Ø 800	A06-A408028-OZ
Guide arm 40/50-80-34 Ø 800	A06-A408034-OZ
Guide arm 40/50-100-21 Ø 1000	A06-A40A021-OZ
Guide arm 40/50-100-28 Ø 1000	A06-A40A028-OZ
Guide arm 40/50-100-34 Ø 1000	A06-A40A034-OZ

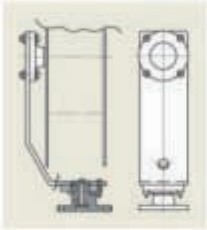
- Side plate diameter D: 800 mm, 1000 mm - Winding width B: 213 mm, 280 mm, 340 mm



Guide arm short version for SR 19/28

Type	Art.-Nr.
Guide arm 19/28-36-14 Ø 360	A06-A193614-OZ
Guide arm 19/28-36-18 Ø 360	A06-A193618-OZ
Guide arm 19/28-36-21 Ø 360	A06-A193621-OZ
Guide arm 19/28-55-14 Ø 550	A06-A195514-OZ
Guide arm 19/28-55-18 Ø 550	A06-A195518-OZ
Guide arm 19/28-55-21 Ø 550	A06-A195521-OZ

- Side plate diameter D: 360 mm, 550 mm - Winding width b: 136 mm, 180 mm, 215 mm

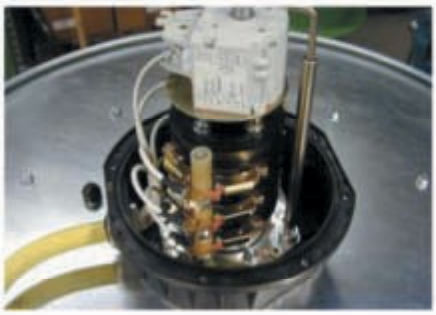


Mounting support and pivot bearing for connection to walls, floors and covers

Type	Art.-Nr.	Type	Art.-Nr.
Mounting support 19/28 - Ø 550	AA9-L05361-OZ		
Mounting support 40/50 - Ø 800	AA9-L04651-OB	pivot bearing 19/28	A09-L28000-OZ

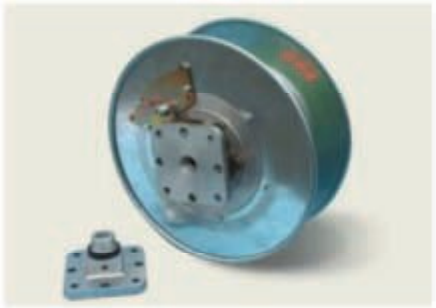
Guidewheels

	with pin	with flange
Type	Art.-Nr.	Art.-Nr.
UR-190	A09-F19035-10	A09-F19035-20
UR-280	A09-F28035-10	A09-F28035-20
UR-400	A09-F40035-10	A09-F40035-20



Limit switches

Type	Art-Nr.
LS 70:1/2E	AA2-SR7001200



Ratchets

Type		Art-Nr.
RLS 19/22		A09-DA1922-OZ
RLS 19/22	PC	A09-DA1922-OB
RLS 28		A09-DA2800-OZ
RLS 28	PC	A09-DA2800-OB
RLS 40/50		A09-DA4050-OZ
RLS 40/50	PC	A09-DA4050-OB

"PC": Polyester coated

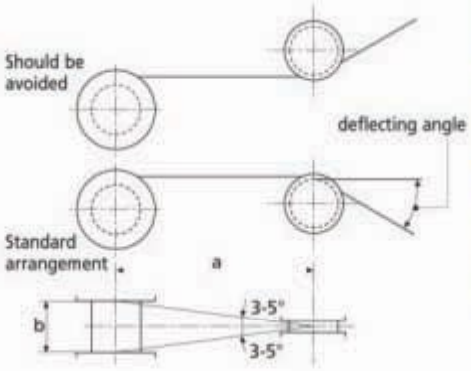
Guide Arms Long Version Type 190 up to 280

Winding width from 125 mm up to 215 mm

Typ		Art-Nr.
Diameter Side Plate up to 550 mm		
Guide arm long 19/28		A06-C19280-OZ
Guide arm long 19/28	PC	A06-C19280-OB

"PC": Polyester coated

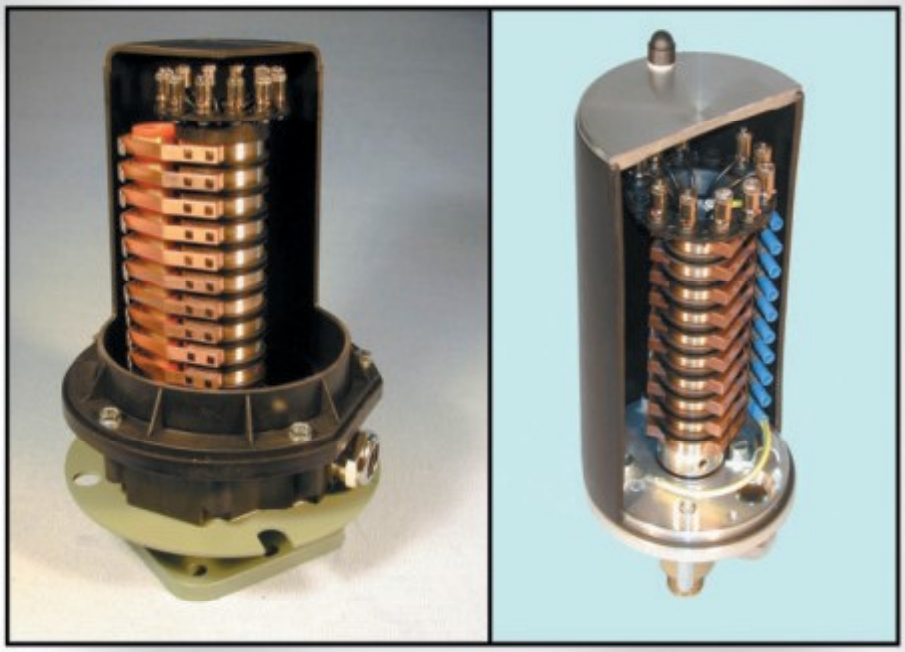
Springs	
AA1-A-AA-0000	Spring AA
AA1-A-AB-0000	Spring AB
AA1-A-BA-0000	Spring BA
AA1-A-BC-0000	Spring BC
AA1-A-DA-0000	Spring DA
AA1-A-DB-0000	Spring DB
AA1-A-DC-0000	Spring DC
AA1-A-EA-0000	Spring EA
AA1-A-EB-0000	Spring EB
AA1-A-HA-0000	Spring HA
AA1-A-SA-0000	Spring SA
AA1-A-TA-0000	Spring TA
AA1-A-UA-0000	Spring UA
AA1-A-UB-0000	Spring UB



Guide wheel/deflecting roll

Size b [mm]	Deflecting angle 3° a [mm]	Deflecting angle 5° a [mm]
40	400	230
70	700	400
110	1050	650
136	1300	800
180	1700	1050
220	2100	1250
280	2600	1630
380	3350	1900

Slipring column installation



Slipring column with housing

ALFO CAVOTEC Slipring columns

The ALFO CAVOTEC range of slipring columns covers a wide spectrum of applications and requirements.
The current standard types are listed in the following pages. The slipring columns are constantly adapted and developed to meet market requirements.
In addition to them, a diversified range of special versions is available to satisfy customers' needs.
Please contact us for further information.

Type		SK02	SK03	SK 05	SK09	SK14	SK15
Page:		32÷35 39	32÷34 36,39	58÷60	58÷60	62÷64	66÷70
Current rating - Amp	technical data						
In the standard version–	mA						
	16A						
	25A						
	50A						
	90A						
	150A					100A	
	200A						
	300A						
Voltage in the standard version–	~380V						
	~415V						
	~ 500V	S	S				
	~ 660V			S	S	S	S
Installation - Slipring column	IP00	S	S	S	S	S	S
Slipring columns with housing	IP55						
	IP65			S	S	S	S
	IP66	S	S				
Coating of the ring multi layers/gold		O				O	
Brush gear with silver contacts/carbon brushes		O				O	
Max. number of poles (according to version<)		30	24	12	7and>	24/36 and>	7and>
Range of rpm - revs/min–	<60						S
varying according to version	<100			S	S	S	
and arrangement	<200	S	S				
	><1000						
Inside ø of the axis		40/60	40/60	65/and>	65/and>	60/and>	80/100 and>
Housing bearing:	Plastic	S	S				
	Aluminium	S	S	S	S	S	S
	Steel	S	S	S	S	S	S
Housing:	Plastic	S	S				
	Steel	S	S	S	S	S	S
Split cover:		O	O	O	O	O	S/O
With connection box for rings		S/O	S/O			O	
With terminal box for brush gear						O	
Connection of the rings		O	O	O	O	O	O
Connection of the brush gear		O	O	O	O	O	O
Version with different ring types available		S	S	O	O	S	O
Adaptor flange through slipring column for tube passage etc.			O	O	O	O	O
	max ø: 10/15/20/25	O	O				
	50u.<>			O	O	O	O
	<130						
	<190						
	<220						
Heating for slipring column		O	O	O	O	O	O
Inst. of potentiometer/encoder/measuring instr.		O	O	O	O	O	O
Div. screen plates		O	O	O	O	O	
Additional support above with ball bearings		O	O	O	O	O	O
Version with ball bearings		S	S	S	S	S	S
Optional locks and divider plate		O	O	O	O	O	O
Special flange		O	O	O	O	O	O
Slipring ø	(mm)	85	85	150	150	110	200
Pole pitch	(mm)	17	20	36	36	*13/20 and>	45
Cover outside ø	(mm)	205 250 280	205 250 280	340 400	340 400	280 340	400 430

S= Standard **O**= Option
* varies according to voltage

ALFO CAVOTEC Slipring columns

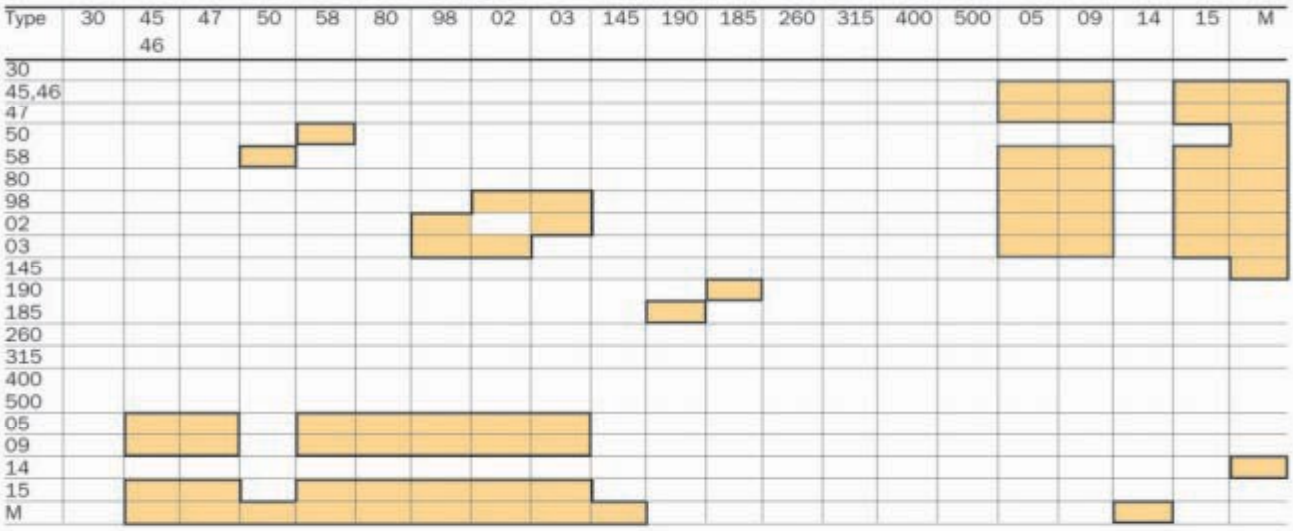
SK30	SK45/46	SK47	SK50	SK58	SK80	SK98	SK145	SK190	SK185	SK260	SK315	SK400	SK500	Your request	GSK-Mercotac
8÷9	10÷11	12÷13	14÷15	16÷23	24÷27	28÷30 35,36,38,39	40÷45	46,47	48,49 50	48,49,52	54÷57	48,49,53	48,49		72
								40A	40A	40A		40A	40A		30A
				80A	80A	80A	80A	80A	80A	80A		80A	80A		
S				S	S										
	S			S	S		S and >	S							
	O	S	S	S	S	S		S	S	S	S	S	S		S
		O and >				O and >									
S	S	S	S	S	S	S	S	S	S	S	S	S	S		S
								S	S	S	S	S			
S	S	S	S	S	S	S	S								S
O	O	O	O	O	O	O	O	O	O	O	O	O			
O	O	O	O	S	S	O	O	O	O	O	O	O			
10	18	8	24	64 (80)	80	80(100)	120 and >	50and >	34 and >	34 and >	8/30 and>	34 and >	34 and >		8
				S	S		<40	<40	S	S	S	S	<40		
S	S					S									
		S	S												
															1200 and <
12	20	20	27	20/27/40	40	40/60	80	88/100	88/100	140 and >	200 and >	225 and >			Pg 16/21/29
	S	S		O		S									
S			S	S	S	S	S	S	S						S
										S	S	S			
S	S	S	S	S	S	S									Alu
						S	S	S	S	S	S	S			
						O	O	O	O	S	S	S			
S	S	S	S	S	S	S	S	S	S	S	S/O	S/O	S/O		S
O	O	O	O	O	O	O	O	O	O	O	O	O			S
O	O	O	S	S	S	S	S	O	O	O	O	O	O		
O	O	O	S/O	S/O	S/O	O	S/O	O	O	O	O	O			
			S	S	S	S	O	S	S		S				
O		O	O	O	O	O	O	O	S	S	S	S	S	S	
	O	O		O	O	O									
							O and >	S 85	S 85						
								S and <	S and <	S					
											S and >				
												S	S and 220		
	O	O	O	O	O	O	O	O	O	O	O	O	O		
O	O	O	O	O	O	O	O								
	O	O	O	O	O	O	O	O	O	O	O	O			
			O	O	O	O	O								
S	S	S	S	S	S	S	S	S	S	S	S	S			S
	O	O	O	O	O	O	O	O	O	O	O	O	O		
O	O	O	O	O	O	O	O	O	O	O	O	O			
30	45	45	50	58	80	98	145	190	185	260	315	400	500		
12	14	18	6	4,4/5,2/6,5	4,4/5,2/6,5	7	4,4/5,2/6,5	11,5/13,5	18	18	18/36	18	18		
110	140	140	125	110 125 160 200	160 200	205 250 280 340	280 340	– 340	– 340	430	530	530			60 65 75

ALFO CAVOTEC Slipring columns

Type Families

Available Types - Combinations on the same SRC bolts in one column

Possible combinations of different rings in one housing



Key type

Example:

Slipring column with housing IP 54 and >

GSK 98 - .. / 205 / KL DV / RO130 SO

For e.g.: tube passage up to ø 130

Opened slipring column IP00 protection type

Special version etc.

With connection box (KL) or direct connection (DV)

Covers ø

Number of poles

Slipring ø and Type

Gessmann Industrial Controllers

Gessmann is a company specialised in the production of high quality industrial controllers (joysticks) and switches to be used in: crane operation systems; remote controls systems; hoisting, ports, terminals and offshore; mining and tunnelling; steel mills; welding machine control; forestry; packing machine control; explosion protected (flame proof) applications and nautical applications.

Nearly all man-machine interface problems can be solved by the large range of different controllers manufactured by Gessmann. Once the physical size and features are determined for an application, the ergonomic issues become a very important part of designing the controller for a specific machine.
Our extensive experience in this field, supported by our professional ergonomic designers helps us to increase comfort, productivity and efficiency on the whole system.

As a result of the close cooperation established with its customers, several Gessmann solutions are specially designed for customer applications. In addition to the high quality mechanical systems, a number of electronic solutions have been developed and manufactured by Gessmann, such as Opto-electronic encoders and bus systems.
The Gessmann reference list includes companies such as Siemens, Alstom, General Electric, MAN, Liebherr, Noell, Terex, Konecrans, Potain, Hydralift, Mannesmann-Dematic, Mannesmann-Rexroth, Linde, Kranbau Eberswalde, Steinbock, Boss, Micro control, Clark, Kalmar, and Kamewa.

RISE
锐 实 科 技

大连锐实科技有限公司

地址: 大连市沙河口区胜利路188号金地海景1413室

电话: 0411-39756508　　传真: 0411-39756509

邮箱: dlrise@163.com　　邮编: 116021

网址: http://www.dlrise.com