

wampfler



CABLE TROLLEYS and ACCESSORIES

Programme 240

for C-rail 40 x 40



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SUMMARY OF PROGRAMMES for cable trolleys and accessories












	Track profile		Programme
		Flat cables, round cables, Pg-glands, terminal boxes, terminal clamps	130/ 200
		Cable trolleys running on steel rope \varnothing 6-12 mm	210/ 215
		Cable trolleys running on I-beam light construction	220
		Cable trolleys running in C-rail 30 x 32	230
		Cable trolleys running in C-rail 40 x 40	240 240
		Cable trolleys running in C-rail 50 x 50	250
		Cable trolleys running in C-rail 63 x 63	255
		Cable trolleys running in C-rail 80 x 80	260
		Cable trolleys for curved tracks running on square rail 30 x 30 and 40 x 40	270/ 280
		Variable height adjustment for control stations	HFS
		Cable trolleys running on I-beam	320
		Heavy duty cable trolleys and flexible cable systems for high storage ware houses	GLW
		Catalogue number index (NO numbers)	NO

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Catalogue number index (NO numbers)	108-109

VDE specifications

The remarks on the VDE specifications are valid at the revision of the catalogue at the end of 1989.

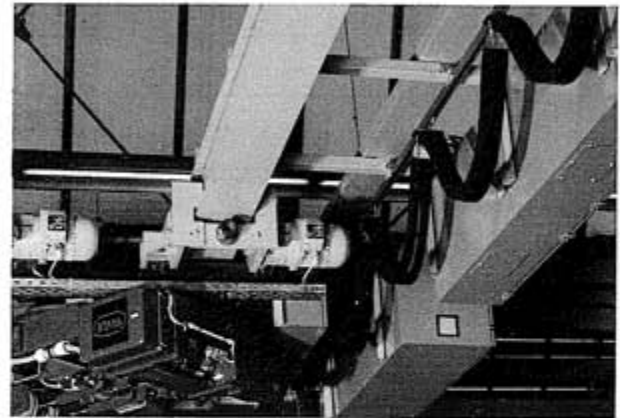
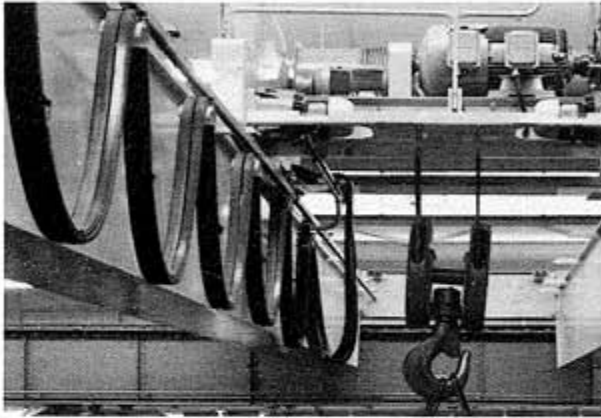
Changes occurring after that date have to be taken into consideration.

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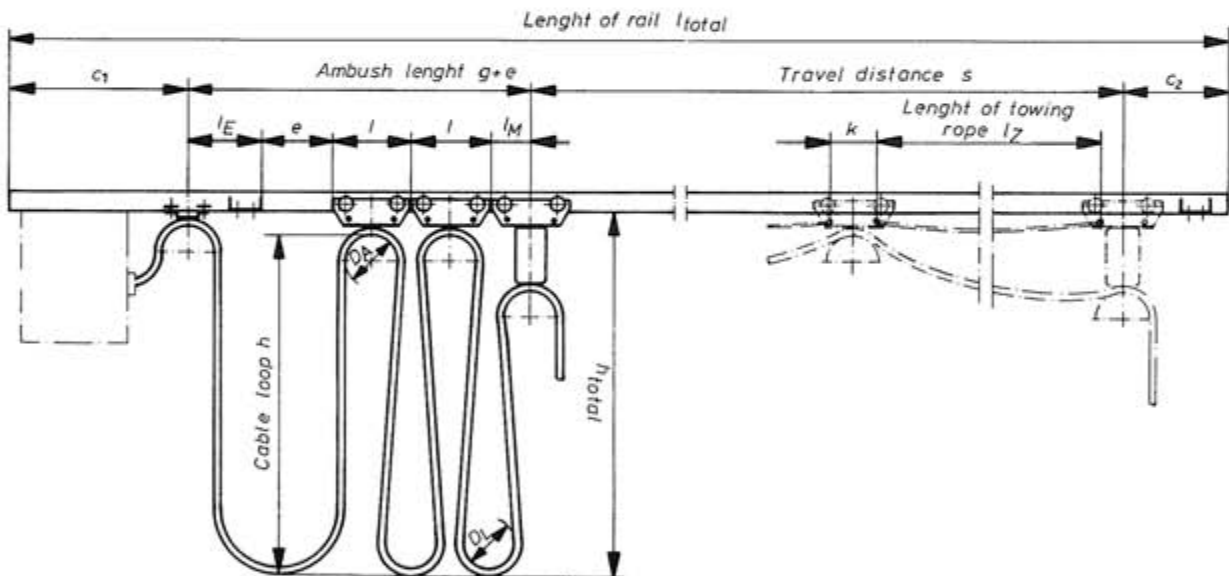
Subject to alteration of construction.

INTRODUCTION

The cable trolleys are suitable for carrying flat and round cables. When using hoses instead of round cables it is possible to transport all kinds of gaseous and liquid media using the same components. Pneumatic lifting gear, pneumatic tools and all kinds of transportable machines and equipment which operate with compressed air are readily supplied with power using these components. Gases such as oxygen, acetylene, propane and many other industrial gases can be very simply conveyed to gas cutting machines, welding machines, oxy-acetylene and similar equipment. An important field is the supply of water to washing plants and sprinkler or cooling systems. Even pest control liquids and fertilisers dissolved in water are reliably transported. There are also many uses in the field of hydraulics.



PROJECTION



Technical data

l_{total} = Length of rail [m]

s = Crab or crane travelling distance [m]

h = Cable loop [m] (measured from top face of cable carrier)

h_{total} = Cable loop [m] (measured from lower face of C-rail)

n = Number of loops

g = Ambush length from centre of end clamp to middle of towing arm [m]
 $g = l_E + (n-1)l + l_M$

l = Length of one cable trolley [m]

e = Tolerance [m]

D_A = Cable support diameter [m]

D_L = Bending diameter of cable loop [m]

d = Min. cable diameter or min. cable thickness [m]

f = Factor for cable length addition

L_{total} = Total length of cable [m]

L_{loop} = Cable length of single loop from centre of support to centre of support [m]

L_Z = Length of towing rope per loop

k = Mounting hole separation for towing rope holes [m]

Length addition

We recommend the following length addition factors f:

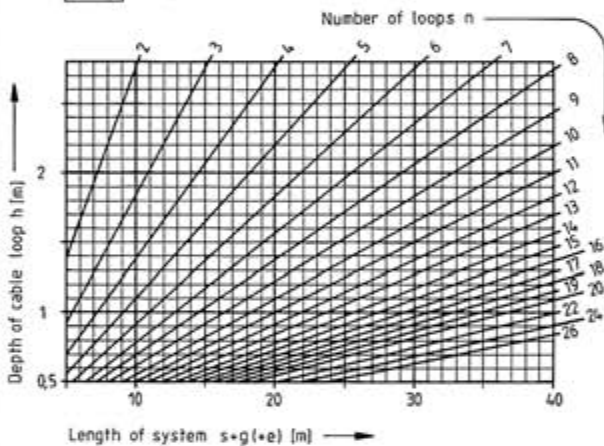
Application	h [m]		0.5 - 0.8	> 0.8 - 1.25	> 1.25 - 2	> 2
	v [m/min]					
Standard operation	Up to 32	32	1.10	1.10	1.10	1.10
	> 32 - 40	40	1.15	1.10	1.10	1.10
	> 40 - 50	50	1.15	1.15	1.10	1.10
	> 50 - 63	63	1.20	1.15	1.15	1.10
	> 63 - 80	80	On inquiry	1.20	1.15	1.15
	> 80 - 100	100	On inquiry	On inquiry	1.20	1.15
Ideal control units	Up to 63		1.10	1.15	1.20	1.25
Round-cables spiral mounted	Up to 63		1.25	1.20	1.20	1.15

Formula and graph, simplified calculation

Number of loops

$$n = f \cdot \frac{s+g}{2h} \quad \text{or} \quad n = f \cdot \frac{s}{2h-f \cdot l}$$

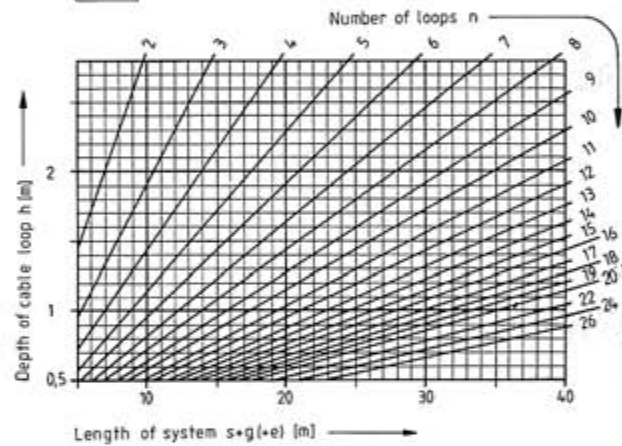
$f = 1.1$ = Length addition 10%



Depth of cable loop

$$h = f \cdot \frac{s+g}{2n} \quad \text{or} \quad h = \frac{f}{2} \left(\frac{s}{n} + l \right)$$

$f = 1.15$ = Length addition 15%



Formula, exact calculation

We recommend that systems using long trolleys, large support diameters and low conditions of installation are calculated using the exact formula.

Number of loops

$$n = f \cdot \frac{s+g+e}{2h+1.25 D_A} \quad \text{or} \quad n = f \cdot \frac{s+e}{2h+1.25 D_A - f \cdot l}$$

Depth of cable loop

$$h = f \cdot \frac{s+g+e}{2n} - 0.63 D_A \quad \text{or} \quad h = \frac{f}{2} \left(\frac{s+e}{n} + l \right) - 0.63 D_A$$

Total length of cable

$$L_{\text{total}} = f(s+g+e) + \Sigma J \quad [\text{m}]$$

Length of individual loop

h = constant

$$L_{\text{loop}} = f \cdot \frac{s+g+e}{n} \quad [\text{m}]$$

h = graduated

$$L_{\text{loop}} = 2h + 1.25 D_A \quad [\text{m}]$$

ΣJ = Length addition for installation on both sides

Control: $\Sigma L_{\text{loop}} = L_{\text{total}} - \Sigma J$

Towing ropes

For high travel speeds and long distances we recommend the use of towing ropes.

Length of towing ropes

h = constant

$$L_S = 0.95 f \left(\frac{s+g+e}{n} \right) - k \quad [\text{m}]$$

h = graduated

$$L_S = 0.95 (2h + 1.25 D_A) - k \quad [\text{m}]$$

PERMISSIBLE LOAD OF CABLE TROLLEYS

The permissible load of the cable trolleys depends on the travel speed, the average travel time per day and the construction of the rollers.

It is advisable not to exceed the listed values for cable trolleys with 4 rollers. For cable trolleys with 2 rollers 40-50 % of the listed values have to be taken as a basis.

Rollers

The necessary construction of the rollers is determined by the intended use and by environmental factors. The rollers are divided into the groups A; B and C according to their operational possibilities and their range of use. The catalogue numbers of the various pairs of special and spare parts rollers can be found on pages 240/50 and 240/51.

Average load capacity

In the tables of dimensions in this catalogue you always find the average load capacity as P_{adm} . Thus improper use will be avoided.

Group A; ball-bearing rollers

The ball-bearing rollers of this programme are of a high quality. Cover washers or sealing discs protect the balls in the cage against dust and humidity. The rollers are filled with a high quality brand name grease, sufficient for lifetime, and need no lubrication. A long working life is guaranteed by this construction.

Group	Roller	Average load capacity ¹⁾ P_{adm} [kg]	$v_{max.2)}$ [m/min]
A 1	Rollers <u>standard design</u> and all special rollers with inner and outer ring of galvanized steel, unground	32	80 (100)
A 2	As A 1, but ground design	32	125
A 3	Precision ball bearing	40	125 ⁴⁾

Travel speed v [m/min]	Average travel time per day [h]				
	Up to 4	4-8	8-16		
Up to 16	Up to 4	4-8	8-16		
More than 16-32	Up to 2	2-4	4-8	8-16	
More than 32-63		Up to 2	2-4	4-8	8-16
More than 63-100			Up to 2	2-4	4-8
More than 100-125				Up to 2	2-4
Roller design	Permissible load per trolley [kg]				
Group A1/A2	50	40	32	25	20
Group A3	63	50	40	32	25

Group	Roller	Average load capacity ¹⁾ P_{adm} [kg]	$v_{max.2)}$ [m/min]
A 4	Special rollers, outer ring with Polyurethane bandage for low noise run	20	125 ⁴⁾

Travel speed v [m/min]	Average travel time per day [h]		
	Up to 16		
Up to 32	Up to 16		
More than 32-63	Up to 8	8-16	
More than 63-125	Up to 4	4-8	8-16
Roller design	Permissible load per trolley [kg] ³⁾ Max. ambient temperature 30°C		
Group A 4	25	20	16

Group	Roller	Average load capacity ¹⁾ P_{adm} [kg]	$v_{max.2)}$ [m/min]
A 5	Special rollers out of V 4 A - material stainless steel, or rollers with Bronze outer ring	16	63 (80)

Travel speed v [m/min]	Average travel time per day [h]				
	Up to 4	4-8	8-16		
Up to 16	Up to 4	4-8	8-16		
More than 16-32	Up to 2	2-4	4-8	8-16	
More than 32-63		Up to 2	2-4	4-8	8-16
More than 63-80			Up to 2	2-4	4-8
Roller design	Permissible load per trolley [kg]				
Group A 5	25	20	16	12.5	10

1) with 4 rollers

2) For cable trolleys with 2 rollers all designs a travel speed of max. 25 m/min is advisable

3) Use of higher ambient temperatures (max. 70°C) on inquiry

4) Higher travel speed on inquiry

Group B and C; rollers with friction bearing

For light duty, low travel speeds, and loads as well as normal environmental conditions cable trolleys with friction bearings are satisfactory. The advantage is lower price and a lower noise level. These rollers are not suitable for curved tracks.

Group	Roller	Average load capacity ¹⁾ P _{adm.} [kg]	v _{max.} ²⁾ [m/min]
B	Rollers of Polyamide running on a stainless steel bush	12.5	50
C	Rollers of Polyamide or Bronze are fastened in pairs on a shaft. The shaft runs in a bronze socket in the centre of the trolley	10	50

Travel speed v [m/min]	Average travel time per day [h]		
	Up to 16	Up to 4	
More than 16-32	Up to 2	2-4	
More than 32-50		Up to 2	2-4
Roller design	Permissible load per trolley [kg]		
Group B	16	12.5	10
Group C	12.5	10	8

1) with 4 rollers

2) It is advisable to use for all cable trolleys with 2 rollers of all designs a travel speed of 25 m/min

VDE SPECIFICATIONS

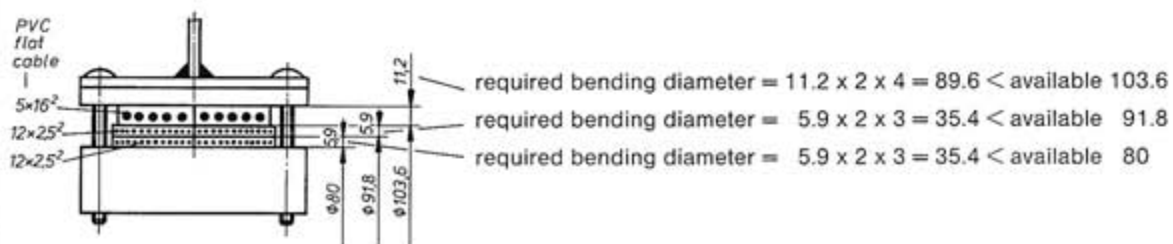
To DIN 57298 part 3/VDE 0298 part 3 table 2 respectively draft DIN VDE 0100 part 726, edition February 1988, table 1 is valid:

Smallest permissible bending radius for flexible cables on cable trolley use:

Rated voltage	Outer diameter of the cable or thickness of the flat cable [mm]		
	Up to 8	More than 8 up to 12	More than 12
Up to 0.6/1kV	3 d	4 d	5 d
More than 0.6/1kV	10 d		

d = Outer diameter of the cable or thickness of the flat cable

When several flat cables are installed on a cable trolley, the flat cable with the greater thickness should be installed at the top.



DESCRIPTION AND LOADING CAPACITY OF C-RAIL TRACKS

In this programme of energy supply systems a C-rail is used as the track profile. The C-rail, which is only open at the bottom and which is made of galvanized steel, protects the chassis of the cable trollys against moisture and dirt and is therefore suitable for indoor or outdoor use. In aggressive atmospheres stainless steel C-rails are recommended.

Technical data

The maximum permissible loading of C-rail tracks can be determined with the aid of the diagrams below. The calculation is based on the following assumptions:

1. The section is suspended from 2 supports and the load is spread over its length symmetrically from the middle
2. Bending strength $\sigma_b = 100 \text{ N/mm}^2$, no account being taken of lower flange stress
3. $\sigma_v \leq 160 \text{ N/mm}^2$, reference stress from bending stress and lower flange stress
4. $f = l_A / 250$ as permissible deflection of the track section due to loading plus its own weight
5. The loading is distributed symmetrically over the track supports along the loaded section of track

Example (red lines)

1. Given:

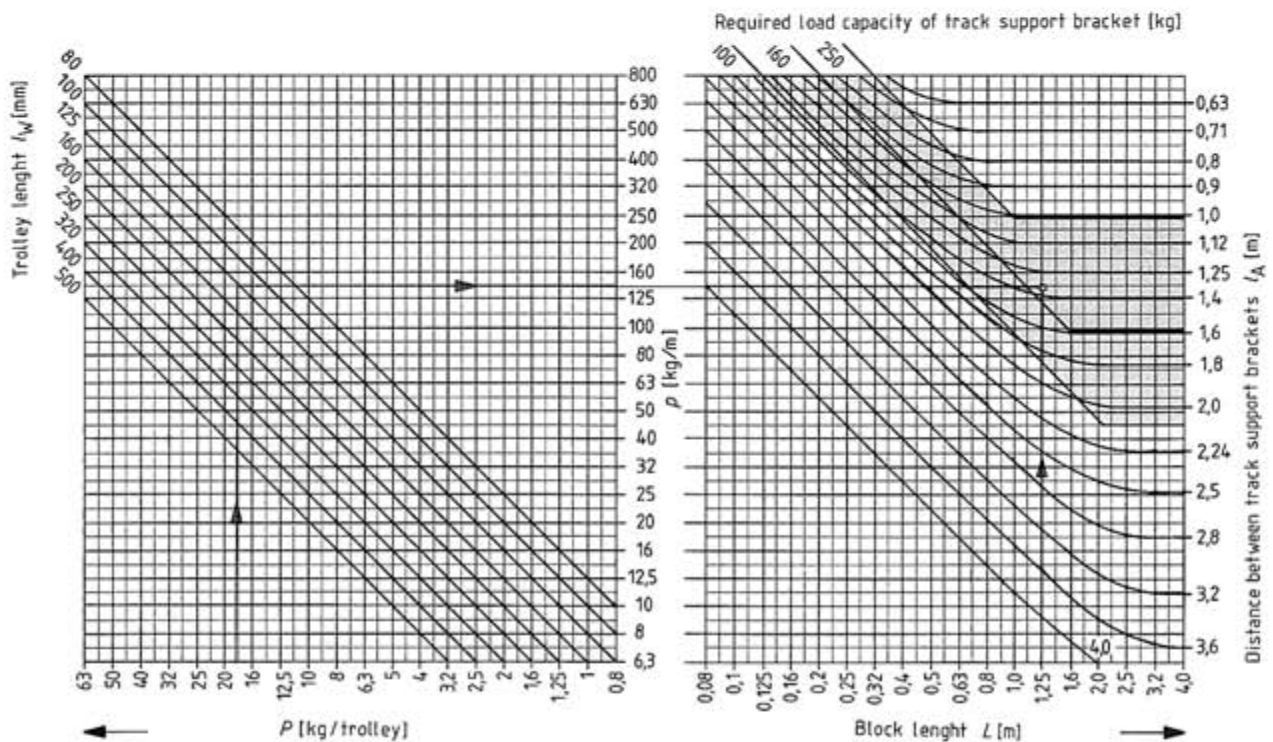
P = Load/trolley including own weight and weight of cable [kg] = 18 kg
 l_w = Length of cable trolley [mm] = 125 mm
 z = Number of cable trolleys = 10
 L = Block length of cable trolleys [m] = 1.25 m
 $= z \cdot l_w / 1000$

2. From diagram:

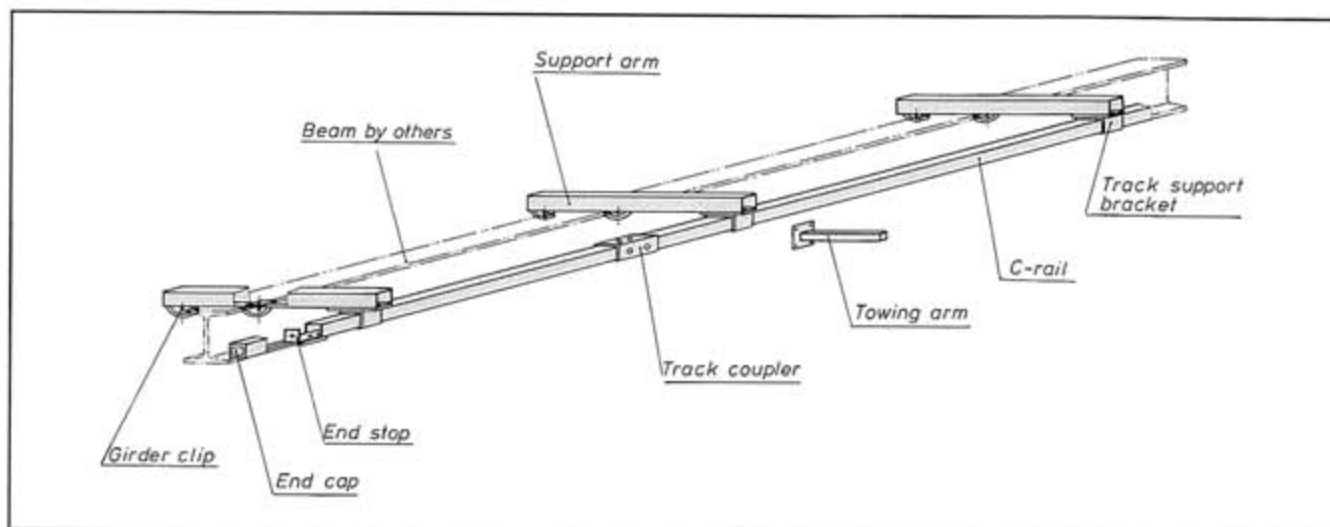
Required distance between track support bracket l_A = 1.3 m
 Required load capacity of track support bracket = 250 kg

Diagram

for C-rail track 0 24100 / 0 24101 / 0 24104 / 0 24109 (40x40x2.5)

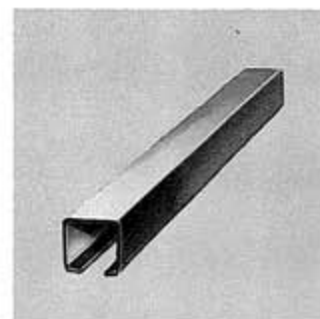
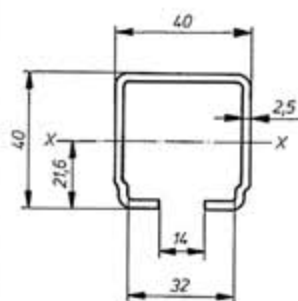


TRACKS AND MOUNTINGS



C-RAIL TRACKS AND CURVES

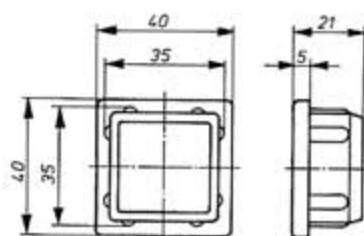
C-RAIL TRACK 0 24100 and 0 24101



Catalogue No.	Type	Length ¹⁾ [mm]	Length tolerance [mm]	Static values		Weight [kg/m]
				I_x [cm ⁴]	W_x [cm ³]	
0 24100-6	steel, galvanized	6000	+ 40	6.74	3.08	2.5
0 24100-4		4000				
0 24101-6	Galv. steel and palstic coated: grey RAL 7001	6000				
0 24101-4		4000				

1) Intermediate sizes, e.g. 3 m or 4.8 m, see pricelist.

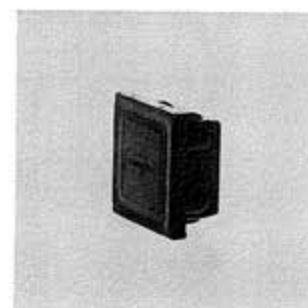
Catalogue No.: **END CAP 0 20662-40**



Material: Plastic

Weight: 0.008 kg

Application: Closing the rail ends.



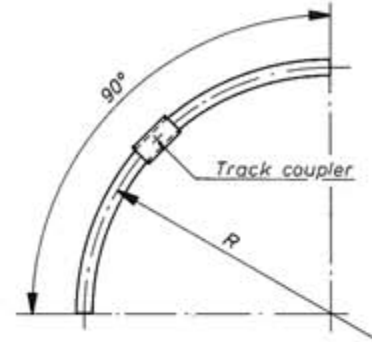
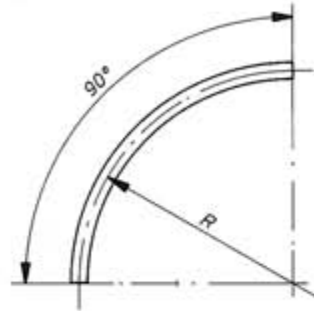
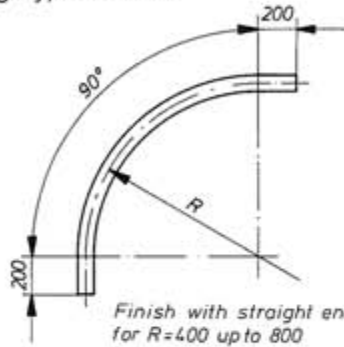
90°-CURVES 0 24102

FINISH: Steel, galvanized

90°-CURVES 0 24103

FINISH: Galvanized steel and plastic coated

Colour: grey, RAL 7001



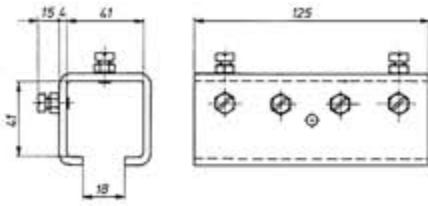
Catalogue No. (90°-curves from C-rail 0 24100)	Catalogue No. (90°-curves from C-rail 0 24101)	R [mm]	Developed length [mm]	Number of track coupler	Depth of loop max. 0.35 x R	For max. trolley length [mm]	Weight [kg]
0 24102-00400	0 24103-00400	400	1028	-	-	-	2.6
0 24102-00600	0 24103-00600	600	1342	-	-	-	3.4
0 24102-00800	0 24103-00800	800	1656	-	-	100	4.1
0 24102-01000	0 24103-01000	1000	1570	-	350	100	3.9
0 24102-01200	0 24103-01200	1200	1885	-	420	125	4.7
0 24102-01400	0 24103-01400	1400	2200	-	490	160	5.5
0 24102-01600	0 24103-01600	1600	2510	-	560	160	6.3
0 24102-01800	0 24103-01800	1800	2830	-	630	200	7.1
0 24102-02000	0 24103-02000	2000	3140	-	700	200	7.9
0 24102-02200	0 24103-02200	2200	3455	-	770	250	8.6
0 24102-02400	0 24103-02400	2400	3770	-	840	250	9.4
0 24102-02600	0 24103-02600	2600	4080	-	910	280	10.2
0 24102-02800	0 24103-02800	2800	4400	-	980	320	11.0
0 24102-03000	0 24103-03000	3000	4710	-	1050	320	11.8
0 24102-03200	0 24103-03200	3200	5025	-	1120	360	12.6
0 24102-03400	0 24103-03400	3400	5340	-	1190	360	13.4
0 24102-03600	0 24103-03600	3600	5650	1	1260	360	14.0
0 24102-03800	0 24103-03800	3800	5970	1	1330	400	14.9
0 24102-04000	0 24103-04000	4000	6280	1	1400	450	15.7
0 24102-04200	0 24103-04200	4200	6595	1	1470	450	16.5
0 24102-04400	0 24103-04400	4400	6910	1	1540	450	17.3
0 24102-04600	0 24103-04600	4600	7220	1	1610	500	18.1
0 24102-04800	0 24103-04800	4800	7540	1	1680	500	18.9
0 24102-05000	0 24103-05000	5000	7850	1	1750	500	19.6
0 24102-05500	0 24103-05500	5500	8635	1	1925	500	22.2
0 24102-06000	0 24103-06000	6000	9420	1	2100	500	24.2
0 24102-06500	0 24103-06500	6500	10205	1	2275	500	26.1
0 24102-07000	0 24103-07000	7000	10990	1	2450	500	28.1
0 24102-07500	0 24103-07500	7500	11775	2	2625	500	30.6
0 24102-08000	0 24103-08000	8000	12560	2	2800	500	32.6
0 24102-08500	0 24103-08500	8500	13345	2	2975	500	34.6
0 24102-09000	0 24103-09000	9000	14130	2	3150	500	36.5
0 24102-09500	0 24103-09500	9500	14915	2	3325	500	38.5
0 24102-10000	0 24103-10000	10000	15700	2	3500	500	40.5

Curves conforming to the above standards can be quickly delivered. For intermediate sizes the price charged will be that of the next larger type. We can, of course, provide you with any required shape and size of curve. Please send a sketch. Price on inquiry.

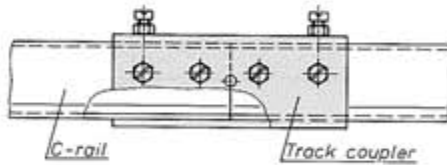
For curved track with U or S-shaped track, circular or other difficult types of track we recommend our flexible cable system for curves programme 270 and 280.

MOUNTINGS

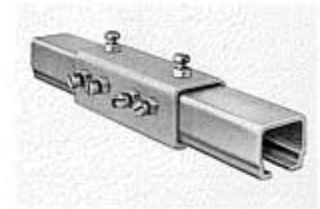
Catalogue No.: **TRACK COUPLER 0 24105**



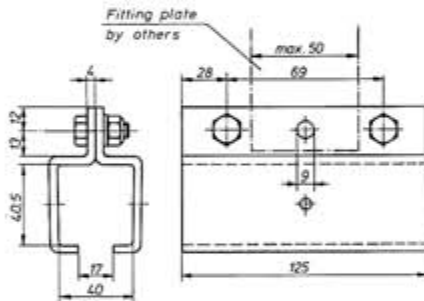
Material: Steel, galvanized
Weight: 0.610 kg



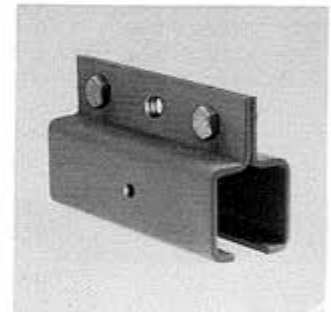
Application: A track coupler must be provided at each track joint.



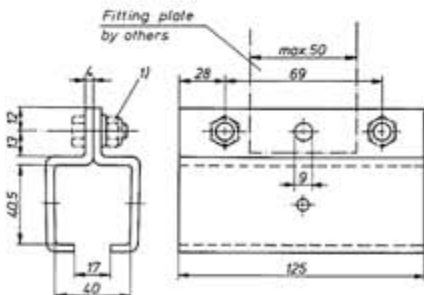
Catalogue No.: **TRACK COUPLER 0 24106 (2-pieces)**



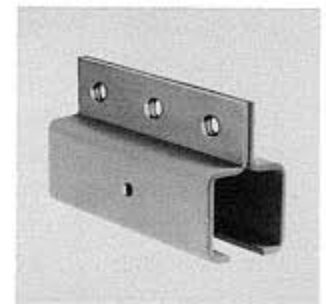
Material: Steel, galvanized
Weight: 0.790 kg



Catalogue No.: **TRACK COUPLER 0 24116 (2-pieces) without fasteners**

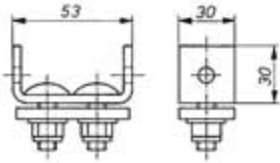


Material: Steel, galvanized
Weight: 0.750 kg

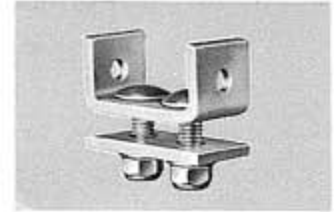


1) Screws, nuts and washers are required for fixing the two plates.

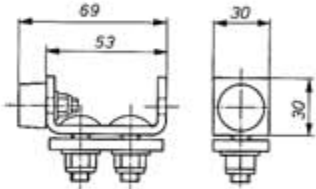
Catalogue No.: **END STOP 0 24110**



Material: steel, galvanized
Weight: 0.160 kg



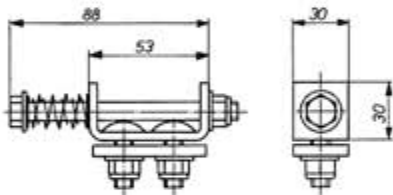
Catalogue No.: **END STOP 0 24111**



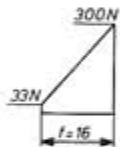
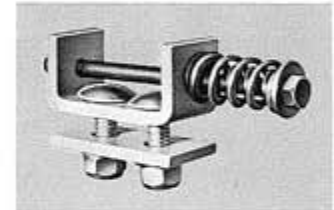
Material: bracket and clamping plate: steel, galvanized
buffer: rubber
fasteners: steel, galvanized
Weight: 0.190 kg



Catalogue No.: **END STOP 0 24112**

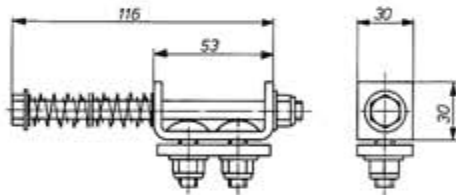


Material: bracket and clamping plate: steel, galvanized
spring: stainless springsteel
fasteners: steel, galvanized
Weight: 0.220 kg

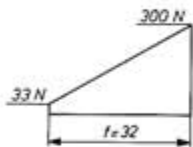
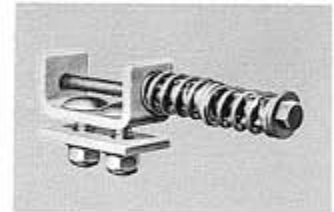


Spring characteristic
Energy absorption 2.65 Nm

Catalogue No.: **END STOP 0 24113**

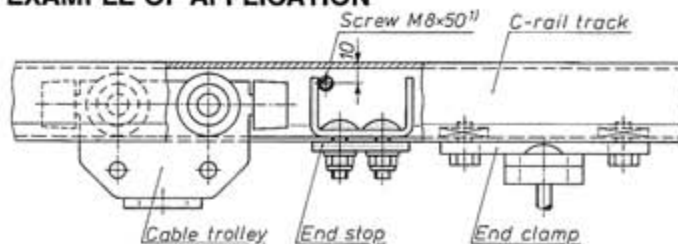


Material: bracket and clamping plate: steel, galvanized
spring: stainless spring steel
fasteners: steel, galvanized
Weight: 0.260 kg



Spring characteristic
Energy absorption 5.3 Nm

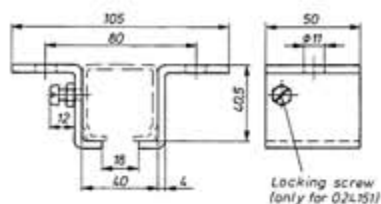
EXAMPLE OF APPLICATION



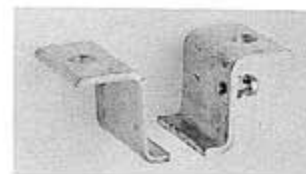
The end stop is installed into the C-rail track between the end clamp and the first cable trolley. So it prevents the cable trolleys from running into the end clamp.

1) To avoid system damage we recommend the fitting of a securing bolt (M8x50) as illustrated.

TRACK SUPPORT BRACKET 0 24150 and 0 24151

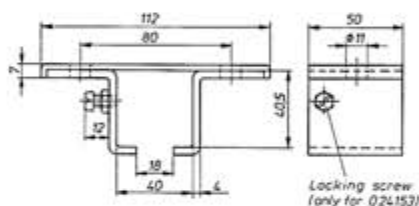


Material: steel, galvanized
Perm. load: 100 kg

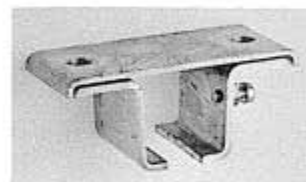


Catalogue No.	Type	Weight [kg]
0 24150	Without locking screw	0.240
0 24151	With locking screw	0.250

TRACK SUPPORT BRACKET 0 24152 and 0 24153



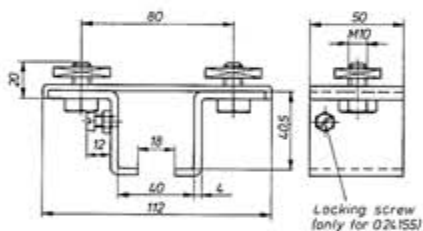
Material: steel, galvanized
Perm. load: 100 kg



Catalogue No.	Type	Weight [kg]
0 24152	Without locking screw	0.350
0 24153	With locking screw	0.360

TRACK SUPPORT BRACKET 0 24154 and 0 24155

with square nuts, to fit track support arm 0 20186 and 0 20276

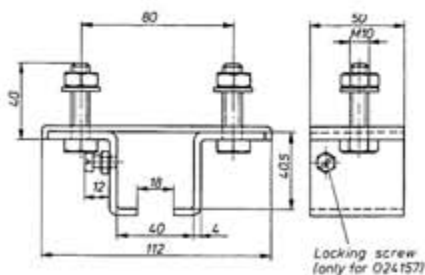


Material: steel, galvanized
Perm. load: 100 kg

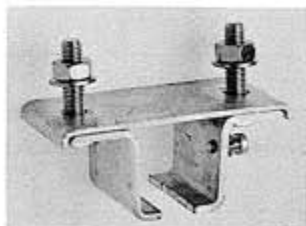


Catalogue No.	Type	Weight [kg]
0 24154	Without locking screw	0.440
0 24155	With locking screw	0.450

TRACK SUPPORT BRACKET 0 24156 and 0 24157

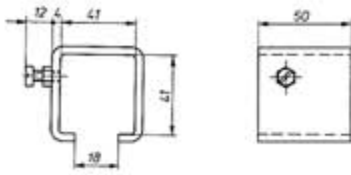


Material: steel, galvanized
Perm. load: 100 kg

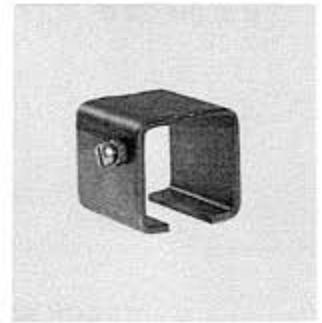


Catalogue No.	Type	Weight [kg]
0 24156	Without locking screw	0.460
0 24157	With locking screw	0.470

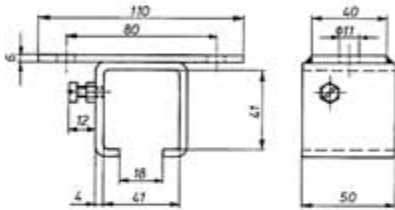
Catalogue No.: **TRACK SUPPORT BRACKET 0 24120**
for welding or for special suspension arrangements



Material: bracket:
steel plate, bare
fasteners: steel, galvanized
Weight: 0.220 kg



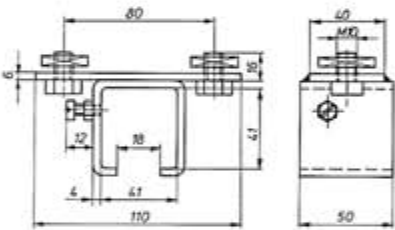
Catalogue No.: **TRACK SUPPORT BRACKET 0 24121**



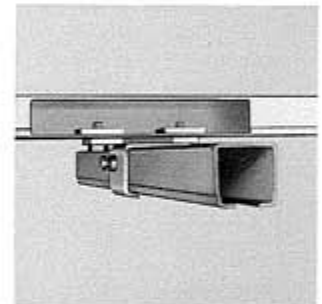
Material: steel, galvanized
Weight: 0.360 kg
Perm. load: 250 kg



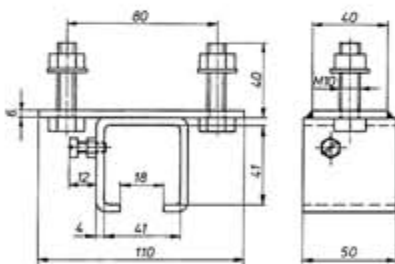
Catalogue No.: **TRACK SUPPORT BRACKET 0 24122**
with square nuts, to fit tracked support arm 0 20186 and 0 20276



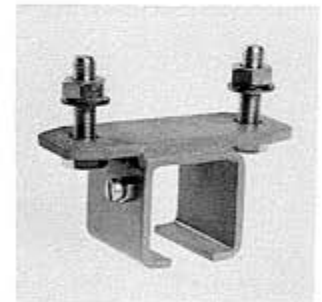
Material: steel, galvanized
Weight: 0.450 kg
Perm. load: 250 kg



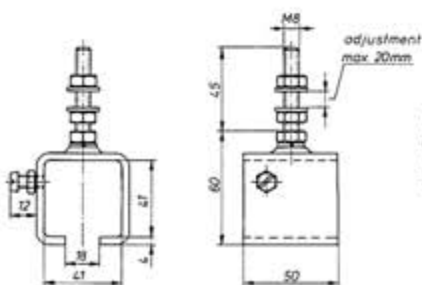
Catalogue No.: **TRACK SUPPORT BRACKET 0 24123**



Material: steel, galvanized
Weight: 0.470 kg
Perm. load: 250 kg



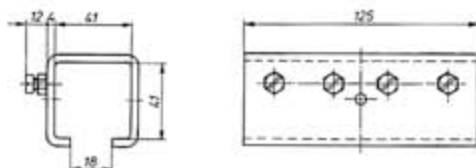
Catalogue No.: **TRACK SUPPORT BRACKET 0 24125**



Material: steel, galvanized
Weight: 0.320 kg
Perm. load: 100 kg



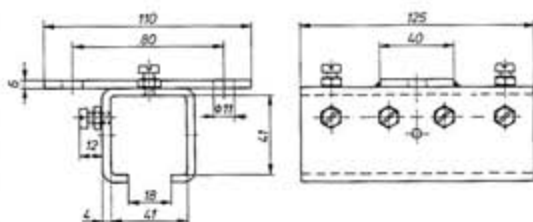
Catalogue No.: **TRACK SUPPORT BRACKET 0 24140**
for welding or for special suspension arrangements



Material: bracket:
steel plate, bare
fasteners: steel, galv.
Weight: 0.600 kg



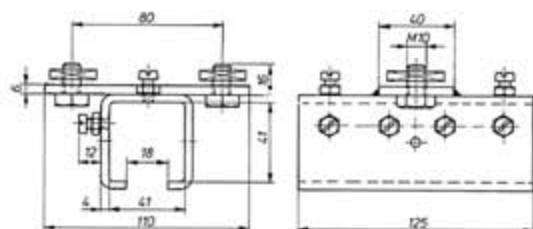
Catalogue No.: **TRACK SUPPORT BRACKET and JOINING BRACKET 0 24141**



Material: steel, galvanized
Weight: 0.660 kg
Perm. load: 260 kg



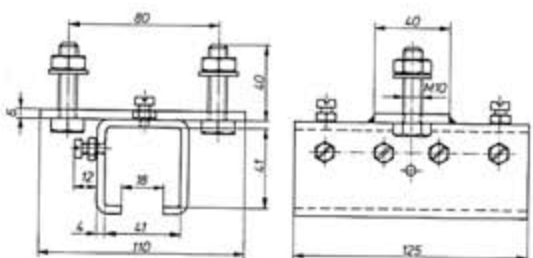
Catalogue No.: **TRACK SUPPORT BRACKET and JOINING BRACKET 0 24142**
with square nuts, to fit support arm 0 20186 and 0 20276



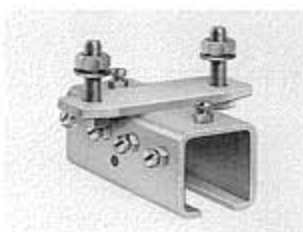
Material: steel, galvanized
Weight: 0.760 kg
Perm. load: 260 kg



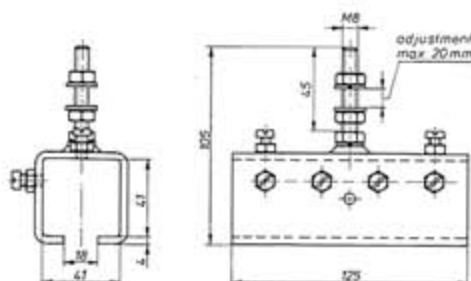
Catalogue No.: **TRACK SUPPORT BRACKET and JOINING BRACKET 0 24143**



Material: steel, galvanized
Weight: 0.770 kg
Perm. load: 250 kg



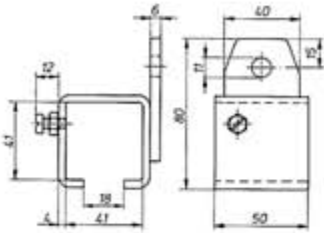
Catalogue No.: **TRACK SUPPORT BRACKET 0 24144**



Material: steel, galvanized
Weight: 0.670 kg
Perm. load: 100 kg

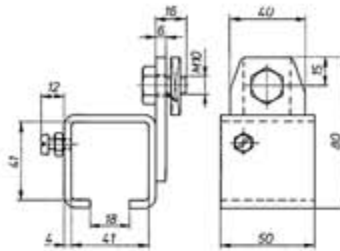


Catalogue No.:
TRACK SUPPORT BRACKET 0 24130



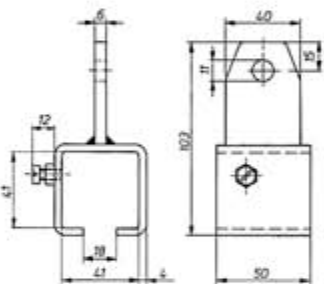
Material: steel, galv.
Weight: 0.320 kg
Perm. load: 100 kg

Catalogue No.:
TRACK SUPPORT BRACKET 0 24133



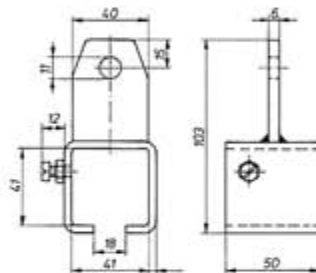
Material: steel, galv.
Weight: 0.335 kg
Perm. Load: 100 kg

Catalogue No.:
TRACK SUPPORT BRACKET 0 24131



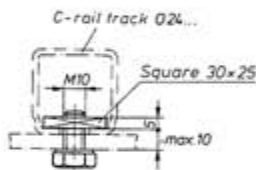
Material: steel, galv.
Weight: 0.300 kg
Perm. load: 250 kg

Catalogue No.:
TRACK SUPPORT BRACKET 0 24132



Material: steel, galv.
Weight: 0.300 kg
Perm. Load: 250 kg

Catalogue No.: **BOLT complete 0 20177 - 10x20**
with square nut



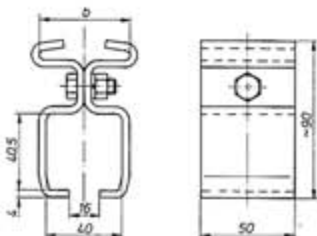
Material: steel, galv.
Weight: 0.045 kg

The complete set will be supplied in component parts, preferably in packing units.

LIST OF APPLICATION

Standard part +	Bolts	△ Compl. part
0 24152 + 2 pieces	0 20177 - 10x20	△ 0 24154
0 24153 + 2 pieces	0 20177 - 10x20	△ 0 24155
0 24121 + 2 pieces	0 20177 - 10x20	△ 0 24122
0 24141 + 2 pieces	0 20177 - 10x20	△ 0 24142
0 24130 + 1 piece	0 20177 - 10x20	△ 0 24133

TRACK SUPPORT BRACKET 0 24127



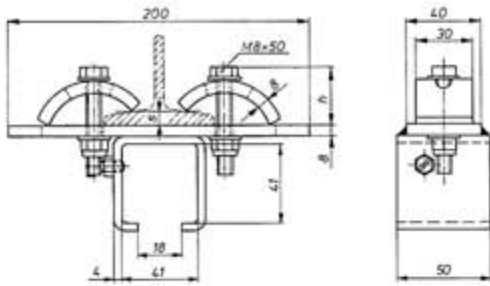
Material: steel, galv.
Perm. load: 250 kg

Catalogue No.	For beam	Weight [kg]
Track support bracket 0 24127-1	INP 100	0.430
Track support bracket 0 24127-2	INP 120	0.450
Track support bracket 0 24127-4	INP 160	0.500

TRACK SUPPORT BRACKET 0 24124

for fixing under I-beam

Material: steel, galvanized



Catalogue No.	Permissible loading [kg]	For flange width [mm]	Weight [kg]
0 24124	160	40 - 103	0.800
0 24128	250		2.820
0 24148	250		3.200

Clamping thickness »s«	4	6	8	10	12	16	20
Mounting height »h«	31	32	33	34	35	37	40

Suitable for I-beam: NP 80-220 B 100
 PE 80-200 PBI 100
 PB 100 PBv 100

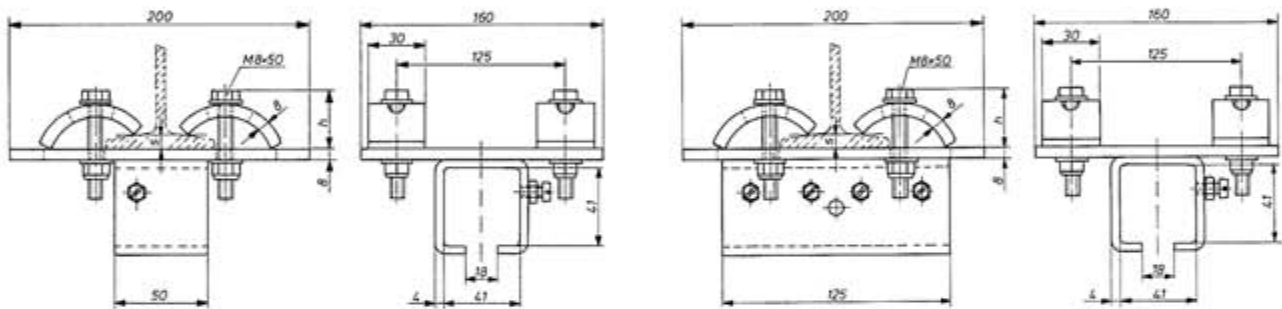
TRACK SUPPORT BRACKET 0 24128

for fixing under I-beam

TRACK SUPPORT BRACKET and JOINING BRACKET 0 24148

for fixing under I-beam

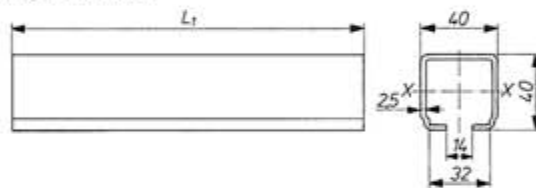
0 24148



SUPPORT ARM 0 20276 (40x40x2.5) unperforated

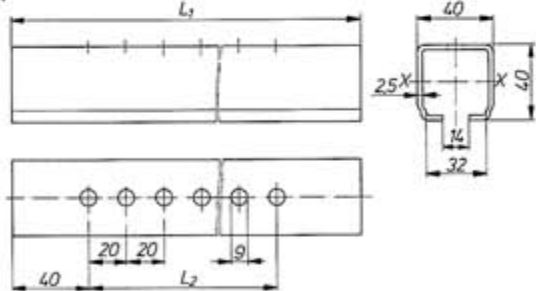
Material: steel, galvanized

Stat. data: $I_x = 6.05 \text{ cm}^4$, $W_x = 2.94 \text{ cm}^3$

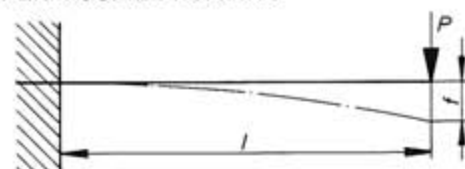


Catalogue No. unperforated	Catalogue No. perforated	L1	L2	Weight [kg]
0 20276-0250	0 20186-0250	250	200	0.625
0 20276-0315	0 20186-0315	315	260	0.800
0 20276-0400	0 20186-0400	400	340	1.000
0 20276-0500	0 20186-0500	500	340	1.250
0 20276-0630	0 20186-0630	630	340	1.575
0 20276-0800	0 20186-0800	800	340	2.000
0 20276-1000	0 20186-1000	1000	340	2.500
0 20276-1250	0 20186-1250	1250	340	3.125

SUPPORT ARM 0 20186 (40x40x2.5) perforated



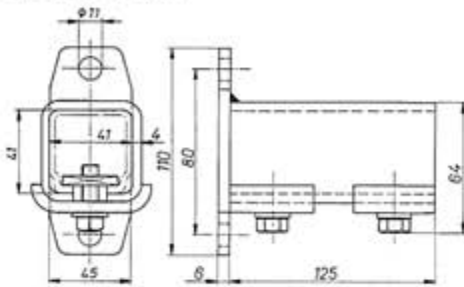
PERMISSIBLE LOADING



	l [m]						
	0.25	0.32	0.4	0.5	0.63	0.8	1.0
P [kg] ¹⁾	164.5	128.5	103.0	82.5	65.5	51.5	41.0
f [cm]	0.06	0.10	0.16	0.25	0.40	0.63	1.0

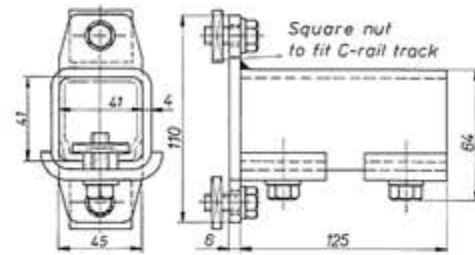
1) Calculated with $\sigma = 140 \text{ N/mm}^2$ tension;
 f = max. resulting deflection.

Catalogue No.:
TRACK SUPPORT BRACKET 0 20282
 for support arm



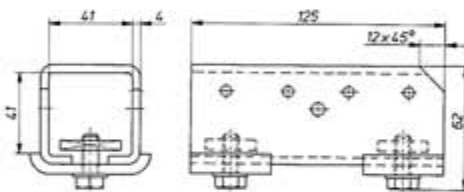
Material: steel, galvanized
 Weight: 1.000 kg

Catalogue No.:
TRACK SUPPORT BRACKET 0 20283
 for support arm



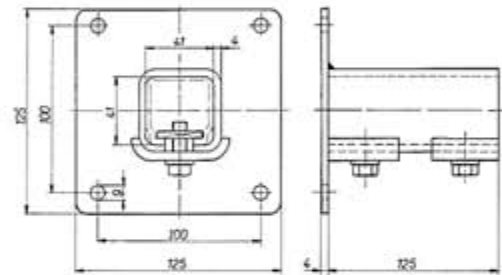
Material: steel, galvanized
 Weight: 1.150 kg

Catalogue No.:
BRACKET FOR SUPPORT ARM 0 20286
 to be welded on



Material: bracket: steel, bare bottom
 guide plate: steel, galvanized
 fasteners: steel, galvanized
 Weight: 0.730 kg

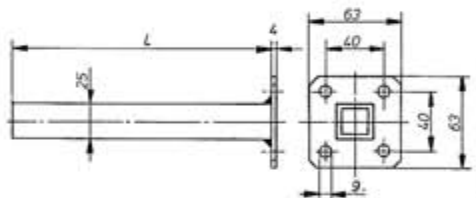
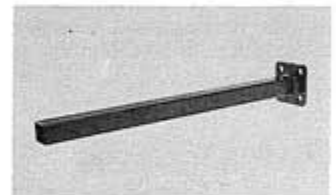
Catalogue No.:
TRACK SUPPORT BRACKET 0 20284
 for support arm



Material: steel, galvanized
 Weight: 1.300 kg

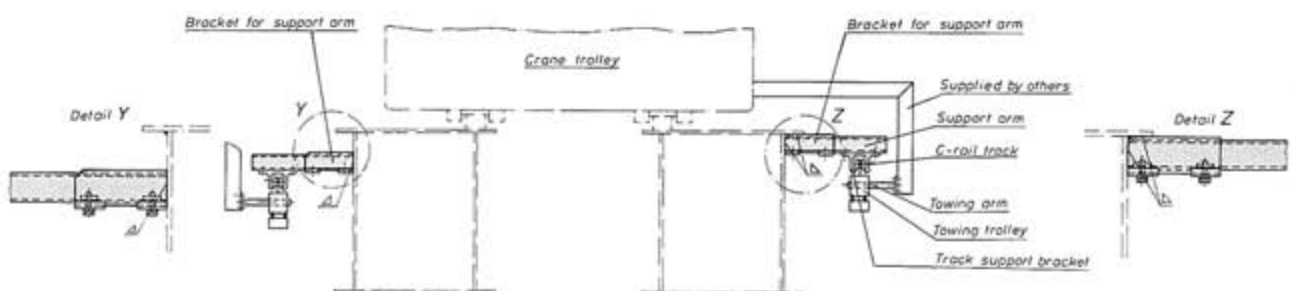
TOWING ARM 0 20195

Material: steel, galvanized

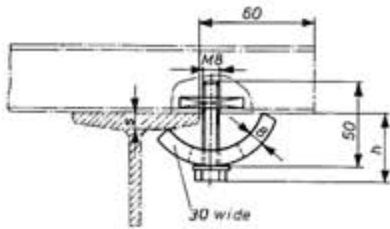


Catalogue No.	L	Weight [kg]
Towing arm 0 20195-400	400	0.600
Towing arm 0 20195-630	630	1.000

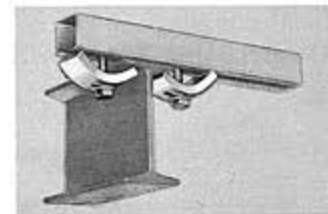
EXAMPLE FOR APPLICATION



Catalogue No.: **GIRDER CLIP 0 20180-08**

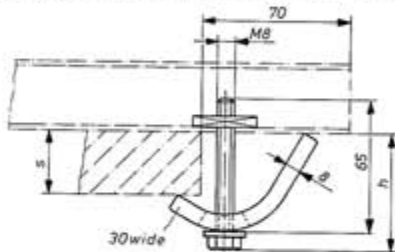


Material: steel, galvanized
Weight: 0.150 kg



Clamping thickness »s«	4	6	8	10	12	16	20
Mounting height »h«	31	32	33	34	35	37	40

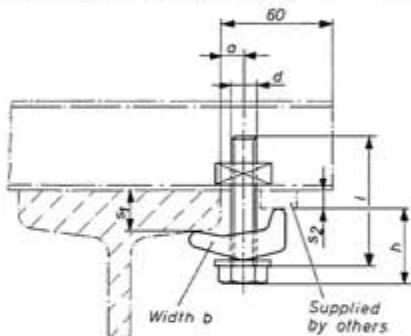
Catalogue No.: **GIRDER CLIP 0 20180-08 x36**



Material: steel, galvanized
Weight: 0.220 kg

Clamping thickness »s«	18-20	20-24	24-28	28-32	32-36
Mounting height »h«	42-44	44-48	48-52	52-56	56-60

Catalogue No.: **GIRDER CLIP 0 20180-10 and 0 20180-12**

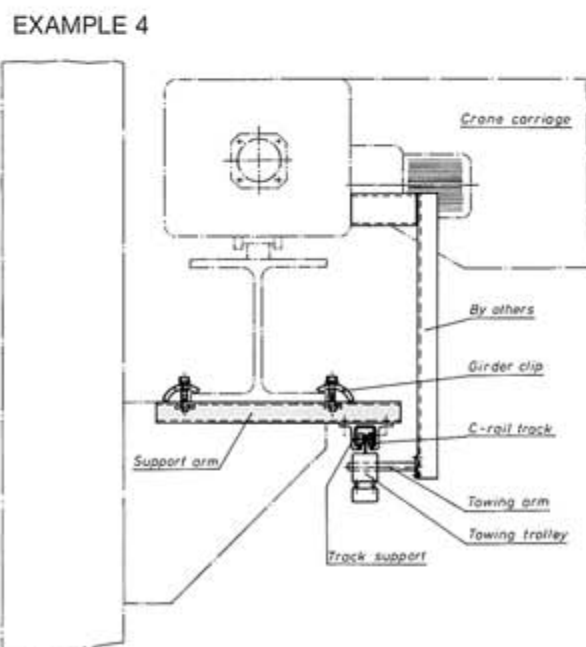
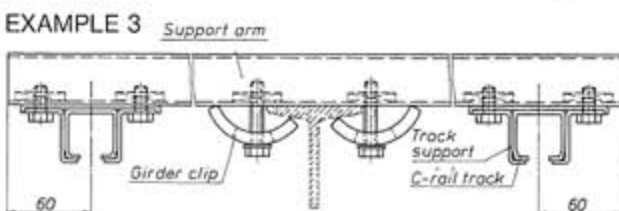
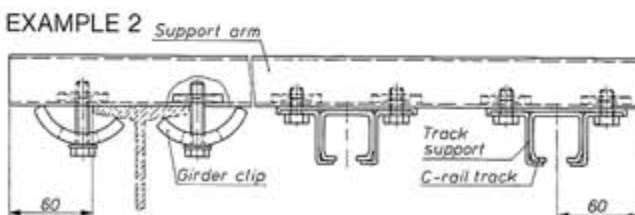
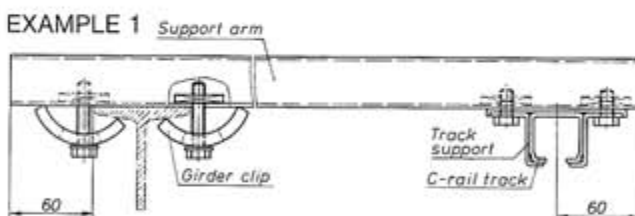


Material: steel, galvanized

Catalogue No.	d	l	b	a	s ₁	s ₂	h	Weight [kg]
0 20180-10	M10	50	32	8	6-11	-	35-41	0.170
					11-16	5	41-46	
					16-21	10	46-51	
0 20180-12	M12	60	38	10	6-14	-	39-47	0.240
					14-22	8	47-55	
					22-30	16	55-63	

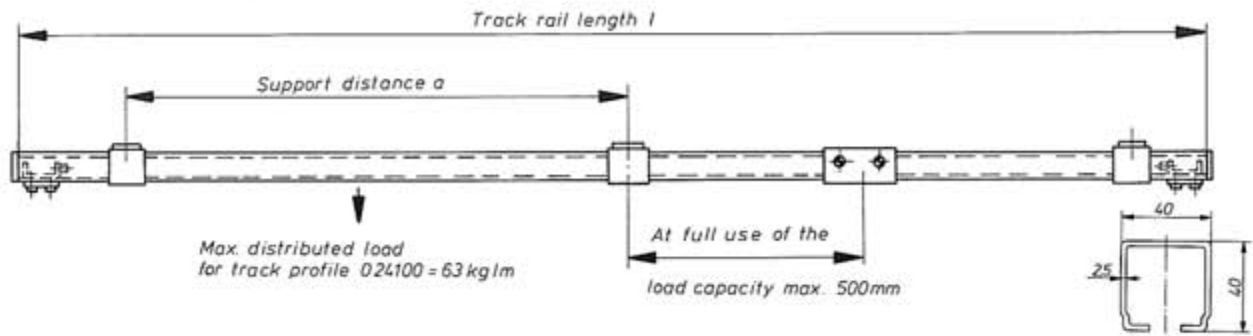
EXAMPLES FOR APPLICATION

An advantage of this arrangement is that no drilling or welding on site is necessary. This method also ensures a perfect alignment of the track and is recommended.



COMPLETE TRACK SYSTEMS

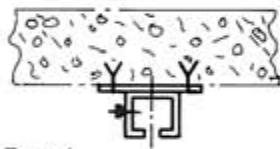
TRACK SYSTEM complete 0 24081



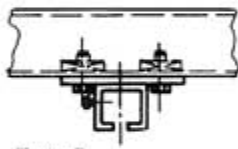
Catalogue No. ¹⁾	l [m]	Part list								a [m]	
		C-rail track 0 24100			Track coupler 0 24105	End stop 0 24111 with screw M 8 x 50 nut and washer	Track support bracket				
		2m	4m	6m			0 24121 Type A	0 24122 Type B	0 24123 Type C		0 24124 Type D
0 24081-02 Type...	2	1	-	-	-	2	2	2	2	2	2
0 24081-04 Type...	4	-	1	-	-	2	3	3	3	3	2
0 24081-06 Type...	6	-	-	1	-	2	4	4	4	4	2
0 24081-08 Type...	8	-	2	-	1	2	5	5	5	5	2
0 24081-10 Type...	10	-	1	1	1	2	6	6	6	6	2
0 24081-12 Type...	12	-	-	2	1	2	7	7	7	7	2
0 24081-16 Type...	16	-	4	-	3	2	9	9	9	9	2
0 24081-20 Type...	20	-	5	-	4	2	11	11	11	11	2

1) The Catalogue No. also incorporates 2 end caps 0 20622-40.

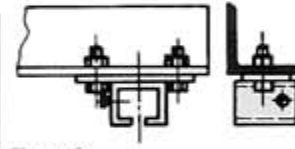
Application of track support types



Type A
Any desired fixing with plugs, screw, to roof girders, wooden beams etc.



Type B
For fixing in C-rails for example in support arms



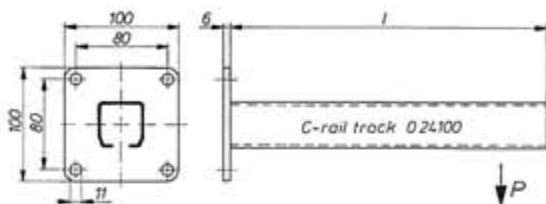
Type C
For fixing to existing steel profiles for example U- or L-profiles



Type D
For fixing to I-beam: NP 80-220
PE 80-200
PB 100

SUSPENSION for track systems

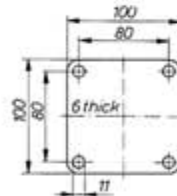
BRACKET 0 20206



Material: steel, galvanized

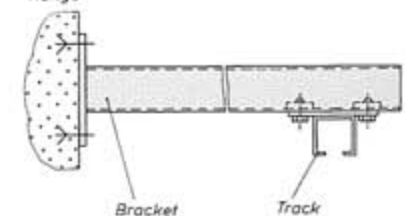
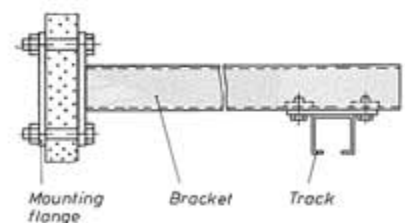
Catalogue No.	l [mm]	P _{max} [kg]	Weight [kg]
0 20206-0500	500	80	1.700
0 20206-0630	630	63	2.000
0 20206-0800	800	50	2.450
0 20206-1000	1000	40	2.800

Catalogue No.: MOUNTING FLANGE 0 20295



Material: steel, galvanized
Weight: 0.470 kg

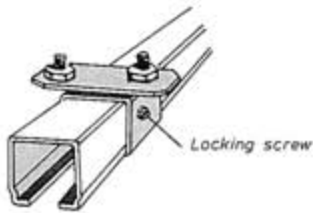
Possible fixing methods



INSTALLATION HINTS

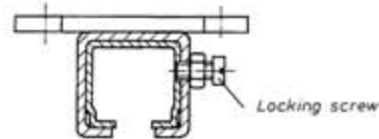
For C-rail fixing material and one example with round cable installation

1.



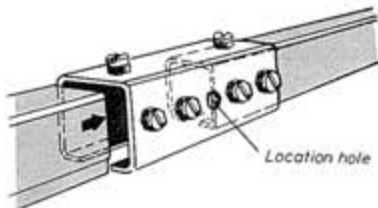
Slide the track support onto the C-rail and bolt together with the track onto the supporting structure. Tighten the locking screw to secure C-rail to the track support.
Alternatively: Fix track support onto the supporting structure, then slide in C-rail track and tighten with locking screw.

2.



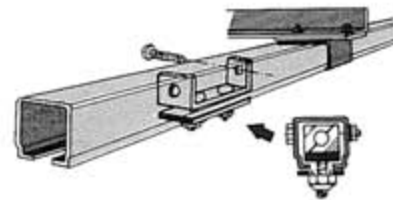
The C-rail track must be secured at each end. This can be achieved by drilling holes $\varnothing 6.2$ into the side of the C-rail track to locate the locking screws.
Care should be taken to prevent the screws on the inner side protruding into the C-rails as this would damage the cable trolleys.

3.



Fit half of the track coupler over the C-rail (using location hole) and tighten the screws. Place next C-rail in position and clamp it leaving no gap between the rails. To achieve this the C-rails have to be cut at right angles and deburred. The locking screws must be tightened equally to avoid misalignment or distortion of the C-rail.

4.



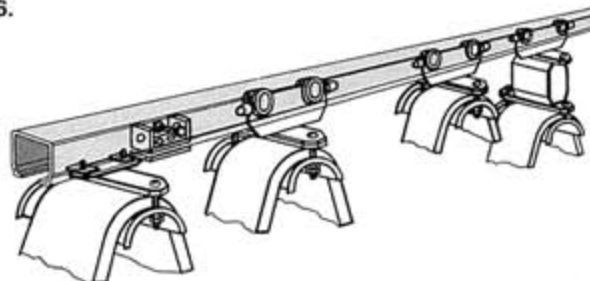
For limiting the travel distance of the trolleys the end stop must be slide into the C-rail and clamped tight. At the end space must be left for the clamp. According to the recommendations of the factory regulations the end stop should be also secured by a bolt M 8 x 50 fitted across the rail.

5.



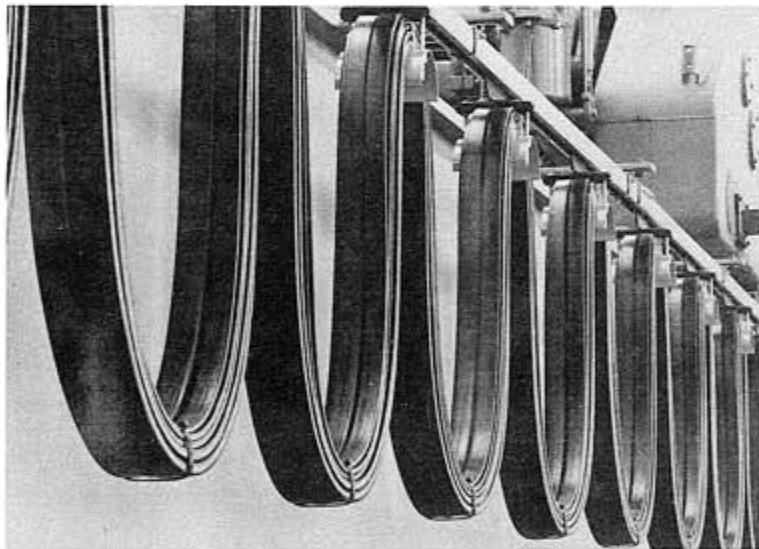
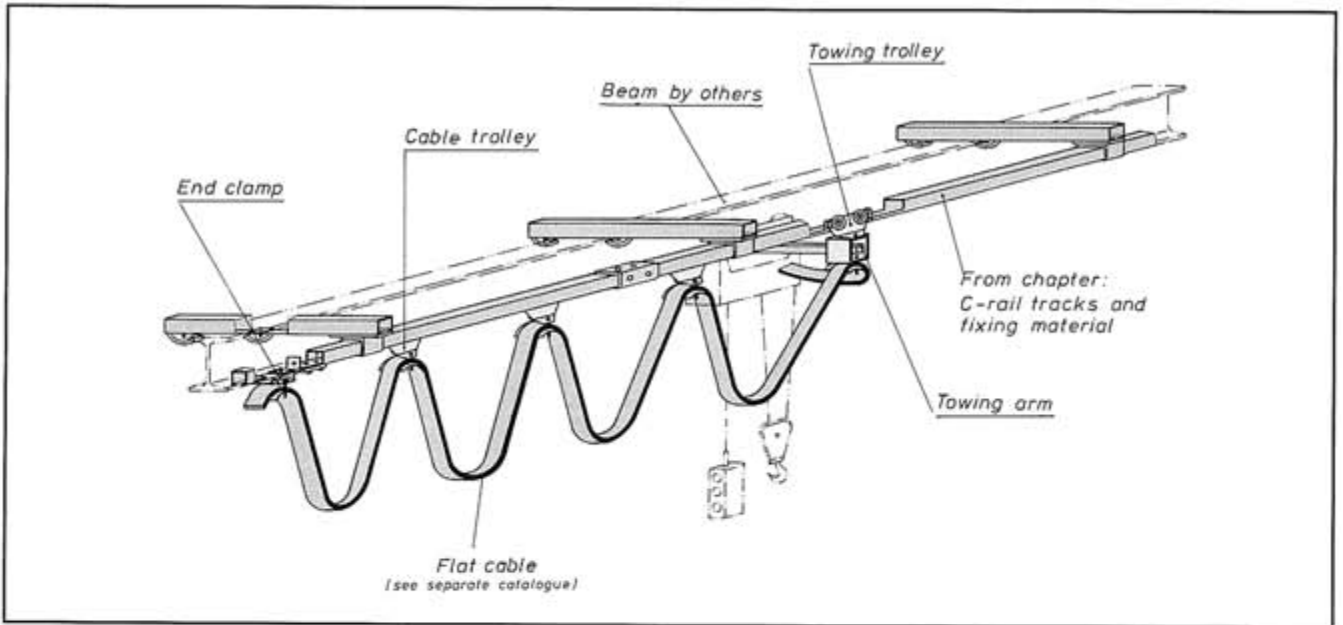
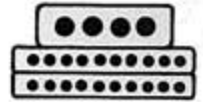
The end clamp to be pushed behind the end stop to be clamped tight.

6.



Cable trolleys to be pushed into the C-rail in direction of the end clamp. Starting from the end clamp the flat cable to be fed into the cable supports. Push all cable trolleys against the end stop and align the cable loops. Finally clamp the cables tight.

CABLE TROLLEYS AND ACCESSORIES for flat cables



Flexible cable system of a 2-supporting beam bridge crane, controlled from the drivers cab.

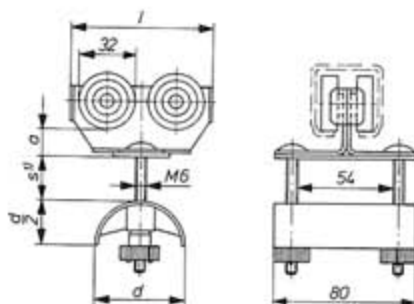
Feed circular current to an underhung revolving jib of a container-portal crane.



CABLE TROLLEY OF SHEET STEEL, CABLE SUPPORT OF PLASTIC

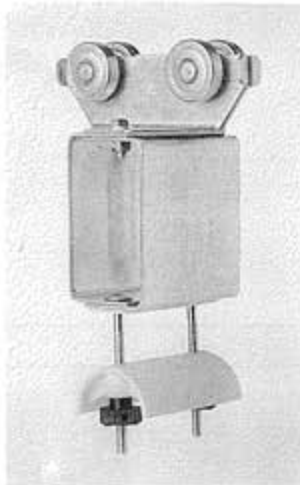
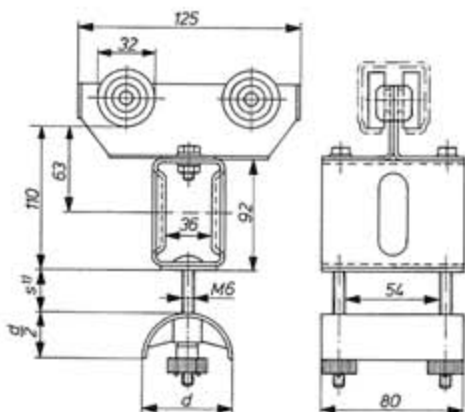
CABLE TROLLEY

No mounting of towing ropes possible.

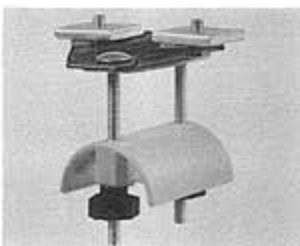
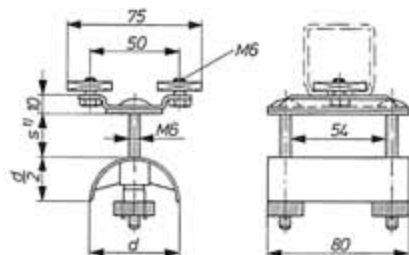


TOWING TROLLEY

No mounting of towing ropes possible.



END CLAMP



Technical data

Type of roller	Load capacity P [kg]	Operating temperature [°C]	Material	Special pairs of rollers Group ²⁾
Steel ball bearing, galvanized	32	-30 to +80	Mainbody: steel, galvanized Support: plastic Insulating plate: plastic Split nut: plastic Fasteners: steel, galvanized	A and B

CABLE TROLLEY		TOWING TROLLEY		END CLAMP		DIMENSIONS				
Catalogue No.	Weight [kg]	Catalogue No.	Weight [kg]	Catalogue No.	Weight [kg]	d	l	a	s ¹⁾	s max.
0 24240-80	0.375	3)		3)		50	80	16.5	15	30
0 24240	0.460	0 24250	0.700	0 23269 ⁴⁾	0.185		125	20	36	42
0 24241	0.485	0 24251	0.745	0 23279 ⁴⁾	0.220	80	125	20	22	34

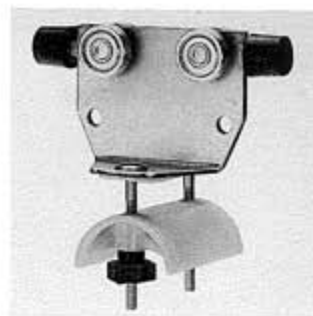
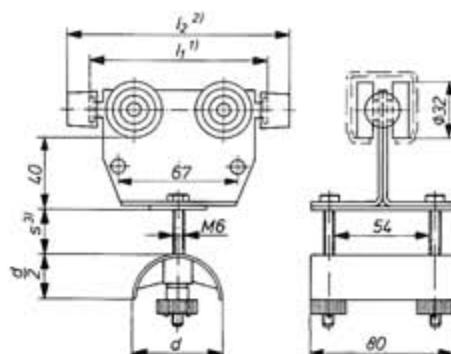
1) Dimension »s« applies on the assumption that the cable trolley-buffers come together, not the flat cables. The bolts are, however, dimensioned to take cable bundles up to a maximum of »s max«.

2) For special pairs of rollers refer to page 240/50.

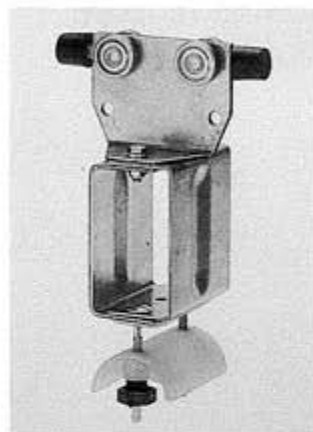
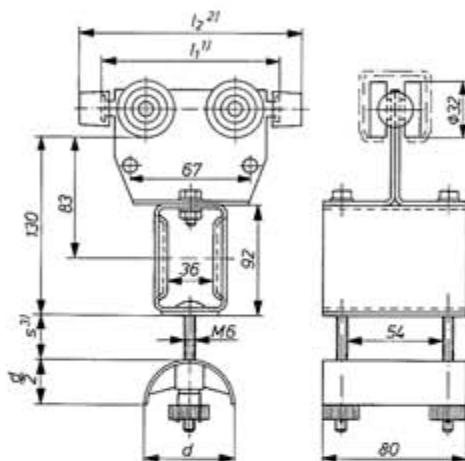
3) Use next type size.

4) Suitable for programme 240.

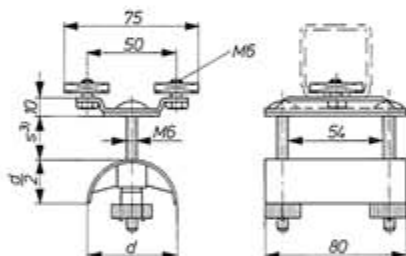
CABLE TROLLEY



TOWING TROLLEY



END CLAMP



Technical data

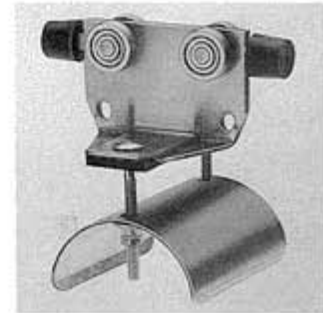
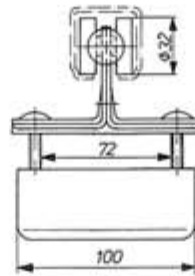
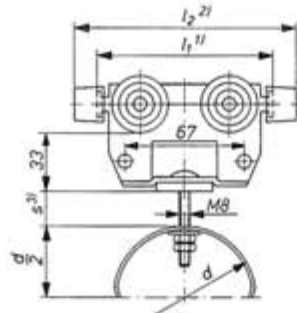
Type of roller	Load capacity P [kg]	Operating temperature [°C]	Material	Special pairs of rollers Group ⁵⁾
Steel ball bearing, galvanized	32	-30 to +80	Mainbody: steel, galvanized Buffer: rubber Support: plastic Insulating plate: plastic Split nut: plastic Fasteners: steel, galvanized	A and B

CABLE TROLLEY		TOWING TROLLEY		END CLAMP		DIMENSIONS				
Catalogue No.	Weight [kg]	Catalogue No.	Weight [kg]	Catalogue No.	Weight [kg]	d	l ₁	l ₂	s ³⁾	s _K ⁴⁾
0 24242-100	0.520	0 24252-100	0.760	0 23269 ⁶⁾	0.185	50	100	-	25	30
0 24242-125	0.540	0 24252-125	0.780				-	125	35	
0 24243-100	0.545	0 24253-100	0.805	0 23279 ⁶⁾	0.220	80	100	-	10	15
0 24243-125	0.565	0 24253-125	0.825				-	125	20	

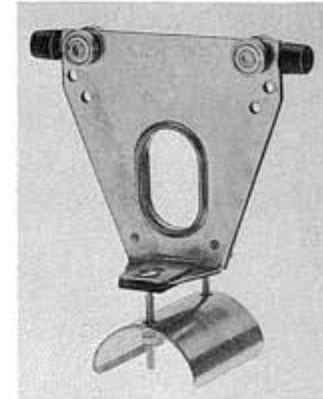
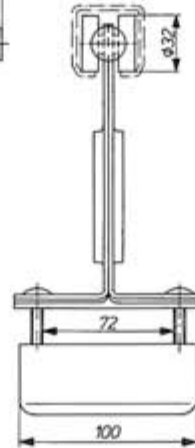
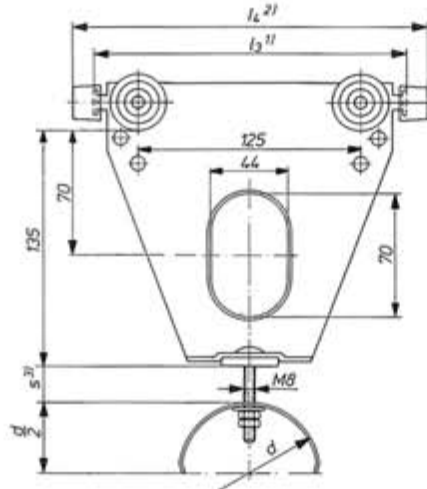
- 1) Cable trolley without rubber buffer. 2) Cable trolley with rubber buffer.
- 3) Dimension «s» applies on the assumption that the cable trolley-buffers come together, not the flat cables.
- 4) The cable trolley can be combined, i.e. trolleys without buffers and trolleys with buffers can be arranged by turns. The permissible clamping thickness can then be used up to the value of s_K.
- 5) For special pairs of rollers refer to page 240/50.
- 6) Suitable for programme 240.

CABLE TROLLEY AND CABLE SUPPORT OF SHEET STEEL

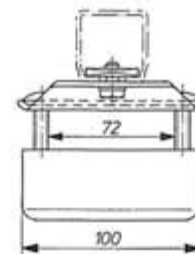
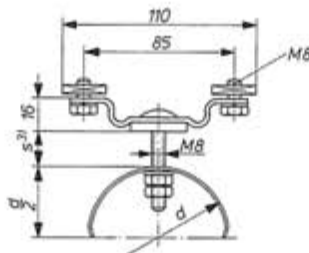
CABLE TROLLEY



TOWING TROLLEY



END CLAMP



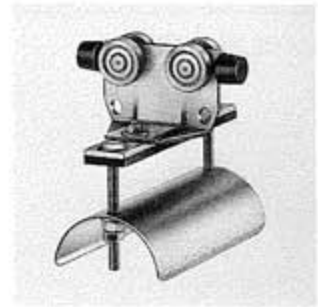
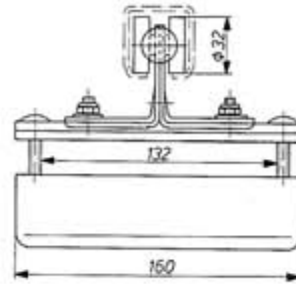
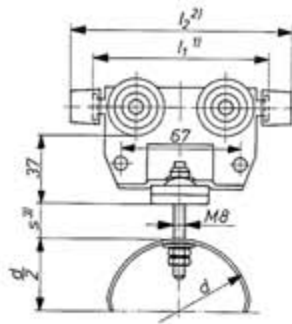
Technical data

Type of roller	Load capacity P [kg]	Operating temperature [°C]	Material	Special pairs of rollers Group ⁵⁾
Steel ball bearing, galvanized	32	-30 to +80	Mainbody: steel, galvanized Buffer: rubber Support: steel, galvanized Clamping piece: rubber Fasteners: steel, galvanized	A and B

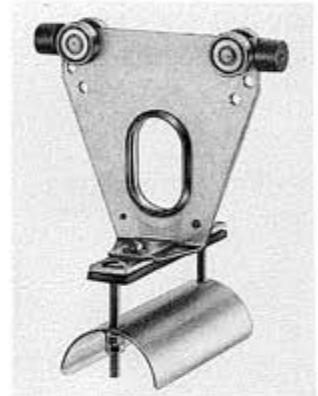
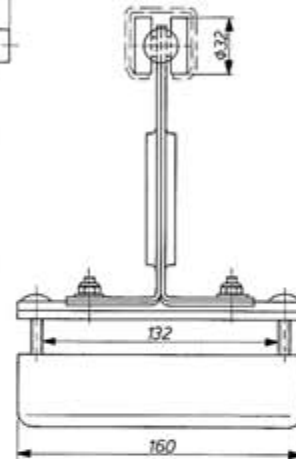
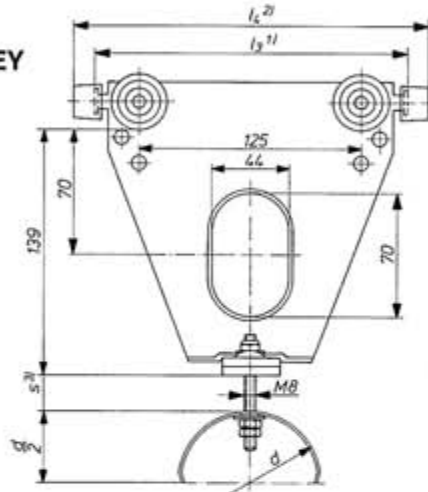
CABLE TROLLEY		TOWING TROLLEY		END CLAMP		DIMENSIONS						
Catalogue No.	Weight [kg]	Catalogue No.	Weight [kg]	Catalogue No.	Weight [kg]	d	l ₁	l ₂	l ₃	l ₄	s ³⁾	s _K ⁴⁾
0 24269-100x100	0.685	0 24279-175x100	0.885	0 24289-100x38	0.370	50	100	-	175	-	25	30
0 24269-125x100	0.705	0 24279-200x100	0.905				-	125	-	200	35	
0 24270-100x100	0.755	0 24280-175x100	0.955	0 24290-100x38	0.440	80	100	-	175	-	10	15
0 24270-125x100	0.775	0 24280-200x100	0.975				-	125	-	200	20	

- 1) Cable trolley without rubber buffers.
- 2) Cable trolley with rubber buffers.
- 3) Dimension «s» applies on the assumption, that the cable trolley-buffers come together, not the flat cables.
- 4) The cable trolleys can be combined, i.e. trolleys without buffers and trolleys with buffers can be arranged by turns. The permissible clamping thickness can then be used up to the value of s_K. For examples of combined cable trolley arrangement refer to page 240/26.
- 5) For special pairs of rollers refer to page 240/50.

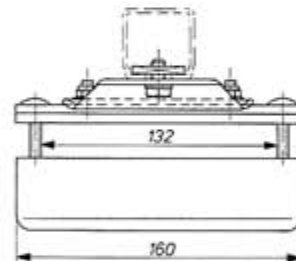
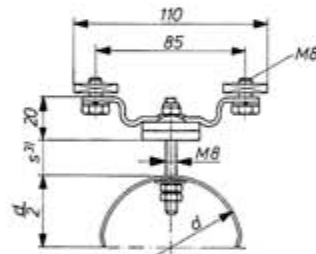
CABLE TROLLEY



TOWING TROLLEY



END CLAMP



Technical data

Type of roller	Load capacity P [kg]	Operating temperature [°C]	Material	Special pairs of rollers Group ⁵⁾
Steel ball bearing, galvanized	32	-30 to +80	Main body: steel, galvanized Buffer: rubber Support: steel, galvanized Clamping piece: rubber Fasteners: steel, galvanized	A and B

CABLE TROLLEY		TOWING TROLLEY		END CLAMP		DIMENSIONS						
Catalogue No.	Weight [kg]	Catalogue No.	Weight [kg]	Catalogue No.	Weight [kg]	d	l ₁	l ₂	l ₃	l ₄	s ³⁾	s _K ⁴⁾
0 24269-100x160	0.950	0 24279-175x160	1.150	0 24289-160x38	0.635	50	100	-	175	-	25	30
0 24269-125x160	0.970	0 24279-200x160	1.170				-	125	-	200	35	
0 24270-100x160	1.020	0 24280-175x160	1.220	0 24290-160x38	0.690	80	100	-	175	-	10	15
0 24270-125x160	1.040	0 24280-200x160	1.240				-	125	-	200	20	

1) Cable trolley without rubber buffers.

2) Cable trolley with rubber buffers.

3) Dimension »s« applies on the assumption, that the cable trolley-buffers come together, not the flat cables.

4) The cable trolleys can be combined, i.e. trolleys without buffers and trolleys with buffers can be arranged by turns.

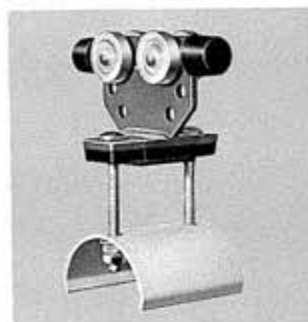
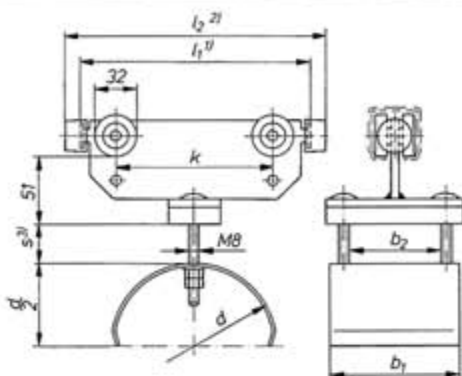
The permissible clamping thickness can then be used up to the value of s_K.

For examples of combined cable trolley arrangement refer to page 240/26.

5) For special pairs of rollers refer to page 240/50.

CABLE TROLLEY OF STEEL, CABLE SUPPORT OF SHEET STEEL

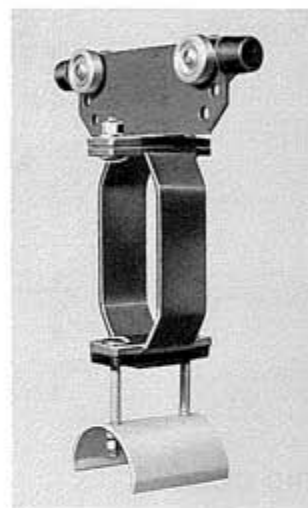
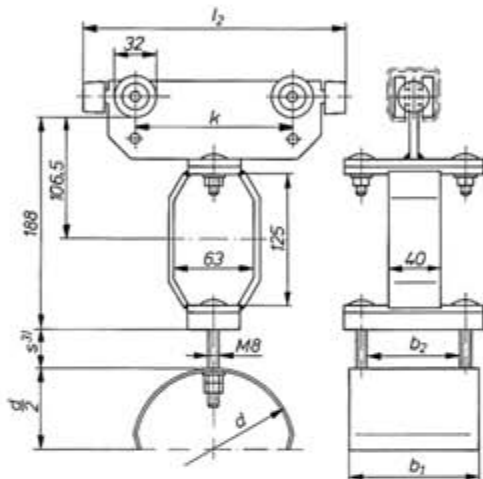
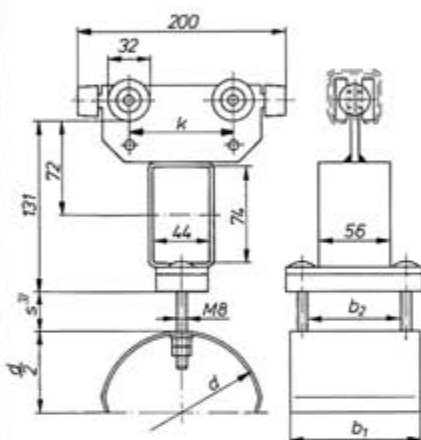
CABLE TROLLEY



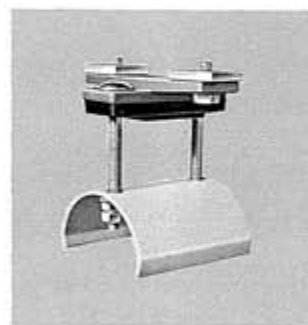
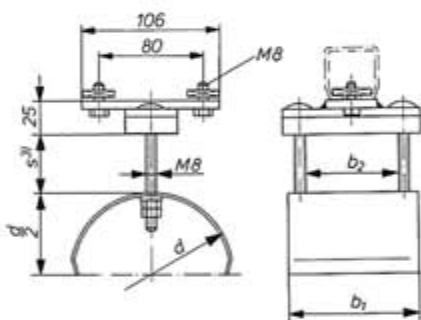
TOWING TROLLEY

Type $l_2 = 200$

Type $l_2 > 200$



END CLAMP



Technical data

Type of roller	Load capacity P [kg]	Operating temperature [°C]	Material	Special pairs of rollers Group ⁶⁾
Steel ball bearing, galvanized	32	-30 to +80	Main body: steel, galvanized Buffer: rubber Support: steel, galvanized Clamping piece: rubber Fasteners: steel, galvanized	A (B restricted)

1) l_1 = Cable trolley without rubber buffers.

2) l_2 = Cable trolley with rubber buffers.

3) Dimension «s» applies on the assumption, that the cable trolley-buffers come together, not the flat cables.

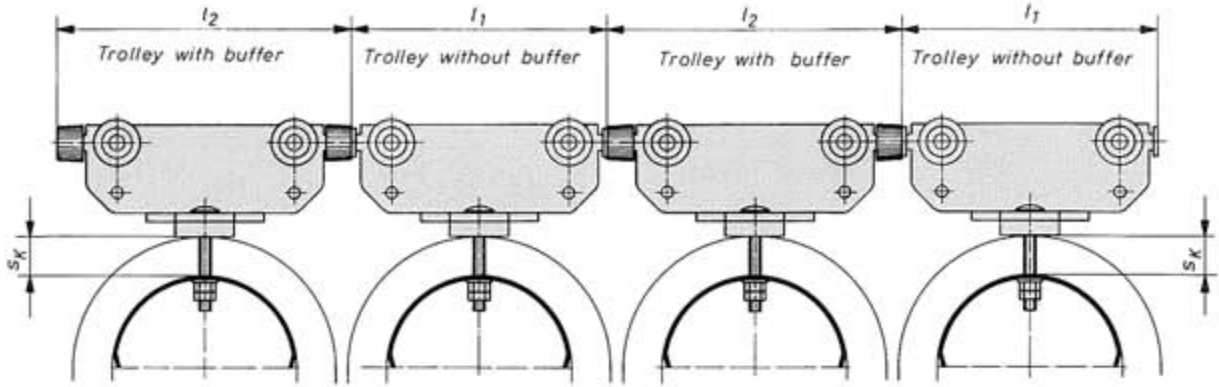
4) The cable trolleys can be combined, i.e. trolleys without buffers and trolleys with buffers can be arranged by turns. The permissible clamping thickness can then be used up to the value of s_K . For examples of combined cable trolley arrangements refer to page 240/26.

5) For the towing trolley are the following dimensions valid: $l_2 = 200$ mm, $k = 121$ mm.

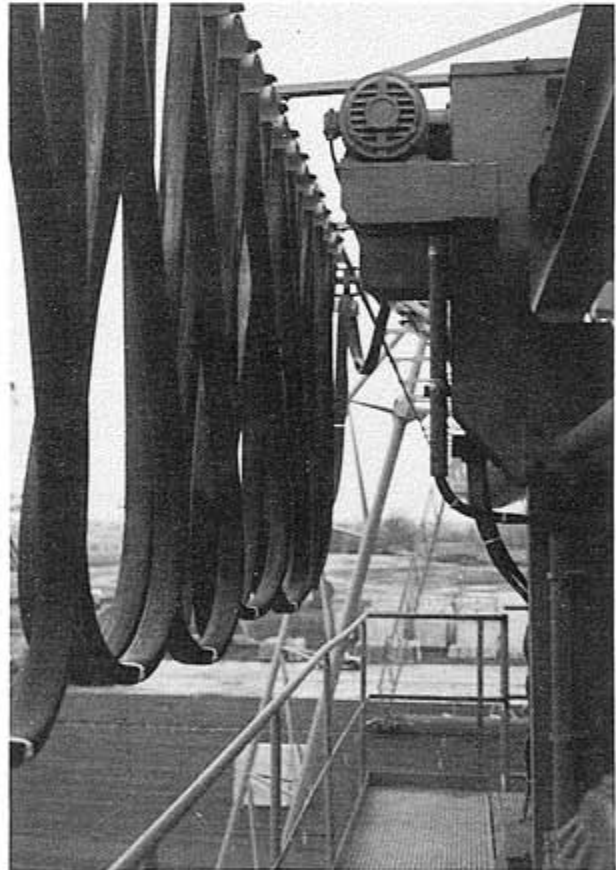
6) For special pairs of rollers refer page 240/50.

CABLE TROLLEY		TOWING TROLLEY		END CLAMP		DIMENSIONS							
Catalogue No.	Weight [kg]	Catalogue No.	Weight [kg]	Catalogue No.	Weight [kg]	d	l ₁ ¹⁾	l ₂ ²⁾	b ₁	b ₂ max.	s ³⁾ max.	s _k ⁴⁾	k
0 24210-100x100 0 24210-125x100	0.830 0.850	0 24220-200x100 ⁵⁾	1.650	0 24230-100x62	0.700	80	100	—	100	72	10	15	46
0 24210-100x160 0 24210-125x160	1.070 1.090	0 24220-200x160 ⁵⁾	2.090	0 24230-160x62	0.940		100	—	160	132	10	15	
0 24210-135x100 0 24210-160x100	0.910 0.930	0 24220-200x100 ⁵⁾	1.650	0 24230-100x62	0.700		135	—	100	72	27	38	81
0 24210-135x160 0 24210-160x160	1.150 1.170	0 24220-200x160 ⁵⁾	2.090	0 24230-160x62	0.940		135	—	160	132	27	38	
0 24210-175x100 0 24210-200x100	1.030 1.050	0 24220-200x100	1.650	0 24230-100x62	0.700		175	—	100	72	47	58	121
0 24210-175x160 0 24210-200x160	1.270 1.290	0 24220-200x160	2.090	0 24230-160x62	0.940		175	—	200	132	47	58	
0 24212-135x100 0 24212-160x100	1.030 1.050	0 24222-200x100 ⁵⁾	1.750	0 24232-100x42	0.800	125	135	—	100	72	5	10	81
0 24212-135x160 0 24212-160x160	1.360 1.380	0 24222-200x160 ⁵⁾	2.280	0 24232-160x42	1.130		135	—	160	132	5	10	
0 24212-175x100 0 24212-200x100	1.130 1.150	0 24222-200x100	1.750	0 24232-100x42	0.800		175	—	100	72	25	35	121
0 24212-175x160 0 24212-200x160	1.460 1.480	0 24222-200x160	2.280	0 24232-160x42	1.130		175	—	160	132	25	35	
0 24212-225x100 0 24212-250x100	1.370 1.390	0 24222-250x100	1.990	0 24232-100x62	0.820		225	—	100	72	50	60	171
0 24212-225x160 0 24212-250x160	1.700 1.720	0 24222-250x160	2.520	0 24232-160x62	1.150		225	—	160	132	50	60	
0 24213-175x100 0 24213-200x100	1.280 1.300	0 24223-200x100	1.900	0 24233-100x22	1.000	160	175	—	115	72	7	12	121
0 24213-175x160 0 24213-200x160	1.700 1.720	0 24223-200x160	2.520	0 24233-160x22	1.400		175	—	175	132	7	12	
0 24213-175x200 0 24213-200x200	2.090 2.110	0 24223-200x200	2.910	0 24233-200x22	1.850		175	—	215	172	7	12	171
0 24213-225x100 0 24213-250x100	1.380 1.400	0 24223-250x100	2.000	0 24233-100x42	1.000		225	—	115	72	32	42	
0 24213-225x160 0 24213-250x160	1.800 1.820	0 24223-250x160	2.620	0 24233-160x42	1.400		225	—	175	132	32	42	201
0 24213-225x200 0 24213-250x200	2.190 2.210	0 24223-250x200	3.010	0 24233-200x42	1.850		225	—	215	172	32	42	
0 24213-255x100 0 24213-280x100	1.480 1.500	0 24223-280x100	2.100	0 24233-100x62	1.020	200	255	—	115	72	47	58	171
0 24213-255x160 0 24213-280x160	1.900 1.920	0 24223-280x160	2.720	0 24233-160x62	1.420		255	—	175	132	47	58	
0 24213-255x200 0 24213-280x200	2.290 2.310	0 24223-280x200	3.110	0 24233-200x62	1.870		255	—	215	172	47	58	201
0 24214-225x100 0 24214-250x100	1.480 1.500	0 24224-250x100	2.100	0 24234-100x22	1.100		225	—	115	72	12	17	
0 24214-225x160 0 24214-250x160	2.050 2.070	0 24224-250x160	2.870	0 24234-160x22	1.650		225	—	175	132	12	17	171
0 24214-225x200 0 24214-250x200	2.540 2.560	0 24224-250x200	3.360	0 24234-200x22	2.200		225	—	215	172	12	17	
0 24214-255x100 0 24214-280x100	1.580 1.600	0 24224-280x100	2.200	0 24234-100x42	1.100	250	255	—	115	72	27	38	201
0 24214-255x160 0 24214-280x160	2.150 2.170	0 24224-280x160	2.970	0 24234-160x42	1.650		255	—	175	132	27	38	
0 24214-255x200 0 24214-280x200	2.640 2.660	0 24224-280x200	3.460	0 24234-200x42	2.200		255	—	215	172	27	38	241
0 24214-295x100 0 24214-320x100	1.680 1.700	0 24224-320x100	2.300	0 24234-100x62	1.120		295	—	115	72	47	58	
0 24214-295x160 0 24214-320x160	2.250 2.270	0 24224-320x160	3.070	0 24234-160x62	1.670		295	—	175	132	47	58	241
0 24214-295x200 0 24214-320x200	2.740 2.760	0 24224-320x200	3.560	0 24234-200x62	2.220		295	—	215	172	47	58	
0 24215-320x160	2.520	0 24225-320x160	3.320	0 24235-160x42	1.900	250	—	320	175	132	33	—	241
0 24215-320x200	3.010	0 24225-320x200	3.810	0 24235-200x42	2.450		—	320	215	172	33	—	
0 24215-360x160	2.620	0 24225-360x160	3.420	0 24235-160x62	1.900		—	360	175	132	53	—	281
0 24215-360x200	3.110	0 24225-360x200	3.910	0 24235-200x62	2.450		—	360	215	172	53	—	
0 24215-400x160	2.720	0 24225-400x160	3.520	0 24235-160x82	1.920		—	400	175	132	68	—	321
0 24215-400x200	3.210	0 24225-400x200	4.010	0 24235-200x82	2.470		—	400	215	172	68	—	

EXAMPLE of combined cable trolley arrangement.

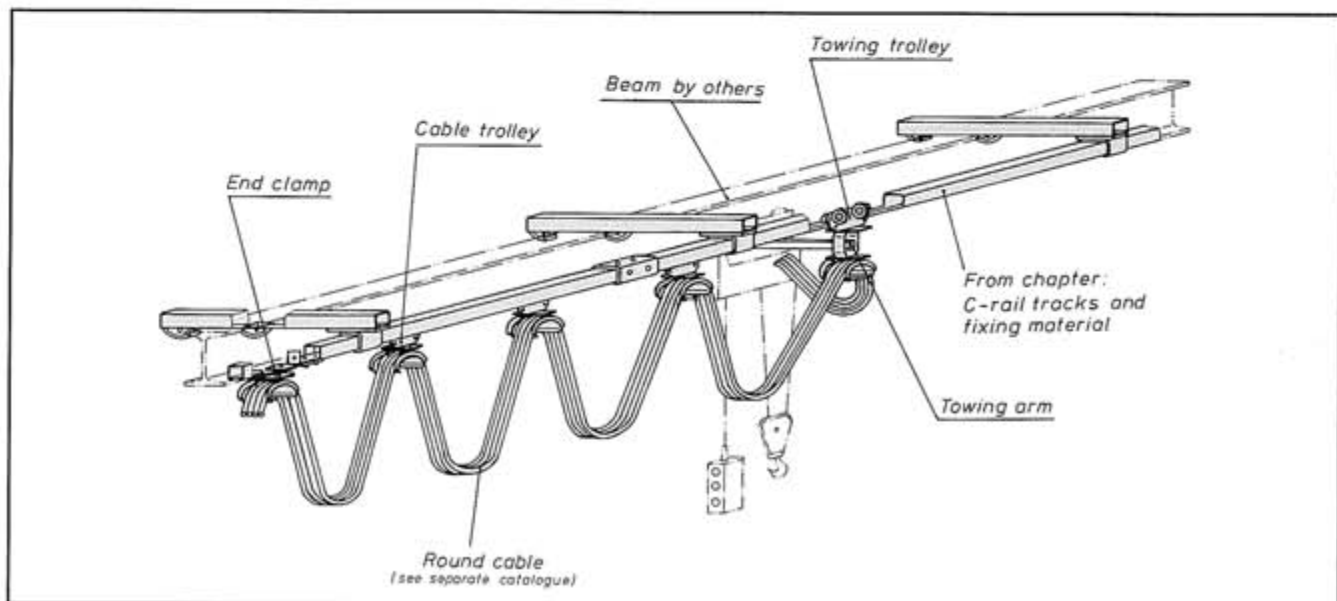
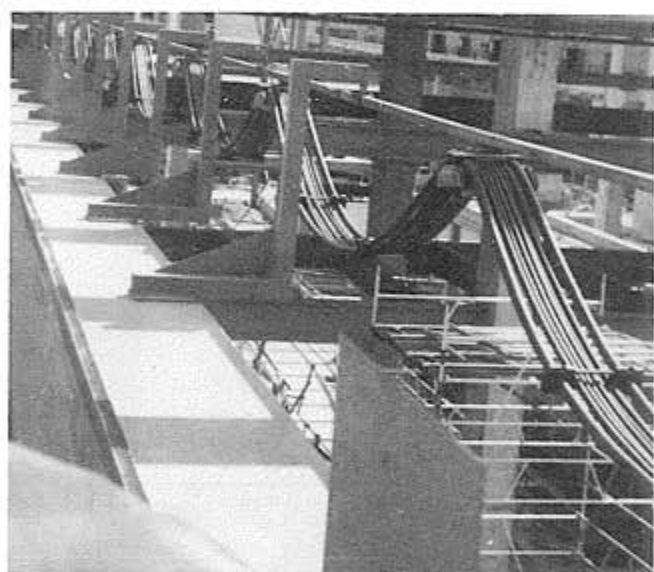
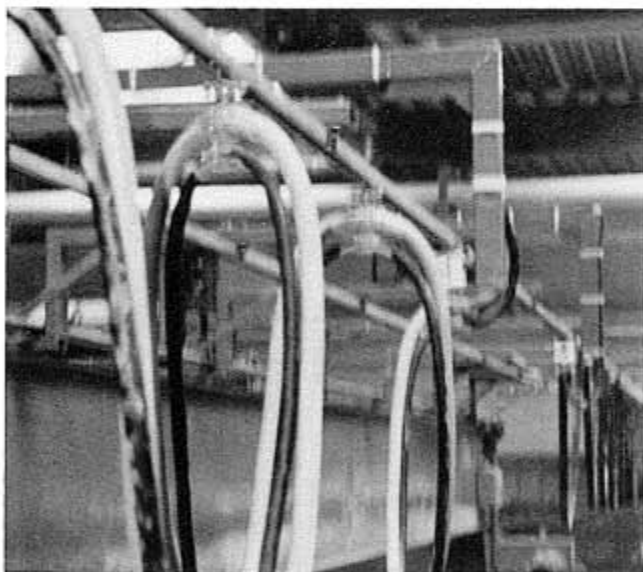
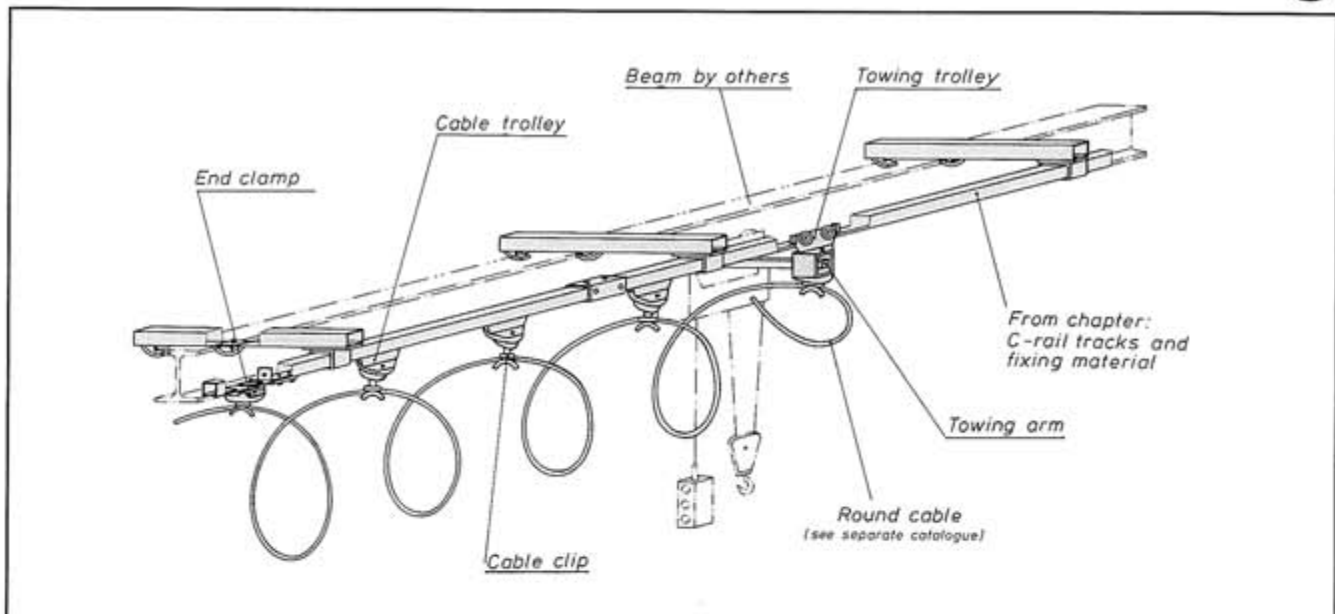


Crab flexible cable system for a stockyard crane.



Crab flexible cable system.

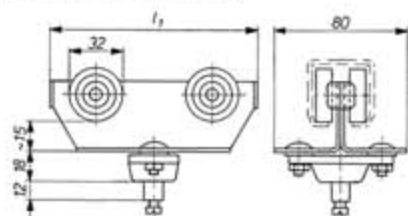
CABLE TROLLEYS AND ACCESSORIES for round cables and hoses



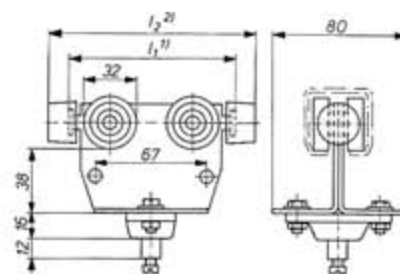
CABLE TROLLEY with ball joint for round cable clips

CABLE TROLLEY 0 24313

No mounting of towing rope possible.

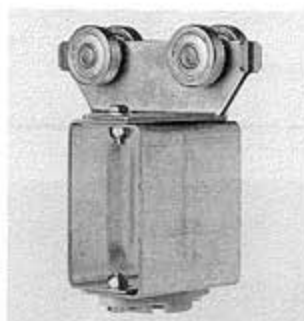
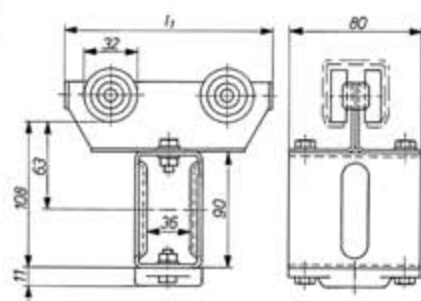


CABLE TROLLEY 0 24306

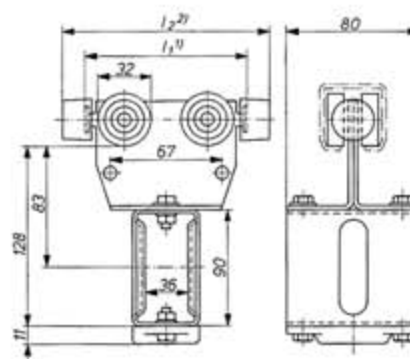


TOWING TROLLEY 0 24314

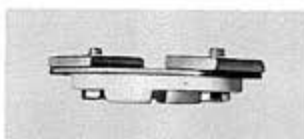
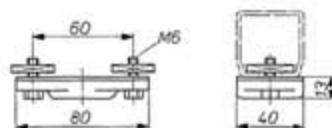
No mounting of towing rope possible.



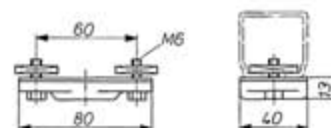
TOWING TROLLEY 0 24307



END CLAMP 0 24312



END CLAMP 0 24312



Technical data

Type of roller	Load capacity P [kg]	Operating temperature [°C]	Material	Special pairs of rollers Group ³⁾
Steel ball bearing, galvanized	32	-30 to +60	Main body: steel, galvanized Buffer: rubber Ball joint: plastic Connecting plate: plastic Fasteners: steel, galvanized	A and B

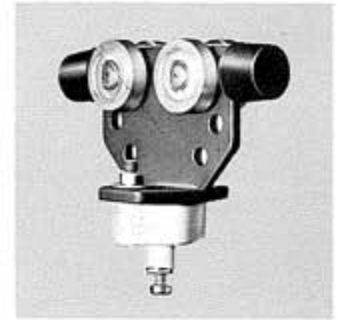
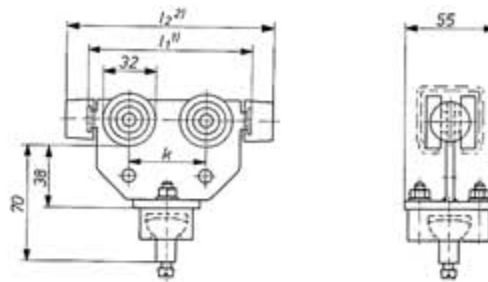
CABLE TROLLEY				TOWING TROLLEY				END CLAMP		ATTACHMENT PARTS
Catalogue No.	l ₁	l ₂	Weight [kg]	Catalogue No.	l ₁	l ₂	Weight [kg]	Catalogue No.	Weight [kg]	Suitable cable clips
0 24313- 80	80	-	0.360	0 24314	125	-	0.670	0 24312	0.150	0 20131-16, 0 20131-25 Size 36 = restricted use only
0 24313	125	-	0.450							0 20131-16, 0 20131-25, 0 20131-36
0 24306-100	100	-	0.400	0 24307-100	100	-	0.730	0 24312	0.150	0 20131-16 0 20131-25 0 20131-36
0 24306-125	-	125	0.420	0 24307-125	-	125	0.750			

1) l₁ = Cable trolley without rubber buffer.

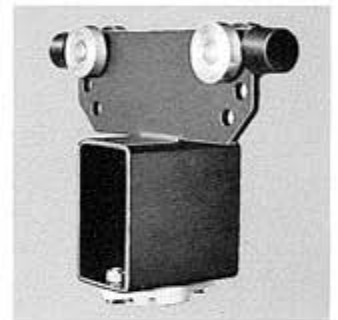
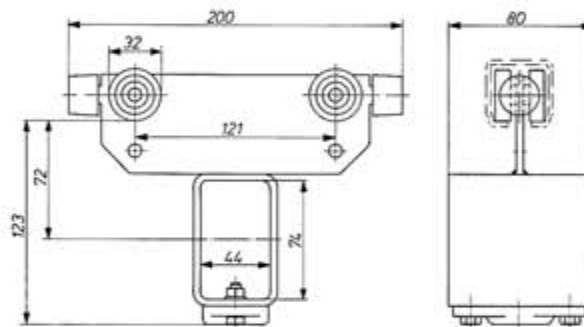
2) l₂ = Cable trolley with rubber buffer.

3) For special pairs of rollers refer to page 240/50.

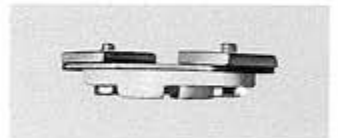
CABLE TROLLEY



TOWING TROLLEY



END CLAMP



Technical data

Type of roller	Load capacity P [kg]	Operating temperature [°C]	Material	Special pairs of rollers Group ³⁾
Steel ball bearing, galvanized	32	-30 to +60	Main body: steel, galvanized Buffer: rubber Ball joint: plastic Connecting plate: plastic Fasteners: steel, galvanized	A (B restricted)

CABLE TROLLEY					TOWING TROLLEY		END CLAMP		ATTACHMENT PARTS
Catalogue No.	l ₁	l ₂	k	Weight [kg]	Catalogue No.	Weight [kg]	Catalogue No.	Weight [kg]	Suitable cable clips
0 24310-100	100	-	46	0.520	0 24311	1.000	0 24312	0.150	0 20131-16 0 20131-25 0 20131-36
0 24310-125	-	125	46	0.540					
0 24310-160	-	160	81	0.620					
0 24310-200	-	200	121	0.720					

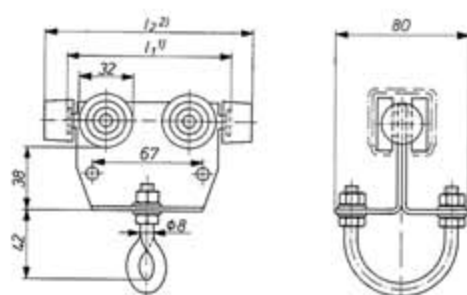
1) l₁ = Cable trolley without rubber buffer.

2) l₂ = Cable trolley with rubber buffer.

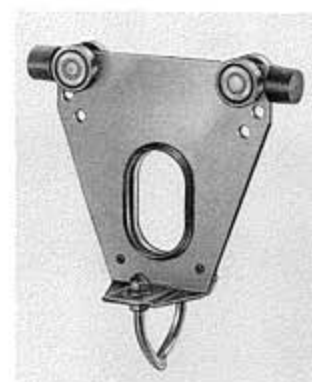
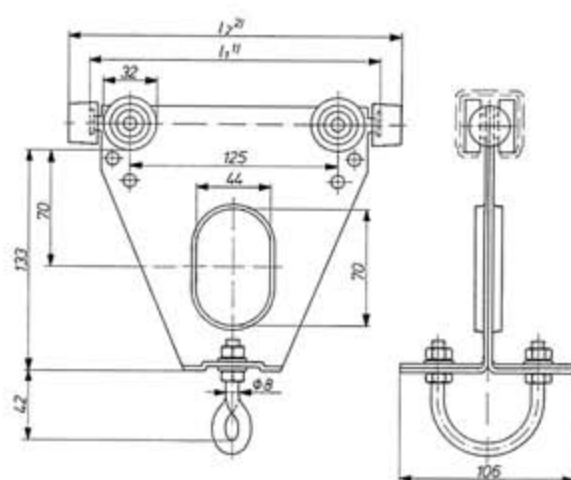
3) For special pairs of rollers refer to page 240/50.

CABLE TROLLEY with bracket for round cable clips

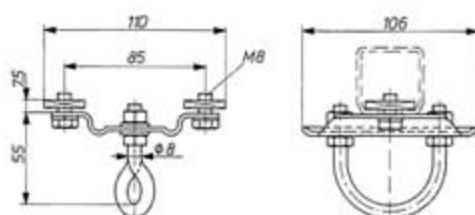
CABLE TROLLEY



TOWING TROLLEY



END CLAMP



Technical data

Type of roller	Load capacity P [kg]	Operating temperature [°C]	Material	Special pairs of rollers Group ³⁾
Steel ball bearing, galvanized	32	trolleys without buffers -30 to +100 trolleys with buffers -30 to +80	Main body: steel, galvanized Buffer: rubber Bracket: steel, galvanized Fasteners: steel, galvanized	A and B

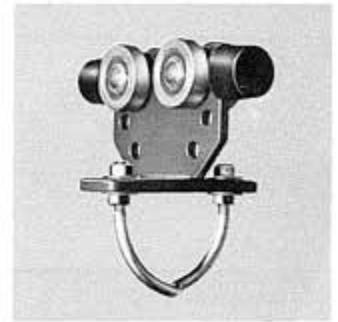
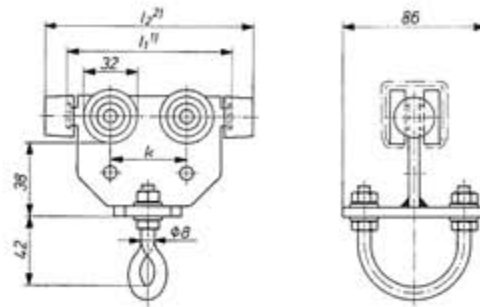
CABLE TROLLEY				TOWING TROLLEY				END CLAMP		ATTACHMENT PARTS
Catalogue No.	I ₁	I ₂	Weight [kg]	Catalogue No.	I ₁	I ₂	Weight [kg]	Catalogue No.	Weight [kg]	Suitable cable clips
0 24316-100	100	-	0.550	0 24317-175	175	-	1.050	0 24318	0.320	0 20133-16 to 0 20133-63
0 24316-125	-	125	0.570	0 24317-200	-	200	1.070			

1) I₁ = Cable trolley without rubber buffer.

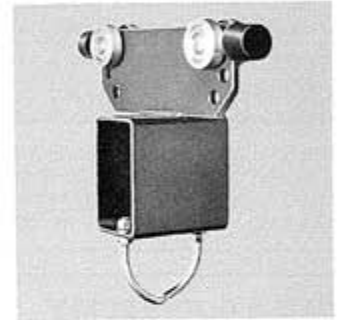
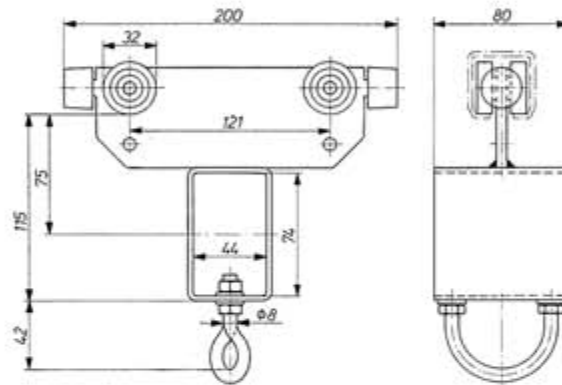
2) I₂ = Cable trolley with rubber buffer.

3) For special pairs of rollers refer to page 240/50.

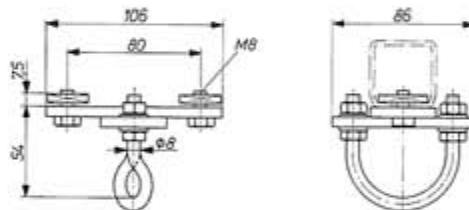
CABLE TROLLEY



TOWING TROLLEY



END CLAMP



Technical data

Type of roller	Load capacity P [kg]	Operating temperature [°C]	Material	Special pairs of rollers Group ³⁾
Steel ball bearing, galvanized	32	trolleys without buffers -30 to +100 trolleys with buffers -30 to +80	Main body: steel, galvanized Buffer: rubber Bracket: steel, galvanized Fasteners: steel, galvanized	A (B restricted)

CABLE TROLLEY					TOWING TROLLEY		END CLAMP		ATTACHMENT PARTS
Catalogue No.	l ₁	l ₂	k	Weight [kg]	Catalogue No.	Weight [kg]	Catalogue No.	Weight [kg]	Suitable cable clips
0 24320-100	100	-	46	0.560	0 24321	1.000	0 24322	0.460	0 20133-16 to 0 20133-63
0 24320-125	-	125	46	0.580					
0 24320-160	-	160	81	0.660					
0 24320-200	-	200	121	0.760					

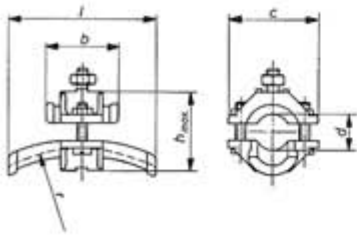
1) l₁ = Cable trolley without rubber buffer.

2) l₂ = Cable trolley with rubber buffer.

3) For special pairs of rollers refer to page 240/50.

CABLE CLIPS for round cables and hoses

CABLE CLIP 0 20131



Operating temperature: -30°C to +80°C

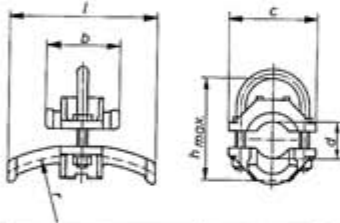
Material: cable clip
size 16, 25, 36: plastic
size 50, 63: aluminium
fasteners: steel, galvanized



Catalogue No.	d Cable-ø	r	l	h max.	b	c	Weight [kg]	Suitable cable trolleys	Suitable towing trolleys	Suitable end clamp
0 20131-16	10-16	80	70	38	35	42	0.040	0 24306 0 24310 0 24313	0 24307 0 24311 0 24314	0 24312
0 20131-25	17-25	125	100	47	50	50	0.060			
0 20131-36	26-36	180	140	58	70	64	0.120			
0 20131-50	37-50	250	200	80	100	90	0.260			
0 20131-63	51-63	315	250	105	125	100	0.460	The sizes 50 resp. 63 can only be fitted under cable clip 0 20133-50 resp. 63 and 0 20135-50 resp. 63.		

Application: The cable clips are designed to support round cables and hoses.
If required, it is possible to fit two or more similar, or different sized cable clips to a trolley or end clamp. When fitting different sized cable clips, the largest cable clip must be fitted on top.
The cable clips can also be fitted under the cable clips with U suspension bracket 0 20133.

CABLE CLIP 0 20133



Operating temperature: -30°C to +80°C

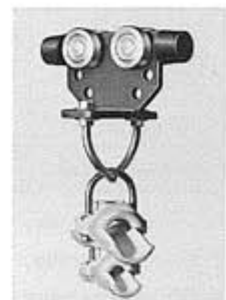
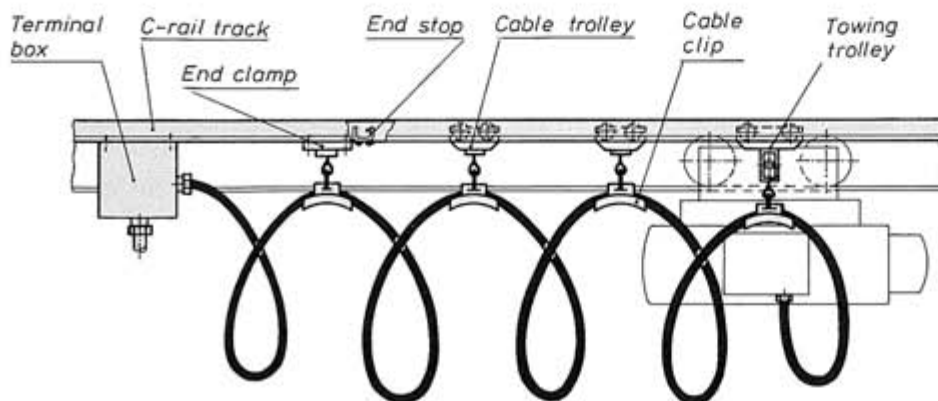
Material: cable clip
size 16, 25, 36: plastic
size 50, 63: aluminium
fasteners: steel, galvanized



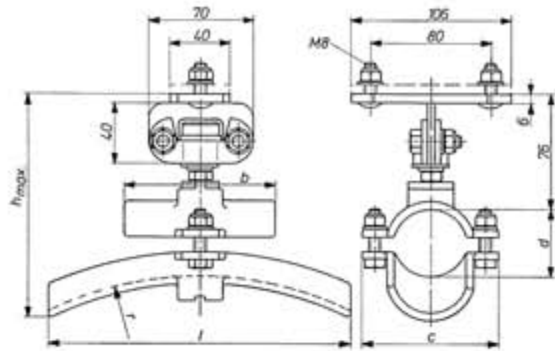
Catalogue No.	d Cable-ø	r	l	h max.	b	c	Weight [kg]	Suitable cable trolleys	Suitable towing trolleys	Suitable end clamps
0 20133-16	10-16	80	70	48	35	42	0.050	0 24316 0 24320	0 24317 0 24321	0 24318 0 24322
0 20133-25	17-25	125	100	60	50	50	0.070			
0 20133-36	26-36	180	140	78	70	64	0.140			
0 20133-50	37-50	250	200	100	100	90	0.280			
0 20133-63	51-63	315	250	125	125	100	0.480			

EXAMPLE OF APPLICATION

Cable trolley 0 24310-125 with attached cable clip 0 20131-25 and 0 20131-16.
Cable trolley 0 24320-160 with attached cable clip 0 20133-36 and 0 20133-25.



CABLE CLIP 0 20135 heavy type, rotating



Operating temperature: -30°C to +80°C

Material:
 cable clip: aluminium
 main body: steel, galvanized
 fasteners: steel, galvanized



Catalogue No.	d Cable-ø	r	l	h max.	b	c	Weight [kg]	Attachable cable clip
0 20135-50	37-50	250	200	140	100	90	0.760	0 20131
0 20135-63	51-63	315	250	160	125	100	0.960	

Application: The cable clip can be fitted with a cable trolley upper part, a towing box and a end clamp upper part to complete cable trolleys, towing trolleys and end clamps.
 The width of the upper parts have to be 100 resp. 160 mm, hole distance 80 mm.

COMBINATIONS OF UPPER PARTS WITH CABLE CLIP 0 20135 to cable trolleys, towing trolleys and end clamps

ORDER EXAMPLE

Cable trolley upper part 0 24510-250 x 100 must be combined with 0 20135-50.

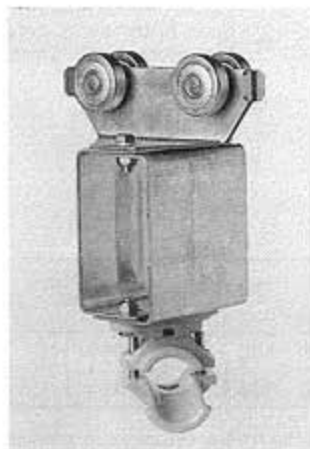
ORDER DETAILS: 1 off cable trolley upper part 0 24510-250 x 100 with
 1 off cable clip 0 20135-50



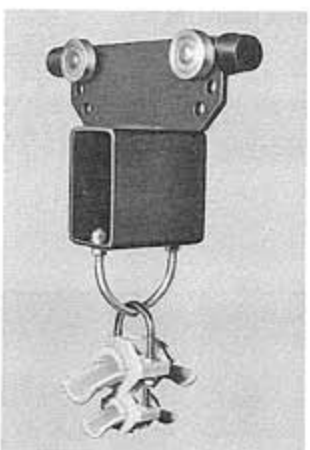
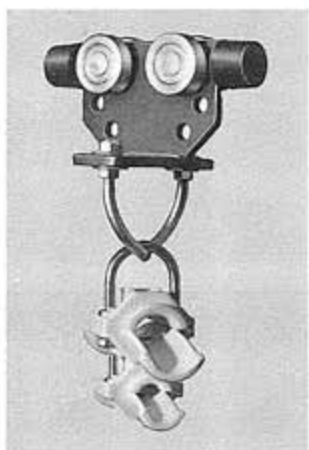
Upper parts Catalogue No.	Cable trolley upper part 0 24510-... x 100	Cable trolley upper part 0 24510-... x 100	End clamp upper part 0 20297-100
		 Towing box 0 20294-100 	
	Lower part Catalogue No.	Cable trolley	Towing trolley
Cable clip 0 20135-...			

EXAMPLES OF APPLICATION

Cable trolley 0 24313, towing trolley 0 24314 and end clamp 0 24312 with cable clip 0 20131-25.



Cable trolley 0 24320-160, towing trolley 0 24321 and end clamp 0 24322 with cable clip 0 20133-36 and 0 20131-25.



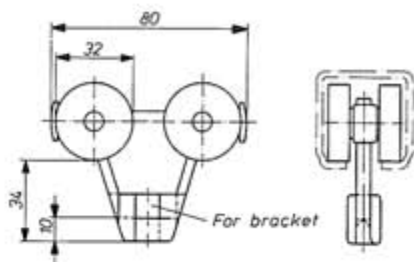
Cable trolley consisting of: cable trolley upper part 0 24510-250 x 100, cable clip 0 20135-63 and 0 20131-50.
Towing trolley consisting of: cable trolley upper part 24510-250 x 100, towing box 0 20294-100, cable clip 0 20135-63 and 0 20131-50.
End clamp consisting of: end clamp upper part 0 20297-100, cable clip 0 20135-63 and 0 20131-50.



CABLE TROLLEY with BRACKET

CABLE TROLLEY UPPER PART 0 24504

for use with bracket 0 20137



Material: main body: plastic, black
roller: see table

Attachment: bracket 0 20137

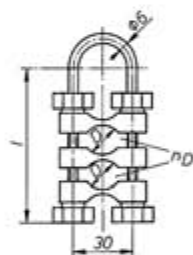


Catalogue No.	Type of roller	Load capacity P [kg]	Operating temperature [°C]	Weight [kg]	Special pairs of rollers Group ¹⁾
Trolley upper part 0 24504	Polyamide roller, yellow with central friction bearing	10	-30 to +50	0.050	C

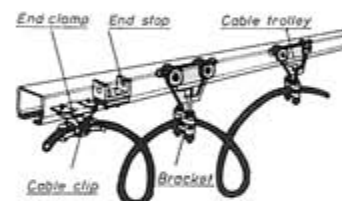
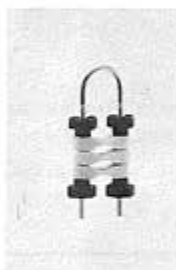
1) For special pairs of rollers refer to page 240/50.

BRACKET 0 20137

for cable trolley upper part 0 24504



Material:
bracket: steel, galvanized
clamping pieces: plastic
split nut: plastic



Catalogue No.	Number of loops nD	Permissible single diam. D	Sum of all single diameters	Length l	Weight [kg]
Bracket 0 20137-1 x 18	1	8-18	18	63	0.055
Bracket 0 20137-1 x 22		8-22	22	80	0.060
Bracket 0 20137-2 x 32	2	8-22	32	80	0.065
Bracket 0 20137-2 x 44		8-22	44	100	0.070
Bracket 0 20137-3 x 30	3	8-22	30	80	0.070
Bracket 0 20137-3 x 50		8-22	50	100	0.080
Bracket 0 20137-3 x 66		8-22	66	125	0.090
Bracket 0 20137-4 x 48	4	8-22	48	100	0.085
Bracket 0 20137-4 x 72		8-22	72	125	0.090
Bracket 0 20137-5 x 45	5	8-22	45	100	0.090
Bracket 0 20137-5 x 70		8-22	70	125	0.095
Bracket 0 20137-6 x 68	6	8-22	68	125	0.100

ORDER EXAMPLE

Cable trolley upper part 0 24504 fitted with bracket 0 20137-2 x 32.

ORDER DETAILS: Cable trolley upper part 0 24504 with bracket 0 20137-2 x 32.

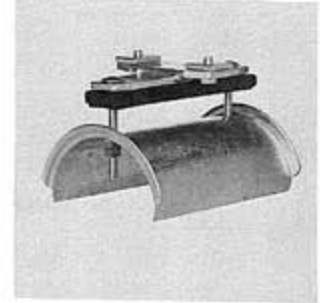
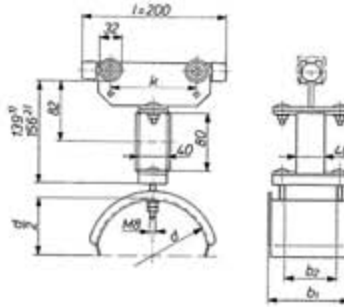
Remark: Cable trolley upper parts are supplied complete with U-brackets.

End clamp 0 24312 to be used in conjunction with these trolleys. Cable clips 0 20131 are to be fitted under the end clamp.

CABLE TROLLEY OF STEEL

for clamping round cables with a max. \varnothing -difference of 2 mm, 6 mm or 16 mm

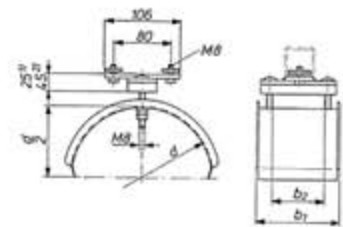
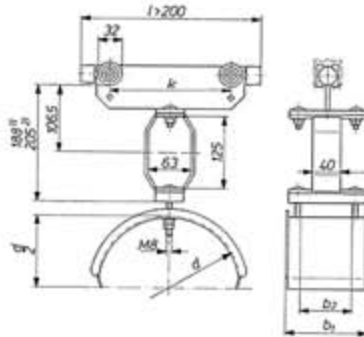
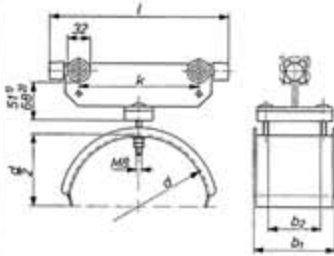
CABLE TROLLEY for clamping round cables with a max. \varnothing -difference of 2 mm and 6 mm



CABLE TROLLEY

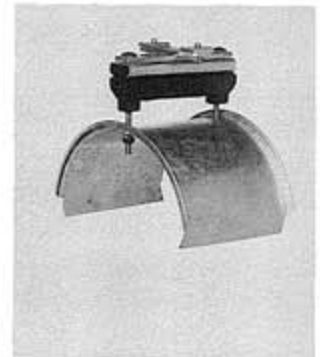
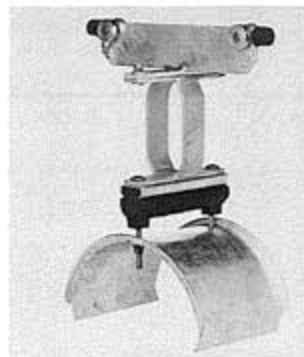
TOWING TROLLEY

END CLAMP



- 1) The dimension applies for clamping round cables with a max. \varnothing -difference of 2 mm.
- 2) The dimension applies for clamping round cables with a max. \varnothing -difference of 6 mm.

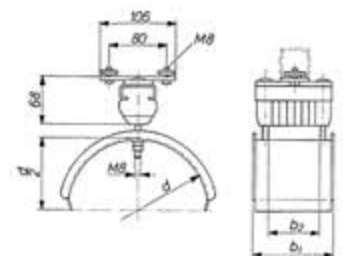
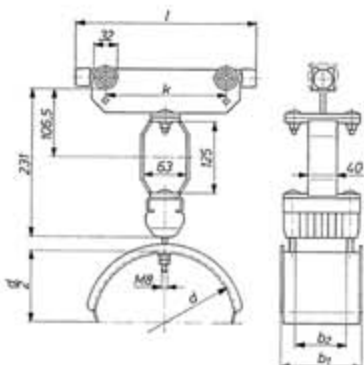
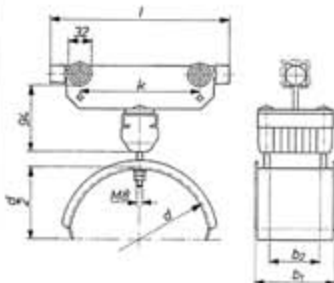
CABLE TROLLEY for clamping round cables with a max. \varnothing -difference of 16 mm



CABLE TROLLEY

TOWING TROLLEY

END CLAMP



Technical data

Type of roller	Load capacity P [kg]	Operating temperature [°C]	Material	Special pairs of rollers Group ³⁾
Steel ball bearing, galvanized	32	-30 to +80	Main body: steel, galvanized Buffer: rubber Support: steel, galvanized Clamping piece: rubber Fasteners: steel, galvanized	A (B restricted)

CABLE TROLLEY for clamping round cables with a max. Ø-difference of 2 mm

CABLE TROLLEY		TOWING TROLLEY		END CLAMP		DIMENSIONS					
Catalogue No.	Weight [kg]	Catalogue No.	Weight [kg]	Catalogue No.	Weight [kg]	d	l	b ₁	b ₂ max.	max. Cable ø	k
0 24412-160x100 0 24412-160x160	1.300 1.570	0 24422-200x100 ⁴⁾ 0 24422-200x160 ⁴⁾	2.000 2.370	0 24432-100 0 24432-160	1.100 1.350	125	160	115 175	72 132	12.5	81
0 24213-200x100 0 24213-200x160	1.300 1.720	0 24223-200x100 0 24223-200x160	1.900 2.520	0 24233-100x22 0 24233-160x22	1.000 1.400	160	200	115 175	72 132	16	121
0 24214-250x100 0 24214-250x160	1.500 2.070	0 24224-250x100 0 24224-250x160	2.100 2.870	0 24234-100x22 0 24234-160x22	1.100 1.650	200	250	115 175	72 132	20	171
0 24215-320x160 0 24215-320x200	2.520 3.010	0 24225-320x160 0 24225-320x200	3.320 3.810	0 24235-160x42 0 24235-200x42	1.900 2.450	250	320	175 215	132 172	25	241

CABLE TROLLEY for clamping round cables with a max. Ø-difference of 6 mm

CABLE TROLLEY		TOWING TROLLEY		END CLAMP		DIMENSIONS					
Catalogue No.	Weight [kg]	Catalogue No.	Weight [kg]	Catalogue No.	Weight [kg]	d	l	b ₁	b ₂ max.	max. Cable ø	k
0 24442-160x100 0 24442-160x160	1.300 1.570	0 24452-200x100 ⁴⁾ 0 24452-200x160 ⁴⁾	2.000 2.370	0 24462-100 0 24462-160	1.100 1.350	125	160	115 175	72 132	12.5	81
0 24443-200x100 0 24443-200x160 0 24443-200x200	1.500 1.920 2.160	0 24453-200x100 0 24453-200x160 0 24453-200x200	2.100 2.720 2.960	0 24463-100 0 24463-160 0 24463-200	1.200 1.600 1.840	160	200	115 175 215	72 132 172	16	121
0 24444-250x100 0 24444-250x160 0 24444-250x200	1.700 2.270 2.670	0 24454-250x100 0 24454-250x160 0 24454-250x200	2.200 3.070 3.470	0 24464-100 0 24464-160 0 24464-200	1.300 1.850 2.250	200	250	115 175 215	72 132 172	20	171
0 24445-320x100 0 24445-320x160 0 24445-320x200 0 24445-320x250	2.200 2.720 3.120 3.620	0 24455-320x100 0 24455-320x160 0 24455-320x200 0 24455-320x250	2.900 3.520 3.920 4.400	0 24465-100 0 24465-160 0 24465-200 0 24465-250	1.600 2.100 2.500 3.000	250	320	115 175 215 265	72 132 172 222	25	241
0 24447-400x100 0 24447-400x160 0 24447-400x200 0 24447-400x250	2.750 3.520 3.920 4.520	0 24457-400x100 0 24457-400x160 0 24457-400x200 0 24457-400x250	3.450 4.320 4.720 5.320	0 24467-100 0 24467-160 0 24467-200 0 24467-250	1.950 2.700 3.100 3.700	320	400	115 175 215 265	72 132 172 222	32	321
0 24449-500x100 0 24449-500x160 0 24449-500x200 0 24449-500x250	3.500 4.000 4.700 5.000	0 24459-500x100 0 24459-500x160 0 24459-500x200 0 24459-500x250	4.100 4.800 5.200 5.800	0 24469-100 0 24469-160 0 24469-200 0 24469-250	2.800 3.300 3.700 4.300	400	500	115 175 215 265	72 132 172 222	40	421


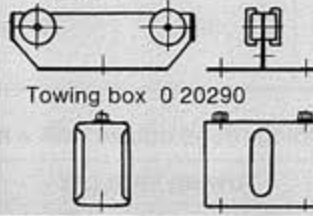
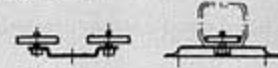
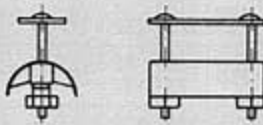
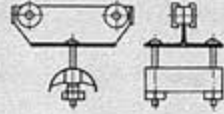
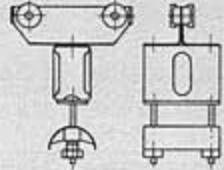
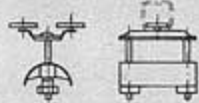

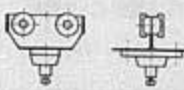


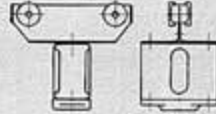
CABLE TROLLEY for clamping round cables with a max. Ø-difference of 16 mm

CABLE TROLLEY		TOWING TROLLEY		END CLAMP		DIMENSIONS					
Catalogue No.	Weight [kg]	Catalogue No.	Weight [kg]	Catalogue No.	Weight [kg]	d	l	b ₁	b ₂ max.	max. Cable ø	k
0 24474-250x100 0 24474-250x160 0 24474-250x200	1.700 2.270 2.670	0 24484-250x100 0 24484-250x160 0 24484-250x200	2.200 3.070 3.470	0 24494-100 0 24494-160 0 24494-200	1.300 1.850 2.250	200	250	115 175 215	66 126 166	20	171
0 24475-320x100 0 24475-320x160 0 24475-320x200 0 24475-320x250	2.200 2.720 3.120 3.620	0 24485-320x100 0 24485-320x160 0 24485-320x200 0 24485-320x250	2.900 3.520 3.920 4.420	0 24495-100 0 24495-160 0 24495-200 0 24495-250	1.600 2.100 2.500 3.000	250	320	115 175 215 265	66 126 166 210	25	241
0 24477-400x160 0 24477-400x200 0 24477-400x250	3.520 3.920 4.520	0 24487-400x160 0 24487-400x200 0 24487-400x250	4.320 4.720 5.320	0 24497-160 0 24497-200 0 24497-250	2.700 3.100 3.700	320	400	175 215 265	126 166 210	32	321
0 24479-500x160 0 24479-500x200 0 24479-500x250	4.000 4.400 5.000	0 24489-500x160 0 24489-500x200 0 24489-500x250	4.800 5.200 5.800	0 24499-160 0 24499-200 0 24499-250	3.300 3.700 4.300	400	500	175 215 265	126 166 210	40	421

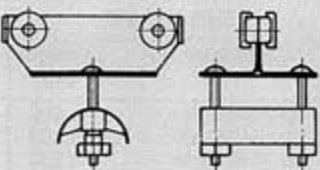
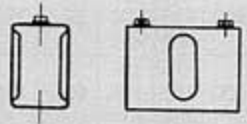
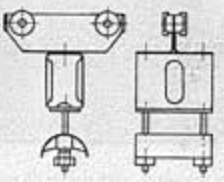
3) For special pairs of rollers refer to page 240/50. 4) Length of the towing trolley 200 mm.

COMPONENTS AND PARTS

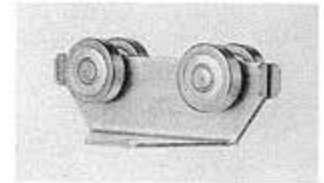
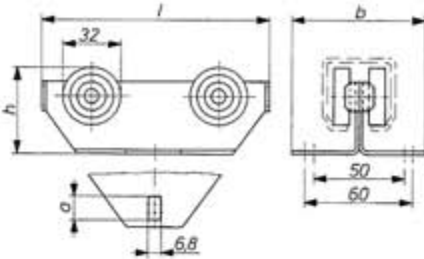
PARTS COMBINATION for cable trolleys, towing trolleys and end clamps

<p>Upper parts Catalogue No.</p> <p>Lower parts Catalogue No.</p>	<p>Cable trolley upper part 0 24512-80, 0 24512</p> 	<p>Cable trolley upper part 0 24512</p> <p>Towing box 0 20290</p> 	<p>End clamp upper part 0 20142</p> 
<p>Flat cable support 0 20168, 0 20170 0 20169</p> 	<p>Cable trolley</p> 	<p>Towing trolley</p> 	<p>End clamp</p> 
<p>Ball joint 0 20156</p> 	<p>Cable trolley</p> 		<p>End clamp 0 24312</p>  <p>(Already completely in the programme)</p>
<p>End clamp 0 20160 only mount on the towing box</p> 		<p>Towing trolley</p> 	

COMBINATION OF CABLE TROLLEY AND TOWING BOX for towing trolley

<p>Cable trolley</p> <p>Mounting part Catalogue No.</p>	<p>Cable trolley with support</p> 	
<p>Towing box 0 20290</p> 	<p>Towing trolley</p> 	

CABLE TROLLEY UPPER PART 0 24512



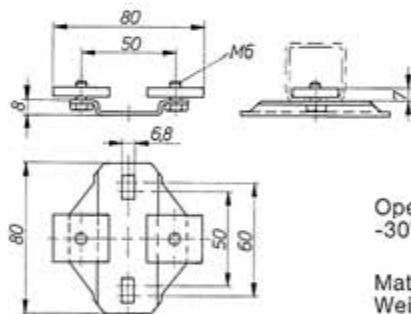
Technical data

Type of roller	Load capacity P [kg]	Operating temperature [°C]	Material	Special pairs of rollers Group ¹⁾
Steel ball bearing, galvanized	32	-30 to +100	Main body: steel, galvanized	A and B

Catalogue No.	l	b	h	a	Weight [kg]
Cable trolley upper part 0 24512-80 ²⁾	80	74	ca. 45	12.6	0.310
Cable trolley upper part 0 24512 ²⁾	125	80	ca. 50	13.0	0.400

- 1) For special pairs of rollers refer to page 240/50.
2) No towing ropes can be fitted to these trolleys.

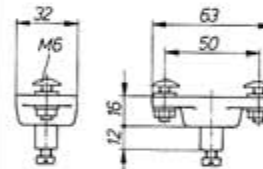
Catalogue No.: END CLAMP UPPER PART 0 20142 for cable support



Operating temperature:
-30°C bis +100°C

Material: steel, galv.
Weight: 0.122 kg

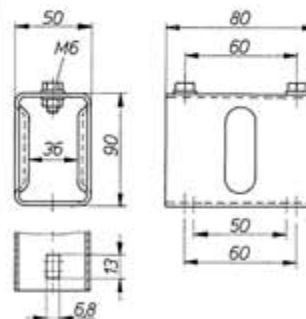
Catalogue No.: BALL JOINT 0 20156



Operating temperature:
-30°C to +60°C

Material:
ball joint: plastic
fasteners: steel, galv.
Weight: 0.035 kg

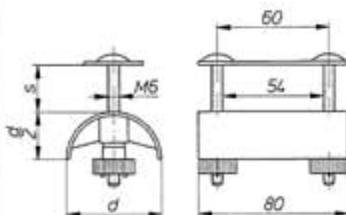
Catalogue No.: TOWING BOX 0 20290



Operating temperature:
-30°C to +100°C

Material: steel, galv.
Weight: 0.385 kg

CABLE SUPPORT 0 20168, 0 20169, 0 20170 for flat cables

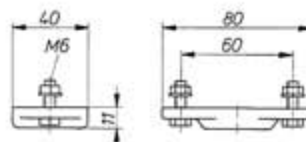


Operating temperature:
-30°C to +80°C

Material:
support: plastic
insulating plate: plastic
split nut: plastic
screw: steel, galv.

Catalogue No.	d	s max.	Weight [kg]
Cable support 0 20168	50	30	0.060
Cable support 0 20170		45	0.066
Cable support 0 20169	80	36	0.095

Catalogue No.: END CLAMP 0 20160 for installation on towing box


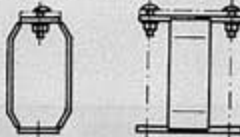


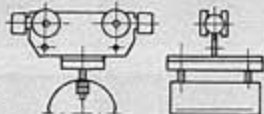
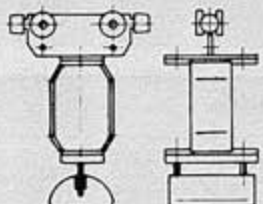
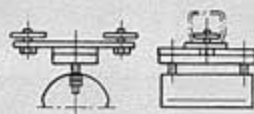

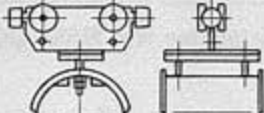
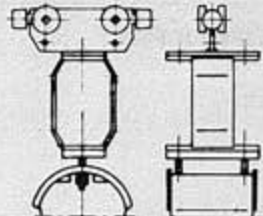
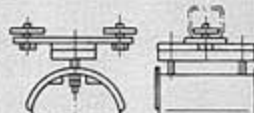


Operating temperature:
-30°C to +80°C

Material:
connection plate: plastic
fasteners: steel, galv.
Weight: 0.035 kg

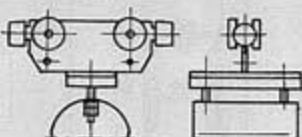
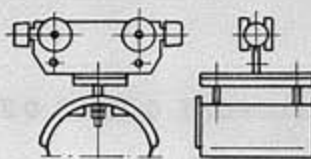
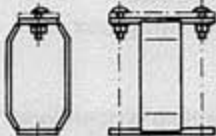
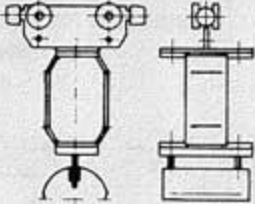
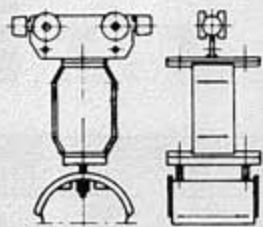
PARTS COMBINATION of cable trolleys, towing trolleys and end clamps

Only parts with the same corresponding dimensions can be combined.

<p>Upper parts Catalogue No.</p> <p>Lower parts Catalogue No.</p>	<p>Cable trolley upper part 0 24510</p> 	<p>Cable trolley upper part 0 24510</p> <p>Towing box 0 20294¹⁾</p> 	<p>End clamp upper part 0 20297</p> 
<p>Cable support for flat cable 0 20510 0 20512</p> 	<p>Cable trolley for flat cable</p> 	<p>Towing trolley for flat cable</p> 	<p>End clamp for flat cable</p> 
<p>Cable trolley for flat or round cable 0 20513 0 20514</p> 	<p>Cable trolley for flat or round cable</p> 	<p>Towing trolley for flat or round cable</p> 	<p>End clamp for flat or round cable</p> 

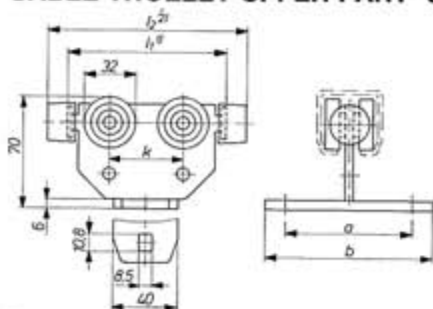
COMBINATION of CABLE TROLLEYS and TOWING BOXES for towing trolleys

Only parts with the same corresponding dimensions can be combined.

<p>Cable trolley</p> <p>Mounting part Catalogue No.</p>	<p>Cable trolley for flat cable</p> 	<p>Cable trolley for flat or round cable</p> 
<p>Towing box 0 20294</p> 	<p>Towing trolley for flat cable</p> 	<p>Towing trolley for flat or round cable</p> 

1) When attaching the towing box to the cable trolley upper part with $l_2 = 200$ mm, the dimensions don't apply to the dimensions on page 240/24 and 240/36.

CABLE TROLLEY UPPER PART 0 24510



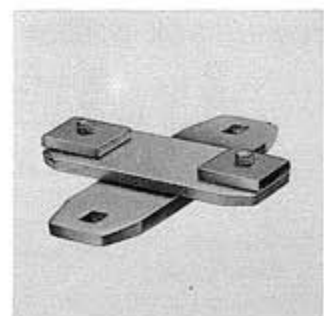
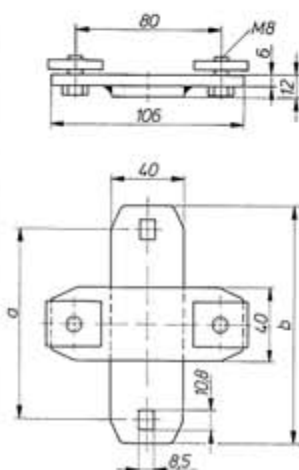
Technical data

Type of roller	Load capacity P [kg]	Operating temperature [°C]		Material	Special pairs of rollers Group ³⁾
		Cable trolley upper part without buffer	Cable trolley upper part with buffer		
Steel ball bearing, galvanized	32	-30 to +100	-30 to +80	Main body: steel, galv. Buffer: rubber	A (B restricted)

Catalogue No.	l_1	l_2	a	b	k	Weight [kg]
Cable trolley upper part 0 24510-100x100 Cable trolley upper part 0 24510-125x100	100 -	- 125	80	106	46	0.530 0.550
Cable trolley upper part 0 24510-100x160 Cable trolley upper part 0 24510-125x160	100 -	- 125	140	166	46	0.650 0.670
Cable trolley upper part 0 24510-135x100 Cable trolley upper part 0 24510-160x100	135 -	- 160	80	106	81	0.610 0.630
Cable trolley upper part 0 24510-135x160 Cable trolley upper part 0 24510-160x160	135 -	- 160	140	166	81	0.730 0.750
Cable trolley upper part 0 24510-175x100 Cable trolley upper part 0 24510-200x100	175 -	- 200	80	106	121	0.710 0.730
Cable trolley upper part 0 24510-175x160 Cable trolley upper part 0 24510-200x160	175 -	- 200	140	166	121	0.830 0.850
Cable trolley upper part 0 24510-225x100 Cable trolley upper part 0 24510-250x100	225 -	- 250 ⁴⁾	80	106	171	0.930 0.950
Cable trolley upper part 0 24510-225x160 Cable trolley upper part 0 24510-250x160	225 -	- 250 ⁴⁾	140	166	171	1.050 1.070

- 1) l_1 = Cable trolley upper part without rubber buffer
- 2) l_2 = Cable trolley upper part with rubber buffer
- 3) For special pairs of rollers refer to page 240/50.
- 4) Trolley with $l_2 > 250$ mm on inquiry.

END CLAMP UPPER PART 0 20297



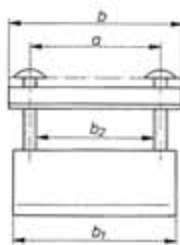
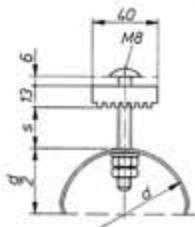
Operating temperature: -30°C to +100°C

Material: steel, galvanized

Catalogue No.	a	b	Weight [kg]
End clamp upper part 0 20297-100	80	106	0.445
End clamp upper part 0 20297-160	140	166	0.560

CABLE SUPPORT 0 20510 and 0 20512

for flat cable Type $d \leq 125$

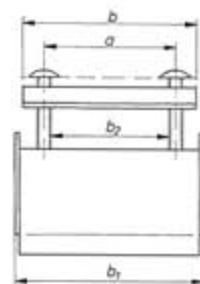
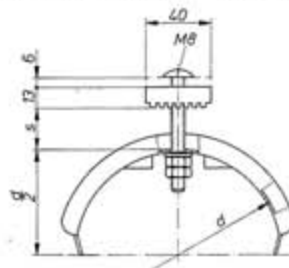


Operating temperature:
-30°C to +80°C

Material:
support: steel, galv.
clamping piece: rubber
fasteners: steel, galv.

CABLE SUPPORT 0 20513 and 0 20514

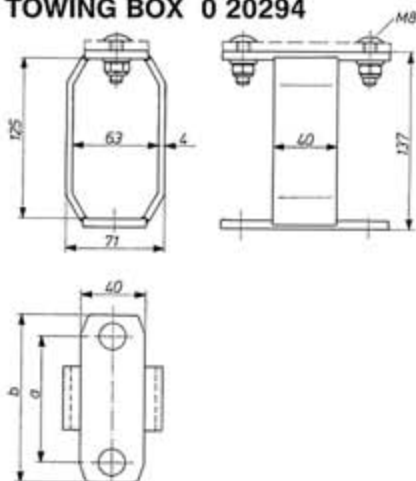
for flat or round cable¹⁾ Type $d \geq 160$



Catalogue No.	d	a	b	b ₁	b ₂	s max.	max. round cable ϕ	Weight [kg]	Suitable trolley length	
									l ₁	l ₂
Cable support 0 20510-100x22	80	80	106	100	72	22	-	0.330	100	-
Cable support 0 20510-160x22		140	166	160	132			-	0.480	100
Cable support 0 20510-100x42		80	106	100	72	42	-	0.340	135	-
Cable support 0 20510-160x42		140	166	160	132			-	0.490	135
Cable support 0 20512-100x22	125	80	106	100	72	22	-	0.440	135	-
Cable support 0 20512-160x22		140	166	160	132			-	0.640	135
Cable support 0 20512-100x42		80	106	100	72	42	-	0.450	175	-
Cable support 0 20512-160x42		140	166	160	132			-	0.690	175
Cable support 0 20513-100x22	160	80	106	115	72	22	16	0.660	175	-
Cable support 0 20513-160x22		140	166	175	132			-	0.940	175
Cable support 0 20513-100x42		80	106	115	72	42	-	0.670	225	-
Cable support 0 20513-160x42		140	166	175	132			-	0.950	225
Cable support 0 20514-100x22	200	80	106	115	72	22	20	0.780	225	-
Cable support 0 20514-160x22		140	166	175	132			-	1.150	225

1) Cable support for clamping round cables with a max ϕ -difference of 2 mm.

TOWING BOX 0 20294



Operating temperature: -30°C to +100°C

Material: steel, galvanized



Catalogue No.	a	b	Weight [kg]
Towing box 0 20294-100	80	106	0.770
Towing box 0 20294-160	140	166	0.885

OBSOLETE CATALOGUE NUMBERS

COMPARISON: Obsolete Catalogue No. and new Catalogue No.

On account of a standardization the complete cable trolleys with polyamide rollers, running on a stainless steel socket, are no longer part of the catalogue. Instead of this the cable trolley with the special pair of rollers "polyamide roller" of group B has to be ordered.

Cable trolley with polyamide rollers, with friction bearing on stainless sockets.

Obsolete Catalogue No. for cable trolleys	New Catalogue No. for cable trolleys with special pair of rollers		Group
Cable trolley 0 24341-100 Cable trolley 0 24341-125	Cable trolley 0 24340-100 Cable trolley 0 24340-125	with 2 off special pair of rollers 0 24675-11	B
Cable trolley 0 24343-100 Cable trolley 0 24343-125	Cable trolley 0 24342-100 Cable trolley 0 24342-125		
Cable trolley 0 24345-100x080 Cable trolley 0 24345-125x080	Cable trolley 0 24344-100x080 Cable trolley 0 24344-125x080		
Cable trolley 0 24347-100 Cable trolley 0 24347-125	Cable trolley 0 24346-100 Cable trolley 0 24346-125		

Discontinued catalogue items available for limited period.

ENERGY SUPPLY SYSTEMS FOR AREAS CONTAINING EXPLOSIVE MIXTURES



Please ask for our Ex-catalogue.

The TECHNISCHE ÜBERWACHUNGSVEREIN has passed the following judgement on our Ex-energy supply system!

ENERGY SUPPLY SYSTEMS
for flat cables type Ex NO 23 008

JUDGEMENT

There are no objections from our part against an application of the energy supply systems type NO 23 008 in areas containing explosive mixtures (according to VDE 0165/09.83) for the installation of mobile explosion-proof electrical material.

The energy supply systems are in agreement with the requirements of the European Standard EN 50014.20 and VDE 0170/0171/05.78.

TECHNISCHER ÜBERWACHUNGS-VEREIN BADEN E.V.
special field electrical engineering

Expert
Signature

December 3rd, 1985

ENERGY SUPPLY SYSTEMS
for round cables type Ex NO 23 009

JUDGEMENT

There are no objections from our part against an application of the energy supply systems type NO 23 009 in areas containing explosive mixtures (according to VDE 0165/09.83) for the installation of mobile explosion-proof electrical material.

The energy supply systems are in agreement with the requirements of the European Standard EN 50014.20 and VDE 0170/0171/05.78.

TECHNISCHER ÜBERWACHUNGS-VEREIN BADEN E.V.
special field electrical engineering

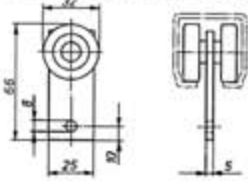
Expert
Signature

March 19th, 1984

CABLE TROLLEYS, END CLAMPS and ACCESSORIES for special purposes

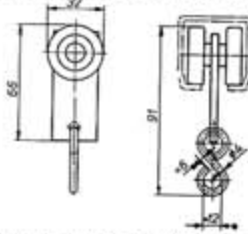
CABLE TROLLEY with 2 rollers

0 24330 with ball bearing



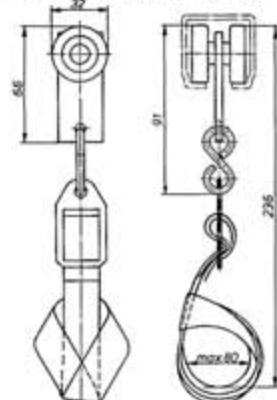
CABLE TROLLEY with 2 rollers with S-hook

0 24332 with ball bearing



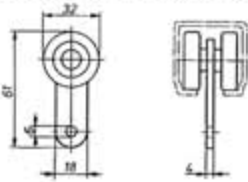
CABLE TROLLEY with 2 rollers with thong

0 24334 with ball bearing



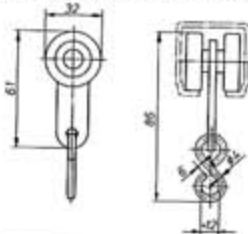
CABLE TROLLEY with 2 rollers

0 24331 with friction bearing



CABLE TROLLEY with 2 rollers with S-hook

0 24333 with friction bearing



CABLE TROLLEY with 2 rollers with thong

0 24335 with friction bearing

Drawing not presented.
Upper part like 0 24331.

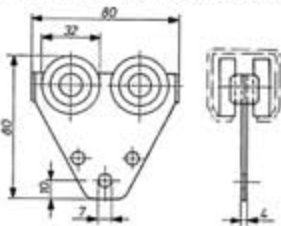
Technical data

Catalogue No.	Type of roller	Load capacity P [kg]	Operating temperature [°C]	Weight [kg]	Material	Special pairs of rollers	Suitable end clamp
0 24330 0 24332 0 24334	Steel ball bearing galvanized	12.5	-30 to +100 -30 to +100 -30 to + 60	0.150 0.160 0.180	Main body: steel, galv. Hook, buckle: steel, galv. Thong: Diolen	Group ¹⁾ A and B	0 20218 0 20219 0 20220-080
0 24331 0 24333 0 24335	Polyam. roller, yellow, with central friction bearing	4	-30 to + 50	0.020 0.030 0.050	Main body: plastic Hook, buckle: steel, galv. Thong: Diolen	Group ¹⁾ C	0 20218 0 20219 0 20220-080

1) For special pairs of rollers refer to page 240/50.

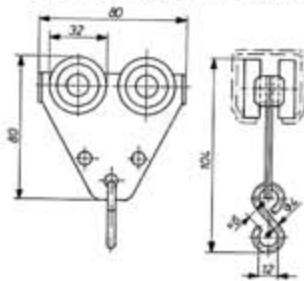
CABLE TROLLEY with 4 rollers

0 24323 with ball bearing



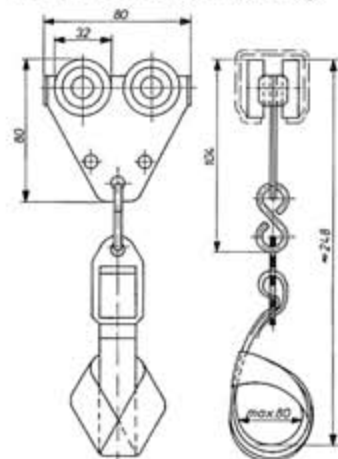
CABLE TROLLEY with 4 rollers with S-hook

0 24324 with ball bearing



CABLE TROLLEY with 4 rollers with thong

0 24325 with ball bearing

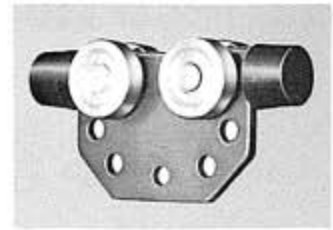
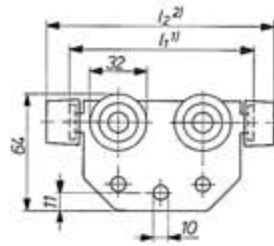


Technical data

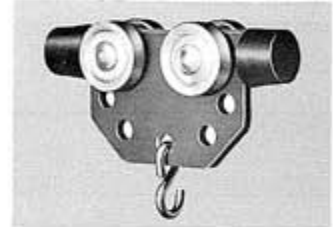
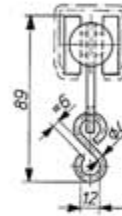
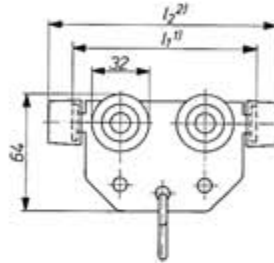
Catalogue No.	Type of roller	Load capacity P [kg]	Operating temperature [°C]	Weight [kg]	Material	Special pairs of rollers	Suitable end clamp
0 24323 0 24324 0 24325	Steel ball bearing, galvanized	32	-30 to +100 -30 to +100 -30 to + 60	0.320 0.330 0.350	Main body, hook and buckle: steel, galvanized Thong: Diolen	Group ¹⁾ A and B	0 20218 0 20219 0 20220-080

1) For special pairs of rollers refer to page 240/50.

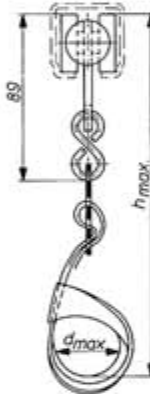
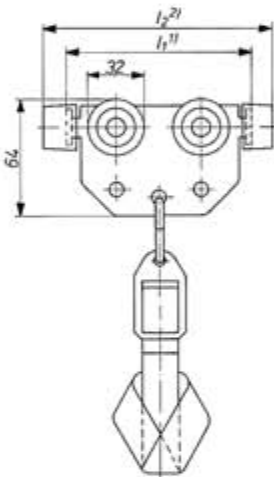
CABLE TROLLEY 0 24340



CABLE TROLLEY 0 24342
with S-hook



CABLE TROLLEY 0 24344
with thong



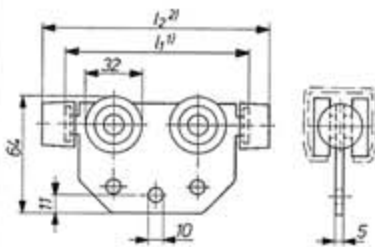
Technical data

Type of rollers	Load capacity P [kg]	Operating temperature [°C]		Material	Special pairs of rollers Group ³⁾
		Cable trolley without buffer	Cable trolley with buffer		
Steel ball bearing, galvanized	32	-30 to +100	-30 to +80	Main body: steel, galvanized Hook: steel, galvanized Buckle: steel, galvanized Thong: Diolen	A (B restricted)
		with thong -30 to +60			

Catalogue No.	l ₁	l ₂	d _{max.}	h _{max.}	Weight [kg]	Suitable end clamp
Cable trolley 0 24340-100	100	-	-	-	0.380	0 20218
Cable trolley 0 24340-125	-	125	-	-	0.400	
Cable trolley 0 24342-100	100	-	-	-	0.390	0 20219
Cable trolley 0 24342-125	-	125	-	-	0.410	
Cable trolley 0 24344-100x080	100	-	80	246	0.410	0 20220-080
Cable trolley 0 24344-125x080	-	125	80	246	0.430	
Cable trolley 0 24344-100x160	100	-	160	326	0.420	0 20220-160
Cable trolley 0 24344-125x160	-	125	160	326	0.440	

- 1) Cable trolley without rubber buffer.
- 2) Cable trolley with rubber buffer.
- 3) For special pairs of rollers refer to page 240/50.

CABLE TROLLEY 0 24340



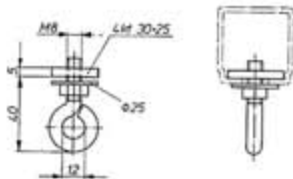
Catalogue No.	l ₁	l ₂	Weight [kg]
Cable trolley 0 24340-100	100	-	0.380
Cable trolley 0 24340-125	-	125	0.400
Cable trolley 0 24340-160	-	160	0.500
Cable trolley 0 24340-200	-	200	0.600
Cable trolley 0 24340-250	-	250	0.820
Cable trolley 0 24340-320	-	320	1.020

Technical data

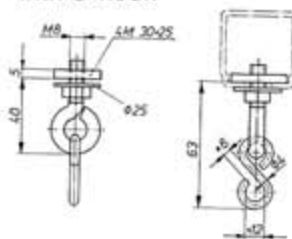
Type of roller	Load capacity P [kg]	Operating temperature [°C]		Material	Special pairs of rollers Group ³⁾
		Cable trolley without buffer	Cable trolley with buffer		
Steel ball bearing, galvanized	32	-30 to +100	-30 to +80	Main body: steel, galvanized Buffer: rubber	A and B

- 1) Cable trolley without rubber buffer.
- 2) Cable trolley with rubber buffer.
- 3) For special pairs of rollers refer to page 240/50.

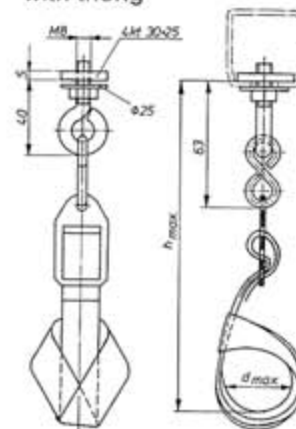
END CLAMP 0 20218



END CLAMP 0 20219 with S-hook



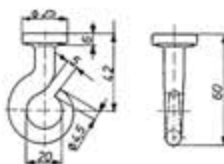
END CLAMP 0 20220 with thong



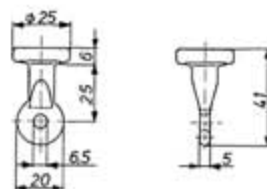
Technical data

Catalogue No.	d max.	h max.	Operating temperature [°C]	Weight [kg]	Material	Suitable cable trolleys
0 20218	-	-	-30 to +100	0.070	Main body: steel, galv.	0 24330 0 24331 0 24323 0 24340
0 20219	-	-	-30 to +100	0.090	Hook: steel, galv.	0 24332 0 24333 0 24324 0 24342
0 20220-080	80	220	-30 to + 60	0.110	Buckle: steel, galv.	0 24334 0 24335 0 24325 0 24344
0 20220-160	160	300	-30 to + 60	0.120	Thong: Diolen	- - - 0 24344

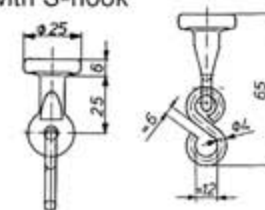
GLIDER 0 20250



GLIDER 0 20260

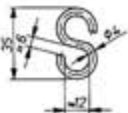
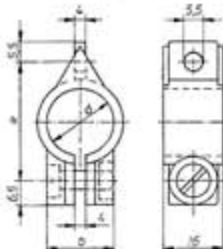

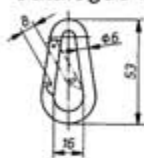
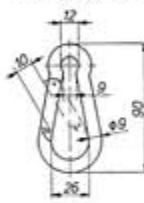
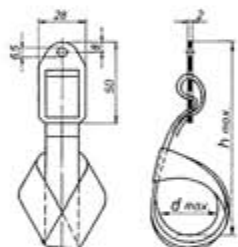
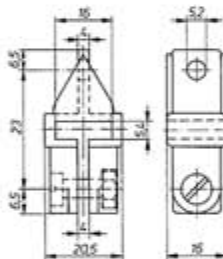



GLIDER 0 20261 with S-hook

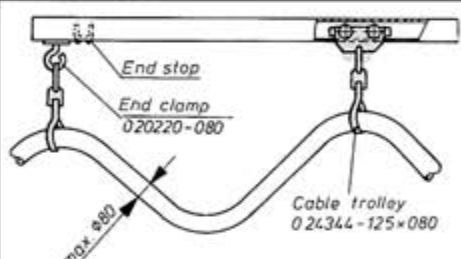


Catalogue No.	Operating temperature [°C]	Weight [kg]	Material
Glider 0 20250	-30 to +60	0.010	Main body: plastic Hook: steel, galvanized
Glider 0 20260		0.005	
Glider 0 20261		0.015	

COMPONENT PARTS for mounting onto cable trolleys, end clamps and gliders

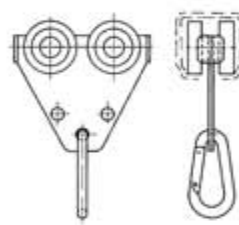
<p>Catalogue No.: Hook 0 20118-35x4</p>  <p>Material: steel, galvanized Weight: 0.010 kg</p>	<p>CABLE COLLAR 0 20111 for round cable</p>  <p>Operating temperature: -30°C to +60°C</p> <p>Material: collar: plastic screw: steel, galvanized nut: steel, galvanized</p> 																																																							
<p>Catalogue No.: SNAP HOOK 0 20215-53x6</p>  <p>Material: steel, galv. Weight: 0.025 kg</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Catalogue No.</th> <th>d</th> <th>b</th> <th>e</th> <th>Weight kg/1000</th> </tr> </thead> <tbody> <tr><td>Cable collar 0 20111-10</td><td>10</td><td rowspan="6">18</td><td>24.5</td><td>7.7</td></tr> <tr><td>Cable collar 0 20111-11</td><td>11</td><td>25.5</td><td>7.7</td></tr> <tr><td>Cable collar 0 20111-12.5</td><td>12.5</td><td>27.0</td><td>8.1</td></tr> <tr><td>Cable collar 0 20111-14</td><td>14</td><td>28.5</td><td>8.4</td></tr> <tr><td>Cable collar 0 20111-16</td><td>16</td><td>30.5</td><td>8.5</td></tr> <tr><td>Cable collar 0 20111-18</td><td>18</td><td>32.5</td><td>8.5</td></tr> <tr><td>Cable collar 0 20111-20</td><td>20</td><td rowspan="6">23</td><td>34.5</td><td>10.0</td></tr> <tr><td>Cable collar 0 20111-22</td><td>22</td><td>36.5</td><td>10.0</td></tr> <tr><td>Cable collar 0 20111-25</td><td>25</td><td>39.5</td><td>11.0</td></tr> <tr><td>Cable collar 0 20111-28</td><td>28</td><td>42.5</td><td>12.0</td></tr> <tr><td>Cable collar 0 20111-32</td><td>32</td><td>46.5</td><td>13.0</td></tr> <tr><td>Cable collar 0 20111-36</td><td>36</td><td>50.5</td><td>14.0</td></tr> </tbody> </table>	Catalogue No.	d	b	e	Weight kg/1000	Cable collar 0 20111-10	10	18	24.5	7.7	Cable collar 0 20111-11	11	25.5	7.7	Cable collar 0 20111-12.5	12.5	27.0	8.1	Cable collar 0 20111-14	14	28.5	8.4	Cable collar 0 20111-16	16	30.5	8.5	Cable collar 0 20111-18	18	32.5	8.5	Cable collar 0 20111-20	20	23	34.5	10.0	Cable collar 0 20111-22	22	36.5	10.0	Cable collar 0 20111-25	25	39.5	11.0	Cable collar 0 20111-28	28	42.5	12.0	Cable collar 0 20111-32	32	46.5	13.0	Cable collar 0 20111-36	36	50.5	14.0
Catalogue No.		d	b	e	Weight kg/1000																																																			
Cable collar 0 20111-10		10	18	24.5	7.7																																																			
Cable collar 0 20111-11	11	25.5		7.7																																																				
Cable collar 0 20111-12.5	12.5	27.0		8.1																																																				
Cable collar 0 20111-14	14	28.5		8.4																																																				
Cable collar 0 20111-16	16	30.5		8.5																																																				
Cable collar 0 20111-18	18	32.5		8.5																																																				
Cable collar 0 20111-20	20	23	34.5	10.0																																																				
Cable collar 0 20111-22	22		36.5	10.0																																																				
Cable collar 0 20111-25	25		39.5	11.0																																																				
Cable collar 0 20111-28	28		42.5	12.0																																																				
Cable collar 0 20111-32	32		46.5	13.0																																																				
Cable collar 0 20111-36	36		50.5	14.0																																																				
<p>Catalogue No.: SNAP HOOK 0 20216-90x9</p>  <p>Material: steel, galv. Weight: 0.095 kg</p>																																																								
<p>THONG 0 20117</p>  <p>Operating temperature: -30°C to +60°C</p> <p>Material: Buckle: steel, galv. Thong: Diolen</p>	<p>CABLE COLLAR 0 20114 for flat cable H07VVH2-F 4G1,5</p>  <p>Operating temperature: -30°C to +60°C</p> <p>Material: collar: plastic screw: steel, galvanized nut: steel, galvanized</p> 																																																							
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Catalogue No.</th> <th>d_{max.}</th> <th>h_{max.}</th> <th>Weight [kg]</th> </tr> </thead> <tbody> <tr> <td>0 20117-080</td> <td>80</td> <td>150</td> <td>0.020</td> </tr> <tr> <td>0 20117-160</td> <td>160</td> <td>230</td> <td>0.030</td> </tr> </tbody> </table>	Catalogue No.	d _{max.}	h _{max.}	Weight [kg]	0 20117-080	80	150	0.020	0 20117-160	160	230	0.030	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Catalogue No.</th> <th>b</th> <th>e</th> <th>Weight kg/1000</th> </tr> </thead> <tbody> <tr> <td>Cable collar 0 20114</td> <td>20</td> <td>23</td> <td>8.0</td> </tr> </tbody> </table>	Catalogue No.	b	e	Weight kg/1000	Cable collar 0 20114	20	23	8.0																																			
Catalogue No.	d _{max.}	h _{max.}	Weight [kg]																																																					
0 20117-080	80	150	0.020																																																					
0 20117-160	160	230	0.030																																																					
Catalogue No.	b	e	Weight kg/1000																																																					
Cable collar 0 20114	20	23	8.0																																																					

EXAMPLES OF APPLICATION



End stop
End clamp 020220-080
Cable trolley 024344-125x080
max. ø80

Energy supply with cable resp. cable bundle diameter up to 80 mm



Cable trolley 0 24323 with snap hook 0 20215-53x6



Cable trolley 0 24324 with cable collar 0 20111-14 and round cable

OBSOLETE CATALOGUE NUMBERS for cable trolleys with snap hook

To offer more possibilities for combination of varying long cable trolleys with different hooks, the cable trolleys and hooks have to be ordered separately. From this follows that the trolleys of opposite table have got a new Catalogue No. Discontinued Catalogue items available for limited period.

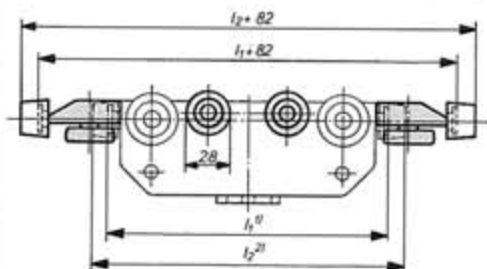
Obsolete Catalogue No. Cable trolley with snap hook	New Catalogue No. for cable trolley with snap hook	
0 24346-100 0 24346-125	0 24340-100 0 24340-125	with snap hook 0 20215-53x6
0 24348-320	0 24340-320	with snap hook 0 20216-90x9

CABLE TROLLEYS with horizontal guide rollers

If cable trolleys are subjected to lateral forces, it is advisable, to equip the trolleys with horizontal guide rollers. This occurs, when the trolley is taken along by a laterally deflected towing rope or a deflected cable.

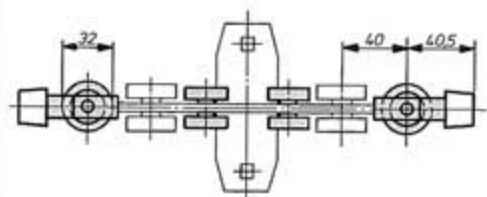
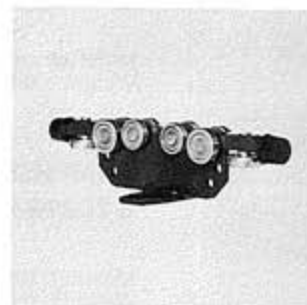
HORIZONTAL GUIDE ROLLERS 0 24631

complete for one trolley, from trolley length $l_1 = 175$ mm



Material:
roller: steel, galvanized
(ball bearing with 2 sealing covers,
2 Z-type)
axle: steel, galvanized
other parts: like cable trolley

weight: 0.200 kg



The set of horizontal guide rollers must be ordered separately.

Catalogue No. Horizontal guide rollers	for trolley dimensions		
	$l_1^{1)}$	$l_2^{2)}$	$b_1^{3)}$
0 24631-200x100 0 24631-200x160 0 24631-200x100	175	200	100/115 160/175 200/215
0 24631-250x100 0 24631-250x160 0 24631-250x100	225	250	100/115 160/175 215
0 24631-280x100 0 24631-280x160 0 24631-280x100	255	280	115 175 215
0 24631-320x100 0 24631-320x160 0 24631-320x100 0 24631-320x160	295	320	115 175 215 265
0 24631-360x160 0 24631-360x100	-	360	175 215
0 24631-400x100 0 24631-400x160 0 24631-400x100 0 24631-400x160	-	400	115 175 215 265
0 24631-500x100 0 24631-500x160 0 24631-500x100 0 24631-500x160	-	500	115 175 215 265

1) Trolley without rubber buffer.

2) Trolley with rubber buffer.

3) Total width of cable support.

ORDER EXAMPLE

The cable trolley 0 24212-250x100 must be equipped with horizontal guide rollers.

ORDER DETAILS: 1 off cable trolley 0 24212-250x100 with
1 off set of horizontal guide rollers 0 24631-250x100

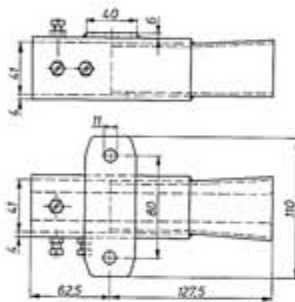
CABLE TROLLEYS and ACCESSORIES for TRACK JUNCTIONS

When our power cable equipment is used with overhead conveyors, travelling cranes, overhead travelling stocking cranes, etc. transfer on to track is easily accomplished.

The following points should be noted:

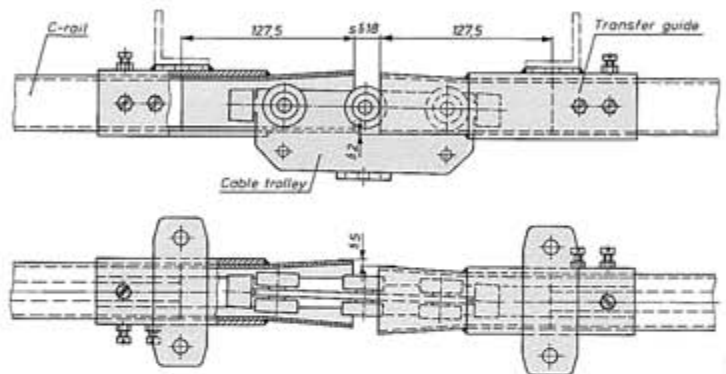
1. Two transfer guide 0 24107 are mounted at the junction with the guide openings opposite to each other.
2. The distance »s« should not exceed 15 mm.
3. All cable trolleys which run past the junction have 3 pairs of runners and the towing trolley has 4 pairs.
4. Cable trolleys which do not run beyond the junction and all components such as C-rail track, track coupler and support bracket etc, are of standard design.

TRANSFER GUIDE 0 24107



Material: steel, galvanized
Weight: 1.0 kg

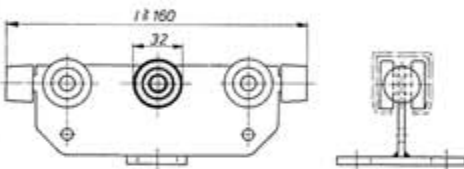
EXAMPLE of APPLICATION



CABLE TROLLEYS for track junctions

Suitable additional pairs of rollers refer to page 240/54.

1. All cable trolleys which run past the junction must be equipped with one additional pair of rollers. The mounting is possible to all cable trolleys for flat and round cables with $l \geq 160$ mm. The additional pair of rollers must be ordered separately.



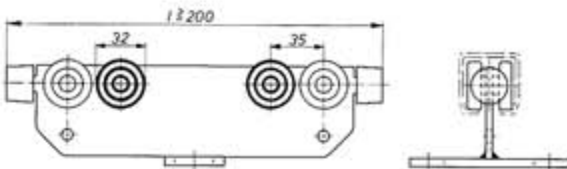
ORDER EXAMPLE:

The cable trolley 0 24210-160x100 must be equipped for track junction with additional rollers of standard type 0 24650-31.

ORDER DETAILS:

1 off cable trolley 0 24210-160x100 with
1 off additional pair of rollers 0 24650-31

2. All towing trolleys which run past the junction must be equipped with 2 additional pairs of rollers. The mounting is possible to all towing trolleys for flat and round cables with $l \geq 200$ mm. The additional pairs of rollers must be ordered separately.



ORDER EXAMPLE:

The towing trolley 0 24220-200x100 must be equipped for track junction with additional rollers of standard type 0 24650-31.

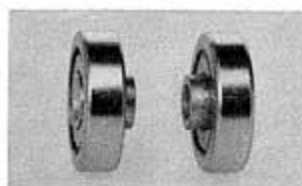
ORDER DETAILS:

1 off towing trolley 0 24220-200x100 with
2 off additional pairs of rollers 0 24650-31.

PAIRS OF ROLLERS AND SETS OF SCREWS for cable trolleys

SPECIAL PAIRS OF ROLLERS

The pairs of rollers are installed instead of the standard rollers. In the tables of the individual cable trolleys you can see, which special rollers (groups) may be installed. The requested number of the pairs of rollers must be ordered separately. The cable trolley with 4 rollers requires 2 pairs of rollers. You will find details on permissible loads on the first few pages of this programme. Pairs of rollers for C-rails with dimensions different from those of the Wampller C-rails can be ordered on inquiry.



GROUP A: Ball bearing

Group	Catalogue No. Special pair of rollers	Quantity		Type		Operating ¹⁾ temperature	Max. ²⁾ travel speed	Remark
		Axle	Roller	Roller	Sealing			
A 1	0 24652-11 with seal rings	-	2	steel, galvanized	2 RS	+100°C - 30°C	80 m/min (100 m/min)	
A 1	0 24660-11 cold-resisting	-	2	steel, galvanized	2 Z	+130°C - 60°C		
A 1	0 24662-11 heat-resisting	-	2	steel, galvanized	2 Z	+200°C 0°C		
A 2	0 24653-11 ground with seal rings	-	2	steel, galvanized ground	2 RS	+100°C - 30°C	125 m/min	
A 3	0 24655-11 precision ball bearing	-	2	steel, galvanized prec. ball bearing	2 RS	+100°C - 30°C	125 m/min	
A 4	0 24640-11 Polyurethan bandage	-	2	steel, galvanized outer ring with Polyureth. band.	2 Z	+ 70°C - 30°C	125 m/min	low noise run
A 4	0 24641-11 Polyurethane bandage with seal rings	-	2	steel, galvanized outer ring with Polyureth. band.	2 RS	+ 70°C - 30°C		
A 5	0 24620-11 stainless	1	2	V4A stainless steel	2 Z	+ 80°C - 10°C	63 m/min (80 m/min)	
A 5	0 24622-11 stainless seal rings	1	2	V4A stainless steel	2 RS	+ 80°C - 10°C		
A 5	0 24670-11 bronze outer ring	-	2	steel, galv. with bronze outer ring	2 Z	+100°C - 30°C		

GROUP B: Friction bearing on stainless sockets

Group	Catalogue No. Special pair of rollers	Quantity		Type			Operating ¹⁾ temperature	Max. ²⁾ travel speed	Remark
		Axle	Roller	Axle	Socket	Roller			
B	0 24675-11 Polyamide rollers	1	2	steel, galvanized	stainless steel	Polyamide	+60°C -30°C	50 m/min	

1) For cable trolleys with rubber and plastic parts please note the operating temperature of the corresponding trolleys.

2) For cable trolleys with 4 rollers.

ORDER EXAMPLES

ORDER EXAMPLE 1: The cable trolley 0 24240 (standard type = ball bearing roller with 2 sealing discs) to be supplied with special ball bearing rollers with 2 sealing discs (2 RS).

ORDER DETAILS: 1 off cable trolley 0 24240 with
2 off special pair of rollers 0 24652-11

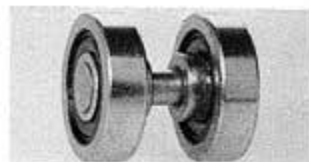
ORDER EXAMPLE 2: The towing trolley 0 24220-200x100 must be equipped with rollers for track junction. Moreover all rollers must be equipped with 2 sealing discs (2 RS-type).

ORDER DETAILS: 1 off towing trolley 0 24220-200x100 with
2 off special pairs of rollers 0 24652-11 and
2 off additional pairs of rollers 0 24652-31

SPARE PARTS – PAIRS OF ROLLERS

ADDITIONAL PAIRS OF ROLLERS for track junctions

The requested number of pairs of rollers must be ordered separately. The cable trolley with 4 rollers requires 2 pairs of rollers. You will find details on permissible loads on the first few pages of this programme.



GROUP A: Ball bearing

Group	Catalogue No. Spare parts – pair of rollers	Catalogue No. Additional pair of rollers	Quantity		Type		Operating ¹⁾ temperature	Max. ²⁾ travel speed
			Axle	Roller	Roller	Sealing		
A 1	0 24650-21 standard type	0 24650-31 standard type	1	2	steel, galvanized	2 Z	+100°C – 30°C	80 m/min (100 m/min)
A 1	0 24652-21 with seal rings	0 24652-31 with seal rings	1	2	steel, galvanized	2 RS	+100°C – 30°C	
A 1	0 24660-21 cold-resistant	0 24660-31 cold-resistant	1	2	steel, galvanized	2 Z	+130°C – 60°C	
A 1	0 24662-21 heat-resistant	0 24662-31 heat-resistant	1	2	steel, galvanized	2 Z	+200°C 0°C	
A 2	0 24653-21 ground with seal rings	0 24653-31 ground with seal rings	1	2	steel, galvanized ground	2 RS	+100°C – 30°C	125 m/min
A 3	0 24655-21 precision ball bearing	0 24655-31 precision ball bearing	1	2	steel, galvanized prec. ball bearing	2 RS	+100°C – 30°C	125 m/min
A 4	0 24640-21 Polyurethane bandage	0 24640-31 Polyurethane bandage	1	2	steel, galvanized outer ring with Polyureth. band.	2 Z	+ 70°C – 30°C	125 m/min
A 4	0 24641-21 Polyurethane bandage with seal rings	0 24641-31 Polyurethane bandage with seal rings	1	2	steel, galvanized outer ring with Polyureth. band.	2 RS	+ 70°C – 30°C	
A 5	0 24620-21 stainless	0 24620-31 stainless	1	2	V4A stainless steel	2 Z	+ 80°C – 10°C	63 m/min (80 m/min)
A 5	0 24622-21 stainless, seal rings	0 24622-31 stainless, seal rings	1	2	V4A stainless steel	2 RS	+ 80°C – 10°C	
A 5	0 24670-21 bronze outer ring	0 24670-31 bronze outer ring	1	2	steel, galv. with bronze outer ring	2 Z	+100°C – 30°C	

GROUP B: Friction bearing on stainless sockets

Group	Catalogue No. Spare parts pair of rollers	Catalogue No. Additional pair of rollers	Quantity		Type			Operating ¹⁾ temperature	Max. ²⁾ travel speed
			Axle	Roller	Axle	Socket	Roller		
B	0 24675-21 Polyamide rollers	0 24675-31 Polyamide rollers	1	2	steel, galv.	stainless steel	Polyamide	+60°C –30°C	50 m/min

GROUP C: Friction bearing in the centre of the trolley

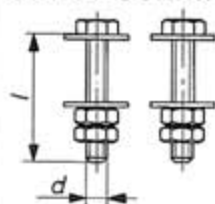
Group	Catalogue No. Spare parts – pair of rollers	Quantity		Type		Operating ¹⁾ temperature	Max. ²⁾ travel speed
		Axle	Roller	Axle	Roller		
C	0 24677-21 standard type	1	2	stainless steel	Polyamide	+60°C –30°C	50 m/min

1) For cable trolley with rubber and plastic parts please note the operating temperature of the corresponding trolleys.
2) For cable trolleys with 4 rollers.

SPECIAL SETS OF SCREWS; stainless steel

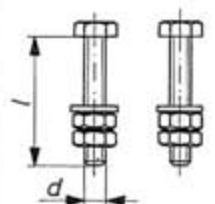
for cable trolleys, towing trolleys, end clamps and cable supports

SET OF SCREW 0 20674; V 4 A



Stainless steel sets of screws can be used on all cable trolleys, towing trolleys, end clamps and cable supports, instead of the standard fixing screws. Use in conjunction with stainless steel rollers. The set of screws must be ordered separately.

SET OF SCREW 0 20675; V 4 A



Catalogue No. Special sets of screws	d	l
0 20674-06x080	M 6	80
0 20675-06x060	M 6	60
0 20675-06x080		80
0 20675-08x060	M 8	60
0 20675-08x080		80
0 20675-08x100		100
0 20675-08x120		120

ASSIGNMENT OF SETS OF SCREWS

to cable trolleys, towing trolleys, end clamps and cable supports

CATALOGUE PAGE 240/20, 240/21

CABLE TROLLEY	SPECIAL SET OF SCREW	TOWING TROLLEY	SPECIAL SET OF SCREW	END CLAMP	SPECIAL SET OF SCREW
0 24240-80	0 20675-06x060	0 24250	0 20675-06x080	0 23269	0 20675-06x080
0 24240	0 20675-06x080				
0 24241	0 20675-06x080	0 24251	0 20675-06x080	0 23279	0 20675-06x080
0 24242-...	0 20674-06x080	0 24252-...	0 20675-06x080	0 23269	0 20675-06x080
0 24243-...		0 24253-...		0 23279	

CATALOGUE PAGE 240/22, 240/23

CABLE TROLLEY	TOWING TROLLEY	END CLAMP	SPECIAL SET OF SCREW
0 24269-...x...	024279-...x...	024289-...x...	0 20675-08x060
0 24270-...x...	024280-...x...	024290-...x...	

CATALOGUE PAGE 240/24, 240/25

CABLE TROLLEY	TOWING TROLLEY	END CLAMP	s _{max.}	SPECIAL SET OF SCREW
0 24210-...x...	-	-	0-22	0 20675-08x060
	-	-	23-42	0 20675-08x080
	0 24220-200x...	0 24230-...x62	43-62	0 20675-08x100
0 24212-...x...	-	-	0-22	0 20675-08x060
	0 24222-200x...	0 24232-...x42	23-42	0 20675-08x080
	0 24222-250x...	0 24232-...x62	43-62	0 20675-08x100
0 24213-...x...	0 24223-...x...	0 24233-...x...	0-22	0 20675-08x060
			23-42	0 20675-08x080
			43-62	0 20675-08x100
0 24214-...x...	0 24224-...x...	0 24234-...x...	0-22	0 20675-08x060
			23-42	0 20675-08x080
			43-62	0 20675-08x100
0 24215-...x...	0 24225-...x...	0 24235-...x...	0-42	0 20675-08x080
			43-62	0 20675-08x100
			63-82	0 20675-08x120

CATALOGUE PAGE 240/36, 240/37

CABLE TROLLEY for clamping round cables with a max. Ø-difference of 2 mm

CABLE TROLLEY	TOWING TROLLEY	END CLAMP	SPECIAL SET OF SCREW
0 24412-160x...	0 24422-200x...	0 24432-...	0 20675-08x060
0 24213-200x...	0 24223-200x...	0 24233-...x..	0 20675-08x060
0 24214-250x...	0 24224-250x...	0 24234-...x..	0 20675-08x060
0 24215-320x...	0 24225-320x...	0 24235-...x..	0 20675-08x080

CABLE TROLLEY for clamping round cables with a max. Ø-difference of 6 mm

CABLE TROLLEY	TOWING TROLLEY	END CLAMP	SPECIAL SET OF SCREW
0 24442-160x...	0 24452-200x...	0 24462-...	0 20675-08x080
0 24443-200x...	0 24453-200x...	0 24463-...	0 20675-08x080
0 24444-250x...	0 24454-250x...	0 24464-...	0 20675-08x080
0 24445-320x...	0 24455-320x...	0 24465-...	0 20675-08x100
0 24447-400x...	0 24457-400x...	0 24467-...	0 20675-08x100
0 24449-500x...	0 24459-500x...	0 24469-...	0 20675-08x100

CABLE TROLLEY for clamping round cables with a max. Ø-difference of 16 mm

CABLE TROLLEY	TOWING TROLLEY	END CLAMP	SPECIAL SET OF SCREW
0 24474-250x...	0 24484-250x...	0 24494-...	0 20675-08x100
0 24475-320x...	0 24485-320x...	0 24495-...	0 20675-08x120
0 24477-400x...	0 24487-400x...	0 24497-...	0 20675-08x120
0 24479-500x...	0 24489-500x...	0 24499-...	0 20675-08x120

CATALOGUE PAGE 240/42

CABLE SUPPORT 0 20510 and 0 20512

for flat cables

CABLE SUPPORT	s _{max.}	SPECIAL SET OF SCREW
0 20510-...x..	22	0 20675-08x060
	42	0 20675-08x080
0 20512-...x..	22	0 20675-08x060
	42	0 20675-08x080

CABLE SUPPORT 0 20513 and 0 20514

for flat or round cables

CABLE SUPPORT	s _{max.}	SPECIAL SET OF SCREW
0 20513-...x..	22	0 20675-08x060
	42	0 20675-08x080
0 20514-...x..	22	0 20675-08x060

ORDER EXAMPLES

ORDER EXAMPLE 1 Cable trolley 0 24242-125 to be supplied with stainless steel screws, nuts and washers.

ORDER DETAILS: 1 off cable trolley 0 24242-125 mit
1 off set of screw 0 20674-06x080

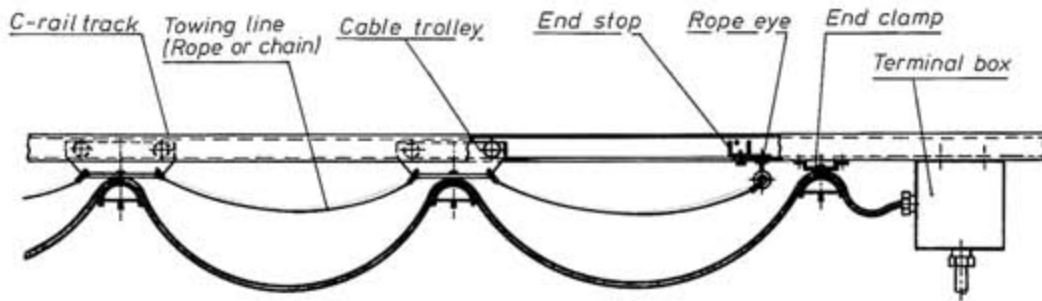
ORDER EXAMPLE 2 Cable trolley 0 24242-125 to be supplied with stainless steel rollers, type 2 Z and stainless steel screws, nuts and washers

ORDER DETAILS: 1 off cable trolley 0 24242-125 with
2 off special pair of rollers 0 24620-11 and
1 off set of screw 0 20674-06x080

ACCESSORIES for flexible cable systems

TOWING LINES

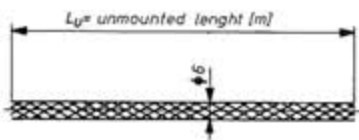
APPLICATION EXAMPLE



The towing ropes are to be fitted in such a way, that in the fully extended position there must be a length reserve of 5%.

ROPES

ROPE 0 20302 - 6

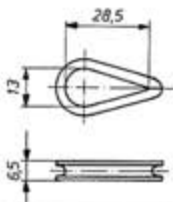


Operating temperature:
-30°C to +60°C

Material: Polyamide

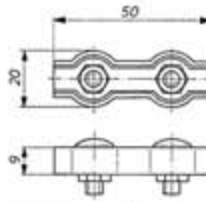
Catalogue No.	Length L_U	Weight kg/100 m
Rope 0 20302 - 6 T	500 m	2.0
Rope 0 20302 - 6	running metre	

Catalogue No.: ROPE THIMBLE 0 20120 - 4



Material: steel, galvanized
Weight: 0.010 kg

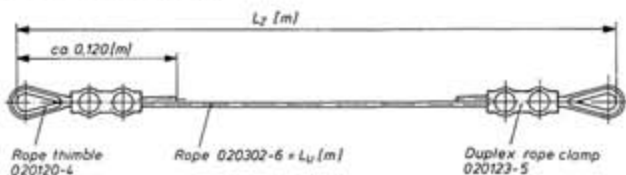
Catalogue No.: DUPLEX ROPE CLIP 0 20123 - 5



Material: steel, galvanized
Weight: 0.025 kg

PROJECTION and ASSEMBLY EXAMPLE

perm. load: 80 kg



The lengths of the complete mounted towing ropes » L_Z « are specified according to chapter »projection« page 240/2.

Please consider for a unmounted rope $2 \times 0.120 = 0.240$ m mounting addition.

The length of an unmounted rope amounts
 $L_U = L_Z + 0.240$ [m]

The calculated single lengths are separated from the total length by means of a hot flame (e.g. tinderbox). So a fray of the rope ends can be prevented.

CALCULATION and ORDER EXAMPLE

5 off towing rope 0 20302 - 6 for self-mounting are required.

Calculated length of the towing rope for 1 rope according e.g.
 $L_Z = 1.650$ m.

Order length for one unmounted rope:

$$\begin{aligned} L_U &= L_Z + 0.240 \\ &= 1.650 + 0.240 \\ &= \underline{1.890 \text{ m}} \end{aligned}$$

Order length for 5 unmounted ropes:

$$5 \times 1.890 = \underline{9.450 \text{ m}}$$

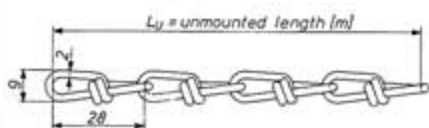
ORDER DETAIL: for 5 off towing rope

10 off rope thimble 0 20120 - 4
10 off Duplex rope clip 0 20123 - 5
9.450 m rope 0 20302 - 6

CHAINS

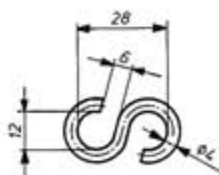
CHAIN 0 20340-2

Material: steel, galvanized



Catalogue No.	Length L_U	Weight kg/100 m
Chain 0 20340-2 T	30 m bundle	8.0
Chain 0 20340-2	running metre	

Catalogue No.: **HOOK 0 20118-35 x 4**

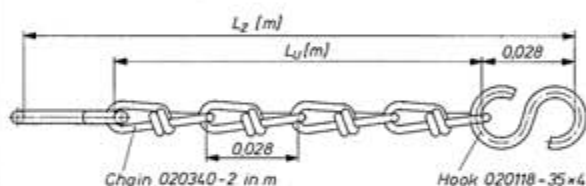


Material: steel, galvanized
Weight: 0.010 kg

Attention:
After mounting the hook ends have to be closed with tongs.

PROJECTION and ASSEMBLY EXAMPLE

perm. load 25 kg



The length of the complete mounted towing chains « L_Z » are specified according to chapter «projection» page 240/2.

The exact measure of the chain « L_Z » is calculated by the length of one chain link x quantity of chain links (n) plus length of 2 hooks.

$$L_Z = 0.028 \times n + 0.056 \text{ [m]}$$

For one unmounted chain you have to subtract from the total length « L_Z » $2 \times 0.028 = 0.056$ m hook length.

The length of one unmounted chain amounts

$$L_U = L_Z - 0.056 \text{ [m]}$$

The S-hooks will be restored in the chain, cutted on length, and closed with tongs.

After restoring the hooks in the cable trolley etc. they have to be strongly closed, too.

CALCULATION and ORDER EXAMPLE

ORDER EXAMPLE 1

A total chain length of 30 m on bundle is required.

ORDER DETAIL: 1 bundle chain 0 20340-2 T

ORDER EXAMPLE 2

6 off unmounted towing chain 020340-2 with a single length of $L_U = 1.204$ m for self-mounting are required.

To that 12 off hook 0 20118-35 x 4.

The 6 chain section parts shall be delivered in a total chain length L_K .

$$L_K = L_U \times n + (n-1) \times 0.028 \text{ [m]}$$

L_K = Total length of the chain [m]

L_U = Length of the unmounted single chain [m]

n = Quantity of the unmounted single chain

$$L_U = 1.204 \text{ m}$$

$$n = 6 \text{ piece}$$

$$L_K = 1.204 \times 6 + (6-1) \times 0.028$$

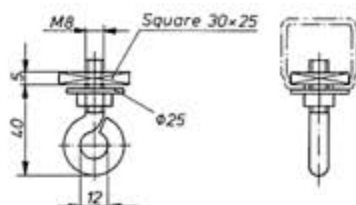
$$= 7.224 + 0.14$$

$$= 7.364 \text{ m}$$

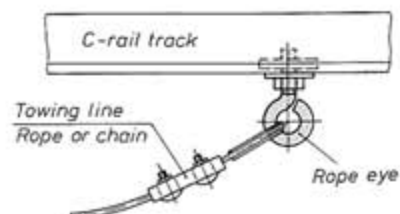
ORDER DETAIL: 7,364 m chain 0 20340-2
12 off hook 0 20118-35 x 4

ROPE EYE used with the first towing line section part

Catalogue No.: **ROPE EYE 0 20118-08**

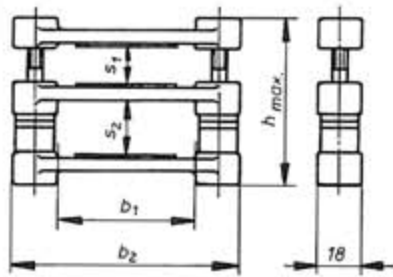


Material: steel, galvanized
Weight: 0.070 kg



CABLE CLAMPS

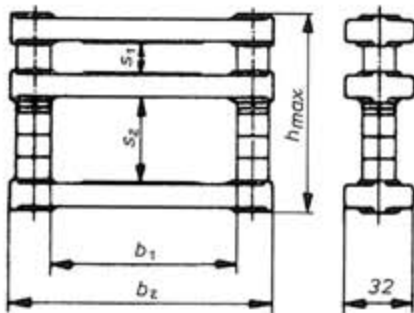
FLAT CABLE CLAMP 0 20126



Material: clamping piece: Polyamide fibre glas reinforced
screw and nut: steel, galvanized

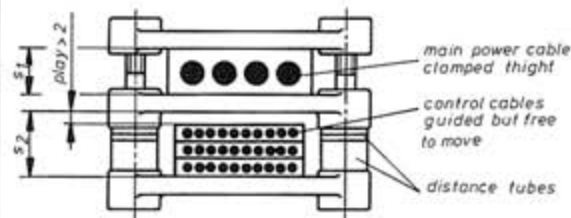
Catalogue No.	b ₁	b ₂	s ₁ + s ₂	s ₁ min.	h max.	Weight [kg]
0 20126 - 054x18	54	90	18	+2.5	3	50
0 20126 - 054x28			28			60
0 20126 - 054x38			38			70
0 20126 - 054x48			48			80
0 20126 - 054x58			58			90
0 31953 - 084x25	84	120	25	+2.5	5	60
0 31953 - 084x35			35			70
0 31953 - 084x45			45			80
0 31953 - 084x55			55			90
0 31953 - 084x65			65			100
0 31953 - 084x75			75			110
0 31953 - 084x85			85			120
0 31953 - 136x25	136	172	25	+2.5	5	60
0 31953 - 136x35			35			70
0 31953 - 136x45			45			80
0 31953 - 136x55			55			90
0 31953 - 136x65			65			100
0 31953 - 136x75			75			110
0 31953 - 136x85			85			120

FLAT CABLE CLAMP 0 31953



Flat cable clamps for wider cable bundles on inquiry.

ASSEMBLY HINTS

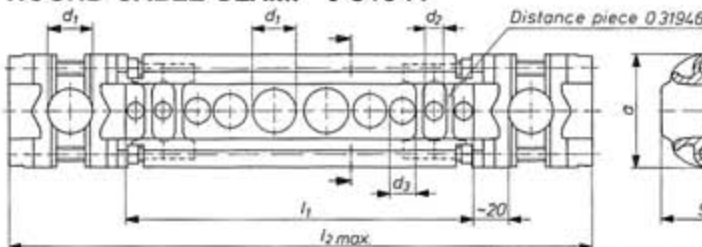


The main power supply cable will be clamped tight in the upper half s_1 of the cable clamp, the control cable (s) is installed with sufficient play (> 2 mm) into the lower half s_2 of the cable clamp.

The cable clamps are assembled by the manufacturer in such a way that the upper half s_1 has the smallest possible dimension and the lower half s_2 has the biggest possible dimension.

By removing some of the distance tubes on the lower half of the cable-clamp the opening gets smaller in steps of 2.5 mm. The opening s_1 is increasing accordingly.

ROUND CABLE CLAMP 0 31941

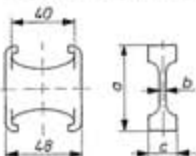


Material: clamping pieces: aluminium / rubber
guide profiles: aluminium
fasteners: steel, galvanized

1) If the sum of the diameters of adjacent cables ($d_1 + d_2$) is less than the value Σd , then distance pieces 0 31946 must be used.

Catalogue No.	max. cable ϕ d_1	l_1	l_2	a	b	Weight [kg]	$\Sigma d^{1)}$
0 31941 - 26x100	26	100	236	64	30	0.705	34
0 31941 - 26x150		150	286			0.785	
0 31941 - 26x200		200	336			0.870	
0 31941 - 36x100	36	100	256	74	40	0.815	46
0 31941 - 36x150		150	306			0.895	
0 31941 - 36x200		200	356			0.980	

DISTANCE PIECE 0 31946

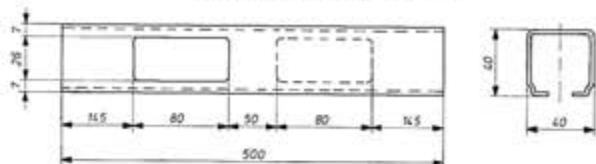


Material: aluminium or Polyamide

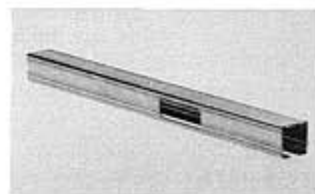
Catalogue No.	a	b	c	Weight [kg]	Suitable cable clamp
0 31946 - 26	54	4	18	0.120	0 31941 - 26x...
0 31946 - 36	64	5	19	0.160	0 31941 - 36x...

INSPECTION- AND ASSEMBLY HINTS

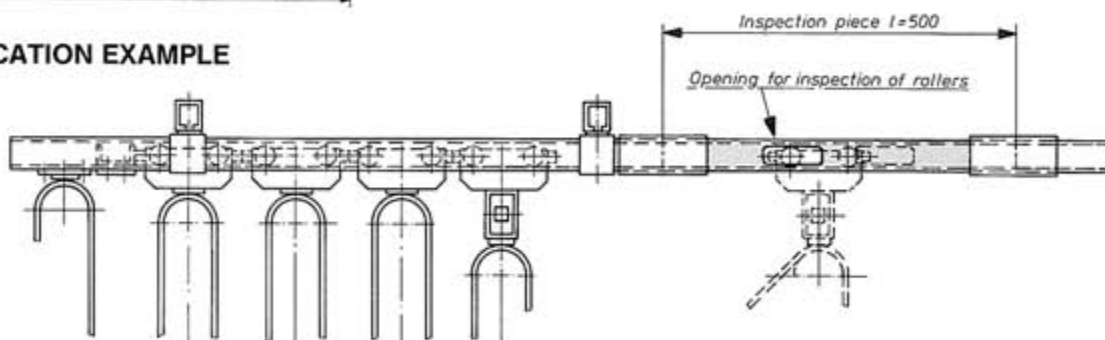
Catalogue No.: **INSPECTION PIECE 0 24118**
of C-rail track 0 24100



Material:
steel, galvanized
Weight: 1.100 kg



APPLICATION EXAMPLE



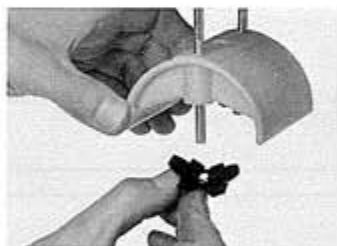
Catalogue No.: **SOCKET WRENCH 0 20104**

Material: Polyamide
Weight: 0.008 kg



ASSEMBLY INSTRUCTION for socket wrench and split nut

The socket wrench makes it easy to tighten the plastic split nuts on the various trolleys. Please note that nuts are only tightened with this wrench. Tightening of the self-locking nut «with force» can damage the screw connection and the cables.



TERMINAL BOXES for line up terminals

We recommend to install a terminal box between the flexible supply cable and the fixed supply line. The advantage of this construction is, that in case of damage the flexible cable can be exchanged irrespective of the fixed installation. Our terminal boxes can be fixed direct to the track beam or if space is limited to the last track support beam or onto the wall.

TERMINAL BOXES OF SHEET STEEL

The terminal boxes are fitted with a mounting bar according to DIN 46 277 and end clips. The mounting bar is for the installation of the line up terminals.

Valid for all terminal boxes:

Protection class: IP 65

Material: case: sheet steel phosphate and stove-enamelled

Operating temperature: -30°C to +80°C

Weight: case size 200 x 200 = ca. 2.6 kg
case size 300 x 200 = ca. 3.5 kg

The terminal boxes can be fitted with cable glands of brass or plastic.

Furthermore holes for cable glands are drilled into the box side walls left, right and bottom according to instructions. The specification of the Pg holes are always from top to bottom respectively from left to right. The following holes can be drilled into the terminal box side:

Through hole for Pg	Number of holes	
	Side 200 mm	Side 300 mm
11	10	16
13,5	8	14
16	8	12
21	6	10
29	4	6
36	2	4
42	2	3
48	2	3

For example the following specification is required for a terminal box:

ORDER EXAMPLE:

terminal box 0 20695 - 200 x 200
left: Pg 16 + Pg 29
right: Pg 21 + Pg 29
bottom: without holes

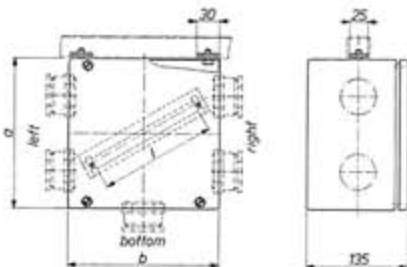
To be ordered separately:

1. Cable glands of brass
for flat cable 0 20610, 0 20611, 0 20615-48, 0 20616-48
for round cable 0 20630, 0 20631, 0 20638
2. Locknuts of brass 0 20650
3. Cable gland of impact resistant plastic
for flat cable 0 20626, 0 20627-48
for round cable 0 20646, 0 20648
4. Locknuts of impact resistant plastic 0 20657
5. Terminal clamps 20605
6. Earth conductor terminal clamps 0 20607
7. PVC- or rubber flat cables
8. PVC- or rubber round cables

On request we fit the terminal boxes with cable glands, terminal clamps and accessories, according to your instructions.

TERMINAL BOX 0 20695

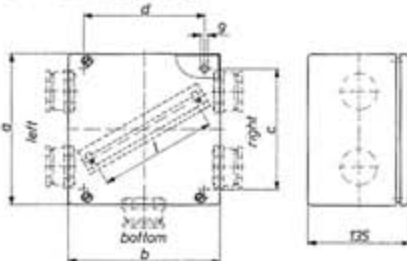
for support in C-rail



Catalogue No.	a	b	l
Terminal box 0 20695-200x200	200	200	180
Terminal box 0 20695-300x200	300	200	280

TERMINAL BOX 0 20696

for wall mounting



Catalogue No.	a	b	c	d	l
Terminal box 0 20696-200x200	200	200	160	160	180
Terminal box 0 20696-300x200	300	200	260	160	280

TERMINAL BOXES OF PLASTIC

The terminal boxes are fitted with a mounting bar according to DIN 46 277 and two end clips. The mounting bar is for the installation of the line up terminals. Line up terminals can be installed over a maximum length of 152 mm. The mounting bar can be installed diagonal or straight.

For all terminal boxes valid:
 Protection class: IP 54
 Material: case: plastic Noryl
 support and small parts: steel, galvanized
 Operating temperature: -30°C to $+80^{\circ}\text{C}$
 Weight: approx. 0.8 kg

We recommend fitting to these terminal boxes preferably cable glands made out of impact resistant plastic. Fitting of metal glands should be avoided because voltage can leak to the outside and additional earthing is required.

Furthermore holes for cable glands are drilled into the box side walls left, right and bottom according to instructions. The specification of the Pg holes are always from top to bottom respectively from left to right. The following holes can be drilled into the terminal box sides.

Through hole for Pg	Number of holes	
	Side 160 mm	Side 200 mm
11	6	8
13.5	6	8
16	6	8
21	3	5
29	2	3
36	1	2
42	1	2
48	1	2

For example the following specification is required for a terminal box:

ORDER EXAMPLE:

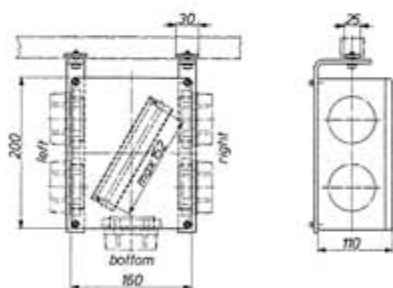
Terminal box 0 20690-11
 left: Pg 36 + Pg 48
 right: without holes
 bottom: Pg 29

To be ordered separately:

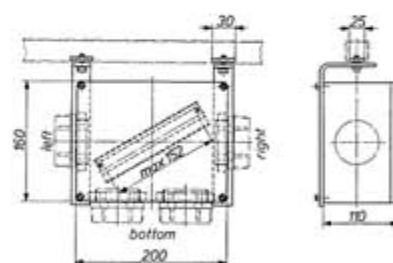
1. Cable glands of impact resistant plastic
 for flat cable 0 20626, 0 20627-48
 for round cable 0 20646, 0 20648
2. Locknuts of impact resistant plastic 0 20657
3. Terminal clamps 0 20605
4. Earth conductor terminal clamps 0 20607
5. PVC- or rubber flat cable
6. PVC- or rubber round cable

On request we fit the terminal boxes with cable glands, terminal clamps and accessories according to your instructions.

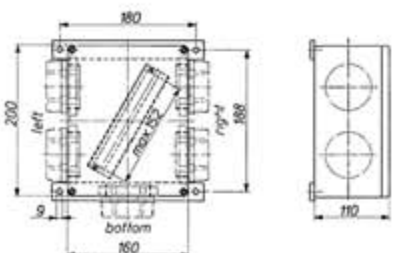
Catalogue No.: **TERMINAL BOX 0 20690-11**
 Support by means of bracket
 Box position vertical



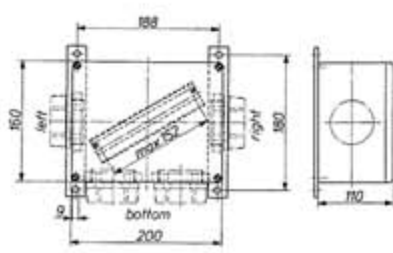
Catalogue No.: **TERMINAL BOX 0 20690-12**
 Support by means of bracket
 Box position horizontal



Catalogue No.: **TERMINAL BOX 0 20690-21**
 Wallmounted
 Box position vertical



Catalogue No.: **TERMINAL BOX 0 20690-22**
 Wallmounted
 Box position horizontal



PLUG AND SOCKET CONNECTIONS



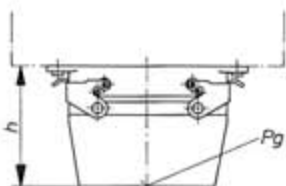
With the use of plug and socket connections complete flexible cable systems, consisting of cable trolleys and cables or control units including suspensions can be kept in stock as component parts. The plug and socket connections are suitable for flat and round cables, using the appropriate Pg glands.

Technical data

Nominal voltage	Nominal current	Protection	Screw connections	Material
415 V	16 A	IP 55 to DIN 40 050	2.5 mm ²	Case: aluminium Connecting plate and small parts: steel, galv.

PLUG and SOCKET CONNECTION 0 20600 for installation to terminal box of sheet steel

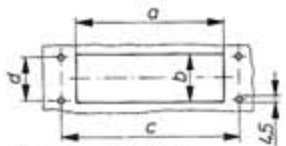
With the use of a plug and socket connection installed to the terminal box, it is very easy to separate the terminal box and cable for repair, assembly or transport.



Catalogue No.	Terminal	h	Threaded connection Pg	Weight [kg]
0 20600-06	6 + E	75	13.5	0.270
0 20600-10	10 + E	80	16	0.380
0 20600-16	16 + E	88	21	0.450
0 20600-24	24 + E	98	29	0.540

We can supply the terminal boxes with cutouts for the installation of plug and socket connections on request.

CUTOUT 0 20071 for plug and socket connection

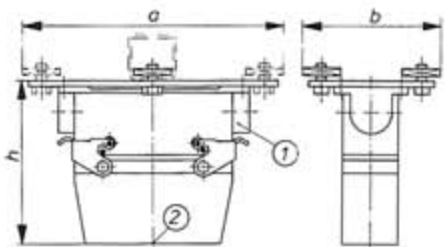


ORDER EXAMPLE:
Terminal box 0 20695-200 x 200
left: Pg 21 + Pg 29
right: without boring
bottom: 0 20071-16

Catalogue No.	a	b	c	d	Fitting plug and socket connection
0 20071-06	48	35	70	32	0 20600-06
0 20071-10	60		83		0 20600-10
0 20071-16	82		103		0 20600-16
0 20071-24	108		130		0 20600-24

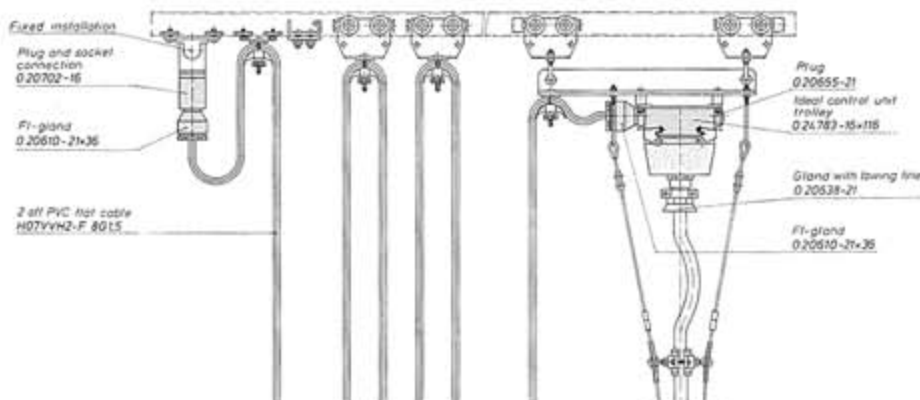
PLUG and SOCKET CONNECTION 0 20702 with mounting plate for installation to C-rail or support arm

In this application there is no transition from the flexible cable system to the fixed installation across a terminal box equipped with a plug and socket connection, but directly via a plug and socket connection fastened to the C-rail track (or the support arm). The plug and socket connection can be installed parallel or at right angles to the track.



Catalogue No.	Terminal	a	b	h	Threaded connect.		Weight [kg]
					① Pg	② Pg	
0 20702-06	6 + E	130	100	115	16	13.5	0.700
0 20702-10	10 + E	140	100	121	16	16	0.840
0 20702-16	16 + E	170	105	129	21	21	1.070
0 20702-24	24 + E	196	105	140	21	29	1.350

APPLICATION EXAMPLE



To be ordered separately:

- Glands
- Lock Nuts
- Enlargement rings
- Plugs

CABLE GLANDS AND ACCESSORIES

for flat and round cables

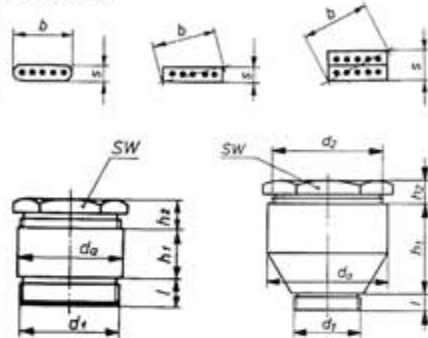
Selection of programme 130/200 for sheet steel terminal boxes and plug and socket connections.



FLAT CABLE GLAND 0 20610

Material: case: brass, nickel-plated or aluminium

Flat cable:

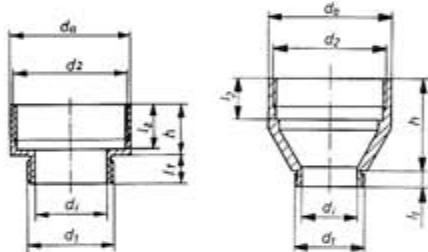


Catalogue No.	d ₁	d ₂	b		s		d _a	l	h ₁	h ₂ ca.	SW
			min	max	min	max					
0 20610-16	Pg 16		13	15	4.0	5.5	24	6.5	13.5	6	22
0 20610-21	Pg 21		14	22	4.5	7.5	30	7	15	8	28
0 20610-29	Pg 29		19	30	4.5	9.5	40	8	16.5	9	37
0 20610-36	Pg 36		29	39	4.5	13.5	50	9	19.5	10	47
0 20610-42	Pg 42		38	45	4.5	14.5	57	10	22	11	54
0 20610-48	Pg 48		44	52	5.5	19.5	64	10	23	12	60
0 20610-21x36	Pg 21	Pg 36	29	39	4.5	13.5	50	7	38	10	47
0 20610-21x42	Pg 21	Pg 42	38	45	4.5	14.5	57	7	58	11	54
0 20610-29x42	Pg 29	Pg 42	38	45	4.5	14.5	57	8	42	11	54
0 20610-29x48	Pg 29	Pg 48	44	52	5.5	19.5	64	8	64	12	60
0 20610-36x48	Pg 36	Pg 48	44	52	5.5	19.5	64	9	46	12	60
0 20610-48x76	Pg 48	M76x2	52	66	6.0	22.0	82	10	75	13	1)

1) Catalogue No.: 0 20610-48 x 76: pressing screw aluminium; outer ring edged

ENLARGEMENT RING 0 20652

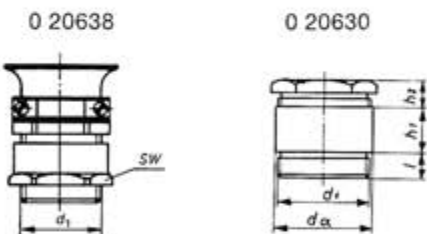
Material: brass, nickel-plated or aluminium



Catalogue No.	d ₁	d ₂	d ₃	d ₄	l ₁	l ₂	h
0 20652-09 x11	Pg 9	15.2	Pg 11	12.5	20	6	9.5
0 20652-11 x13.5	Pg 11	18.6	Pg 13.5	15	22	6	10.5
0 20652-11 x16	Pg 11	18.6	Pg 16	15	14	6	11.5
0 20652-13.5x16	Pg 13.5	20.4	Pg 16	17	24	6.5	11.5
0 20652-16 x21	Pg 16	22.5	Pg 21	18.5	30	6.5	13
0 20652-21 x29	Pg 21	28.3	Pg 29	24	39	7	14.5
0 20652-29 x36	Pg 29	37	Pg 36	32	50	8	17.5
0 20652-36 x42	Pg 36	47	Pg 42	42	57	9	20
0 20652-42 x48	Pg 42	54	Pg 48	48	64	10	21
0 20652-21 x36	Pg 21	28.3	Pg 36	24	50	7	17.5
0 20652-21 x42	Pg 21	28.3	Pg 42	24	57	7	20
0 20652-29 x42	Pg 29	37	Pg 42	32	57	8	20
0 20652-29 x48	Pg 29	37	Pg 48	32	64	8	21
0 20652-36 x48	Pg 36	47	Pg 48	42	64	9	21
0 20652-48 x76	Pg 48	59.3	M 76x2	50	82	10	27

ROUND CABLE GLAND 0 20638 with tension relief and bending protection ROUND CABLE GLAND 0 20630

Material: case: brass, nickel-plated

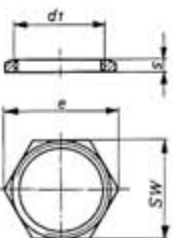


Catalogue No.	1) for Cable ø from-to	Catalogue No.	1) for Cable ø from-to	d ₁	d _a	l	h ₁	h ₂ ca.	SW
0 20638-09	6 - 9	0 20630-09	4 - 10	Pg 9	17	6	10.5	5	17
0 20638-11	7.5-11.5	0 20630-11	6.5-12	Pg 11	20	6	11	5	20
0 20638-13.5	9 - 13.5	0 20630-13.5	6.5-13	Pg 13.5	22	6.5	12.5	6	22
0 20638-16	10 - 15.5	0 20630-16	6.5-16	Pg 16	24	6.5	13.5	6	24
0 20638-21	14 - 20	0 20630-21	9 - 20	Pg 21	30	7	15	8	30
0 20638-29	19 - 28	0 20630-29	17 - 28	Pg 29	40	8	16.5	9	40
-	-	0 20630-36	23 - 28	Pg 36	50	9	19.5	10	-
-	-	0 20630-42	29 - 40	Pg 42	57	10	22	11	-
-	-	0 20630-48	35 - 46	Pg 48	64	10	23	12	-

1) Sealing ring to be cut out.

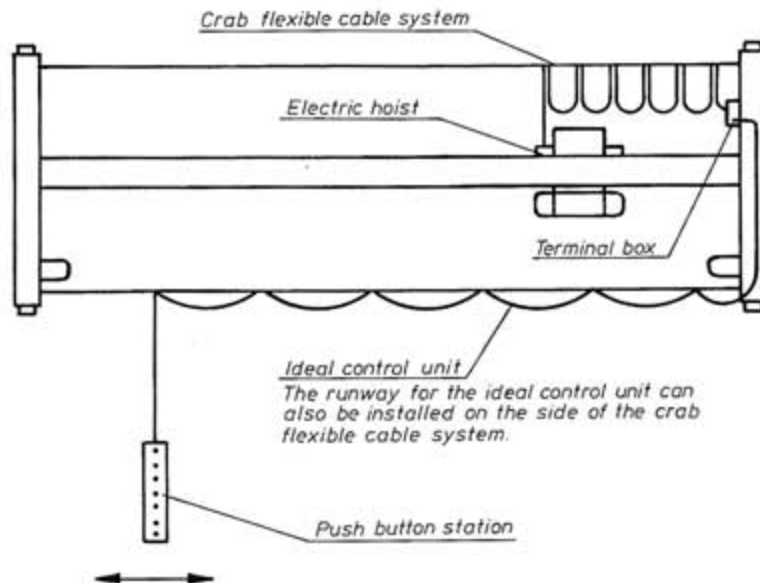
LOCKNUT 0 20650

Material: brass, nickel-plated



Catalogue No.:	d ₁	s	e	SW
0 20650-09	Pg 9	2.8	20	18
0 20650-11	Pg 11	3	23.5	21
0 20650-13.5	Pg 13.5	3	25.5	23
0 20650-16	Pg 16	3	29	26
0 20650-21	Pg 21	3.5	35.5	32
0 20650-29	Pg 29	4	45	41
0 20650-36	Pg 36	5	56	51
0 20650-42	Pg 42	5	65	60
0 20650-48	Pg 48	5.5	69	64

IDEAL CONTROL UNIT TROLLEY AND ACCESSORIES for mobile control equipment



Operating possibilities

The purpose of the mobile control equipment is to be able to operate the electrical lifting gear independently of its location. This is an advantage when bulky material has to be transported or where goods must be traversed above hatches, large containers etc. This arrangement is indispensable for the transport of molten metals. Mobile control units are now standard equipment on modern crane, monorail or conveyor installations. For such equipment a separate runway is provided, which usually runs parallel to the hoisting equipment rail.

The **ideal control unit trolleys** consist of the following sub assemblies:

1. Cable trolley upper parts
2. Flexible suspensions, which eliminate diagonal forces being transmitted onto the rail.
3. Main body for installation of end clamp and terminal box or plug and socket connections.
4. Terminal box or plug and socket connection

Brake systems:

On long tracks it is possible that the ideal control unit trolley in the extended position is pulled back by the force of the cable. This can be eliminated by the installation of one of the following brake systems:

1. Brake glider, operating in both directions.
2. Hand operated brake trolley
The brake works self-locking in the direction of the end-clamp. When running in this direction the brake must be released by hand by means of a towing rope. No operation of a towing rope is necessary in the opposite direction.
3. Brake trolley with electromagnetic brake release
The release of the brake is done by an electromagnet, which is operated preferably by the push-button switch-board. Operation of the brake release as on hand operated type.

The brake is essential in outdoor installations to prevent the control unit trolley from being blown along by the wind.

VDE 0100

For installation of power plants with nominal voltage up to 1000 V, which include the ideal control unit trolleys, it is generally valid according to VDE 0100 part 520 paragr. 11.7:

Connector plugs and cable joints have to be free of mechanical stress.

The tension reliefs must be that way to avoid any mechanical damage of the relieved cables.

It is not permissible to tie the cables up or to fasten them to the machinery instead of using tension relief.


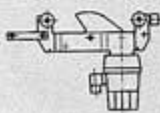
Cable glands and cable lead-ins must not be used as devices for tension relief.

The earth conductors of connection cables of mobile machinery have to be so long, that, in case of a breakdown of the tension relief, they do not get stress before the current-conveying conductors.




On ideal control unit trolley the cable tension relief is provided by installing an end clamp.

SURVEY: IDEAL CONTROL UNIT TROLLEY AND POSSIBLE ATTACHMENTS

If required please state the catalogue number of the ideal control unit trolley and the attachment.

Attachments Catalogue No.	Brake glider		Brake trolley	
	without joining bracket 0 24784	with joining bracket 0 24719	hand operated 0 24785	with electromagnetic brake release 0 24787
 (Installation within rail between both cable trolley upper parts)				
Ideal control unit trolley Catalogue No.				

Ideal control unit trolley for round cables

0 24710 		Ideal control unit trolley 0 24710 with brake glider 0 24719	Ideal control unit trolley 0 24710 with brake trolley 0 24785	
0 24714 		Ideal control unit trolley 0 24714 with brake glider 0 24719	Ideal control unit trolley 0 24714 with brake trolley 0 24785	
0 24711 		Ideal control unit trolley 0 24711 with brake glider 0 24719	Ideal control unit trolley 0 24711 with brake trolley 0 24785	

Ideal control unit trolley for flat and round cables with terminal box of plastic

0 24780 	Ideal control unit trolley 0 24780 with brake glider 0 24784		Ideal control unit trolley 0 24780 with brake trolley 0 24785	Ideal control unit trolley 0 24780 with brake trolley 0 24787
------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------	--	---------------------------------------------------------------------------	---------------------------------------------------------------------------

Ideal control unit trolley for flat and round cables with terminal box of sheet steel

0 24781 	Ideal control unit trolley 0 24781 with brake glider 0 24784		Ideal control unit trolley 0 24781 with brake trolley 0 24785	Ideal control unit trolley 0 24781 with brake trolley 0 24787
------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------	--	---------------------------------------------------------------------------	---------------------------------------------------------------------------

Ideal control unit trolley with multipole plug and socket connection

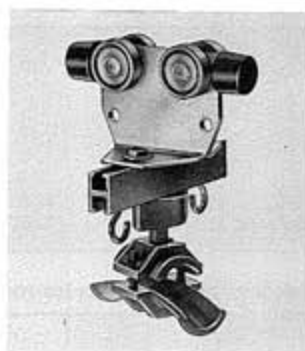
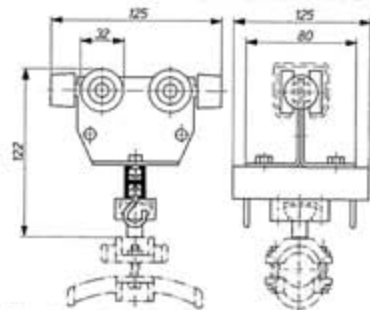
0 24783 	Ideal control unit trolley 0 24783 with brake glider 0 24784		Ideal control unit trolley 0 24783 with brake trolley 0 24785	Ideal control unit trolley 0 24783 with brake trolley 0 24787
------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------	--	---------------------------------------------------------------------------	---------------------------------------------------------------------------

IDEAL CONTROL UNIT TROLLEY for round cables

installed in one piece without a terminal box from the supply source



IDEAL CONTROL UNIT TROLLEY 0 24710



Technical data

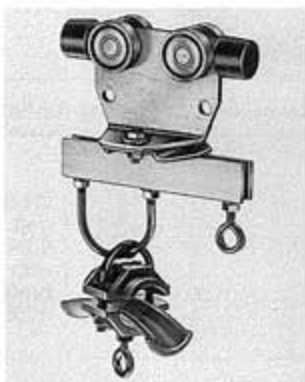
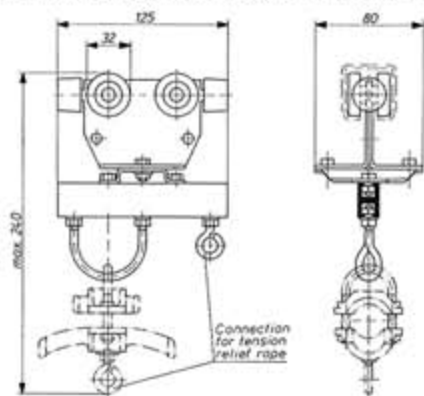
Type of roller	Permissible load capacity ¹⁾ [kg]	Operating temperature [°C]	Material	Special pairs of rollers Group ²⁾
Steel ball bearing, galvanized	32	-30 to +60	Main body: steel, galvanized Buffer: rubber Rail track: aluminium Cable clip: plastic Fasteners: steel, galvanized	A (B restricted)

Catalogue No.	for cable ø	Weight [kg]	Type	Attachments
Ideal control unit trolley 0 24710		0.600	Without cable clip	Brake glider 0 24719 or Brake trolley 0 24785
Ideal control unit trolley 0 24710-16	10 - 16	0.640	With 1 cable clip 0 20131-16	
Ideal control unit trolley 0 24710-25	17 - 25	0.660	With 1 cable clip 0 20131-25	
Ideal control unit trolley 0 24710-36	26 - 36	0.720	With 1 cable clip 0 20131-36	

1) Total weight of control cable and push button station.

2) For special pairs of rollers refer to page 240/50.

IDEAL CONTROL UNIT TROLLEY 0 24714



Technical data

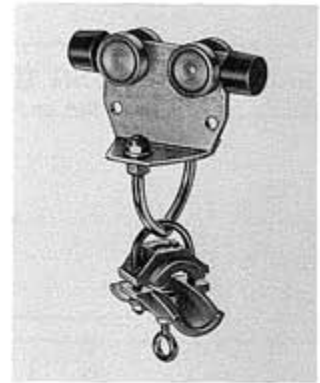
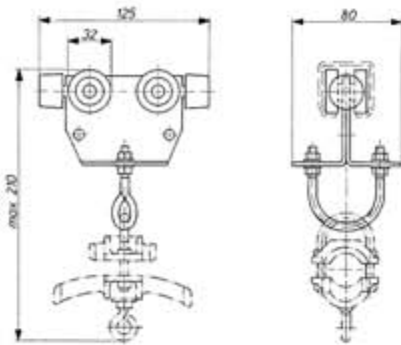
Type of roller	Permissible load capacity ¹⁾ [kg]	Operating temperature [°C]	Material	Special pairs of rollers Group ²⁾
Steel ball bearing, galvanized	32	-30 to +80	Main body: steel, galvanized Buffer: rubber Rail track: aluminium Cable clip: plastic Fasteners: steel, galvanized	A (B restricted)

Catalogue No.	for cable ø	Weight [kg]	Type	Attachments
Ideal control unit trolley 0 24714		0.660	Without cable clip	Brake glider 0 24719 or Brake trolley 0 24785
Ideal control unit trolley 0 24714-16	10 - 16	0.710	With 1 cable clip 0 20134-16	
Ideal control unit trolley 0 24714-25	17 - 25	0.760	With 1 cable clip 0 20134-25	
Ideal control unit trolley 0 24714-36	26 - 36	0.800	With 1 cable clip 0 20134-36	

1) Total weight of control cable and push button station.

2) For special pairs of rollers refer to page 240/50.

IDEAL CONTROL UNIT TROLLEY (CABLE TROLLEY 0 24316-125)



Technical data

Type of roller	Permissible load capacity ¹⁾ [kg]	Operating temperature [°C]	Material	Special pairs of rollers Group ²⁾
Steel ball bearing, galvanized	32	-30 to +80	Main body: steel, galvanized Buffer: rubber Bracket: steel, galvanized Cable clip: plastic Fasteners: steel, galvanized	A (B restricted)

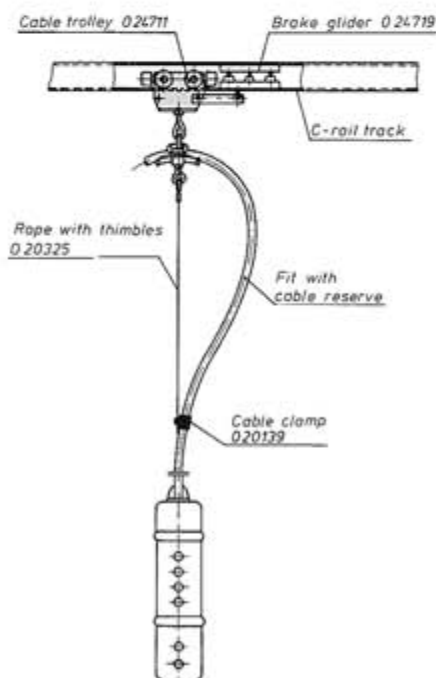
Catalogue No.	for cable ø	Weight [kg]	Type	Attachments
Cable trolley 0 24316-125		0.570	Without cable clip	Brake glider 0 24719 or Brake trolley 0 24785
Ideal control unit trolley 0 24711-16	10 - 16	0.640	With 1 cable clip 0 20134-16	
Ideal control unit trolley 0 24711-25	17 - 25	0.660	With 1 cable clip 0 20134-25	
Ideal control unit trolley 0 24711-36	26 - 36	0.720	With 1 cable clip 0 20134-36	

1) Total weight of control cable and push button station.

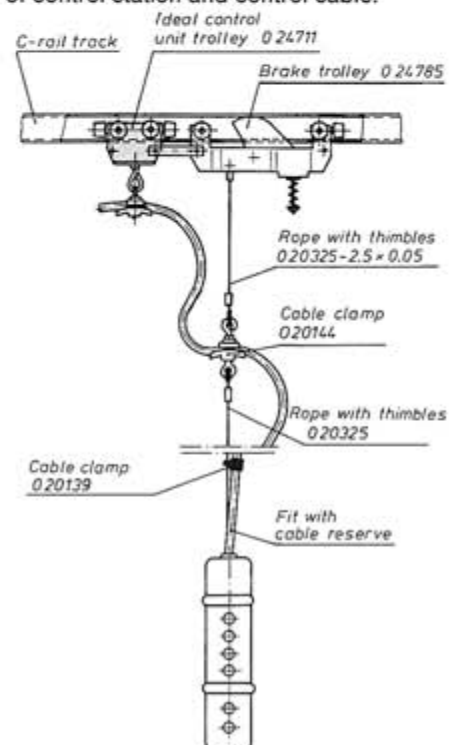
2) For special pairs of rollers refer to page 240/50.

EXAMPLES OF APPLICATION

IDEAL CONTROL UNIT TROLLEY
with control station.
Light duty.



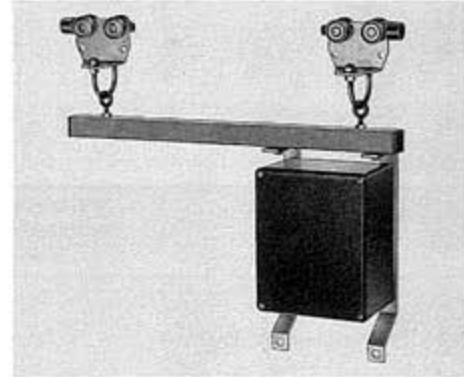
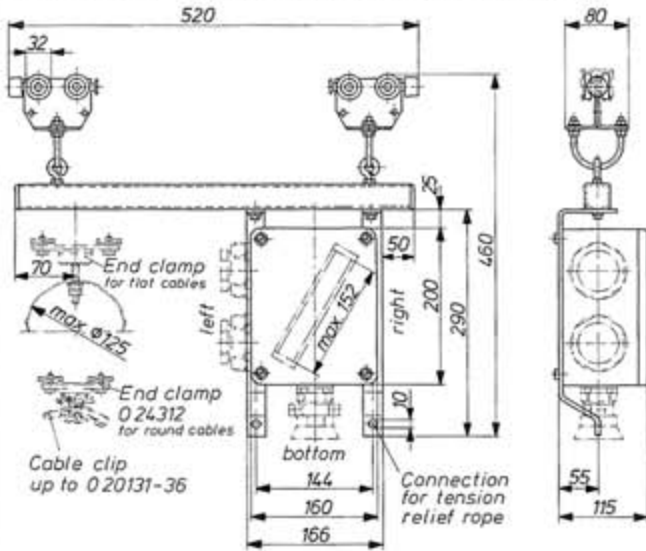
IDEAL CONTROL UNIT TROLLEY
with control station suspended on the brake
trolley. Light duty.
Attention: Max. perm. suspended load 8 kg
of control station and control cable.



IDEAL CONTROL UNIT TROLLEY for flat and round cables



IDEAL CONTROL UNIT TROLLEY 0 24780 with TERMINAL BOX OF PLASTIC suitable for use with flat or round cable end clamps



Technical data

Type of roller	Permissible load capacity ¹⁾ [kg]	Operating temperature [°C]	Material	Special pairs of rollers Group ²⁾
Steel ball bearing, galvanized	40	-80 to +80	Trolley: steel, galvanized Main body: steel, galvanized Terminal box: plastic Fasteners: steel, galvanized	A (B restricted)

Catalogue No.	Weight [kg]	Attachments
Ideal control unit trolley 0 24780	ca. 4.3	Brake glider 0 24784 or Brake trolley 0 24785 or Brake trolley 0 24787

- 1) Total weight of control cable and push button station.
2) For special pairs of rollers refer to page 240/50.

The terminal boxes used for the ideal control unit trolleys, protection class IP 54, are fitted with a mounting bar according to DIN 46 277 and two end clips. The mounting bar is for the installation of the line up terminals. Line up terminals can be installed over a maximum length of 152 mm. The mounting bar can be installed diagonally or straight.

Additionally the terminal box is equipped with a screw tag around which the tension relief cord of a suitable control cable can be fixed.

On request entry holes for cable glands can be provided in the side walls left, right and bottom. The specification of the Pg holes is always from top to bottom respectively from left to right.
The following holes for plastic glands can be provided:

Through hole for Pg gland	Number of holes	
	Side 160 mm	Side 200 mm
11	4	8
13.5	4	8
16	4	8
21	3	5
29	2	3
36	1	2
42	1	2
48	1	2

ORDER EXAMPLE: Ideal control unit trolley 0 24780? with holes
left: Pg 42 + Pg 42 right: without hole bottom: Pg 29

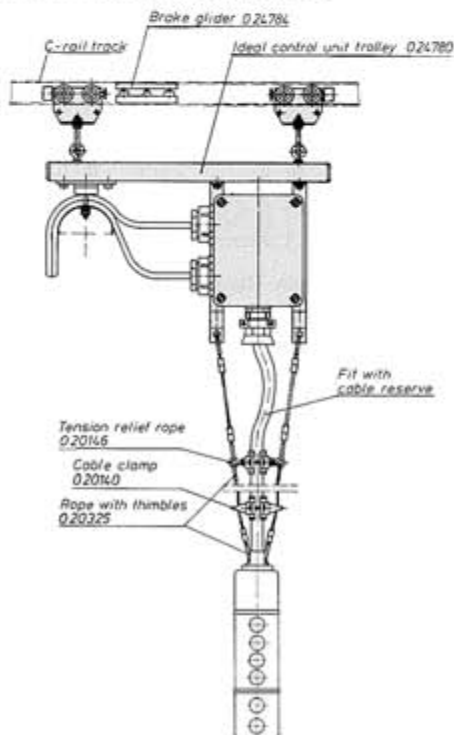
The following item must be ordered separately:

1. Cable glands of impact resistant plastic for flat cables 0 20626, for round cables 0 20646
2. Cable glands with shaped entry of impact resistant plastic 0 20648
3. Locknuts of impact resistant plastic 0 20657
4. Terminal clamps 0 20605
5. Earth conductor terminal clamps 0 20607
6. End clamp for flat cables up to max. d = 125 mm and max. b = 100 mm, types 0 23269, 0 23279, 0 24230, 0 24232, 0 24289, 0 24290
7. End clamps for round cables 0 24312
8. Cable clip for round cables 0 20131 up to size 36
9. Tension relief for control cable 0 20146
10. Rope with thimbles 0 20325
11. Cable clamps 0 20140
12. PVC- or rubber flat cable
13. PVC- or rubber round cable
14. Brake glider 0 24784 or
brake trolley with hand operated brake 24785 or
brake trolley with electromagnetic operated brake 0 24787
15. Tension relief rope for brake operation 20315

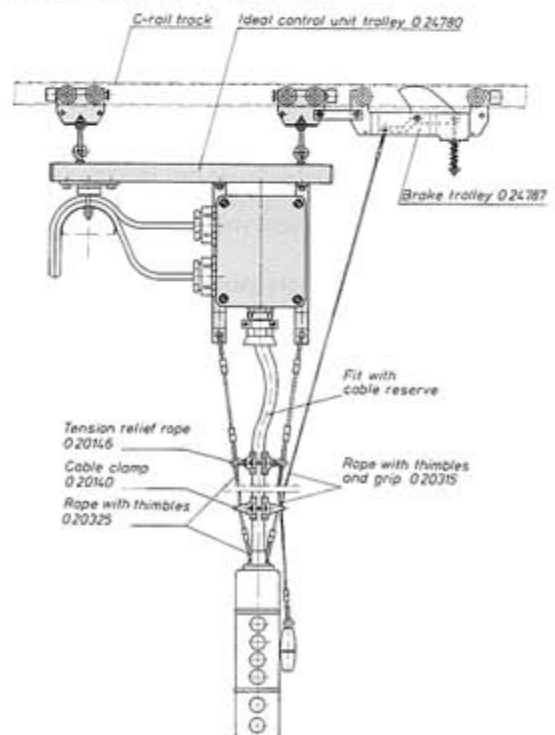
We can supply ideal control unit trolleys with flat and round cables, terminal clamps and accessories to your specification.

EXAMPLES OF APPLICATION

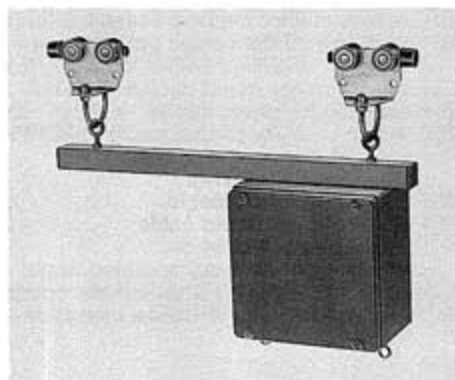
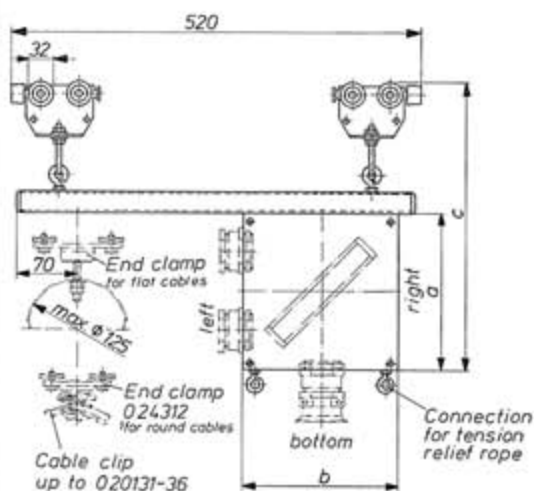
IDEAL CONTROL UNIT TROLLEY with control station and brake glider



IDEAL CONTROL UNIT TROLLEY with control station and brake trolley



IDEAL CONTROL UNIT TROLLEY 0 24781 with TERMINAL BOX of SHEET STEEL
suitable for use with flat or round cable end clamps



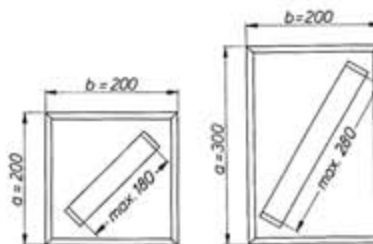
Technical data

Type of roller	Permissible load capacity ¹⁾ [kg]	Operating temperature [°C]	Material	Special pairs of rollers Group ²⁾
Steel ball bearing, galvanized	40	-30 to +80	Trolley: steel, galvanized Main body: steel, galvanized Terminal box: sheet steel Fasteners: steel, galvanized	A (B restricted)

Catalogue No.	a	b	c	Weight [kg]	Attachments
Ideal control unit trolley 0 24781-200x200	200	200	370	ca. 5.3	Brake glider 0 24784 or Brake trolley 0 24785 or Brake trolley 0 24787
Ideal control unit trolley 0 24781-300x200	300	200	470	ca. 6.3	

- 1) Total weight of control cable and push button station.
2) For special pairs of rollers refer to page 240/50.

The terminal boxes used for these ideal control unit trolleys, protection class IP 65, are fitted with a mounting bar according to DIN 46 277 and 2 end clamps. The mounting bar is for the installation of the line up terminals. The maximum usable length for the line up terminals given in the accompanying illustration.



On request entry holes for cable glands can be provided in the side walls left, right and bottom. The specification for the Pg holes is always from top to bottom respectively from left to right.

The following holes for plastic glands can be provided:

Through hole for Pg gland	Number of holes	
	Side 200 mm	Side 300 mm
11	6	9
13.5	6	9
16	5	8
21	4	6
29	3	5
36	2	4
42	2	3
48	2	3

ORDER EXAMPLE: Ideal control unit trolley 0 24781-200x200 ? with holes
left: Pg 42 + Pg 42 right: without hole bottom: Pg 29

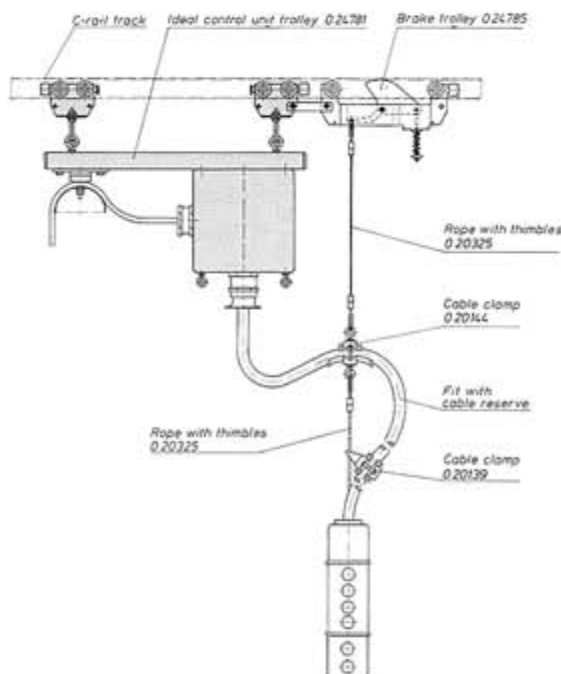
The following item must be ordered separately:

1. Cable glands for flat cables 0 20610, 0 20611 or 0 20626
for round cables 0 20630 or 0 20646
2. Cable glands with shaped entry for control cable 0 20638 or 0 20648
3. Locknuts 0 20650 or 0 20657
4. Terminal clamps 0 20605
5. Earth conductor terminal clamps 0 20607
6. End clamp for flat cables up to max. d = 125 mm and max. b = 100 mm, types
0 23269, 0 23279, 0 24230, 0 24232, 0 24289, 0 24290
7. End clamp for round cable 0 24312
8. Cable clip for round cable 0 20131 up to size 36
9. Tension relief for control cable 0 20146
10. Ropes with thimbles 0 20325
11. Cable clamp 0 20140
12. PVC- or rubber flat cables
13. PVC- or rubber round cables
14. Brake glider 0 24784 or
brake trolley with hand operated brake 0 24785 or
brake trolley with electromagnetic operated brake 0 24787
15. Tension relief rope for brake operation 0 20315

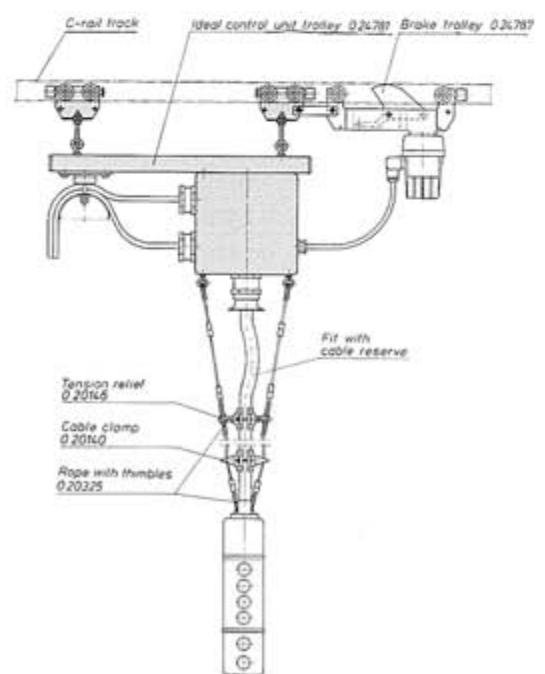
We can supply ideal control unit trolleys with flat and round cables, terminal clamps and accessories to your specifications.

EXAMPLES OF APPLICATION

IDEAL CONTROL UNIT TROLLEY
with control station. Light duty.
Control station suspended on the brake trolley.
Attention: Maximum permissible
suspended load of 8 kg of
control cable and control station.

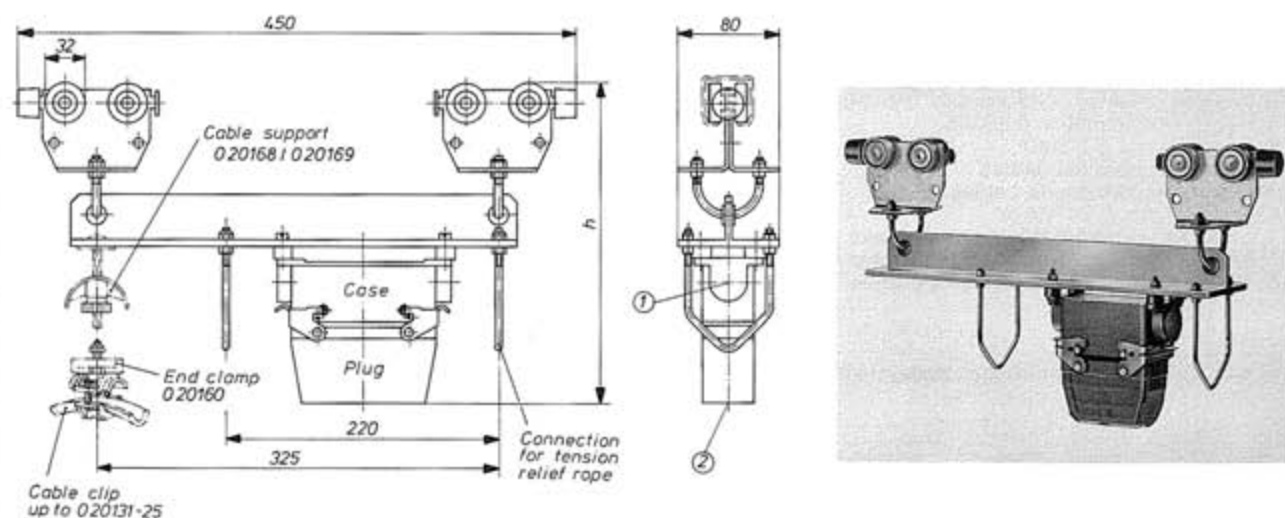


IDEAL CONTROL UNIT TROLLEY
with control station and brake trolley.



IDEAL CONTROL UNIT TROLLEY 0 24783 with multipole plug and socket connection
suitable for use with flat or round cable clamps

The control unit and control cable are the most frequent sources of trouble with floor control lifting gear. As a result of the introduction of the plug and socket connection a complete control unit with control cable and plug can be held in reserve and if a fault develops it can be interchanged in a very short time.



Technical data

Type of roller	Permissible load capacity ¹⁾ [kg]	Operating temperature [°C]	Material	Special pairs of rollers Group ²⁾
Steel ball bearing, galvanized	40	-30 to +80	Trolley: steel, galvanized Main body: aluminium Case: aluminium Fasteners: steel, galvanized	A (B restricted)

Plug and socket connections

Nominal voltage	Nominal current	Protection class	Screw connections
380 V	16 A	IP 55 accord. to DIN 40 050	2.5 mm ²

Ideal control unit trolley with plug and socket connection, standard type

Catalogue No.	Terminal	h	Threaded connection		Weight [kg]	Attachments
			① Pg	② Pg		
Ideal control unit trolley 0 24783-06 ³⁾	6 + E	246	16	13.5	2.210	Brake glider 0 24784 or Brake trolley 0 24785 or Brake trolley 0 24787
Ideal control unit trolley 0 24783-10	10 + E	252	16	16	2.330	
Ideal control unit trolley 0 24783-16x116	16 + E	260	21	21	2.480	
Ideal control unit trolley 0 24783-24x127	24 + E	271	21	29	2.700	

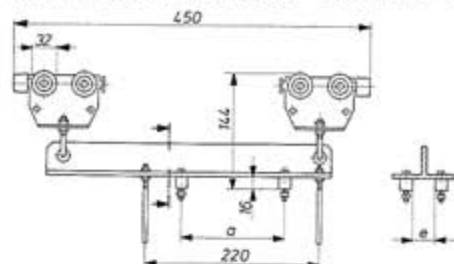
Ideal control unit trolley with plug and socket connection, high construction

Catalogue No.	Terminal	h	Threaded connection		Weight [kg]	Attachments
			① Pg	② Pg		
Ideal control unit trolley 0 24783-16	16	297	29	29	2.610	Brake glider 0 24784 or Brake trolley 0 24785 or Brake trolley 0 24787
Ideal control unit trolley 0 24783-24	24	300	29	29	2.775	

1) Total weight of control cable and control station.
2) For special pairs of rollers refer to page 240/50.
3) The bolt of the 6-pole construction is not on the plug but on the case.

COMPONENT PARTS

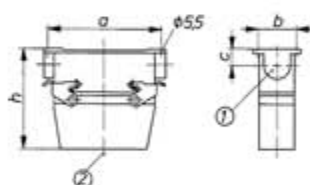
IDEAL CONTROL UNIT TROLLEY UPPER PART 0 24770



Catalogue No.	a	e	Weight [kg]	Plug and socket connection	
0 24770-10	70 82	30	1.790	0 20701-06 0 20701-10	
0 24770-24	105 132	35	1.790	0 20701-16 0 20701-24	0 20709-16 0 20709-24

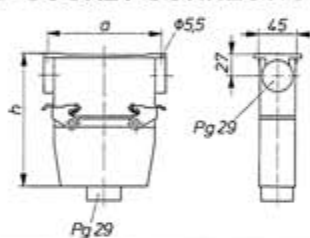
PLUG AND SOCKET CONNECTION 0 20701

Standard type



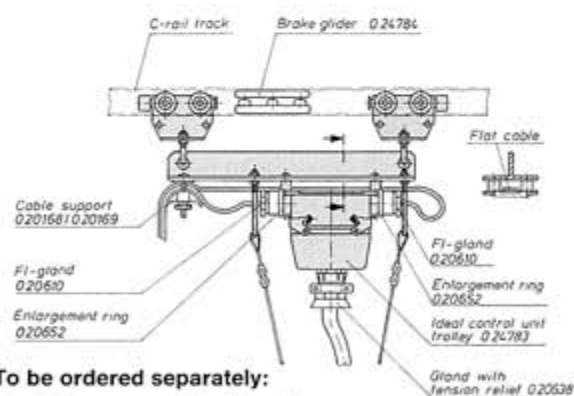
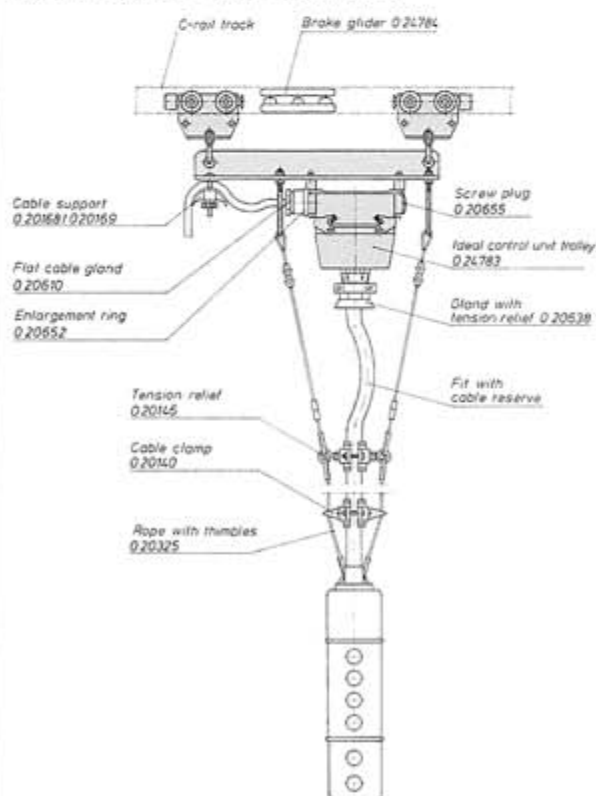
Catalogue No.	Terminal	a	b	c	h	Threaded connection		Weight [kg]
						① Pg	② Pg	
0 20701-06	6+E	70	40	17	102	16	13.5	0.420
0 20701-10	10+E	82	40	17	108	16	16	0.540
0 20701-16	16+E	105	45	20	116	21	21	0.690
0 20701-24	24+E	132	45	20	127	21	29	0.910

PLUG AND SOCKET CONNECTION 0 20709



Catalogue No.	Terminal	a	h	Weight [kg]
0 20709-16	16+E	105	153	0.820
0 20709-24	24+E	132	156	0.985

EXAMPLES OF APPLICATION



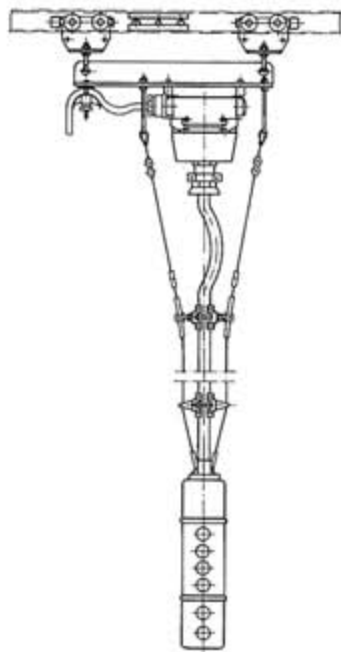
To be ordered separately:

1. Cable support for flat cable
support ø 50 mm 0 20168
support ø 80 mm 0 20169
2. End clamp 0 20160
3. Cable clip for round cable 0 20131
4. Flat cable glands 0 20610
5. Round cable glands 0 20630
6. Enlargement rings 0 20652
7. Screw plug 0 20655
8. Round cable gland with tension relief
for control cable 0 20638
9. Tension relief for control cable 0 20146
10. Ropes for tension relief of control cable 0 20325
11. Cable clamps 0 20140
12. Brake glider 0 24784
13. Brake trolley with hand operated brake 0 24785
14. Brake pull rope 0 20315
15. Brake trolley with
electromagnetic operated brake 0 24787
16. Control cable MTGöu

BRAKE GLIDER AND BRAKE TROLLEY for installation to ideal control unit trolleys

EXAMPLES FOR APPLICATION for ideal control unit trolleys

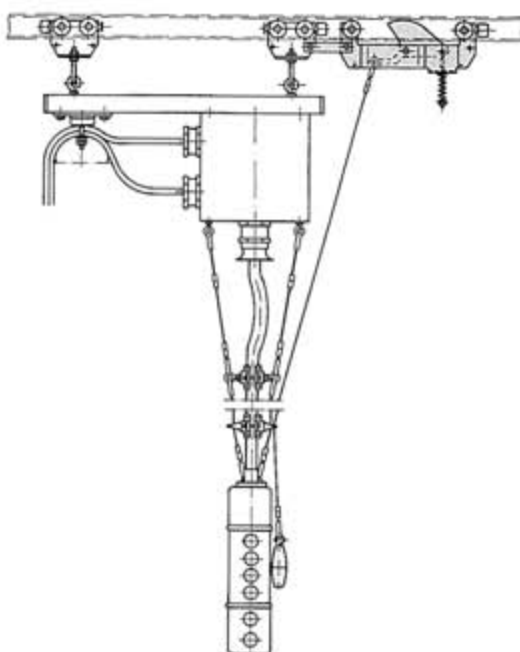
with brake glider 0 24784



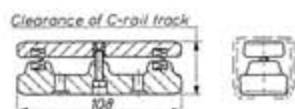
with brake glider 0 24719



with brake glider 0 24785



Catalogue No.: **BRAKE GLIDER 0 24784**

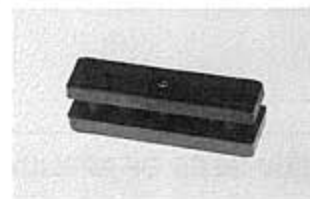


Braking force: 10 N – 20 N

Operating temperature: -30°C bis +80°C

Material: glider: plastic
fasteners: steel, galvanized

Weight: 0.100 kg

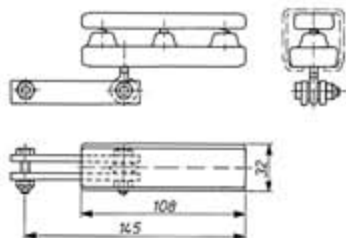


Application:

The brake glider is mounted between the two travelling trolleys of the ideal control unit trolleys 0 24780, 0 24781 and 0 24783. It avoids any unintentional travel in either direction.

Catalogue No.: **BRAKE GLIDER 0 24719**

with connection part

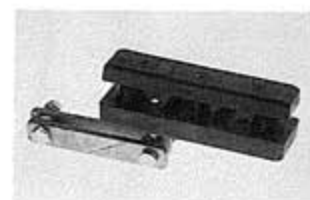


Braking force: 10 N – 20 N

Operating temperature: -30°C bis +80°C

Material: glider: plastic
fasteners: steel, galvanized

Weight: 0.200 kg

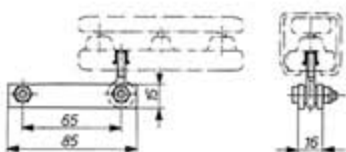


Application:

The brake glider connection part is connected to the ideal control unit trolleys 0 24710, 0 24714, 0 24711 and the cable trolley 0 24316-125. It avoids any unintentional travel in either direction.

Catalogue No.: **CONNECTION PART 0 24718**

for brake glider 0 24784



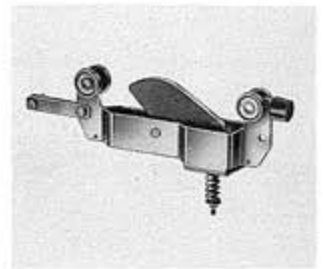
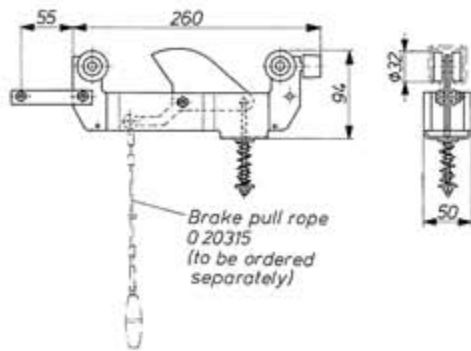
Material: connection part: steel, galv.
socket: brass
fasteners: steel, galvanized



Application:

Instead of brake glider 0 24719 with connection part, the brake glider 0 24784 and the connection part 0 24718 can be ordered separately.

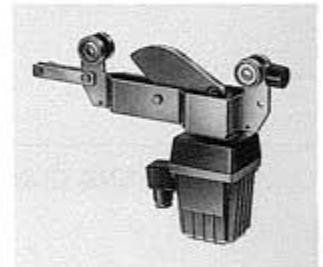
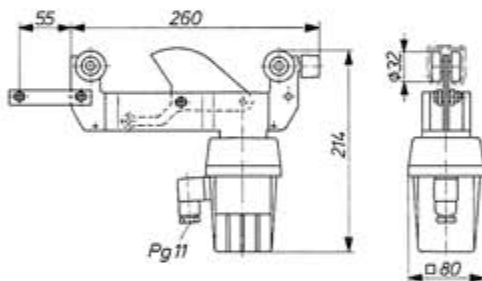
BRAKE TROLLEY 0 24785 with hand operated brake
with connecting part for installation to ideal control unit trolley



Catalogue No.	Type of roller	Operating temperature [°C]	Max. permissible horizontal pull [N] (in direction of end clamp)	Weight [kg]	Material	Special pairs of rollers Group ¹⁾
Brake trolley 0 24785	Steel ball bearing, galvanized	-30 to +80	160	ca. 1.2	Main body: steel, galvanized Buffer: rubber Brake: cast iron Fasteners: steel, galvanized	A

1) For special pairs of rollers refer to page 240/50.

BRAKE TROLLEY 0 24787 with electromagnetic operated brake
with connecting part for installation to ideal control unit trolley



The magnet is equipped with a detachable plug and socket connection and a connection gland Pg 11. The magnets are supplied as dc or ac magnets as detailed below.

The solenoid is fitted with a plug and socket connection and a Pg 11 cable gland. The solenoids can be supplied in accordance with the table below suitable for direct or alternating currents for the specified supply voltages.

If an actuating solenoid is fitted a further cable gland Pg 11 must be provided on the terminal boxes of the control trolley.

In addition a switch has to be provided in addition for the operating of the brake.

The cable between solenoid and terminal box is not supplied.

Technical data

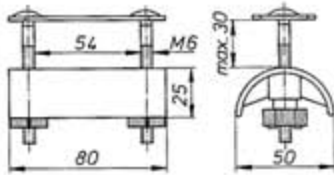
Type of roller	Operating temperature [°C]	Max. permissible horizontal pull [N] (in direction of end clamp)	Material	Special pairs of rollers Group ¹⁾
Steel ball bearing, galvanized	-30 to +80	160	Main body: steel, galvanized Buffer: rubber Brake: cast iron Case: aluminium Fasteners: steel, galvanized	A

Catalogue No.	Coil voltage	Supply voltage U [V]	Switch of current I _E [A]	Nominal current I _N [A]	ED %	Weight [kg]
Brake trolley 0 24787-1	~	~ 220	1.71	0.29	100	ca. 2.5
Brake trolley 0 24787-2	=	~ 220	0.23	0.23	100	ca. 2.5
Brake trolley 0 24787-3	~	~ 36	10.50	1.78	100	ca. 2.5
Brake trolley 0 24787-4	~	~ 42	8.95	1.52	100	ca. 2.5

1) For special pairs of rollers refer to page 240/50.

ACCESSORIES for ideal control unit trolleys and brake trolleys

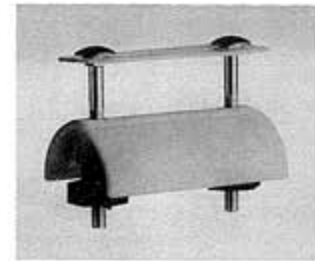
Catalogue No.: **CABLE SUPPORT 0 20168**



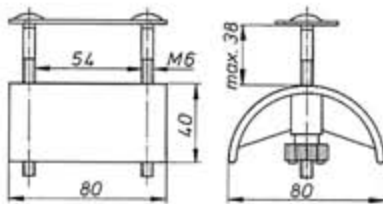
Operating temperature: -30°C to $+80^{\circ}\text{C}$

Material: support: plastic
split nut: plastic
bolt: steel, galvanized

Weight: 0.065 kg



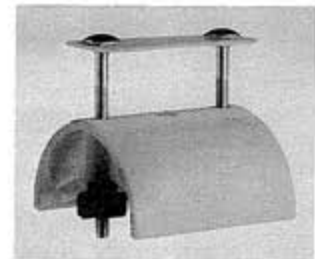
Catalogue No.: **CABLE SUPPORT 0 20169**



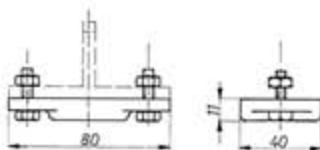
Operating temperature: -30°C to $+80^{\circ}\text{C}$

Material: support: plastic
split nut: plastic
bolt: steel, galvanized

Weight: 0.095 kg



Catalogue No.: **END CLAMP 0 20160**



Operating temperature: -30°C to $+80^{\circ}\text{C}$

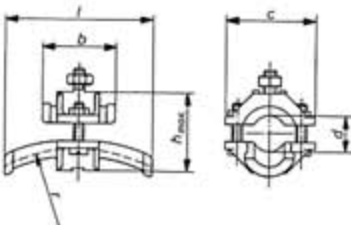
Material: connecting plate: plastic
fasteners: steel, galvanized

Weight: 0.035 kg

Attachments: cable clip 0 20131
only size 16 and 25



CABLE CLIP 0 20131



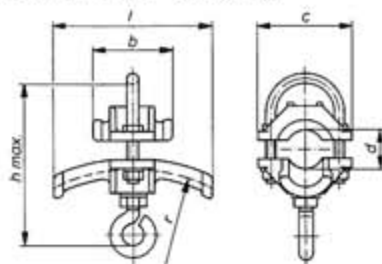
Operating temperature: -30°C to $+80^{\circ}\text{C}$

Material: cable clip: plastic
fasteners: steel, galvanized



Catalogue No.	d Cable ϕ	r	l	h max.	b	c	Weight [kg]
Cable clip 0 20131-16	10-16	80	70	38	35	42	0.040
Cable clip 0 20131-25	17-25	125	100	47	50	50	0.060
Cable clip 0 20131-36	26-36	180	140	58	70	64	0.120

CABLE CLIP 0 20134



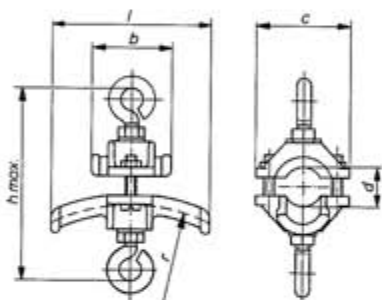
Operating temperature: -30°C bis +80°C

Material: cable clip: plastic
fasteners: steel, galvanized



Catalogue No.	d Cable ø	r	l	h max.	b	c	Weight [kg]
Cable clip 0 20134-16	10 - 16	80	70	75	35	42	0.070
Cable clip 0 20134-25	17 - 25	125	100	90	50	50	0.090
Cable clip 0 20134-36	26 - 36	180	140	105	70	64	0.150

CABLE CLAMP 0 20144



Operating temperature: -30°C bis +80°C

Material: cable clip: plastic
fasteners: steel, galvanized



Catalogue No.	d Cable ø	r	l	h max.	b	c	Weight [kg]
Cable clip 0 20144-16	10 - 16	80	70	90	35	42	0.070
Cable clip 0 20144-25	17 - 25	125	100	98	50	50	0.090
Cable clip 0 20144-36	26 - 36	180	140	110	70	64	0.150

ROPE 0 20315

Towing rope for brake operation



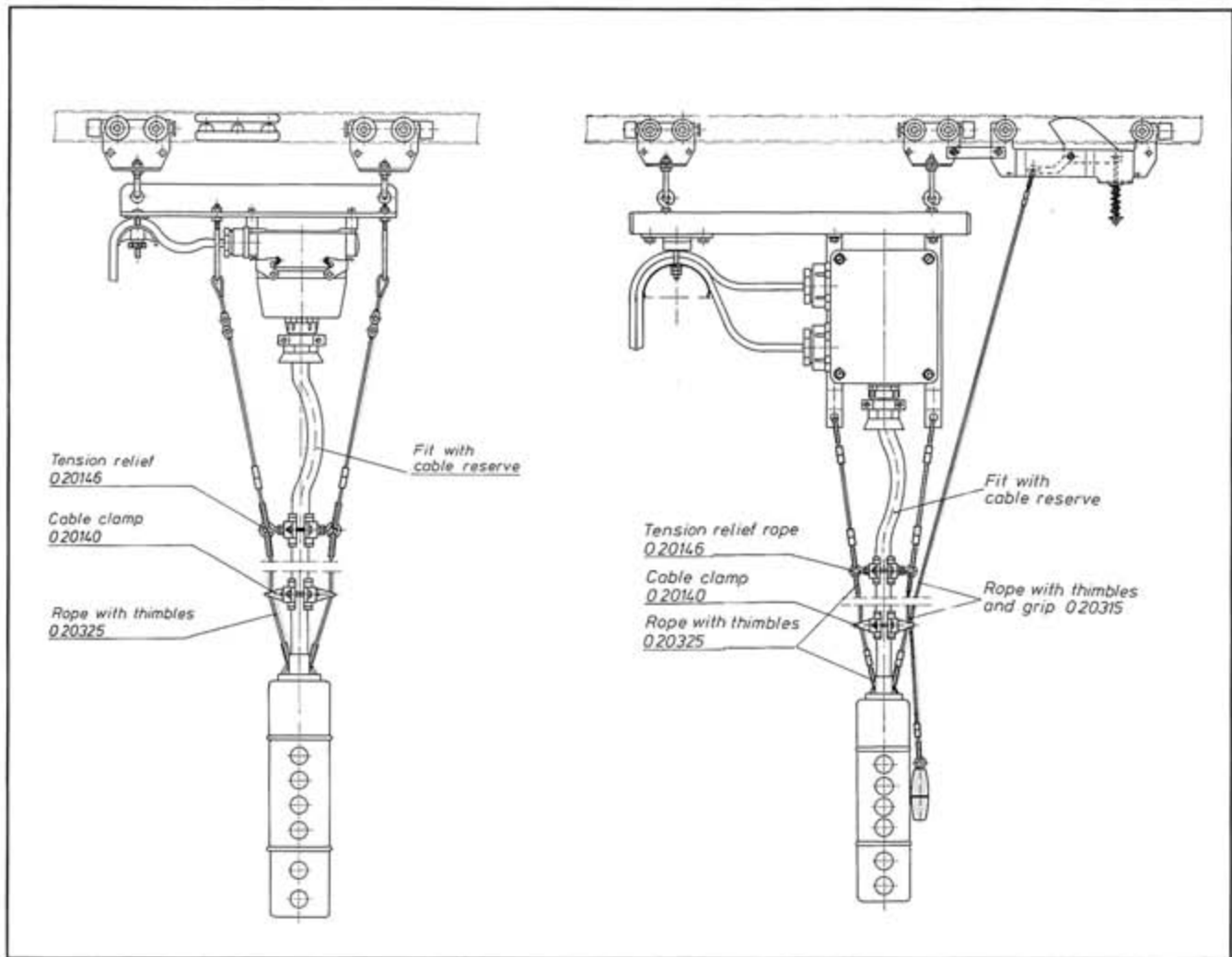
Perm. load: 40 kg

Operating temperature: -30°C bis +80°C

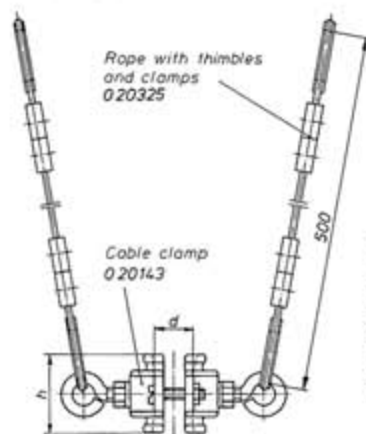
Material: rope ø 4: Polyamide
thimble: steel, galvanized
clamp: steel, galvanized
handle: plastic

Catalogue No. ø 4 x L	L [m]	Weight [kg]
Rope 0 20315-4x02.5	2.5	0.150
Rope 0 20315-4x03.2	3.2	0.156
Rope 0 20315-4x04.0	4.0	0.162
Rope 0 20315-4x05.0	5.0	0.170
Rope 0 20315-4x06.3	6.3	0.180
Rope 0 20315-4x08.0	8.0	0.194
Rope 0 20315-4x10.0	10.0	0.210
Rope 0 20315-4x12.5	12.5	0.230
Rope 0 20315-4x16.0	16.0	0.258
Rope 0 20315-4x20.0	20.0	0.290

TENSION RELIEF PARTS for suspension cables



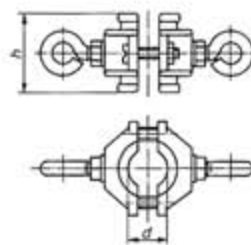
CONNECTION FOR TENSION RELIEF ROPE 0 20146



Operating temperature:
-30°C to +80°C

Material:
cable clamp: plastic
rope: steel,
plastic covered
fasteners: steel, galvanized

CABLE CLAMP 0 20143



Operating temperature:
-30°C to +80°C

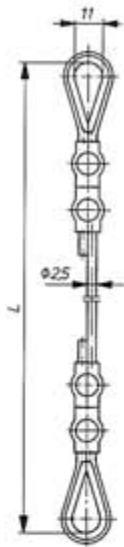
Material:
cable clamp: plastic
fasteners: steel, galvanized

Catalogue No.	d Cable ϕ	h	Weight [kg]
0 20146-16	10 - 16	35	0.180
0 20146-25	17 - 25	50	0.200
0 20146-36	26 - 36	70	0.260

Catalogue No.	d Cable ϕ	h	Weight [kg]
0 20143-16	10 - 16	35	0.060
0 20143-25	17 - 25	50	0.080
0 20143-36	26 - 36	70	0.140

ROPE 0 20325

with thimbles and clamps



Perm. load: 20 kg

Operating temperature: -30°C to +80°C

Material: rope ϕ 2.5: steel,
plastic covered
thimble: steel, galvanized
clamp: steel, galvanized

Catalogue No. ϕ 2.5 x L	L [m]	Weight [kg]
Rope 0 20325-2.5x00.5	0.5	0.060
Rope 0 20325-2.5x02.5	2.5	0.086
Rope 0 20325-2.5x03.2	3.2	0.094
Rope 0 20325-2.5x04.0	4.0	0.104
Rope 0 20325-2.5x05.0	5.0	0.116
Rope 0 20325-2.5x06.3	6.3	0.132
Rope 0 20325-2.5x08.0	8.0	0.152
Rope 0 20325-2.5x10.0	10.0	0.176
Rope 0 20325-2.5x12.5	12.5	0.206
Rope 0 20325-2.5x16.0	16.0	0.248
Rope 0 20325-2.5x20.0	20.0	0.296

ROPE 0 20305-2.5

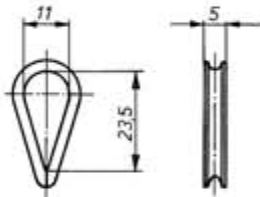
Operating temperature: -30°C to +80°C

Material: rope ϕ 2.5: steel,
plastic covered

Catalogue No.	Length	Weight kg/100 m
Rope 0 20305-2.5 T	500 m on roller	1.2
Rope 0 20305-2.5	running metre	

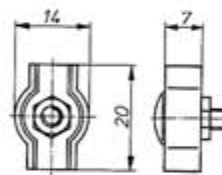
Catalogue No.: **ROPE THIMBLE 0 20120-3**

Catalogue No.: **SIMPLEX ROPE CLIP 0 20122-3**



Material: steel, galvanized

Weight: 0.008 kg

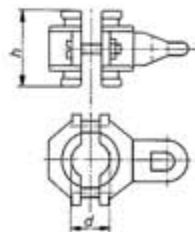


Material: steel, galvanized

Weight: 0.010 kg

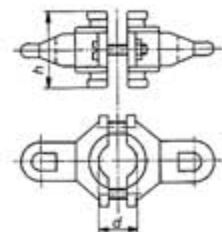
CABLE CLAMP 0 20139

CABLE CLAMP 0 20140



Operating temperature:
-30°C to +80°C

Material:
cable clamp: plastic
fasteners: steel, galvanized



Operating temperature:
-30°C to +80°C

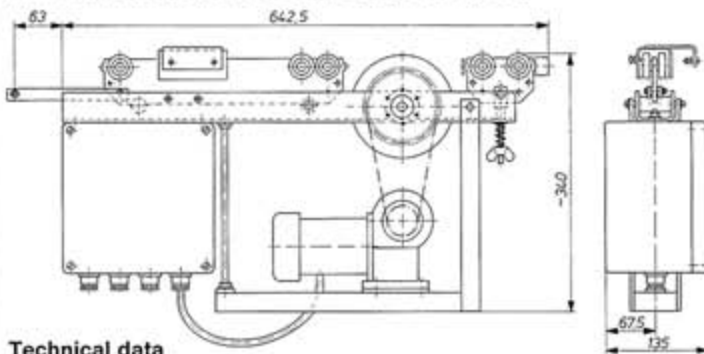
Material:
cable clamp: plastic
fasteners: steel, galvanized

Catalogue No.	d Cable ϕ	h	Weight [kg]
0 20139-16	10-16	35	0.040
0 20139-25	17-25	50	0.060
0 20139-36	26-36	70	0.120

Catalogue No.	d Cable ϕ	h	Weight [kg]
0 20140-16	10-16	35	0.050
0 20140-25	17-25	50	0.070
0 20140-36	26-36	70	0.130

MOTOR DRIVEN LOCOMOTIVE for drive unit of ideal control unit trolleys

MOTOR DRIVEN LOCOMOTIVE 0 24801



The standard design is supplied for the following voltages:
operating voltage for motor: 380 V~
control voltage (onside): 220 V~

Other voltages and wiring diagrams differing from diagram S 210-0006 on inquiry.

Technical data

Catalogue No.	Type of roller	v [m/min]	Pulling force [N]	Weight [kg]	Material	Special pairs of rollers Group ¹⁾
0 24801 - 12.5	Steel ball bearing, galvanized	12.5	160	approx. 18.5	Trolley and main body: steel, plastic coated Terminal box: steel, plastic coated Fasteners: steel, galvanized	A
0 24801 - 16		16	125			
0 24801 - 20		20	100			
0 24801 - 25		25	80			
0 24801 - 32		32	63			
0 24801 - 40		40	50			

1) For special pairs of rollers refer to page 240/50.

Description (see also wiring diagram S 210-0006)

The locomotive is driven by an electric motor M1 via a wormed gear box. From this a friction wheel is driven by a v-belt or a roller chain, the friction wheel is pressed against the inner side of the C-rail.

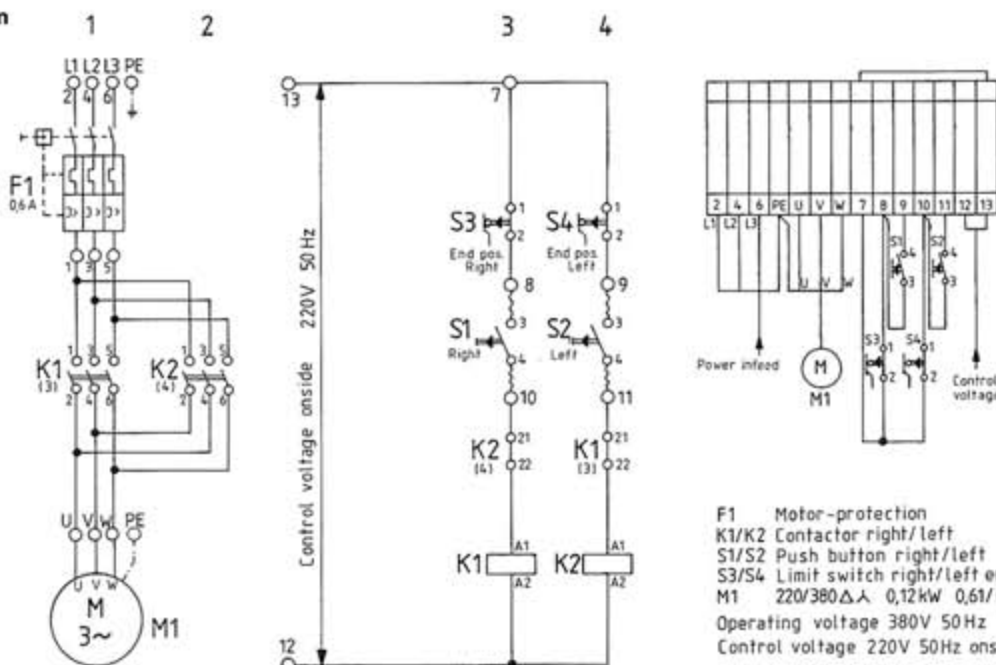
The friction moment can be adjusted with a spring.

The motor with the worm gear drive box is supported in a frame. The chain tension is adjusted by means of a threaded screw with hexagon nuts. In the terminal box on the locomotive is the reversible contactor K1 - K2 as well as the motor contactor F1. A cable 7 x 1.5 mm² + earth core must be provided between the terminal box of the locomotive and the terminal box on the ideal control unit trolley.

The locomotive is fitted with a connection piece for coupling to the ideal control unit trolley. The locomotive is also equipped with two Reed contacts S3 - S4 for limiting the end positions. The actuating magnets are also supplied and are to be fitted onto the side of the C-rail. The push button station must have two additional buttons S1 - S2 for controlling the travel of the locomotive. Furthermore a power supply cable 4 x 1.5 mm² must be installed along with the control cables for feeding the electric motor of the drive unit.

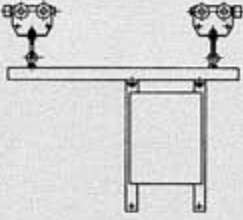
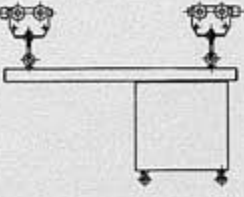
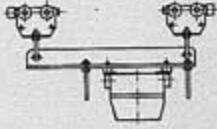
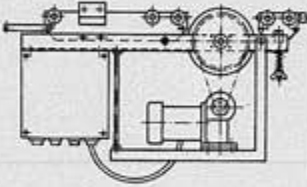
For controlling the locomotive at existing control voltage (220 V) 6 additional terminal clamps and if required 1 earth conductor clamp must be provided inside the ideal control unit trolley.

Wiring diagram S 210-0006



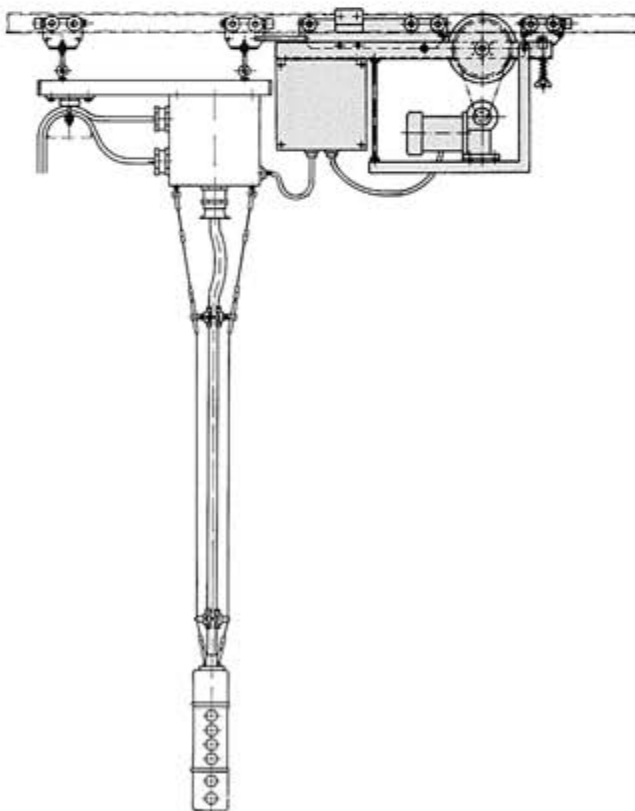
MOTOR DRIVEN LOCOMOTIVE for drive unit of ideal control unit trolleys

If required please state the catalogue number of the locomotive and the ideal control unit trolley.

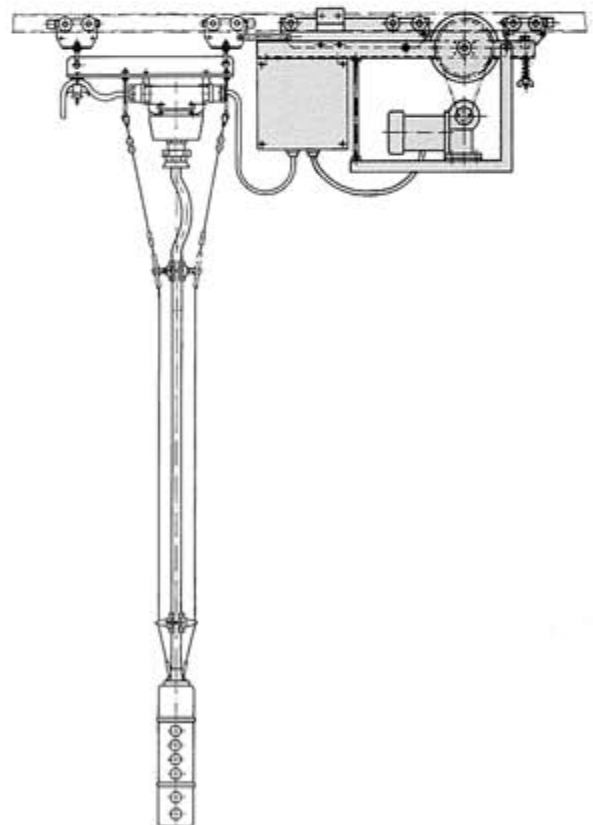
<p>Ideal control unit trolley Catalogue No.</p> <p>Motor driven locomotive Catalogue No.</p>	<p>Ideal control unit trolley 0 24780 (see page 240/66)</p> 	<p>Ideal control unit trolley 0 24781 (see page 240/68)</p> 	<p>Ideal control unit trolley 0 24783 (see page 240/70)</p> 
<p>Locomotive 0 24801</p> 	<p>Ideal control unit trolley 0 24780 with motor driven locomotive 0 24801</p>	<p>Ideal control unit trolley 0 24781 with motor driven locomotive 0 24801</p>	<p>Ideal control unit trolley 0 24783 with motor driven locomotive 0 24801</p>

EXAMPLES OF APPLICATION

Ideal control unit trolley 0 24781 with
motor driven locomotive



Ideal control unit trolley 0 24783 with
motor driven locomotive



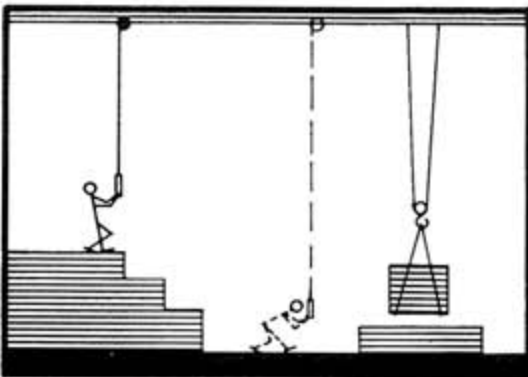
VARIABLE HEIGHT ADJUSTMENTS for control stations (HFS)

You will find details and catalogue numbers
in our separate Catalogue »HFS«

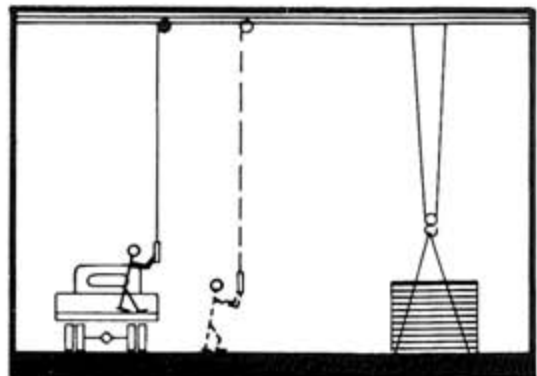
For many years, cranes have needed floor operated control systems.

More operational possibilities, freedom of movement and safety for the operator can be achieved by using floor operated control unit with additional variable height adjustment of the control station. These control units permit optimum operating conditions.

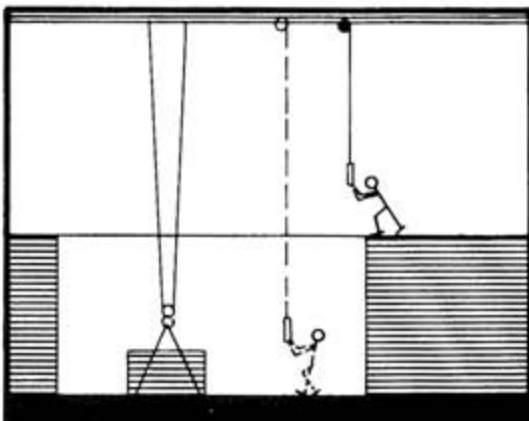
Different floor level operation



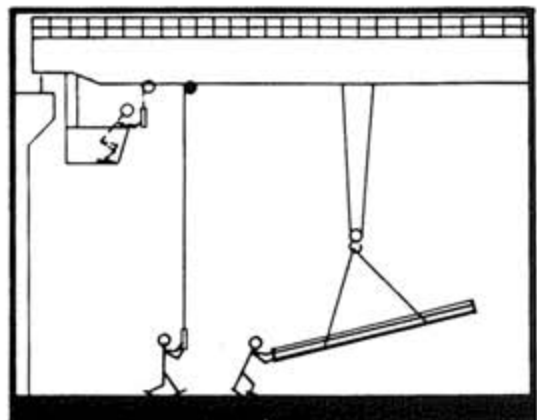
Loading and unloading operation



Hatch loading and unloading

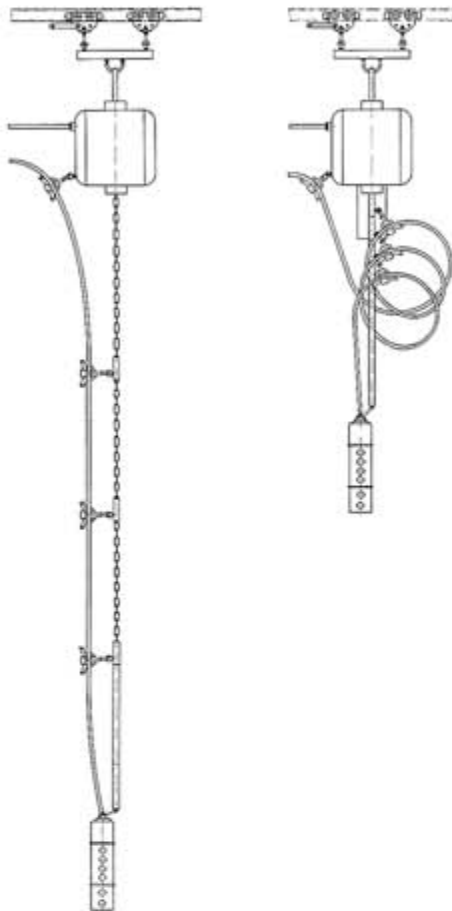


Control cabin- and floor control operation



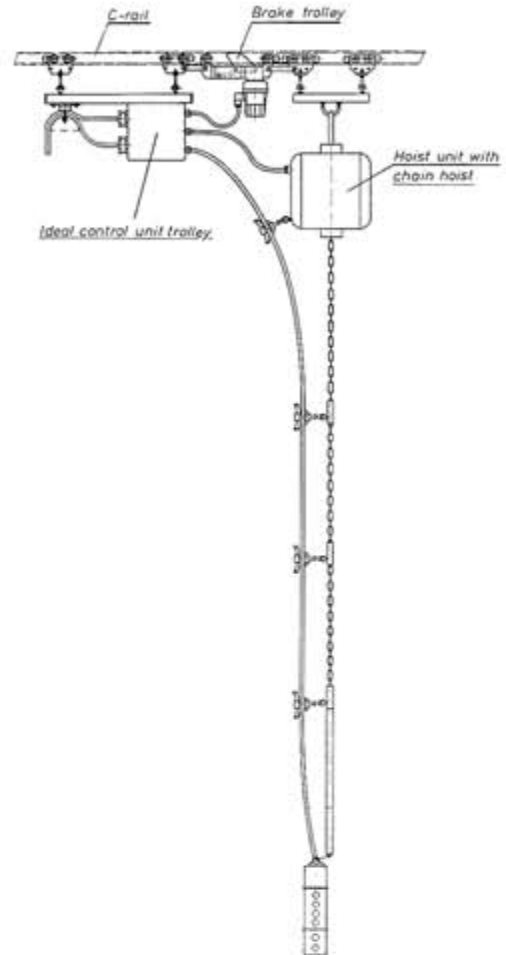
1. HOIST UNIT with chain hoist

To lift the control station an electric chain hoist with special component parts and terminal circuit is used. During vertical adjustment of the control station the control cable positions itself next to the chain of the hoist. Maximum load capacity is 80 kg.



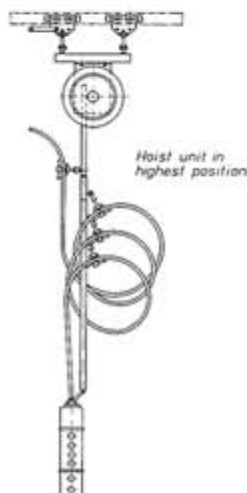
EXAMPLE OF APPLICATION

Hoist unit supplied with chassis for C-rail 0 24100 in combination with an ideal control unit trolley and electromagnetic operated brake trolley.



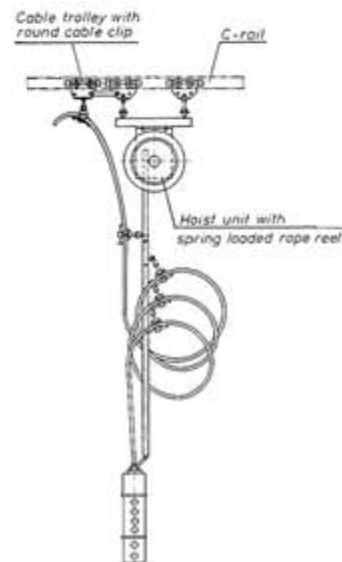
2. HOIST UNIT with spring loaded rope reel

The control station is lowered by hand. A recoil locking device enables the control station to be positioned at 0.5 m stages. The control cable positions itself next to the rope of the reel. This arrangement can be supplied in a standard design up to 10 m lift and 10 kg load.

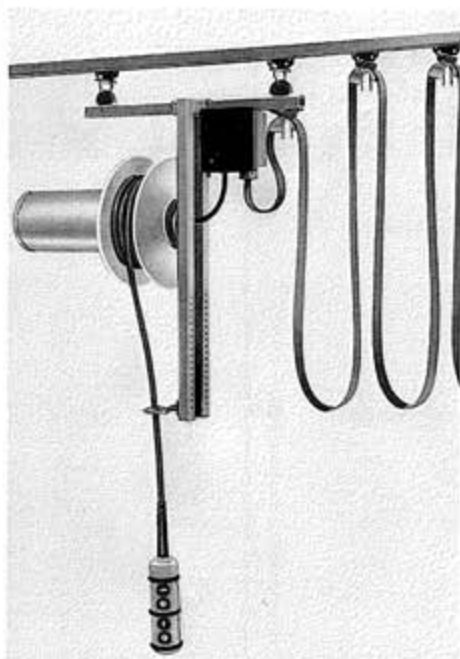


EXAMPLE OF APPLICATION

Hoist unit supplied with chassis for C-rail 0 24100 in combination with a cable trolley and round cable clip.



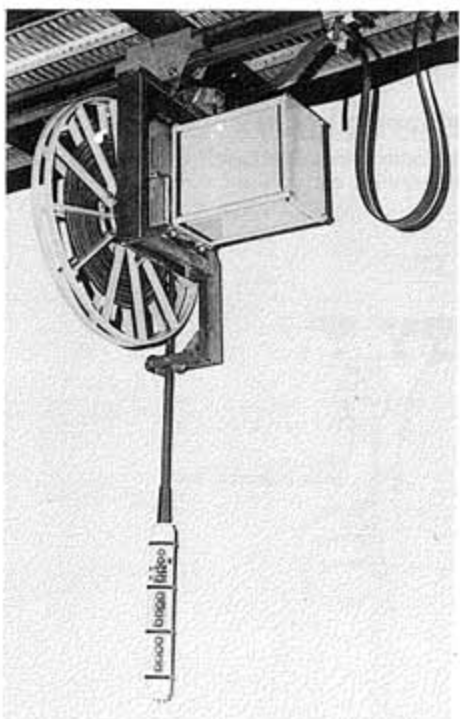
3. VERTICAL ADJUSTABLE IDEAL CONTROL UNIT with spring loaded rope reel



The control cable is wound up or down by a spring loaded rope reel. The recoiling force of the springs allows a total loading of approx. 13.5 kg. The control station can be positioned once per reel rotation over the hole height of lift by means of the installed centrifugal force recoil locking device. The spring loaded rope reel is supplied with slip rings.

On very long pendant travels an electro magnetic operated spring loaded lamina brake can be provided. In such cases the centrifugal force recoil locking device is not required.

4. VERTICAL ADJUSTABLE IDEAL CONTROL UNIT with motor driven cable reel



These vertically adjustable units are satisfying highest demands for operational reliability and control. They are preferably used for long pendant travels, large numbers of control cable cores and heavy pendant control stations.

For these applications an individual offer is usually required. Please send us your inquiry.

STAINLESS STEEL AND ACID RESISTANT PARTS FOR FLEXIBLE CABLE SYSTEMS

Stainless steel / acid resistant high quality steels are used in severe environmental conditions where normal galvanising, plastic coating or paint protection is insufficient.

Examples of application are:

- chemical industry
- galvanising factories
- aggressive industrial air
- fertilizer production
- clarification plant
- very salty atmosphere
- port installations
- off-shore installations
- food products
- beverage industry
- dairies
- medical baths

The corrosion resistant quality of the steel depends on the chromium and nickel content, the two material types are distinguished in the following table:

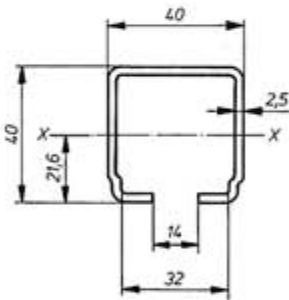
Material group	stainless steel	acid resistant
Preferably material number	1.4301 1.4305	1.4401 1.4571
Chromium content % ca.	17.0 – 19.0	16.5 – 18.5
Nickel content % ca.	8.0 – 10.0	10.5 – 13.5

Generally the acid resistant steel is superior to the stainless steel type.

TRACKS AND MOUNTINGS

C-RAIL TRACKS AND CURVES

C-RAIL 0 24104; stainless steel
C-RAIL 0 24109; acid resistant



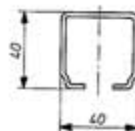
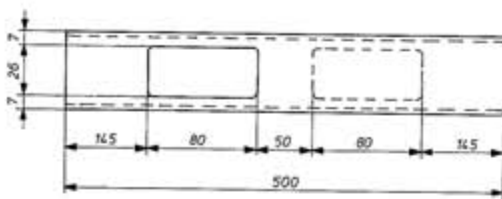
Wall thickness: 2.5 mm
 Weight: 2.5 kg/m
 Stat. data: $I_x = 6.74 \text{ cm}^4$
 $W_x = 3.08 \text{ cm}^3$

Catalogue No.	Catalogue No.	Length ¹⁾ [mm]	Length tolerance [mm]
Material: V 2 A	Material: V 4 A		
0 24104 - 6	0 24109 - 6	6000	+ 40
0 24104 - 4	0 24109 - 4	4000	

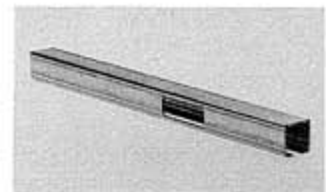
1) Intermediate sizes, e.g. 3 m or 4.8 m, see pricelist.

Catalogue No.: **INSPECTION PIECE 0 24114;** stainless steel
 of C-rail track 0 24104

Catalogue No.: **INSPECTION PIECE 0 24119;** acid resistant
 of C-rail track 0 24109



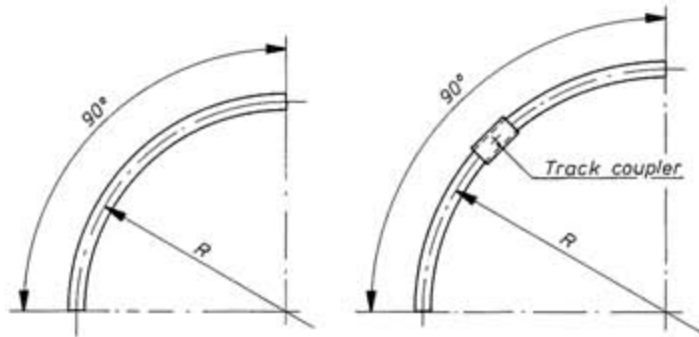
Weight: 1.100 kg



Application example see page 240/57.

90°-CURVE 0 24108; stainless steel
of C-rail track 0 24104

90°-CURVE 0 24115; acid resistant
of C-rail track 0 24109



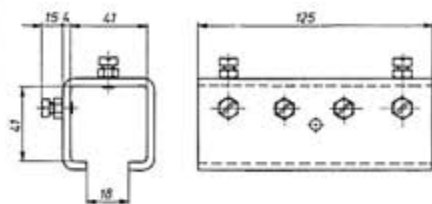
Catalogue No. Material: V 2 A	Catalogue No. Material: V 4 A	R [mm]	Developed length [mm]	Number of track coupler	Depth of loop max. 0.35 x R	For max. trolley length [mm]	Weight [kg]
0 24108-01000	0 24115-01000	1000	1570	-	350	100	3.9
0 24108-01200	0 24115-01200	1200	1885	-	420	125	4.7
0 24108-01400	0 24115-01400	1400	2200	-	490	160	5.5
0 24108-01600	0 24115-01600	1600	2510	-	560	160	6.3
0 24108-01800	0 24115-01800	1800	2830	-	630	200	7.1
0 24108-02000	0 24115-02000	2000	3140	-	700	200	7.9
0 24108-02200	0 24115-02200	2200	3455	-	770	250	8.6
0 24108-02400	0 24115-02400	2400	3770	-	840	250	9.4
0 24108-02600	0 24115-02600	2600	4080	-	910	280	10.2
0 24108-02800	0 24115-02800	2800	4400	-	980	320	11.0
0 24108-03000	0 24115-03000	3000	4710	-	1050	320	11.8
0 24108-03200	0 24115-03200	3200	5025	-	1120	360	12.6
0 24108-03400	0 24115-03400	3400	5340	-	1190	360	13.4
0 24108-03600	0 24115-03600	3600	5650	1	1260	360	14.0
0 24108-03800	0 24115-03800	3800	5970	1	1330	400	14.9
0 24108-04000	0 24115-04000	4000	6280	1	1400	450	15.7
0 24108-04200	0 24115-04200	4200	6595	1	1470	450	16.5
0 24108-04400	0 24115-04400	4400	6910	1	1540	450	17.3
0 24108-04600	0 24115-04600	4600	7220	1	1610	500	18.1
0 24108-04800	0 24115-04800	4800	7540	1	1680	500	18.9
0 24108-05000	0 24115-05000	5000	7850	1	1750	500	19.6
0 24108-05500	0 24115-05500	5500	8635	1	1925	500	22.2
0 24108-06000	0 24115-06000	6000	9420	1	2100	500	24.2
0 24108-06500	0 24115-06500	6500	10205	1	2275	500	26.1
0 24108-07000	0 24115-07000	7000	10990	1	2450	500	28.1
0 24108-07500	0 24115-07500	7500	11775	2	2625	500	30.6
0 24108-08000	0 24115-08000	8000	12560	2	2800	500	32.6
0 24108-08500	0 24115-08500	8500	13345	2	2975	500	34.6
0 24108-09000	0 24115-09000	9000	14130	2	3150	500	36.5
0 24108-09500	0 24115-09500	9500	14915	2	3325	500	38.5
0 24108-10000	0 24115-10000	10000	15700	2	3500	500	40.5

For intermediate sizes we charge the price of the next larger type. Of course we can produce any curve track for you. Please give us a sketch. Price on inquiry.

MOUNTINGS

Catalogue No.: **TRACK COUPLER 0 24185**; stainless steel

Catalogue No.: **TRACK COUPLER 0 24186**; acid resistant

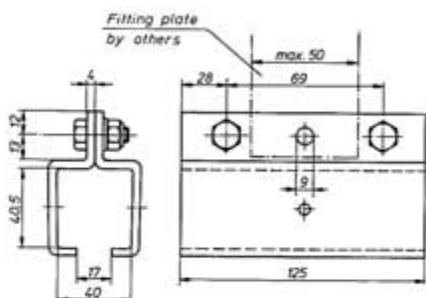


Weight: 0.610 kg



Catalogue No.: **TRACK SUPPORT BRACKET and JOINING BRACKET 0 24187**; stainless steel (2-pieces)

Catalogue No.: **TRACK SUPPORT BRACKET and JOINING BRACKET 0 24188**; acid resistant (2-pieces)

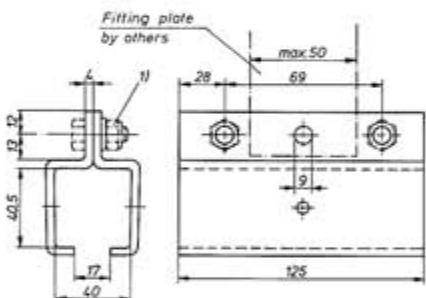


Weight: 0.790 kg



Catalogue No.: **TRACK SUPPORT BRACKET and JOINING BRACKET 0 24189**; stainless steel (2-pieces)

Catalogue No.: **TRACK SUPPORT BRACKET and JOINING BRACKET 0 24190**; acid resistant (2-pieces)

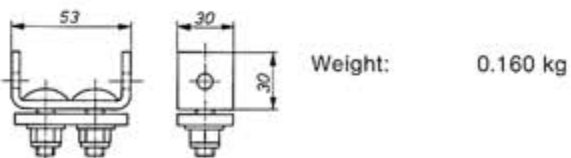


Weight: 0.750 kg

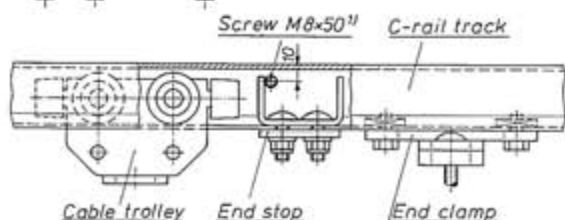
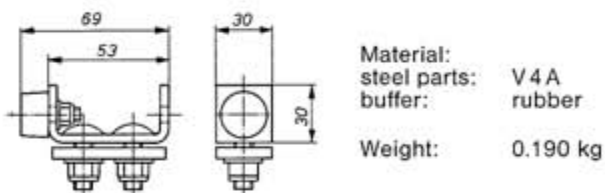


1) Screws, nuts and washers of stainless steel are required for fixing the two plates.

Catalogue No.: **END STOP 0 24180**;
acid resistant



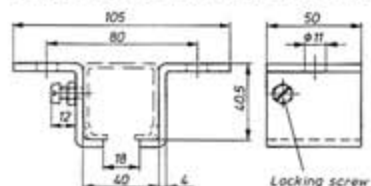
Catalogue No.: **END STOP 0 24181**;
acid resistant



The end stop is fitted into the C-rail track between the end clamp and the first cable trolley. Its function is to prevent the cable trolley from running against the end clamp.

1) To avoid damages due to incorrect fitting we recommend that the end stop 0 24180 and 0 24181 be secured by an additional bolt M 8 x 50 (material: V 4 A) fitted at right angles to the track.

TRACK SUPPORT BRACKET 0 24160 and 0 24161; 0 24170 and 0 24171



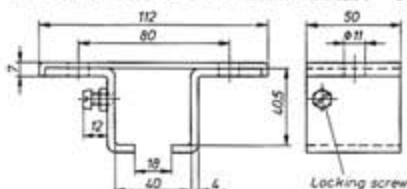
Locking screw
only for 024161
and 024171

Perm. load: 100 kg



Catalogue No. Material: V 2 A	Catalogue No. Material: V 4 A	Type	Weight [kg]
0 24160	0 24170	Without fixing screw	0.240
0 24161	0 24171	With fixing screw	0.250

TRACK SUPPORT BRACKET 0 24162 and 0 24163; 0 24172 and 0 24173;



Locking screw
only for 024163
and 024173

Perm. load: 100 kg

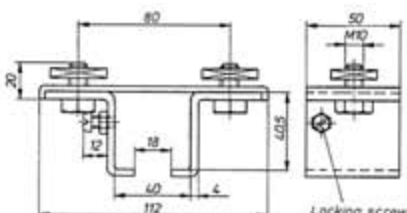


Catalogue No. Material: V 2 A	Catalogue No. Material: V 4 A	Type	Weight [kg]
0 24162	0 24172	Without fixing screw	0.350
0 24163	0 24173	With fixing screw	0.360

TRACK SUPPORT BRACKET 0 24164 and 0 24165; 0 24174 and 0 24175;

to fit support arm 0 20473 and 0 20486

to fit support arm 0 20475 and 0 20488



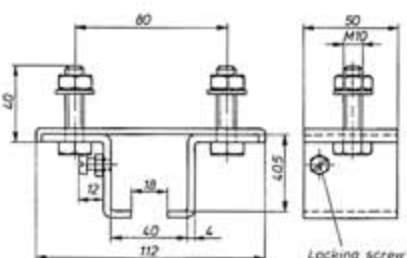
Locking screw
only for 024165
and 024175

Perm. load: 100 kg



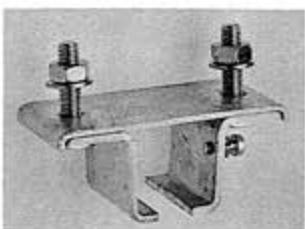
Catalogue No. Material: V 2 A	Catalogue No. Material: V 4 A	Type	Weight [kg]
0 24164	0 24174	Without fixing screw	0.440
0 24165	0 24175	With fixing screw	0.450

TRACK SUPPORT BRACKET 0 24166 and 0 24167; 0 24176 and 0 24177;



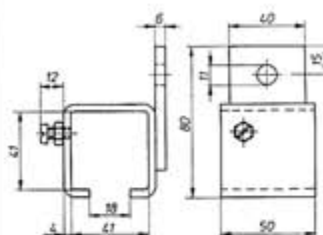
Locking screw
only for 024167
and 024177

Perm. load: 100 kg



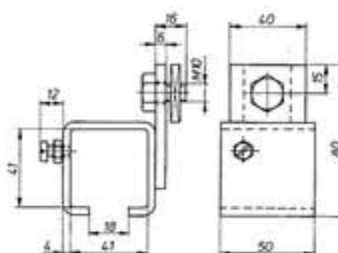
Catalogue No. Material: V 2 A	Catalogue No. Material: V 4 A	Type	Weight [kg]
0 24166	0 24176	Without fixing screw	0.460
0 24167	0 24177	With fixing screw	0.470

Catalogue No.: **TRACK SUPPORT BRACKET**
0 24182; acid resistant



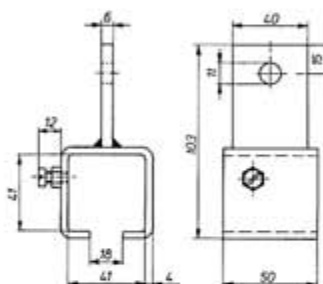
Weight: 0.320 kg
Perm. load: 100 kg

Catalogue No.: **TRACK SUPPORT BRACKET**
0 24183; acid resistant



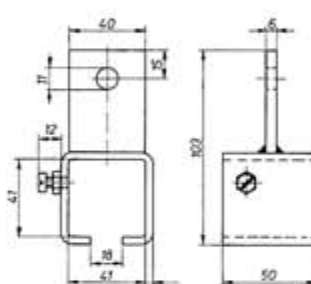
Weight: 0.365 kg
Perm. load: 100 kg

Catalogue No.: **TRACK SUPPORT BRACKET**
0 24197; acid resistant



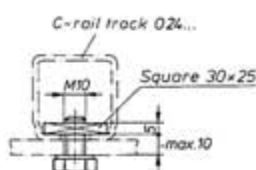
Weight: 0.300 kg
Perm. load: 250 kg

Catalogue No.: **TRACK SUPPORT BRACKET**
0 24198; acid resistant



Weight: 0.300 kg
Perm. Load: 250 kg

Catalogue No.: **BOLT complete** 0 20477 - 10 x 20; acid resistant
with square nut



Weight: 0.045 kg

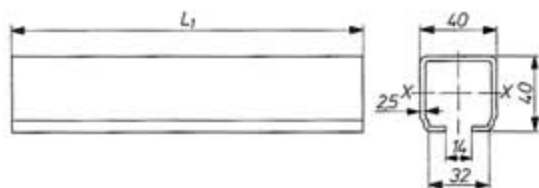
LIST OF APPLICATION

Standard part	+	Bolts	△ Complete part
0 24162 + 2 pieces		0 20477 - 10 x 20	△ 0 24164
0 24163 + 2 pieces		0 20477 - 10 x 20	△ 0 24165
0 24172 + 2 pieces		0 20477 - 10 x 20	△ 0 24174
0 24173 + 2 pieces		0 20477 - 10 x 20	△ 0 24175
0 24182 + 1 piece		0 20477 - 10 x 20	△ 0 24183

The complete set will be supplied in component parts, preferably in packing units.

SUPPORT ARM 0 20473; stainless steel (40 x 40 x 2.5)
unperforated

SUPPORT ARM 0 20475; acid resistant (40 x 40 x 2.5)
unperforated



Stat. data: $I_x = 6.05 \text{ cm}^4$, $W_x = 2.94 \text{ cm}^3$

Catalogue No. unperforated Material: V2 A	Catalogue No. unperforated Material: V4 A	L_1	Weight ca. [kg]
0 20473-0250	0 20475-0250	250	0.625
0 20473-0315	0 20475-0315	315	0.800
0 20473-0400	0 20475-0400	400	1.000
0 20473-0500	0 20475-0500	500	1.250
0 20473-0630	0 20475-0630	630	1.575
0 20473-0800	0 20475-0800	800	2.000
0 20473-1000	0 20475-1000	1000	2.500
0 20473-1250	0 20475-1250	1250	3.125

PERMISSIBLE LOADING

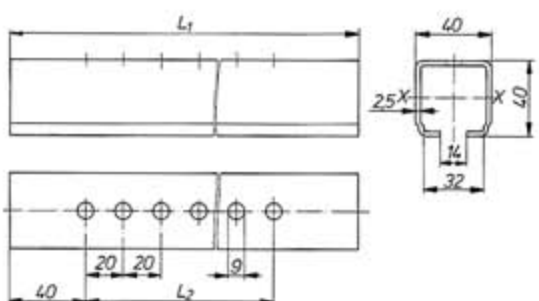


	l [m]						
	0.25	0.32	0.4	0.5	0.63	0.8	1.0
P [kg] ¹⁾	164.5	128.5	103.0	82.5	65.5	51.5	41.0
f [cm]	0.06	0.10	0.16	0.25	0.40	0.63	1.0

1) Calculated with $\sigma = 140 \text{ N/mm}^2$ tension;
f = max. resulting deflection.

SUPPORT ARM 0 20486; stainless steel (40 x 40 x 2.5)
perforated

SUPPORT ARM 0 20488; acid resistant (40 x 40 x 2.5)
perforated



Stat. data: $I_x = 6.05 \text{ cm}^4$, $W_x = 2.94 \text{ cm}^3$

Catalogue No. perforated Material: V2 A	Catalogue No. perforated Material: V4 A	L_1	L_2	Weight ca. [kg]
0 20486-0250	0 20488-0250	250	200	0.625
0 20486-0315	0 20488-0315	315	260	0.800
0 20486-0400	0 20488-0400	400	340	1.000
0 20486-0500	0 20488-0500	500	340	1.250
0 20486-0630	0 20488-0630	630	340	1.575
0 20486-0800	0 20488-0800	800	340	2.000
0 20486-1000	0 20488-1000	1000	340	2.500
0 20486-1250	0 20488-1250	1250	340	3.125

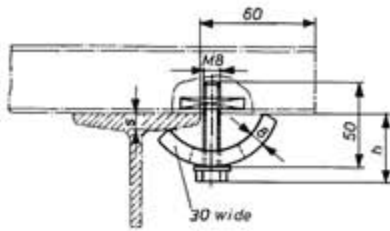
PERMISSIBLE LOADING



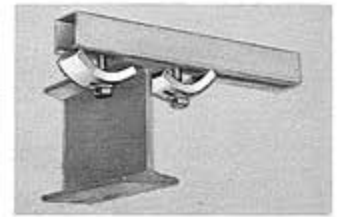
	l [m]						
	0.25	0.32	0.4	0.5	0.63	0.8	1.0
P [kg] ¹⁾	164.5	128.5	103.0	82.5	65.5	51.5	41.0
f [cm]	0.06	0.10	0.16	0.25	0.40	0.63	1.0

1) Calculated with $\sigma = 140 \text{ N/mm}^2$ tension;
f = max. resulting deflection.

Catalogue No.: **GIRDER CLIP 0 20480-08**; complete acid resistant



Material:
clamping plate: steel, V 4 A
bolt and nut: steel, V 4 A
Weight: 0.150 kg



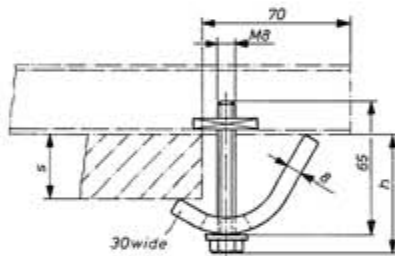
Clamping thickness »s«	4	6	8	10	12	16	20
Mounting height »h«	31	32	33	34	35	37	40

Catalogue No.: **GIRDER CLIP 0 20481-08**; only bolt and nut acid resistant

Dimensions like girder clip 0 20480-08

Material:
clamping plate: steel, galvanized
bolt and nut: steel, V 4 A

Catalogue No.: **GIRDER CLIP 0 20480-08 x 36**; complete acid resistant



Material:
clamping plate: steel, V 4 A
bolt and nut: steel, V 4 A
Weight: 0.220 kg

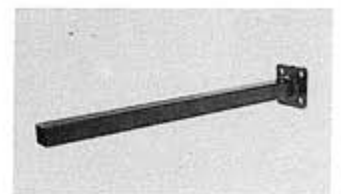
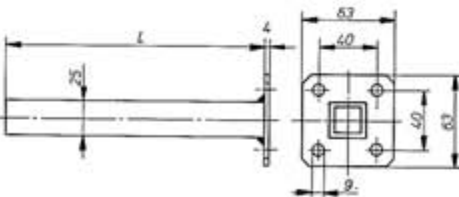
Clamping thickness »s«	18 - 20	20 - 24	24 - 28	28 - 32	32 - 36
Mounting height »h«	42 - 44	44 - 48	48 - 52	52 - 56	56 - 60

Catalogue No.: **GIRDER CLIP 0 20481-08 x 36**; only bolt and nut acid resistant

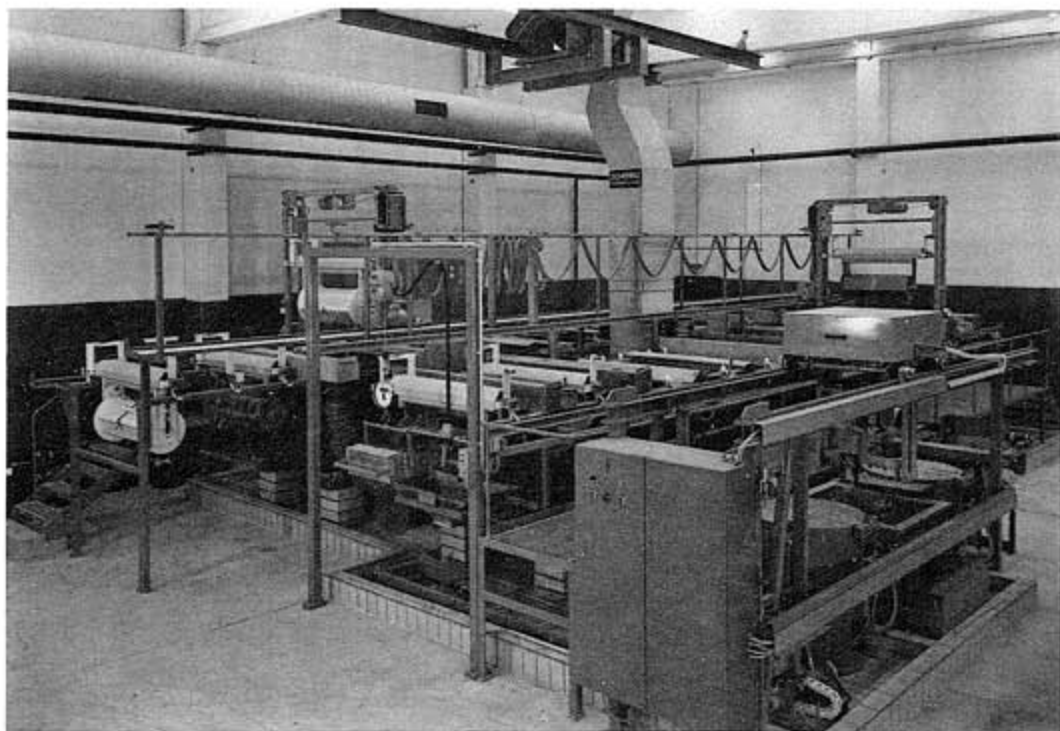
Dimensions like girder clip 0 20480-08 x 36

Material:
clamping plate: steel, galvanized
bolt and nut: steel, V 4 A

TOWING ARM 0 20495; acid resistant

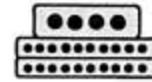


Catalogue No.	L	Weight [kg]
Towing arm 0 20495-400	400	0.600
Towing arm 0 20495-630	630	1.000



Flexible cable system in a galvanizing plant.

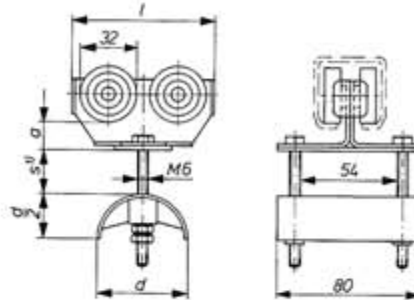
CABLE TROLLEYS AND ACCESSORIES for flat cables



CABLE TROLLEY OF SHEET STEEL, CABLE SUPPORT OF PLASTIC

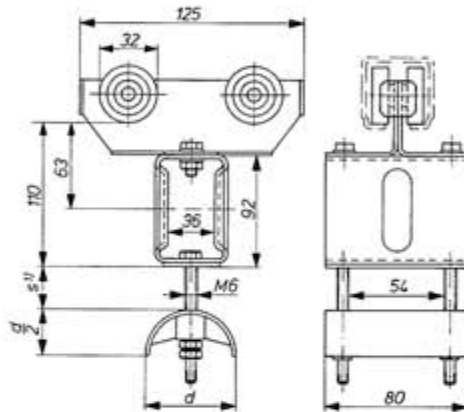
CABLE TROLLEY; acid resistant

No mounting of towing ropes possible.

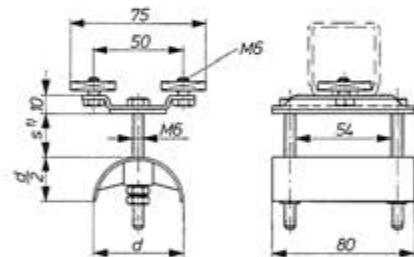


TOWING TROLLEY; acid resistant

No mounting of towing ropes possible.



END CLAMP; acid resistant



Technical data

Type of roller	Load capacity P [kg]	Operating temperature [°C]	Material	Special pairs of rollers Group ²⁾
Steel ball bearing, V 4 A	16	-10 to +80	Main body: steel, V 4 A Support: plastic, grey Insulating plate: plastic, grey Bolt: steel, V 4 A Fasteners: steel, V 4 A	A stainless steel

CABLE TROLLEY		TOWING TROLLEY		END CLAMP		DIMENSIONS				
Catalogue No.	Weight [kg]	Catalogue No.	Weight [kg]	Catalogue No.	Weight [kg]	d	l	a	s ¹⁾	s max.
0 24840-080	0.375	3)		3)		50	80	16.5	15	30
0 24840-125	0.460	0 24845	0.700	0 23469 ⁴⁾	0.185		125	20	36	42
0 24841	0.485	0 24846	0.745	0 23479 ⁴⁾	0.220	80	125	20	22	34

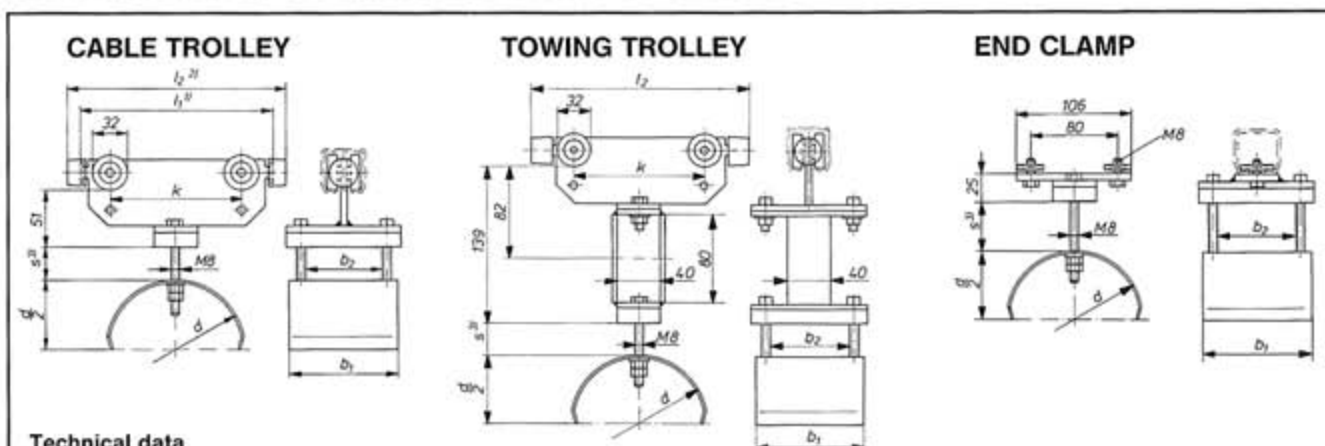
1) Dimension «s» applies on the assumption that the cable trolleys come together and not the flat cables. The bolts are, however, dimensioned to take cable bundles up to «s max.».

2) For special pairs of rollers refer to page 240/50.

3) Use next type size.

4) Suitable for programme 240.

CABLE TROLLEY OF STEEL, CABLE SUPPORT OF SHEET STEEL



Technical data

Type of roller	Load capacity P [kg]	Operating temperature [°C]	Material	Special pairs of rollers Group ⁵⁾
Steel ball bearing, V 4 A	16	-10 to +80	Main body: steel, V 4 A or V 2 A Buffer: rubber Support: steel, V 4 A or V 2 A Clamping piece: rubber Bolt: steel, V 4 A or V 2 A	A stainless steel

CABLE TROLLEYS; acid resistant

CABLE TROLLEY		TOWING TROLLEY		END CLAMP		DIMENSIONS							
Catalogue No.	Weight [kg]	Catalogue No.	Weight [kg]	Catalogue No.	Weight [kg]	d	l ₁ ¹⁾	l ₂ ²⁾	b ₁	b ₂ max.	s ³⁾ max.	s _K ⁴⁾	k
0 24810-100x100	0.83	0 24820-200x100 ⁵⁾	1.65	0 24830-100x62	0.70	80	100	-	100	72	10	15	46
0 24810-125x100	0.85						125	-	100	72	20	32	81
0 24810-135x100	0.91						135	-	100	72	27	38	81
0 24810-160x100	0.93	0 24820-200x100	1.65	0 24830-100x62	0.70	80	160	-	100	72	47	52	121
0 24810-175x100	1.03						175	-	100	72	58	121	
0 24810-200x100	1.05						200	-	100	72	58	121	
0 24812-135x100	1.03	0 24822-200x100 ⁵⁾	1.75	0 24832-100x42	0.80	125	135	-	100	72	5	10	81
0 24812-160x100	1.05						160	-	100	72	15	10	81
0 24812-135x160	1.36						135	-	160	132	5	10	81
0 24812-160x160	1.38	0 24822-200x160 ⁵⁾	2.28	0 24832-160x42	1.13	125	160	-	160	132	5	10	81
0 24812-175x100	1.13						175	-	100	72	25	30	121
0 24812-200x100	1.15						200	-	100	72	35	30	121
0 24812-175x160	1.46	0 24822-200x160	2.28	0 24832-160x42	1.13	125	175	-	160	132	25	30	121
0 24812-200x160	1.48						200	-	160	132	35	30	121
0 24812-225x100	1.37						225	-	100	72	50	55	171
0 24812-250x100	1.39	0 24822-250x100	1.99	0 24832-100x62	0.82	125	250	-	100	72	60	55	171
0 24812-225x160	1.70						225	-	160	132	50	55	171
0 24812-250x160	1.72						250	-	160	132	60	55	171
0 24913-200x100	1.28	0 24923-200x100	1.88	0 24933-100x22	0.98	160	-	200	100	72	18	12	121
0 24913-200x160	1.76						-	200	160	132	18	12	121
0 24913-225x100	1.36						225	-	100	72	32	37	171
0 24913-250x100	1.38	0 24923-250x100	1.98	0 24933-100x42	0.98	160	250	-	100	72	42	37	171
0 24913-225x160	1.84						225	-	160	132	32	37	171
0 24913-250x160	1.86						250	-	160	132	42	37	171
0 24913-255x100	1.46	0 24923-280x100	2.08	0 24933-100x62	1.00	160	255	-	100	72	47	52	201
0 24913-280x100	1.48						280	-	100	72	58	52	201
0 24913-255x160	1.94						255	-	160	132	47	52	201
0 24913-280x160	1.96	0 24933-280x160	2.76	0 24933-160x62	1.46	160	280	-	160	132	47	52	201
0 24814-250x100	1.50						250	-	115	72	22	17	171
0 24814-250x160	2.07						250	-	175	132	22	17	171
0 24814-255x100	1.58	0 24824-280x100	2.20	0 24834-100x42	1.10	200	255	-	115	72	27	32	201
0 24814-280x100	1.60						280	-	115	72	38	32	201
0 24814-255x160	2.15						255	-	175	132	27	32	201
0 24814-280x160	2.17	0 24824-280x160	2.97	0 24834-160x42	1.65	200	280	-	175	132	27	32	201
0 24814-280x160	2.17						280	-	175	132	38	32	201

CABLE TROLLEYS; stainless steel

CABLE TROLLEY		TOWING TROLLEY		END CLAMP		DIMENSIONS								
Catalogue No.	Weight [kg]	Catalogue No.	Weight [kg]	Catalogue No.	Weight [kg]	d	l ₁ ¹⁾	l ₂ ²⁾	b ₁	b ₂ ³⁾ max.	s _{max} ³⁾	s _K ⁴⁾	k	
0 24810-100x100/500 0 24810-125x100/500	0.83 0.85	0 24820-200x100/500 ⁵⁾	1.65	0 24830-100x62/500	0.70	80	100	-	100	72	10	15	46	
								125	100	72	20	32	81	
								135	100	72	27	38	52	121
0 24810-135x100/500 0 24810-160x100/500	0.91 0.93	0 24820-200x100/500 ⁵⁾	1.65	0 24830-100x62/500	0.70	80	175	-	100	72	47	58	121	
								200	100	72	58	52	121	
								175	100	72	47	58	52	121
0 24810-175x100/500 0 24210-200x100/500	1.03 1.05	0 24820-200x100/500	1.65	0 24830-100x62/500	0.70	125	135	-	100	72	5	15	81	
								160	100	72	15	10	81	
								135	160	132	5	15	10	81
0 24812-135x100/500 0 24812-160x100/500	1.03 1.05	0 24822-200x100/500 ⁵⁾	1.75	0 24832-100x42/500	0.80	125	175	-	100	72	25	35	121	
								200	100	72	35	30	121	
								175	160	132	25	35	30	121
0 24812-135x160/500 0 24812-160x160/500	1.36 1.38	0 24822-200x160/500 ⁵⁾	2.28	0 24832-160x42/500	1.13	125	225	-	100	72	50	60	171	
								250	100	72	60	55	171	
								225	160	132	50	60	55	171
0 24812-175x100/500 0 24812-200x100/500	1.13 1.15	0 24822-200x100/500	1.75	0 24832-100x42/500	0.80	125	225	-	100	72	50	60	171	
								250	100	72	60	55	171	
								225	160	132	50	60	55	171
0 24812-175x160/500 0 24812-200x160/500	1.46 1.48	0 24822-200x160/500	2.28	0 24832-160x42/500	1.13	125	225	-	100	72	50	60	171	
								250	100	72	60	55	171	
								225	160	132	50	60	55	171
0 24812-225x100/500 0 24812-250x100/500	1.37 1.39	0 24822-250x100/500	1.99	0 24832-100x62/500	0.82	160	225	-	100	72	32	42	171	
								250	100	72	42	37	171	
								225	160	132	32	42	37	171
0 24812-225x160/500 0 24812-250x160/500	1.70 1.72	0 24822-250x160/500	2.52	0 24832-160x62/500	1.15	160	255	-	100	72	47	58	201	
								280	100	72	58	52	201	
								255	160	132	47	58	52	201
0 24913-200x100/500	1.28	0 24923-200x100/500	1.88	0 24933-100x22/500	0.98	160	-	200	100	72	18	12	121	
								-	200	160	132	18	12	121
								225	100	72	32	42	37	171
0 24913-200x160/500	1.76	0 24923-200x160/500	2.56	0 24933-160x22/500	1.44	160	-	200	160	132	18	12	121	
								225	160	132	32	42	37	171
								225	160	132	32	42	37	171
0 24913-225x100/500 0 24913-250x100/500	1.36 1.38	0 24923-250x100/500	1.98	0 24933-100x42/500	0.98	160	225	-	100	72	32	42	171	
								250	100	72	42	37	171	
								225	160	132	32	42	37	171
0 24913-225x160/500 0 24913-250x160/500	1.84 1.86	0 24923-250x160/500	2.66	0 24933-160x42/500	1.44	160	255	-	100	72	47	58	201	
								280	100	72	58	52	201	
								255	160	132	47	58	52	201
0 24814-250x100/500	1.50	0 24824-250x100/500	2.10	0 24834-100x22/500	1.10	200	-	250	115	72	22	17	171	
								-	250	175	132	22	17	171
								255	115	72	27	38	32	201
0 24814-250x160/500	2.07	0 24824-250x160/500	2.87	0 24834-160x22/500	1.65	200	-	250	175	132	22	17	171	
								255	115	72	27	38	32	201
								255	175	132	27	38	32	201
0 24814-255x100/500 0 24814-280x100/500	1.58 1.60	0 24824-280x100/500	2.20	0 24834-100x42/500	1.10	200	255	-	115	72	27	38	201	
								280	115	72	38	32	201	
								255	175	132	27	38	32	201
0 24814-255x160/500 0 24814-280x160/500	2.15 2.17	0 24824-280x160/500	2.97	0 24834-160x42/500	1.65	200	255	-	115	72	27	38	201	
								280	115	72	38	32	201	
								255	175	132	27	38	32	201

1) l₁ = Cable trolley without rubber buffer.

2) l₂ = Cable trolley with rubber buffer, towing trolleys are only supplied with rubber buffer.

3) The dimension »s« applies on the assumption that the cable trolley buffers come together and not the flat cables.

4) The cable trolleys can be comined, i.e. trolleys without buffers and trolleys with buffers can be used alternatively. The max. clamping thickness can then be used up to the value of »s_K«.
Example for combined cable trolley arrangement refer to page 240/26.

5) For the towing trolley are the following dimensions valid: l₂ = 200 mm; k = 121 mm.

6) For special pairs of rollers refer to page 240/50.

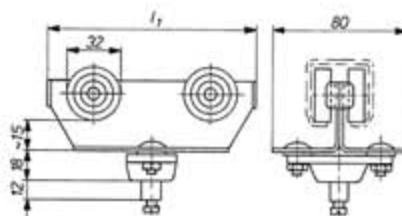
CABLE TROLLEY AND ACCESSORIES for round cables and hoses



CABLE TROLLEY with ball joint for round cable clip

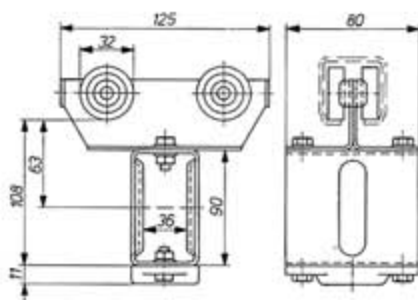
CABLE TROLLEY; acid resistant

No mounting of towing ropes possible.

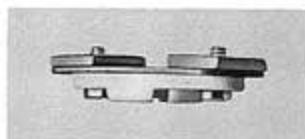
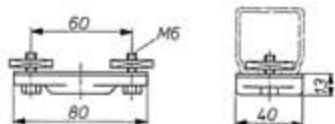


CABLE TROLLEY; acid resistant

No mounting of towing ropes possible.



END CLAMP; acid resistant



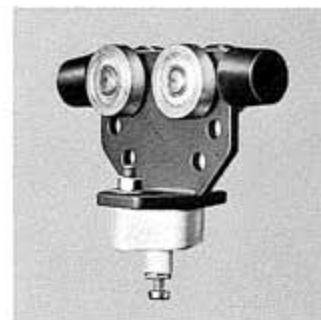
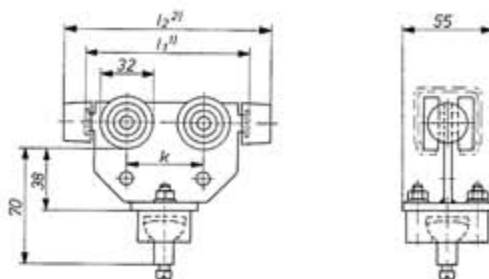
Technical data

Type of roller	Load capacity P [kg]	Operating temperature [°C]	Material	Special pairs of rollers Group ¹⁾
Steel ball bearing, V 4 A	16	-10 to +60	Main body: steel, V 4 A Ball joint: plastic, grey Connecting plate: plastic Fasteners: steel, V 4 A	A stainless steel

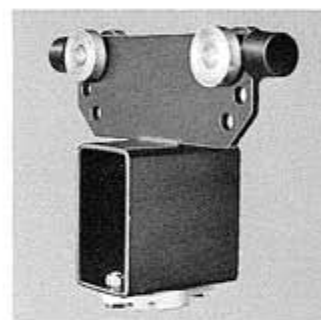
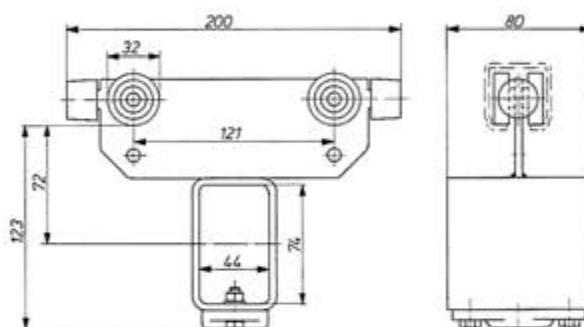
CABLE TROLLEY			TOWING TROLLEY		END CLAMP		ATTACHMENTS
Catalogue No.	l ₁	Weight [kg]	Catalogue No.	Weight [kg]	Catalogue No.	Weight [kg]	Suitable cable clips
0 24860-080	80	0.360	0 24861	0.670	0 24862	0.150	0 20431-16, 0 20431-25 (-36 = for restricted use)
0 24860-125	125	0.450					0 20431-16, 0 20431-25 0 20431-36

1) For special pairs of rollers refer to page 240/50.

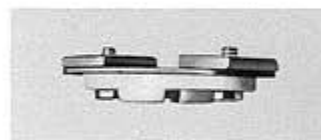
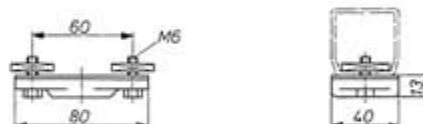
CABLE TROLLEY; acid resistant



TOWING TROLLEY; acid resistant



END CLAMP; acid resistant



Technical data

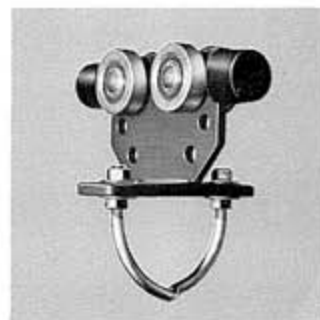
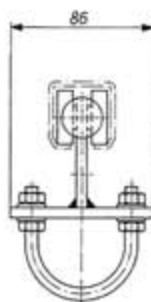
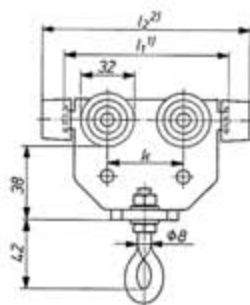
Type of roller	Load capacity P [kg]	Operating temperature [°C]	Material	Special pairs of rollers Group ³⁾
Steel ball bearing, V 4 A	16	-10 to +60	Main body: steel, V 4 A Buffer: rubber Ball joint: plastic, grey Connecting plate: plastic Fasteners: steel, V 4 A	A stainless steel

CABLE TROLLEY					TOWING TROLLEY		END CLAMP		ATTACHMENTS
Catalogue No.	l_1	l_2	k	Weight [kg]	Catalogue No.	Weight [kg]	Catalogue No.	Weight [kg]	Suitable cable clips
0 24880-100	100	-	46	0.520	0 24881	1.000	0 24862	0.150	0 20431-16 0 20431-25 0 20431-36
0 24880-125	-	125	46	0.540					
0 24880-160	-	160	81	0.620					
0 24880-200	-	200	121	0.720					

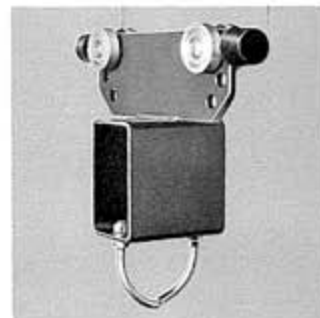
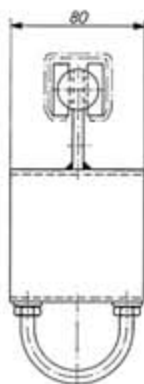
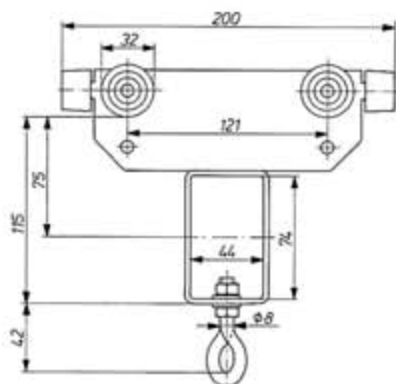
- 1) l_1 = Cable trolley without rubber buffer.
- 2) l_2 = -Cable trolley with rubber buffer.
- 3) For special pairs of rollers refer to page 240/50.

CABLE TROLLEY with bracket for round cable clips

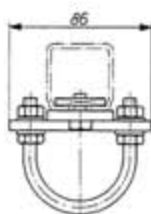
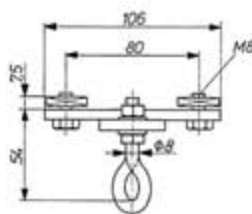
CABLE TROLLEY; acid resistant



TOWING TROLLEY; acid resistant



END CLAMP; acid resistant



Technical data

Type of roller	Load capacity P [kg]	Operating temperature [°C]	Material	Special pairs of rollers Group ³⁾
Steel ball bearing, V 4 A	16	-10 to +80	Main body: steel, V 4 A Buffer: rubber Bracket: steel, V 4 A Fasteners: steel, V 4 A	A stainless steel

CABLE TROLLEY					TOWING TROLLEY		END CLAMP		ATTACHMENTS
Catalogue No.	l ₁	l ₂	k	Weight [kg]	Catalogue No.	Weight [kg]	Catalogue No.	Weight [kg]	Suitable cable clips
0 24885-100	100	-	46	0.560	0 24886	1.000	0 24887	0.460	0 20433-16 0 20433-25 0 20433-36
0 24885-125	-	125	46	0.580					
0 24885-160	-	160	81	0.660					
0 24885-200	-	200	121	0.760					

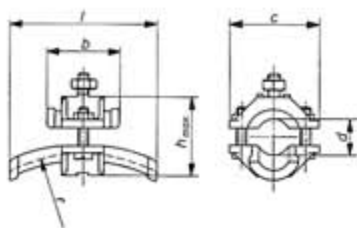
1) l₁ = Cable trolley without rubber buffer.

2) l₂ = -Cable trolley with rubber buffer.

3) For special pairs of rollers refer to page 240/50.

CABLE CLIPS for round cables and hoses

CABLE CLIP 0 20431



Operating temperature: -10°C to +80°C

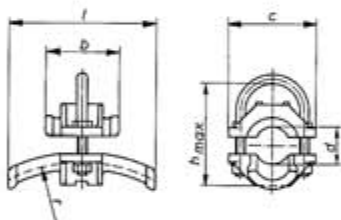
Material:
cable clip: plastic, grey
fasteners: steel, V 4 A



Catalogue No.	d Cable-ø	r	l	h max.	b	c	Weight [kg]	Suitable cable trolleys	Suitable towing trolleys	Suitable end clamp
0 20431-16	10-16	80	70	38	35	42	0.040	0 24860 0 24880	0 24861 0 24881	0 24862
0 20431-25	17-25	125	100	47	50	50	0.060			
0 20431-36	26-36	180	140	58	70	64	0.120			

Application: The cable clips are designed to support round cables and hoses.
If required, it is possible to fit two or more similar, or different sized cable clips to a trolley or end clamp.
When fitting different sized cable clip, the largest cable clip must be fitted on top.
The cable clips can also be fitted under the cable clips with U suspension bracket 0 20433.

CABLE CLIP 0 20433



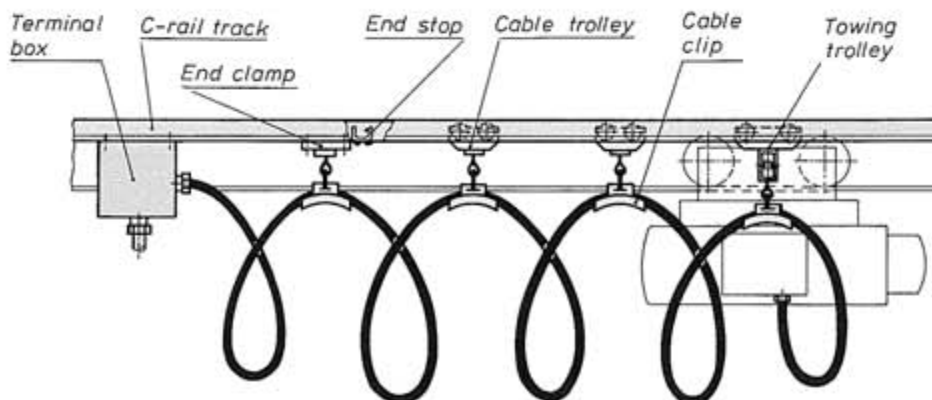
Operating temperature: -10°C to +80°C

Material:
cable clip: plastic, grey
fasteners: steel, V 4 A



Catalogue No.	d Cable-ø	r	l	h max.	b	c	Weight [kg]	Suitable cable trolley	Suitable towing trolley	Suitable end clamp
0 20433-16	10-16	80	70	48	35	42	0.050	0 24885	0 24886	0 24887
0 20433-25	17-25	125	100	60	50	50	0.070			
0 20433-36	26-36	180	140	78	70	64	0.140			

EXAMPLE OF APPLICATION

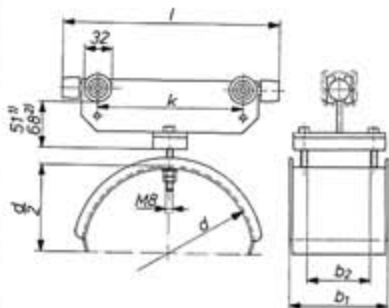


CABLE TROLLEY OF STEEL

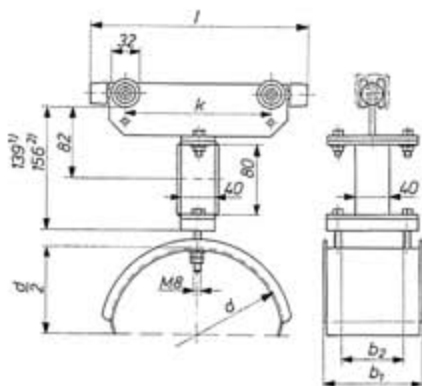
for clamping round cables with a max. \varnothing -difference of 2 mm, 6 mm or 16 mm

For clamping round cables with a max. \varnothing -difference of 2 mm and 6 mm

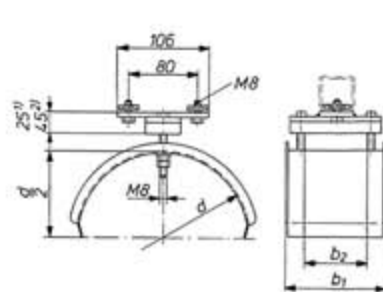
CABLE TROLLEY



TOWING TROLLEY



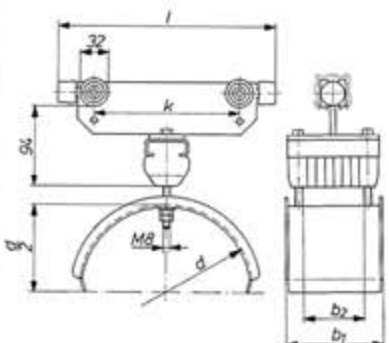
END CLAMP



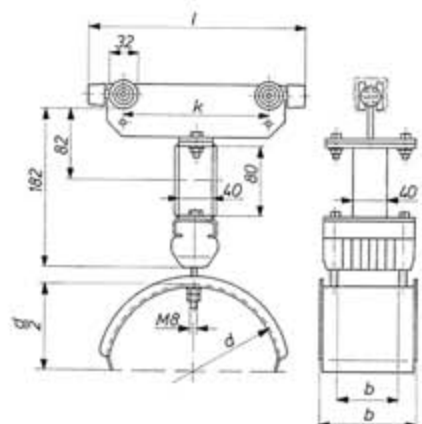
- 1) The dimension applies for clamping round cables with a max. \varnothing -difference of 2 mm.
- 2) The dimension applies for clamping round cables with a max. \varnothing -difference of 6 mm.

For clamping round cables with a max. \varnothing -difference of 16 mm

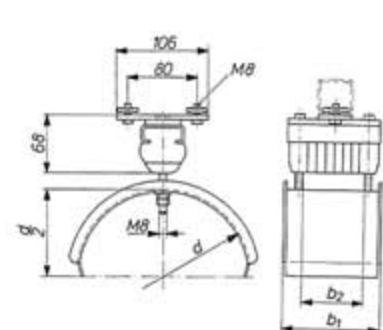
CABLE TROLLEY



TOWING TROLLEY



END CLAMP



Technical data

Type of roller	Load capacity P [kg]	Operating temperature [°C]	Material	Special pairs of rollers Group ³⁾
Steel ball bearing, V4 A	16	-10 to +80	Main body: steel, V4 A or V2 A Buffer: rubber Support: steel, V4 A or V2 A Clamping piece: rubber Bolt: steel, V4 A or V2 A Fasteners: steel, V4 A or V2 A	A stainless steel

3) For special pairs of rollers refer to page 240/50.

CABLE TROLLEY; acid resistant

For clamping round cables with a max. Ø-difference of 2 mm

CABLE TROLLEY		TOWING TROLLEY		END CLAMP		DIMENSIONS					
Catalogue No.	Weight [kg]	Catalogue No.	Weight [kg]	Catalogue No.	Weight [kg]	d	l	b ₁	b ₂ max.	max. cable-ø	k
0 24813-200x100	1.30	0 24823-200x100	1.90	0 24833-100x22	1.00	160	200	115	72	16	121
0 24813-200x160	1.72	0 24823-200x160	2.52	0 24833-160x22	1.40			175	132		
0 24814-250x100	1.50	0 24824-250x100	2.10	0 24834-100x22	1.10	200	250	115	72	20	171
0 24814-250x160	2.07	0 24824-250x160	2.87	0 24834-160x22	1.65			175	132		

For clamping round cables with a max. Ø-difference of 6 mm

CABLE TROLLEY		TOWING TROLLEY		END CLAMP		DIMENSIONS					
Catalogue No.	Weight [kg]	Catalogue No.	Weight [kg]	Catalogue No.	Weight [kg]	d	l	b ₁	b ₂ max.	max. cable-ø	k
0 24943-200x100	1.50	0 24953-200x100	2.10	0 24963-100	1.20	160	200	115	72	16	121
0 24943-200x160	1.92	0 24953-200x160	2.72	0 24963-160	1.60			175	132		
0 24944-250x100	1.70	0 24954-250x100	2.20	0 24964-100	1.30	200	250	115	72	20	171
0 24944-250x160	2.27	0 24954-250x160	3.07	0 24964-160	1.85			175	132		
0 24945-320x100	2.20	0 24955-320x100	2.90	0 24965-100	1.60	250	320	115	72	25	241
0 24945-320x160	2.72	0 24955-320x160	3.52	0 24965-160	2.10			175	132		
0 24945-320x200	3.12	0 24955-320x200	3.92	0 24965-200	2.50			215	172		
0 24945-320x250	3.62	0 24955-320x250	4.40	0 24965-250	3.00			265	222		

For clamping round cables with a max. Ø-difference of 16 mm

CABLE TROLLEY		TOWING TROLLEY		END CLAMP		DIMENSIONS					
Catalogue No.	Weight [kg]	Catalogue No.	Weight [kg]	Catalogue No.	Weight [kg]	d	l	b ₁	b ₂ max.	max. cable-ø	k
0 24974-250x100	1.70	0 24984-250x100	2.20	0 24994-100	1.30	200	250	115	66	20	171
0 24974-250x160	2.27	0 24984-250x160	3.07	0 24994-160	1.85			175	126		
0 24975-320x100	2.20	0 24985-320x100	2.90	0 24995-100	1.60	250	320	115	66	25	241
0 24975-320x160	2.72	0 24985-320x160	3.52	0 24995-160	2.10			175	126		
0 24975-320x200	3.12	0 24985-320x200	3.92	0 24995-200	2.50			215	166		
0 24975-320x250	3.62	0 24985-320x250	4.42	0 24995-250	3.00			265	210		

CABLE TROLLEYS; stainless steel

For clamping round cables with a max. Ø-difference of 2 mm

CABLE TROLLEY		TOWING TROLLEY		END CLAMP		DIMENSIONS					
Catalogue No.	Weight [kg]	Catalogue No.	Weight [kg]	Catalogue No.	Weight [kg]	d	l	b ₁	b ₂ max.	max. cable-ø	k
0 24813-200x100/500	1.30	0 24823-200x100/500	1.90	0 24833-100x22/500	1.00	160	200	115	72	16	121
0 24813-200x160/500	1.72	0 24823-200x160/500	2.52	0 24833-160x22/500	1.40			175	132		
0 24814-250x100/500	1.50	0 24824-250x100/500	2.10	0 24834-100x22/500	1.10	200	250	115	72	20	171
0 24814-250x160/500	2.07	0 24824-250x160/500	2.87	0 24834-160x22/500	1.65			175	132		

For clamping round cables with a max. Ø-difference of 6 mm


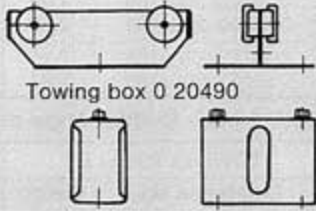
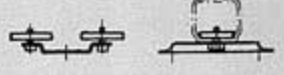
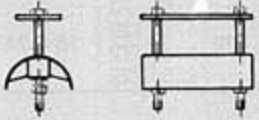
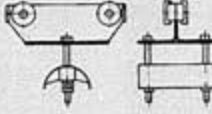
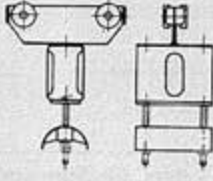
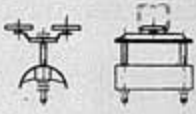

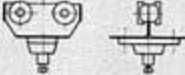


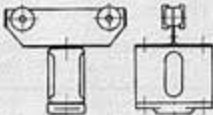
CABLE TROLLEY		TOWING TROLLEY		END CLAMP		DIMENSIONS					
Catalogue No.	Weight [kg]	Catalogue No.	Weight [kg]	Catalogue No.	Weight [kg]	d	l	b ₁	b ₂ max.	max. cable-ø	k
0 24943-200x100/500	1.50	0 24953-200x100/500	2.10	0 24963-100/500	1.20	160	200	115	72	16	121
0 24943-200x160/500	1.92	0 24953-200x160/500	2.72	0 24963-160/500	1.60			175	132		
0 24944-250x100/500	1.70	0 24954-250x100/500	2.20	0 24964-100/500	1.30	200	250	115	72	20	171
0 24944-250x160/500	2.27	0 24954-250x160/500	3.07	0 24964-160/500	1.85			175	132		
0 24945-320x100/500	2.20	0 24955-320x100/500	2.90	0 24965-100/500	1.60	250	320	115	72	25	241
0 24945-320x160/500	2.72	0 24955-320x160/500	3.52	0 24965-160/500	2.10			175	132		
0 24945-320x200/500	3.12	0 24955-320x200/500	3.92	0 24965-200/500	2.50			215	172		
0 24945-320x250/500	3.62	0 24955-320x250/500	4.40	0 24965-250/500	3.00			265	222		

For clamping round cables with a max. Ø-difference of 16 mm

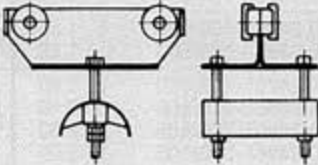
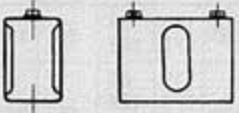
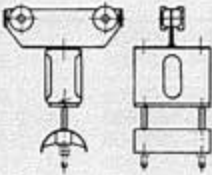
CABLE TROLLEY		TOWING TROLLEY		END CLAMP		DIMENSIONS					
Catalogue No.	Weight [kg]	Catalogue No.	Weight [kg]	Catalogue No.	Weight [kg]	d	l	b ₁	b ₂ max.	max. cable-ø	k
0 24974-250x100/500	1.70	0 24984-250x100/500	2.20	0 24994-100/500	1.30	200	250	115	66	20	171
0 24974-250x160/500	2.27	0 24984-250x160/500	3.07	0 24994-160/500	1.85			175	126		
0 24975-320x100/500	2.20	0 24985-320x100/500	2.90	0 24995-100/500	1.60	250	320	115	66	25	241
0 24975-320x160/500	2.72	0 24985-320x160/500	3.52	0 24995-160/500	2.10			175	126		
0 24975-320x200/500	3.12	0 24985-320x200/500	3.92	0 24995-200/500	2.50			215	166		
0 24975-320x250/500	3.62	0 24985-320x250/500	4.42	0 24995-250/500	3.00			265	210		

COMPONENTS AND PARTS

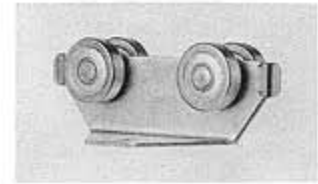
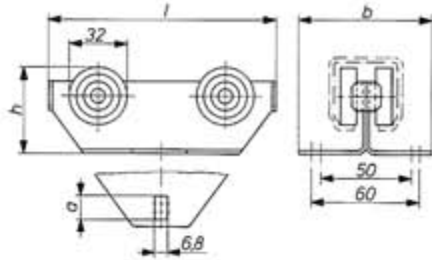
PARTS COMBINATION for cable trolleys, towing trolleys and end clamps

<p>Upper parts Catalogue No.</p> <p>Lower parts Catalogue No.</p>	<p>Cable trolley upper part 0 24542-080, 0 24542-125</p> 	<p>Cable trolley upper part 0 24542-125</p> <p>Towing box 0 20490</p> 	<p>End clamp upper part 0 20442</p> 
<p>Cable support for flat cables 0 20421, 0 20423 0 20422</p> 	<p>Cable trolley</p> 	<p>Towing trolley</p> 	<p>End clamp</p> 
<p>Ball joint 0 20456</p> 	<p>Cable trolley</p> 		<p>End clamp 0 20460</p>  <p>(Already completely in the programme)</p>
<p>End clamp 0 20460 only mount on the towing box</p> 		<p>Towing trolley</p> 	

COMBINATION OF CABLE TROLLEY AND TOWING BOX for towing trolley

<p>Cable trolley</p> <p>Mounting part Catalogue No.</p>	<p>Cable trolley with support</p> 	
<p>Towing box 0 20490</p> 	<p>Towing trolley</p> 	

CABLE TROLLEY UPPER PART 0 24542; acid resistant



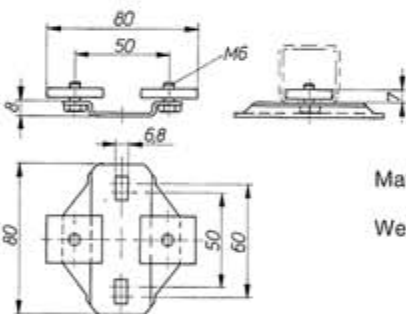
Technical data

Type of roller	Load capacity P [kg]	Operating temperature [°C]	Material	Special pairs of rollers Group ¹⁾
Steel ball bearing, V 4 A	16	-10 to +80	Main body: steel, V 4 A	A stainless steel

Catalogue No.	l	b	h	a	Weight [kg]
Cable trolley upper part 0 24542-080 ²⁾	80	74	ca. 45	12.6	0.310
Cable trolley upper part 0 24542-125 ²⁾	125	80	ca. 50	13.0	0.400

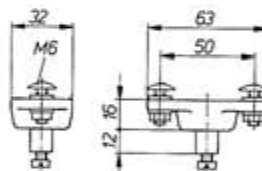
- 1) For special pairs of rollers refer to page 240/50.
2) No towing ropes can be fitted.

Catalogue No.: END CLAMP UPPER PART 0 20442; acid resistant, for cable support



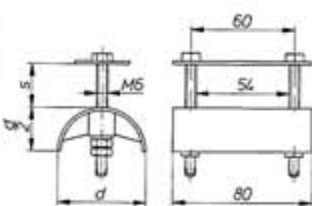
Material: steel, V 4 A
Weight: 0.122 kg

Catalogue No.: BALL JOINT 0 20456



Operating temperature: -10°C to +60°C
Material: ball joint: plastic, grey; fasteners: steel, V 4 A
Weight: 0.035 kg

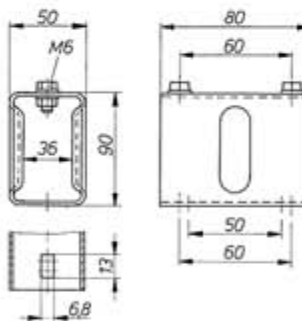
CABLE SUPPORT 0 20421, 0 20422, 0 20423; for flat cables



Operating temperature: -10°C to +80°C
Material: support: plastic, grey; insulating plate: plastic, grey; bolt: steel, V 4 A; nut: steel, V 4 A

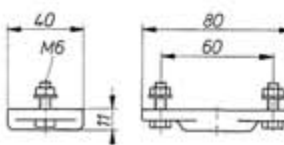
Catalogue No.	d	s max.	Weight [kg]
Cable support 0 20421	50	30	0.060
Cable support 0 20423		45	0.066
Cable support 0 20422	80	36	0.095

Catalogue No.: TOWING BOX 0 20490; acid resistant



Material: steel, V 4 A
Weight: 0.385 kg


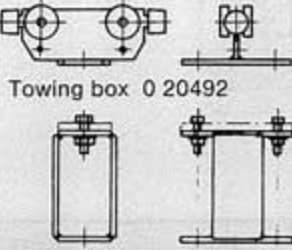


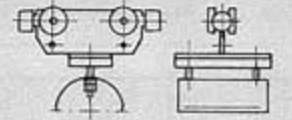
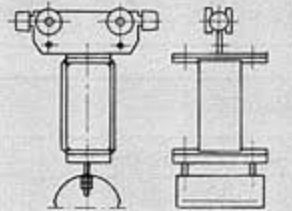
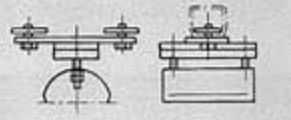
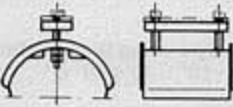
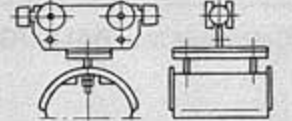
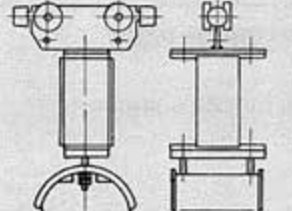
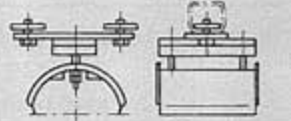
Catalogue No.: END CLAMP 0 20460; for installation on towing box



Operating temperature: -10°C to +80°C
Material: connection plate: plastic, grey; fasteners: steel, V 4 A
Weight: 0.035 kg

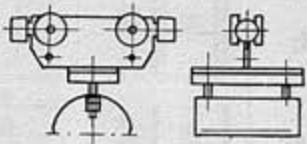
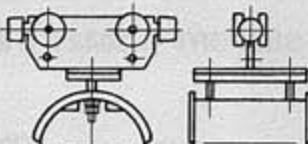
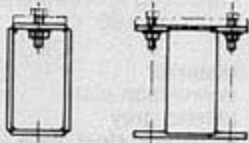
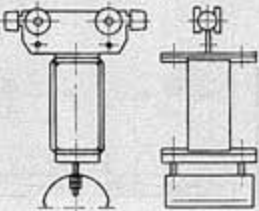
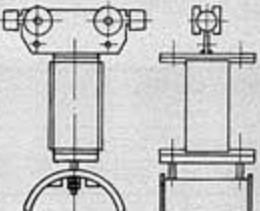
PARTS COMBINATION for cable trolleys, towing trolleys and end clamps

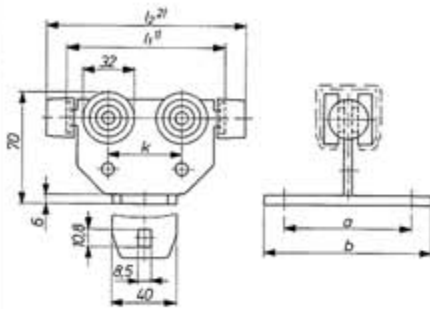
Only parts with the same corresponding dimensions can be combined.

<p>Upper parts Catalogue No.</p> <p>Lower parts Catalogue No.</p>	<p>Cable trolley upper part 0 24540</p> 	<p>Cable trolley upper part 0 24540</p> <p>Towing box 0 20492</p> 	<p>End clamp upper part 0 20497</p> 
<p>Cable support for flat cables 0 20540, 0 20542 0 20573</p> 	<p>Cable trolley for flat cables</p> 	<p>Towing trolley for flat cables</p> 	<p>End clamp for flat cables</p> 
<p>Cable support for flat or round cables 0 20543, 0 20544</p> 	<p>Cable trolley for flat or round cables</p> 	<p>Towing trolley for flat or round cables</p> 	<p>End clamp for flat or round cables</p> 

COMBINATION OF CABLE TROLLEY AND TOWING BOX for towing trolley

Only parts with the same corresponding dimensions can be combined.

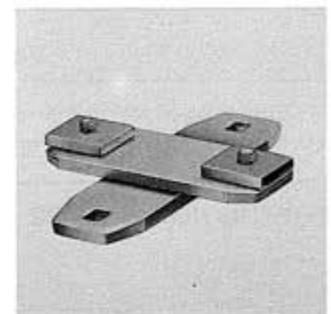
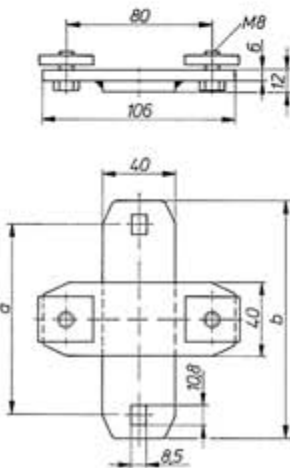
<p>Cable trolley</p> <p>Mounting part Catalogue No.</p>	<p>Cable trolley for flat cables</p> 	<p>Cable trolley for flat or round cables</p> 
<p>Towing box 0 20492</p> 	<p>Towing trolley for flat cables</p> 	<p>Towing trolley for flat or round cables</p> 

CABLE TROLLEY UPPER PART 0 24540

Technical data

Type of roller	Load capacity P [kg]	Operating temperature [°C]	Material	Special pairs of rollers Group ³⁾
Steel ball bearing, V 4 A	16	-10 to +80	Main body: steel, V 4 A or V 2 A Buffer: rubber	A stainless steel

Catalogue No. Material: V 4 A	Catalogue No. Material: V 2 A	l ₁	l ₂	a	b	k	Weight [kg]
0 24540-100x100 0 24540-125x100	0 24540-100x100/500 0 24540-125x100/500	100 -	- 125	80	106	46	0.530 0.550
0 24540-135x100 0 24540-160x100	0 24540-135x100/500 0 24540-160x100/500	135 -	- 160	80	106	81	0.610 0.630
0 24540-135x160 0 24540-160x160	0 24540-135x160/500 0 24540-160x160/500	135 -	- 160	140	166	81	0.730 0.750
0 24540-175x100 0 24540-200x100	0 24540-175x100/500 0 24540-200x100/500	175 -	- 200	80	106	121	0.710 0.730
0 24540-175x160 0 24540-200x160	0 24540-175x160/500 0 24540-200x160/500	175 -	- 200	140	166	121	0.830 0.850
0 24540-225x100 0 24540-250x100	0 24540-225x100/500 0 24540-250x100/500	225 -	- 250	80	106	171	0.930 0.950
0 24540-225x160 0 24540-250x160	0 24540-225x160/500 0 24540-250x160/500	225 -	- 250	140	166	171	1.050 1.070

- 1) l₁ = Cable trolley upper part without rubber buffer
 2) l₂ = Cable trolley upper part with rubber buffer
 3) For special pairs of rollers refer to page 240/50.

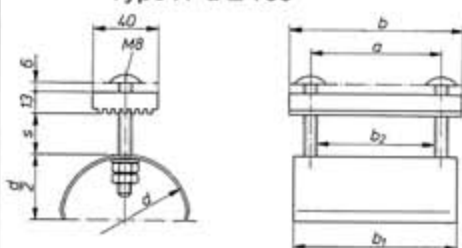
END CLAMP UPPER PART 0 20497


Catalogue No. Material: V 4 A	Catalogue No. Material: V 2 A	a	b	Weight [kg]
0 20497-100	0 20497-100/500	80	106	0.445
0 20497-160	0 20497-160/500	140	166	0.560

CABLE SUPPORT 0 20540, 0 20542, 0 20573
for flat cables

CABLE SUPPORT 0 20543 and 0 20544
for flat or round cables¹⁾

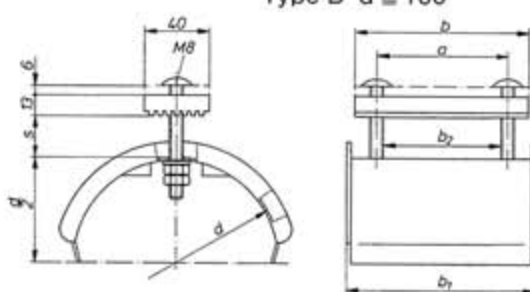
Type A $d \leq 160$



Operating temperature:
-10°C to +80°C

Material:
support:
steel, V 4 A or V 2 A
clamping piece: rubber
fasteners:
steel, V 4 A or V 2 A

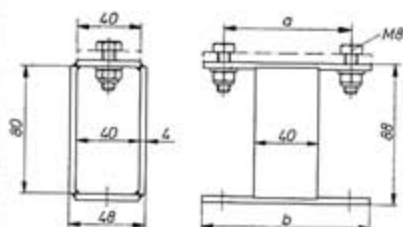
Type B $d \geq 160$



Catalogue No. Material: V 4 A	Catalogue No. Material: V 2 A	Type	d	a	b	b ₁	b ₂	s max.	max. round cable ø	Weight [kg]	Suitable trolley length l ₁	l ₂
0 20540-100x22	0 20540-100x22/500	A	80	80	106	100	72	22	-	0.330	100	-
0 20540-100x42	0 20540-100x42/500			80	106	100	72	42	-	0.340	135	-
0 20542-100x22	0 20542-100x22/500	A	125	80	106	100	72	22	-	0.440	135	-
0 20542-160x22	0 20542-160x22/500			140	166	160	132			0.640	135	-
0 20542-100x42	0 20542-100x42/500			80	106	100	72	42	-	0.450	175	-
0 20542-160x42	0 20542-160x42/500			140	166	160	132			0.690	175	-
0 20573-100x22	0 20573-100x22/500	A	160	80	106	100	72	22	-	0.640	175	-
0 20573-160x22	0 20573-160x22/500			140	166	160	132			0.980	175	-
0 20573-100x42	0 20573-100x42/500			80	106	100	72	42	-	0.650	225	-
0 20573-160x42	0 20573-160x42/500			140	166	160	132			0.990	225	-
0 20543-100x22	0 20543-100x22/500	B	160	80	106	115	72	22	16	0.660	175	-
0 20543-160x22	0 20543-160x22/500			140	166	175	132			0.940	175	-
0 20543-100x42	0 20543-100x42/500			80	106	115	72	42	-	0.670	225	-
0 20543-160x42	0 20543-160x42/500			140	166	175	132			0.950	225	-
0 20544-100x22	0 20544-100x22/500	B	200	80	106	115	72	22	20	0.780	225	-
0 20544-160x22	0 20544-160x22/500			140	166	175	132			1.150	225	-

1) Cable support for clamping round cables with a max. ø-difference of 2 mm.

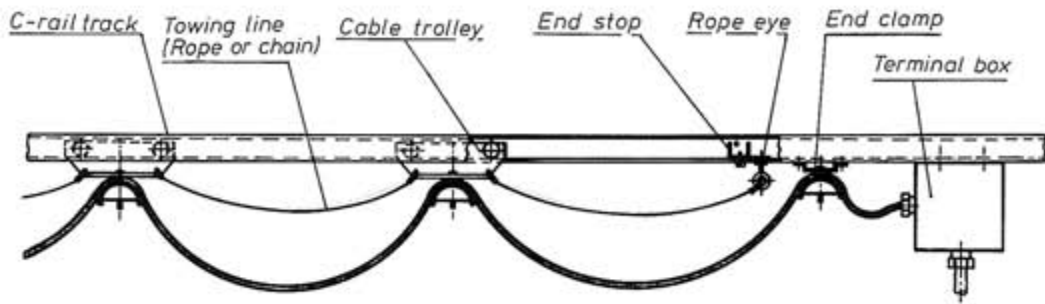
TOWING BOX 0 20492



Catalogue No. Material: V 4 A	Catalogue No. Material: V 2 A	a	b	Weight [kg]
0 20492-100	0 20492-100/500	80	106	0.530
0 20492-160	0 20492-160/500	140	166	0.700

TOWING LINES

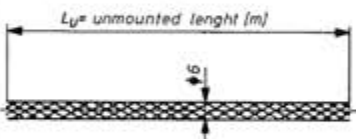
APPLICATION EXAMPLE



The towing ropes are to be fitted in such a way, that in the fully extended position there must be a length reserve of 5%.

ROPES

ROPE 0 20301 - 6

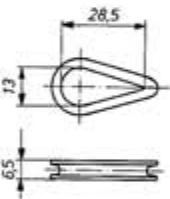


Operating temperature:
-10°C to +80°C

Material:
Polypropylen

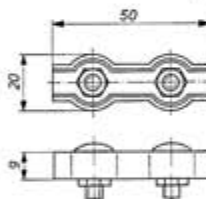
Catalogue No.	Length L_U	Weight kg/100 m
Rope 0 20301 - 6 T	200 m on roll	2.0
Rope 0 20301 - 6	running metre	

Catalogue No.: ROPE THIMBLE 0 20450 - 4



Material: steel, No. 1.4401
Weight: 0.010 kg

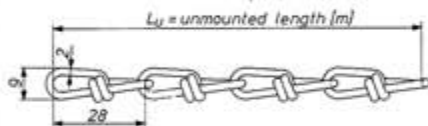
Catalogue No.: DUPLEX ROPE CLAMP 0 20453 - 5



Material: steel, No. 1.4401
Weight: 0.025 kg

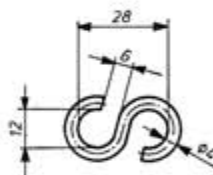
CHAINS

CHAIN 0 20345 - 2; stainless steel



Catalogue No.	Length L_U	Weight kg/100 m
Chain 0 20345 - 2 T	30 m bundle	8.0
Chain 0 20345 - 2	running metre	

Catalogue No.: HOOK 0 20459 - 35 x 4; stainless steel

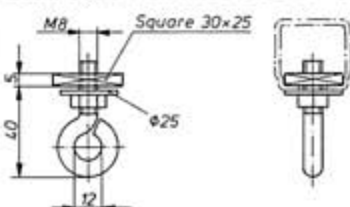


Weight: 0.010 kg

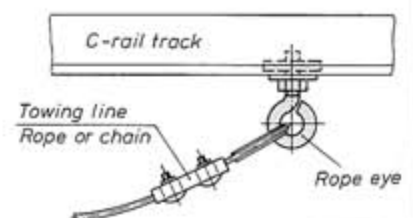
Attention:
After mounting the hook ends have to be closed with tongs.

ROPE EYE used with the first towing line section part

Catalogue No.: ROPE EYE 0 20458 - 08

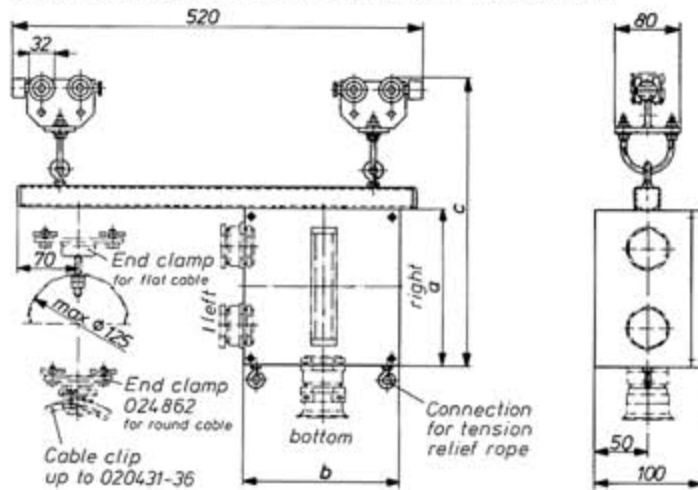


Material: steel, No. 1.4401
Weight: 0.070 kg



IDEAL CONTROL UNIT TROLLEY AND BRAKE GLIDER

IDEAL CONTROL UNIT TROLLEY 0 24791; stainless steel
suitable for use with flat or round cable end clamps



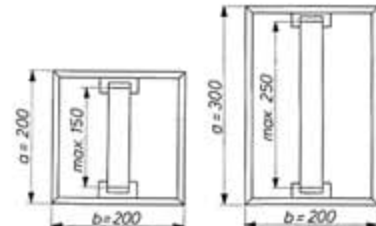
Technical data

Type of roller	Permissible load capacity ¹⁾ [kg]	Operating temperature [°C]	Material	Special pairs of rollers group ³⁾
Steel ball bearing, V 4 A	20	-10 to +80	Trolley: steel, V 4 A Main body: steel, V 2 A Terminal box: steel, V 2 A Fasteners: steel, V 4 A or V 2 A	A stainless steel

Catalogue No.	a	b	c	Weight [kg]	Attachments
Ideal control unit trolley 0 24791-200x200	200	200	370	ca. 5.0	Brake glider 0 24794
Ideal control unit trolley 0 24791-300x200	300	200	470	ca. 6.0	

- 1) Total weight of control cable and push button station.
2) For special pairs of rollers refer to page 240/50.

The terminal boxes used for these ideal control unit trolleys, protection class IP 55, are fitted with a mounting bar according to DIN 46 277 and 2 end clamps. The mounting bar is for the installation of the line up terminals. The maximal useable length for the line up terminals given in the accompanying illustration.



On request entry holes for cable glands can be provided in the side walls left, right and bottom. The specification for the Pg holes is always from top to bottom respectively from left to right.

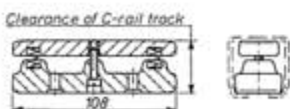
The following holes for plastic glands can be provided:

Through hole for Pg gland	Number of holes			
	Terminal box size 200 x 200		Terminal box size 300 x 200	
	side a	side b	side a	side b
11	6	6	9	6
13.5	6	6	9	6
16	5	5	8	5
21	4	4	6	4
29	3	2	5	2
36	2	2	4	2
42	2	-	4	1
48	2	-	3	1

ORDER EXAMPLE: Ideal control unit trolley 0 24791-200x200 with holes
left: Pg 42 + Pg 42 right: without hole bottom: Pg 29

Further accessories for the ideal control unit trolley, such as acid resistant flat and round cable glands etc., on inquiry.

Catalogue No.: **BRAKE GLIDER 0 24794**



Braking force: 10 N – 20 N

Operating temperature: -10°C to $+80^{\circ}\text{C}$

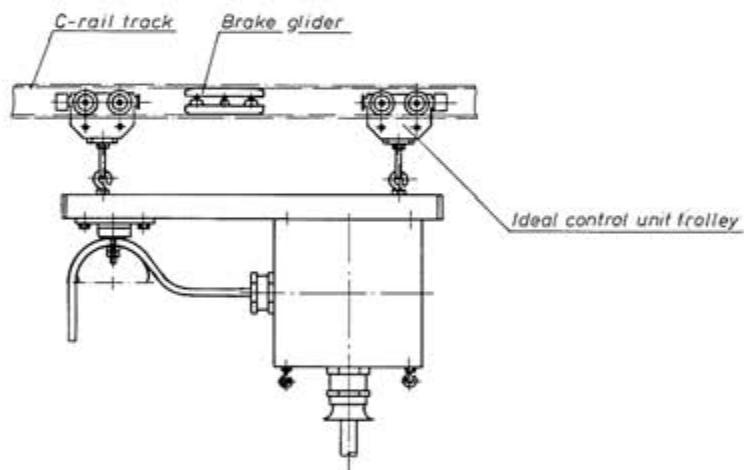
Material: glider: plastic
fasteners: steel, V2 A

Weight: 0.100 kg

APPLICATION EXAMPLE

IDEAL CONTROL UNIT TROLLEY with brake glider

The brake glider is mounted between the two trolleys of the ideal control unit trolley. It avoids any unintentional travel in either direction.



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