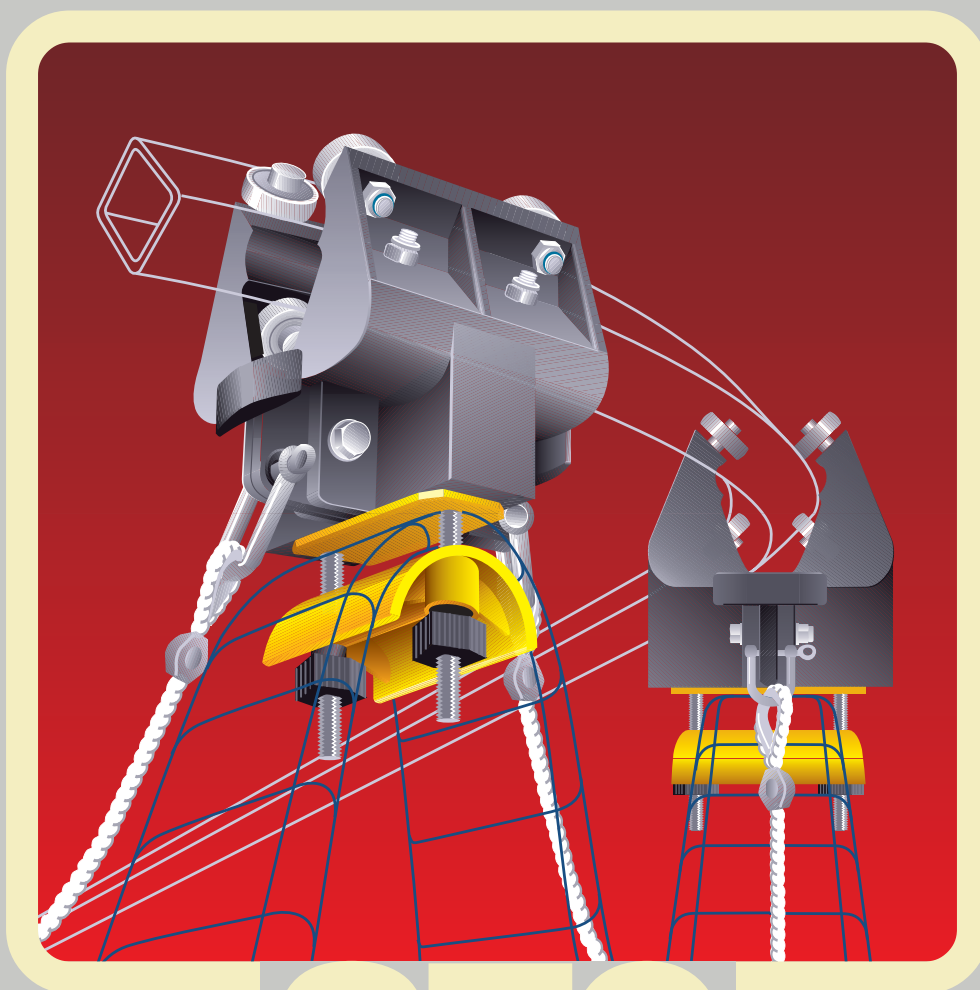


# Energy Supply Systems

## ◇-RAIL PROGRAM

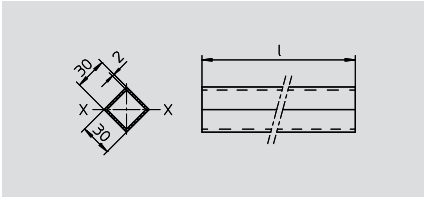


# 270

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# ◇-Rails and Accessories for Curved Tracks

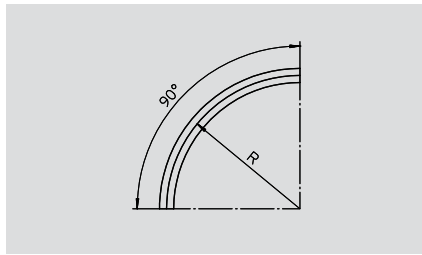
## ◇-Rail 30 x 30



| Order No. | l [mm] | Static values           |
|-----------|--------|-------------------------|
| 027200-6  | 6000   | $I_x = 2.95\text{cm}^4$ |
| 027200-4  | 4000   | $W_x = 1.39\text{cm}^3$ |

Material: galvanized steel  
Other lengths are available on inquiry.

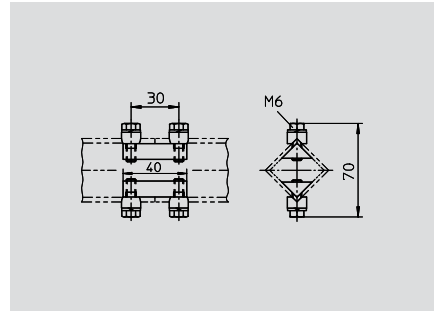
## 90°-Curve



| Order No.    | R [mm] |
|--------------|--------|
| 027203-00400 | 400    |
| 027203-00600 | 600    |
| 027203-00800 | 800    |
| 027203-01000 | 1000   |
| 027203-01200 | 1200   |
| 027203-01400 | 1400   |
| 027203-01600 | 1600   |
| 027203-01800 | 1800   |
| 027203-02000 | 2000   |

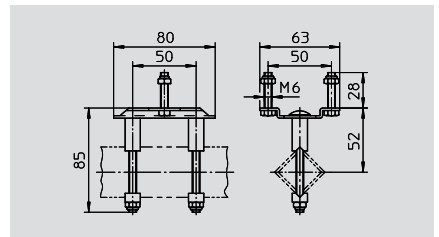
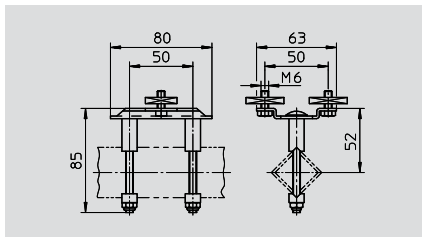
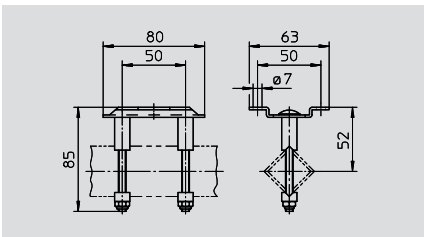
Material: galvanized steel  
Other curves are available on inquiry.

## Track Coupler



Order No. 027210  
Material: galvanized steel

## Track Support Bracket

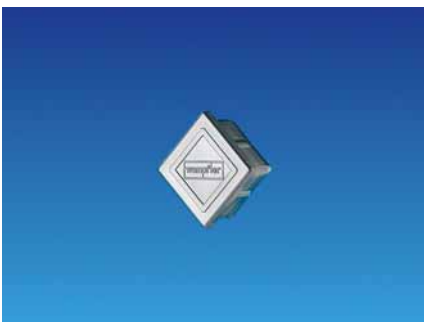


Order No. 027220  
Material: galvanized steel  
Perm. load: 125 kg

Order No. 027222  
Material: galvanized steel  
Perm. load: 125 kg

Order No. 027223  
Material: galvanized steel  
Perm. load: 125 kg

## End Cap

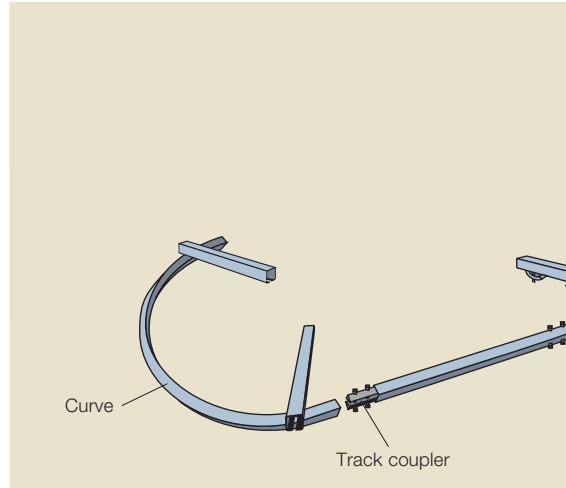


Order No. 020662-31  
Material: plastic  
For closing the rail ends.

## Drilling Jig

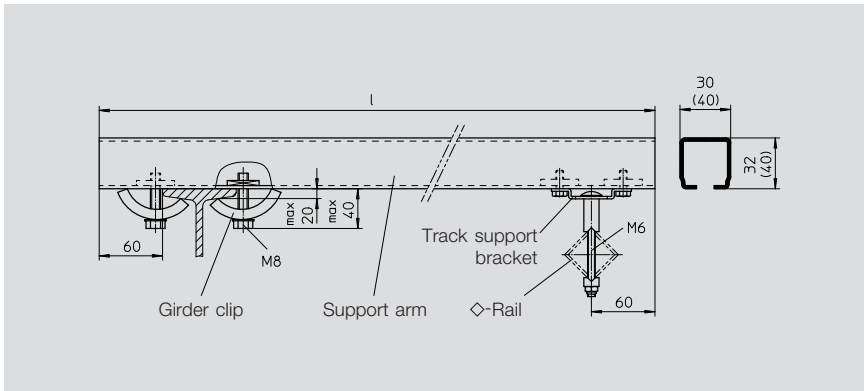


Order No. 027211  
A drilling jig is necessary to drill the rails and curves.



# ◇-Rails and Accessories for Curved Tracks

## Support Arm and Girder Clip



| Support arm 30x32<br>Order No. | I<br>[mm] | Perm. load<br>[N] |
|--------------------------------|-----------|-------------------|
| 020275-0500                    | 500       | 380               |
| 020275-1000                    | 1000      | 190               |

Material: galvanized steel

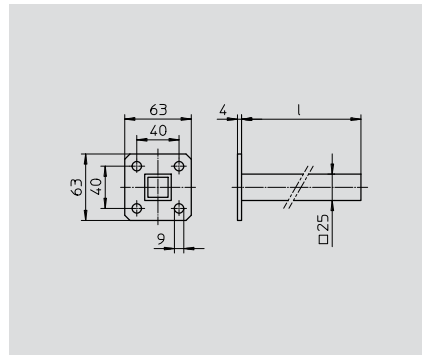
| Support arm 40x40<br>Order No. | I<br>[mm] | Perm. load<br>[N] |
|--------------------------------|-----------|-------------------|
| 020276-0500                    | 500       | 825               |
| 020276-1000                    | 1000      | 410               |

Material: galvanized steel

**Girder clip** Order No. 020180-08

Material: galvanized steel

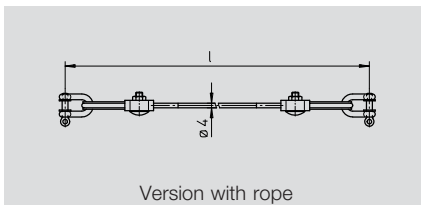
## Towing Arm for Towing Trolley



| Towing arm<br>Order No. | I<br>[mm] |
|-------------------------|-----------|
| 020195-400              | 400       |
| 020195-630              | 630       |

Material: galvanized steel

## Towing Lines for Cable Trolleys



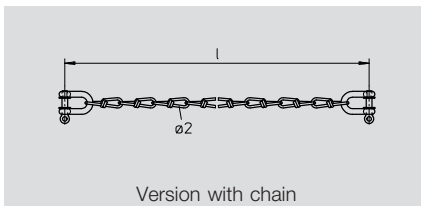
Version with rope

| Rope ø4, Polyamide<br>Order No. | I<br>[mm] |
|---------------------------------|-----------|
| 020316-04                       | as stated |

Tensile force max. 400 N

| Rope ø4, galv. steel<br>Order No. | I<br>[mm] |
|-----------------------------------|-----------|
| 020326-04                         | as stated |

Tensile force max. 800 N

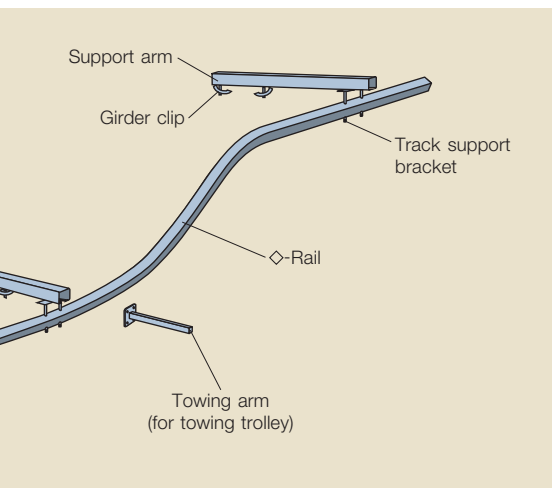


Version with chain

| Chain ø2, steel<br>Order No. | I<br>[mm] |
|------------------------------|-----------|
| 020346-02                    | as stated |

Tensile force max. 250 N

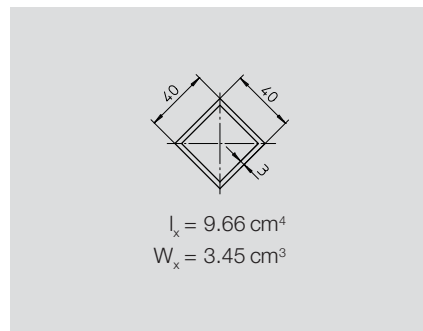
For curved tracks it is necessary to install towing lines between the cable trolleys.



## Heavy Type

## ◇-Rail 40 x 40

A similar range of these systems is available for heavier cable loads.



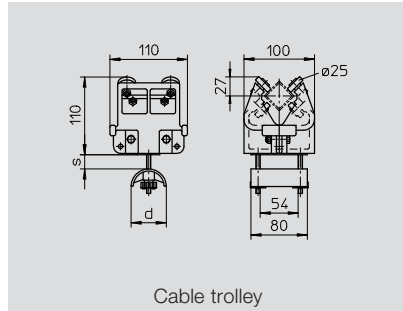
### Program 0280

- ◇-Rail
- Curves
- Track coupler
- Track support brackets
- Cable trolleys:
  - Max. load capacity max. 36kg
  - Roller ø 40 mm
- Ideal control unit trolley
- Other accessories

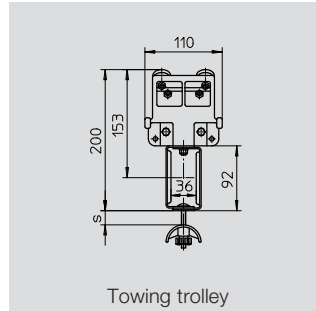
Please send your inquiry.

# Flat Cable Trolleys

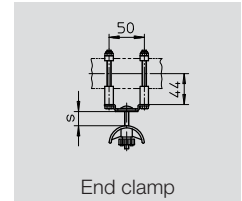
## Plastic Cable Trolley and Cable Support



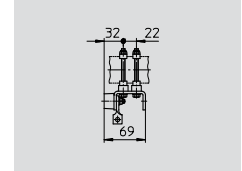
Cable trolley



Towing trolley



End clamp

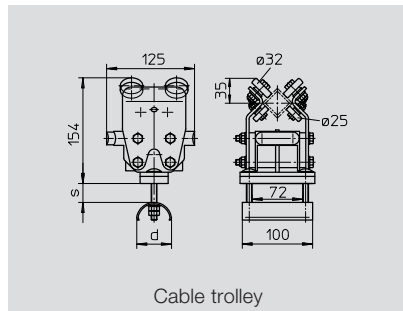


End stop  
Order No. 027112

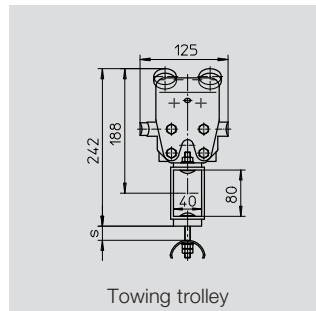
| Cable trolley Order No. | Towing trolley Order No. | End clamp Order No. | d [mm] | s [mm] |
|-------------------------|--------------------------|---------------------|--------|--------|
| 027261                  | 027267                   | 027268              | 50     | 25     |
| 027271                  | 027277                   | 027278              | 80     | 15     |

Type of roller:  
- Ball bearing, galvanized  
- Sealing: 2 Z  
Load capacity: 16 kg

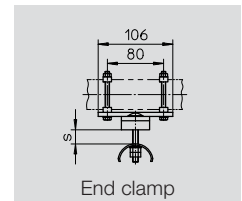
## Steel Cable Trolley and Cable Support



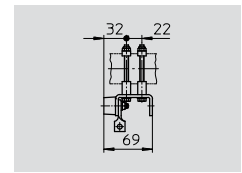
Cable trolley



Towing trolley



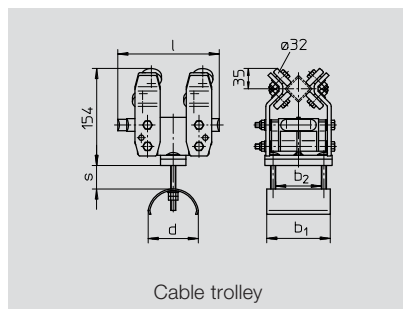
End clamp



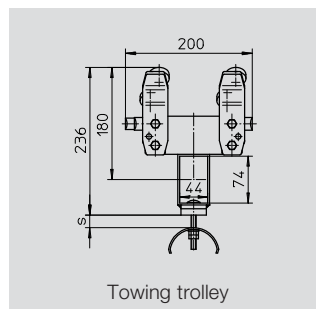
End stop  
Order No. 027111

| Cable trolley Order No. | Towing trolley Order No. | End clamp Order No. | d [mm] | s [mm] |
|-------------------------|--------------------------|---------------------|--------|--------|
| 027339-125x100          | 027349-125x100           | 027329-100x042      | 50     | 30     |
| 027340-125x100          | 027350-125x100           | 027330-100x068      | 80     | 15     |

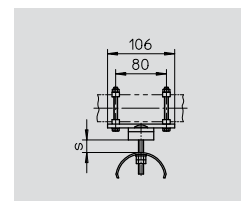
Type of roller:  
- Ball bearing, galvanized  
- Sealing: 2 Z  
Load capacity: 20 kg



Cable trolley



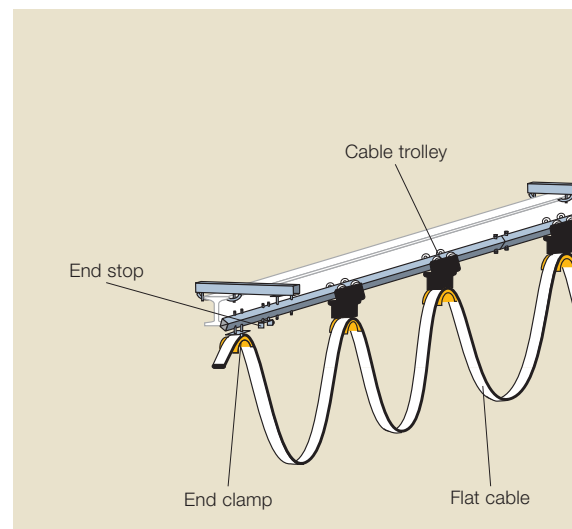
Towing trolley



End clamp

| Cable trolley Order No. | Towing trolley Order No. | End clamp Order No. | d [mm] | l [mm] | b <sub>1</sub> [mm] | b <sub>2</sub> [mm] | s [mm] |
|-------------------------|--------------------------|---------------------|--------|--------|---------------------|---------------------|--------|
| 027310-160x100          | 027320-200x100           | 027330-100x068      | 80     | 160    | 100                 | 72                  | 38     |
| 027310-160x160          | 027320-200x160           | 027330-160x068      |        |        | 160                 | 132                 |        |
| 027310-200x100          | 027320-200x100           | 027330-100x068      |        | 200    | 100                 | 72                  |        |
| 027310-200x160          | 027320-200x160           | 027330-160x068      |        |        | 160                 | 132                 |        |
| 027312-200x100          | 027322-200x100           | 027332-100x048      | 125    | 200    | 100                 | 72                  | 35     |
| 027312-200x160          | 027322-200x160           | 027332-160x048      |        |        | 160                 | 132                 |        |

Type of roller: Ball bearing, galvanized; Sealing: 2 Z  
Load capacity: 25 kg



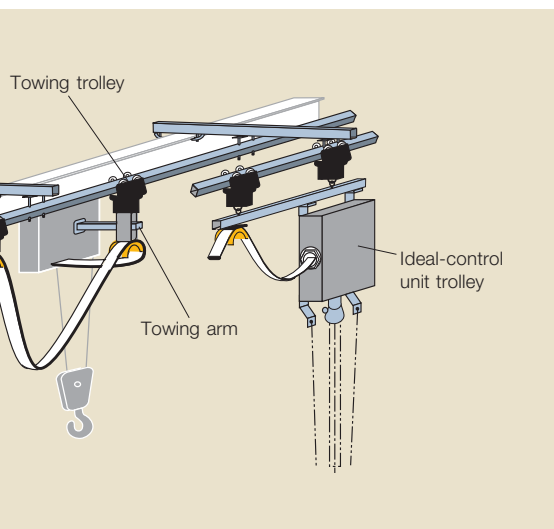
# Flat Cable Trolleys

## Rubber Flat Cables

| Type  | Number of cores and cross section [mm <sup>2</sup> ] | Order No.   | Max. dimension s x b [mm] | Approx. weight [kg / 100 m] |
|---|--|-------------|---------------------------|-----------------------------|
| NGFLGÖU-J   | 14x1.5   | 0401-14X1.5 | 16.4 x 18.5               | 20                          |
| NGFLGÖU-J   | 15x1.5   | 0401-15X1.5 | 16.4 x 21.5               | 24                          |
| NGFLGÖU-J   | 18x1.5   | 0401-18X1.5 | 16.4 x 32.0               | 35                          |
| NGFLGÖU-J   | 10x1.5   | 0401-10X1.5 | 17.0 x 41.5               | 50                          |
| NGFLGÖU-J   | 12x1.5   | 0401-12X1.5 | 17.0 x 48.5               | 59                          |
| NGFLGÖU-J   | 14x2.5   | 0401-14X2.5 | 18.2 x 23.0               | 29                          |
| NGFLGÖU-J   | 15x2.5   | 0401-15X2.5 | 18.2 x 28.5               | 42                          |
| NGFLGÖU-J   | 18x2.5   | 0401-18X2.5 | 18.2 x 42.0               | 55                          |
| NGFLGÖU-J   | 10x2.5   | 0401-10X2.5 | 18.8 x 54.5               | 83                          |
| NGFLGÖU-J   | 12x2.5   | 0401-12X2.5 | 18.8 x 58.0               | 86                          |
| NGFLGÖU-J   | 14x4.5   | 0401-14X4.5 | 19.6 x 28.0               | 41                          |
| NGFLGÖU-J   | 17x4.5   | 0401-17X4.5 | 19.6 x 44.0               | 71                          |
| NGFLGÖU-J   | 14x6.5   | 0401-14X6.5 | 10.4 x 30.0               | 52                          |
| NGFLGÖU-J   | 14x10.   | 0401-14X10  | 12.1 x 36.0               | 80                          |
| Rubber flat cables with screened individual cores |  |             |                           |                             |
| GCFLGÖU-O   | 4x1.5  | 0404- 4X1.5 | 7.4 x 19.5                | 25                          |
| GCFLGÖU-O   | 8x1.5  | 0404- 8X1.5 | 7.4 x 37.3                | 51                          |

## PVC Flat Cables

| Type   | Number of cores and cross section [mm <sup>2</sup> ] | Order No.   | Max. dimension s x b [mm] | Approx. weight [kg / 100 m] |
|--|--|-------------|---------------------------|-----------------------------|
| H07VVH6-F                                      | 4G1.5  | 0325- 4G1.5 | 5.2 x 15.5                | 15.3                        |
| H07VVH6-F                                      | 5G1.5  | 0325- 5G1.5 | 5.2 x 18.5                | 18.5                        |
| H07VVH6-F                                      | 8G1.5  | 0325- 8G1.5 | 5.2 x 31.0                | 29.7                        |
| H07VVH6-F                                      | 10G1.5   | 0325-10G1.5 | 5.2 x 37.0                | 36.2                        |
| H07VVH6-F                                      | 12G1.5   | 0325-12G1.5 | 5.2 x 41.5                | 42.8                        |
| H07VVH6-F                                      | 4G2.5  | 0325- 4G2.5 | 5.9 x 19.0                | 22.4                        |
| H07VVH6-F                                      | 5G2.5  | 0325- 5G2.5 | 5.9 x 22.5                | 26.9                        |
| H07VVH6-F                                      | 8G2.5  | 0325- 8G2.5 | 5.9 x 38.0                | 43.7                        |
| H07VVH6-F                                      | 10G2.5   | 0325-10G2.5 | 5.9 x 45.0                | 53.4                        |
| H07VVH6-F                                      | 12G2.5   | 0325-12G2.5 | 5.9 x 52.0                | 62.8                        |
| H07VVH6-F                                      | 4G4  | 0325- 4G4   | 7.1 x 22.0                | 31.0                        |
| H07VVH6-F                                      | 7G4  | 0325- 7G4   | 7.1 x 38.0                | 53.7                        |
| H07VVH6-F                                      | 4G6  | 0325- 4G6   | 7.8 x 25.0                | 41.5                        |
| H07VVH6-F                                      | 4G10   | 0325- 4G10  | 9.9 x 31.5                | 68.0                        |
| H07VVH6-F                                      | 4G16   | 0325- 4G16  | 11.2 x 36.5               | 99.0                        |
| PVC flat cables with screened individual cores |  |             |                           |                             |
| YCFLY-O  | 4x1  | 0320- 4X1   | 5.0 x 13.9                | 13.1                        |
| YCFLY-O  | 8x1.5  | 0320- 8X1.5 | 6.0 x 32.4                | 37.5                        |
| YCFLY-O  | 12x1.5   | 0320-12X1.5 | 5.9 x 52.0                | 61.0                        |



## Cable Glands and Lock Nuts

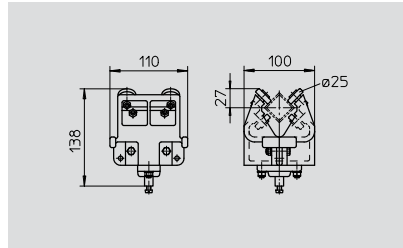
| Size | Flat cable gland Order No. | for cable dimension s x b [mm] |      |      |      | Lock nut Order No. |
|------|----------------------------|--------------------------------|------|------|------|--------------------|
|      |                            | min.                           | max. | min. | max. |                    |
| M25  | 020626-25x16               | 4                              | 5.5  | 13   | 16.0 | 020657-25          |
| M25  | 020626-25x21               | 5                              | 7.5  | 14   | 19.5 | 020657-25          |
| M32  | 020626-32x29               | 5                              | 10.0 | 19   | 25.0 | 020657-32          |
| M40  | 020626-40x29               | 5                              | 10.0 | 19   | 27.0 | 020657-40          |
| M50  | 020626-50x36               | 5                              | 13.0 | 29   | 38.5 | 020657-50          |
| M50  | 020626-50x42               | 5                              | 14.0 | 38   | 41.0 | 020657-50          |
| M63  | 020626-63x48               | 5                              | 18.0 | 44   | 46.0 | 020657-63          |
| M63  | 020627-63x48               | 6                              | 9.0  | 54   | 62.0 | 020657-63          |

Material: case: impact resistant plastic; seal: oil resistant rubber; thrust washer: galvanized steel.

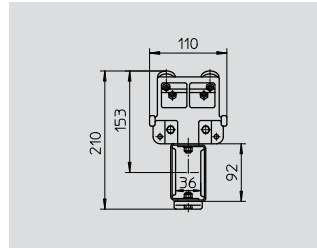
For metal types see accessories program 0200 (KAT0200-0001-E).

# Round Cable Trolleys

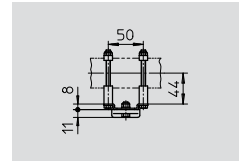
## Plastic Trolley with Ball Joint



Trolley  
Order No. 027291



Towing trolley  
Order No. 027297



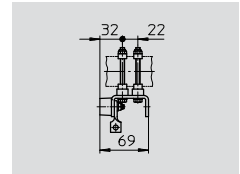
End clamp  
Order No. 027298



| Cable clip<br>Order No. | Cable diameter<br>[mm] |
|-------------------------|------------------------|
| 020131-16               | 10 - 16                |
| 020131-25               | 17 - 25                |
| 020131-36               | 26 - 36                |

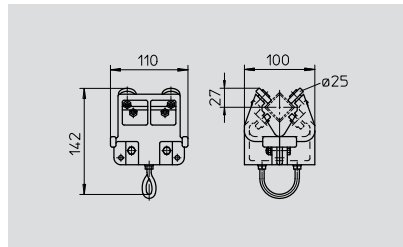
Type of roller: Ball bearing, galvanized; Sealing: 2 Z  
Load capacity: 16 kg

The cable clips can be combined in multiple variations.

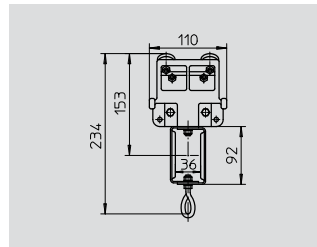


End stop  
Order No. 027112

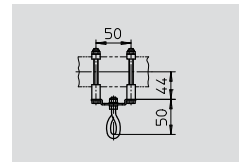
## Plastic Trolley with U Bolt



Trolley  
Order No. 027281



Towing trolley  
Order No. 027287



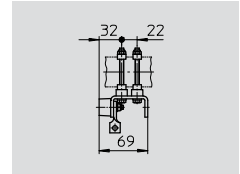
End clamp  
Order No. 027288



| Cable clip<br>Order No. | Cable diameter<br>[mm] |
|-------------------------|------------------------|
| 020133-16               | 10 - 16                |
| 020133-25               | 17 - 25                |
| 020133-36               | 26 - 36                |

Type of roller: Ball bearing, galvanized; Sealing: 2 Z  
Load capacity: 16 kg

The cable clips 020131 fit below the cable clips with bracket 020133.



End stop  
Order No. 027112

## Rubber Round Cable

| Type    | No. of cores and nom. cross section [mm <sup>2</sup> ] | Order No.   | Outer diameter min. - max. [mm] | Approx. weight [kg / 100 m] |
|---------|--|-------------|---------------------------------|-----------------------------|
| H07RN-F | 4G1.5  | 0601- 4G1.5 | 10.5 - 13.5                     | 21                          |
| H07RN-F | 4G2.5  | 0601- 4G2.5 | 12.5 - 15.5                     | 30                          |
| H07RN-F | 4G4  | 0601- 4G4   | 14.5 - 18.0                     | 40                          |
| H07RN-F | 4G6  | 0601- 4G6   | 16.5 - 22.0                     | 54                          |
| H07RN-F | 5G1.5  | 0601- 5G1.5 | 11.5 - 15.0                     | 23                          |
| H07RN-F | 5G2.5  | 0601- 5G2.5 | 13.5 - 17.0                     | 36                          |
| A07RN-F | 7G1.5  | 0602- 7G1.5 | 14.0 - 17.5                     | 37                          |
| A07RN-F | 7G2.5  | 0602- 7G2.5 | 16.5 - 20.0                     | 52                          |
| A07RN-F | 12G1.5   | 0602-12G1.5 | 18.0 - 23.0                     | 57                          |
| A07RN-F | 12G2.5   | 0602-12G2.5 | 18.5 - 26.5                     | 80                          |

## Compressed-air Hoses

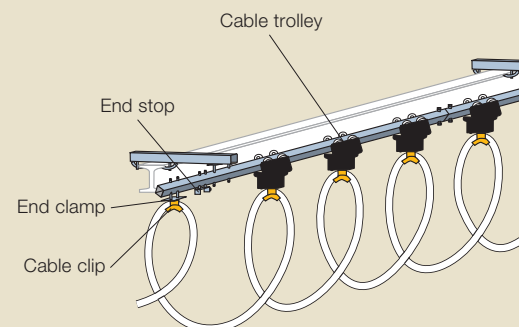
| Order No. | Hose ø        |               | Pressure at 20°C [bar] |
|-----------|---------------|---------------|------------------------|
|           | interior [mm] | exterior [mm] |                        |
| 040421-1  | 6             | 12            | 23                     |
| 040421-2  | 9             | 15            | 19                     |
| 040421-3  | 12            | 21            | 16                     |

Material: clear PVC with textile braid; oil and gasoline resistant.

## Cable Glands and Accessories

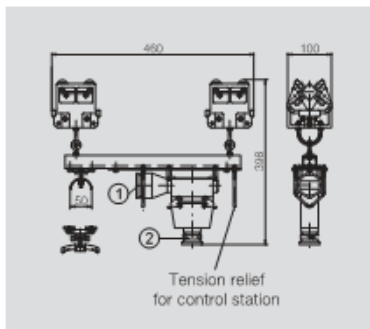
| Size | Round cable gland Order No. | Cable-ø range [mm] | Lock nut Order No. |
|------|-----------------------------|--------------------|--------------------|
| M20  | 020646-20x13                | 10 - 12            | 020657-20          |
| M25  | 020646-25x16                | 12 - 14            | 020657-25          |
| M25  | 020646-25x21                | 15 - 17            | 020657-25          |
| M32  | 020646-32x29                | 24 - 26            | 020657-32          |

Material: case: impact resistant plastic; seal: oil resistant rubber; thrust washer: galvanized steel.  
For metal types see accessories program 0200 (KAT0200-0001-E).



# Supplements to the Program

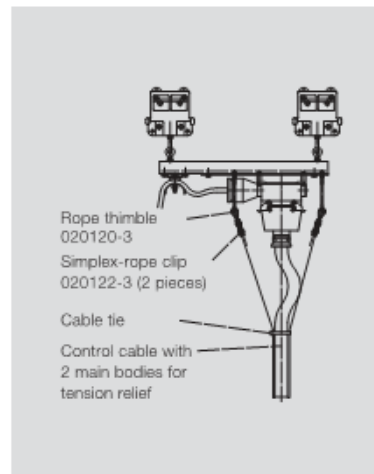
## Ideal Control Unit Trolley with Plug and Socket Connection



| Order No. | Type for    | Number of poles | Glands |     | Perm. Load [kg] |
|-----------|-------------|-----------------|--------|-----|-----------------|
|           |             |                 | ①      | ②   |                 |
| 027178-16 | Flat cable  | 16 + E          | M25    | M25 | 20              |
| 027178-24 |             | 24 + E          |        | M32 |                 |
| 027179-16 | Round cable | 16 + E          | M32    | M25 |                 |
| 027179-24 |             | 24 + E          |        | M32 |                 |

Nominal voltage 400 V; Nominal current 16 A; protection grade IP55; screw connection 2,5 mm<sup>2</sup>

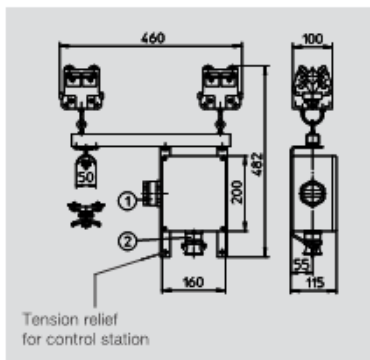
## Accessories



PVC control cable with two strainer wires; type: MTTY-O



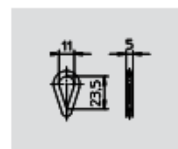
## Ideal Control Unit Trolley with Terminal Box



| Order No. | Type for    | Clamps quantity | Glands |     | Perm. Load [kg] |
|-----------|-------------|-----------------|--------|-----|-----------------|
|           |             |                 | ①      | ②   |                 |
| 027174-16 | Flat cable  | 16 + E          | M50    | M25 | 20              |
| 027174-24 |             | 24 + E          |        | M32 |                 |
| 027175-16 | Round cable | 16 + E          | M32    | M25 |                 |
| 027175-24 |             | 24 + E          |        | M32 |                 |

Nominal voltage 400 V; Nominal current 16 A; protection grade IP54; screw connection 4 mm<sup>2</sup>

| Order No.   | Number and nom. cross section [mm <sup>2</sup> ] | Size |
|-------------|--|------|
| 0609-12X1.5 | 12 x 1.5   | M25  |
| 0609-16X1.5 | 16 x 1.5   |      |
| 0609-20X1.5 | 20 x 1.5   | M32  |
| 0609-24X1.5 | 24 x 1.5   |      |

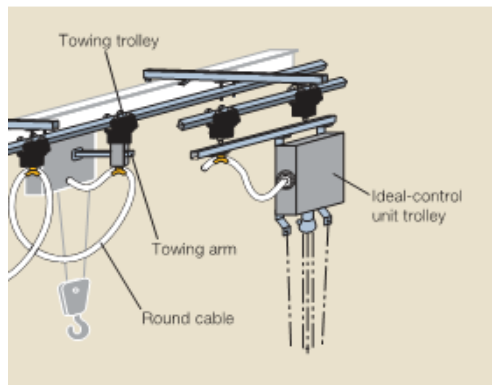


Rope thimble Order No. 020120-3 galvanized steel



Simplex-rope clip Order No. 020122-3 galvanized steel

## Special Rollers for Trolleys



| Special roller Order No.                       | Roller Type  | Sealing | Load cap. [kg]   |
|--|--|---------|------------------|
| ...../010 for plastic or steel cable trolleys  | Ball bearing, galvanized   | 2 RS    | as Standard Type |
| ...../017 for steel cable trolleys, roller ø32 | Ball bearing, galvanized outer runner Polyurethane low noise run | 2 RS    | 16               |

All the cable trolleys on page 4 to 7 can be supplied with special rollers. Add the additional order no. to the order no. of the cable trolleys.

DISTRIBUTED BY:



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