

Festoon Systems for C-Rails

Program 0230



CONDUCTIX
wampfler

DELACHAUX GROUP

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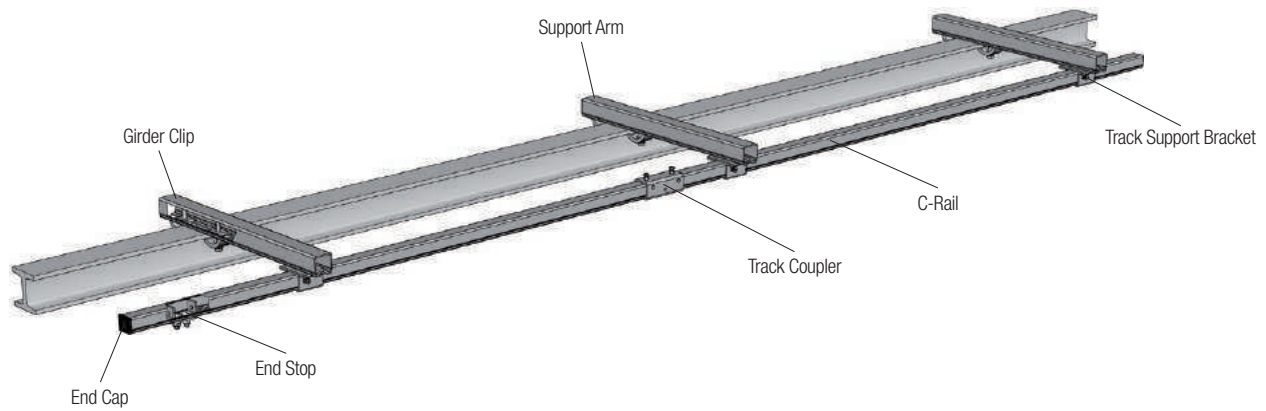
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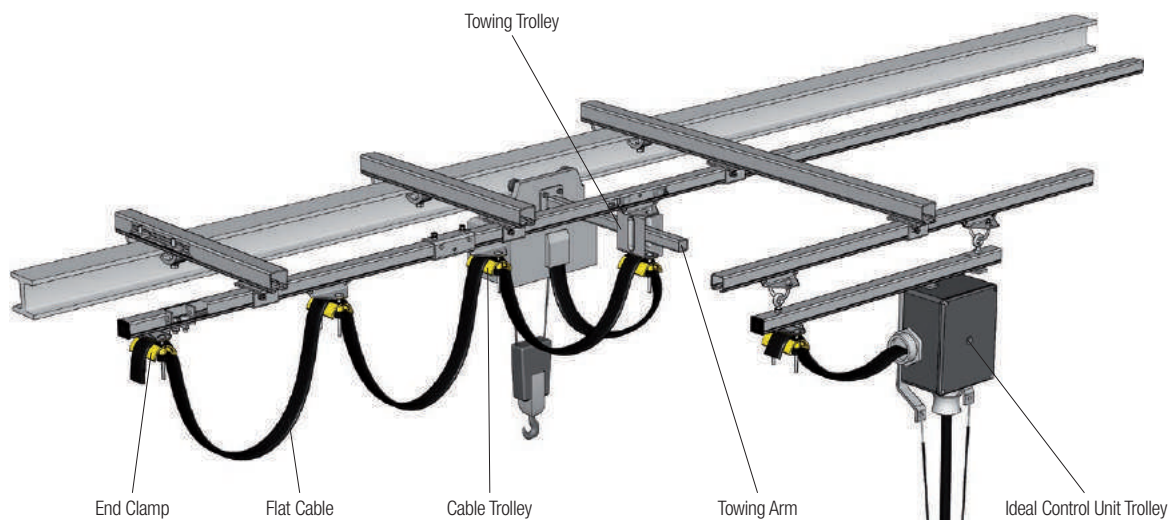
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System Arrangement Program 0230

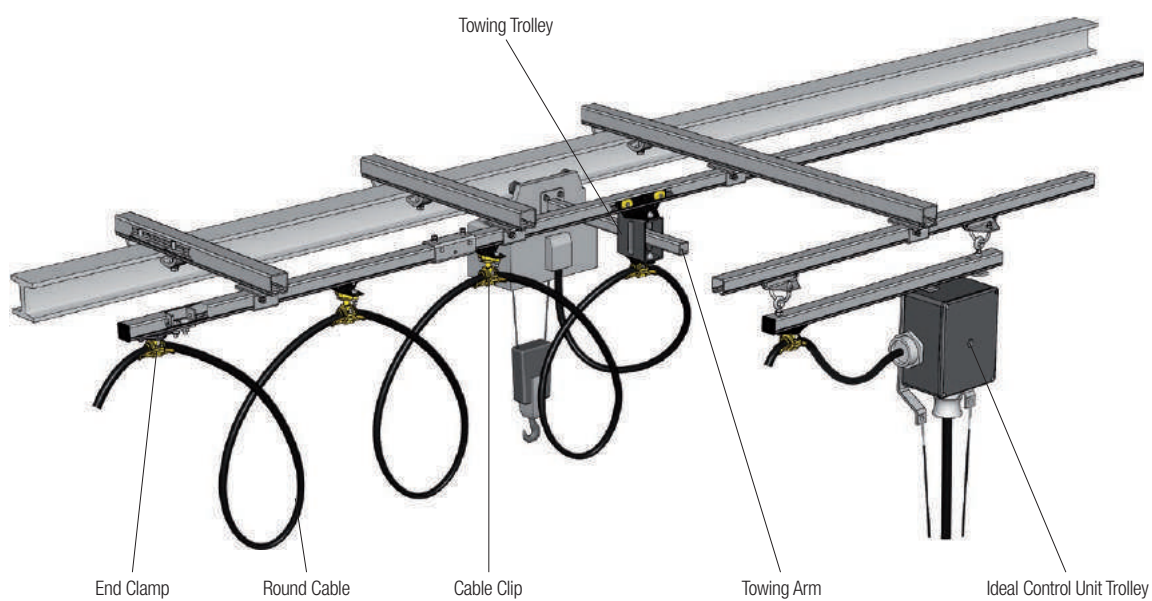
Rails and Mounting Parts



Festoon Systems for Flat Cables



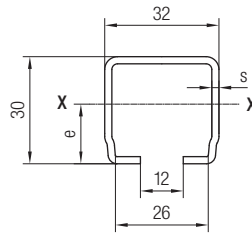
Festoon Systems for Round Cables



C-Rails and Accessories

Program 0230

C-Rails

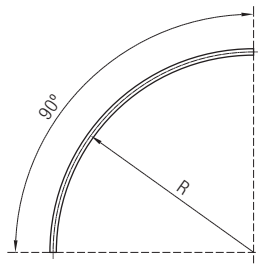


Order No.	Material	Length [mm]	Thickness s [mm]	Static Values			Weight [kg/m]				
				I_x [cm ⁴]	W_x [cm ³]	e [mm]					
023200-6	sendzimir galvanized steel	6000	2	2.42	1.45	16.70	1.56				
023200-4*		4000									
023201-6		6000	1.5					1.90	1.10	17.10	1.17
023201-4		4000									
023400-6	stainless steel V4A 1.4571	6000	2	2.42	1.45	16.70	1.56				
023400-4		4000									

*Standard range

Other lengths or stainless steel V2A (1.4301) on request

90°- Curves



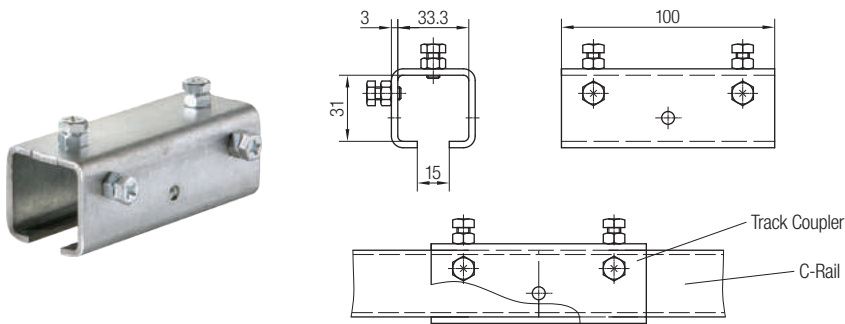
Order No.	Material	R [mm]	Developed Length [mm]	Loop Depth max. 0.35 x R [mm]	For Max. Trolley Length [mm]	Weight [kg]
023203-01200	1200	1885	420	160	2.9	
023203-01400	1400	2200	490	200	3.4	
023203-01600	1600	2510	560	200	3.9	
023203-01800	1800	2830	630	250	4.4	
023203-02000	2000	3140	700	250	4.9	
023403-01000	stainless steel V4A 1.4571	1000	1570	350	160	2.4
023403-01200		1200	1885	420	160	2.9
023403-01400		1400	2200	490	200	3.4
023403-01600		1600	2510	560	200	3.9
023403-01800		1800	2830	630	250	4.4
023403-02000		2000	3140	700	250	4.9

Other curves or stainless steel V2A (1.4301) on request

C-Rails and Accessories

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Track Couplers

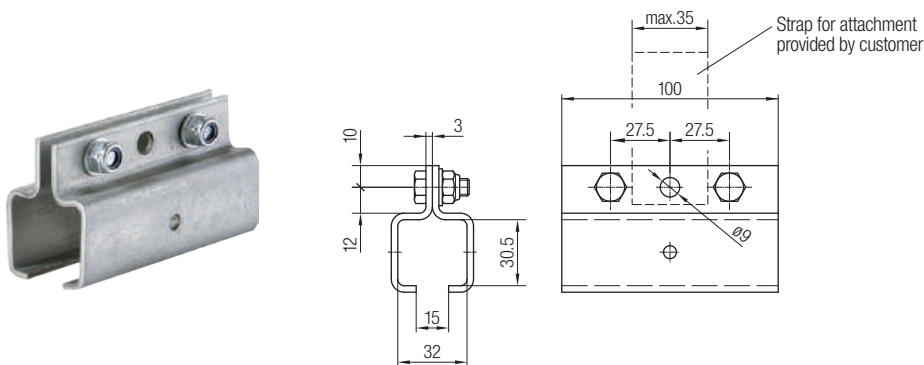


Order No.	Material	Weight [kg]
023210*	galvanized steel	0.28
023410	stainless steel V4A	0.28

*Standard range

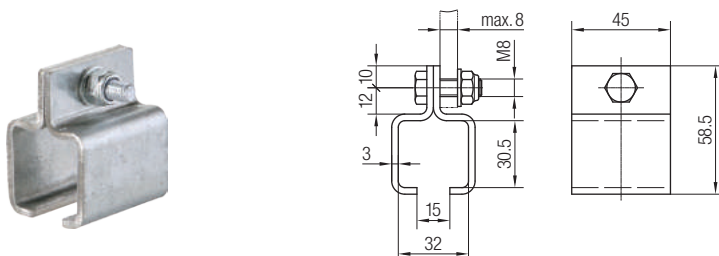
Note: A track coupler must be provided at each track joint.

Track Couplers, Two-Piece



Order No.	Material	Perm. Load [kg]	Weight [kg]
023211	galvanized steel	100	0.48
023411	stainless steel V4A	100	0.48

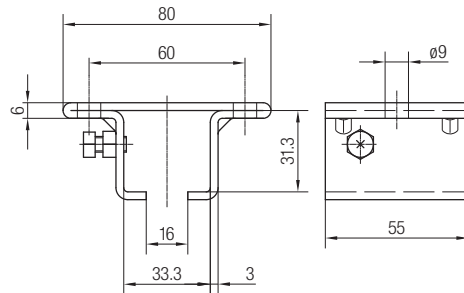
Track Support Brackets, Two-Piece



Order No.	Material	Perm. Load [kg]	Weight [kg]
023247	galvanized steel	100	0.200
023447	stainless steel V4A	100	0.200

C-Rails and Accessories Program 0230

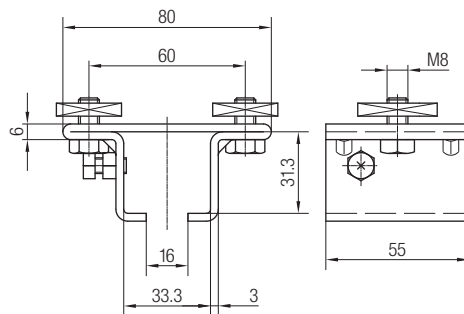
Track Support Bracket, One-Piece, for Ceiling Attachment



Order No. 023225

- Material: galvanized steel
- Perm. load: 160 kg
- Weight: 0.25 kg

Track Support Bracket, One-Piece, with Square Nut for Attachment to Support Arms

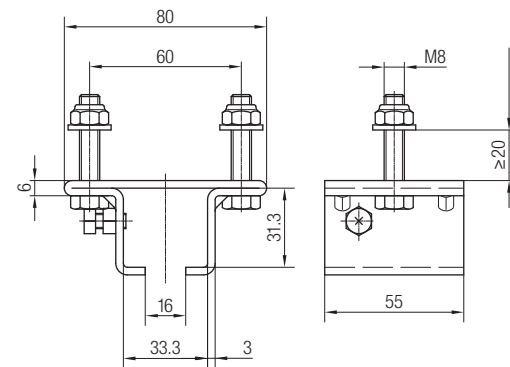


Order No. 023226*

- Material: galvanized steel
- Perm. load: 160 kg
- Suitable for support arm type: 020185, 020186, 020275, 020276
- Weight: 0.32 kg

* Standard range

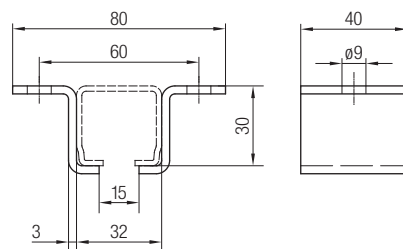
Track Support Bracket, One-Piece, for Attachment to Existing Steel Structure



Order No. 023227

- Material: galvanized steel
- Perm. load: 160 kg
- Weight: 0.30 kg

Track Support Brackets, Two-Piece, for Ceiling Attachment

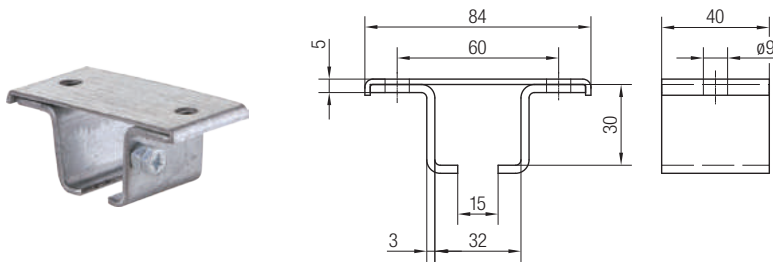


Order No.	Material	Perm. Load [kg]	Weight [kg]
023221	galvanized steel	63	0.10
023421	stainless steel V4A	63	0.10

C-Rails and Accessories

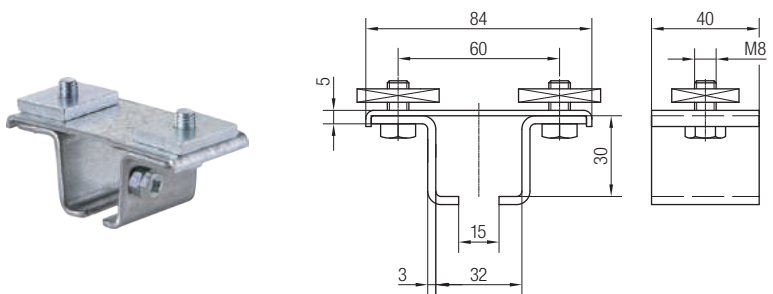
Program 0230

Track Support Brackets, Three-Piece, for Ceiling Attachment



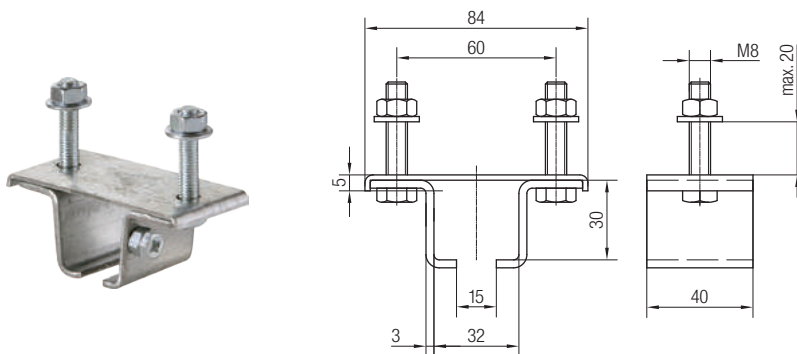
Order No.	Type	Material	Perm. Load [kg]	Weight [kg]
023220	without locking screw	galvanized steel	63	0.16
023220-1	with locking screw			0.17
023420	without locking screw	stainless steel V4A	63	0.16
023420-1	with locking screw			0.17

Track Support Brackets, Three-Piece, with Square Nut for Attachment to Support Arms



Order No.	Type	Material	Suitable for Support Arm Type	Perm. Load [kg]	Weight [kg]
023222	without locking screw	galvanized steel	020185. 020186 020275. 020276	63	0.24
023222-1	with locking screw				0.25
023422	without locking screw	stainless steel V4A	020485 020488	63	0.24
023422-1	with locking screw				0.25

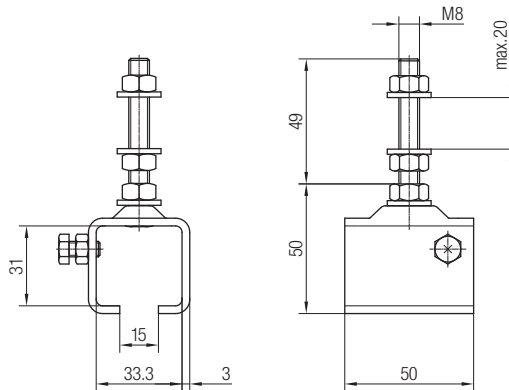
Track Support Brackets, Three-Piece, for Attachment to the Existing Steel Structure



Order No.	Type	Material	Perm. Load [kg]	Weight [kg]
023223	without locking screw	galvanized steel	63	0.20
023223-1	with locking screw			0.21
023423	without locking screw	stainless steel V4A	63	0.20
023423-1	with locking screw			0.21

C-Rails and Accessories Program 0230

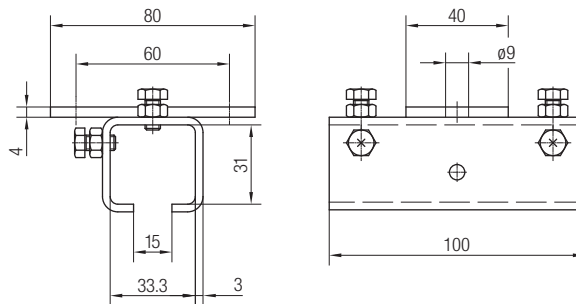
Track Support Bracket for Attachment to the Existing Steel Structure



Order No. 023231

- Material: galvanized steel
- Perm. load: 63 kg
- Weight: 0.20 kg

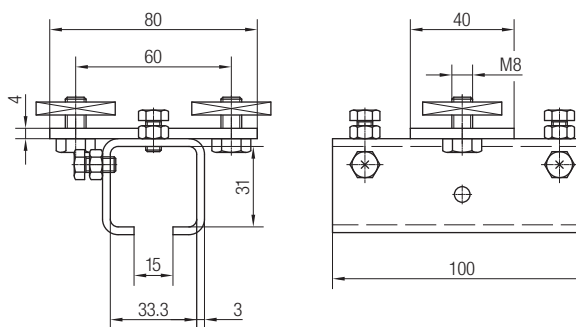
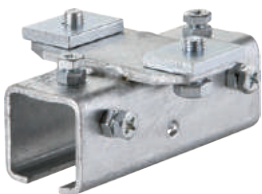
Track Support Bracket and Coupler, One-Piece, for Ceiling Attachment



Order No. 023228

- Material: galvanized steel
- Perm. load: 160 kg
- Weight: 0.36 kg

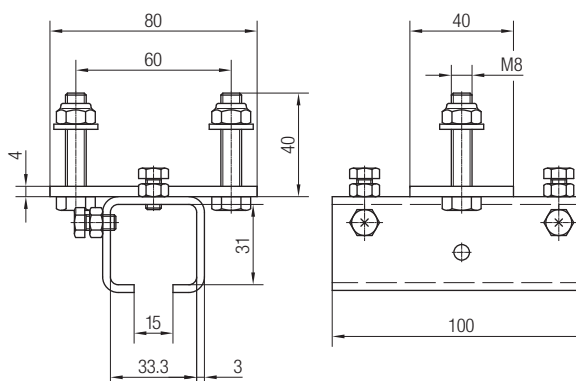
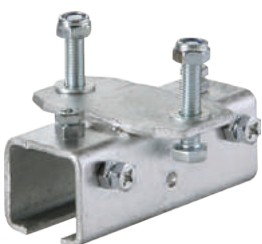
Track Support Bracket and Coupler, One-Piece with Square Nut for Attachment to Support Arms



Order No. 023229

- Material: galvanized steel
- Perm. load: 160 kg
- Suitable for support arm type: 020185, 020186, 020275, 020276
- Weight: 0.44 kg

Track Support Bracket and Coupler, One-Piece for Attachment to the Existing Steel Structure



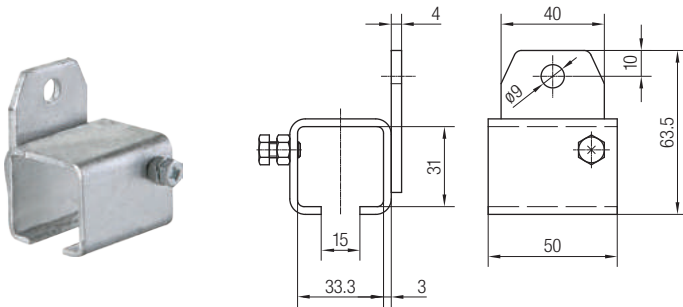
Order No. 023230

- Material: galvanized steel
- Perm. load: 160 kg
- Weight: 0.40 kg

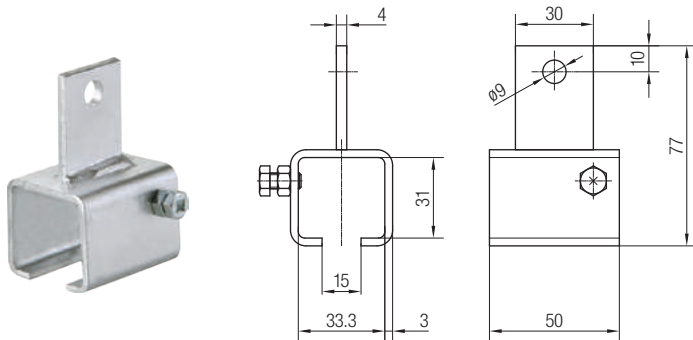
C-Rails and Accessories

Program 0230

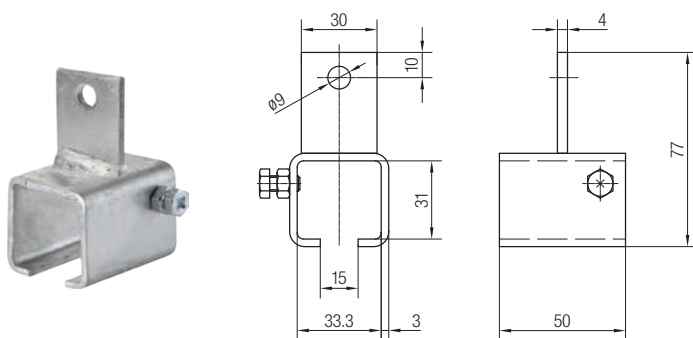
Track Support Brackets for Attachment to the Existing Steel Structure



Order No.	Material	Perm. Load [kg]	Weight [kg]
023240	galvanized steel	100	0.20
023440	stainless steel V4A	100	0.20



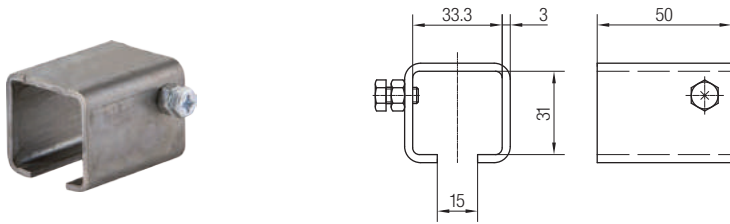
Order No.	Material	Perm. Load [kg]	Weight [kg]
023241	galvanized steel	100	0.18
023441	stainless steel V4A	100	0.18



Order No.	Material	Perm. Load [kg]	Weight [kg]
023242	galvanized steel	100	0.18
023442	stainless steel V4A	100	0.18

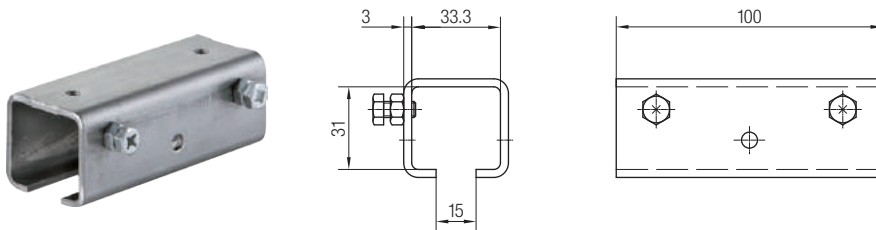
C-Rails and Accessories Program 0230

Track Support Bracket, bare to weld on



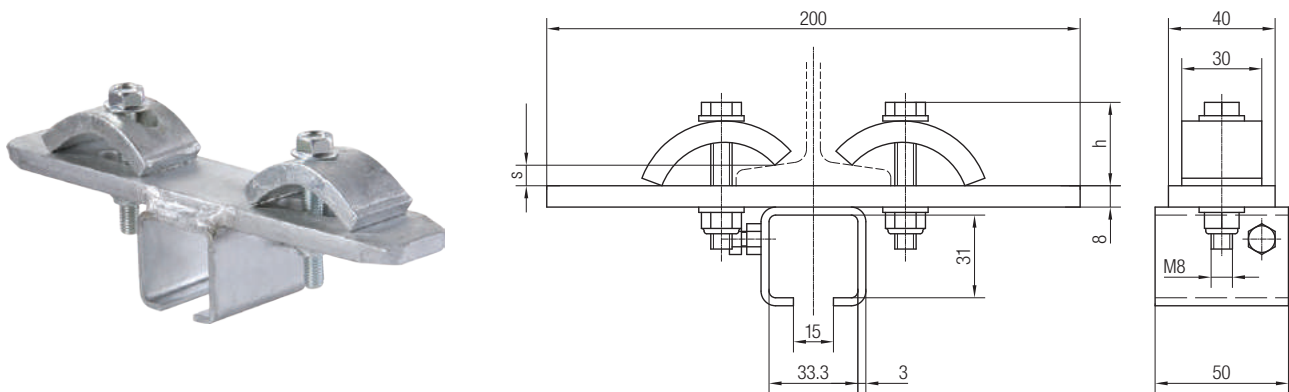
- Order No. 023224**
- Material: bare steel
 - Weight: 0.13 kg

Track Support Bracket and Coupler, bare to weld on



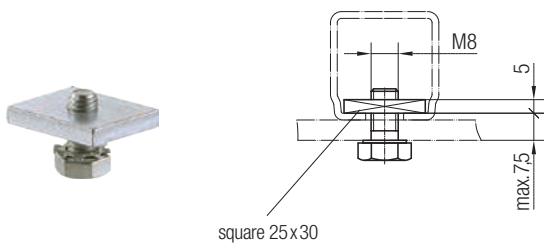
- Order No. 023232**
- Material: bare steel
 - Weight: 0.26 kg

Track Support Bracket for Direct Attachment below I-Beams



Order No.	Material	Suitable for I-Beam	Perm. Load [kg]	Weight [kg]
023236	galvanized steel	flange widths: 40 - 103 mm, flange thickness: 4 - 20 mm	100	0.70

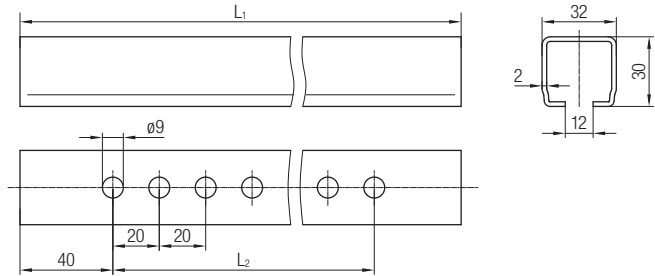
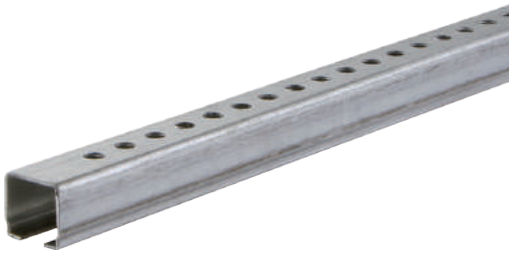
Bolt complete



Order No.	Packing Unit	Material	Weight [kg]
020176-8x16P	20 pcs.	galvanized steel	0.05
020476-8x16P	20 pcs.	stainless steel V4A	0.05

C-Rails and Accessories Program 0230

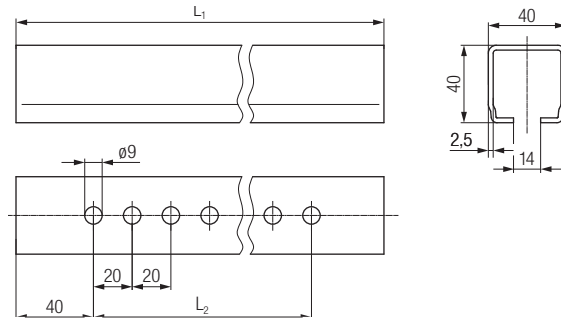
Support Arms 30x32x2 - punched



Order No.	L ₁ [mm]	L ₂ [mm]	Material	Weight [kg]
020185-0250	250	200	sendzimir galvanized steel	0.39
020185-0315	315	260		0.50
020185-0400*	400	340		0.63
020185-0500	500	340		0.78
020185-0630*	630	340		0.98
020185-0800	800	340		1.25
020185-1000*	1000	340		1.55
020185-1250	1250	340		1.95
020485-0400	400	340	stainless steel V4A 1.4571	0.63
020485-0500	500	340		0.78
020485-0630	630	340		0.98
020485-0800	800	340		1.25
020485-1000	1000	340		1.55
020485-1250	1250	340		1.96

*Standard range

Support Arms 40x40x2.5 - punched



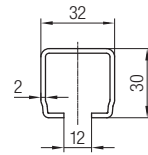
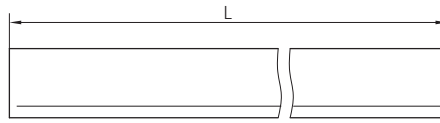
Order No.	L ₁ [mm]	L ₂ [mm]	Material	Weight [kg]
020186-0250	250	200	sendzimir galvanized steel	0.63
020186-0315	315	260		0.79
020186-0400*	400	340		1.00
020186-0500	500	340		1.25
020186-0630*	630	340		1.58
020186-0800	800	340		2.00
020186-1000*	1000	340		2.50
020186-1250	1250	340		3.13
020488-0400	400	340	stainless steel V4A 1.4571	1.00
020488-0500	500	340		1.25
020488-0630	630	340		1.58
020488-0800	800	340		2.00
020488-1000	1000	340		2.50
020488-1250	1250	340		3.13

*Standard range

C-Rails and Accessories

Program 0230

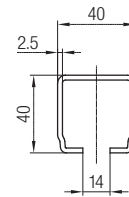
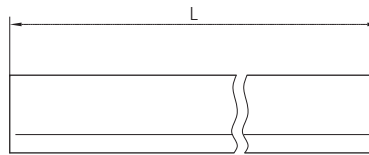
Support Arms 30x32x2 - unpunched



Order No.	L [mm]	Material	Weight [kg]
020275-0250	250	sendzimir galvanized steel	0.39
020275-0400	400		0.63
020275-0500*	500		0.78
020275-0630	630		0.98
020275-0800	800		1.25
020275-1000*	1000		1.56
020275-1250	1250		1.95
020275-1500	1500		1.80
020275-2000	2000		3.12

*Standard range

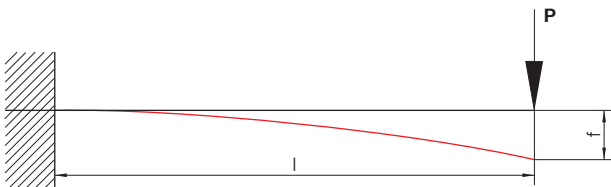
Support Arms 40x40x2.5 - unpunched



Order No.	L [mm]	Material	Weight [kg]
020276-0315	315	sendzimir galvanized steel	0.79
020276-0450	450		1.13
020276-0650*	650		1.63
020276-0950	950		2.38
020276-1150*	1150		2.88
020276-1340	1340		3.35
020276-1520	1520		3.80
020276-1800	1800		4.50
020276-2000	2000		5.00

*Standard range

Permissible Load for Support Arms



Notes

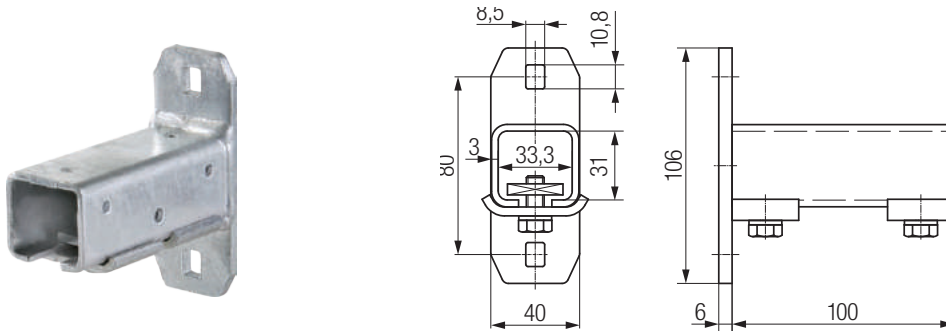
- calculated with $\sigma = 140 \text{ N/mm}^2$ tension
- f = appropriate max. resulting deflection

		l [m]								
		0.25	0.40	0.50	0.65	0.80	1.00	1.25	1.52	2.00
Support Arm 30x32x2	P [kg]	76.0	47.5	38.0	29.0	24.0	19.0	15.0	12.5	9.50
	f [cm]	0.08	0.20	0.32	0.60	0.90	1.40	2.20	3.30	5.70
Support Arm 40x40x2.5	P [kg]	164.5	103.0	82.0	63.0	51.5	41.0	33.0	27.0	20.5
	f [cm]	0.07	0.20	0.30	0.45	0.70	1.10	1.70	2.50	4.30

C-Rails and Accessories

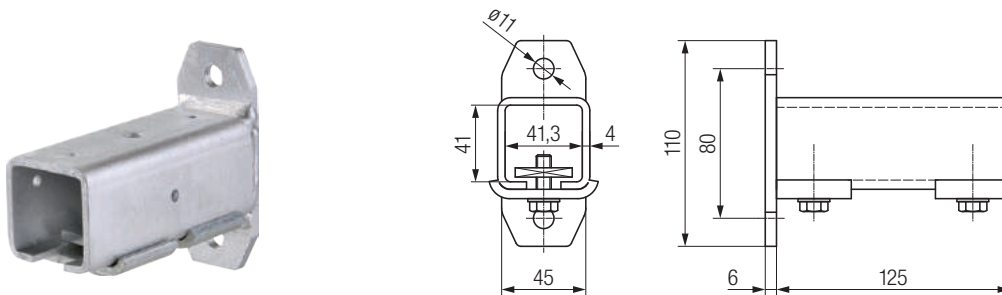
Program 0230

Bracket for Support Arms 30x30x2 to be bolted with 2-Hole Connecting Plate



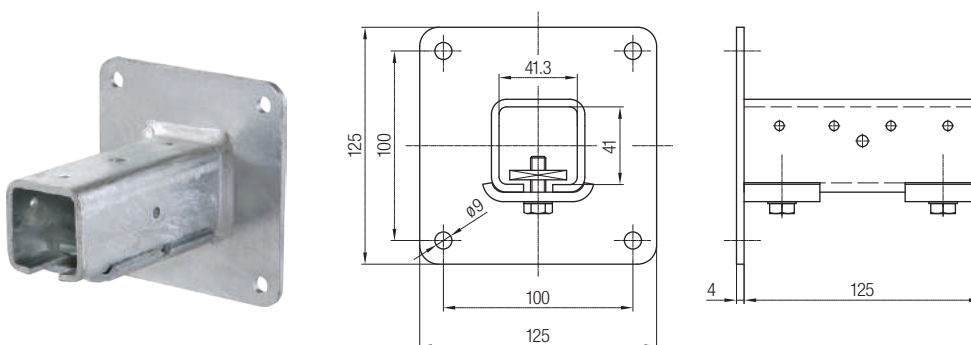
Order No.	Material	Suitable for Support Arm	Weight [kg]
020280	galvanized steel	020185, 020275	0.70

Bracket for Support Arms 40x40x2.5 to be bolted with 2-Hole Connecting Plate



Order No.	Material	Suitable for Support Arm	Weight [kg]
020282	galvanized steel	020186, 020276	1.00

Bracket for Support Arms 40x40x2.5 to be bolted with 4-Hole Connecting Plate

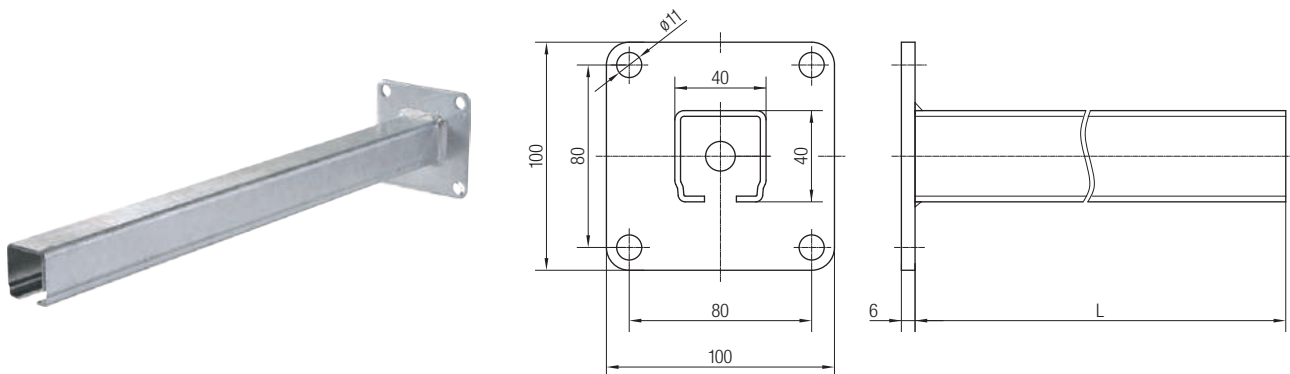


Order No.	Material	Suitable for Support Arm	Weight [kg]
020284	galvanized steel	020186, 020276	1.30

C-Rails and Accessories

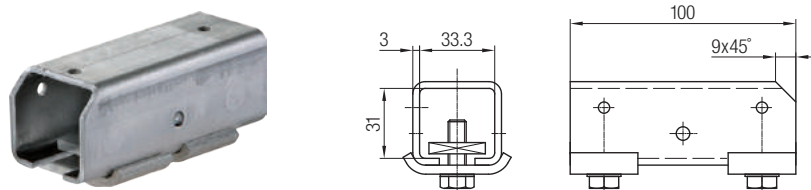
Program 0230

Console Brackets to be bolted with 4-Hole Connecting Plate



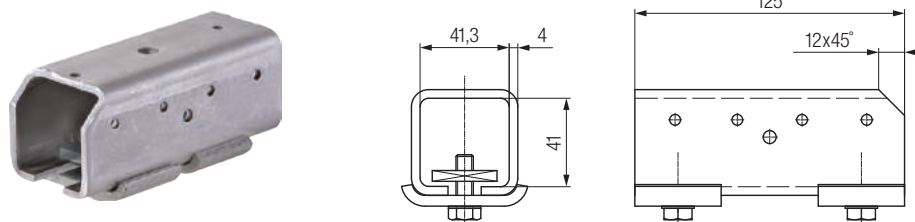
Order No.	Material	I [mm]	Weight [kg]
020206-0500	galvanized steel	500	1.70
020206-0630		630	2.00
020206-0800		800	2.45
020206-1000		1000	2.80

Brackets, bare to be welded



Order No. 020285

- Material
 - bracket: bare steel
 - fasteners: galvanized steel
- Suitable for support arm type: 020185, 020275
- Weight: 0.42 kg



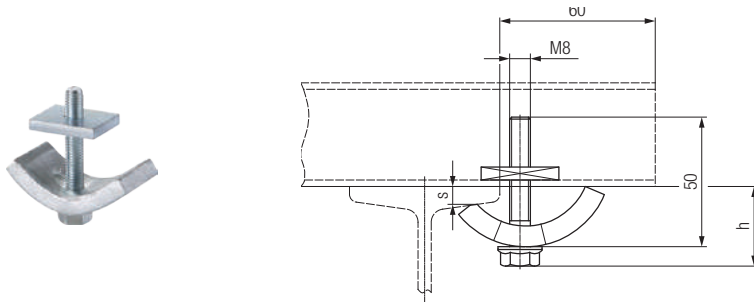
Order No. 020286

- Material
 - bracket: bare steel
 - fasteners: galvanized steel
- Suitable for support arm type: 020186, 020276
- Weight: 0.73 kg

C-Rails and Accessories

Program 0230

Girder Clips, Clamping Thickness 4 - 20 mm

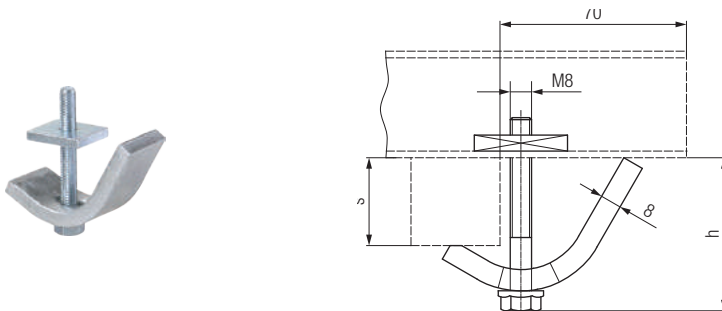


Order No.	Material	Weight [kg]
020180-08*	galvanized steel	0.15
020480-08	stainless steel V4A	0.15

*Standard range

Clamping Thickness	s	4	6	8	10	12	16	20
Mounting Height	h	31	32	33	34	35	37	40

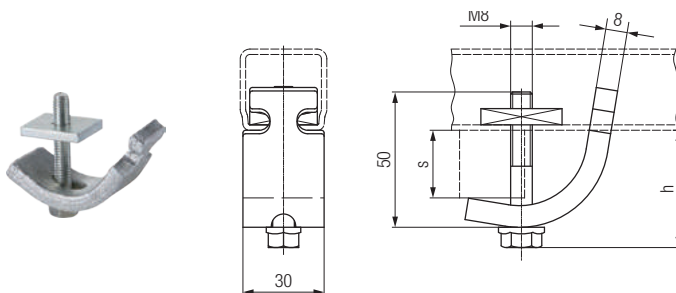
Girder Clips, Clamping Thickness 18 - 36 mm



Order No.	Material	Weight [kg]
020180-08x36	galvanized steel	0.22
020480-08x36	stainless steel V4A	0.22

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

Girder Clips, Twist-Secured, Clamping Thickness 6 - 25 mm

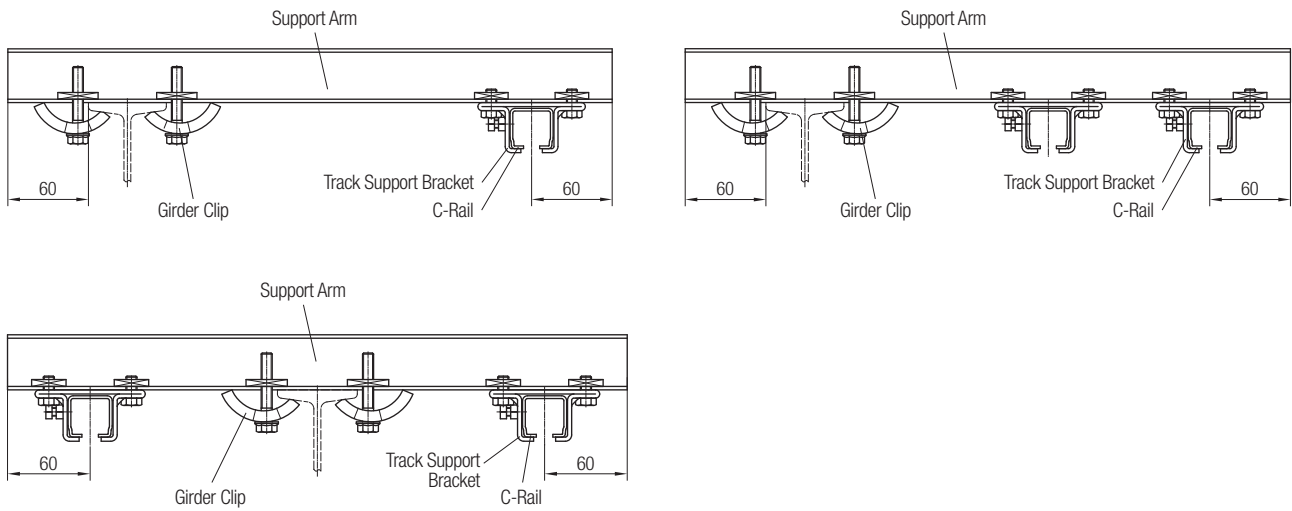


Order No.	Material	Weight [kg]
020181-08	galvanized steel	0.19

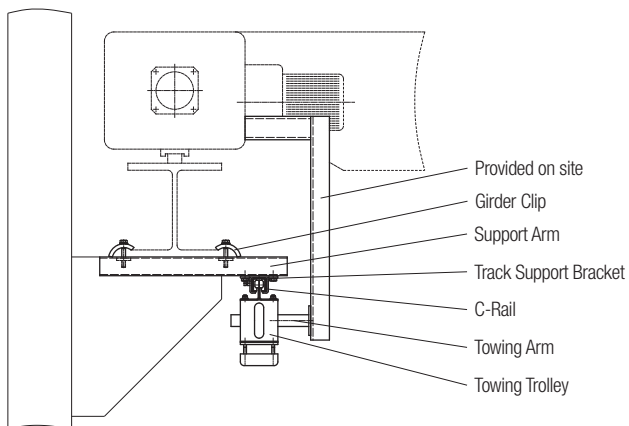
Clamping Thickness	s	6 - 25
Mounting Height	h	32 - 40

C-Rails and Accessories Program 0230

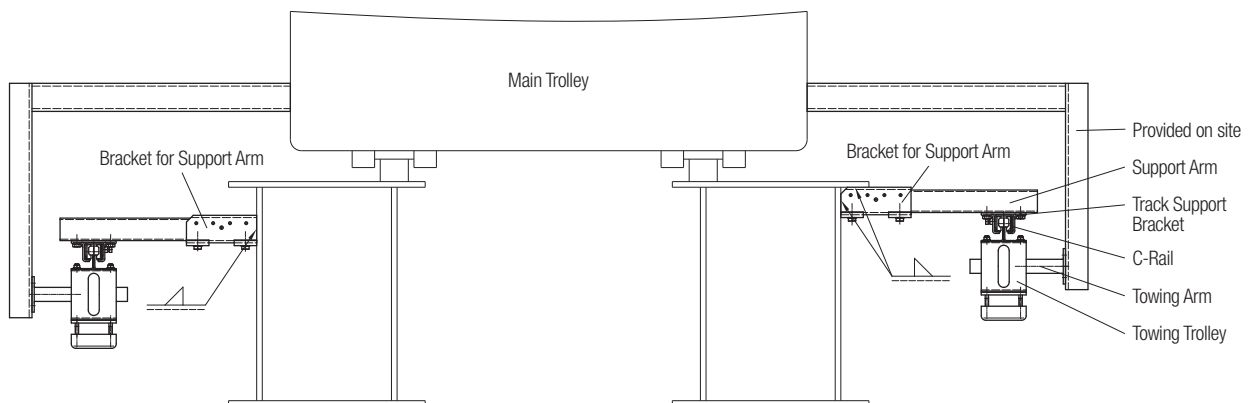
Application Examples for Support Arm and C-Rail Fastening with Support Arms – unpunched



Application Examples for Support Arm and C-Rail Fastening with Support Arms – punched

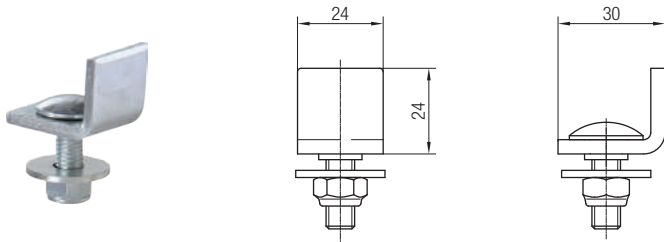


Application Example for Support Arm and C-Rail Fastening with Welded Brackets



C-Rails and Accessories Program 0230

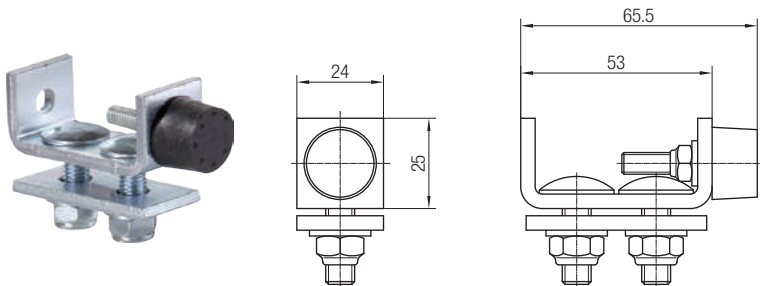
End Stop 30x24



- Order No. 023215***
- Material: galvanized steel
 - Weight: 0.06 kg

* Standard range

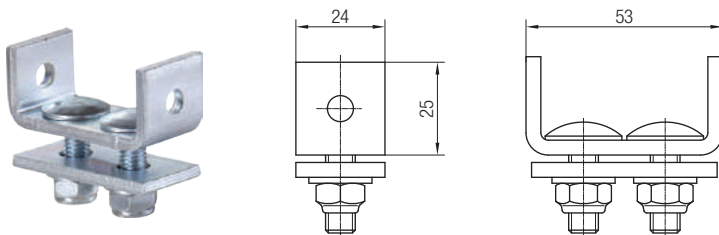
End Stop with Rubber Buffer



- Order No. 023218***
- Material: galvanized steel, rubber buffer
 - Weight: 0.15 kg

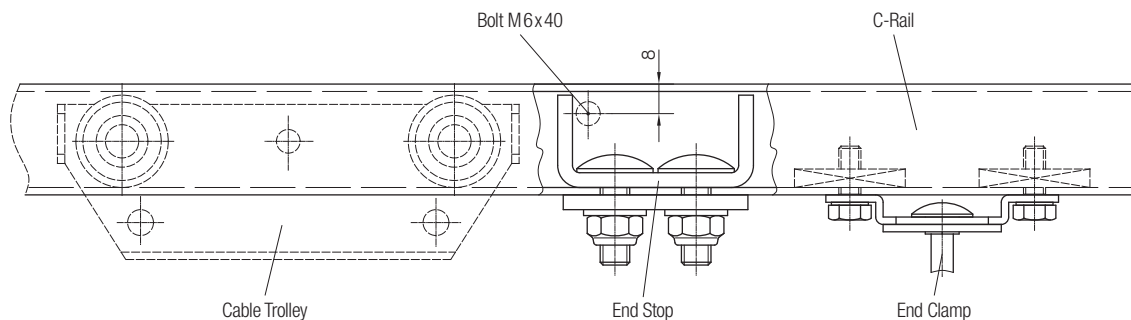
* Standard range

End Stop without Rubber Buffer



Order No.	Material	Weight [kg]
023219	galvanized steel	0.13
023419	stainless steel V4A	0.13

Application Example for End Stop Assembly



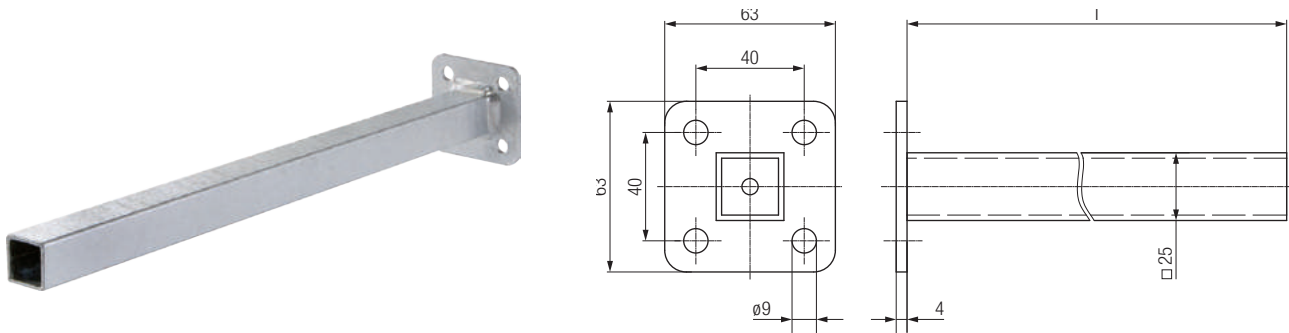
Notes

The end stop is fixed in the C-rail between the end clamp and the cable trolley. This helps to prevent cable trolleys running into the end clamp.

For control supply systems with manually driven ideal control trolleys an end stop mounted at the end of the C-rail prevents the ideal control trolley from travelling out of the rail.

C-Rails and Accessories Program 0230

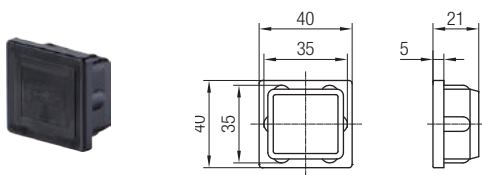
Towing Arms



Order No.	Material	l [mm]	Weight [kg]
020195-400	galvanized steel	400	0.60
020195-630*		630	1.00
020495-400	stainless steel V4A	400	0.60
020495-630		630	1.00

*Standard range

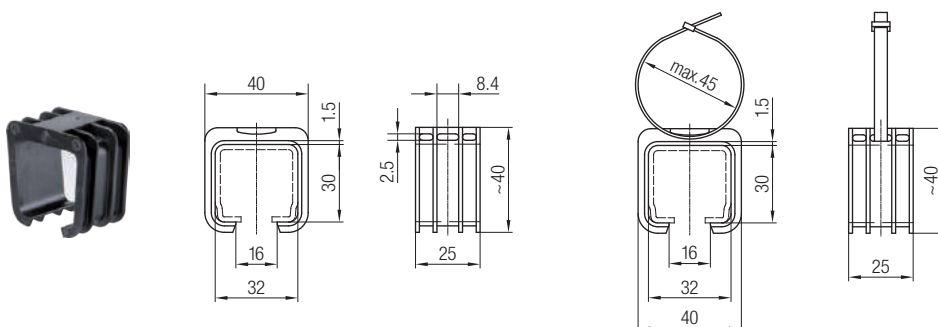
End Caps



Order No.	For C-Rail	Material	a [mm]	b [mm]	c [mm]	d [mm]	s [mm]	h [mm]	Weight [kg]
020662-30*	023200	plastic	30	32	27	29	4	18	0.005
020662-31	023201		30	30	28	28	5	16	0.004

*Standard range

Clips with or without Cable Tie



Order No.	Remarks	Material	Weight [kg]
023790	without cable tie	plastic	0.010
023790-1	with cable tie		0.012

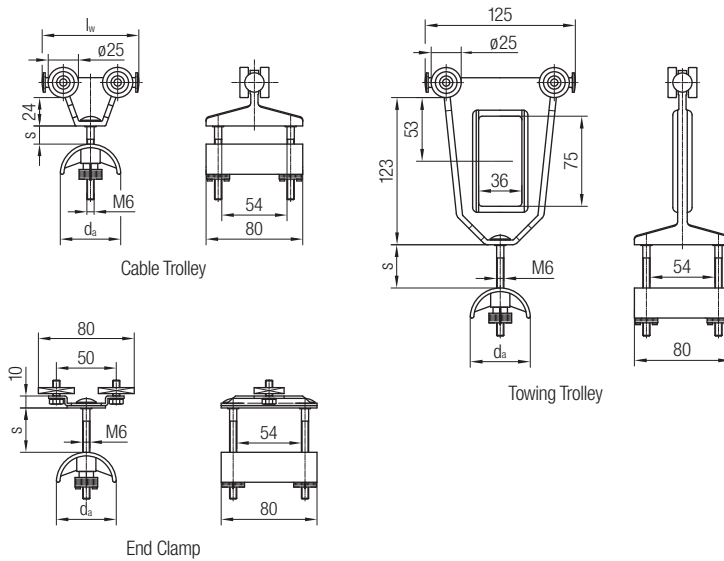
Cable Trolleys for Flat Cables Program 0230

Plastic Cable Trolleys



Technical details

- Trolley body and cable supports: plastic
- Hardware: galvanized steel
- Temperature range: -30°C to +60°C



Cable Trolley Order No.	[kg]	Towing Trolley Order No.	[kg]	End Clamp Order No.	[kg]	d _a [mm]	l _w [mm]	s [mm]	Max. Load Capacity [kg]	Max. Travel Speed [m/min]	Roller Type
023910	0.11	023915	0.15	023919	0.18	50	80	15	6.3	40	(1)
023943	0.12	023958	0.16	023269*	0.21	50	80	15			
023953	0.13	023958	0.16	023269*	0.21	50	125	36			
023973	0.15	023978	0.18	023279*	0.22	80	125	22	10.0	40	(3)
023941*	0.19	023956*	0.23	023269*	0.21	50	80	15			
023951	0.19	023956*	0.23	023269*	0.21	50	125	36			
023971	0.23	023976	0.25	023279*	0.22	80	125	22			

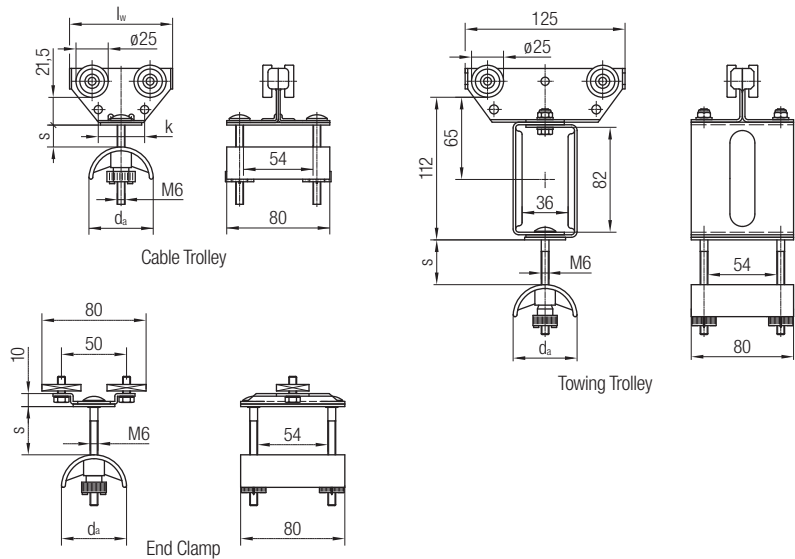
Roller type

- (1) Plastic roller and plastic friction bearing
- (2) Plastic roller and bronze friction bearing
- (3) Ball bearing, galvanized

*Standard range

Cable Trolleys for Flat Cables Program 0230

Steel Cable Trolleys with Plastic Cable Support



Technical details

- Trolley body: galvanized steel
- Cable supports: plastic
- Hardware: galvanized steel
- Standard rollers: ball bearings, galvanized with ZZ-sealing
- Temperature range: -30°C to +80°C
- Stainless steel rollers: ball bearing, V4A with 2RS-sealing
- Temperature range stainless steel/plastic, acid-resistant: -10°C to +80°C

Cable Trolley Order No.	[kg]	Towing Trolley Order No.	[kg]	End Clamp Order No.	[kg]	d_a	l_w	s	k	Max. Load Capacity [kg]	Max. Travel Speed [m/min]
						[mm]	[mm]	[mm]	[mm]		
023261*	0.28	023267*	0.74	023269*	0.21	50	80	15	36	10.0	50
023263*	0.36	023267*	0.74	023269*	0.21	50	125	36	80		
023271*	0.39	023277*	0.77	023279*	0.22	80	125	22	80		
023461 ¹⁾	0.28	023467	0.75	023469	0.21	50	80	15	-	6.3	50
023463 ¹⁾	0.37	023467	0.75	023469	0.21	50	125	36	80		
023471 ¹⁾	0.40	023477	0.78	023479	0.22	80	125	22	80		

¹⁾ Design in stainless steel V4A and acid-resistant plastic

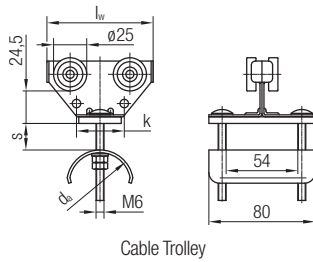
Note

For a better sealing the standard rollers (ZZ) can also be provided with a 2 RS-sealing. The order no. has to be completed with the variation designation .../010.

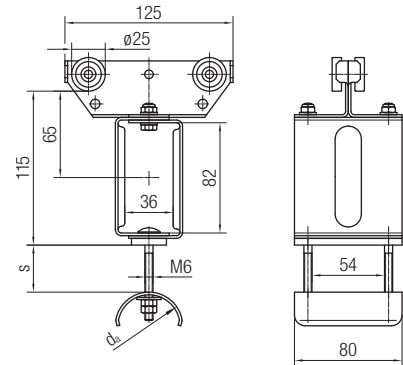
*Standard range

Cable Trolleys for Flat Cables Program 0230

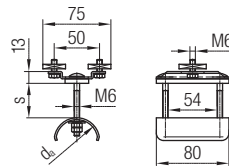
Steel Cable Trolleys, Light Series without Buffer



Cable Trolley



Towing Trolley



End Clamp

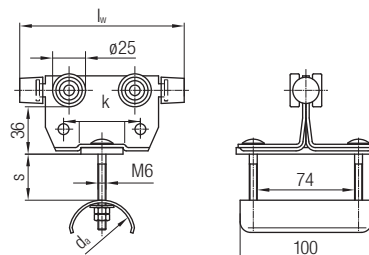
Technical details

- Trolley body and cable supports: galvanized steel
- Hardware: galvanized steel
- Standard rollers: ball bearing, galvanized with ZZ-sealing
- Temperature range: -30°C to +80°C
- Stainless steel rollers: ball bearing, V4A with 2RS-sealing
- Temperature range stainless steel: -10°C to +80°C

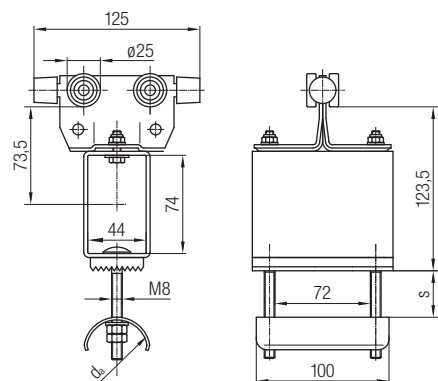
Cable Trolley Order No.	[kg]	Towing Trolley Order No.	[kg]	End Clamp Order No.	[kg]	d _a [mm]	l _w [mm]	s [mm]	k [mm]	Max. Load Capacity [kg]	Max. Travel Speed [m/min]
023561	0.36	023567	0.83	023569	0.27	50	80	15	36	16	63
023563	0.44	023567	0.83	023569	0.27	50	125	36	80		
023571	0.49	023577	0.87	023579	0.33	80	125	22	80		
023431 ¹⁾	0.37	023435	0.75	023438	0.27	50	80	15	-	10	63
023432 ¹⁾	0.45	023435	0.83	023438	0.27	50	125	36	80		
023433 ¹⁾	0.50	023436	0.88	023439	0.33	80	125	22	80		

¹⁾ Design in stainless steel V4A

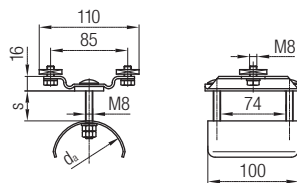
Steel Cable Trolleys, Light Series with Buffer



Cable Trolley



Towing Trolley



End Clamp

Technical details

- Trolley body and cable supports: galvanized steel
- Hardware: galvanized steel
- Standard rollers: ball bearing, galvanized with ZZ-sealing
- Temperature range: -30°C to +80°C

Cable Trolley Order No.	[kg]	Towing Trolley Order No.	[kg]	End Clamp Order No.	[kg]	d _a [mm]	l _w [mm]	s [mm]	k [mm]	Max. Load Capacity [kg]	Max. Travel Speed [m/min]
023509-125x100	0.58	023519-125x100	1.21	024289-100x038	0.37	50	125	35	58	16	80
023510-125x100	0.65	023520-125x100	1.26	024290-100x038	0.44	80		20	58		

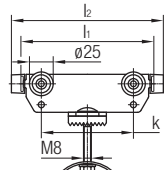
Note

For a better sealing the standard rollers (ZZ) can also be provided with a 2 RS-sealing. The order no. has to be completed with the variation designation .../010.

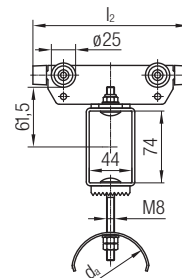
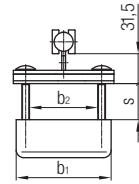
Cable Trolleys for Flat Cables

Program 0230

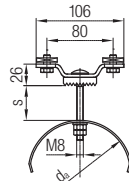
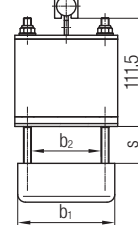
Steel Cable Trolleys, Heavy Series



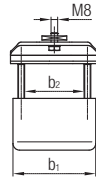
Cable Trolley



Towing Trolley



End Clamp



Technical details

- Trolley body and cable supports: galvanized steel
- Hardware: galvanized steel
- Standard rollers: ball bearings, galvanized with ZZ-sealing
- Temperature range: -30°C to +80°C
- Stainless steel rollers: ball bearings, V4A, 2RS-sealing
- Temperature range stainless steel: -10°C to +80°C

Cable Trolley Order No.	[kg]	Towing Trolley Order No.	[kg]	End Clamp Order No.	[kg]	d_a	$l_1^{2)}$	$l_2^{3)}$	b_1	b_2	s	k	Max. Load Capacity [kg]	Max. TravelSpeed m/min]		
						[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]				
023330-140x100	0.69	023335-160x100	1.24	024230-100x062	0.70	80	140	-	100	72	30	97	20	80		
023330-160x100	0.70	023335-160x100	1.24	024230-100x062	0.70		-	160	100	72	38					
023330-160x160	0.90	023335-160x160	1.56	024230-160x062	0.94		-	160	160	132	38					
023330-180x100	0.76	023335-200x100	1.31	024230-100x062	0.70		180	-	100	72	50	137	20	80		
023330-200x100	0.77	023335-200x100	1.31	024230-100x062	0.70		-	200	100	72	58					
023330-200x160	0.97	023335-200x160	1.63	024230-160x062	0.94		-	200	160	132	58					
023332-160x100	0.82	023337-160x100	1.36	024232-100x042	0.80	125	-	160	100	72	15	97	20	80		
023332-160x160	1.11	023337-160x160	1.77	024232-160x042	1.13		-	160	160	132	15					
023332-180x100	0.86	023337-200x100	1.41	024232-100x042	0.80		180	-	100	72	27				137	20
023332-200x100	0.87	023337-200x100	1.41	024232-100x042	0.80		-	200	100	72	35					
023332-200x160	1.16	023337-200x160	1.82	024232-160x042	1.13		-	200	160	132	35					
023332-230x100	0.93	023337-250x100	1.48	024232-100x062	0.82		230	-	100	72	52	187	20	80		
023332-250x100	0.94	023337-250x100	1.48	024232-100x062	0.82	-	250	100	72	60						
023332-250x160	1.24	023337-250x160	1.90	024232-160x062	1.15	-	250	160	132	60						
023333-200x100	1.02	023338-200x100	1.56	024233-100x042	1.00	160	-	200	115	72	18	137	20	80		
023333-200x160	1.40	023338-200x160	2.06	024233-160x042	1.40		-	200	175	132	18					
023333-230x100	0.94	023338-250x100	1.63	024233-100x042	1.00		230	-	115	72	35				187	20
023333-250x100	0.95	023338-250x100	1.63	024233-100x042	1.00		-	250	115	72	42					
023333-250x160	1.34	023338-250x160	2.14	024233-160x042	1.40		-	250	175	132	42					
023334-320x100	1.19	023339-320x100	1.73	024234-100x062	1.12		200	-	320	115	72	54	257	20	80	
023830-125x100 ¹⁾	0.65	023835-125x100	1.19	024830-100x062	0.70	80	-	125	100	72	20	62	10	80		
023830-160x100 ¹⁾	0.70	023835-160x100	1.24	024830-100x062	0.70		-	160	100	72	38	97				
023832-200x100 ¹⁾	0.87	023837-200x100	1.41	024832-100x042	0.80	125	-	200	100	72	35	137	10	80		
023832-200x160 ¹⁾	1.16	023837-200x160	1.82	024832-160x042	1.13		-	200	160	132	35					
023832-250x100 ¹⁾	0.94	023837-250x100	1.48	024832-100x062	0.82		-	250	100	72	60				187	
023832-250x160 ¹⁾	1.24	023837-250x160	1.90	024832-160x062	1.15		-	250	160	132	60					
023833-200x100 ¹⁾	1.02	023838-200x100	1.56	024833-100x042	1.00		-	200	115	72	18	137				10
023833-200x160 ¹⁾	1.40	023838-200x160	2.06	024833-160x042	1.40		-	200	175	132	18					
023833-250x100 ¹⁾	0.95	023838-250x100	1.63	024833-100x042	1.00	-	250	115	72	42	187					
023833-250x160 ¹⁾	1.34	023838-250x160	2.14	024833-160x042	1.40	-	250	175	132	42						

¹⁾ Design in stainless steel V4A

²⁾ without buffer ³⁾ with buffer

Note

For a better sealing the standard rollers (ZZ) can also be provided with a 2 RS-sealing. The order no. has to be completed with the variation designation .../010.

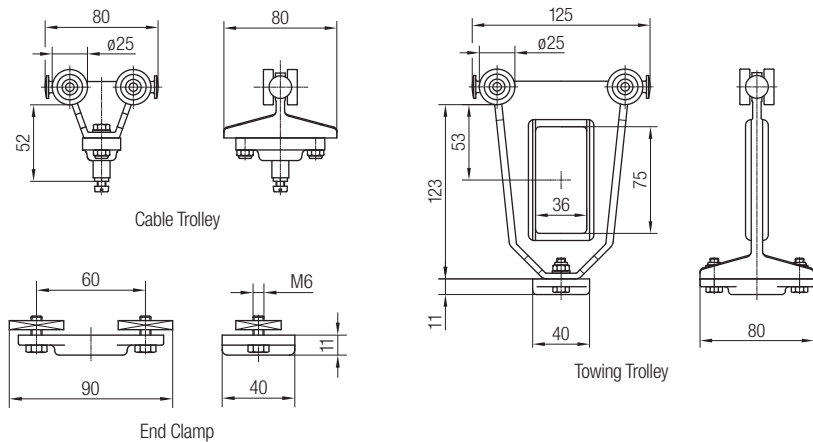
Cable Trolleys for Round Cables Program 0230

Plastic Cable Trolleys with Ball Joint for Cable Clip 020131



Technical details

- Trolley body and ball joint: plastic
- Hardware: galvanized steel
- Temperature range: -30°C to +60°C



Cable Trolley Order No.	[kg]	Towing Trolley Order No.	[kg]	End Clamp Order No.	[kg]	Roller Type	Max. Load Capacity [kg]	Max. Travel Speed [m/min]
023930	0.095	023935	0.13	023299*	0.09	plastic roller, plastic friction bearing	6.3	32
023993	0.095	023998	0.13	023299*	0.09	plastic roller, bronze friction bearing	8	32
023991	0.160	023996	0.20	023299*	0.09	ball bearing, steel	10	32

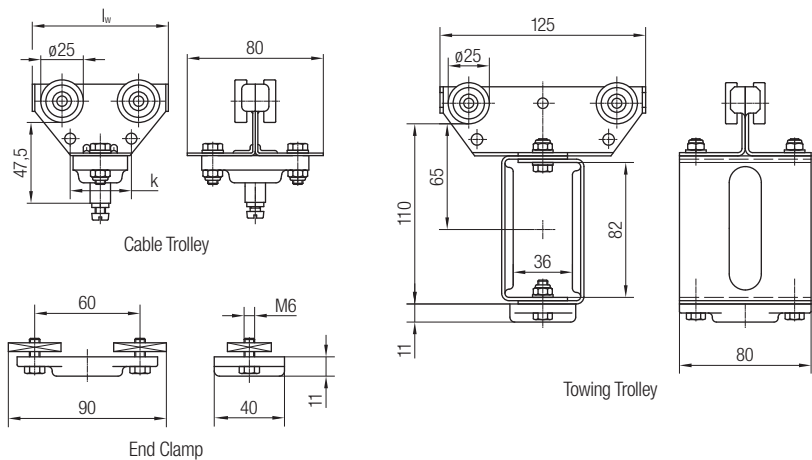
*Standard range

Steel Cable Trolleys with Ball Joint for Cable Clips 020131 or 020431



Technical details

- Trolley body: galvanized steel
- Ball joint: plastic
- Hardware: galvanized steel
- Standard rollers: ball bearings, galvanized with ZZ-sealing
- Temperature range: -30°C to +60°C
- Stainless steel rollers: ball bearings, V4A with 2RS-sealing
- Temperature range stainless steel/ plastic, acid-resistant: -10°C to +60°C



Cable Trolley Order No.	[kg]	l_w [mm]	k [mm]	Towing Trolley Order No.	[kg]	End Clamp Order No.	[kg]	Max. Load Capacity [kg]	Max. Travel Speed [m/min]
023291*	0.26	80	36	023297*	0.57	023299*	0.09	10	40
023290*	0.32	125	80	023297*					
023491 ¹⁾	0.26	80	-	023497	0.57	023499	0.09	6.3	40
023490 ¹⁾	0.32	125	80	023497		023499			

¹⁾ Design in stainless steel V4A and acid-resistant plastic

Notes

- For a better sealing the standard rollers (ZZ) can also be provided with a 2 RS-sealing
The order no. has to be completed with the variation designation .../010
- For max. 3 cables in separate cable clips, suspended one below the other
- Appropriate for cable clips: 020131-16, 020131-25, 020131-36 (only suited for trolley length 125 mm)
020431-16, 020431-25, 020431-36 (only suited for trolley length 125 mm)

*Standard range

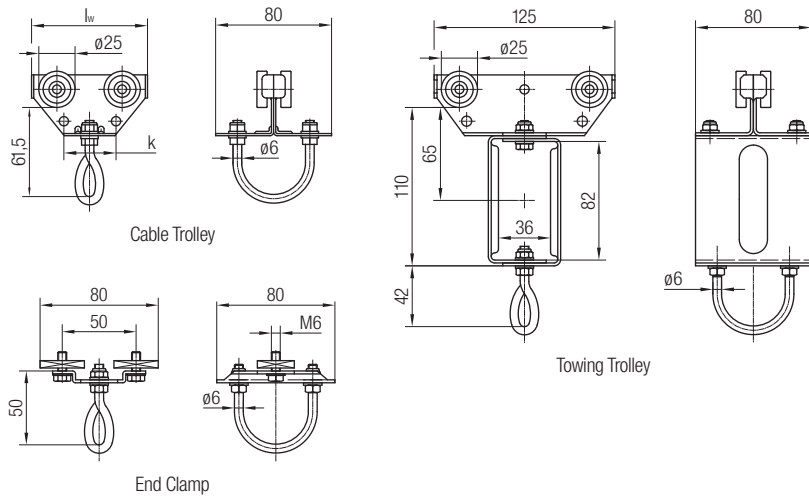
Cable Trolleys for Round Cables Program 0230

Steel Cable Trolleys with Bracket for Cable Clips 020133



Technical details

- Trolley body and bracket: galvanized steel
- Hardware: galvanized steel
- Standard rollers: ball bearings, galvanized with ZZ-sealing
- Temperature range: -30°C to +80°C
- Stainless steel rollers: ball bearings, V4A with 2RS-sealing
- Temperature range stainless steel: -10°C to +80°C



Cable Trolley Order No.	[kg]	l_w [mm]	k [mm]	Towing Trolley Order No.	[kg]	End Clamp Order No.	[kg]	Max. Load Capacity [kg]	Max. Travel Speed [m/min]
	023293*	0.25	80		36		023295*		
023192*	0.31	125	80	023295*		023298*			
023493 ¹⁾	0.25	80	-	023495	0.60	023498	0.20	10	63
023492 ¹⁾	0.31	125	80	023495		023498			

¹⁾ Design in stainless steel V4A

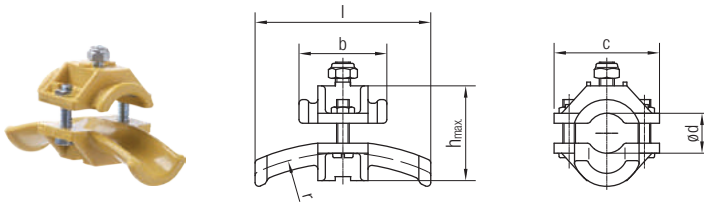
Note

For a better sealing the standard rollers (ZZ) can also be provided with a 2 RS-sealing. The order no. has to be completed with the variation designation .../010.

*Standard range

Cable Trolleys for Round Cables Program 0230

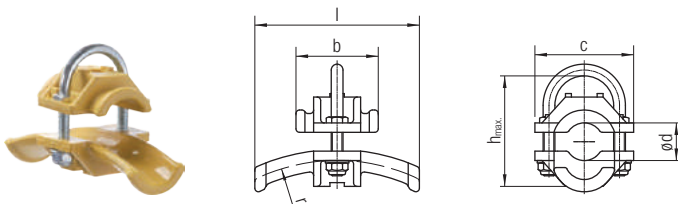
Cable Clips for Fixation at the Ball Joint



Order No.	For Cable-ød [mm]	r [mm]	l [mm]	h [mm]	b [mm]	c [mm]	Material	Weight [kg]
020131-16*	10 ... 16	80	70	38	35	42	plastic hardware: galvanized steel	0.04
020131-25*	17 ... 25	125	100	47	50	50		0.06
020131-36*	26 ... 36	180	140	58	70	64		0.12
020431-16	10 ... 16	80	70	38	35	42	plastic, acid-resistant hardware: stainless steel V4A	0.04
020431-25	17 ... 25	125	100	47	50	50		0.06
020431-36	26 ... 36	180	140	58	70	64		0.12

*Standard range

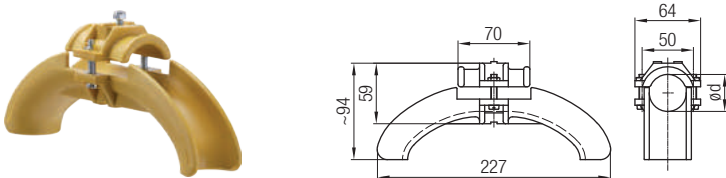
Cable Clips for Fixation at the Bracket



Order No.	for Cable-ød [mm]	r [mm]	l [mm]	h [mm]	b [mm]	c [mm]	Material	Weight [kg]
020133-16*	10 ... 16	80	70	48	35	42	plastic hardware: galvanized steel	0.05
020133-25*	17 ... 25	125	100	60	50	50		0.07
020133-36*	26 ... 36	180	140	78	70	64		0.14
020133-50	37 ... 50	250	200	100	100	90	aluminum hardware: galvanized steel	0.28
020433-16	10 ... 16	80	70	48	35	42	plastic, acid-resistant hardware: stainless steel V4A	0.04
020433-25	17 ... 25	125	100	60	50	50		0.06
020433-36	26 ... 36	180	140	78	70	64		0.12

*Standard range

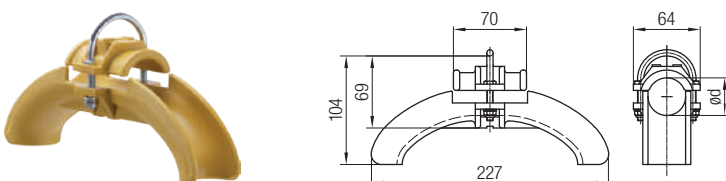
Hose Clip for Fixation at the Ball Joint



Order No. 020130-36

- Material: plastic
- Hardware: galvanized steel
- For hose-ød = 26 - 36 mm
- Weight: 0.13 kg

Hose Clip for Fixation at the Bracket

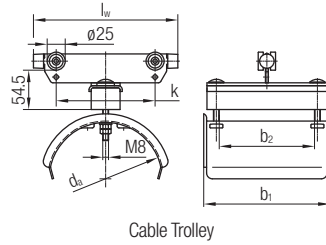


Order No. 020138-36

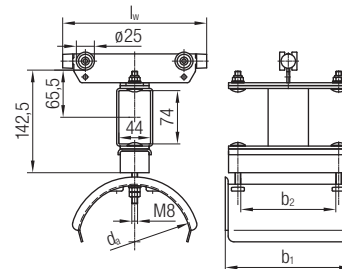
- Material: plastic
- Hardware: galvanized steel
- For hose-ød = 26 - 36 mm
- Weight: 0.15 kg

Cable Trolleys for Round Cables Program 0230

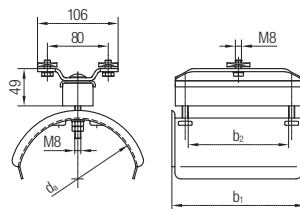
Steel Cable Trolleys, Heavy Series
for Clamping of Round Cables with a max. Difference in Diameter of 6 mm



Cable Trolley



Towing Trolley



End Clamp

Technical details

- Trolley body and cable supports: galvanized steel
- Hardware: galvanized steel
- Standard rollers: ball bearings, galvanized with ZZ-sealing
- Temperature range: -30°C to +80°C
- Stainless steel rollers: ball bearings, V4A with 2RS-sealing
- Temperature range stainless steel: -10°C to +80°C

Cable Trolley Order No.	[kg]	Towing Trolley Order No.	[kg]	End Clamp Order No.	[kg]	d _a [mm]	l _w [mm]	b ₁ [mm]	b ₂ [mm]	k [mm]	Max. Load Capacity [kg]	Max. Travel Speed [m/min]
023345-200x100	1.20	023347-200x100	1.68	024463-100	1.20	160	200	115	72	137	20	80
023345-200x160	1.59	023347-200x160	2.14	024463-160	1.60	160	200	175	132	137		
023345-250x100	1.35	023347-250x100	1.83	024464-100	1.30	200	250	115	72	187		
023345-250x160	1.88	023347-250x160	2.43	024464-160	1.85	200	250	175	132	187		
023345-250x200	2.26	023347-250x200	2.86	024464-200	2.25	200	250	215	172	187		
023345-320x200	2.63	023347-320x200	3.23	024465-200	2.50	250	320	215	172	257		
023845-200x100 ¹⁾	1.20	023847-200x100	1.68	024963-100	1.20	160	200	115	72	137	10	80
023845-200x160 ¹⁾	1.59	023847-200x160	2.14	024963-160	1.60	160	200	175	132	137		
023845-250x100 ¹⁾	1.35	023847-250x100	1.83	024964-100	1.30	200	250	115	72	187		
023845-250x160 ¹⁾	1.88	023847-250x160	2.43	024964-160	1.85	200	250	175	132	187		

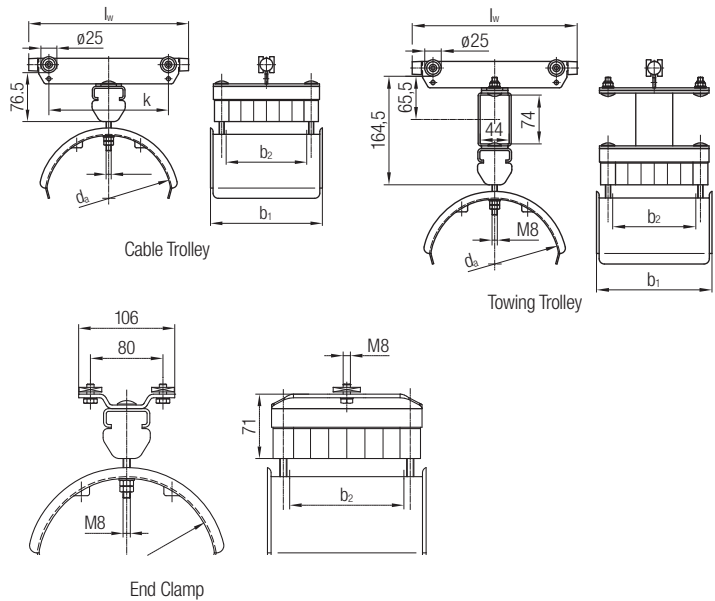
¹⁾ Design in stainless steel V4A

Note

For a better sealing the standard rollers (ZZ) can also be provided with a 2 RS-sealing. The order no. has to be completed with the variation designation .../010.

Cable Trolleys for Round Cables Program 0230

Steel Cable Trolleys, Heavy Series
for Clamping of Round Cables with a max. Difference in Diameter of 16 mm



Technical details

- Trolley body and cable supports: galvanized steel
- Hardware: galvanized steel
- Standard rollers: ball bearings, galvanized with ZZ-sealing
- Temperature range: -30°C to $+80^{\circ}\text{C}$

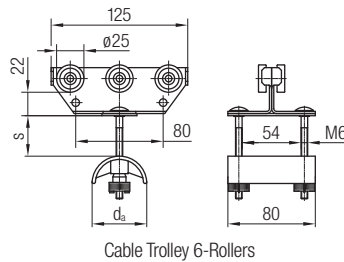
Cable Trolley Order No.	[kg]	Towing Trolley Order No.	[kg]	End Clamp Order No.	[kg]	d_a	l_w	b_1	b_2	k	Max. Load Capacity [kg]	Max. Travel speed [m/min]
					[mm]	[mm]	[mm]	[mm]	[mm]			
023346-250x100	1.35	023348-250x100	1.83	024494-100	1.30	200	250	115	66	187	20	80
023346-250x160	1.88	023348-250x160	2.43	024494-160	1.85	200	250	175	126	187		
023346-250x200	2.26	023348-250x200	2.86	024494-200	2.25	200	250	215	166	187		
023346-320x200	2.63	023348-320x200	3.23	024495-200	2.50	250	320	215	166	257		

Note

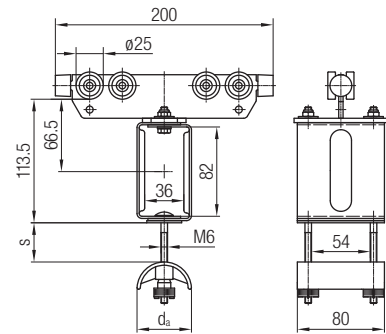
For a better sealing the standard rollers (ZZ) can also be provided with a 2 RS-sealing.
The order no. has to be completed with the variation designation .../010.

Cable Trolleys and Accessories for Traversing Program 0230

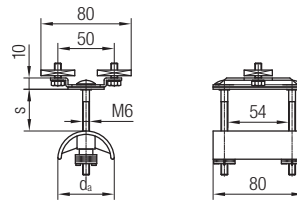
Cable Trolleys for Flat Cables with Additional Rollers



Cable Trolley 6-Rollers



Towing Trolley 8-Rollers



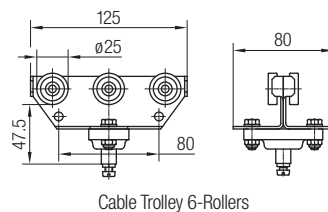
End Clamp

Technical details

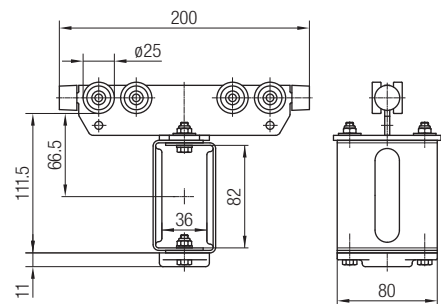
- Trolley body: galvanized steel
- Cable supports: plastic
- Hardware: galvanized steel
- Standard rollers: ball bearings, galvanized with ZZ-sealing
- Temperature range: -30°C to +80°C

Cable Trolley Order No.	[kg]	Towing Trolley Order No.	[kg]	End Clamp Order No.	[kg]	d _a [mm]	s [mm]	Max. Load Capacity [kg]	Max. Travel Speed [m/min]
023315	0.41	023316	0.86	023269	0.21	50	35	16	63
023317	0.44	023318	0.90	023279	0.22	80	20		

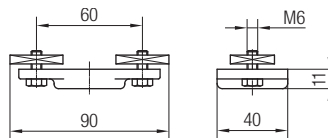
Cable Trolleys for Round Cables with Additional Rollers



Cable Trolley 6-Rollers



Towing Trolley 8-Rollers



End Clamp

Technical details

- Trolley body: galvanized steel
- Cable supports: plastic
- Hardware: galvanized steel
- Standard rollers: ball bearings, galvanized with ZZ-sealing
- Temperature range: -30°C to +60°C

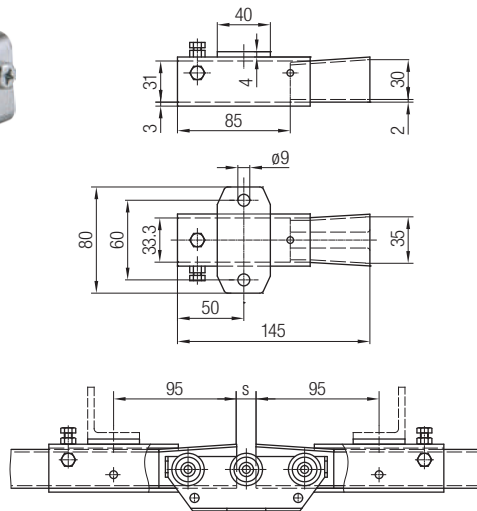
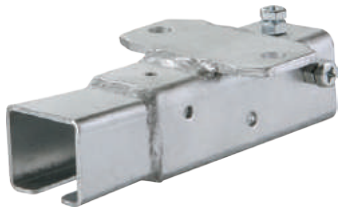
Cable Trolley Order No.	[kg]	Towing Trolley Order No.	[kg]	End Clamp Order No.	[kg]	Max. Load Capacity [kg]	Max. Travel Speed [m/min]
023319	0.41	023320	0.84	023299	0.09	16	50

Note

Suitable for cable clips: 020131-16, 020131-25, 020131-36

Cable Trolleys and Accessories for Traversing Program 0230

Transfer Guide for C-Rail 023200



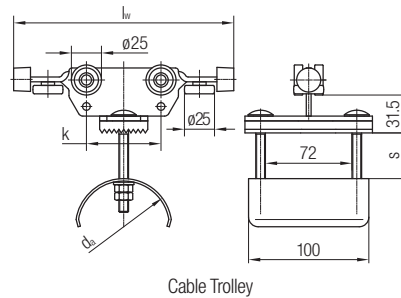
Order No. 023312

- Material: galvanized steel
- Weight: 0.50 kg

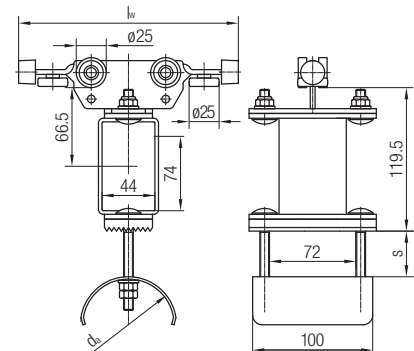
Notes

- Two transfer guides must be mounted at the transfer point with the inlet openings against each other
- The distance "s" must not exceed 15 mm
- Vertical deflection max. 1.5 mm
- Horizontal deflection max. 2.0 mm
- All cable trolleys, that pass this transition point must be provided with 3, the towing trolley with 4 pairs of rollers
- Cable trolleys that do not pass this transition point can be used in standard design
- The transfer guide can only be used in combination with the C-rail 023200

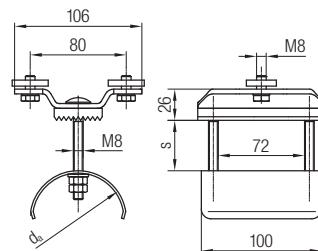
Cable Trolleys with Horizontal Guide Rollers for Applications with Increased Horizontal Forces



Cable Trolley



Towing Trolley



End Clamp

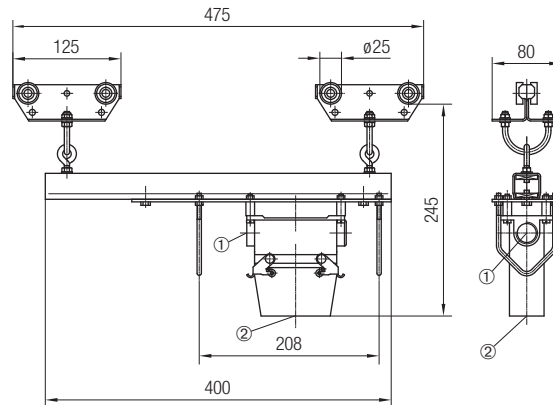
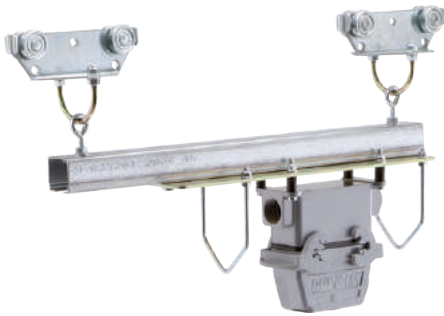
Technical details

- Trolley body: galvanized steel
- Cable supports: galvanized steel
- Hardware: galvanized steel
- Standard rollers: ball bearings, galvanized with ZZ-sealing
- Temperature range: -30°C to +80°C

Cable Trolley Order No.	[kg]	Towing Trolley Order No.	[kg]	End Clamp Order No.	[kg]	d _a [mm]	l _w [mm]	s [mm]	k [mm]	Max. Load Capacity [kg]	Max. Travel Speed [m/min]
023330-125x100/040	0.75	023335-125x100/040	1.35	024230-100x062	0.70	80	183	50	62	20	63
023330-160x100/040	0.80	023335-160x100/040	1.40	024230-100x062		80	218		97		
023332-200x100/040	0.87	023337-200x100/040	1.56	024232-100x062	0.82	125	258	137			
023332-250x100/040	1.04	023337-250x100/040	1.56	024232-100x062		125	308	187			

Ideal Control Unit Trolleys Program 0230

Ideal Control Unit Trolleys with Plug and Socket Connection – Basic Configuration



Technical details

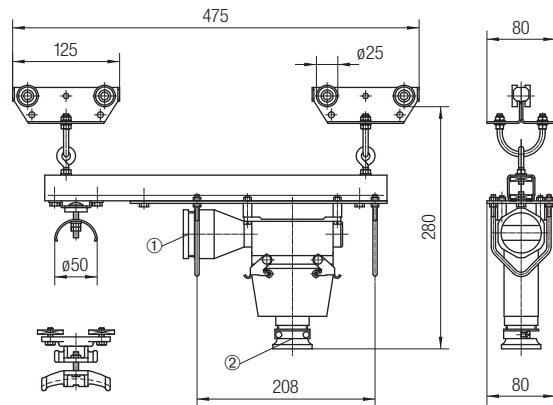
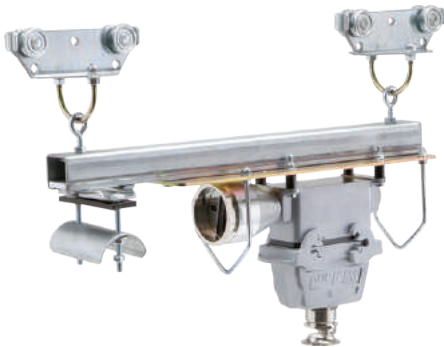
- Protection Class Plug, IP54 in locked position
- Trolley body and cross bar: galvanized steel
- Hardware: galvanized steel
- Standard rollers: ball bearings, galvanized with ZZ-sealing
- Temperature range: -30°C to +80°C

Note

Ideal control unit trolley with basic configuration without end clamp and without cable glands
Cables must be strain relieved

Order No.	Number of Poles	Connecting Threads		Possible Attachment Parts	Weight [kg]	Max. Load Capacity [kg]	Max. Travel Speed [m/min]
		①	②				
023176-16	16+PE	M25x1.5	M25x1.5	end clamp 023269 and 023299 brake glider 023184 and brake trolley 023185	2.50	32	63
023176-24	24+PE	M25x1.5	M32x1.5		2.80		

Ideal Control Unit Trolleys with Plug and Socket Connection – Pre-Assembled



Technical details

- Protection Class Cable Gland, IP54
- Protection Class Plug, IP54 in locked position
- Trolley body and cross bar: galvanized steel
- Hardware: galvanized steel
- Standard rollers: ball bearings, galvanized with ZZ-sealing
- Temperature range: -30°C to +80°C

Note

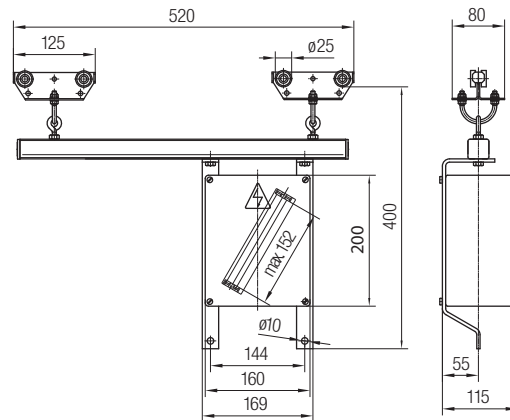
Ideal control unit trolley pre-assembled with end clamp and with cable glands and with cable glands

Order No.	Number of Poles	Cable Glands		Type for	Possible Attachment Parts	Weight [kg]	Max. Load Capacity [kg]	Max. Travel Speed [m/min]
		①	②					
023178-16	16+PE	25x42	25x21	flat cables	brake glider 023184 brake trolley 023185	3.07	32	63
023178-24*	24+PE	25x42	32x29			3.45		
023179-16	16+PE	25x29	25x21	round cables		2.86		
023179-24	24+PE	25x29	32x29			3.24		

*Standard range

Ideal Control Unit Trolleys Program 0230

Ideal Control Unit Trolley with Plastic Terminal Box – Basic Configuration



Technical details

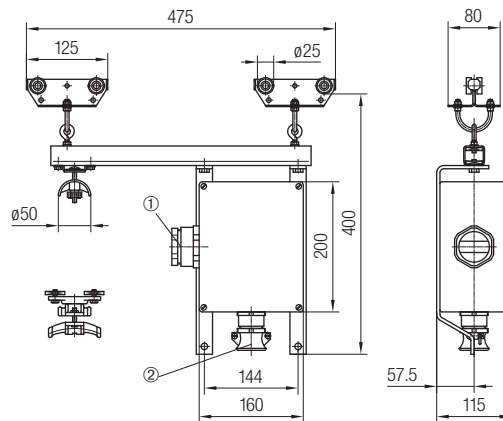
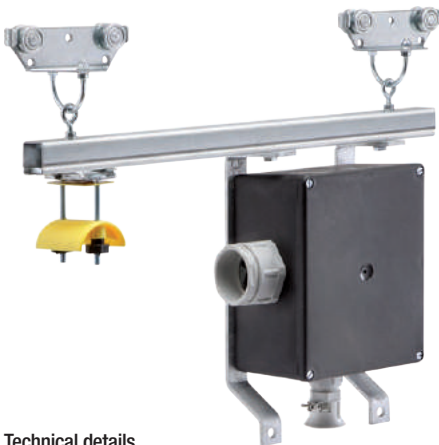
- Protection Class Terminal Box, IP54
- Trolley body and cross bar: galvanized steel
- Hardware: galvanized steel
- Standard rollers: ball bearings, galvanized with ZZ-sealing
- Temperature range: -30°C to +80°C

Note

Ideal control unit trolley with basic configuration without end clamp, cable glands and terminals
Cables must be strain relieved

Order No.	Possible Attachment Parts	Weight [kg]	Max. Load Capacity [kg]	Max. Travel Speed [m/min]
023180	end clamp 023269, 023299 brake glider 023184 brake trolley 023185	4.0	32	63

Ideal Control Unit Trolleys with Plastic Terminal Box – Pre-Assembled



Technical details

- Protection Class Terminal Box, IP54
- Protection Class Cable Gland, IP54
- Trolley body and cross bar: galvanized steel
- Hardware: galvanized steel
- Standard rollers: ball bearings, galvanized with ZZ-sealing
- Temperature range: -30°C to +80°C

Note

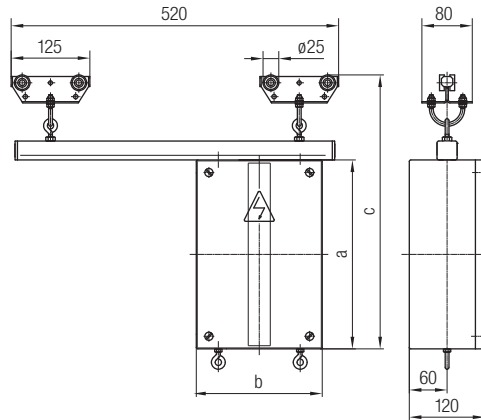
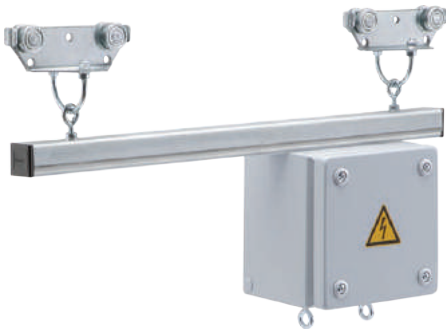
Ideal control unit trolley pre-assembled with end clamp, cable glands and terminals for cable 4 mm²

Order No.	Number of Poles	Cable Glands		Types for	Possible Attachment Parts	Weight [kg]	Max. Load Capacity [kg]	Max. Travel Speed [m/min]
		①	②					
023174-16	16 + PE	50x42	25x21	flat cables	brake glider 023184	4.81	32	63
023174-24*	24 + PE	50x42	32x29			5.21		
023175-16	16 + PE	32x29	25x21	round cables	brake trolley 023185	4.76		
023175-24	24 + PE	32x29	32x29			5.07		

*Standard range

Ideal Control Unit Trolleys Program 0230

Ideal Control Unit Trolleys with Terminal Box of Steel – Basic Configuration



Technical details

- Protection Class Terminal Box, IP66
- Trolley body and cross bar: galvanized steel Hardware: galvanized steel
- Standard rollers: ball bearings galvanized with ZZ-sealing
- Temperature range: -30°C to $+80^{\circ}\text{C}$
- Stainless steel rollers: ball bearings V4A with 2RS-sealing
- Temp. range, stainless steel: -10°C to $+80^{\circ}\text{C}$

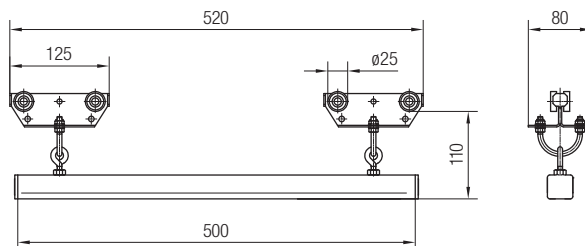
Note

Ideal control unit trolley with basic configuration without end clamp, cable glands and terminals

Order No.	a [mm]	b [mm]	c [mm]	Possible Attachment Parts	Weight [kg]	Max. Load Capacity [kg]	Max. Travel Speed [m/min]
023181-200x200	200	200	350	end clamp 023269, 023299 brake glider 023184 brake trolley 023185	5.00	32	63
023181-300x200	300		450		6.00		
023481-200x200 ¹⁾	200	200	350	end clamp 023469, 023499	5.00	20	63
023481-300x200 ¹⁾	300		450		6.00		

¹⁾ Design in stainless steel V2A and V4A

Control Trolley Upper Parts



Technical details

- Trolley body and cross bar: galvanized steel
- Hardware: galvanized steel
- Standard rollers: ball bearings galvanized with ZZ-sealing
- Temperature range: -30°C to $+80^{\circ}\text{C}$
- Stainless steel rollers: ball bearings V4A with 2RS-sealing
- Temp. range, stainless steel: -10°C to $+80^{\circ}\text{C}$

Note

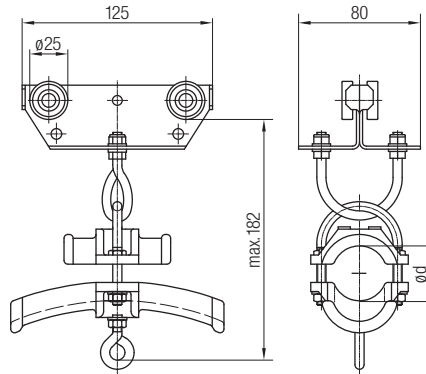
For a better sealing the standard rollers (ZZ) can also be provided with a 2RS-sealing. The order no. has to be completed with the variation designation ... / 010.

Order No.	Weight [kg]
023171	1.65
023871 ¹⁾	1.65

¹⁾ Design in stainless steel V2A and V4A

Ideal Control Unit Trolley for Round Cables Program 0230

Basic Ideal Control Unit Trolleys for Round Cables



Technical details

- Trolley body and bracket: galvanized steel
- Hardware: galvanized steel
- Standard rollers: ball bearings, galvanized with ZZ-sealing
- Cable clips: plastic
- Temperature range: -30°C to +80°C

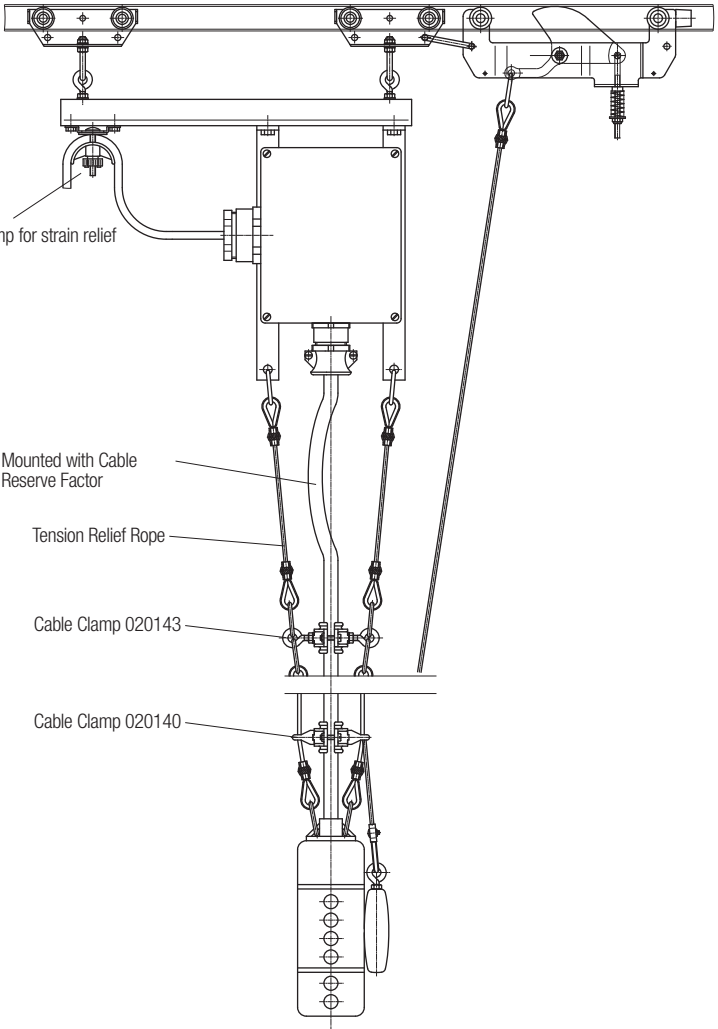
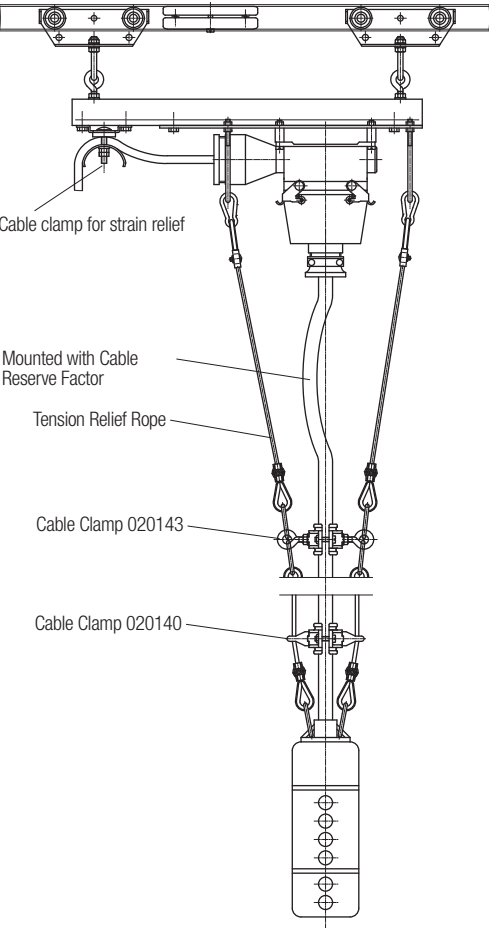
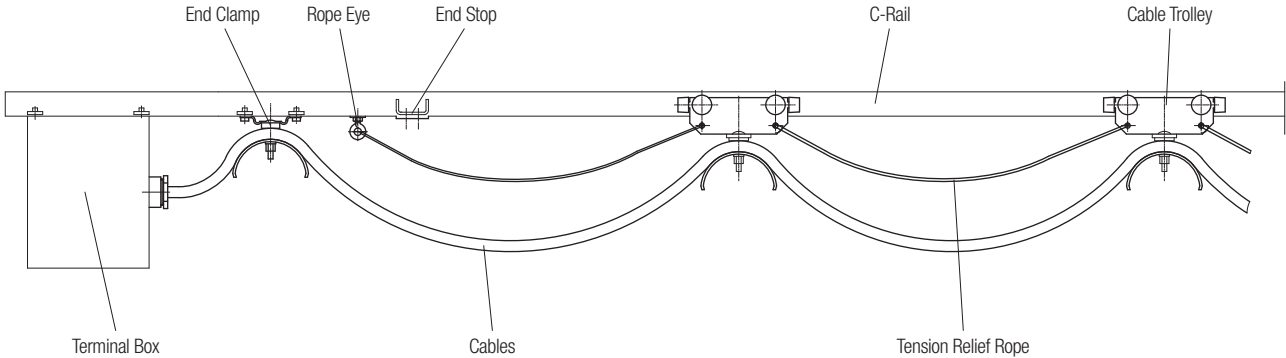
Order No.	for Cable-ød [mm]	Weight [kg]
023192-16	10 ... 16	0.37
023192-25	17 ... 25	0.40
023192-36	26 ... 36	0.46

Note

These control trolleys are used if the round cable is installed directly and without an additional terminal box up to the control station.

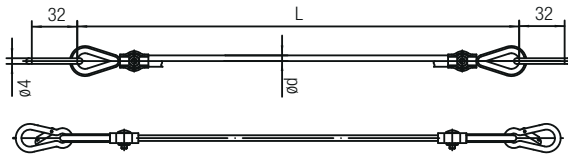
Accessories for Festoon Systems Program 0230

Application Examples



Accessories for Festoon Systems Program 0230

Towing Ropes Pre-Assembled



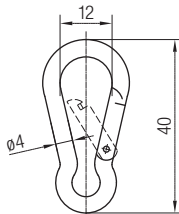
Order No.	ød [mm]	Material	Weight [kg/m]
020318-04	4.0	plastic	0.13
020318-04/500	4.0	plastic, acid-resistant	0.13
020329-02,5	2.5	steel, PVC-covered	0.14

Ropes



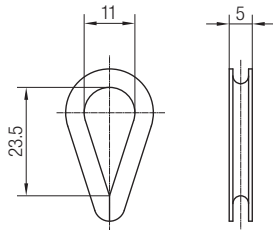
Order No.	ød [mm]	Material	Weight [kg/m]
020302-4	4.0	plastic	0.008
020301-4	4.0	plastic, acid-resistant	0.008
020305-02,5	2.5	steel, PVC-covered	0.009
020304-02	2.0	stainless steel V4A	0.015

Spring Safety Hook



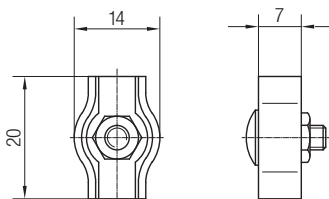
Order No.	Material	Weight [kg]
020215-40x4	galvanized steel	0.01
020415-40x4	stainless steel V4A	0.01

Rope Thimbles



Order No.	Material	Weight [kg]
020120-3	galvanized steel	0.008
020450-3	stainless steel V4A	0.008

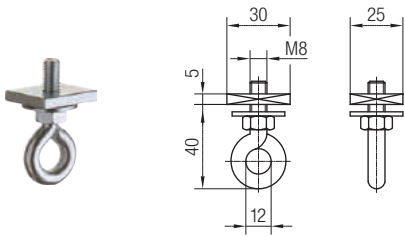
Simplex Rope Clip



Order No.	Material	Weight [kg]
020122-3	galvanized steel	0.01
020452-3	stainless steel V4A	0.01

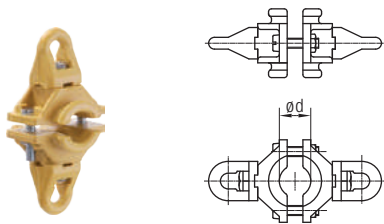
Accessories for Festoon Systems Program 0230

Rope Eyes

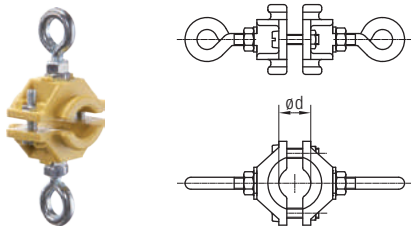


Order No.	Material	Weight [kg]
020218-08	galvanized steel	0.07
020458-08	stainless steel V4A	0.07

Cable Clamps

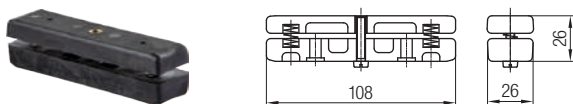


Cable Clamp Order No.	ød [mm]	Material	Weight [kg]
020140-16	11 ... 16	plastic, hardware: galvanized steel	0.05
020140-25	17 ... 25		0.08
020140-36	26 ... 36		0.13



Cable Clamp Order No.	ød [mm]	Material	Weight [kg]
020143-16	10 ... 16	plastic, hardware: galvanized steel	0.06
020143-25	17 ... 25		0.08
020143-36	26 ... 36		0.14

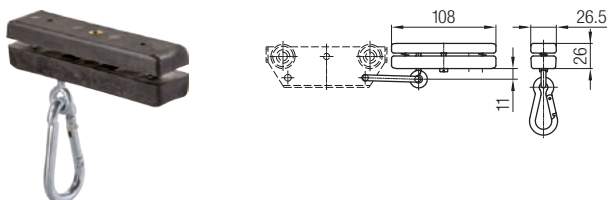
Brake Glider



Brake Glider* Order No. 023184

- Basic material: plastic
- Hardware: galvanized steel
- Weight: 0.10 kg

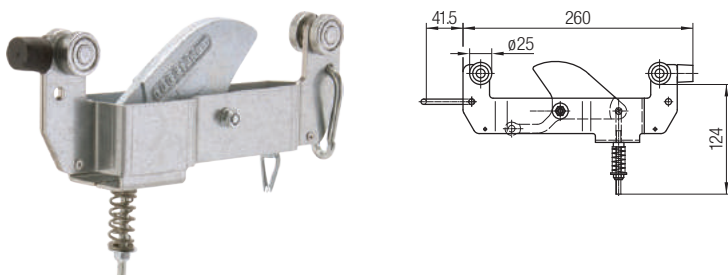
*Standard range



Brake Glider and hardware Order No. 023199

- Basic material: plastic
- Hardware: galvanized steel
- Weight: 0.14 kg

Brake Trolley

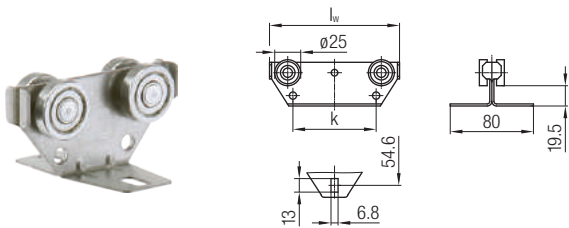


Order No. 023185

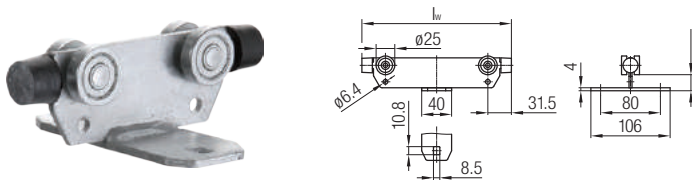
- Material: galvanized steel
- Hardware: galvanized steel
- Brake hammer: cast iron
- Weight: 1.40 kg

Accessories for Festoon Systems Program 0230

Cable Trolley Upper Parts

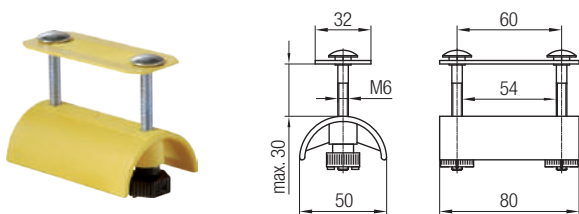


Cable Trolley Upper Parts without Buffer Order No.	l_w [mm]	Material	k [mm]	Max. Load Capacity [kg]	Weight [kg]
023258	80	galvanized steel	36	16	0.21
023259	125		80		0.30
023459	125	stainless steel V4A	80	10	0.30



Cable Trolley Upper Parts with Buffer Order No.	l_w [mm]	Material	Max. Load Capacity [kg]	Weight [kg]
023308-125x100	125	galvanized steel	20	0.38
023308-160x100	160			0.42
023808-125x100	125	stainless steel V4A	10	0.38
023808-160x100	160			0.42

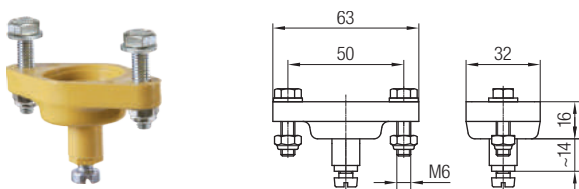
Cable Support



Order No. 020168

- Basic material: plastic
- Hardware: galvanized steel
- Weight: 0.06kg

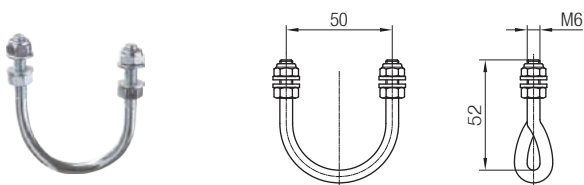
Ball Joint



Order No. 020166

- Basic material: plastic
- Hardware: galvanized steel
- Weight: 0.04kg

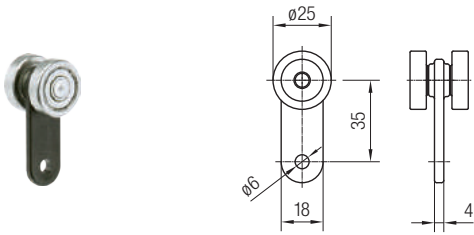
Brackets, complete



Order No.	Material	Weight [kg]
020147-50x6	galvanized steel	0.04
020447-50x6	stainless steel V4A	0.04

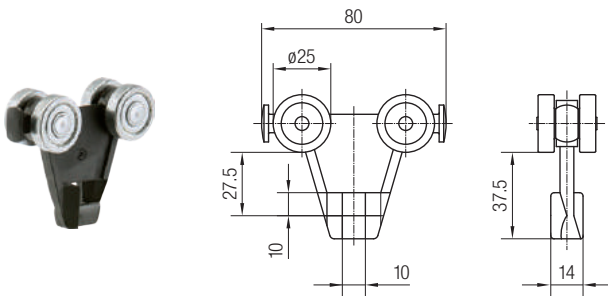
Accessories for Festoon Systems Program 0230

Plastic Trolleys 2 Rollers



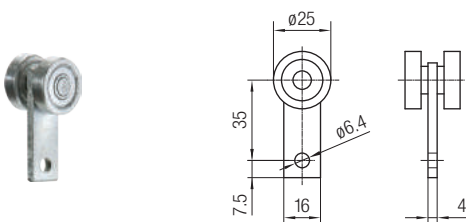
Order No.	Weight [kg]	Type of Roller	Max. Load Capacity [kg]	Max. Travel Speed [m/min]
023361	0.04	ball bearings: galvanized steel	6	20
023362	0.02	plastic roller: with friction bearing	3	

Plastic Trolleys 4 Rollers



Order No.	Weight [kg]	Type of Roller	Max. Load Capacity [kg]	Max. Travel Speed [m/min]
023252	0.11	ball bearings: galvanized steel	12	32
023254	0.04	plastic roller: with friction bearing	6	

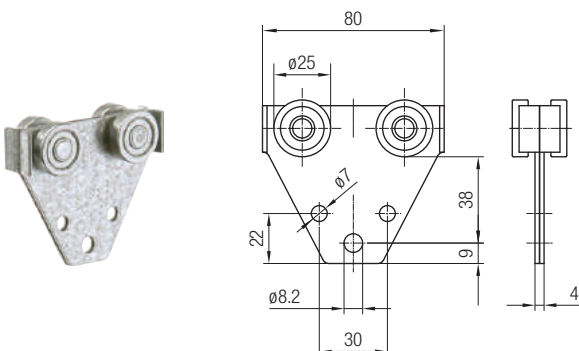
Steel Trolley 2 Rollers



Order No. 023360

- Ball bearing: galvanized steel
- Max. load capacity: 10 kg
- Max. travel speed: 20 m/min
- Weight: 0.07 kg

Steel Trolley 4 Rollers without Buffer

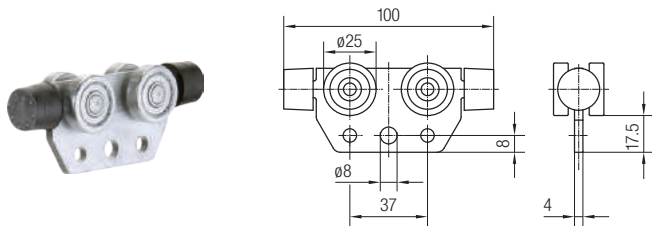


Order No. 023351

- Ball bearings: galvanized steel
- Max. load capacity: 16 kg
- Max. travel speed: 32 m/min
- Weight: 0.21 kg

Accessories for Festoon Systems Program 0230

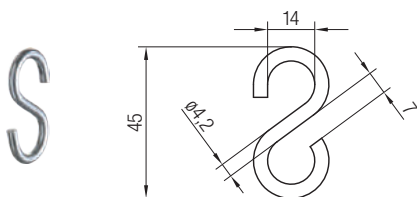
Steel Trolley 4 Rollers with Buffer



Order No. 023357-100

- Ball bearings: galvanized steel
- Max. load capacity: 20 kg
- Max. travel speed: 40 m/min
- Weight: 0.19 kg

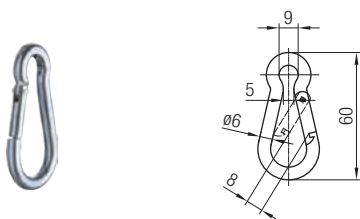
S-Hook



Order No. 020118-45x4

- Material: galvanized steel
- Weight: 0.02 kg

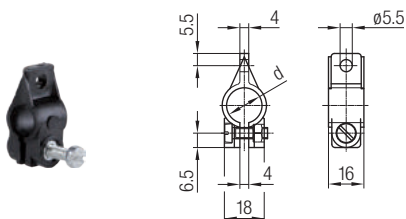
Spring Safety Hook



Order No. 020215-60x6

- Material: galvanized steel
- Weight: 0.03 kg

Cable Collar, Plastic



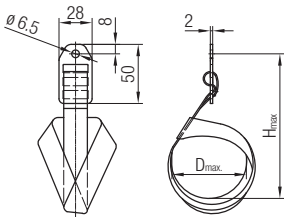
Order No.	Cable-ød [mm]	Material	Weight [kg]
020111-08	8	plastic hardware: galvanized steel	0.007
020111-10	10		0.008
020111-11	11		0.008
020111-12,5	12.5		0.008
020111-14	14		0.008
020111-16	16		0.009
020111-18	18		0.085
020111-20	20		0.010
020111-22	22		0.010
020111-25	25		0.011
020111-28	28		0.012
020111-32	32		0.013
020111-36	36		0.014

Note

For attachment to the trolley with S-hook.

Accessories for Festoon Systems Program 0230

Strap for Cable Bundle

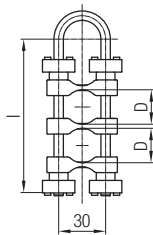


Order No.	D _{max} [mm]	H _{max} [mm]	Material	Weight [kg]
020117-080	80	150	plastic hardware: galvanized steel	0.02
020117-160	160	230		0.03

Note

For attachment to the trolley with S-hook.

Cable Clips with Bracket



Order No.	Number of Loops n ₀	Max. Cable Diameter per Loop D [mm]	Total of all Cable Diameters Max. [mm]	l [mm]	Weight [kg]
020137-1X18	1	8-18	18	63	0.06
020137-1X22	1	8-22	22	80	0.06
020137-2X32	2	8-22	32	80	0.07
020137-2X44	2	8-22	44	100	0.07
020137-3X30	3	8-22	30	80	0.07
020137-3X66	3	8-22	66	125	0.09
020137-4X72	4	8-22	72	125	0.09
020137-5X70	5	8-22	70	125	0.10

Note

To be used in combination with trolley 023252 and 023254 on page 40.

Helpful Hints

Determining the Support Distance for C-Rail Program 0230

Technical Data / Calculation Assumptions

The required support distance of the C-rail can be determined using the diagram below.
The following calculation assumptions have been taken into consideration:

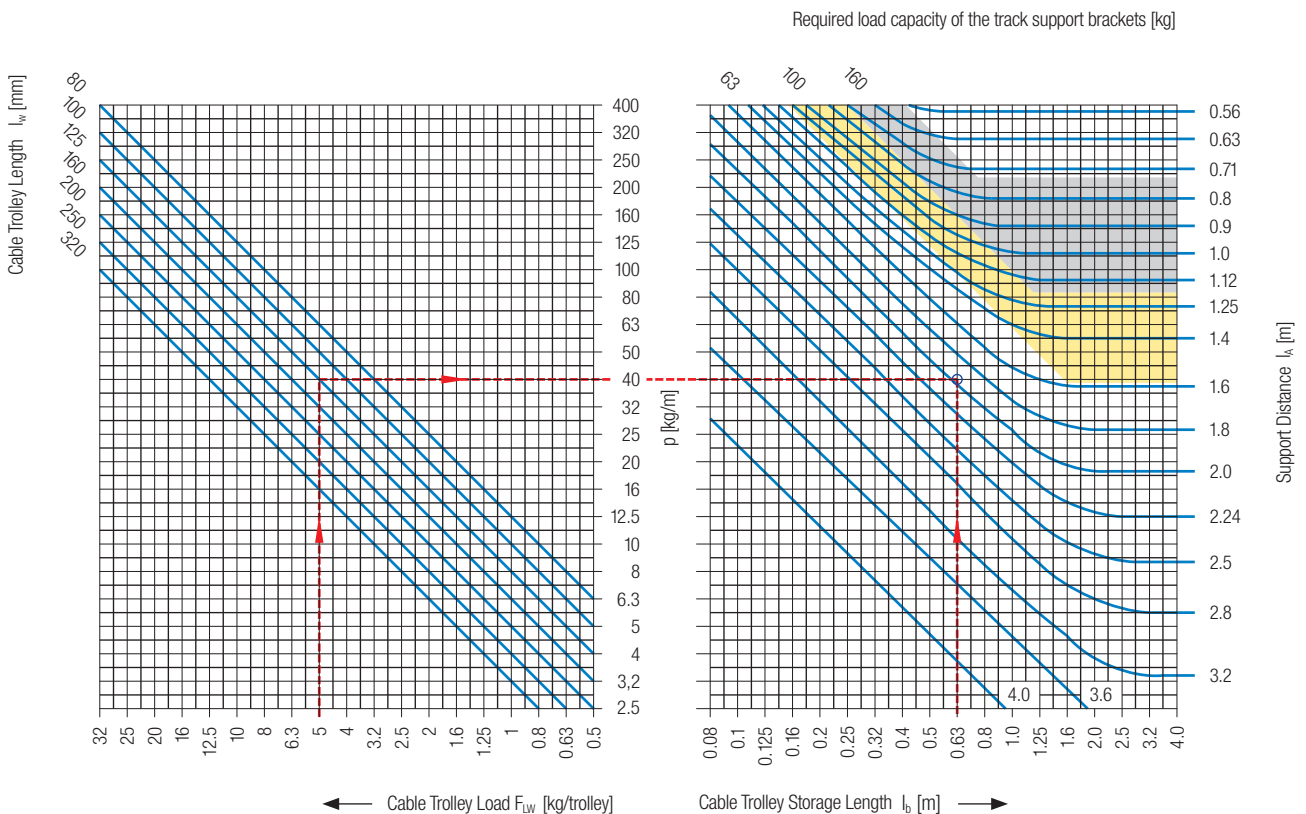
1. Simply-supported beam, uniform load symmetrical to middle of the beam
2. The load of one trolley F_{LW} [kg/trolley] is distributed over trolley length l_w as a uniform load p [kg/m]
3. Total length of the uniform load results from the cable trolley storage length l_b [m] of all trolleys side by side
4. $\sigma_{b_{Zul}} = 100 \text{ N/mm}^2$, without consideration of the lower flange stress
5. $\sigma_V \leq 160 \text{ N/mm}^2$, reference stress from bending stress and lower flange stress
6. $f = l_b/250$ permissible deflection from the load and net weight of the rail
7. As track support bracket load the load of a field symmetrical to the mounting (bracket) is assumed

Example:

Given:

F_{LW} = Cable Trolley Load: 5 kg (X axis value on the left-hand graph below)
 l_w = Cable Trolley Length: 125 mm (blue line on the left graph)
 Z = Overall number of Cable Trolleys: 5
 l_b = Cable Trolley Storage Length: 0.625 m (X axis on the right-hand graph below)
 $(m) = Z \times l_w / 1000$

Load Diagram for C-Rail 30 x 32 x 2 (023200 / 023400 / 023404)



Solution for C-Rail 30 x 32 x 2

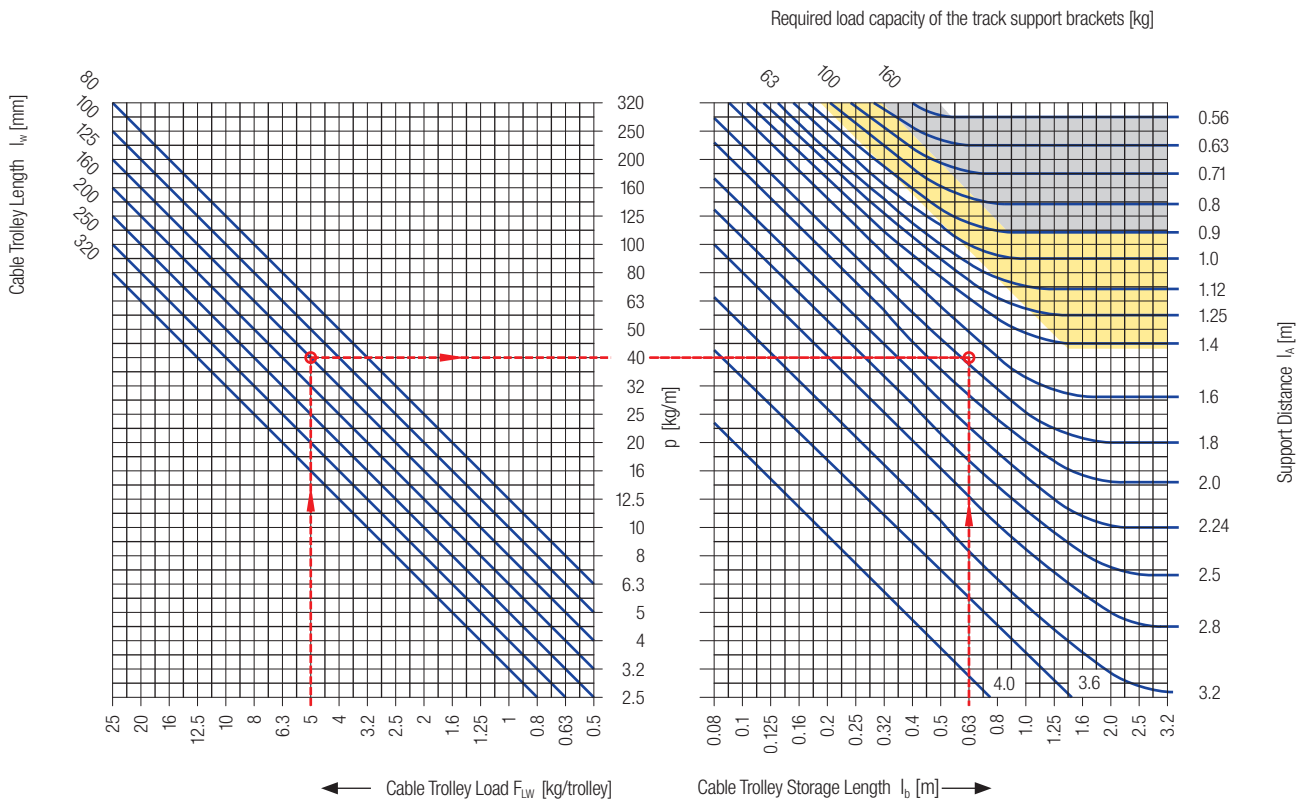
From diagram:

Required Support Distance $l_a = 1.95 \text{ m}$

Required Load Capacity of the track support brackets = 63 kg

Helpful Hints

Load Diagram for C-Rail 30 x 32 x 1.5 (023201)



Solution for C-Rail 30 x 32 x 1.5

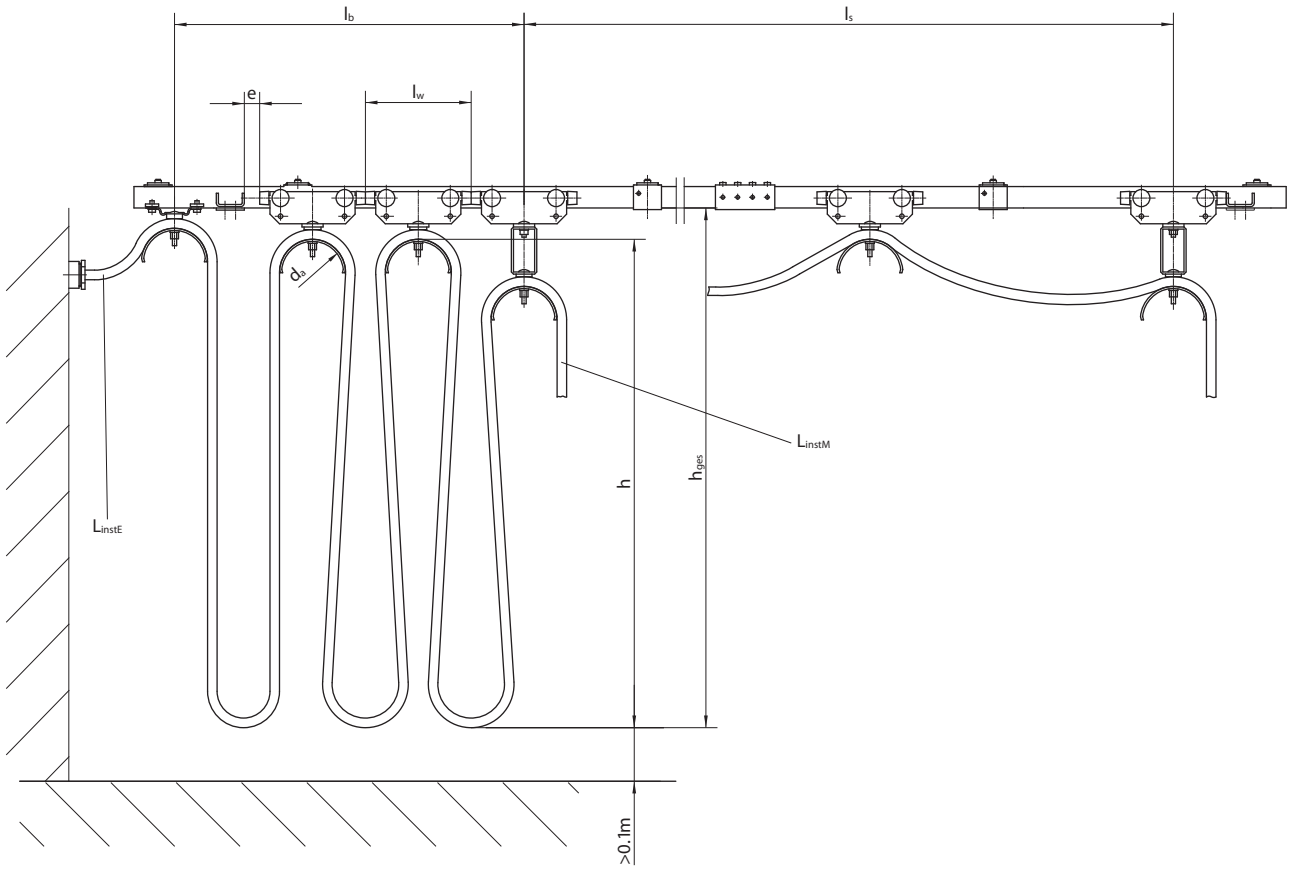
From diagram:

Required Support Distance $l_A = 1.75$ m

Required Load Capacity of the track support brackets = 63 kg

Helpful Hints

Technical Data



Formulas to Determine the Number of Loops, Cable Length and Loop Depth

Number of loops:

$$n = \frac{f \cdot (l_s + e)}{2 \cdot h + 1.25 \cdot d_a - f \cdot l_w}$$

Storage length:

$$l_b \approx n \cdot l_w + e \quad [\text{m}]$$

System cable length:

$$L_{\text{Syst}} = f \cdot (l_s + l_b) \quad [\text{m}]$$

Total cable length:

$$L_{\text{Best}} = L_{\text{Syst}} + L_{\text{instE}} + L_{\text{instM}} \quad [\text{m}]$$

Loop length:

$$L_{\text{Schl}} = \frac{L_{\text{Syst}}}{n} \quad [\text{m}]$$

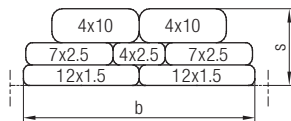
Loop depth:

$$h = \frac{L_{\text{Schl}}}{2} - 0.63 \cdot d_a \quad [\text{m}]$$

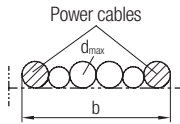
- d_a [m] = cable support diameter
- e [m] = free space in storage area (recommendation ≥ 0.1 m)
- f = recommended cable factor (see table page 46)
- h [m] = loop depth (measured from top edge of cable support)
- h_{ges} [m] = loop depth (measured from lower edge of track profile)
- l_b [m] = storage length incl. free space
- l_s [m] = travel distance
- l_w [m] = cable trolley length
- L_{Best} [m] = total cable length
- L_{instE} [m] = installation length, end clamp side
- L_{instM} [m] = installation length, towing side
- L_{Schl} [m] = cable length per loop
- L_{Syst} [m] = required cable length (measured from mid of end clamp to mid of towing trolley or towing clamp)
- n = number of loops

Helpful Hints

Definition of the cable arrangement and cable trolley selection



Example for flat cable trolleys



Example for round cable trolleys

1. Formula for calculating the approximate load per trolley F_{LW}

$$F_{LW} \approx 2 \cdot h \cdot G_L \quad [\text{kg}]$$

G_L [kg/m] = weight of the cable package

2. Selection of the cable trolley type
3. Required cable support diameter based upon minimum bending radius of the cables
4. Select cable support width b_2 to accommodate the cable package width
5. Determine length of trolley l_w

For round cables:

$$l_w \geq d_a + 2 \cdot d_{\max} + 10 \quad [\text{mm}]$$

For flat cables:

$$l_w \geq d_a + 2 \cdot s + 10 \quad [\text{mm}]$$

Instruction help how to build the cable packet, please check MAL0200-0003

Cable Factors

Travel Speed v [m/min]	Cable Factor f at h [m]				
	< 0.8	0.8 - 1.2	1.3 - 2	2.1 - 3.2	3.3 - 5
< 32	1.10	1.10	1.10	1.10	1.10
32 - 040	1.15	1.10	1.10	1.10	1.10
41 - 050	1.20	1.15	1.10	1.10	1.10
51 - 063	1.25	1.20	1.15	1.10	1.10
64 - 080	-	1.25	1.20	1.15	1.10
81 - 100	-	-	1.25	1.20	1.15
101 - 120	-	-	-	1.25	1.20

Depending on the operating conditions the cables must be installed with an additional cable length. The additional length is calculated by taking into account the cable factor f . We recommend to select the cable factor according to above table.

For values outside the gray area, please contact us directly. Special precautions might be required in those cases under extreme operating conditions, such as the installation of shock cords.

Permissible Loads of the Rollers

Travel Speed V [m/min]	Average running time per day [h]				
	< 4	4 - 8	8 - 16	-	-
< 16	< 2	2 - 4	4 - 8	8 - 16	-
16 - 32	-	< 2	2 - 4	4 - 8	8 - 16
32 - 63	-	-	-	-	-
63 - 80	-	-	-	2 - 4	4 - 8

Type of Roller ϕ 25 mm	Permissible Load of the Rollers [kg]				
	32.0	25.0	20.0	16	12.5
Ball Bearing, galvanized	16.0	12.5	10.0	8	6.3
Ball Bearing V4A	12.5	10.0	8.0	-	-
Plastic Roller with Bronze Friction Bearing	10.0	8.0	6.3	-	-

The lifetime of the rollers depends on the load (Hertzian stress) and the frequency of operation.

The proper selection, based on travel speed, average running time per day (based on one year) and permissible load of the trolleys with various roller types, can be made by using the above table.

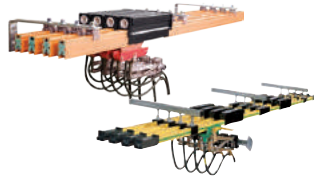
Your Applications – our Solutions

Festoon Systems from Conductix-Wampfler represent only one of the many solutions made possible by the broad spectrum of Conductix-Wampfler components for the transport of energy, data and fluid media. The solutions we deliver for your applications are based on your specific requirements. In many cases, a combination of several different Conductix-Wampfler systems can prove advantageous. You can count on all of Conductix-Wampfler's Business Units for hands-on engineering support – coupled with the perfect solution to meet your energy management and control needs.



Festoon systems

It's hard to imagine Conductix-Wampfler cable trolleys not being used in virtually every industrial application. They're reliable and robust and available in an enormous variety of dimensions and designs.



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Whether they're enclosed conductor rails or expandable single-pole systems, the proven conductor rails by Conductix-Wampfler reliably move people and material.



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Extremely robust, non-insulated conductor rails with copper heads or stainless steel surfaces provide the ideal basis for rough applications, for example in steel mills or shipyards.



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With their robust and efficient design Spring Cable and Hose Reels from Conductix-Wampfler are unbeatably reliable in supplying energy, signals, data and fluids to a vast range of tools, cranes and vehicles.



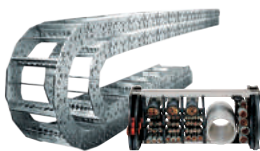
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