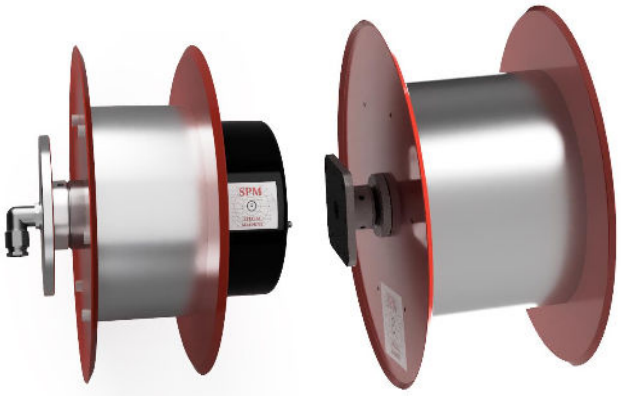
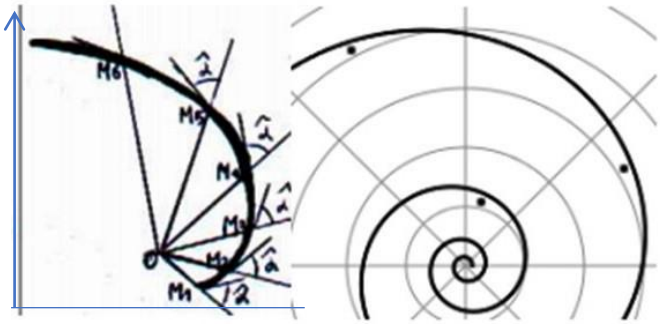
SCR SERIES

SPRING CABLE REEL





SPM SPECIAL MACHINE.
Via Padana superiore 38 Interno 5 Inzago (milano) ITALY
(sales@spm-slipring.it)
www.spm-slipring.it

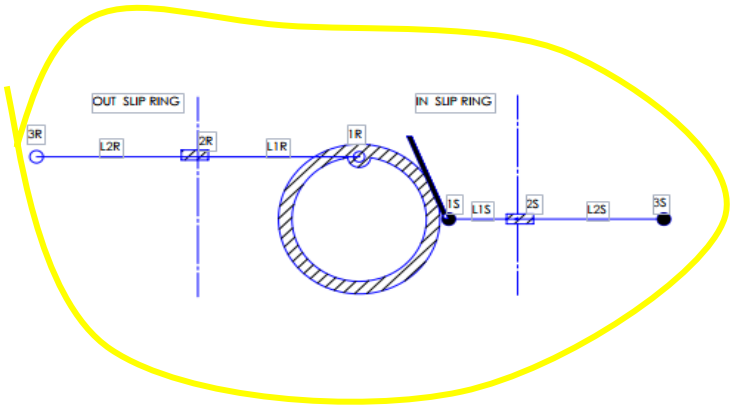
Spring-driven cable reels - general technical data

The spring cable reels are used for the winding and unwinding of power and control cables, mainly in the lifting sectors, process machines, and water treatment plants.
The operation of the device consists of a steel drum inside which we have spiral springs which are unwound and wound by the towing of the mobile vehicle.

Slip ring assembly

The slip ring assemblies are designed for an operational voltage of max. 400 / 1000 V.
Depending on the size and the application of the spring-driven cable reel both sliprings for the data transmission (mA-range / data bus systems) and sliprings for power transmission (up to max. 250 A) can be used.
The individually admissible amperages of the slipring assemblies can be gathered from the selection list.
The material of the sping cable reeis is steel Correspond to protection class IP 65/67

The leaf foil brush system is a particular brush that slides on a surface of a brass or bronze ring.
It has the function of transmitting power electricity, analog and digital signals from a fixed point (brush) to a rotating mobile one (ring) (input = ring / output = brush)

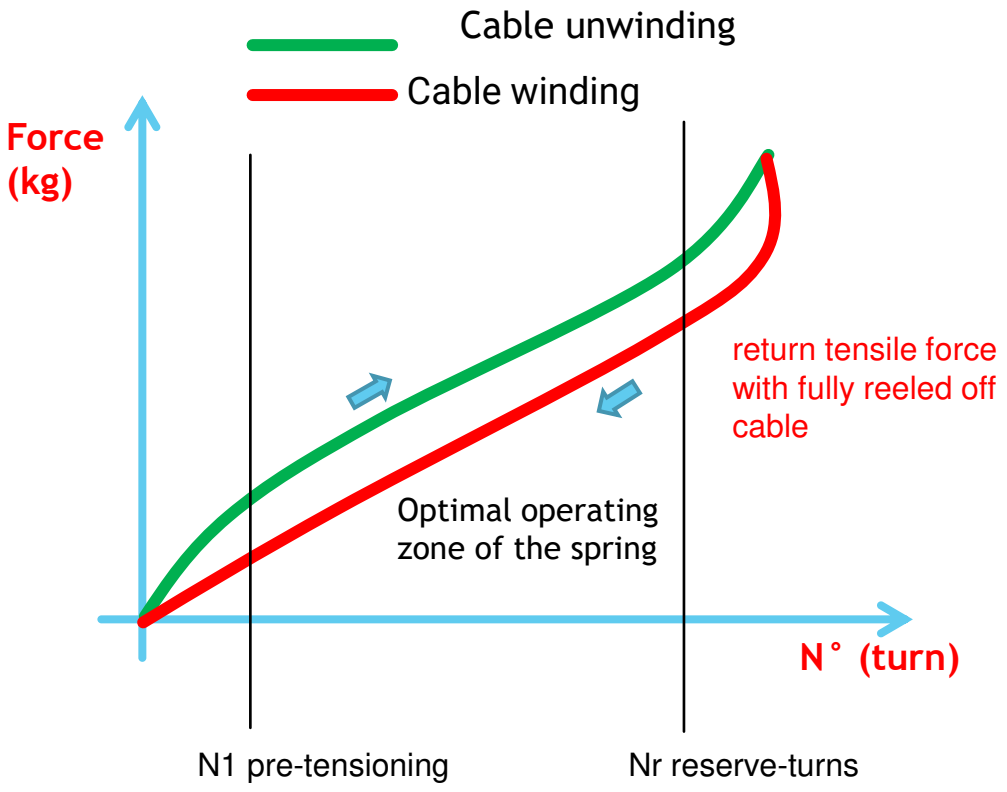


The main advantages of the system are:

1) Compactness and constructive simplicity;
2) Ease of maintenance;
3) Low electrical resistivity values (0.2 <R <6 mohm)
4) Good values of the characteristic impedance of the ring / brush system
5) Low friction value (Good ring / brush smoothness).
7) Low overheating at the contact point.
8) Low overtemperature values of the terminals in case of failure
9) Rapid cooling in case of failure at the contact point

Springs

Springs of high-quality texture-roller spring steel with a long lifespan are used.
The springs conduct as shown in the diagram.
The spring forces indicated in the selection list are the max. achievable forces F (referred to the corresponding reel
body core).
The pre-tensioning-, working- and reserve-turns to be observed during commissioning are indicated on the
type plate of the reel.



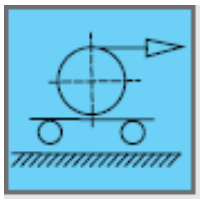
Cable selection

On page 6 you will find a selection of cables for which our spring-driven cable reels are suitable.
When selecting the cable to be reeled the information of the cable supplier and the corresponding regulations
have to be observed.
The spring-driven cable reels in this list are cylindrically uncontrolled-winding reels. Thus, especially with long winding lengths the number of layers on the reel body has to be observed when the core-cross section is determined

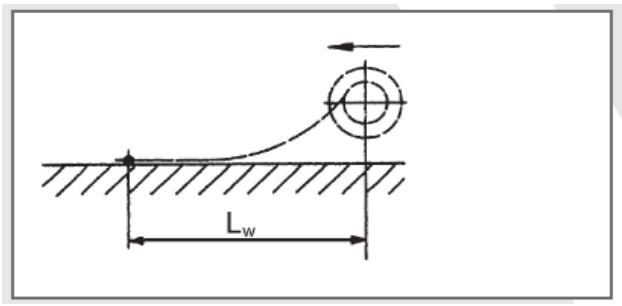
General basic principles for determination of the cable length

When determining the complete cable length to be reeled the following has to be observed:
- only put as much cable on the reel body as is required for the winding (LW) + 2 additional windings as tension relief which have to stay on the reel body when the cable is completely pulled off
- connection length for the connection to the brush holders
- connection length for the connection within the feeding point
- length for the mounting height h (horizontal cable pay-off)
- length for L0 (vertical cable pay-off)

Horizontal cable pay-off

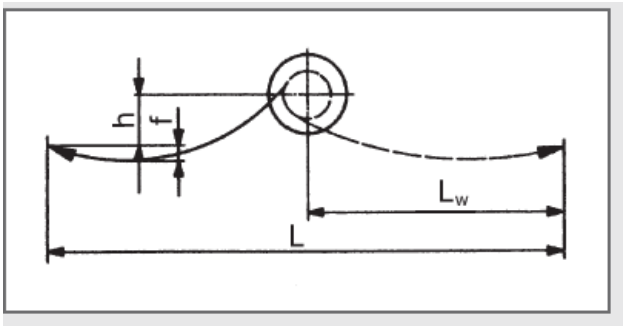


a)



Cable pay-off to 1 direction

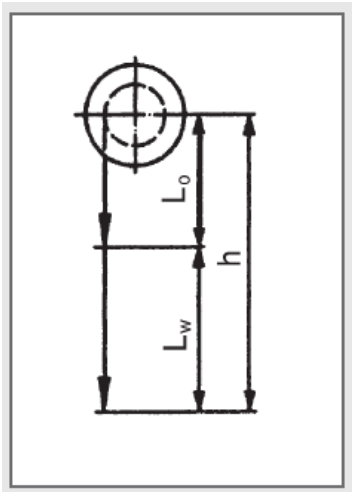
b)



Cable pay-off to 2 directions

Vertical cable pay-off downwards

c)



TAB1 Cable data for cable standard

SLIP RING	Cross section	Weight (kg/m)	Ø [mm]
4X20A	4G2,5	0,2	14
4X40A	4G4	0,28	15,3
4X40A	4G6	0,39	16,9
4X60A	4G10	0,61	18,9
4X80A	4G16	0,94	22,5
4X100A	3x25+3G6	1,24	25,4
4X150A	3x35+3G10	1,64	28,2
4x200A	3X50+3G16	2,10	32
4X250	3X70+3G25	2,70	36
5X25A	5G2,5	0,24	15,1
5X40A	5G4	0,34	16,6
5X40A	5G6	0,49	18,4
5X60A	5G10	0,72	21,4
5X80A	5G16	1,12	24,7
5X100A	5G25	1,57	30,7
7X20A	7X1,5	0,21	13
7X20A	7X2,5	0,35	16
12X20A	12X1,5	0,41	17
12X20A	12X2,5	0,7	21
18X20A	18X1,5	0,43	17,4
18X20A	18X2,5	0,76	21,8
24X20A	24X2,5	0,7	20,3
24X20A	24X2,5	1,07	25,8
36X20A	36X1,5	0,92	22,4
36X20A	36X2,5	1,45	28,8
42X20A	42X2,5	1,52	30,9

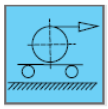
TAB2 TYPE SPRING CABLE REEL

HX	TYPE	CODE 1	CODE 2		
HX1	HELIX 1	SCR01	211508		
HX2	HELIX 2	SCR02	352212	402212	
HX3	HELIX 3	SCR03	453021	573021	573026
HX4	HELIX 4	SCR04	573630	703630	

TAB3 Horizontal cable pay-off

Length (m)

D(mm)	W (Kg)	10	15	20	25	30
5-7,	0,05-0,08.	HX01				
8-10.	0,08-0,15	HX02	HX02			
10-13,	0,15-0,2	HX02	HX02	HX03	HX03	HX03
13-16	0,2-0,3	HX02	HX02	HX03	HX03	HX03
16-19	0,3-0,6	HX03	HX03	HX03	HX03	HX03
19-22	0,6-0,75	HX03	HX03	HX03	HX03	HX03
22-25	0,75-1,1	HX03	HX03	HX04	HX04	HX04
25-28	1,1-1,4	HX04	HX04	HX04	HX04	HX04
28-31	1,4-1,6	HX04	HX04	HX04	HX04	HX04
32-36	2-2,5	HX04	HX04	HX04	HX04	HX04



TAB4 Vertical cable pay-off downwards

Length (m)

D(mm)	W (Kg)	4	8	12	16	20
5-7,	0,05-0,08.	HX01	HX01			
8-10.	0,08-0,15	HX02	HX02	HX02		
10-13,	0,15-0,2	HX02	HX02	HX02	HX03	HX03
13-16	0,2-0,3	HX02	HX02	HX02	HX03	HX03
16-19	0,3-0,6	HX03	HX03	HX03	HX03	HX03
19-22	0,6-0,75	HX03	HX03	HX03	HX03	HX03
22-25	0,75-1,1	HX03	HX03	HX03	HX03	HX03
25-28	1,1-1,4	HX04	HX04	HX04	HX04	HX04
28-31	1,4-1,6	HX04	HX04	HX04	HX04	HX04
32-36	2-2,5	HX04	HX04	HX04	HX04	HX04

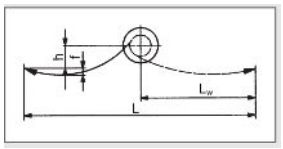
TAB5 Type Springs

SERIES	SIZE	CODE SPRING	TYPE SPRING	H	V
HELIX 1	SCR01	A	25X0,6 Ø 135 øi 22 L= 9,5 MT	1	
HELIX 2	SCR02	B	40X0,6 Ø 190 øi 25 L=15	1	
HELIX3	SCR03	H	40X1,1 Ø 265 øi 45 L=18	1	
		J	40X1,35 Ø265 øi 45 L=15	2	
HELIX 4	SCR04	P	**40X1,35Ø320 øi 55L=18 MT**	2	

CHOICE SPRING CABLE REEL

EXEMPLE 1

Horizontal



Cable pay-off to 2 directions
Lw =25m
h =1 m

Cable 4G16

Research

TAB1 Cable data for cable standard

SLIP RING	Cross section	Weight (kg/m)	Ø [mm]
4X80A	4G16	0,94	22,5

TAB3 Horizontal cable pay-off

D(mm)	W (Kg)	10	15	20	25	30
22-25	0,75-1,1	HX03	HX03	HX04	HX04	HX04

TAB1

HX4	HELIX 4	SCR04	573630

Code spring cable reel

SCR04-573630-3J-1L4A80A

SERIES SPRING CABLE REEL

DRUM DIMENSION
D= 570 mm
D= 360 mm
L=300 mm

SEE TAB5
N° = 3 SPRING
Type (J)
= **40X1,35 Ø260 øi 45**
L=18 MT

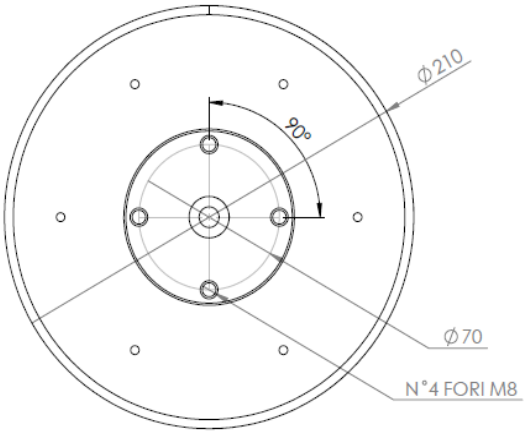
SLIP RING
4 RING FOR
In =80°
VCAmax=80°
COVER TYPE 1L

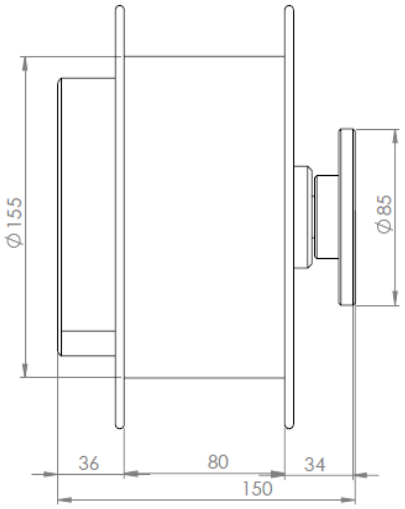
SLIP RING
4 RING FOR
In =80°
VCAmax=80A

Spring-Driven-Cable Reels

Technical Details

Helix 1



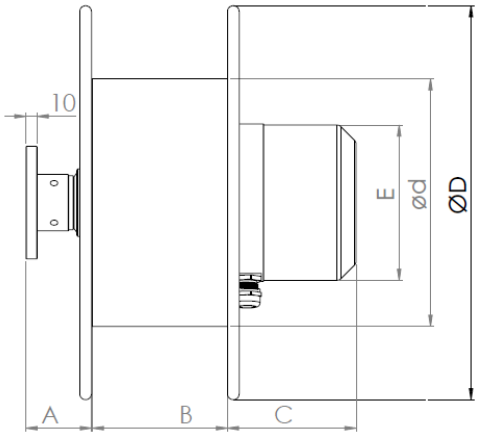


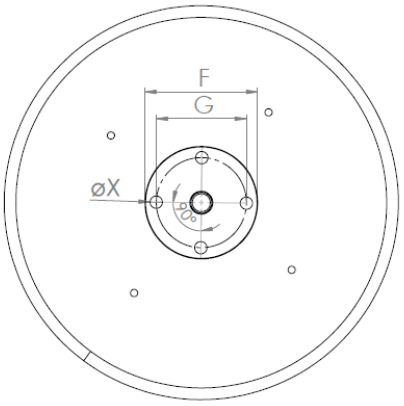
Series	drum	spring
SCR01	211508	1A
SCR01	211508	1A

Spring-Driven-Cable Reels

Technical Details

Helix 2





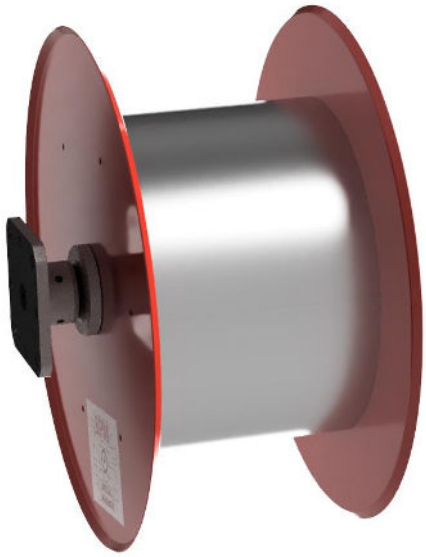
A	B	C	ØD	ød	E	F	G	øX		
58	120	115	350	220	140	100	80	11		

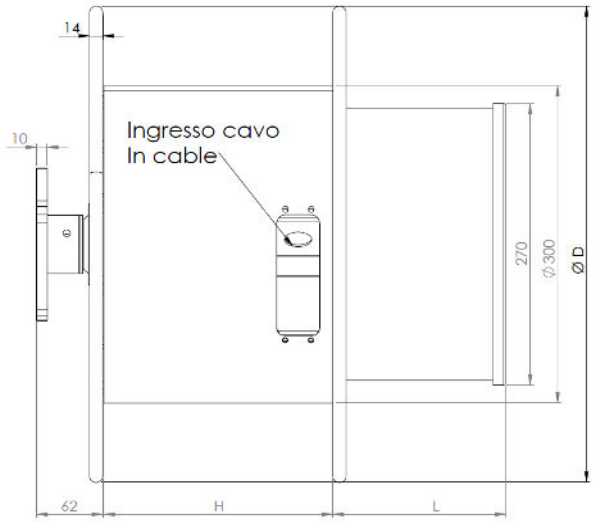
Series	drum	spring
SCR02	352212	1B
SCR02	352212	2B
SCR02	402212	1B
SCR02	402212	2B

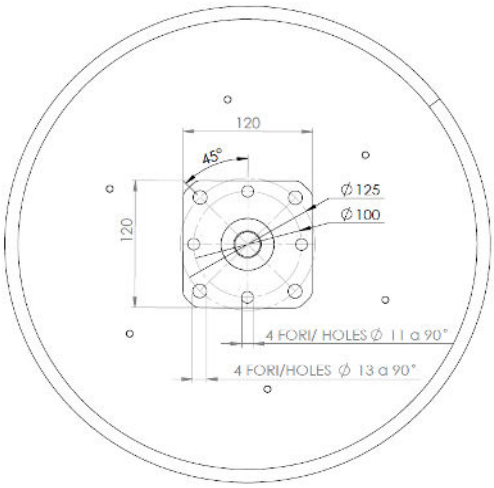
Spring-Driven-Cable Reels

Technical Details

Helix 3





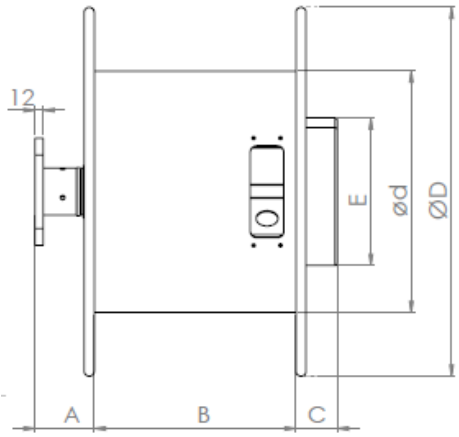


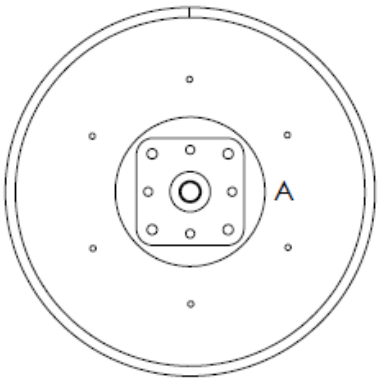
SCR03	D (mm)	H (mm)	CODE CASE SLIP RING	L (mm)
453021	450	210	1L	5
453021	450	210	2L	90
453021	450	210	3L	160
573021	570	210	1L	5
573021	570	210	2L	90
573021	570	210	3L	160
573026	450	260	1L	5
573026	450	260	2L	90
573026	450	260	3L	160
573026	570	260	1L	5
573026	570	260	2L	90
573026	570	260	3L	160

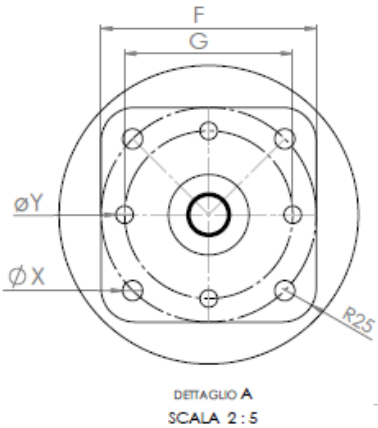
Spring-Driven-Cable Reels

Technical Details

Helix 4



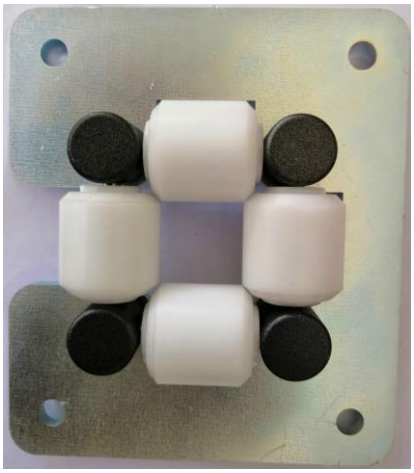




A	B	C	ØD	ød	E	F	G	ØX	øY	
88	300	65		360	220	160	125	15	13	

SCR03	D (mm)	H (mm)	CODE CASE SLIP RING	C (mm)
573630	570	300	1L	90
573630	570	300	2L	160
573630	570	300	3L	210
703630	700	210	1L	90
703630	700	210	2L	160
703630	700	210	3L	210

Roller guide



QG01-40X40

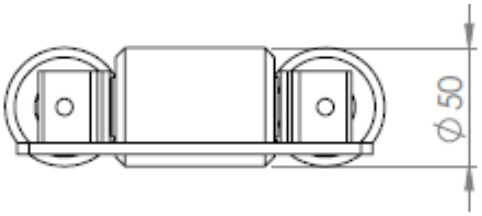
For Diameter cable 10-30mm

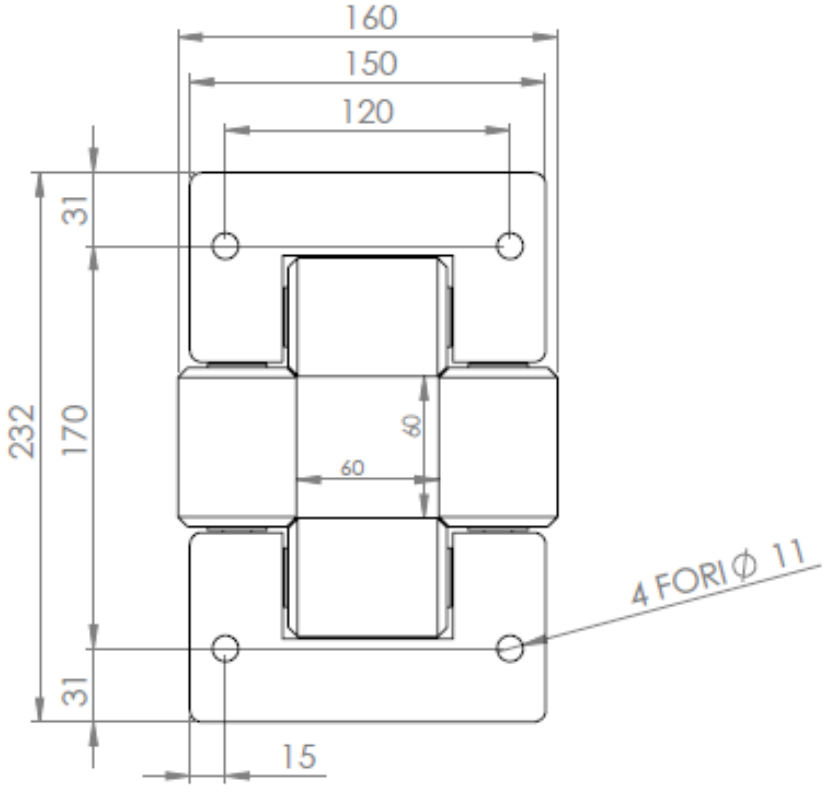
STRUCTURE CONSTRUCTION :

- GALVANIZED STEEL QG01-40X40-Z
- STAINLESS STEEL AISI 304 QG01-40X40-SS

SLIDING ROLLERS

DuPont™ Delrin® POM,





Roller guide

QG01-60X60

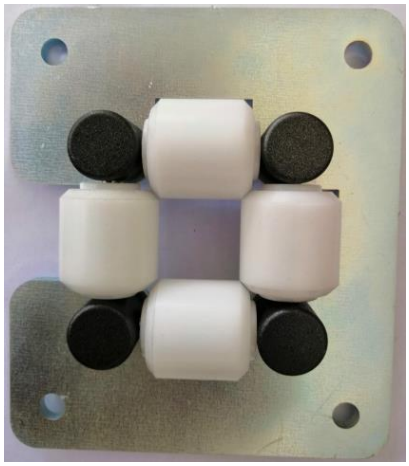
For Diameter cable 30-50mm

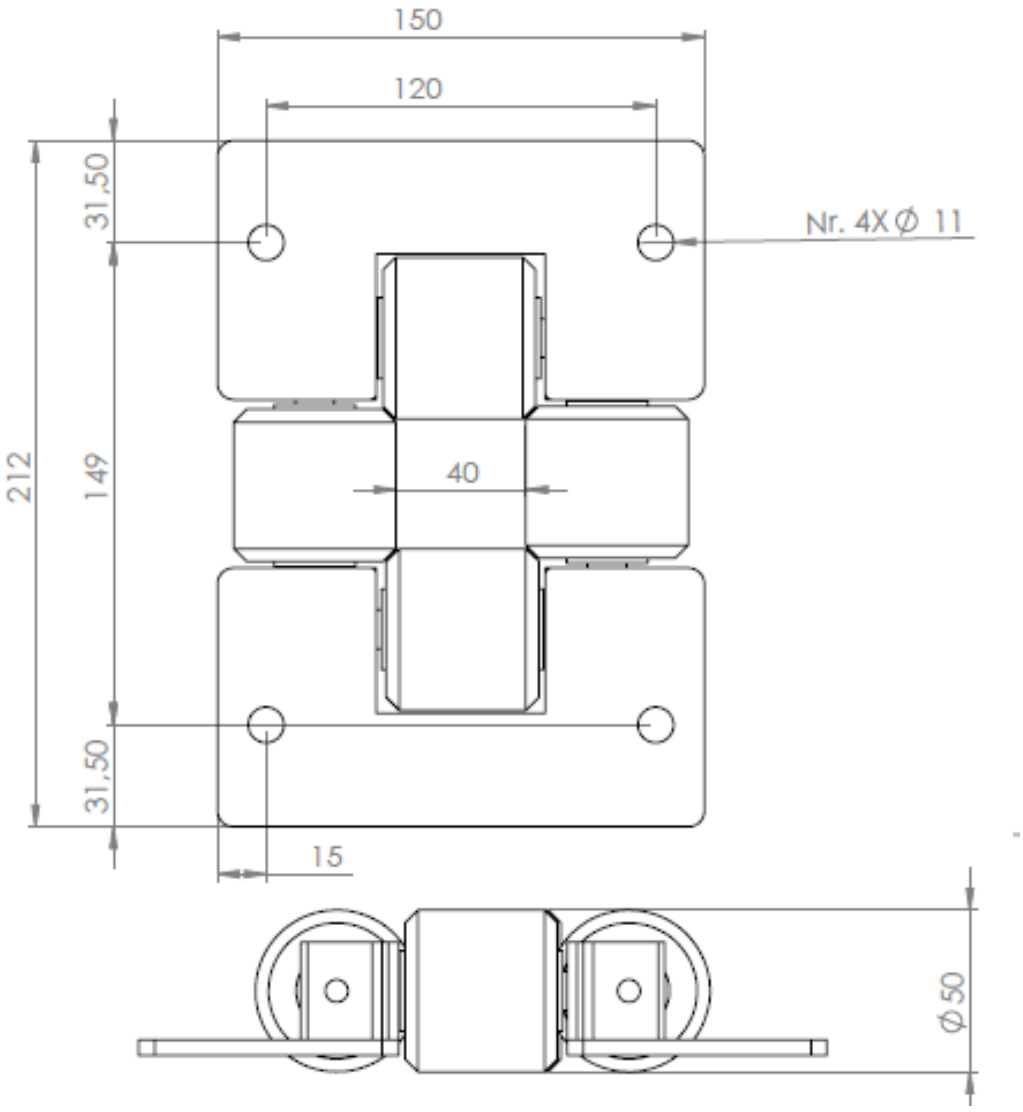
STRUCTURE CONSTRUCTION :

- GALVANIZED STEEL QG02-60X60-Z
- STAINLESS STEEL AISI 304 QG02-60X60-SS

SLIDING ROLLERS

DuPont™ Delrin® POM,





Questionnaire for design of motor cable reels

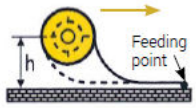
Winding

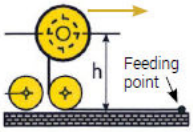
☐ Monospiral ☐ Multispiral

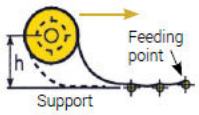
Unwind direction (view from slipring side)

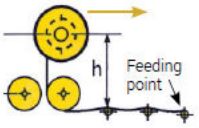
☐ CW ☐ CCW

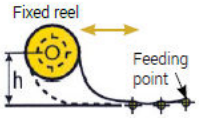
Installation type

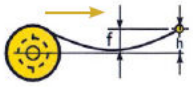
☐ 

☐ 

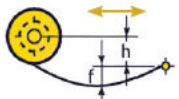
☐ 

☐ 

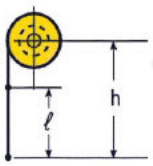
☐ 

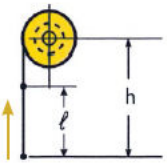
☐ 

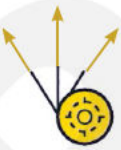
f= _____ m

☐ 

f= _____ m

☐ 

☐ 

☐ 

Remarks

Specifications of the application

Application ☐ Horizontal ☐ Vertical

Stroke (m) _____

IP degree _____

Motion speed (m/min) _____

Reel installation height (h)* (m) _____

Operating environment _____

Accelleration time (s) _____

Operating voltage (V) _____

Temperature (°C) _____

ATEX compliant _____

* See the pictures above.

Cable

Supplied with cable Yes No

If Yes, compile cable specifications below

Cable type _____

Cross section (mm²) _____

Cable outer diameter (mm) _____

Cable weight (kg/m) _____

Always winded cable (m) _____

Always unwinded cable (m) _____

Total cable lenght on reel (m) _____

Fixed point cable lenght (m) _____

Slip ring collector

Supplied with slip ring collector Yes No

If Yes, compile slip ring collector specifications below

Rings number _____ Ampere (A) _____

Rings number _____ Ampere (A) _____

Rings number _____ Ampere (A) _____

Rings number _____ Ampere (A) _____

Rings number _____ Ampere (A) _____

Rings number _____ Ampere (A) _____

DRAFT

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