

Cable trolleys and accessories for C-rail system



UNILIFT®

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series **C23P**



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Main design rules for mobile receivers supply systems

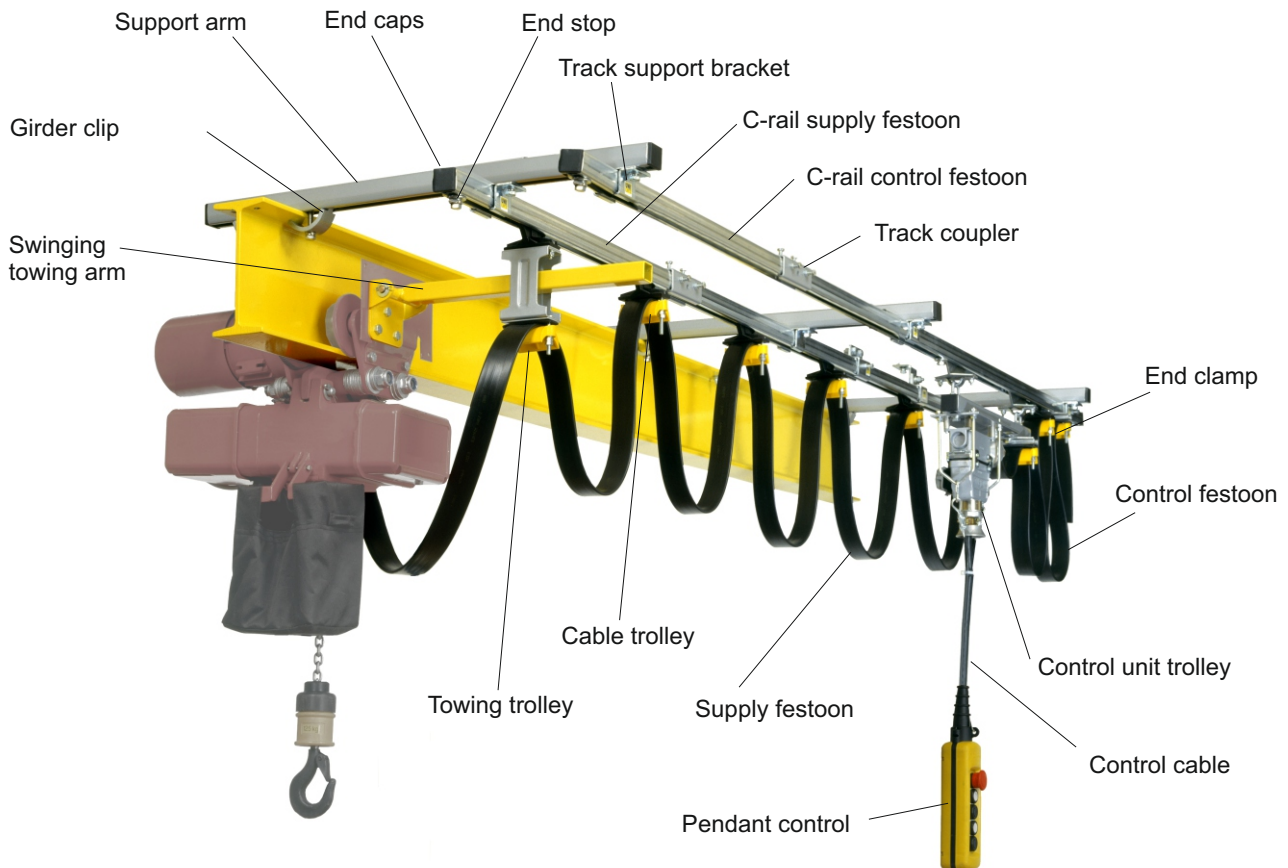
Cable trolleys are intended to work at normal conditions, as:

environment: humidity max. 70 %, non - aggressive, dust free
working place: indoor / open air
temperature: -40°C ... +80°C

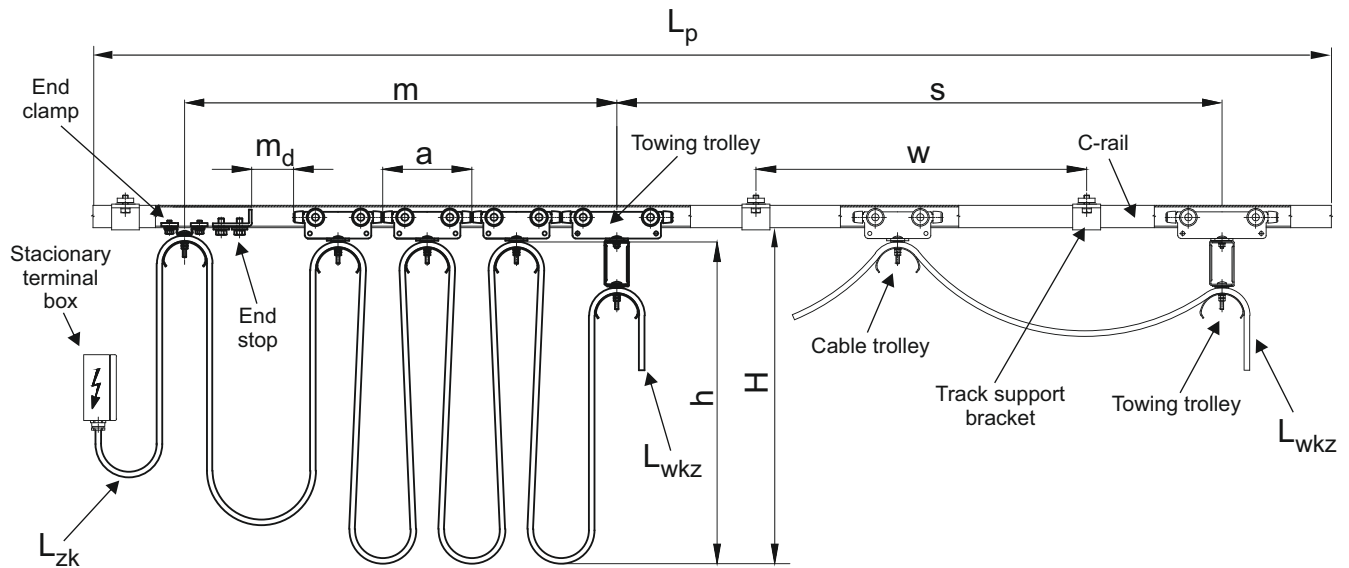
Cable trolleys supply lines can be also applied at especially hard working conditions (aggressive environment, heat radiation, high humidity, dusty, explosion hazardous area). In that case, please ask us for develop an appropriate technical solution

When designing the power system must include provisions to prevent accidents

Components of supply C-rail system



C-rail power supply system selection



DESIGNATIONS:

- s** - length of towing trolley route [m]
- a** - cable trolley length [m]
- z** - number of cable trolleys
- n** - number of loops
- h** - cable loop height [m]
(for curve track $h_{max} = 0,3 \cdot \text{curve radius } R$)
- H** - permissible height of cable loop [m]
- m** - length of trolley storage area [m]
- m_d** - trolley storage area length addition (minimum $m_d \geq a$) [m]
- f** - cable length addition coefficient $f = 1,1 \div 1,2$
- D** - cable support diameter [m]
- L_p** - length of the track of the guide C rail [m]
- L** - length of supply wire from middle of the end clamp to middle of the towing trolley [m]
(without connecting sections L_{zk} and L_{wkz})
- L_{zk}** - cable length from end clamp to crane contact box [m]
- L_{wkz}** - cable length from towing trolley to actuator contact box [m]
- L_c** - total cable length [m]
(with connecting sections L_{zk} and L_{wkz})

RELATIONS:

Number of loops

$$n = \frac{f \cdot (s + m_d)}{2 \cdot h - f \cdot a + 1,25 \cdot D}$$

Number of trolleys

(without towing trolley & end clamp)

$$z = n - 1$$

Length of trolleys storage area

$$m = n \cdot a + m_d$$

Length of supply wire

(without connecting sections L_{zk} and L_{wkz})

$$L = (s + m) \cdot f$$

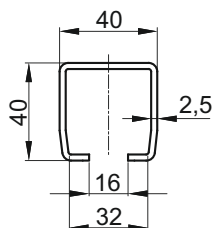
Total length of supply wire

(with connecting sections L_{zk} and L_{wkz})

$$L_c = L + L_{zk} + L_{wkz}$$

- w** - the distance between the track support brackets
(depending on the capacity per unit length).
In practice this is:
 - straight line - $1,5 \div 2,0$ m
 - sections curved - $1,0 \div 1,2$ m

Rails C2



Material:

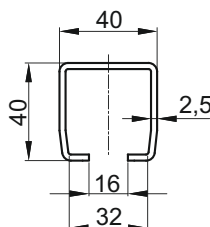
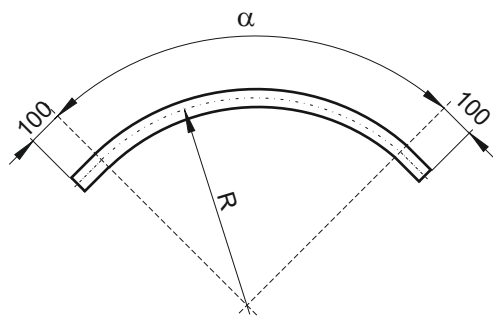
- cold formed, Sendzimir galvanized steel PN-EN 10327

I_x - axial moment of inertia [cm⁴]

W_x - axial section modulus [cm³]

Catalog No.	Type	Length [mm]	I_x [cm ⁴]	W_x [cm ³]	Weight [kg/m]
2000.10	C2/6	6000	6,7	3,1	2,45
2000.11	C2/4	4000			
2000.12	C2/3	3000			

Rails C2-R – curve section



Material:

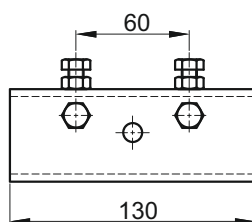
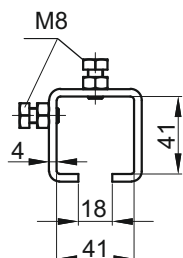
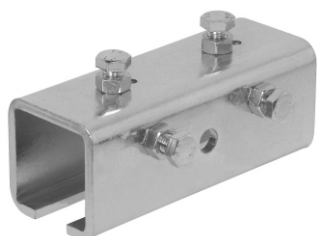
- cold formed, Sendzimir galvanized steel PN-EN 10327

C2 curve sections are bended on client's request. They are made of straight 4 m long C-rail sections.
Min. bending radius **R = 1000 mm**. Bending angle according to request.

To perform the C-rail curve section, please attach a picture (drawing) of curve track with all necessary dimensions:

- bending radius R [mm],
- bending angle [degrees],
- bending surface.

Track coupler LC21



Material:

body - galvanized steel
bolts, nuts - galvanized steel

Catalog No.	Type	Weight [kg]
2001.00	LC21	0,680

Cable trolleys and accessories for C-rail system



Track support brackets UC22, UC24, UC22a, UC24a



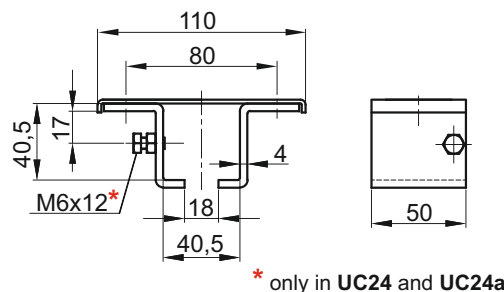
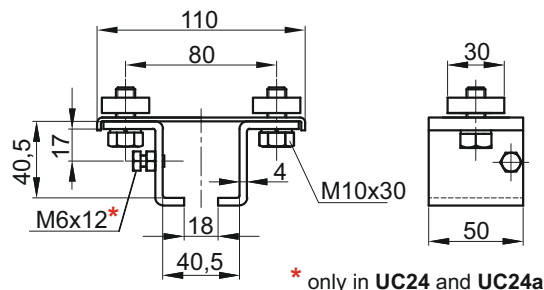
UC22



UC24



UC22a



Material:

body - galvanized steel
bolts, nuts - galvanized steel

Maximum load: 100 kg

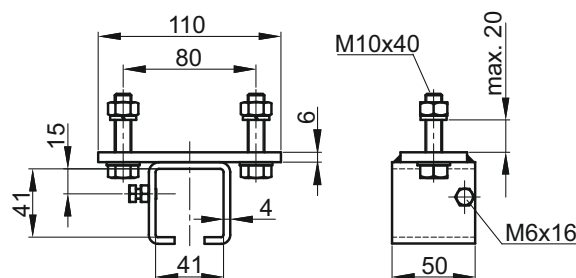
Catalog No.	Type	Weight [kg]
2002.10	UC22	0,490
2002.11	UC22a	0,385
2002.20	UC24	0,500
2002.21	UC24a	0,395

- ! UC22 i UC24 - with bolts and square nuts
- ! UC22a i UC24a - without bolts and square nuts

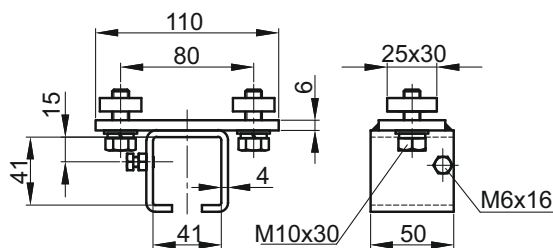
Track support brackets UC25-1, UC25-2



UC25-1



UC25-2



Material:

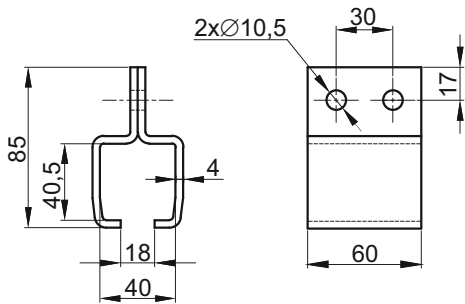
body - galvanized steel
bolts, nuts - galvanized steel

Maximum load: 200 kg

Catalog No.	Type	Weight [kg]
2002.30	UC25-1	0,570
2002.31	UC25-2	0,630

- ! UC25-1 - with bolts and square nuts
- ! UC25-2 - without bolts and square nuts

Track support bracket UC23



Material:
body - galvanized steel
bolts, nuts - galvanized steel

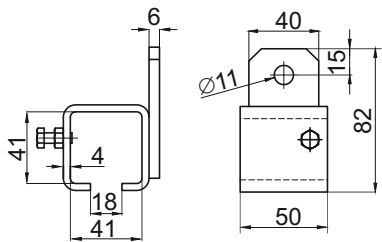
Maximum load: 80 kg

Catalog No.	Type	Weight [kg]
2004.00	UC23	0,395

Track support brackets UC26, UC27, UC28



UC26

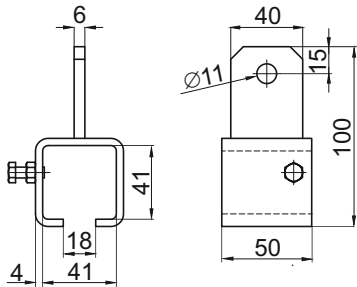


Material:
body - galvanized steel
bolts, nuts - galvanized steel

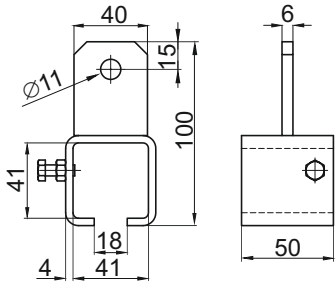
Maximum load: 200 kg



UC27

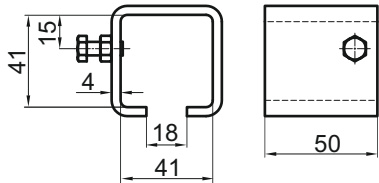


UC28



Catalog No.	Type	Weight [kg]
2002.40	UC26	0,390
2002.41	UC27	0,350
2002.42	UC28	

Track support bracket to be welded UC25-3

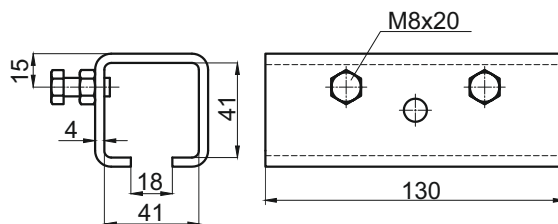


Material:
body - carbon steel
bolts, nuts - galvanized steel

Maximum load: 200 kg

Catalog No.	Type	Weight [kg]
2002.00	UC25-3	0,250

Coupler - holder to be welded LC21-UC



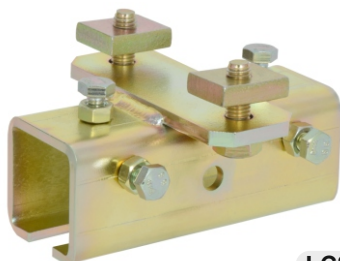
Material:

body - carbon steel
bolts, nuts - galvanized steel

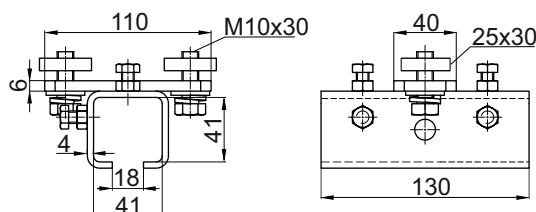
Maximum load: **200 kg**

Catalog No.	Type	Weight [kg]
2001.20	LC21-UC	0,680

Coupler - holders LC21-UC1, LC21-UC3



LC21-UC1



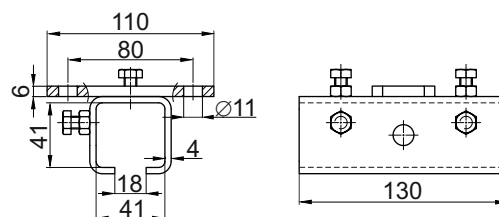
Material:

body - galvanized steel
bolts, nuts - galvanized steel

Maximum load: **200 kg**



LC21-UC3

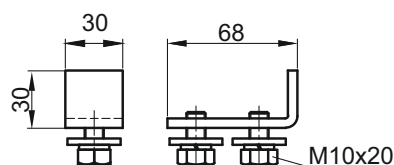


Catalog No.	Type	Weight [kg]
2001.30	LC21-UC1	1,040
2001.31	LC21-UC3	0,890

End stops ZC20, ZC20-ZG



ZC20

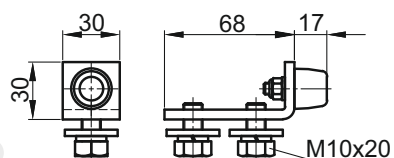


Material:

body - galvanized steel
bolts, nuts - galvanized steel
bumper - rubber EPDM



ZC20-ZG

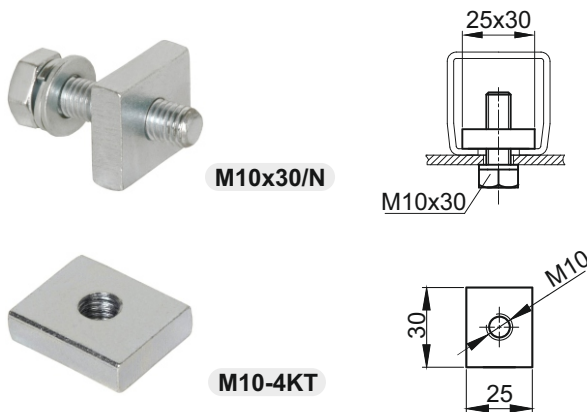


Catalog No.	Type	Weight [kg]
2008.00	ZC20	0,100
2008.10	ZC20-ZG	0,110

Cable trolleys and accessories for C-rail system



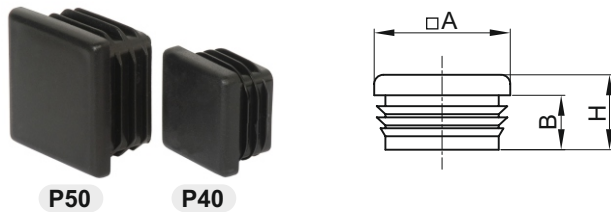
Bolt with square nut M10x30/N. Square nut M10-4KT



Material: - galvanized steel

Catalog No.	Type	Weight [kg]
2005.00	M10x30/N	0,075
2005.10	M10-4KT	0,040

End caps P40, P50



Material: plastics

Catalog No.	Type	For rail	Dimensions [mm]			Weight [kg]
			A	B	H	
1013.01	P40	C2	40	15	19,5	0,005
1013.02	P50	C3	50	24,5	31,0	0,007

Flexible filing profile



Material: thermoplastic elastomer

Flexible profile is designed for fill in the free space in a bunch of cables between clamping surfaces made by cable support and part of trolley or end clamp body.

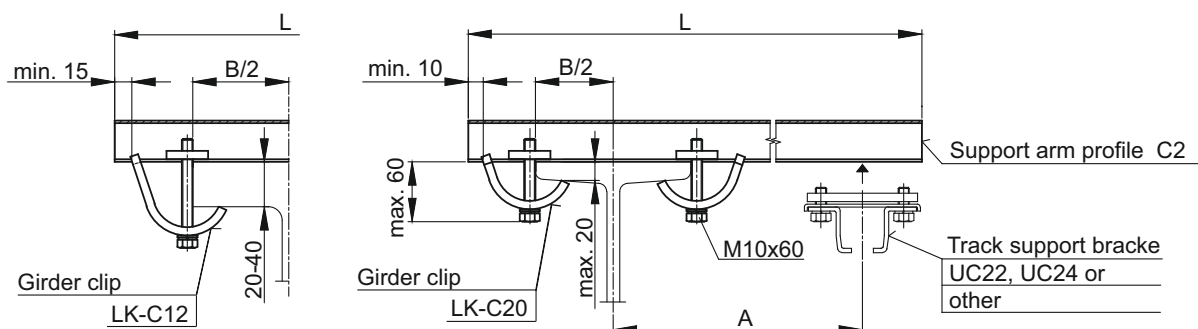
The application of flexible profile provides steady pressure on the cables in case of the large difference in cross-section.

! Profile is available in lengths that are multiples of 1 meter

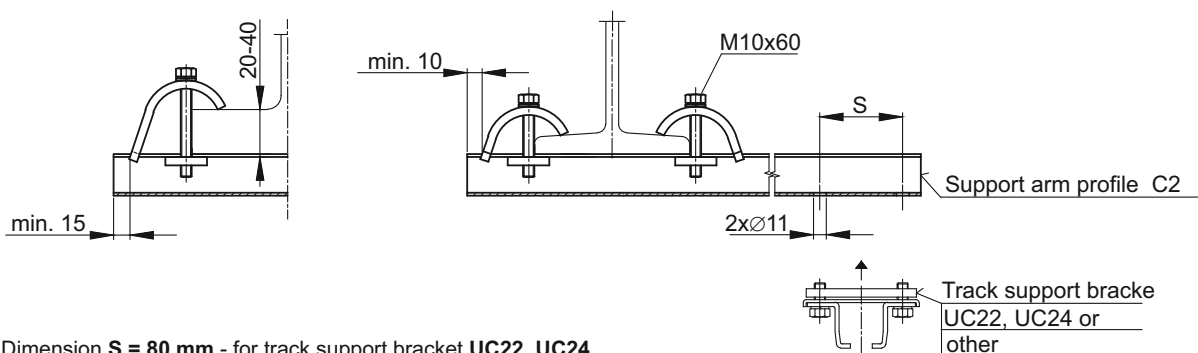
Catalog No.	Type	Weight [kg]
1075.00	PRW-01	0,1500

Examples of mounting support arms with girder clips

Support mounted on higher shelf



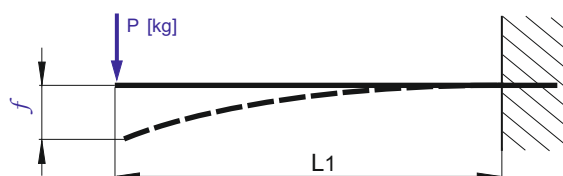
Support mounted on lower shelf (holes on request)



! Dimension **S = 80 mm** - for track support bracket **UC22, UC24**

Permissible support arm load

P – overall load [kg]
L1 – active support arm length [mm]
f – support arm deflection [mm]



Support arm profile C2 40x40x2,5	L1 [mm]									
	250	350	450	550	650	850	1050	1350	1650	1850
P [kg]	166,41	118,72	92,18	75,27	63,53	48,28	38,77	29,70	23,83	20,93
f [mm]	0,8	1,6	2,7	4,0	5,6	9,6	14,5	23,6	34,4	42,6

Support arm length calculation using girder clips

Support arm length:

$$L = A + \frac{B}{2} + k$$

L – support arm length [mm]
A – distance from I-beam axis to bracket axis [mm]
B – I-beam footing width [mm]
k – length addition coefficient [mm]

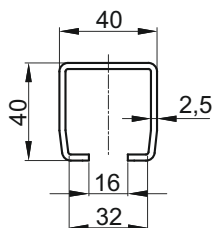
Coefficient k [mm]	Track support bracket
120	UC22, UC24
120	UC25-1, UC225-2

! In case of **C1, C1A** support arms with **P40** end caps, coefficient „k” should be increased by **30 mm**

Cable trolleys and accessories for C-rail system



Support arm profile C2



Material:

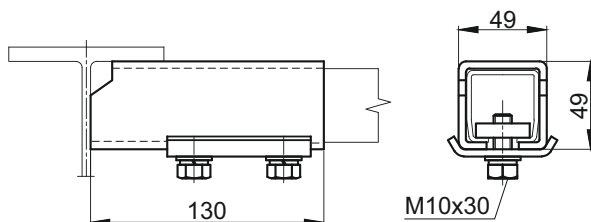
body - cold formed, Sendzimir galvanized steel PN-EN 10327

Catalog No.	Type	Length [mm]	Weight [kg]
2006.00-400	KL-C2/400	400	0,980
2006.00-500	KL-C2/500	500	1,225
2006.00-600	KL-C2/600	600	1,470
2006.00-700	KL-C2/700	700	1,715
2006.00-800	KL-C2/800	800	1,960
2006.00-1000	KL-C2/1000	1000	2,450
2006.00-1200	KL-C2/1200	1200	2,940
2006.00-1500	KL-C2/1500	1500	3,675
2006.00-1800	KL-C2/1800	1800	4,410
2006.00-2000	KL-C2/2000	2000	4,900

! There is a possibility to request other support arm lengths, than signed in the tables.
In that case, give the type and catalog number as follows:
type: **KL-C2/length [mm]**, catalog No. **1006.00-length [mm]**

Example: for support arm length **1150 mm** designation will be as follows:
type **KL-C2/1150** catalog No. **1006.00-1150**

Support arm bracket KK-C21

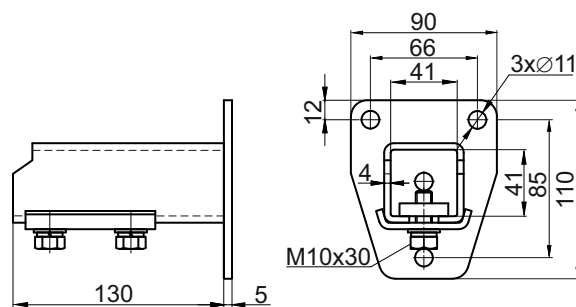


Material:

bracket - carbon steel
mounting parts - galvanized steel

Catalog No.	Type	Weight [kg]
2007.00	KK-C21	0,910

Support arm bracket with base KK-C21P

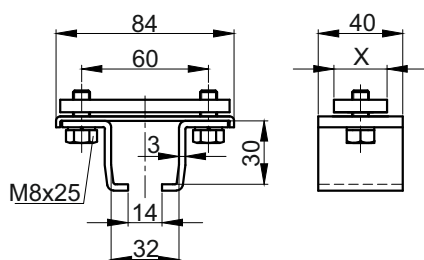


Material:

bracket - galvanized steel
mounting parts - galvanized steel

Catalog No.	Type	Weight [kg]
2007.10	KK-C21P	1,250

Track support bracket UC12-1



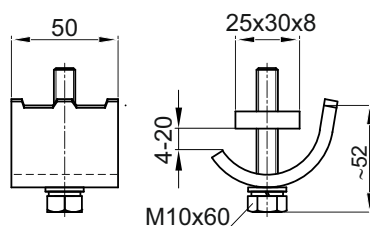
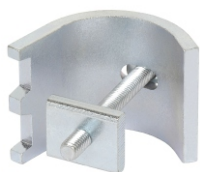
Material:

body - galvanized steel
bolts, nuts - galvanized steel

Catalog No.	Type	Support arm profile	X [mm]	Weight [kg]
1002.12	UC12-1	C2	30	0,285

! Track support brackets **UC12-1** are used for mounting **C1** and **C1A**-rails in **C2** support arms

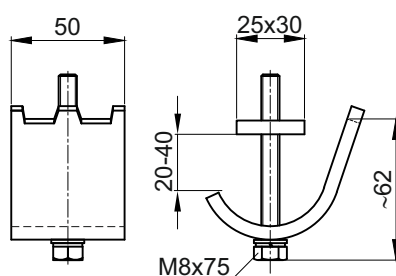
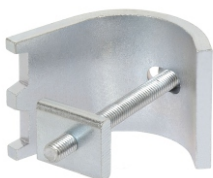
Girder clamp LK-C20



Material: - galvanized steel

Catalog No.	Type	Weight [kg]
1005.30	LK-C20	0,250

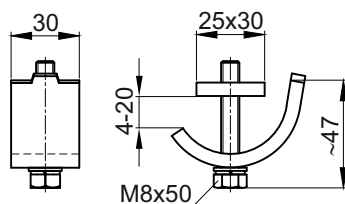
Girder clamp LK-C12



Material: - galvanized steel

Catalog No.	Type	Weight [kg]
1005.20	LK-C12	0,275

Girder clamp LK-C11



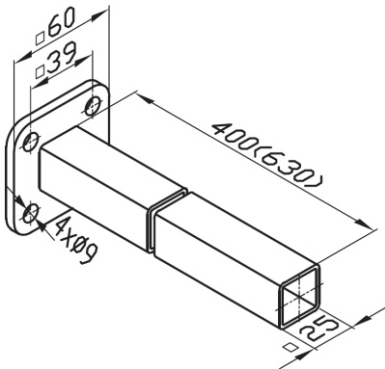
Material: - galvanized steel

Catalog No.	Type	Weight [kg]
1005.01	LK-C11	0,150

Towing arm ZS400, ZS630



Example



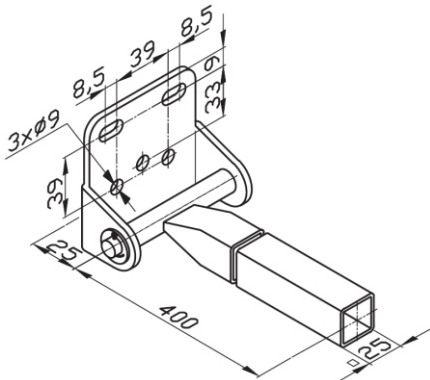
Material: - galvanized steel

Catalog No.	Type	Weight [kg]
1015.01	ZS400	0,750
1015.02	ZS630	1,090

Swinging towing arm ZW1



Example



Material: - galvanized steel

Catalog No.	Type	Weight [kg]
1014.01	ZW1	1,000

Cable trolleys for flat cables sign example



Cable trolleys sign example:

WK-P2-125x96xD80T
WKZ-P2-125x96xD80T

Type _____
Cable trolley length [mm] _____
Cable support width [mm] _____
Cable support diameter [mm] _____
Plastic cable support (without letter T - steel cable support) _____



End clamps sign example:

ZKP-76xD80T

Type _____
Cable support width [mm] _____
Cable support diameter [mm] _____
Plastic cable support (without letter T - steel cable support) _____

Cable trolleys for round cables sign example



Cable trolleys sign example:

WK-R2-125
WKZ-R2-125

Type _____
Cable trolley length [mm] _____



End clamps sign example:

ZR2

Type _____



Cable trolleys sign example:

WK-R2-320x216xD260
WKZ-R2-320x216xD260

Type _____
Cable trolley length [mm] _____
Cable support width [mm] _____
Cable support diameter [mm] _____



End clamps sign example:

ZKP-R2-216xD260

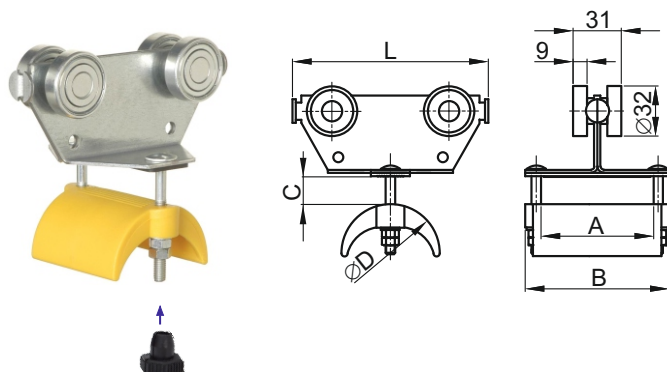
Type _____
Cable support width [mm] _____
Cable support diameter [mm] _____

Cable trolleys and accessories for C-rail system for flat cables



Cable trolleys with plastic cable support

series **C21P**



- Material:**
- body** - galvanized steel
 - rollers** - covered rolling bearings
 - axle** - galvanized steel
 - cable support** - polyamide PA
 - polypropylene PP (*on request*)
 - separator** - polyamide PA
 - polypropylene PP (*on request*)
 - bolts, nuts** - galvanized steel
 - polyamide PA (*for polyamide cable support D50T*)

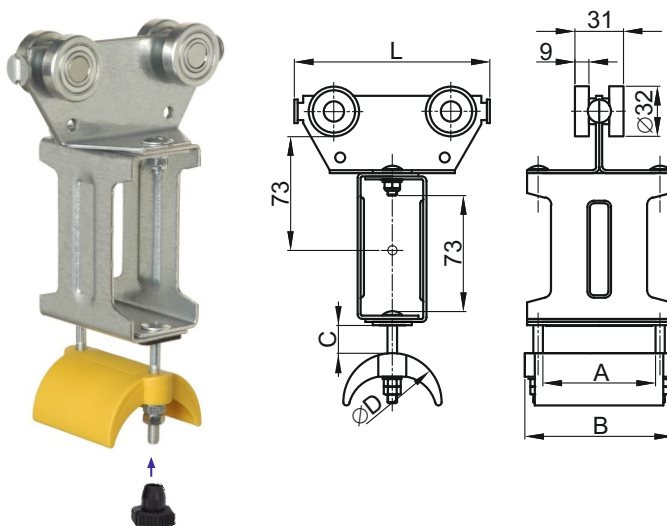
Maximum trolley speed: **50 m/min**
 Working temperature: **-20°C to +80°C**
 Maximum trolley load: **20 kg**

Catalog No.	Type	Dimensions [mm]					Weight [kg]
		L	D	A	B	C _{max}	
2010.10	WK-P2-85x76xD50T	85	50	52	76	15	0,420
2010.20	WK-P2-125x76xD80T		80			20	0,545
2010.11	WK-P2-85x96xD50T	85	50	72	96	15	0,470
2010.21	WK-P2-125x96xD80T		80			20	0,575

- ! Cable trolleys can be also equipped in one or two bumpers **ZG-01** (page 33).
 • As a result, trolley length is increased by **12,5 mm** (*with one bumper*) or by **25 mm** (*with two bumpers*).

Towing trolleys with plastic cable support

series **C21P**



- Material:**
- body** - galvanized steel
 - rollers** - covered rolling bearings
 - axle** - galvanized steel
 - towing trolley yoke** - galvanized steel
 - cable support** - polyamide PA
 - polypropylene PP (*on request*)
 - separator** - polyamide PA
 - polypropylene PP (*on request*)
 - bolts, nuts** - galvanized steel
 - polyamide PA (*for polyamide cable support D50T*)

Maximum trolley speed: **50 m/min**
 Working temperature: **-20°C to +80°C**
 Maximum trolley load: **20 kg**

Catalog No.	Type	Dimensions [mm]					Weight [kg]
		L	D	A	B	C _{max}	
2011.10	WKZ-P2-85x76xD50T	85	50	52	76	15	0,695
2011.20	WKZ-P2-125x76xD80T	125	80			20	0,800
2011.11	WKZ-P2-85x96xD50T	85	50	72	96	15	0,745
2011.21	WKZ-P2-125x96xD80T	125	80			20	0,890

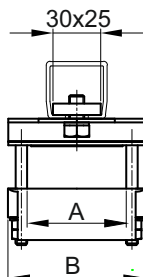
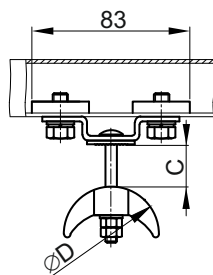
- ! Cable trolleys can be also equipped in one or two bumpers **ZG-01** (page 33).
 • As a result, trolley length is increased by **12,5 mm** (*with one bumper*) or by **25 mm** (*with two bumpers*).

Cable trolleys and accessories for C-rail system for flat cables



End clamps with plastic cable support

series **C21P**



Material:

body

cable support

separator

bolts, nuts

nuts

- galvanized steel
- polyamide PA
- polypropylene PP (*on request*)
- polyamide PA
- polypropylene PP (*on request*)
- galvanized steel
- polyamide PA
- (for polyamide cable support **D50T**)

Working temperature: **-20°C to +80°C**
Maximum end clamps load: **20 kg**

! End stop should be mounted from trolleys side, before the end clamp.

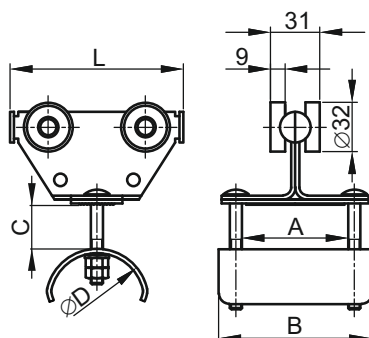
Catalog No.	Type	Dimensions [mm]				Weight [kg]
		D	A	B	C _{max}	
1012.10	ZKP-76xD50T	50	52	76	15	0,265
1012.11	ZKP-96xD50T		72	96		0,310
1012.40	ZKP-76xD80T	80	52	76	20	0,285
1012.41	ZKP-96xD80T		72	96		0,330

Cable trolleys and accessories for C-rail system for flat cables



Cable trolleys with steel cable support

series **C21P**



Material:

- body** - galvanized steel
- rollers** - covered rolling bearings
- axle** - galvanized steel
- cable support** - galvanized steel
- separator** - polyamide PA
- polypropylene PP (*on request*)
- bolts, nuts** - galvanized steel

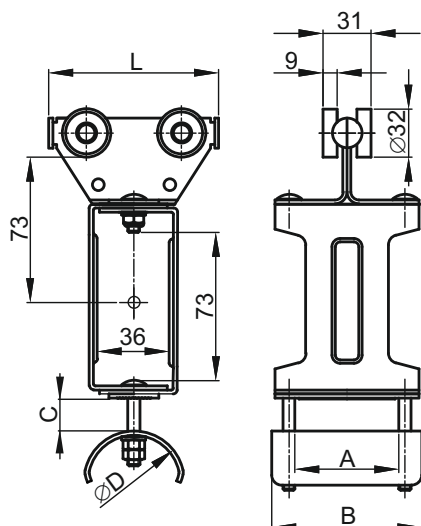
Maximum trolley speed: **50 m/min**
 Working temperature: **-30°C to +80°C**
 Maximum trolley load: **25 kg**

Catalog No.	Type	Dimensions [mm]					Weight [kg]
		L	D	A	B	C _{max}	
2010.14	WK-P2-85x76xD50	85	50	52	76	15	0,475
2010.15	WK-P2-85x96xD50			72	96	15	0,535
2010.25	WK-P2-125x96xD80	125	80			20	0,605

- ! Cable trolleys can be also equipped in one or two bumpers **ZG-01** (page 33).
 • As a result, trolley length is increased by **12,5 mm** (*with one bumper*) or by **25 mm** (*with two bumpers*).

Towing trolleys with steel cable support

series **C21P**



Material:

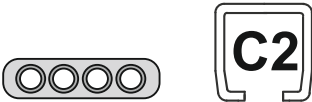
- body** - galvanized steel
- rollers** - covered rolling bearings
- axle** - galvanized steel
- towing trolley yoke** - galvanized steel
- cable support** - galvanized steel
- separator** - polyamide PA
- polypropylene PP (*on request*)
- bolts, nuts** - galvanized steel

Maximum trolley speed: **50 m/min**
 Working temperature: **-30°C to +80°C**
 Maximum trolley load: **25 kg**

Catalog No.	Type	Dimensions [mm]					Weight [kg]
		L	D	A	B	C _{max}	
2011.14	WKZ-P2-85x76xD50	85	50	52	76	15	0,765
2011.15	WKZ-P2-85x96xD50			72	96	15	0,920
2011.25	WKZ-P2-125x96xD80	125	80			20	0,990

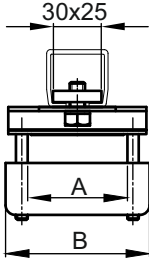
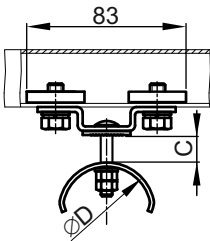
- ! Cable trolleys can be also equipped in one or two bumpers **ZG-01** (page 33).
 • As a result, trolley length is increased by **12,5 mm** (*with one bumper*) or by **25 mm** (*with two bumpers*).

Cable trolleys and accessories for C-rail system for flat cables



End clamps with steel cable support

series **C21P**



- Material:**
- body** - galvanized steel
 - cable support** - galvanized steel
 - separator** - polyamide PA
 - polypropylene PP (*on request*)
 - bolts, nuts** - galvanized steel

Working temperature: **-30°C to +80°C**
Maximum end clamps load: **25 kg**

! End stop should be mounted from trolleys side, before the end clamp.

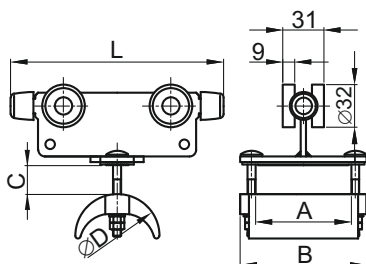
Catalog No.	Type	Dimensions [mm]				Weight [kg]
		D	A	B	C _{max}	
1012.14	ZKP-76xD50	50	52	76	15	0,315
1012.15	ZKP-96xD50		72	96		0,360
1012.16	ZKP-96xD80	80			20	0,600

Cable trolleys and accessories for C-rail system for flat cables



Cable trolleys with plastic cable support

series **C22P**



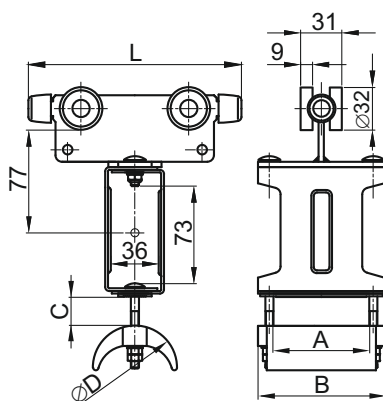
Material:	body	- powder painted, galvanized steel
	rollers	- covered rolling bearings
	axle	- galvanized steel
	cable support	- polyamide PA
		- polypropylene PP (on request)
	separator	- polyamide PA
		- polypropylene PP (on request)
	bumpers	- rubber EPDM
	bolts, nuts	- galvanized steel

Maximum trolley speed: **80 m/min**
Working temperature: **-20°C to +80°C**
Maximum trolley load: **20 kg**

Catalog No.	Type	Dimensions [mm]					Weight [kg]
		L	D	A	B	C _{max}	
2060.41	WK-P2-125x96xD80T	125	80	72	96	20	0,500
2060.42	WK-P2-160x96xD80T	160				30	0,550
2060.43	WK-P2-200x96xD80T	200				50	0,600

Towing trolleys with plastic cable support

series **C22P**



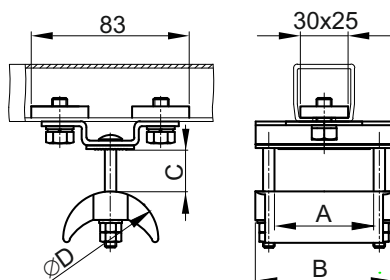
Material:	body	- powder painted, galvanized steel
	rollers	- covered rolling bearings
	axle	- galvanized steel
	towing trolley yoke	- galvanized steel
	cable support	- polyamide PA
		- polypropylene PP (on request)
	separator	- polyamide PA
		- polypropylene PP (on request)
	bumpers	- rubber EPDM
	bolts, nuts	- galvanized steel

Maximum trolley speed: **80 m/min**
Working temperature: **-20°C to +80°C**
Maximum trolley load: **20 kg**

Catalog No.	Type	Dimensions [mm]					Weight [kg]
		L	D	A	B	C _{max}	
2061.41	WKZ-P2-125x96xD80T	125	80	72	96	20	0,880
2061.42	WKZ-P2-160x96xD80T	160				30	0,940
2061.43	WKZ-P2-200x96xD80T	200				50	1,040

End clamps with plastic cable support

series **C21P**



Material:	body	- galvanized steel
	cable support	- polyamide PA
		- polypropylene PP (on request)
	separator	- polyamide PA
		- polypropylene PP (on request)
	bolts, nuts	- galvanized steel

Working temperature: **-20°C to +80°C**
Maximum end clamps load: **20 kg**

! End stop should be mounted from trolleys side, before the end clamp.

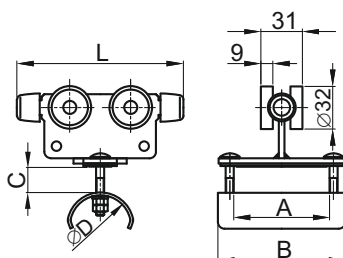
Catalog No.	Type	Dimensions [mm]				Weight [kg]
		D	A	B	C _{max}	
1012.41	ZKP-96xD80T	80	72	96	50	0,330

Cable trolleys and accessories for C-rail system for flat cables



Cable trolleys with steel cable support

series **C22P**



Material:

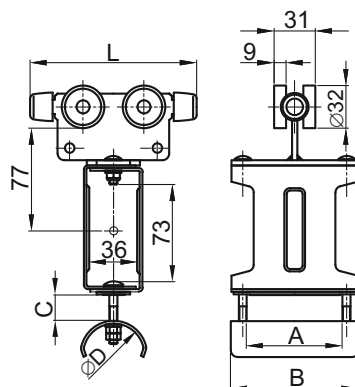
- body** - powder painted, galvanized steel
- rollers** - covered rolling bearings
- axle** - galvanized steel
- cable support** - galvanized steel
- separator** - polyamide PA
- polypropylene PP (*on request*)
- bumpers** - rubber EPDM
- bolts, nuts** - galvanized steel

Maximum trolley speed: **80 m/min**
Working temperature: **-30°C to +80°C**
Maximum trolley load: **25 kg**

Catalog No.	Type	Dimensions [mm]					Weight [kg]
		L	D	A	B	C _{max}	
2060.01	WK-P2-125x96xD50	125	50	72	96	25	0,520
2060.31	WK-P2S-125x96xD80	125	80	72	96	20	0,770
2060.32	WK-P2-160x96xD80	160				30	0,920
2060.33	WK-P2-200x96xD80	200				50	0,970

Towing trolleys with steel cable support

series **C22P**



Material:

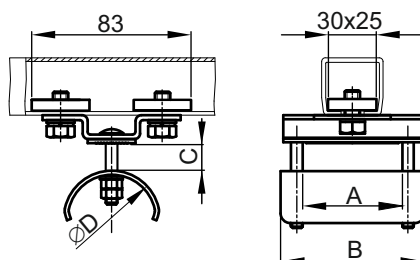
- body** - powder painted, galvanized steel
- rollers** - covered rolling bearings
- axle** - galvanized steel
- towing trolley yoke** - galvanized steel
- cable support** - galvanized steel
- separator** - polyamide PA
- polypropylene PP (*on request*)
- bumpers** - rubber EPDM
- bolts, nuts** - galvanized steel

Maximum trolley speed: **80 m/min**
Working temperature: **-30°C to +80°C**
Maximum trolley load: **25 kg**

Catalog No.	Type	Dimensions [mm]					Weight [kg]
		L	D	A	B	C _{max}	
2061.01	WKZ-P2-125x96xD50	125	50	72	96	25	0,900
2061.31	WKZ-P2S-125x96xD80	125	80	72	96	20	1,240
2061.32	WKZ-P2-160x96xD80	160				30	1,300
2061.33	WKZ-P2-200x96xD80	200				50	1,350

End clamps with steel cable support

series **C21P**



Material:

- body** - galvanized steel
- cable support** - galvanized steel
- separator** - polyamide PA
- polypropylene PP (*on request*)
- bolts, nuts** - galvanized steel

Working temperature: **-30°C to +80°C**
Maximum end clamps load: **25 kg**

Catalog No.	Type	Dimensions [mm]				Weight [kg]
		D	A	B	C _{max}	
1012.15	ZKP-96xD50	50	72	96	25	0,360
1012.16	ZKP-96xD80	80			50	0,600

! End stop should be mounted from trolleys side, before the end clamp.

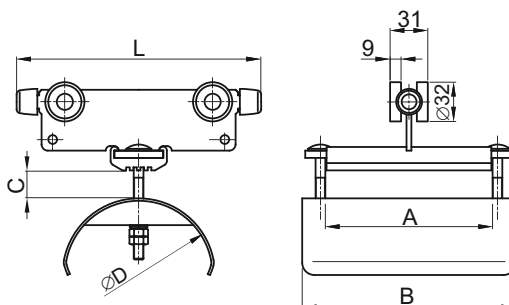
Cable trolleys and accessories for C-rail system for flat cables



C2

Cable trolleys

series **C23P**



! The flexible profile **PRW-01**  is helpful to fill gaps in the set of cables (page 10)

Material:

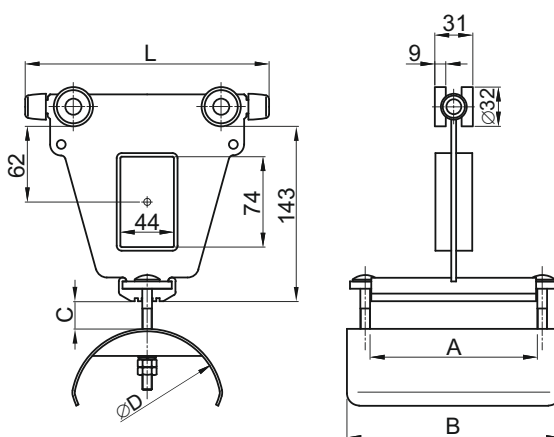
- body** - powder painted, galvanized steel
- rollers** - covered rolling bearings
- axle** - galvanized steel
- cable support** - galvanized steel
- pressure pad** - thermoplastic elastomer
- bumpers** - rubber EPDM
- bolts, nuts** - galvanized steel

Maximum trolley speed: **80 m/min**
Working temperature: **-30°C to +80°C**
Maximum trolley load: **32 kg**

Catalog No.	Type	Dimensions [mm]					Weight [kg]
		L	D	A	B	C _{max}	
2070.01	WK-P2-160x167xD80	160	80	135	167	30	1,060
2070.02	WK-P2-200x167xD80	200				50	1,115
2070.11	WK-P2-160x175xD125	160	125	135	175	15	1,480
2070.12	WK-P2-200x175xD125	200				25	1,600
2070.13	WK-P2-250x175xD125	250				50	1,720
2070.14	WK-P2-200x175xD160	200	160	135	175	15	1,830
2070.15	WK-P2-250x175xD160	250				35	1,950
2070.16	WK-P2-250x175xD200	250	200	135	175	20	2,340
2070.34	WK-P2-200x111xD125	200	125	72	111	40	1,270

Towing trolleys

series **C23P**



! The flexible profile **PRW-01**  is helpful to fill gaps in the set of cables (page 10)

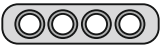
Material:

- body** - powder painted, galvanized steel
- rollers** - covered rolling bearings
- axle** - galvanized steel
- cable support** - galvanized steel
- pressure pad** - thermoplastic elastomer
- bumpers** - rubber EPDM
- bolts, nuts** - galvanized steel

Maximum trolley speed: **80 m/min**
Working temperature: **-30°C to +80°C**
Maximum trolley load: **32 kg**

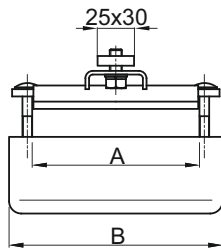
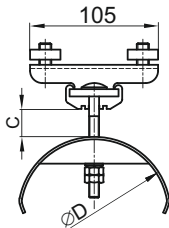
Catalog No.	Type	Dimensions [mm]					Weight [kg]
		L	D	A	B	C _{max}	
2071.01	WKZ-P2-160x167xD80	160	80	135	167	30	1,910
2071.02	WKZ-P2-200x167xD80	200				50	1,970
2071.11	WKZ-P2-160x175xD125	160	125	135	175	15	2,130
2071.12	WKZ-P2-200x175xD125	200				25	2,190
2071.13	WKZ-P2-250x175xD125	250				50	2,310
2071.14	WKZ-P2-200x175xD160	200	160	135	175	15	2,420
2071.15	WKZ-P2-250x175xD160	250				35	2,540
2071.16	WKZ-P2-250x175xD200	250	200	135	175	20	2,930
2071.34	WKZ-P2-200x111xD125	200	125	72	111	40	1,720

Cable trolleys and accessories for C-rail system for flat cables



End clamps

series **C23P**



! End stop should be mounted from trolleys side, before the end clamp.

! The flexible profile **PRW-01**  is helpful to fill gaps in the set of cables (page 10)

Material:
body - powder painted, galvanized steel
cable support - galvanized steel
pressure pad - thermoplastic elastome
bolts, nuts - galvanized steel

Working temperature: **-30°C to +80°C**
Maximum end clamps load: **32 kg**

Catalog No.	Type	Dimensions [mm]				Weight [kg]
		D	A	B	C _{max}	
1012.17	ZKP-167xD80	80	135	167	50	1,285
1012.22	ZKP-175xD125	125		175	50	1,500
1012.23	ZKP-175xD160	160			35	1,755
1012.24	ZKP-175xD200	200			20	2,145
1012.34	ZKP-111xD125	125	72	111	40	1,060

Cable trolleys and accessories for C-rail system for flat cables

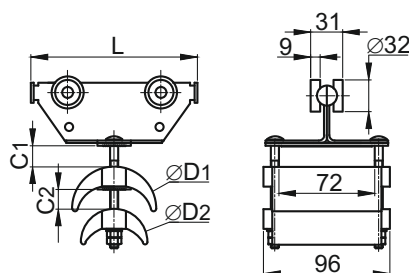


Cable trolleys and accessories for C-rail system for flat cables



Double support cable trolley

series **C24P**



Material:

- body** - galvanized steel
- rollers** - covered rolling bearings
- axle** - galvanized steel
- cable support** - polyamide PA
- polypropylene PP (*on request*)
- separator** - polyamide PA
- polypropylene PP (*on request*)
- bolts, nuts** - galvanized steel

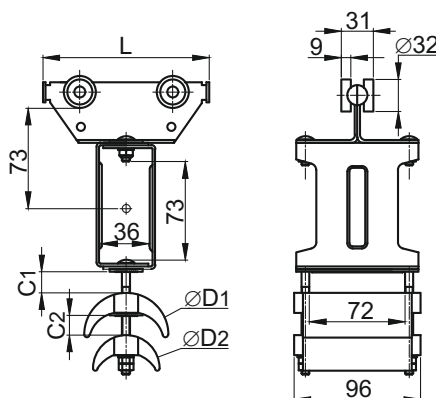
Maximum trolley speed: **50 m/min**
 Working temperature: **-20°C to +80°C**
 Maximum trolley load: **20 kg**

Catalog No.	Type	Dimensions [mm]					Weight [kg]
		L	D1	D2	C1	C2	
2040.20	WK-P2-125x96x(D80T+D50T)	125	80	50	20	17	0,547

- ! Cable trolleys can be also equipped in one or two bumpers **ZG-01** (page 33).
 • As a result, trolley length is increased by **12,5 mm** (with one bumper) or by **25 mm** (with two bumpers).

Double support towing trolley

series **C24P**



Material:

- body** - galvanized steel
- rollers** - covered rolling bearings
- axle** - galvanized steel
- towing trolley yoke** - galvanized steel
- cable support** - polyamide PA
- polypropylene PP (*on request*)
- separator** - polyamide PA
- polypropylene PP (*on request*)
- bolts, nuts** - galvanized steel

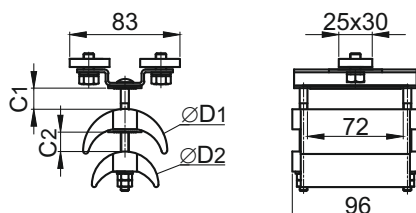
Maximum trolley speed: **50 m/min**
 Working temperature: **-20°C to +80°C**
 Maximum trolley load: **20 kg**

Catalog No.	Type	Dimensions [mm]					Weight [kg]
		L	D1	D2	C1	C2	
2041.20	WKZ-P2-125x96x(D80T+D50T)	125	80	50	20	17	1,380

- ! Cable trolleys can be also equipped in one or two bumpers **ZG-01** (page 33).
 • As a result, trolley length is increased by **12,5 mm** (with one bumper) or by **25 mm** (with two bumpers).

Double support end clamp

series **C24P**



Material:

- body** - galvanized steel
- cable support** - polyamide PA
- polypropylene PP (*on request*)
- separator** - polyamide PA
- polypropylene PP (*on request*)
- bolts, nuts** - galvanized steel

Working temperature: **-20°C to +80°C**
 Maximum end clamps load: **20 kg**

Catalog No.	Type	Dimensions [mm]				Weight [kg]
		D1	D2	C1	C2	
1012.30	ZKP-96x(D80T+D50T)	80	50	20	17	0,370

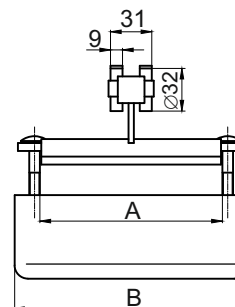
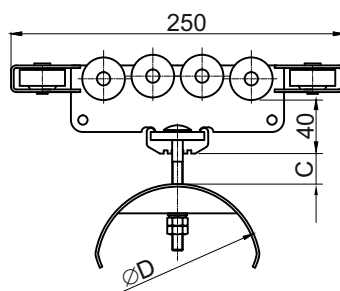
- ! End stop should be mounted from trolleys side, before the end clamp.

Cable trolleys and accessories for C-rail system for flat cables



Special cable trolleys for flat cables

series **C25P**



Material:

body rollers

- powder painted, galvanized steel
- covered rolling bearings
- polyamide PA

axle

cable support

pressure pad

bumpers

bolts, nuts

- galvanized steel
- galvanized steel
- thermoplastic elastomer
- rubber EPDM
- galvanized steel

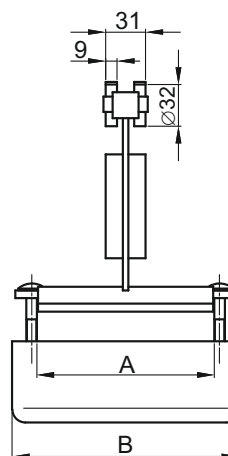
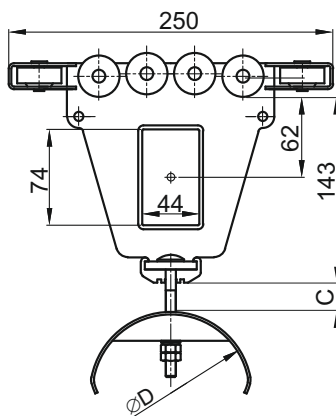
Maximum trolley speed: **50 m/min**
Working temperature: **-30°C to +80°C**
Maximum trolley load: **32 kg**

! The flexible profile **PRW-01**  is helpful to fill gaps in the set of cables (page 10)

Catalog No.	Type	Dimensions [mm]				Weight [kg]
		D	A	B	C _{max}	
2070.20	WKS-P2-250x175xD125	125	135	175	50	2,070
2070.21	WKS-P2-250x175xD160	160			35	2,310

Special towing trolleys for flat cables

series **C25P**



Material:

body rollers

- powder painted, galvanized steel
- covered rolling bearings
- polyamide PA

axle

cable support

pressure pad

bumpers

bolts, nuts

- galvanized steel
- galvanized steel
- thermoplastic elastomer
- rubber EPDM
- galvanized steel

Maximum trolley speed: **50 m/min**
Working temperature: **-30°C to +80°C**
Maximum trolley load: **32 kg**

! The flexible profile **PRW-01**  is helpful to fill gaps in the set of cables (page 10)

Catalog No.	Type	Dimensions [mm]				Weight [kg]
		D	A	B	C _{max}	
2071.20	WKZS-P2-250x175xD125	125	135	175	50	2,575
2071.21	WKZS-P2-250x175xD160	160			35	2,850

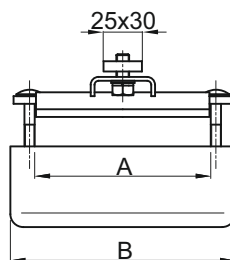
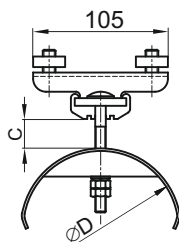
Cable trolleys and accessories for C-rail system for flat cables



C2

End clamps

series **C25P**



! End stop should be mounted from trolleys side, before the end clamp.

Material:

- body** - powder painted, galvanized steel
- cable support** - galvanized steel
- pressure pad** - thermoplastic elastome
- bolts, nuts** - galvanized steel

! The flexible profile **PRW-01**  is helpful to fill gaps in the set of cables (page 10)

Working temperature: **-30°C to +80°C**
Maximum end clamps load: **32 kg**

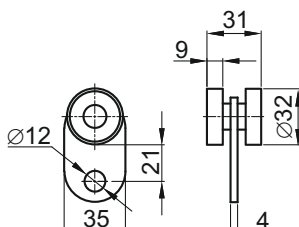
Catalog No.	Type	Dimensions [mm]				Weight [kg]
		D	A	B	C _{max}	
1012.22	ZKP-175xD125	125	135	175	50	1,500
1012.23	ZKP-175xD160	160			35	1,755

Special trolleys

series **C29S**



WK-S2m



Material:

- body** - galvanized steel
- rollers** - covered rolling bearings
- axle** - galvanized steel
- bumpers** - rubber EPDM

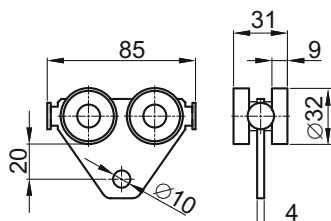
Working temperature: **-30°C to +80°C**

Maximum trolley speed: **30 m/min**
Maximum trolleys load: **WK-S2m - 16 kg**

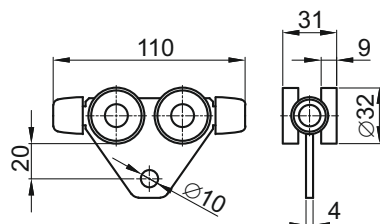
Maximum trolley speed: **50 m/min**
Maximum trolleys load: **WK-S2, WK-S2-2ZG - 32 kg**



WK-S2



WK-S2-2ZG



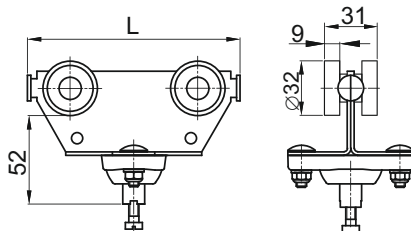
Catalog No.	Type	Weight [kg]
2039.00	WK-S2m	0,155
2040.00	WK-S2	0,290
2040.01	WK-S2-2ZG	0,300

Cable trolleys and accessories for C-rail system for round cables



Cable trolleys with ball joint

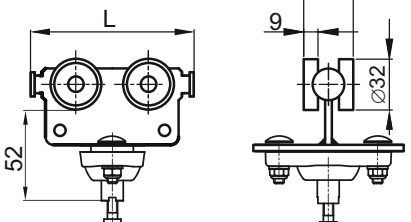
series **C21R**



Material:

- body** - galvanized steel
- rollers** - covered rolling bearings
- axle** - galvanized steel
- ball joint** - polyamide PA
- bolts, nuts** - galvanized steel

Maximum trolley speed: **50 m/min**
Working temperature: **-20°C to +50°C**
Maximum trolley load: **10 kg**



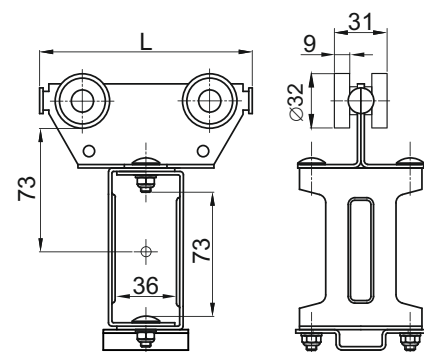
! For chosen trolley should be ordered the appropriate cable holder type **UL-...**

! Cable trolleys can be also equipped in one or two bumpers **ZG-01** (page 33).
As a result, trolley length is increased by **12,5 mm** (with one bumper) or by **25 mm** (with two bumpers).

Catalog No.	Type	L [mm]	Weight [kg]
2030.01	WK-R2-85	85	0,390
2030.02	WK-R2-125	125	0,450
2030.03	WK-R2-100	100	0,490
2030.04	WK-R2-135	135	0,545
2030.05	WK-R2-175	175	0,615

Towing trolleys

series **C21R**

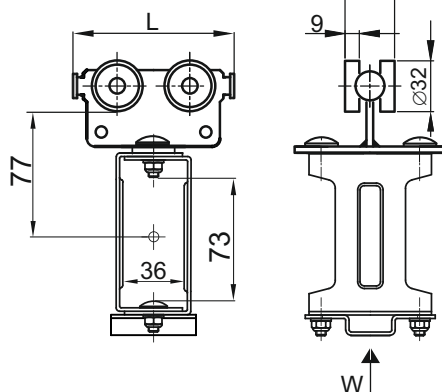
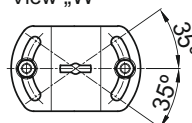


Material:

- body** - galvanized steel
- towing trolley yoke** - galvanized steel
- rollers** - covered rolling bearings
- axle** - galvanized steel
- regulated clamp** - galvanized steel
- bolts, nuts** - galvanized steel

Maximum trolley speed: **50 m/min**
Working temperature: **-20°C to +50°C**
Maximum trolley load: **10 kg**

View „W”



! For chosen trolley should be ordered the appropriate cable holder type **UL-...**

! Cable trolleys can be also equipped in one or two bumpers **ZG-01** (page 33).
As a result, trolley length is increased by **12,5 mm** (with one bumper) or by **25 mm** (with two bumpers).

Catalog No.	Type	L [mm]	Weight [kg]
2031.01	WKZ-R2-85	85	0,705
2031.02	WKZ-R2-125	125	0,765
2031.03	WKZ-R2-100	100	0,835
2031.04	WKZ-R2-135	135	0,860
2031.05	WKZ-R2-175	175	0,930

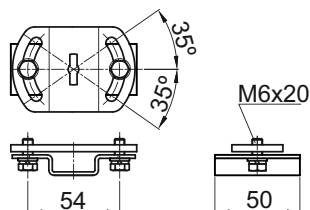
K C2 052021 EN

Cable trolleys and accessories for C-rail system for round cables



Regulated clamp

series **C21R**



Material:

body - galvanized steel
bolts, nuts - galvanized steel

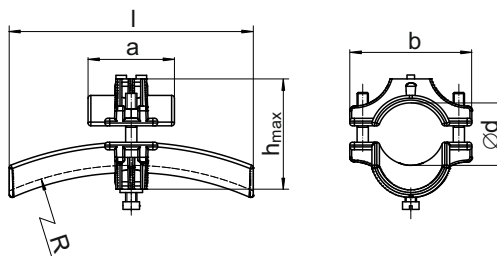
Working temperature: **-20°C to +50°C**
Maximum clamp load: **10 kg**

! For chosen trolley should be ordered
the appropriate cable holder type **UL-...**

! End stop should be mounted from trolleys side,
before the end clamp.

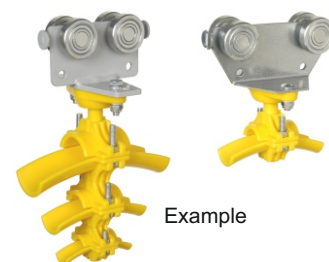
Catalog No.	Type	Weight [kg]
2032.00	ZR2	0,140

Cable holders



Material:

body - polyamide PA
bolts, nuts - galvanized steel
- stainless steel 1.4301



Example

Working temperature: **-20°C to +50°C**

Maximum holder set load (*galvanized steel*): **10 kg**
Maximum holder set load (*stainless steel*): **6 kg**

Catalog No.	Type	Ød	R	[mm]				Weight [kg]
				a	b	l	h _{max}	
1040.01	UL-1016	10 – 16	75	34	44	65	40	0,032
1040.02	UL-1726	17 – 26	110	40,5	54	89,5	53,5	0,058
1040.03	UL-2736	27 – 36	160	45,5	64,4	120,5	66	0,085

N - stainless version

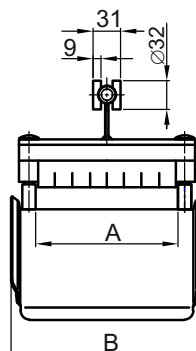
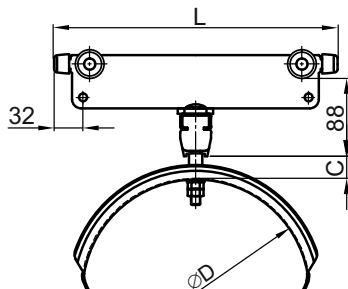
Catalog No.	Type
1040.01-N	UL-1016-N
1040.02-N	UL-1726-N
1040.03-N	UL-2736-N

Cable trolleys and accessories for C-rail system for round cables



Cable trolleys for round cables

series **C26R**



Maximum trolley speed: **50 m/min**
Working temperature: **-30°C to +80°C**
Maximum trolley load: **32 kg**

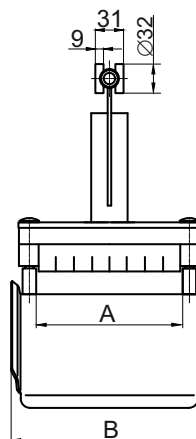
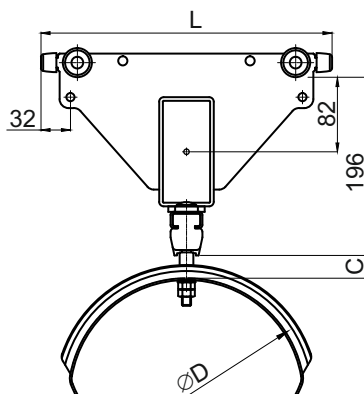
Material: **body** - steel, hot-dipped galvanized
rollers - covered rolling bearings
axle - galvanized steel
cable support - steel, hot-dipped galvanized
pressure pad - thermoplastic elastomer
bumpers - rubber EPDM
bolts, nuts - galvanized steel

! The flexible profile **PRW-01** is helpful
to fill gaps in the set of cables (page 10)

Catalog No.	Type	Dimensions [mm]					Weight [kg]
		L	D	A	B	C	
2080.03	WK-R2-320x216xD260	320	260	161	216	25	3,310
2080.04	WK-R2-320x268xD260			213	268		3,790

Towing trolleys for round cables

series **C26R**



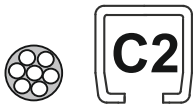
Maximum trolley speed: **50 m/min**
Working temperature: **-30°C to +80°C**
Maximum trolley load: **32 kg**

Material: **body** - steel, hot-dipped galvanized
rollers - covered rolling bearings
axle - galvanized steel
cable support - steel, hot-dipped galvanized
pressure pad - thermoplastic elastomer
bumpers - rubber EPDM
bolts, nuts - galvanized steel

! The flexible profile **PRW-01** is helpful
to fill gaps in the set of cables (page 10)

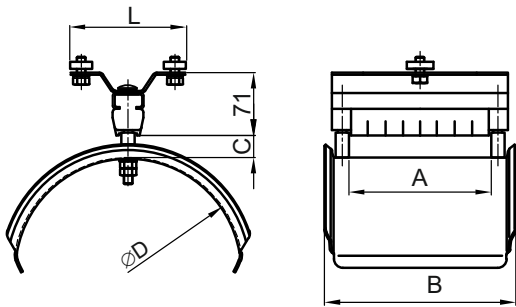
Catalog No.	Type	Dimensions [mm]					Weight [kg]
		L	D	A	B	C	
2081.03	WKZ-R2-320x216xD260	320	260	161	216	25	3,640
2081.04	WKZ-R2-320x268xD260			213	268		4,120

Cable trolleys and accessories for C-rail system for round cables



End clamps for round cables

series **C26R**



Material: **body** - galvanized steel
cable support - steel, hot-dipped galvanized
pressure pad - thermoplastic elastomer
bumpers - rubber EPDM
bolts, nuts - galvanized steel

! End stop should be mounted from trolleys side,
before the end clamp.

Working temperature: **-30°C to +80°C**
Maximum end clamp load: **32 kg**

! The flexible profile **PRW-01**  is helpful
to fill gaps in the set of cables (page 10)

Catalog No.	Type	Dimensions [mm]					Weight [kg]
		L	D	A	B	C	
2082.03	ZKP-R2-216xD260	130	260	161	216	25	2,890
2082.04	ZKP-R2-268xD260			213	268		3,370

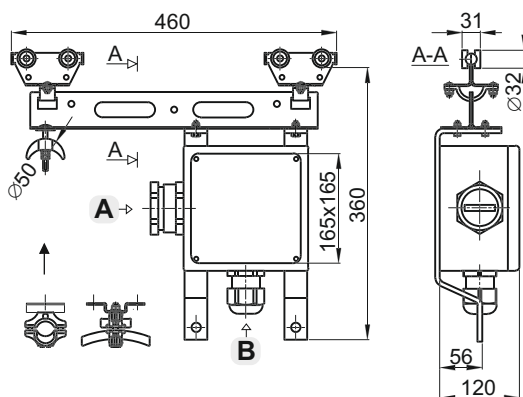
Cable trolleys and accessories for C-rail system for flat and round cables



Control unit trolleys



Cable holder **UL-1726**
for round cable



Material:

- body** - galvanized steel
- rollers** - covered rolling bearings
- cable support** - polyamide PA
- polypropylene PP (*on request*)
- cable holder** - polyamide PA
- separator** - polyamide PA
- polypropylene PP (*on request*)
- terminal box** - plastic
- axle, bolts, nuts** - galvanized steel
- nuts** - polyamide PA
- (for polyamide cable support **D50T**)

Maximum trolley speed: **50 m/min**
Internal protection level: **IP54**
Working temperature: **-20°C to +80°C**
Maximum trolley load: **32 kg**



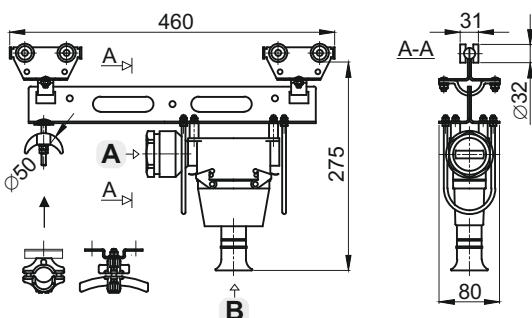
! Cable trolleys can be also equipped in one or two bumpers **ZG-01** (page 33).

Catalog No.	Type	Festoon cable	Number of terminals	Gland		Weight [kg]
				A	B	
2009.11	WS-C21	plaski	16+E	PG 42	PG 21	3,410
2009.12	WS-C22		24+E	PG 42	PG 29	3,510
2009.31	WS-C21A		16+E	PG 29	PG 21	3,310
2009.13	WS-C23	okrągły	16+E	PG 29	PG 21	3,250
2009.14	WS-C24		24+E	PG 29	PG 29	3,430

Control unit trolleys with multipolar junction



Cable holder **UL-1726**
for round cable



Material:

- body** - galvanized steel
- rollers** - covered rolling bearings
- cable support** - polyamide PA
- polypropylene PP (*on request*)
- cable holder** - polyamide PA
- separator** - polyamide PA
- polypropylene PP (*on request*)
- multipolar junction** - die- cast aluminum
- axle, bolts, nuts** - galvanized steel
- nuts** - polyamide PA
- (for polyamide cable support **D50T**)

Maximum trolley speed: **50 m/min**
Internal protection level: **IP54**
Working temperature: **-20°C to +80°C**
Maximum trolley load: **32 kg**



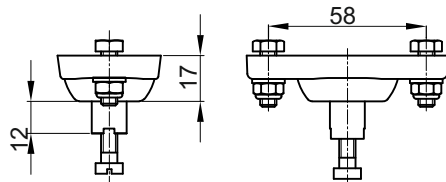
! Cable trolleys can be also equipped in one or two bumpers **ZG-01** (page 33).

Catalog No.	Type	Festoon cable	Number of terminals	Gland		Weight [kg]
				A	B	
2009.15	WS-C25	plaski	16+E	PG 42	PG 21	2,960
2009.16	WS-C26		24+E	PG 42	PG 29	3,160
2009.36	WS-C25A		16+E	PG 29	PG 21	2,820
2009.17	WS-C27	okrągły	16+E	PG 29	PG 21	2,760
2009.18	WS-C28		24+E	PG 29	PG 29	3,020

Cable trolleys and accessories for C-rail system



Mount with ball joint MPK



Material:
body - polyamide PA
bolts, nuts - galvanized steel
 - stainless steel 1.4301

Working temperature: **-20°C to +50°C**

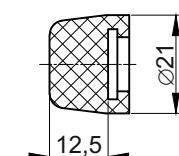
N - stainless version

Maximum holder set load (*galvanized steel*): **10 kg**
 Maximum holder set load (*stainless steel 1.4301*): **6 kg**

Catalog No.	Type	Weight [kg]
1041.00	MPK	0,045

Catalog No.	Type
1041.00-N	MPK-N

Bumper ZG-01

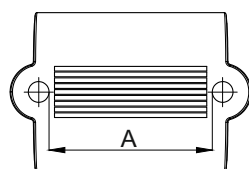
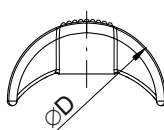


Example

Material: - rubber EPDM

Catalog No.	Type	Weight [kg]
1070.00	ZG-01	0,008

Plastic cable supports



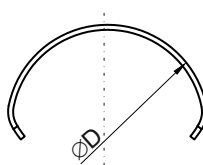
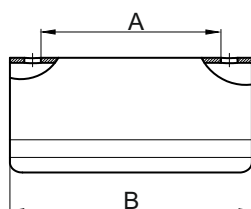
Material: - polyamide PA
 - polypropylene PP

Catalog No.	Type	Material	Dimension [mm]			Weight [kg]
			D	A	B	
1080.01	D50Tx76-PA	polyamide PA	50	52	76	0,023
1080.02	D50Tx96-PA			72	96	0,027
1080.05	D80Tx76-PA		80	52	76	0,038
1080.06	D80Tx96-PA			72	96	0,047
1080.11	D50Tx76-PP	polypropylene PP	50	52	76	0,023
1080.12	D50Tx96-PP			72	96	0,027
1080.15	D80Tx76-PP		80	52	76	0,038
1080.16	D80Tx96-PP			72	96	0,047

! The 50 and 80 mm polyamide PA cable supports in standard option are adapted to use with plastic nuts.

The 50 and 80 mm polypropylene PP cable supports in standard option are adapted to use with steel nuts.

Steel cable supports



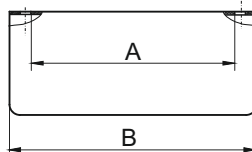
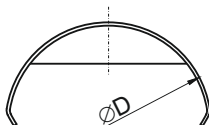
Material: - galvanized steel
 - stainless steel 1.4301

N - stainless steel 1.4301

Catalog No.	Type	Dimensions [mm]			Weight [kg]
		D	A	B	
1081.01	D50x76	50	52	76	0,098
1081.02	D50x96		72	96	0,125
1081.03	D80x96	80	72	96	0,196
1081.04	D80x167		135	167	0,339

Catalog No.	Type
1081.01-N	D50x76-N
1081.02-N	D50x96-N
1081.03-N	D80x96-N
1081.04-N	D80x167-N

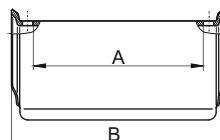
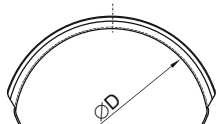
Strengthened steel cable supports



Material: galvanized steel

Catalog No.	Type	Dimensions [mm]			Weight [kg]
		D	A	B	
1082.02	D125x175	125	135	175	0,670
1082.03	D160x175	160	135	175	0,915

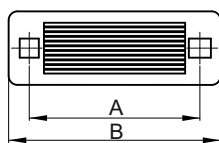
Flanged steel cable supports



Material: dip galvanized steel

Catalog No.	Type	Dimensions [mm]			Weight [kg]
		D	A	B	
1083.01	D260x216	260	161	216	1,310
1083.02	D260x268		213	268	1,790

Separators



Material: - polyamide PA (black)
- polypropylene PP (grey)

Catalog No.	Type	Material	Dimensions [mm]		Weight [kg]
			A	B	
1080.20	L76-PA	polyamide PA	58	71	0,004
1080.21	L96-PA		78	93	0,007
1080.25	L76-PP	polypropylene PP	58	71	0,004
1080.26	L96-PP		78	93	0,007

! For series C21P, C22P and C24P

Plastic conical nut



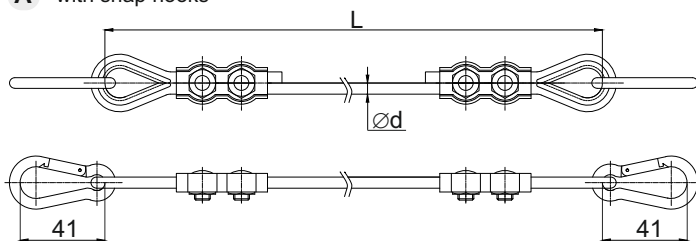
Material: - polyamide PA

Catalog No.	Type	Material	Weight [kg]
1080.30	M6-PA	polyamide PA	0,003

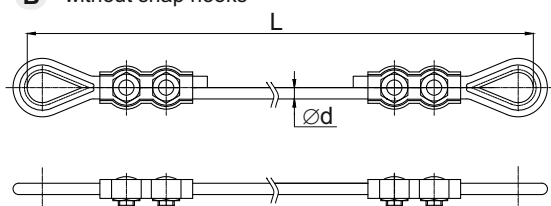
! The plastic nuts are designed to fastening the 50 and 80 mm polyamide cable supports

Plastic rope ties

A - with snap hooks



B - without snap hooks



Material: rope

double rope clamps (ZL2-4-N)
rope thimbles (K2-N)
snap hooks (KR2-N)

- polypropylene PP
- polyamide PA
- stainless steel AISI 316
- stainless steel AISI 316
- stainless steel AISI 316

Catalog No.	Type	Material	Rope diameter d [mm]
3000.40A	CLPP-4K-L*	polypropylene PP	4,0
3000.40B	CLPP-4-L*		
3000.50A	CLPA-4K-L*	polyamide PA	4,0
3000.50B	CLPA-4-L*		

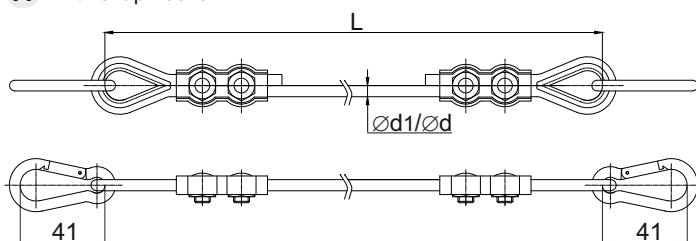
*) – add length L [mm] to trolley designation

Ø4 mm **A** polypropylene rope tie weight = $0,00723 \text{ [kg]} \times L \text{ [m]} + 0,082 \text{ [kg]}$
 Ø4 mm **A** polyamide rope tie weight = $0,00987 \text{ [kg]} \times L \text{ [m]} + 0,082 \text{ [kg]}$

Ø4 mm **B** polypropylene rope tie weight = $0,00723 \text{ [kg]} \times L \text{ [m]} + 0,052 \text{ [kg]}$
 Ø4 mm **B** polyamide rope tie weight = $0,00987 \text{ [kg]} \times L \text{ [m]} + 0,052 \text{ [kg]}$

PVC shielded steel rope ties

A - with snap hooks



Material: rope

double rope clamps (ZL2-4-N)
rope thimbles (K2-N)
snap hooks (KR1-N)

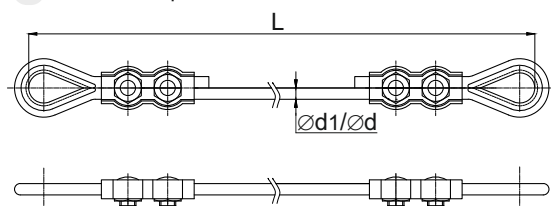
- polypropylene PP
- polyamide PA
- stainless steel AISI 316
- stainless steel AISI 316
- stainless steel AISI 316

Catalog No.	Type	Rope diameter [mm]	
		d	PVC sheath d1
3000.30A	CLS-2/3K-L*	2,0	3,0
3000.30B	CLS-2/3-L*		

*) – add length L [mm] to trolley designation

Ø2/Ø3 mm **A** galvanized steel rope tie weight = $0,021 \text{ [kg]} \times L \text{ [m]} + 0,082 \text{ [kg]}$
 Ø2/Ø3 mm **B** galvanized steel rope tie weight = $0,021 \text{ [kg]} \times L \text{ [m]} + 0,052 \text{ [kg]}$

B - without snap hooks



N - stainless version

Catalog No.	Type	Rope diameter [mm]	
		d	PVC sheath d1
3000.30A-N	CLS-2/3K-N-L*	2,0	3,0
3000.30B-N	CLS-2/3-N-L*		

*) – add length L [mm] to trolley designation

Ø2/Ø3 mm **A** stainless steel rope tie weight = $0,023 \text{ [kg]} \times L \text{ [m]} + 0,082 \text{ [kg]}$
 Ø2/Ø3 mm **B** stainless steel rope tie weight = $0,023 \text{ [kg]} \times L \text{ [m]} + 0,052 \text{ [kg]}$

Technical chain DIN 5686 VICTOR type

Material: - galvanized steel



Catalog No.	Type	Nominal size	Dimensions [mm]			Weight [kg]
			A	B	C	
1009.24	ŁOV-2.0	2,0	28,0	2,0	5,1	0,080
1009.25	ŁOV-2.2	2,2	31,0	2,2	5,6	0,110

Technical chain DIN 5685

Material: - galvanized steel



Catalog No.	Type	Nominal size	Dimensions [mm]			Weight [kg]
			A	B	C	
1009.26	ŁOK-3	3,0	16,0	3,0	5,0	0,165
1009.27	ŁOK-4	4,0	19,0	4,0	7,0	0,295

Stainless technical chain DIN 766

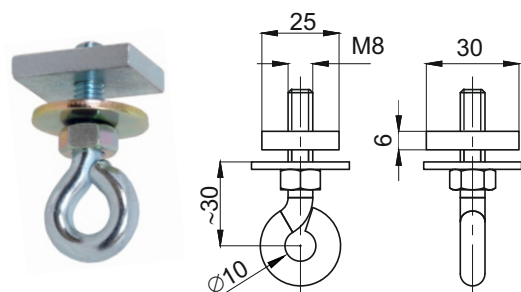
Material: - stainless steel (AISI 316)



N - stainless steel AISI 316

Catalog No.	Type	Nominal size	Dimensions [mm]			Weight [kg]
			A	B	C	
1009.26-N	ŁOK-3-N	3,0	15,7	3,0	5,0	0,170
1009.27-N	ŁOK-4-N	4,0	16,0	4,0	7,0	0,320

Hook eyelet



Material:
 square nut - galvanized steel
 - stainless steel 1.4301
 bolt, nut, pad - galvanized steel
 - stainless steel 1.4301



Example

N - stainless version

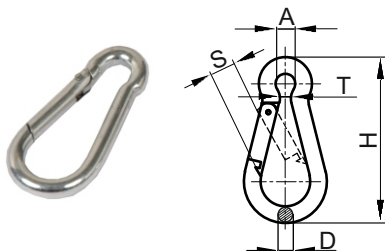
Catalog No.	Type	Weight [kg]
1002.27	MC10	0,070

Catalog No.	Type
1002.27-N	MC10-N

Cable trolleys and accessories for C-rail system



Snap hooks



Material: - galvanized steel
- stainless steel AISI 316

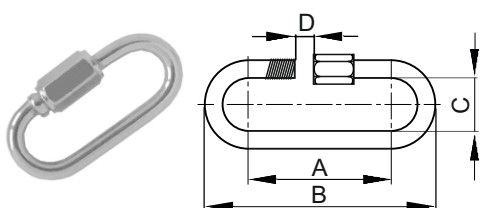
Galvanized snap hook DIN 5299 C

Catalog No.	Type	Nominal size	Maximum strength [kg]	Dimensions [mm]					Weight [kg]
				A	D	H	S	T	
1009.21	KR1	40x4	80	6	4	40	6	5	0,008
1009.22	KR2	50x5	100	8	5	51	7	6	0,016

Stainless snap hook AISI 316 acc. DIN 5299 C

Catalog No.	Type	Nominal size	Maximum strength [kg]	Dimensions [mm]					Weight [kg]
				A	D	H	S	T	
1009.21-N	KR1-N	40x4	80	6	4	40	7	5	0,008
1009.22-N	KR2-N	50x5	100	8	5	50	7	7	0,015

Twisted link



Material: - galvanized steel
- stainless steel AISI 316

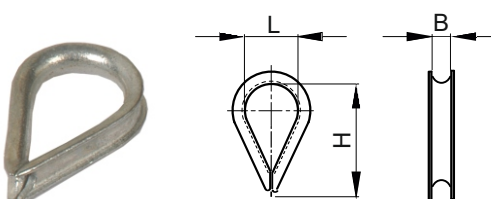
Galvanized twisted link

Catalog No.	Type	Nominal size	Maximum strength [kg]	Dimensions [mm]				Weight [kg]
				A	B	C	D	
1009.40	OGS035	3,5N	50	29	36	10	4	0,008

Stainless twisted link AISI 316

Catalog No.	Type	Nominal size	Maximum strength [kg]	Dimensions [mm]				Weight [kg]
				A	B	C	D	
1009.40-N	OGS035-N	3,5N	50	30	37	11	5	0,009

Rope thimbles



Material: - galvanized steel
- stainless steel AISI 316

Galvanized rope thimbles DIN 6899B

Catalog No.	Type	Nominal size	Wire rope diameter [mm]	Dimensions [mm]			Weight [kg]
				L	H	B	
1009.19	K1	3	2,5 – 3,0	12	19	3	0,006
1009.10	K2	4	3,0 – 4,0	13	21	4	0,009

Stainless rope thimbles DIN 6899B - AISI 316

Catalog No.	Type	Nominal size	Wire rope diameter [mm]	Dimensions [mm]			Weight [kg]
				L	H	B	
1009.19-N	K1-N	3	2,5 – 3,0	11	22	3	0,002
1009.10-N	K2-N	4	3,0 – 4,0	13	27	4	0,005

Single rope clamp



Material: - galvanized steel

Galvanized rope clamp

Catalog No.	Type	Nominal size	Wire rope diameter [mm]	Dimensions [mm]		Weight [kg]
				L	H	
1009.23	ZL1	2	1,8 – 2,0	5	16	0,006

Double rope clamps



Material: - galvanized steel
- stainless steel AISI 316

Galvanized rope clamps

Catalog No.	Type	Nominal size	Wire rope diameter [mm]	Dimensions [mm]		Weight [kg]
				L	H	
1009.20	ZL2-2	2	1,8 – 2,0	5	30	0,011
1009.80	ZL2-3	3	2,0 – 3,0	7	35	0,013

Stainless rope clamps AISI 316

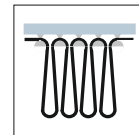
Catalog No.	Type	Nominal size	Wire rope diameter [mm]	Dimensions [mm]		Weight [kg]
				L	H	
1009.20-N	ZL2-3-N	3	2,0 – 3,0	7	35	0,013

Cables for crane industry – general information

UNILIFT has got a wide offer of festoon cables made by leading producers. Below is the list of typical cables. These cables are mainly applied in: festoon systems, cable reels, energy guiding chains, etc.

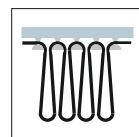
Festoon systems consist **flat cables** characterized by flexibility and very low curve radius. They're able to be bundled – what gives reduction of festoon's size.

Here are the main types of flat cables (insulation PVC and rubber, shielded or unshielded):



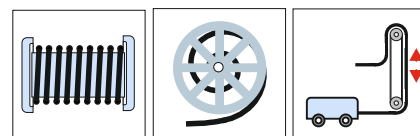
- H05VVH6-F
- H07VVH6-F
- YFLY, KYFLY
- YCFLY, YFCLY, KYCFLY, KYFLCY (EMV)
- NGFLGOU UL
- M(StD)HOU UL (EMC)
- LOSH

Festoon systems consist **round cables** characterized by flexibility and very low curve radius. Here are the main types of flat cables (insulation PUR and rubber, shielded or unshielded):



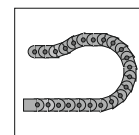
- FESTOONFLEX PUR-HF
- FESTOONFLEX C-PUR-HF
- KAWEFLEX PUR-HF
- KAWEFLEX C-PUR-HF
- H07RN-F

Festoon systems consist **round cables** characterized by flexibility and very low curve radius. Here are the main types of flat cables (insulation PUR and rubber, shielded or unshielded):



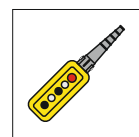
- TROMMELFLEX PUR-HF
- TROMMELFLEX-HD SPECIAL
- TROMMELFLEX KSM-S (N)SHTOU-J

For energy guiding chains the most commonly used cables are:



- FESTOONFLEX PUR-HF
- FESTOONFLEX C-PUR-HF
- TROMMELFLEX KSM-S (N)SHTOU-J
- STN
- STCN (EMV)

Cable for connect the control stations with crane or conveyor devices, hoists, etc. equipped with two integral steel strings:



- FYMYTW
- KASTER

Cable glands – general information

UNILIFT has to offer a wide assortment of cable glands for cables pointed above.

Cable glands types:

- plastic PG and metric for flat and round cables
- nickel plated brass PG and metric for flat cables,
- special glands,
- universal glands

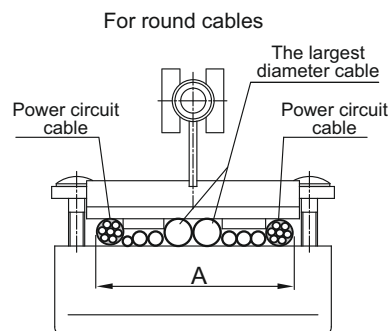
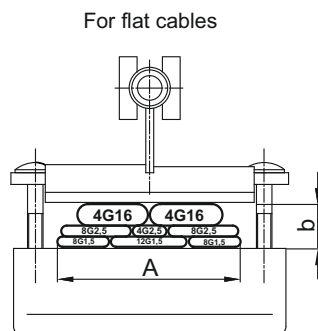


More information is contained in our catalog: „**Electrical cables for cranes, elevators and conveyor systems**”.

Please inquire defining the type, number of wires, conductor cross-section and the required amount in meters.
We will send you an offer immediately.

Design tips

1. Cable arrangement on cable support



2. Cable trolleys selection

- Approximate weight of cables for one trolley:

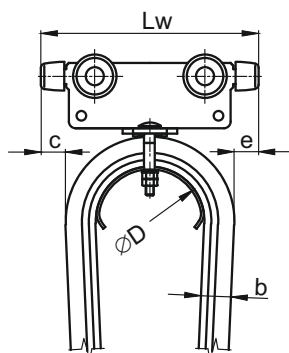
$$F_{kw} = 2 \cdot h \cdot G_k \text{ [kg]}$$

G_k = weight of 1 meter of cable bunch [kg/m]
 h = cable loop height [m]

- Length and width of cable trolleys for flat cables:

For flat cables:

$$L_w = \varnothing D + 2 \cdot b + 10 \text{ [mm]}$$

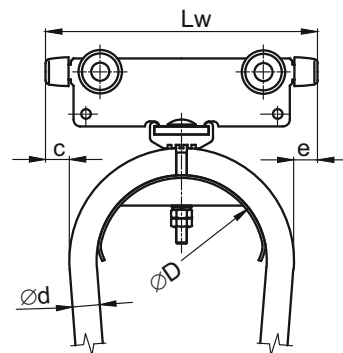


L_w - approximate cable length [mm]
 b - flat cable bunch thickness [mm]
 d_{max} - cable diameter [mm]
 $\varnothing D$ - cable support diameter [mm]

$$c + e \geq 10$$

For round cables:

$$L_w = \varnothing D + 2 \cdot d_{max} + 15 \text{ [mm]}$$



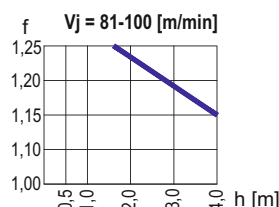
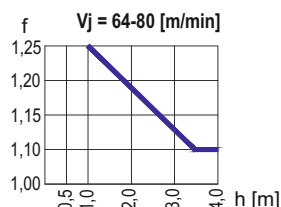
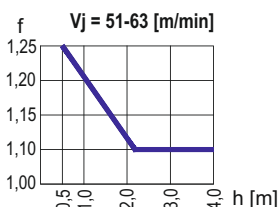
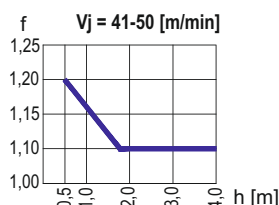
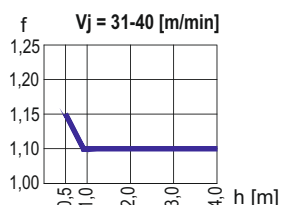
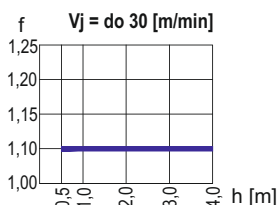
$$c + e \geq 15$$

3. Cable length addition coefficient in festoon system

Cable length in festoon system (Look: page 5)

$$L = (s + m) \cdot f \text{ [m]}$$

L - approximate cable length [m]
 s - towing trolley route length [m]
 m - trolleys storage area length [m]
 f - cable length addition coefficient



For calculate festoon's cable length coefficient "f" should be considered. Coefficient value depends on working conditions, trolleys speed, height of cable bunch, track shape, etc

Assembly and operation manual for C-rail supply line

C-rail track assembly

1. C-rails (for power supply line or control line) should be mounted parallel to receiver's guideway at such a distance that can ensure avoiding collision between moving trolley parts and stationary construction even with swinging cables caused by wind, etc.
2. C-rail track size, supporting structure and distance between track supports should be selected according to overall load (weight of trolleys, cables and rails) and other important working conditions.
3. C-rails can be mounted in many ways. Generally rails are fastened by support arms:
 - to receiver's guideway (I-beam or other) by girder clips
 - to supporting structure by welded support arm brackets
 - to supporting structure, wall, etc. by bolt (screw)-fastened support arm brackets
 - directly to supporting structure, ceiling, etc. by track support bracketsAnother important requirement is to ensure perpendicularity between support arm and C-rail track.
4. Installation of C-rail should be proceed very precisely, paying attention on C-rail sections connection by track couplers. Slip the sections from the both sides of the coupler, so the edges should stick together in the center of the hole placed on the coupler's side wall. The edges of the sections can't have any burrs or irregularities
5. Using four screws on the top wall of track coupler, secure the rails protecting them from slipping out during operation.
6. Mount the end bumper at the end of the track from powered device side. In case of control festoon attach end bumpers on the opposite ends of the track.

Cable trolleys

All types of cable trolleys are completely assembled by UNILIFT. Supply line elements: cable trolleys, towing trolley and end clamp should be placed on the C-rail in the following order:

1. Towing trolley – from the powered device.
2. Trolleys – between end clamp and towing trolley.
3. End clamp – at the end of trolleys storage area .

Cables

Wires should be placed and tightened on cable supports in a way that prevents bursting strands and isolation if necessary using additional relief ties. Ties should be sufficiently shorter than the maximum distance between the trolleys. Overhang between cable trolleys should be evenly distributed and only if necessary can be varied.

Wiring harness insulated clamps

At each cable loop, properly matched clamping frame must be installed:

- loop height up to 2 m – 1 clamp recommended,
- loop height above 2 m – 2 clamps recommended,

The cables should be arranged in insulated clamps according following rules:

for flat cables:

- the largest cross section cables should be placed in upper space of a clamp, without possibility to move
- other cables are placed at the lower space of a clamp and are able to move freely

Relief rope ties

If necessary, use relief ties fixing them between trolleys and clamp

Cable festoon assembly preparation

1. Prepare the cable/cables with the calculated length (formulas – page 2 of this catalog) taking into account the connecting sections from towing trolley to terminal box in powered device and from end clamp to terminal box on crane's supporting structure.
2. Measure and mark on the cables position of the towing trolley, other trolleys and end clamp for power festoon and/or control unit trolleys, other trolleys and end clamp for control festoon.
3. Place the wires on the cable supports paying attention to their symmetrical arrangement relative to the body of trolleys/clamps.

Assembly and operation manual for C-rail supply line

Cable festoon pre-assembly

UNILIFT can provide pre-assembled cable festoon on a special supporting structure. During the installation of festoon to the device, follow the rules of safety. Assemble should be carry out in such a way to don't cause any damage.

Trolleys' test drive

The correctness of trolleys' movement along the entire length of the track must be checked after assembly, before start to use the festoon. Pay attention to the connection of rail sections and other important places.

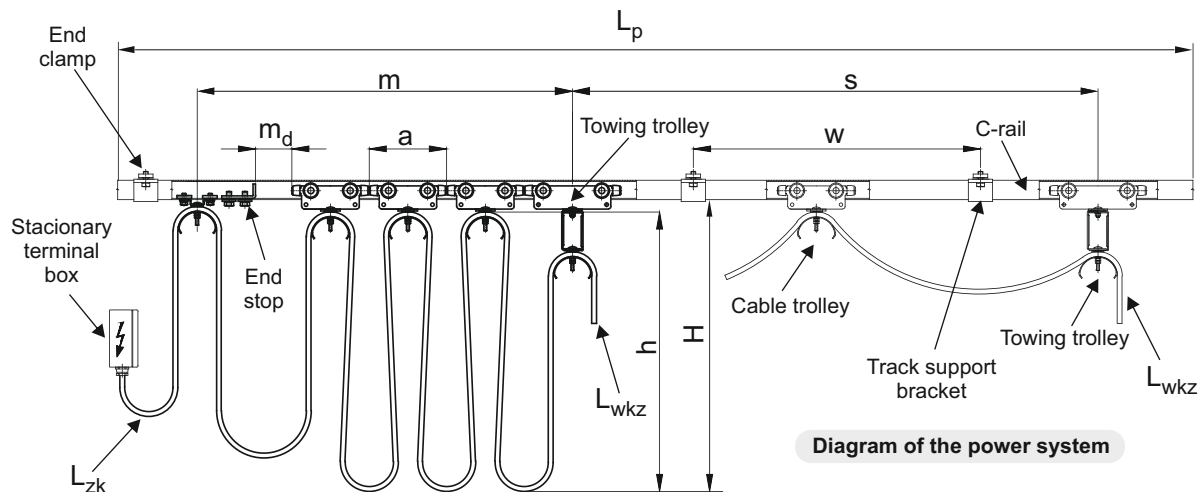
Inspection and maintenance of supply line

Inspections of all elements of the supply line should be carried out within a period not longer than 3 months.

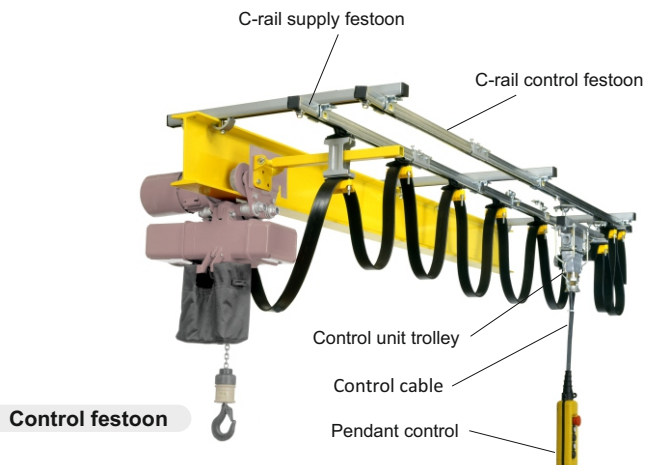
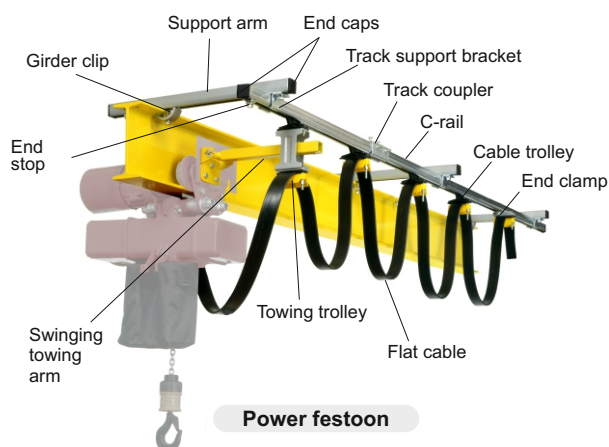
Inspection range:

1. Monitoring of cable trolleys' bearings.
2. Checking of the rail sections connection.
3. Checking the correctness of the towing arm placement for the entire length of the supply line.
4. Checking the cable fastening on trolleys and clamps.

C-rail power supply system selection



Components of C-rail supply system



Type of powered device (e.g. crane, hoist, technical device, etc.):

Device localization:	indoor ☐	outdoor ☐	maritime climate ☐
Environment:	normal ☐	dust, (description)	
	chemically aggressive ☐	(description)	
	potentially explosive area ☐	(description)	
Temperature range:	°C min.,	°C max.	
Time of trolleys acceleration to rated speed:	s		
Length of the track of the guide C rail:	$L_p =$ m		
Supply system length (towing trolley route length):	$s =$ m		
Permissible trolleys storage area length:	$m =$ m		
Permissible height of cable loop:	$h =$ m		
Trolleys speed:	m/min		
Cable length from towing clamp to mobile terminal box:		$L_{wkz} =$ m	
Cable length from end clamp to stationary terminal box:		$L_{wkz} =$ m	

Cable trolleys and accessories for C-rail system



Cable type: electric ☐ other (e.g. for gas, liquid) ☐

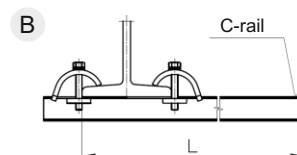
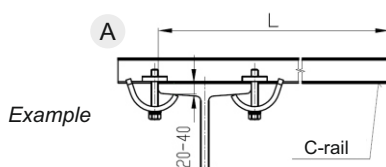
Supply festoon or/and control festoon cable list:

Cable type							Cable dimension (e.g. 4G2,5; 12G1,5)	Supply festoon	Control festoon	Amount of cables in one mounting point	Diameter d of a round cable [mm] or flat cable cross section b x A [mm]
Flat	Round	PVC	Rubber	PVC shielded	Rubber shielded	Other					

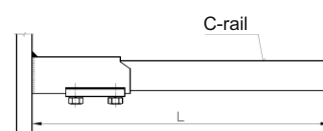
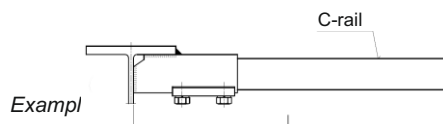
Support arm length: mm

Support arm fastening by girder clips:

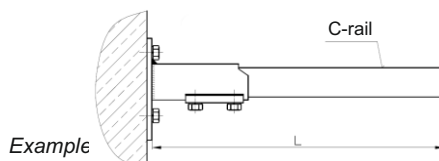
- A on higher shelf ☐
- B on lower ☐



Support arm fastening in KK-C11 bracket: ☐



Support arm fastening in KK-C11P bracket: ☐



Additional notes:

Contact data:

Company name:

Address:

Contact person: Office:

Phone number: e-mail:



Cable trolleys and accessories for C-rail system



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UNILIFT

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