

Cable trolleys and accessories for C-rail system





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series **C31P**



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series **C31R**



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series **C32R**



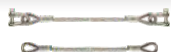
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Main design rules for mobile receivers supply systems

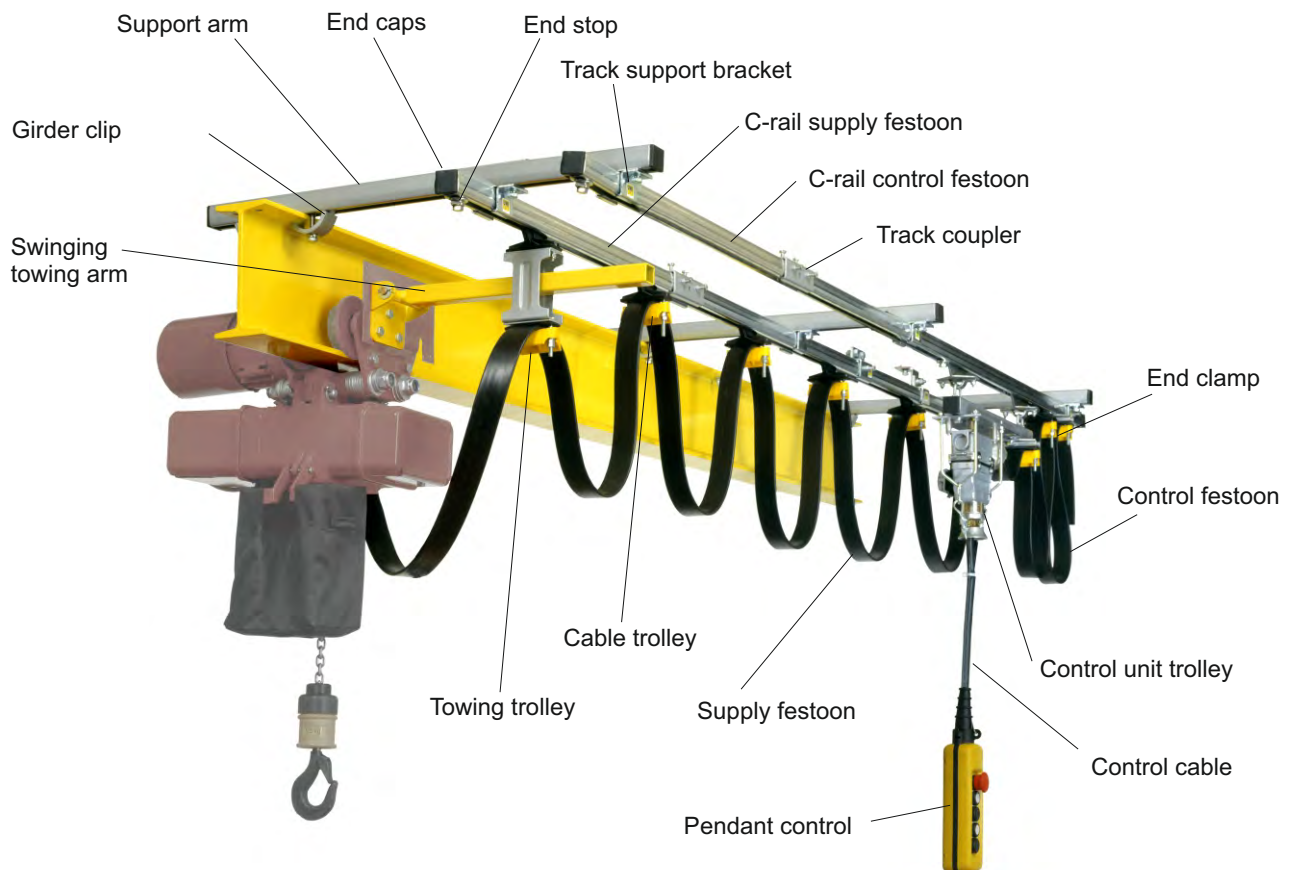
Cable trolleys are intended to work at normal conditions, as:

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

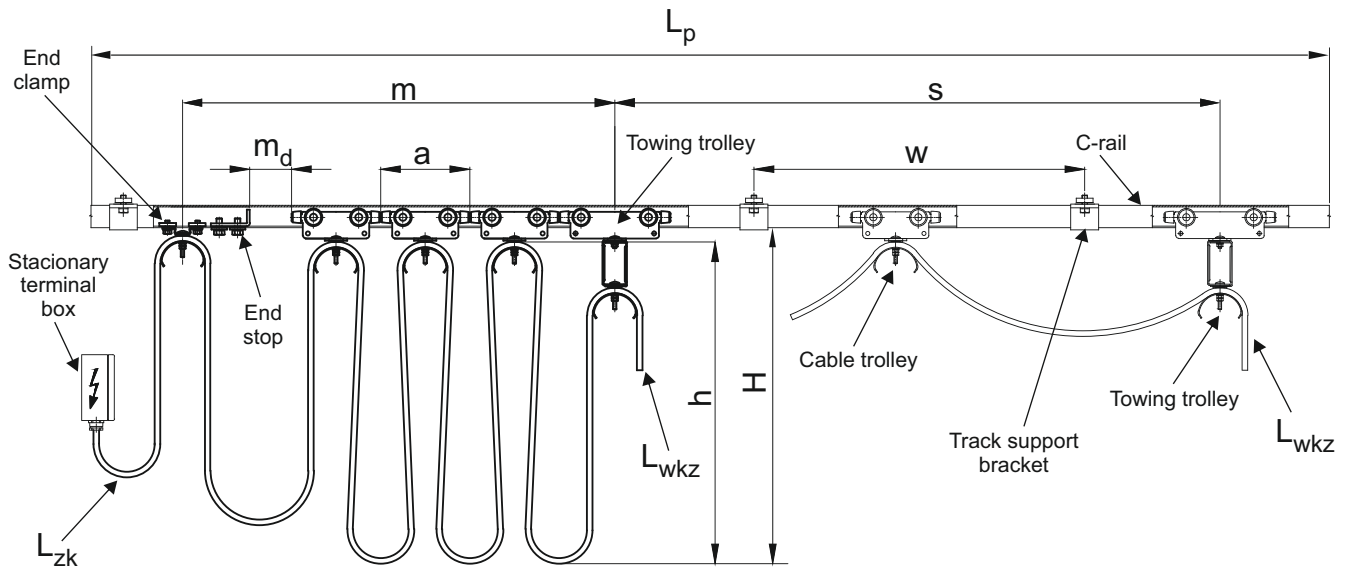
Cable trolleys supply lines can be also applied at especially hard working conditions (aggressive environment, heat radiation, high humidity, dusty, explosion hazardous area). In that case, please ask us for develop an appropriate technical solution

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})

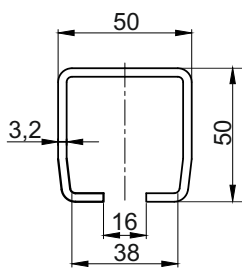
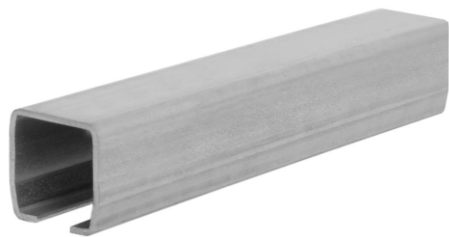
$$L_c = L + L_{zk} + L_{wkz}$$

- 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

Cable trolleys and accessories for C-rail system



Rails C3

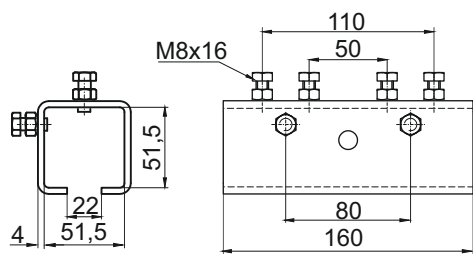


Material:
- cold formed, Sendzimir galvanized steel PN-EN 10327

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]
2500.10	C3/6	6000	16,9	6,1	3,94

Track coupler LC31



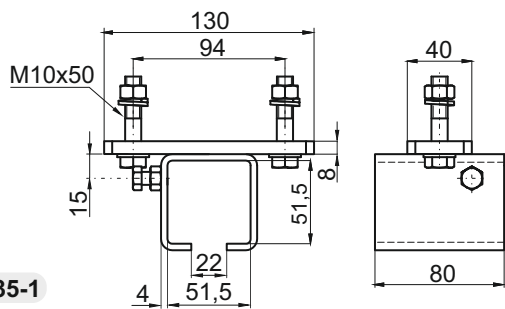
Material:
body - dip galvanized steel
bolts, nuts - galvanized steel

Catalog No.	Type	Weight [kg]
2501.00	LC31	1,07

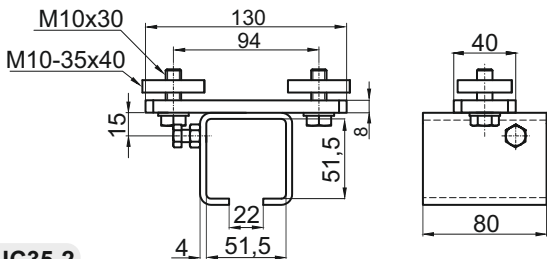
Track support brackets UC35-1, UC35-2



UC35-1



UC35-2



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

Maximum load: **200 kg**

Catalog No.	Type	Weight [kg]
2502.30	UC35-1	0,95
2502.31	UC35-2	0,98

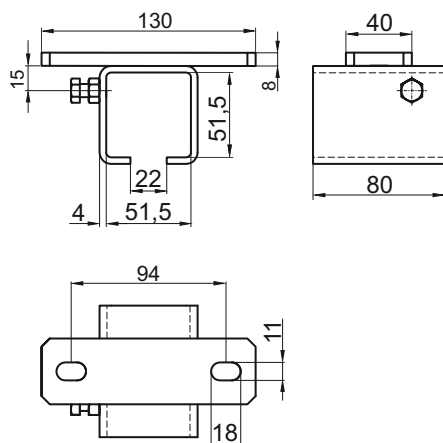
Cable trolleys and accessories for C-rail system



Track support bracket UC35-3



UC35-3



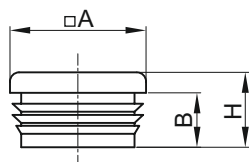
Material:

body - dip galvanized steel
bolts, nuts - galvanized steel

Maximum load: **200 kg**

Catalog No.	Type	Weight [kg]
2502.32	UC35-3	0,83

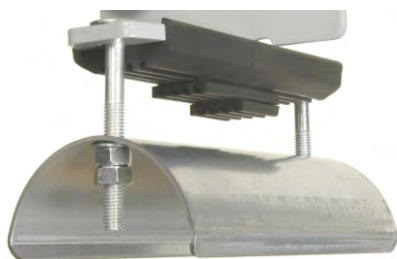
End caps P50



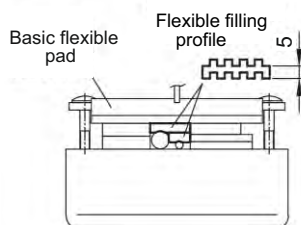
Material: plastic

Catalog No.	Type	For rail	Dimensions [mm]			Weight [kg]
			a	b	h	
1013.02	P50	C3	50	24,5	31,0	0,006

Flexible filing profile PRW-01



Example



Material: thermoplastic elastomer

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

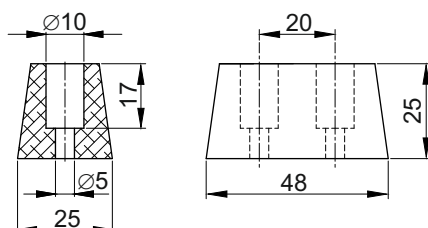
Catalog No.	Type	Weight [kg/m]
1075.00	PRW-01	0,150

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.

Bumper ZG-03

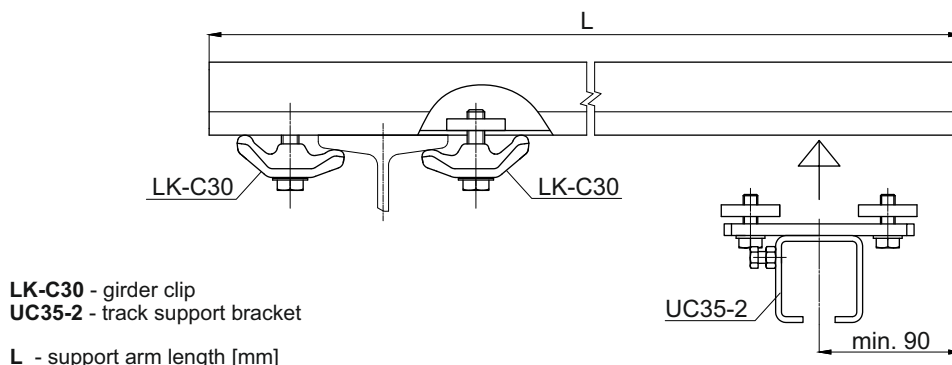
KC3 062019 EN



Material: rubber EPDM

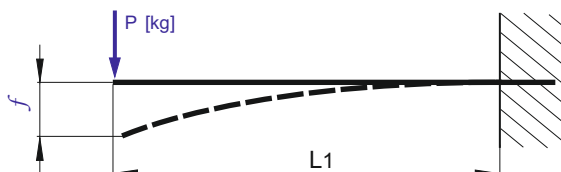
Catalog No.	Type	Weight [kg]
1080.40	ZG-03	0,030

Examples of mounting support arms with girder clips



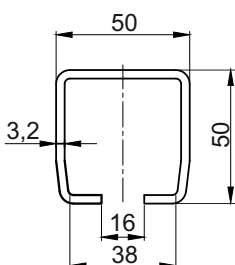
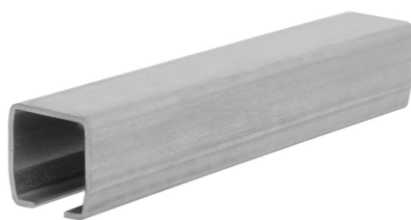
Permissible support arm load

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



Support arm profile	L1 [mm]	
C3 50x50x3,2 mm	700	900
P [kg]	116,05	89,73
f [mm]	4,0	6,9

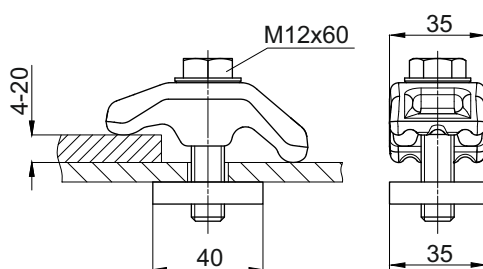
Support arm profile C3



Material:
 - cold formed, Sendzimir galvanized steel PN-EN 10327

Catalog No.	Type	Length L [mm]	Weight [kg]
2506.05	KL-C3/800	800	3,15
2506.06	KL-C3/1000	1000	3,94

Girder clip LK-C30



Material:
girder clip - galvanized forged steel
spherical washer - galvanized steel
bolt - galvanized steel
square nut - galvanized steel

Mechanical strength: **450 [daN]**

Catalog No.	Type	Weight [kg]
1005.40	LK-C30	0,263

Cable trolleys for flat cables sign example



Cable trolleys sign example:

WK-P3-200x111xD125
WKZ-P3-200x111xD125

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



End clamps sign example:

ZK-P3-171x111xD125

Type _____
End clamp length [mm] _____
Cable support width [mm] _____
Cable support diameter [mm] _____

Cable trolleys for round cables sign example



Cable trolleys sign example:

WK-R3-250x175xD200
WKZ-R3-250x175xD200

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



End clamps sign example:

ZK-R3-221x175xD200

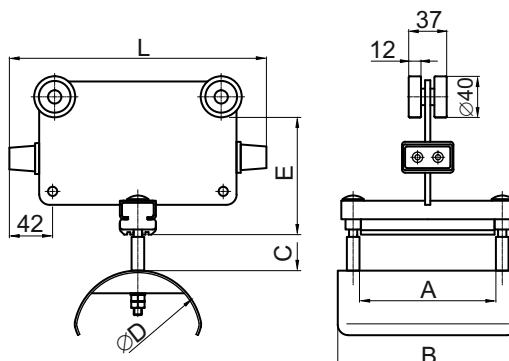
Type _____
End clamp length [mm] _____
Cable support width [mm] _____
Cable support diameter [mm] _____

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



Cable trolleys

series **C31P**



Material:

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

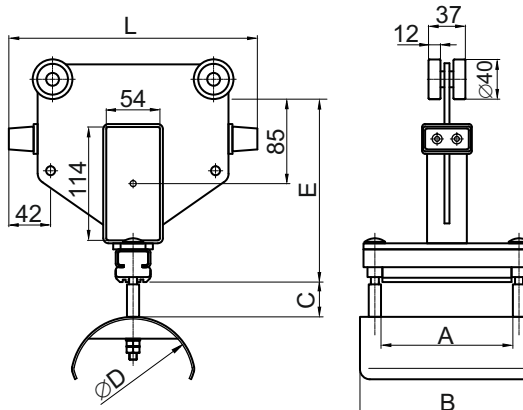
Maximum trolley speed: **100 m/min**
 Working temperature: **-30°C to +80°C**
 Maximum trolley load: **50 kg**

! The flexible profile **PRW-01** is helpful to fill gaps in the set of cables (page 7)

Catalog No.	Type	Dimensions [mm]						Weight [kg]
		L	D	A	B	E	C _{max}	
2510.11	WK-P3-200x111xD125	200	125	66	111	121	30	2,10
2510.12	WK-P3-200x175xD125			130	175			2,27
2510.21	WK-P3-250x111xD125	250	125	66	111	134	55	2,45
2510.22	WK-P3-250x175xD125			130	175			2,61
2510.23	WK-P3-250x175xD160		160				40	2,85
2510.24	WK-P3-250x206xD160			161	206			3,02

Towing trolleys

series **C31P**



Material:

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

Maximum trolley speed: **100 m/min**
 Working temperature: **-30°C to +80°C**
 Maximum trolley load: **50 kg**

! The flexible profile **PRW-01** is helpful to fill gaps in the set of cables (page 7)

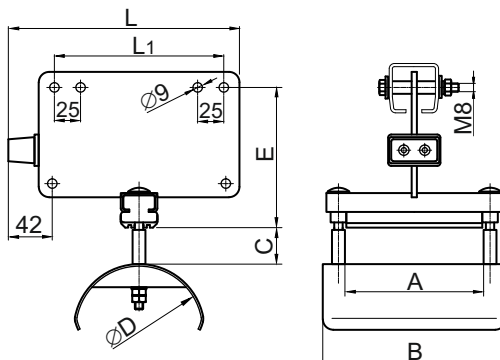
Catalog No.	Type	Dimensions [mm]						Weight [kg]
		L	D	A	B	E	C _{max}	
2511.11	WKZ-P3-200x111xD125	200	125	66	111	204	30	2,80
2511.12	WKZ-P3-200x175xD125			130	175			2,97
2511.21	WKZ-P3-250x111xD125	250	125	66	111		55	3,15
2511.22	WKZ-P3-250x175xD125			130	175			3,31
2511.23	WKZ-P3-250x175xD160		160				40	3,55
2511.24	WKZ-P3-250x206xD160			161	206			3,75

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



End clamps

series **C31P**



Material:

body	- dip galvanized steel
spacer sleeves	- galvanized steel
cable support	- dip galvanized steel
pressure pad	- thermoplastic elastomer
bumpers	- rubber EPDM
bolts, nuts	- galvanized steel

Working temperature: **-30°C to +80°C**
Maximum end clamp load: **50 kg**

! The flexible profile **PRW-01**  is helpful to fill gaps in the set of cables (page 7)



Example of end clamps
mounting in rail C3

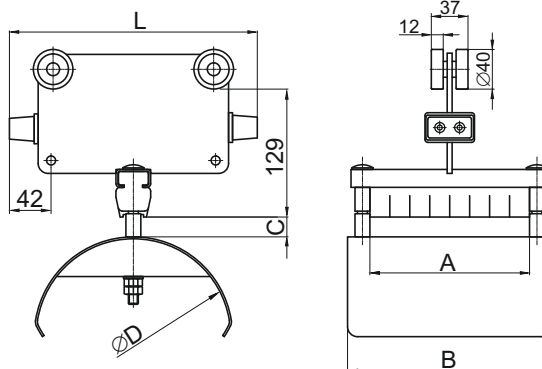
Catalog No.	Type	Dimensions [mm]							Weight [kg]
		L	L1	D	A	B	E	C _{max}	
2512.11	ZK-P3-171x111xD125	171	112	125	66	111	121	30	1,85
2512.12	ZK-P3-171x175xD125				130	175			2,02
2512.21	ZK-P3-221x111xD125	221	162		66	111	134	55	2,20
2512.22	ZK-P3-221x175xD125				130	175			2,36
2512.23	ZK-P3-221x175xD160			160	130	175		40	2,60
2512.24	ZK-P3-221x206xD160				161	206			2,77

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



Cable trolleys

series **C31R**



Material:

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

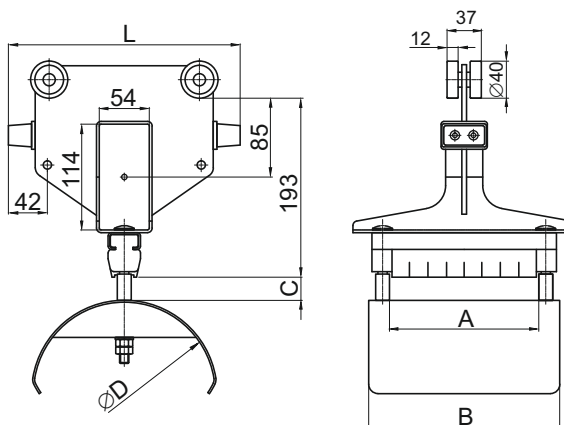
! The flexible profile **PRW-01** is helpful to fill gaps in the set of cables (page 7)

Maximum trolley speed: **100 m/min**
Working temperature: **-30°C to +80°C**
Maximum trolley load: **50 kg**

Catalog No.	Type	Dimensions [mm]					Weight [kg]
		L	D	A	B	C _{max}	
2530.11	WK-R3-250x175xD200	250	200	130	175	25	3,17
2530.12	WK-R3-250x206xD200			161	206		3,50
2530.13	WK-R3-250x240xD200			195	240		3,75

Towing trolleys

series **C31R**



Material:

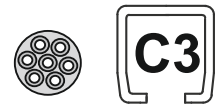
- body** - dip galvanized steel
- rollers** - covered rolling bearings
- axle** - galvanized steel
- cable support** - dip galvanized steel
- pressure pad** - thermoplastic elastomer
- bumpers** - rubber EPDM
- bolts, nuts** - galvanized steel

! The flexible profile **PRW-01** is helpful to fill gaps in the set of cables (page 7)

Maximum trolley speed: **100 m/min**
Working temperature: **-30°C to +80°C**
Maximum trolley load: **50 kg**

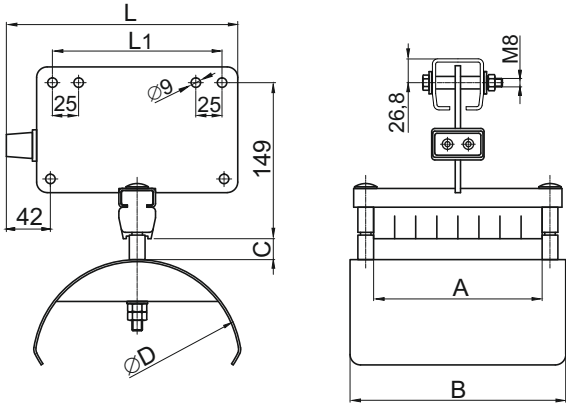
Catalog No.	Type	Dimensions [mm]					Weight [kg]
		L	D	A	B	C _{max}	
2531.11	WKZ-R3-250x175xD200	250	200	130	175	25	3,99
2531.12	WKZ-R3-250x206xD200			161	206		4,23
2531.13	WKZ-R3-250x240xD200			195	240		4,46

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



End clamps

series **C31R**



- Material:**
- body** - dip galvanized steel
 - spacer sleeves** - galvanized steel
 - cable support** - dip galvanized steel
 - pressure pad** - thermoplastic elastomer
 - bumpers** - rubber EPDM
 - bolts, nuts** - galvanized steel

Working temperature: **-30°C to +80°C**
Maximum end clamp load: **50 kg**



Example of end clamps
mounting in rail C3

! The flexible profile **PRW-01**  is helpful to fill gaps
in the set of cables (page 7)

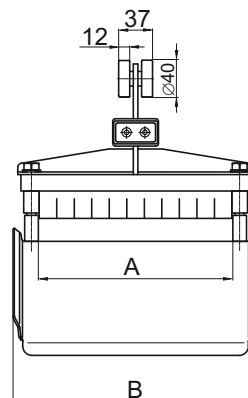
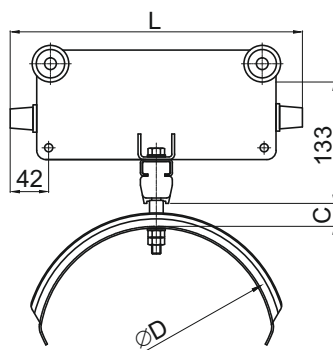
Catalog No.	Type	Dimensions [mm]						Weight [kg]
		L	L1	D	A	B	C _{max}	
2532.11	ZK-R3-221x175xD200	221	162	200	130	175	25	2,98
2532.12	ZK-R3-221x206xD200				161	206		3,26
2532.13	ZK-R3-221x240xD200				195	240		3,51

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



Cable trolleys

series **C32R**



Material:

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

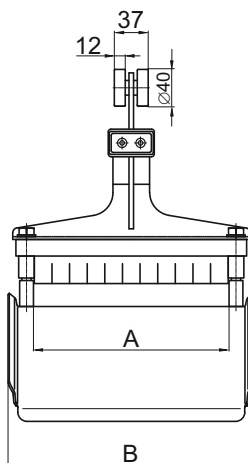
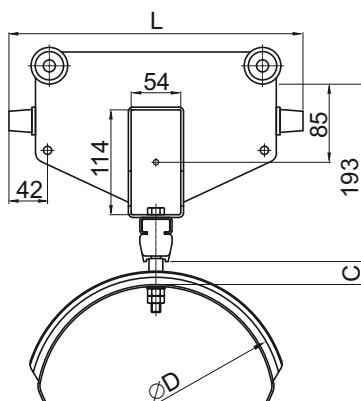
! The flexible profile **PRW-01** is helpful to fill gaps in the set of cables (page 7)

Maximum trolley speed: **100 m/min**
Working temperature: **-30°C to +80°C**
Maximum trolley load: **50 kg**

Catalog No.	Type	Dimensions [mm]					Weight [kg]
		L	D	A	B	C _{max}	
2530.21	WK-R3-320x216xD260	320	260	161	216	25	4,74
2530.22	WK-R3-320x268xD260			213	268		5,08

Towing trolleys

series **C32R**



Material:

- body** - dip galvanized steel
- rollers** - covered rolling bearings
- axle** - galvanized steel
- cable support** - dip galvanized steel
- 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 7)

Maximum trolley speed: **100 m/min**
Working temperature: **-30°C to +80°C**
Maximum trolley load: **50 kg**

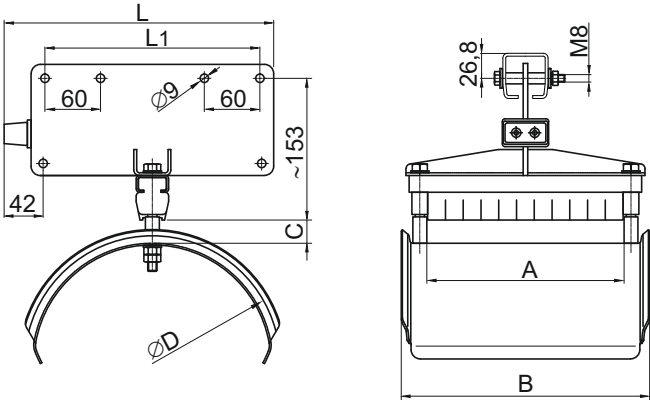
Catalog No.	Type	Dimensions [mm]					Weight [kg]
		L	D	A	B	C _{max}	
2531.21	WKZ-R3-320x216xD260	320	260	161	216	25	4,91
2531.22	WKZ-R3-320x268xD260			213	268		5,25

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



End clamps

series **C32R**



- Material:**
- body** - dip galvanized steel
 - spacer sleeves** - galvanized steel
 - cable support** - dip galvanized steel
 - pressure pad** - thermoplastic elastomer
 - bumpers** - rubber EPDM
 - bolts, nuts** - galvanized steel

Working temperature: **-30°C to +80°C**
Maximum end clamp load: **50 kg**



Example of end clamps
mounting in rail C3

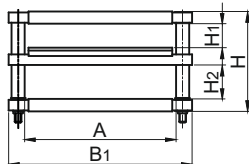
! The flexible profile **PRW-01**  is helpful to fill gaps
in the set of cables (page 7)

Catalog No.	Type	Dimensions [mm]						Weight [kg]
		L	L1	D	A	B	C _{max}	
2532.21	ZK-R3-291x216xD260	291	232	260	161	216	25	4,44
2532.22	ZK-R3-291x268xD260				213	268		4,78

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



Clamping frame for flat cables



Material: body - galvanized steel PVC covered
 spacers - polyamide
 flexible filing profile - thermoplastic elastomer
 axles - galvanized steel
 bolts, nuts - galvanized steel



Exam[ple]

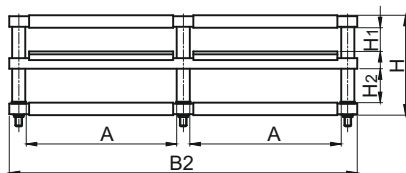
Catalog No.	Type	Dimensions [mm]					Weight [kg]
		A	B1	H1	H2	H	
3150.11	UKP-115x50-1	88	115	5	15	50	0,220
3150.12	UKP-115x60-1			10	20	60	0,230
3150.13	UKP-115x70-1			15	25	70	0,235
3154.11	UKP-130x60-1	104	130	5	15	60	0,240
3154.12	UKP-130x70-1			10	20	70	0,250
3154.13	UKP-130x80-1			15	25	80	0,260
3154.14	UKP-130x90-1			20	30	90	0,265
3151.11	UKP-162x60-1	135	162	5	15	60	0,280
3151.12	UKP-162x70-1			10	20	70	0,290
3151.13	UKP-162x80-1			15	25	80	0,300
3151.14	UKP-162x90-1			20	30	90	0,305

Other sizes are possible

Sectional clamping frame for flat cables



Material: body - galvanized steel PVC covered
 spacers - polyamide
 flexible filing profile - thermoplastic elastomer
 axles - galvanized steel
 bolts, nuts - galvanized steel



Catalog No.	Type	Dimensions [mm]					Weight [kg]
		A	B2	H1	H2	H	
3153.21	UKP-288x60-2	125	288	10	20	60	0,515
3153.22	UKP-288x70-2			15	25	70	0,520
3153.23	UKP-288x80-2			20	30	80	0,530
3153.24	UKP-288x90-2			25	35	90	0,540

Other sizes are possible

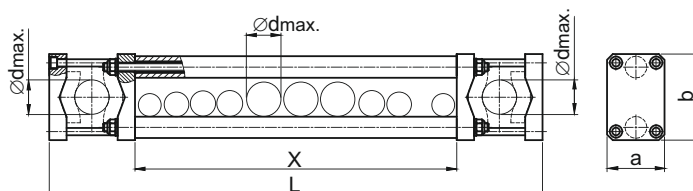
Cable trolleys and accessories for C-rail system for round cables



Clamping frame for round cables



Material: body - aluminum
spacers - aluminum
flexible filing profile - thermoplastic elastomer
axles - galvanized steel
bolts, nuts - galvanized steel



Example

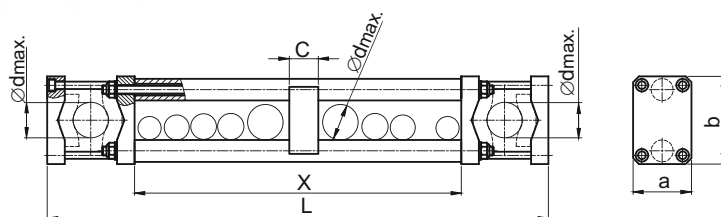
Catalog No.	Type	Dimensions [mm]						Weight [kg]
		d _{max}	X	L	a	b	C	
3160.11	UKR-170-1	26	80	170	40	60	20	0,530
3160.12	UKR-225-1		135	225				0,575
3160.13	UKR-255-1		165	255				0,600
3160.14	UKR-290-1		200	290				0,630
3160.15	UKR-305-1		215	305				0,645

Other sizes are possible

Sectional clamping frame for round cables



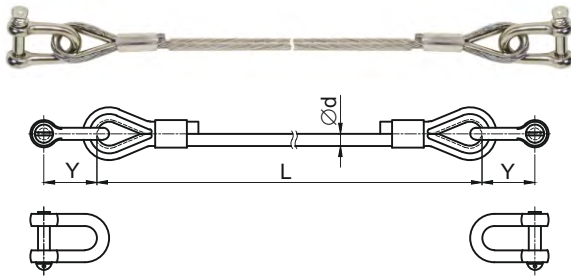
Material: body - aluminum
spacers - aluminum
flexible filing profile - thermoplastic elastomer
axles - galvanized steel
bolts, nuts - galvanized steel



Catalog No.	Type	Dimensions [mm]						Weight [kg]
		d _{max}	X	L	a	b	C	
3162.01	UKR-270-2	26	150	270	40	60	20	0,600
3162.02	UKR-320-2		200	320				0,640
3162.03	UKR-380-2		260	380				0,695
3162.04	UKR-440-2		320	440				0,750
3162.05	UKR-520-2		400	520				0,810

Other sizes are possible.

PVC covered steel rope ties with shackle



Material: rope - galvanized steel PVC covered
rope thimble - stainless steel AISI 316
shackle - stainless steel AISI 316

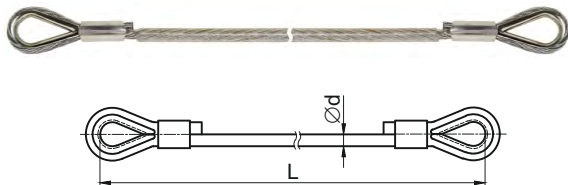
*) – Add length **L** [mm] to the catalog number

Steel rope length rangers L [mm]	PVC covered steel rope ties with shackle					
	Ø4 / Ø6 [mm]		Y [mm]	Ø6 / Ø8 [mm]		Y [mm]
	Catalog No.	Type		Catalog No.	Type	
do 2000	3000.10A-2	CLSS-4/6-2- L*	27	3000.20A-2	CLSS-6/8-2- L*	35
2001 ÷ 3000	3000.10A-3	CLSS-4/6-3- L*		3000.20A-3	CLSS-6/8-3- L*	
3001 ÷ 4000	3000.10A-4	CLSS-4/6-4- L*		3000.20A-4	CLSS-6/8-4- L*	
4001 ÷ 5000	3000.10A-5	CLSS-4/6-5- L*		3000.20A-5	CLSS-6/8-5- L*	
5001 ÷ 6000	3000.10A-6	CLSS-4/6-6- L*		3000.20A-6	CLSS-6/8-6- L*	
6001 ÷ 7000	3000.10A-7	CLSS-4/6-7- L*		3000.20A-7	CLSS-6/8-7- L*	
7001 ÷ 8000	3000.10A-8	CLSS-4/6-8- L*		3000.20A-8	CLSS-6/8-8- L*	
8001 ÷ 9000	3000.10A-9	CLSS-4/6-9- L*		3000.20A-9	CLSS-6/8-9- L*	
9001 ÷ 10000	3000.10A-10	CLSS-4/6-10- L*		3000.20A-10	CLSS-6/8-10- L*	

Ø4/Ø6 mm **A** steel rope tie weight = 0,084 [kg] × **L** [m] + 0,064 [kg]

Ø6/Ø8 mm **A** steel rope tie weight = 0,168 [kg] × **L** [m] + 0,154 [kg]

PVC covered steel rope ties without shackle



Material: rope - galvanized steel PVC covered
rope thimble - stainless steel AISI 316
shackle - stainless steel AISI 316

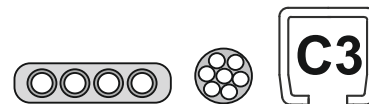
*) – Add length **L** [mm] to the catalog number

Steel rope length ranges L [mm]	PVC covered steel rope ties without shackle			
	Ø4 / Ø6 [mm]		Ø6 / Ø8 [mm]	
	Catalog No.	Type	Catalog No.	Type
do 2000	3000.10B-2	CLS-4/6-2- L*	3000.20B-2	CLS-6/8-2- L*
2001 ÷ 3000	3000.10B-3	CLS-4/6-3- L*	3000.20B-3	CLS-6/8-3- L*
3001 ÷ 4000	3000.10B-4	CLS-4/6-4- L*	3000.20B-4	CLS-6/8-4- L*
4001 ÷ 5000	3000.10B-5	CLS-4/6-5- L*	3000.20B-5	CLS-6/8-5- L*
5001 ÷ 6000	3000.10B-6	CLS-4/6-6- L*	3000.20B-6	CLS-6/8-6- L*
6001 ÷ 7000	3000.10B-7	CLS-4/6-7- L*	3000.20B-7	CLS-6/8-7- L*
7001 ÷ 8000	3000.10B-8	CLS-4/6-8- L*	3000.20B-8	CLS-6/8-8- L*
8001 ÷ 9000	3000.10B-9	CLS-4/6-9- L*	3000.20B-9	CLS-6/8-9- L*
9001 ÷ 10000	3000.10B-10	CLS-4/6-10- L*	3000.20B-10	CLS-6/8-10- L*

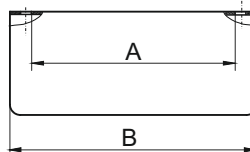
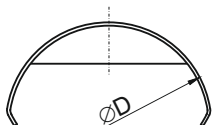
Ø4/Ø6 mm **B** PVC shielded steel rope tie weight = 0,084 [kg] × **L** [m] + 0,010 [kg]

Ø6/Ø8 mm **B** PVC shielded steel rope tie weight = 0,168 [kg] × **L** [m] + 0,014 [kg]

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



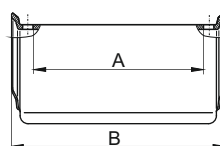
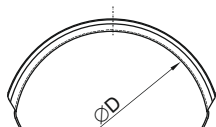
Strengthened steel cable supports



Material: galvanized steel

Catalog No.	Type	Dimensions [mm]			Weight [kg]
		D	A	B	
1082.01	D125x112	125	72	112	0,098
1082.02	D125x175		135	175	0,670
1082.03	D160x175	160	135	175	0,915
1082.04	D160x206		161	206	1,040
1082.06	D200x175	200	135	175	1,200
1082.07	D200x206		161	206	1,340
1082.08	D200x240		195	240	1,500

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

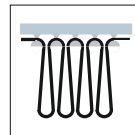
Cable trolleys and accessories for C-rail system



Cables for crane industry – general information

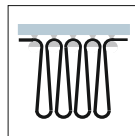
UNILIFT has got a wide offer of festoon cables made by leading producers. Below is the list of typical cables. These cables are mainly applied in: festoon systems, cable reels, energy guiding chains, etc.

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):



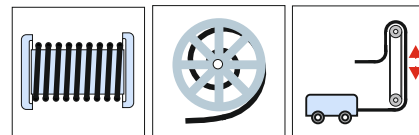
- H05VVH6-F
- H07VVH6-F
- YFLY, KYFLY
- YCFLY, YFCLY, KYCFLY, KYFLCY (EMV)
- NGFLGOU UL
- M(StD)HOU UL (EMC)
- LOSH

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

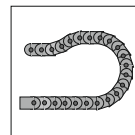
Festoon systems consist **round cables** characterized by flexibility and very low curve radius. Here are the main types of flat cables (insulation PUR and rubber, shielded or unshielded):



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

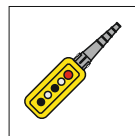
For energy guiding chains the most commonly used cables are:

- 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



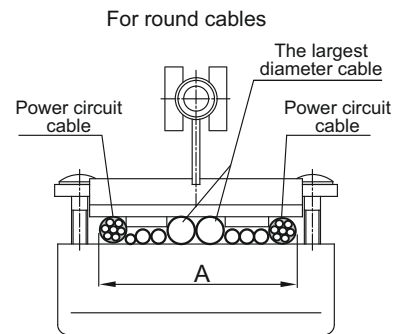
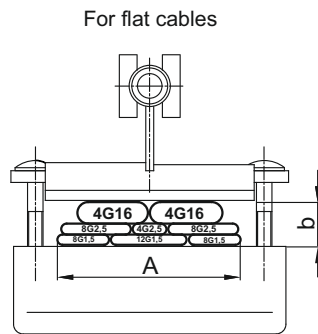
More information is contained in our catalog: „*Electrical cables for cranes, elevators and conveyor systems*”.

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:

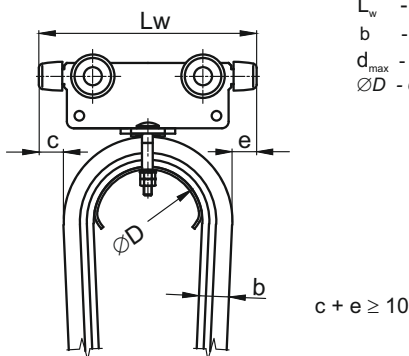
$$F_{kw} = 2 \cdot h \cdot G_k \text{ [kg]}$$

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:

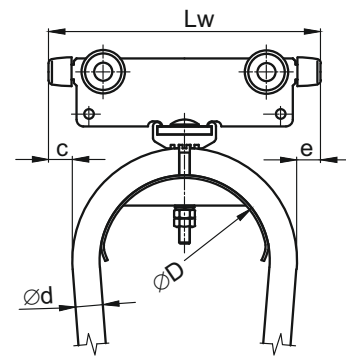
$$L_w = \varnothing D + 2 \cdot b + 10 \text{ [mm]}$$



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

For round cables:

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

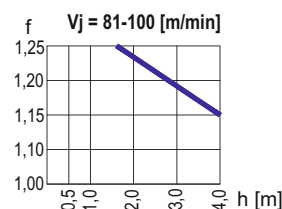
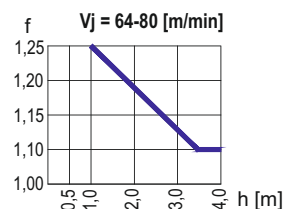
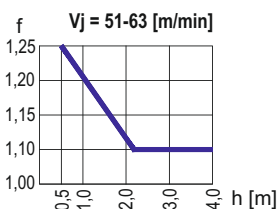
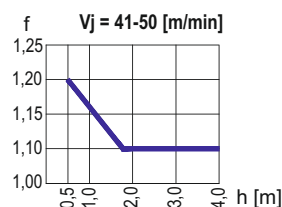
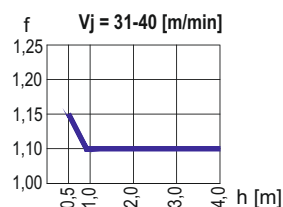
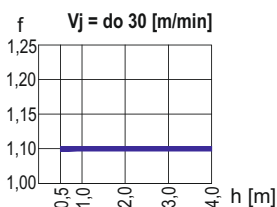


3. Cable length addition coefficient in festoon system

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.

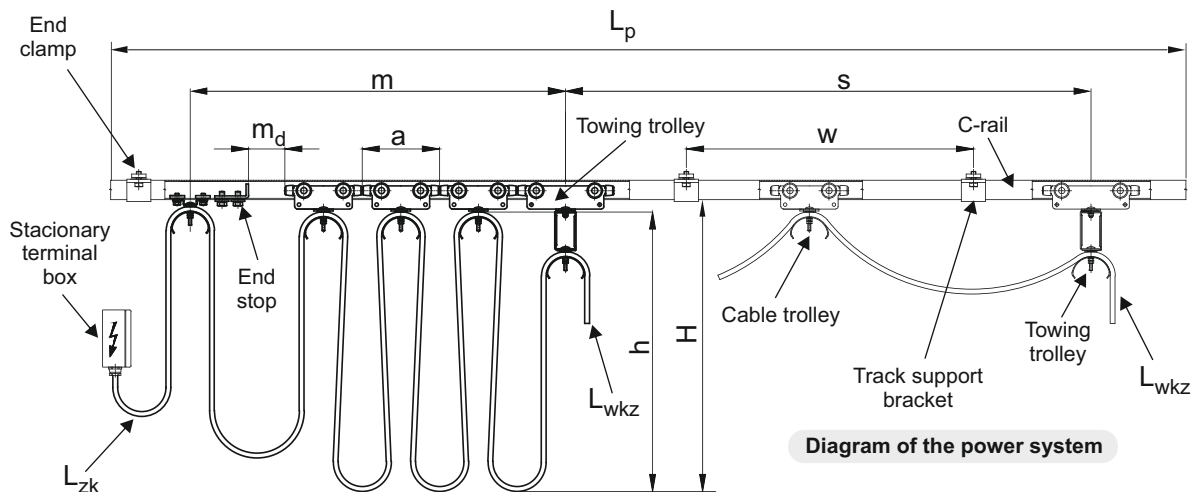
Inspection and maintenance of supply line

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

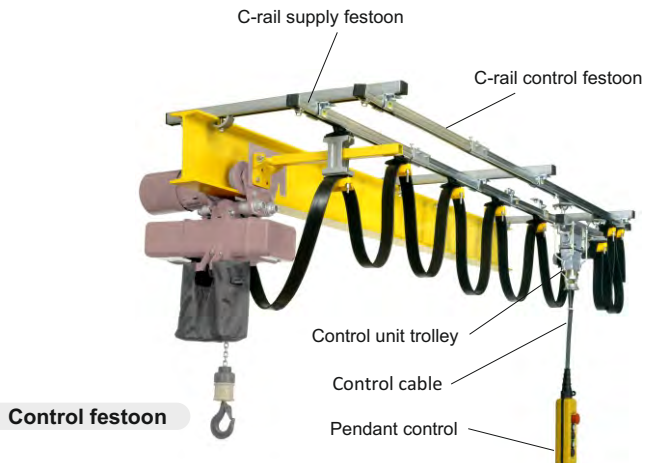
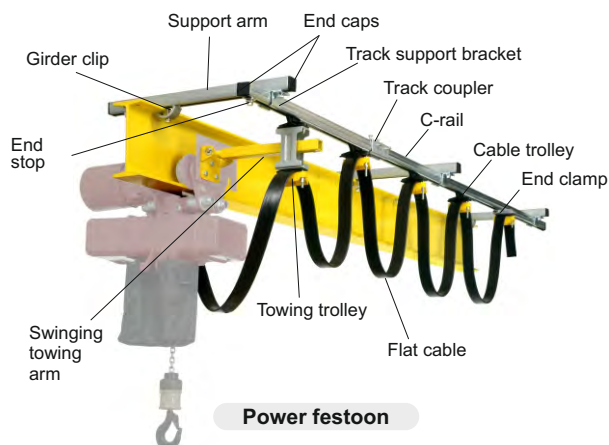
Inspection range:

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) ☐

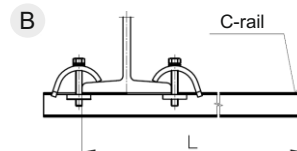
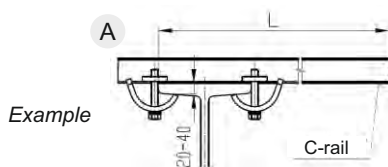
Supply festoon or/and control festoon cable list:

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					

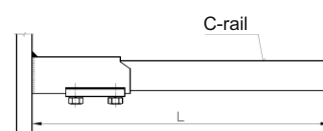
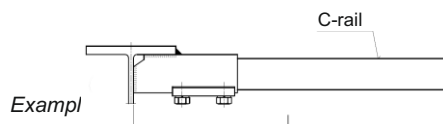
Support arm length: mm

Support arm fastening by girder clips:

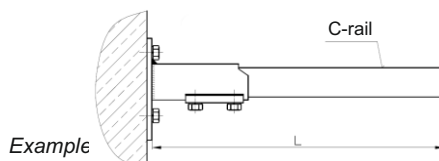
- A on higher shelf ☐
- B on lower ☐



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



UNILIFT®



UNILIFT

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