



MCR SERIES

MOTOR CABLE REEL



SPM SPECIAL MACHINE.

Via Padana superiore 38 Interno

5 Inzago (milano) ITALY

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www.spm-slipring.it

Motor-driven cable reels - general technical data

MCR Motor Driven Cable Reel is specially designed and manufactured for mobile feeding power systems. The feeding is realized by low voltage electrical cables.

The mobile systems are generally overhead cranes or translating working machines, used in all kinds of environment, such as ports, steelworks, constructions, lift and transports plants. This means that this machine has always to be integrated with other machines as a complement. For this reason it is normally controlled by the machine it is integrated with; rarely, it is equipped with an independent control panel .



Slip ring assembly

The slip ring assemblies are designed for an operational voltage of max. 400 / 1000 V.

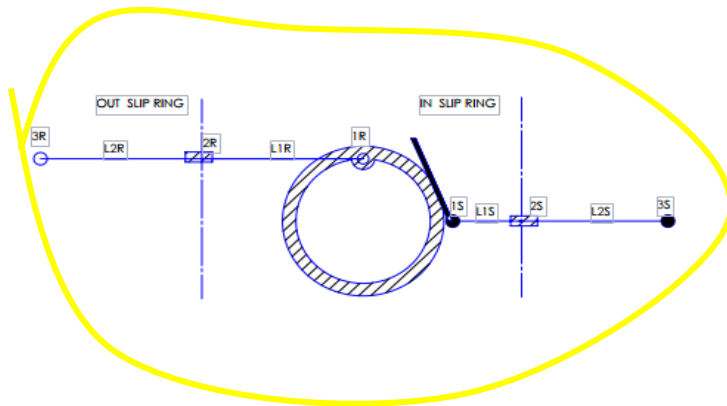
Depending on the size and the application of the spring-driven cable reel both sliprings for the data transmission (mA-range / data bus systems) and sliprings for power transmission (up to max. 250 A) can be used.

The individually admissible amperages of the slipring assemblies can be gathered from the selection list.

The material of the cover the slip ring is stainless steel. Correspond to protection class IP 65

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



Technical Details

General Properties

Environment Outdoor

Working temperature - 15°C - +40°C

Altitude Max 1500 o.s.l.

Fixing point By 4 holed ppainting

Motors torque Standard

three-phase electric torque motor, IP 55

torque 2, 3,4.5 , 6,8.5 Nm self-ventilated

(option servo-ventilated)

torque 10,12, 17, 22, 35 Nm servo-ventilated

Electric collector/stator Low voltage

, protection IP 65.

Power voltage from 690Vac, up to 400 A

Auxiliary and signals/can bus, up to 42 rings

mixed power + auxiliary/signals



STANDARD CABLE REEL

Spool Until 800 mm in shaped sheet, red painted red More than 800 mm

Ø, drawn steel plates, hot dip painting Internal hot painting steel band.

Gear box Support Aluminum or cast-iron high resistance casing red painted.

Special casehardened and ground steel gears. High resistance steel shafts.

Lubrication for life.

Electric Motor torque Voltage 230/400 Vac three-phase 50 Hz. Protection IP

55, Class H isolation. Die cast aluminum casing. Painted black.Stationing

brake Disk with two braking surfaces (asbestos free). Protection timing case

painted Bolts and Nuts

Electric collector

Outside the drum. Cast alloy bronze power rings, brass auxiliary rings, gold-plating or silver-plating signal rings.

Power and auxiliary copper-electro graphite brushes, Signals silver-graphite brushes. Plastic reinforced by fiber glass insulators.

OPTIONAL

Special motor torque - Electrical with special voltages up to 660 Vac three-phase

- Electrical with tropicalisation T° -15C° +40C° / HR 90%

- Servo-ventilation on 2, 3,4.5, 6 Nm

Limit Switch - 4 adjustable positions

Heating - from 100 W to 200 W, pre-wired

Technical Details

1– Block Phase

During the block stage, the motor can be either not supplied (long block), or being supplied along the winding direction (short block) allowing the system to slip.

2– Unwinding Phase

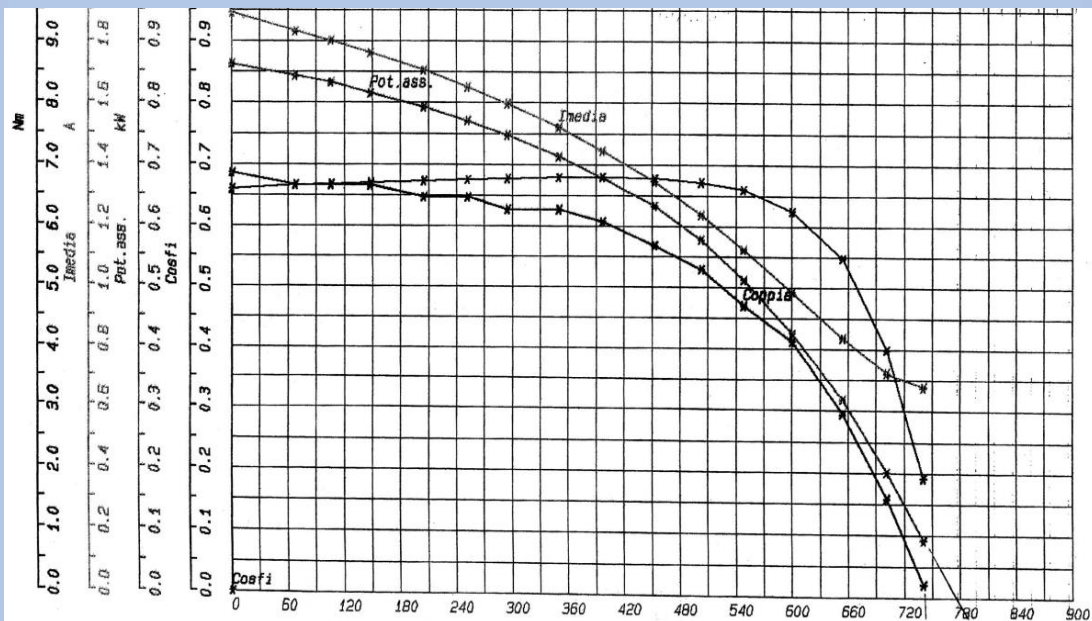
During the unwinding phase, the motor is supplied along the cable winding direction, and the cable is unwound through traction by the operating machine.

3– Winding Phase

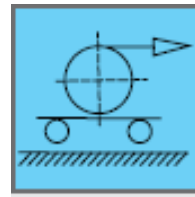
3– Winding Phase

During the winding phase, the motor is supplied along winding. The torque motor can operate on a continuous basis (100%) without being damaged, since it can resist temperatures of 100°C and above.

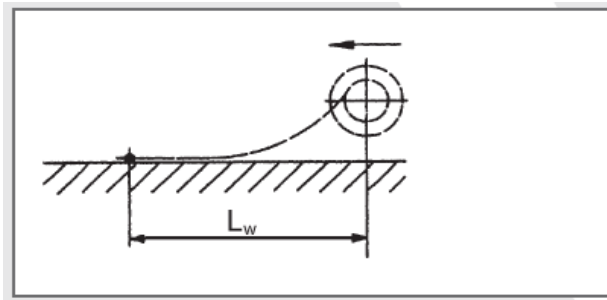
Diagramm torque motor



Horizontal cable pay-off

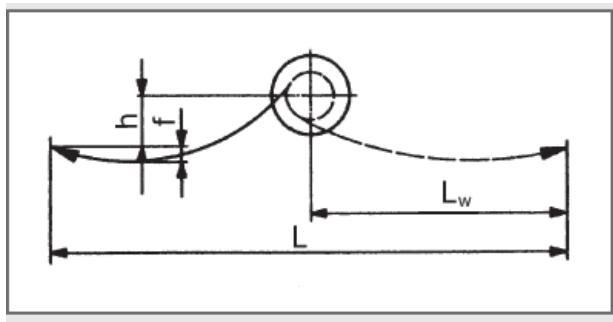


a)



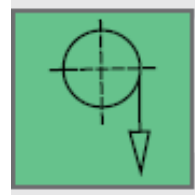
Cable pay-off to 1 direction

b)

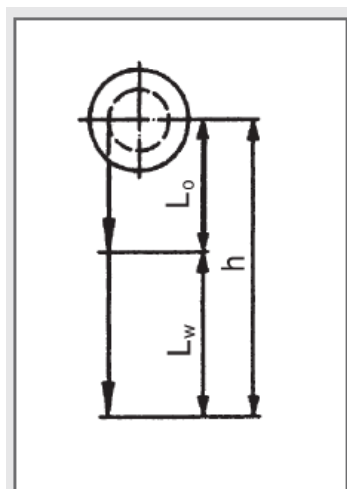


Cable pay-off to 2 directions

Vertical cable pay-off downwards



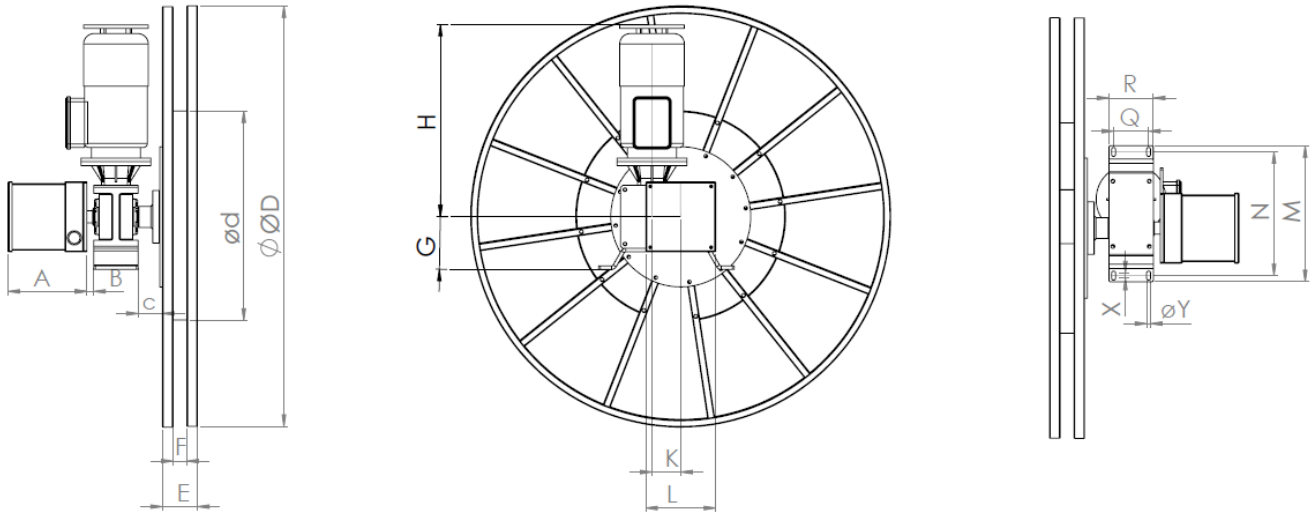
c)



Cable data for cable standard

SLIP RING	Cross section	Weight (kg/m)	Ø [mm]
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
5X40A	5G6	0,49	18,4
5X60A	5G10	0,72	21,4
5X80A	5G16	1,12	24,7
5X100A	5G25	1,57	30,7
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

HORIZONTAL STANDARD SIZE MCR A090



17

A	B	C	ØD	Ød	E	F	G	K	L	M	N	R	Q	X	ØY		
225	20	70	1200	600	100	40	150	82	200	388	352	127	100	15	11		

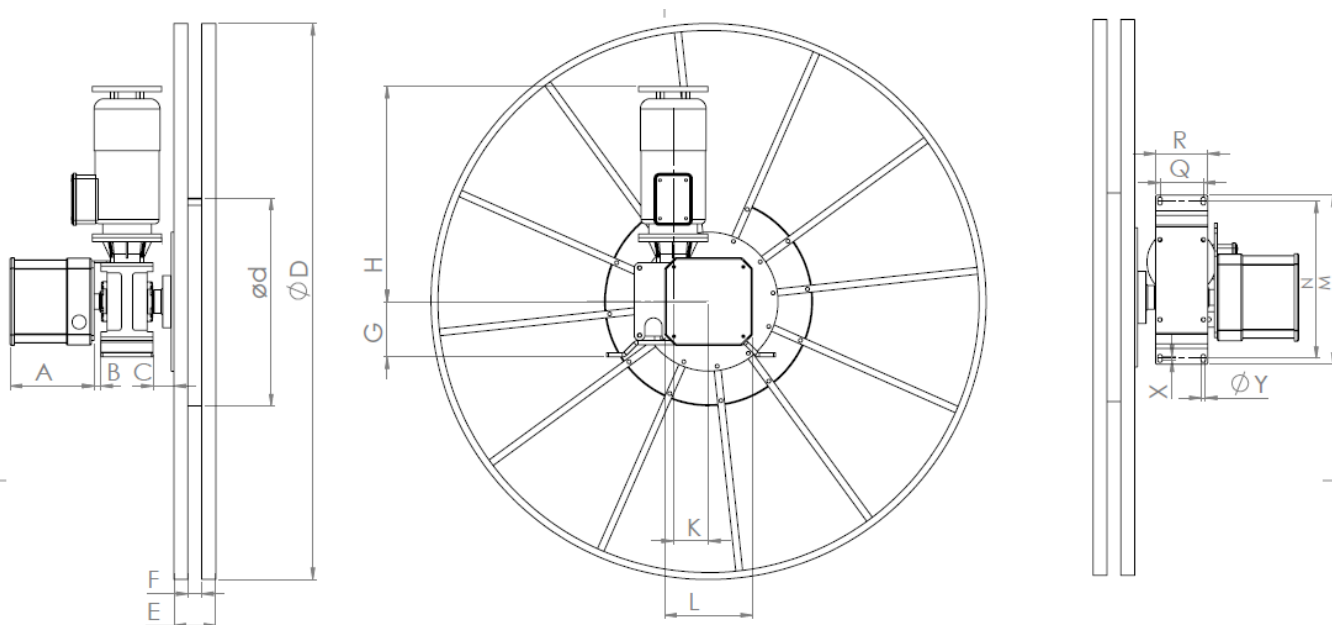
Power 30 KW – 400VCA- CABLE 4G10

CODE MOTOR CABLE REEL						Ød	ØD
MCR	A090	M02	1260	C4080	i=25	600	1200
MCR	A090	M02	1460	C4080	i=25	600	1400
MCR	A090	M03	1660	C4080	i=25	600	1600
MCR	A090	M03	1860	C4080	i=25	600	1800
MCR	A090	M03	2080	C4080	i=31,5	800	2000
MCR	A090	M045	2280	C4080	i=31,5	800	2200

Power 40 KW – 400VCA- CABLE 4G16

CODE MOTOR CABLE REEL						Ød	ØD
MCR	A090	M02	1260	C4080	i=25	600	1200
MCR	A090	M03	1460	C4080	i=25	600	1400
MCR	A090	M03	1660	C4080	i=25	600	1600
MCR	A090	M04,5	1860	C4080	i=25	600	1800
MCR	A090	M045	2080	C4080	i=31,5	800	2000
MCR	A090	M045	2280	C4080	i=31,5	800	2200

HORIZONTAL STANDARD SIZE MCR A112



A	B	C	ØD	ød	E	F	H	G	K	L	M	N	R	Q	X	ØY		
250	20	60	1600	600	120	40	620	170	102	250	487	453	150	125	10	13		

Progettato Da: Approvato Da: REVISIONE

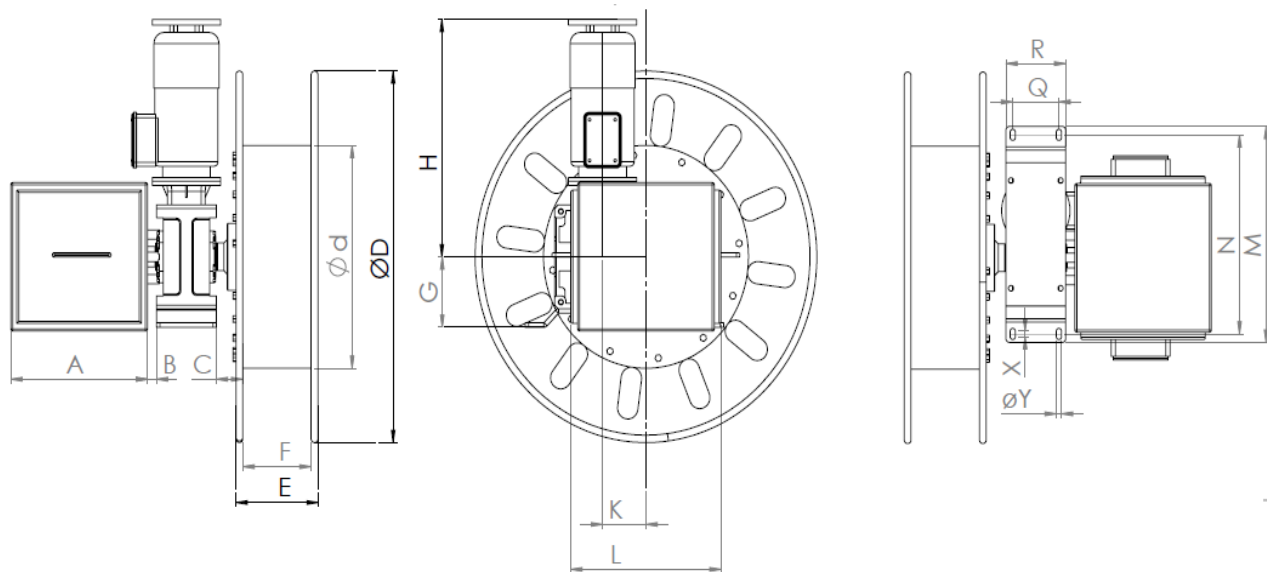
Power 60KW – 400VCA- CABLE 4G25

CODE MOTOR CABLE REEL						ød	ØD
MCR	A112	M03	1260	C4100	i=25	600	1200
MCR	A112	M03	1460	C4100	i=25	600	1400
MCR	A112	M045	1660	C4100	i=25	600	1600
MCR	A112	M045	1860	C4100	i=25	600	1800
MCR	A112	M045	2080	C4100	i=31,5	800	2000
MCR	A112	M045	2280	C4100	i=31,5	800	2200

Power 80 KW – 400VCA- CABLE 4G35

CODE MOTOR CABLE REEL						ød	ØD
MCR	A112	M045	1260	C4150	i=25	600	1200
MCR	A112	M045	1460	C4150	i=25	600	1400
MCR	A112	M06	1660	C4150	i=25	600	1600
MCR	A112	M06	1860	C4150	i=25	600	1800
MCR	A112	M06	2080	C4150	i=31,5	800	2000
MCR	A112	M06	2280	C4150	i=31,5	800	2200
MCR	A112	M07,5	2480	C4150	i=31,5	800	2400

HORIZONTAL STANDARD SIZE MCR A140



18

A	B	C	ØD	ød	E	F	H	G	K	L	M	N	R	Q	X	øY		
400	26	78	1000	600	240	200	640	190	127	440	580	535	175	135	15	15		

Power 100 KW – 400VCA- CABLE 4G50

CODE MOTOR CABLE REEL						ød	ØD
MCR	A140	M045	1460	C4250	i=25	600	1400
MCR	A140	M06	1660	C4250	i=25	600	1600
MCR	A140	M06	1860	C4250	i=25	600	1800
MCR	A140	M07	2060	C4250	i=31,5	800	2000
MCR	A140	M07	2280	C4250	i=31,5	800	2200
MCR	A140	M085	2480	C4250	i=31,5	800	2400
MCR	A140	M085	2680	C4250	i=31,5	800	2600

Roller guide bidirectional

GCB01-10/35

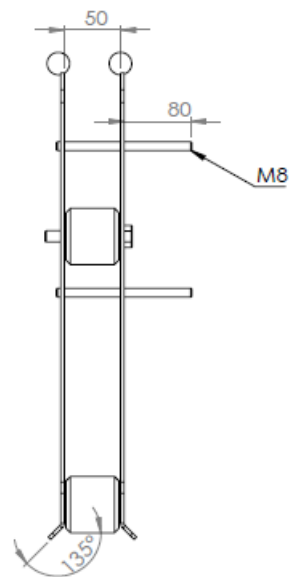
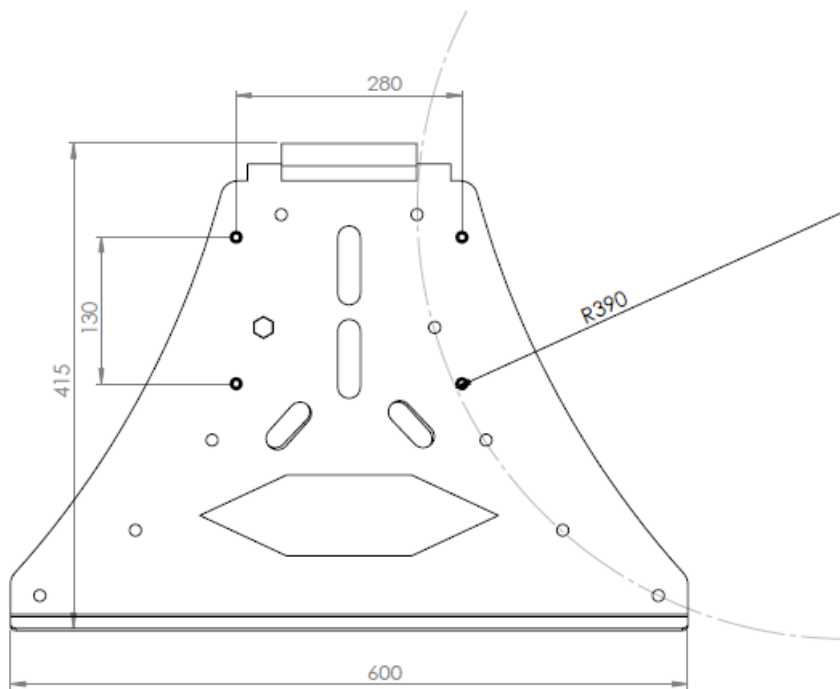
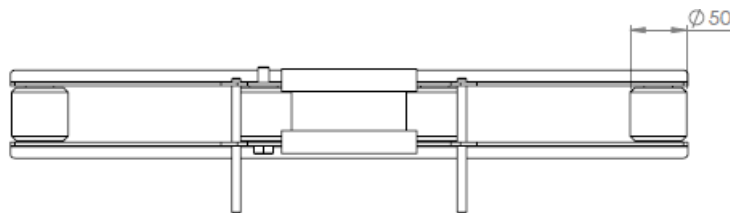
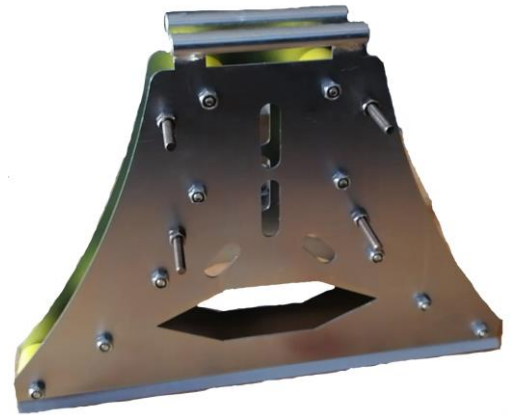
For Diameter cable 10-35mm

STRUCTURE CONSTRUCTION :

- GALVANIZED STEEL GCB01-10/35-Z
- STAINLESS STEEL AISI 304 GCB01-10/35-SS

SLIDING ROLLERS

DuPont™ Delrin® POM,



Roller guide bidirectional

GCB01-30/50

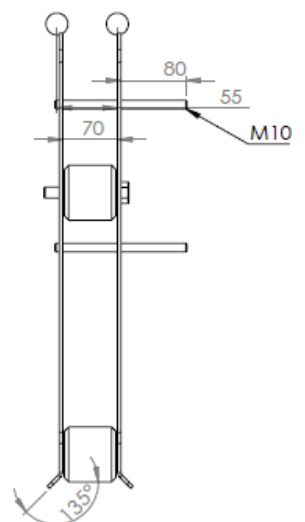
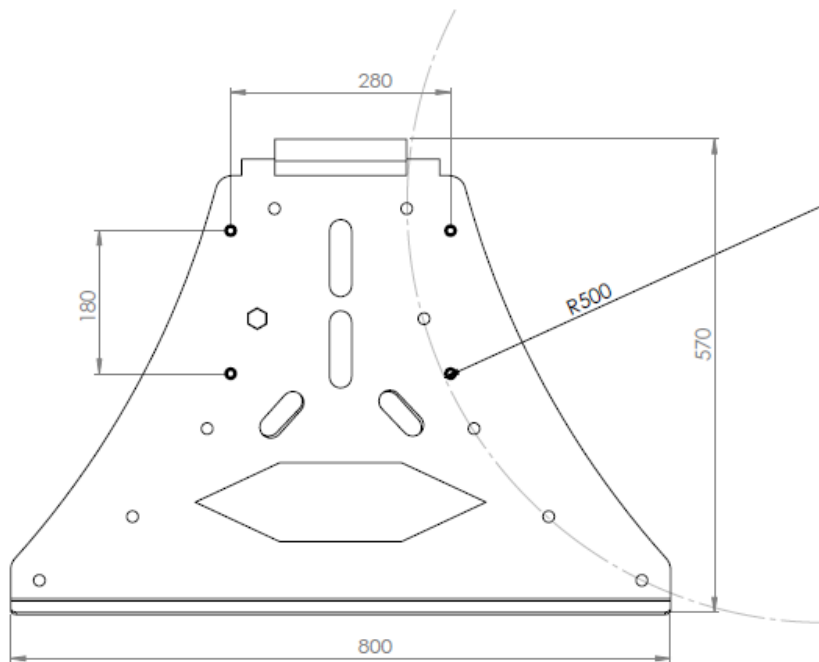
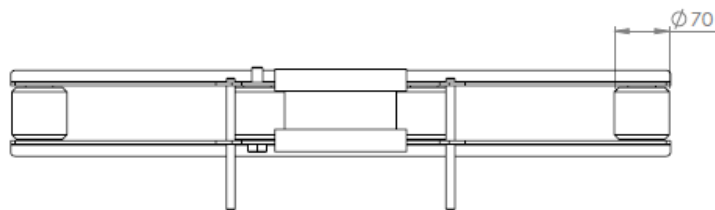
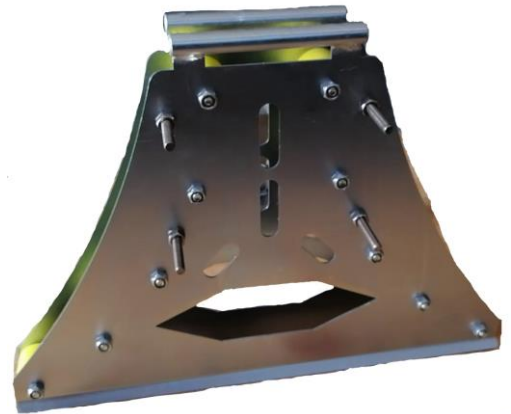
For Diameter cable 10-50mm

STRUCTURE CONSTRUCTION :

- GALVANIZED STEEL GCB02-30/50-Z
- STAINLESS STEEL AISI 304 GCB01-30/50-SS

SLIDING ROLLERS

DuPont™ Delrin® POM,



Roller guide

QG01-40X40

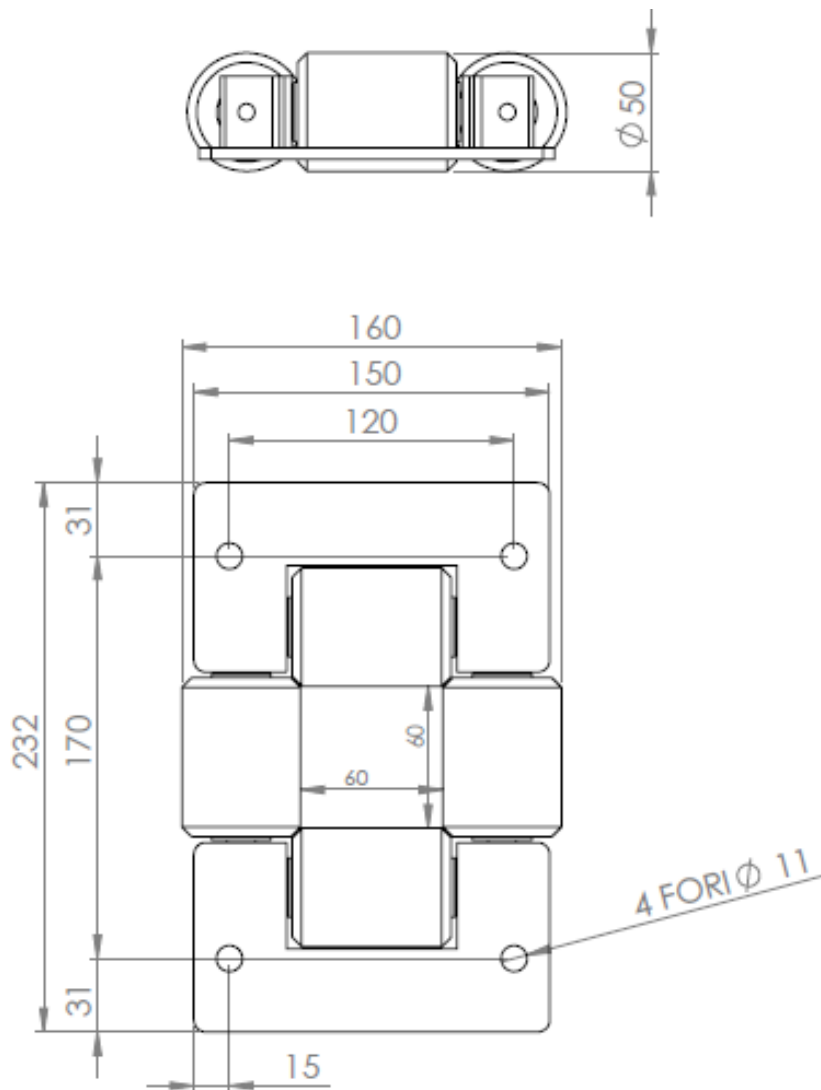
For Diameter cable 10-30mm

STRUCTURE CONSTRUCTION :

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

SLIDING ROLLERS

DuPont™ Delrin® POM,



Roller guide

QG01-60X60

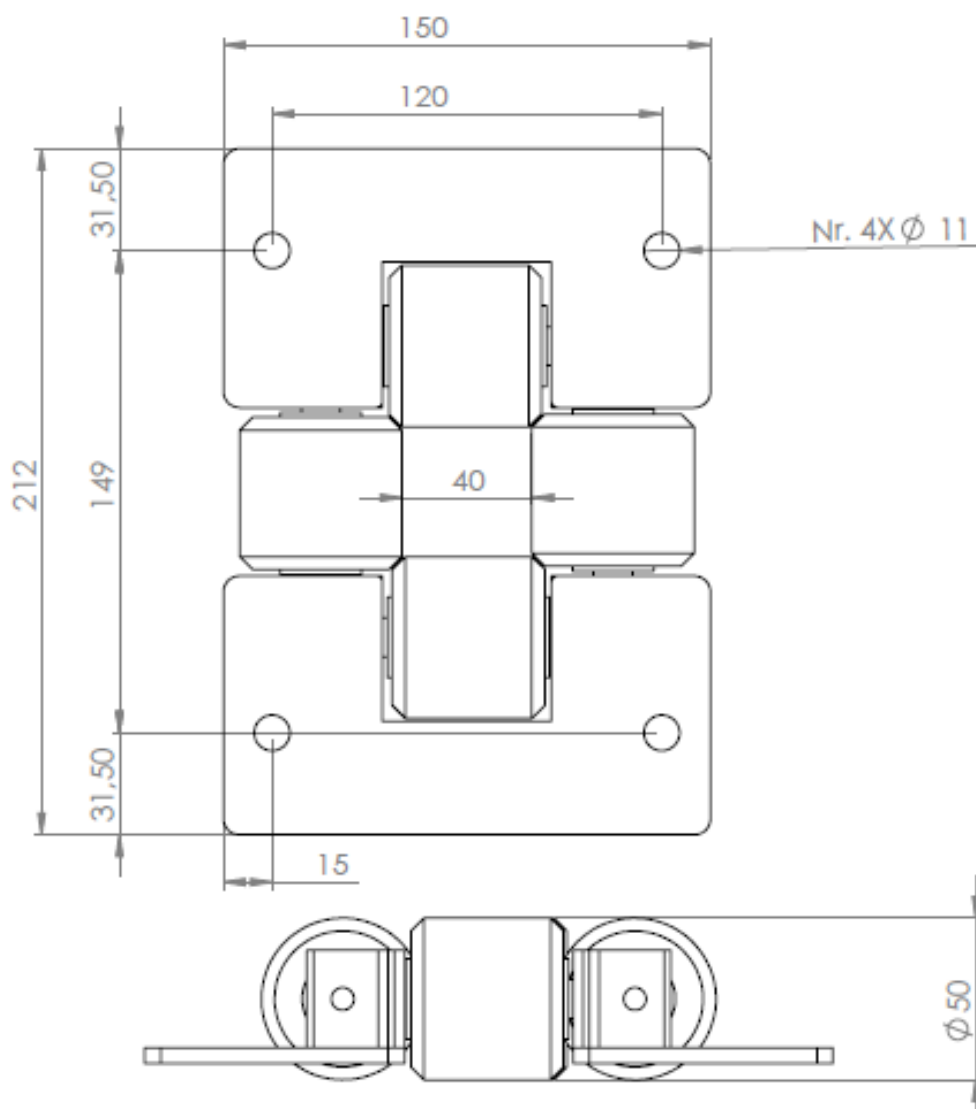
For Diameter cable 30-50mm

STRUCTURE CONSTRUCTION :

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

SLIDING ROLLERS

DuPont™ Delrin® POM,

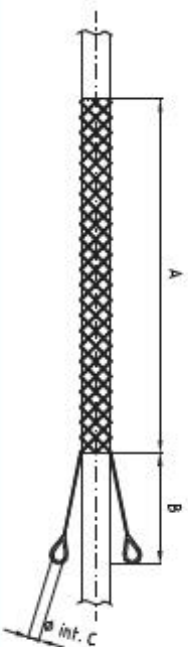


CABLE SOCKS AND SPRINGS

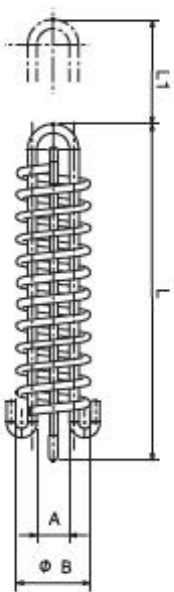
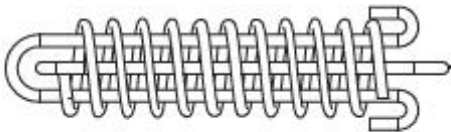
MAIN APPLICATION

Cable socks are used for the suspension, the traction and the safe anchoring of the cables. They are extremely suitable for anchoring the cable that must be made being careful not to leave the cable stretched (you have to create a loop), in order not to stress the cable, it is convenient to insert between the cable socks and the anchoring point a spring, when some discontinuous and strong stresses traction are applied on the cable.

*Standard cable socks are galvanized; on demand in stainless steel. Standard springs are cadmium plated, on demand in stainless steel.



TYPE	Ø CABLE min/max	A mm	B mm	C mm	Weight KG	Max Trac. (N)
CT 10-20	10-20	650	200	16	0,35	4320
CT 20-30	20-30	650	200	16	0,4	5500
CT 25-45	25-45	800	250	18	0,5	8240
CT 45-80	45-80	800	250	18	0,6	9800



TYPE	FORCE (N)	A mm	B mm	L mm	L1 mm
20K	200	13	25	220	80
40K	400	10	27	220	80
80K	800	20	43	380	120
150K	1500	30	65	280	110
250K	2500	37	76	380	150

Questionnaire for design of motor cable reels

1 Quantity of cable reels Piece

type the Cable

2.Total power of the movable machine/Cross section of the cable ----- ..kW/mm²

3. Number of polesPE + Poles

4 Length (to be reeled during operation)m

5. Travel speedm/min

6 feed PointTrack centre☐ Track end ☐

Mode of winding

7. . . .spiral☐ multispiral☐

8 Voltage VCA

9. Duty cycle % ED

Slipring assembly

10. Number of sliprings PE + ____poles

11. Max. current load of slipringsA

12. We need the following accessories:



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