CARBOMECH Sp. z o.o.

Specification

No. specifications: I/01a

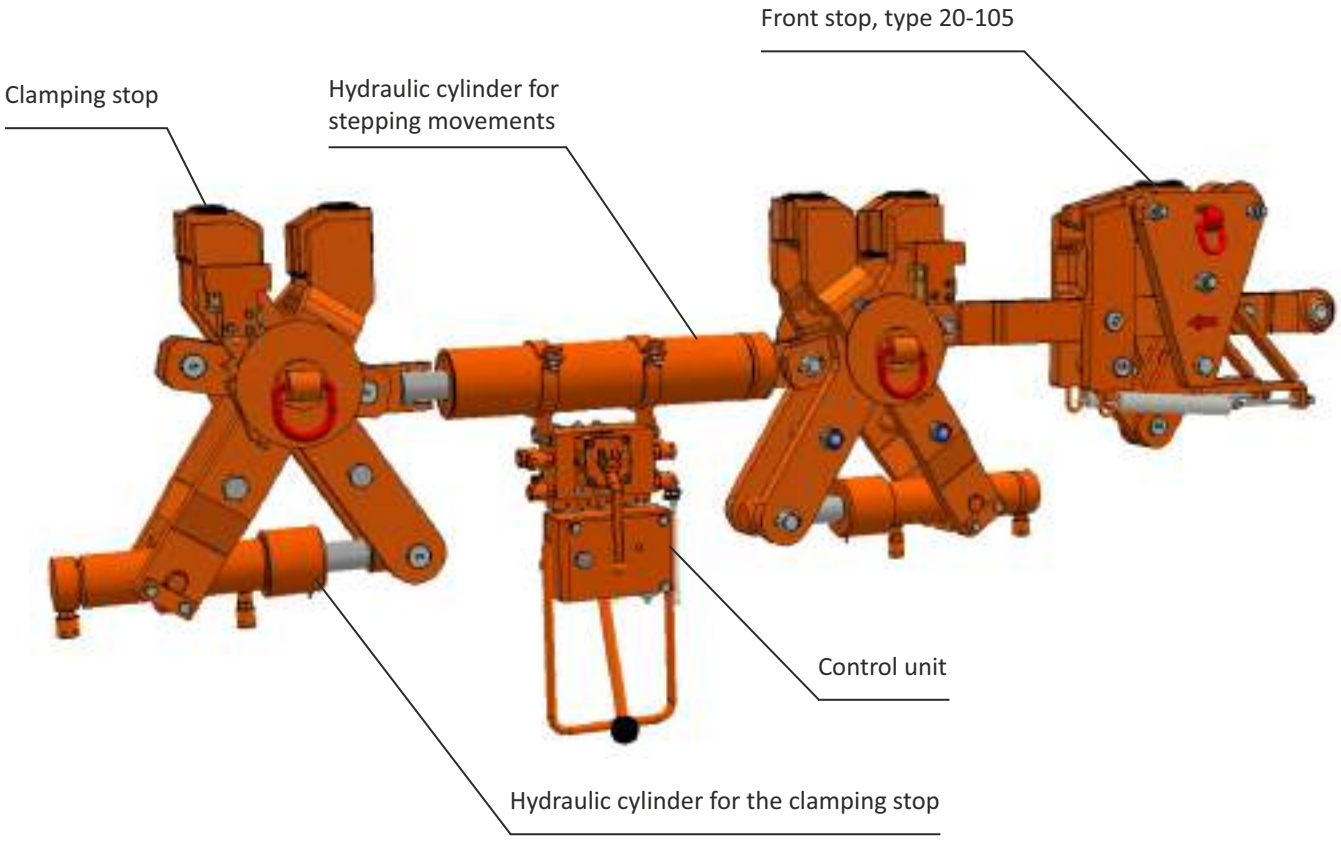
Name: The self-braking advancing device

Type: 20-101-105

Technical parameters

Weight	495 kg
Maximum pulling force	60 kN
Travelling speed	0,7 m/min
Minimum supply pressure	21,0 MPa
Maximum supply pressure	25,0 MPa
Working fluid (agent)	Hydraulic oil, HFA emulssion
Rail profile	I 155, I 140E, I 140V
Maximum slope angle of the monorail	27°

Figure



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CARBOMECH Sp. z o.o.

Specification

№. спецификации: I/01b

Name: The self-braking advancing device

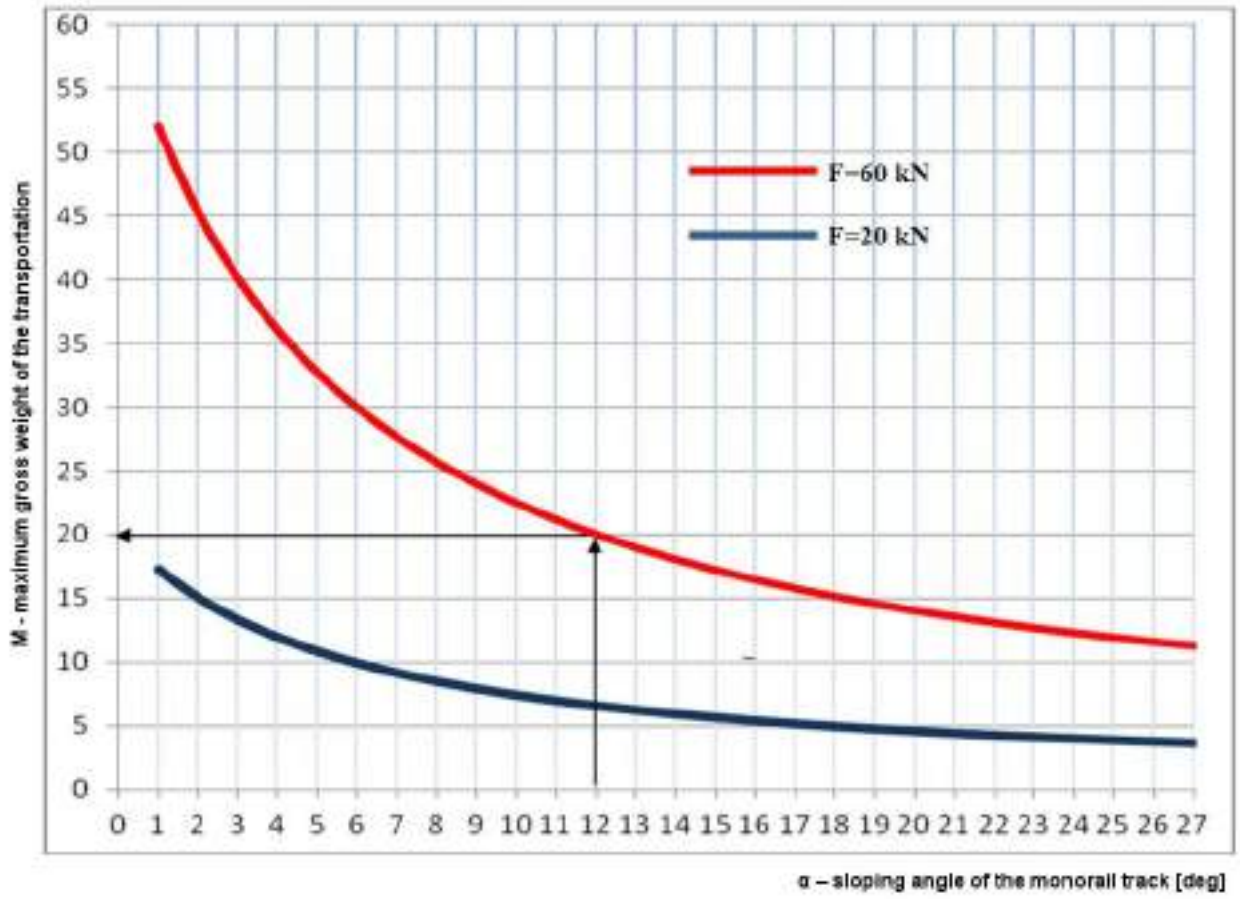
Type: 20-101-105

Calculation of the maximum gross weight allowed for the transportation train with load

The maximum weight of the transportation train pulled/pushed by means of the self-braking unit of the type 20-101 can be calculated from the formula below:

$$M = \frac{F}{(\sin\alpha + \mu\cos\alpha)\cdot g}$$

where:
F – maximum pulling/pushing force F =60kN/20kN,
α – maximum local sloping angle of a running track,
μ – friction coefficient between the unit and the monorail surface, μ = 0.1,
g – gravitational acceleration, g = 9.81 m/s2.
The foregoing formula and the method to define the maximum weight M versus the sloping angle of the monorail track is explained on the graph below.



Purpose

The driving unit of the type 20-101-105 is a traction device designed to push or pull transportation trains on overhead monorails with the cross-section profiles of I-155, I140E or 140V. Typical applications include traction of energy trains with electric equipment, dust extraction appliances, cooling systems, etc. that are moved in pace with the coal face advance. The unit can be operated on running monorails made up of rails with the maximum longitudinal load to rail joints of 60 kN.

The driving unit are installed in underground mines, in methane and non-methane areas.

Aadditional information

- Declaration, concerning the meeting of the technical requirements, by the product.
- EC /EU Declaration of Conformity

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CARBOMECH Sp. z o.o.

Specification

No. specifications: I/02

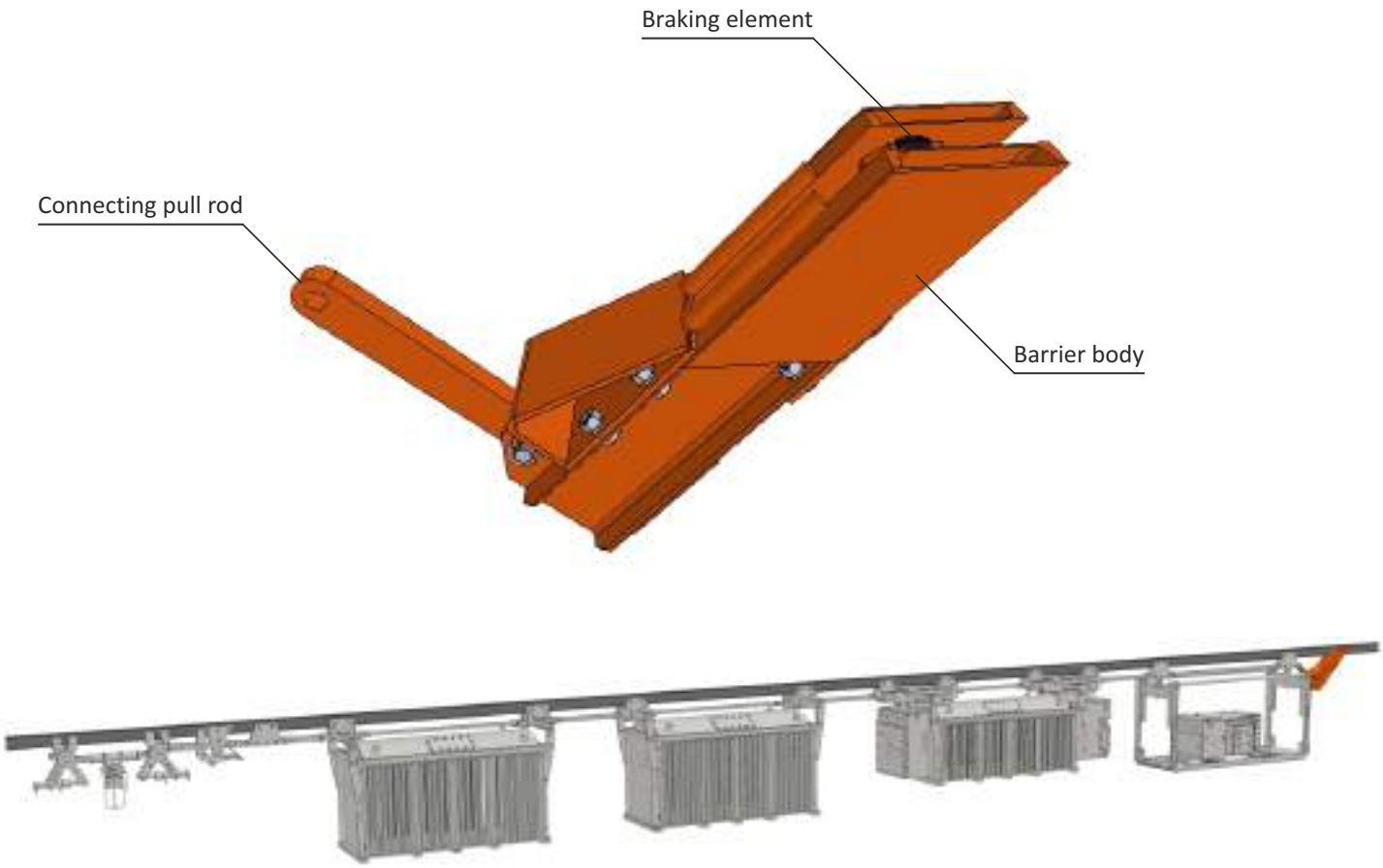
Name: The rear barrier

Type: 1-107

Technical parameters

Length of barrier	1300 mm
Width of body	240 mm
Weight of rear barrier	84 kg
Pulling force	60 kN
Speed of travel	70 m/h
Rail profile	I 155, I 140E, I 140V
Maximum inclination of the route	27°

Figure



Purpose

The rear barrier type 1-107 is used stop the braking device of the transport unit. It is intended to be installed at the end of the transport unit that travels along the tracks of a suspended monorail transport system, installed in underground mines, in methane and non-methane areas, in excavations of the A, B and C class of methane explosion hazard, as well as the A and B class of coal dust explosion hazard.

The design of the rear barrier enables the stopping of the transport unit on the track. It is intended to secure the transport unit, against its automatic rolling down the track (installed on an elevation).

The rear barrier 1-107 is intended for the installation in the transport unit of a train with electric system, driven by a self-locking sliding device of 20-101 type. The barrier can also be joined directly or coupled with a transport unit or other types of drive, approved for application in underground mines.

Aadditional information

Declaration, concerning the meeting of the technical requirements, by the product.

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CARBOMECH Sp. z o.o.

Specification

No. specifications: I/03

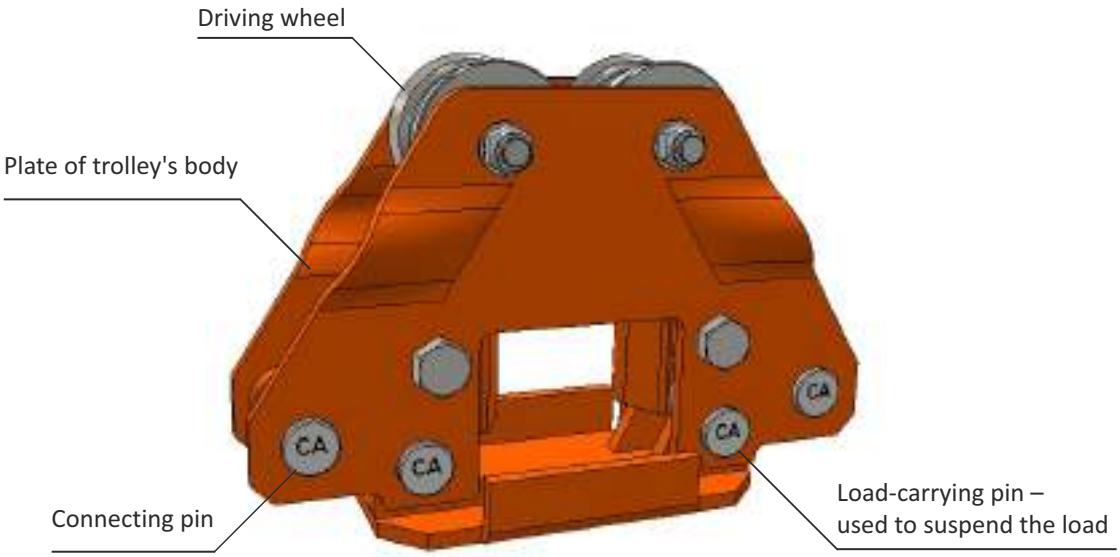
Name: The trolley

Type: 20-360.4

Technical parameters

Load capacity	4000 kg
Weight	40 kg
Pulling or pushing force	60 kN
Speed of travelling	2 m/s
Rail profile	I 155, I 140E, I 140V
Maximum inclination of the route	27°

Figure



Purpose

Trolleys of 20-360.4 are used to transport loads, along the tracks of a suspended monorail transport system, installed in underground mines, in methane and non-methane areas, in excavations of the A, B and C class of methane explosion hazard, as well as the A and B class of coal dust explosion hazard.

Trolleys are intended for the installation in the transport unit of a train with electric system, driven by a self-locking sliding device of 20-101 type. Trolleys can also be joined directly or coupled with a transport unit and a diesel locomotive, switching car and other types of drive, approved for application in underground mines.

Aadditional information

Declaration, concerning the meeting of the technical requirements, by the product.

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CARBOMECH Sp. z o.o.

Specification

No. specifications: I/04

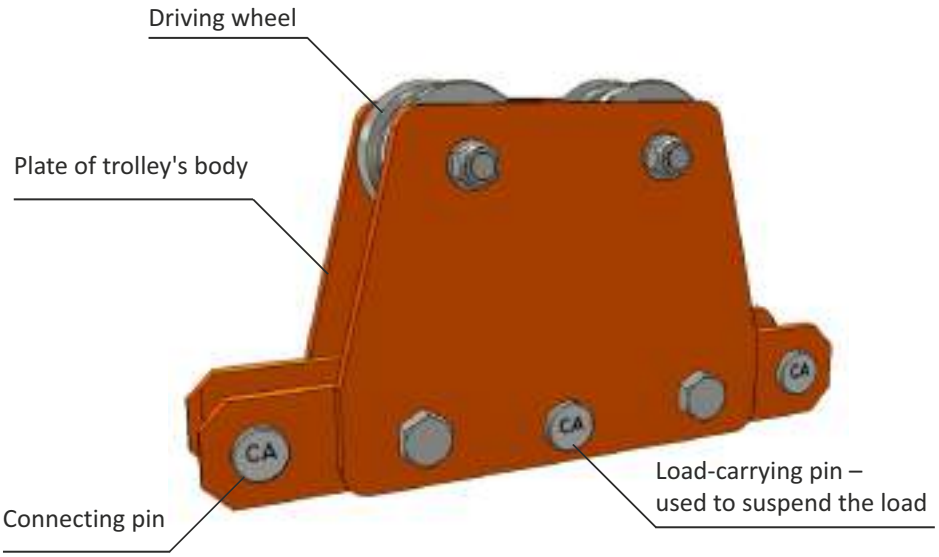
Name: The trolley

Type: 20-363

Technical parameters

Load capacity	4000 kg
Weight	43 kg
Pulling or pushing force	60 kN
Speed of travelling	2 m/s
Rail profile	I 155, I 140E, I 140V
Maximum inclination of the route	27°

Figure



Purpose

Trolleys of 20-363 are used to transport loads, along the tracks of a suspended monorail transport system, installed in underground mines, in methane and non-methane areas, in excavations of the A, B and C class of methane explosion hazard, as well as the A and B class of coal dust explosion hazard.

Trolleys are intended for the in the transport unit of a train with electric system, driven by a self-locking sliding device of 20-101 type. Trolleys can also be joined directly or coupled with a transport unit and a diesel locomotive, switching car and other types of drive, approved for application in underground mines.

Aadditional information

Declaration, concerning the meeting of the technical requirements, by the product.

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CARBOMECH Sp. z o.o.

Specification

No. specifications: I/05a

Name: The trolley with extension arms

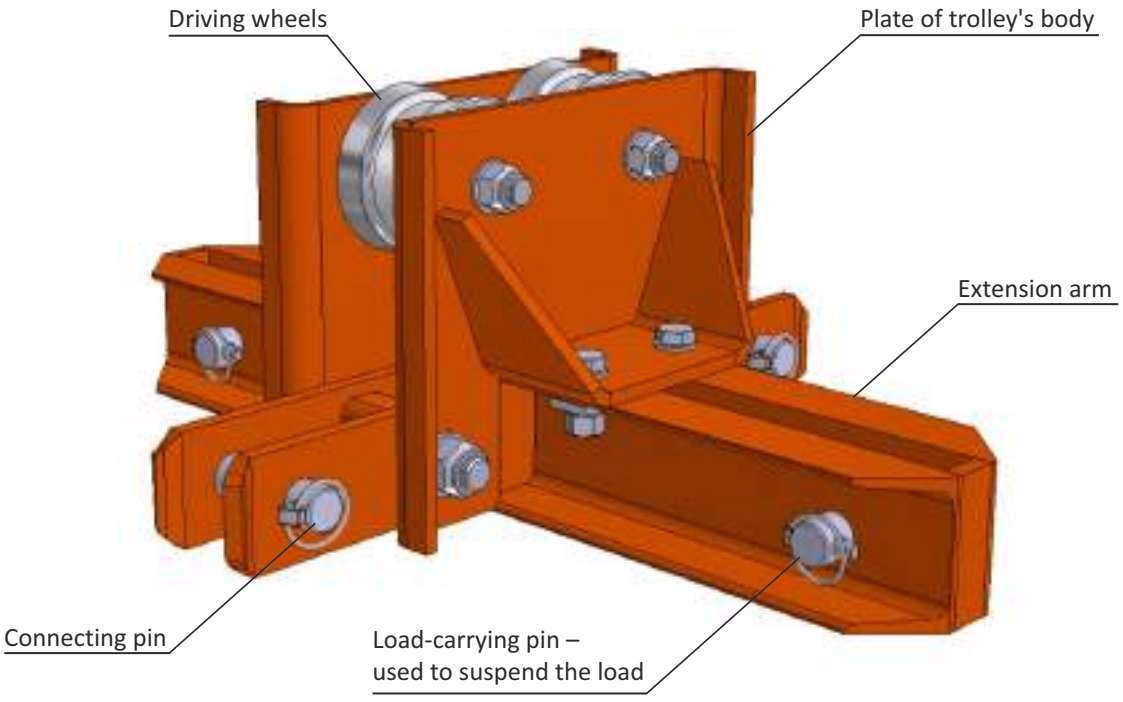
Type: 20-364

Technical parameters

Load capacity	4000 kg
Weight	50-72 kg
Length of extension arm	600-1100 mm
Height	280 mm
Pulling or pushing force	60 kN
Speed of travelling	2 m/s
Rail profile	I 155, I 140E, I 140V
Maximum inclination of the route	27°

Figure

The trolley with extension arms type 20-364



Trolleys with extension arms type 20-364, double compound

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CARBOMECH Sp. z o.o.

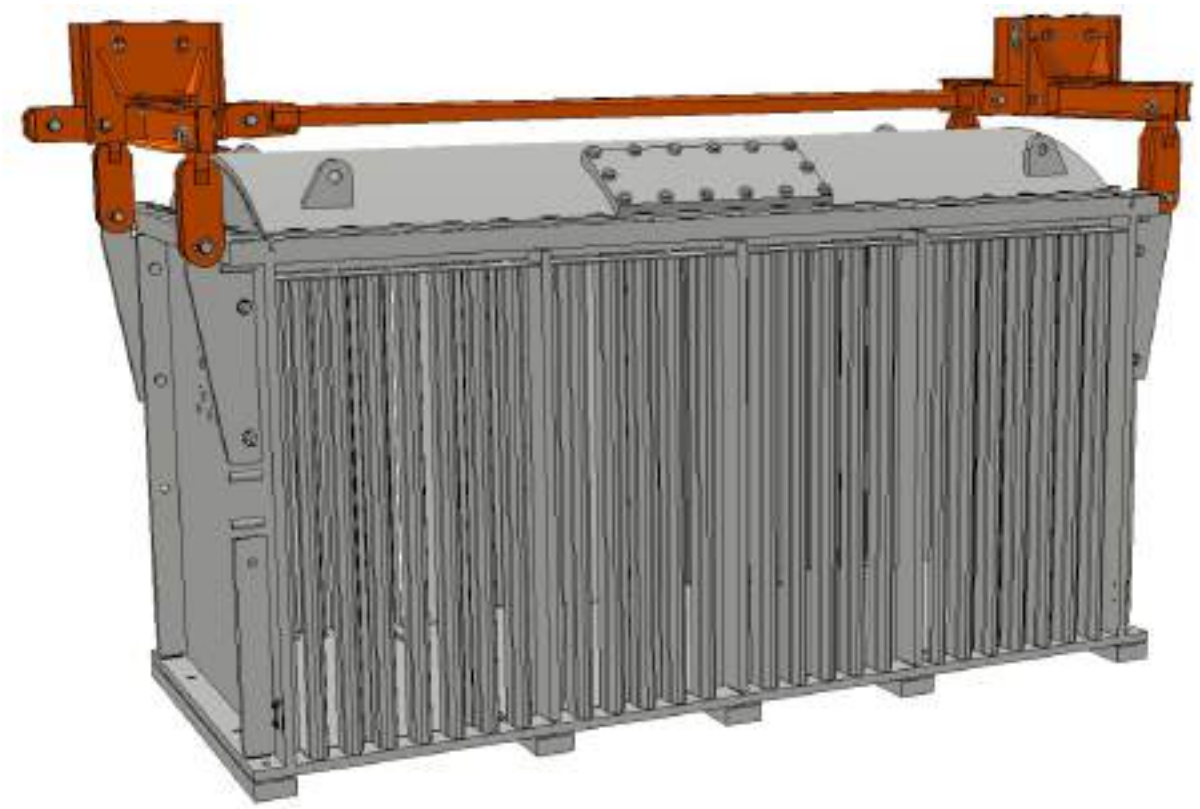
Specification

No. specifications: I/05b

Name: The trolley with extension arms

Type: 20-364

Trolleys unit with extension arms, type 20-364 suspended the transformer station



Purpose

Trolleys with extension arms type 20-364 are used to transport loads, along the tracks of a suspended monorail transport system, installed in underground mines, in methane and non-methane areas, in excavations of the A, B and C class of methane explosion hazard, as well as the A and B class of coal dust explosion hazard.

Trolleys are intended for the installation in the transport unit of a train with electric system, driven by a self-locking sliding device of 20-101 type. Trolleys can also be joined directly or coupled with a transport unit and a diesel locomotive, switching trolley and other types of drive, approved for application in underground mines.

Aadditional information

Declaration, concerning the meeting of the technical requirements, by the product.

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CARBOMECH Sp. z o.o.

Specification

No. specifications: I/06a

Name: The trolley with an extension arm

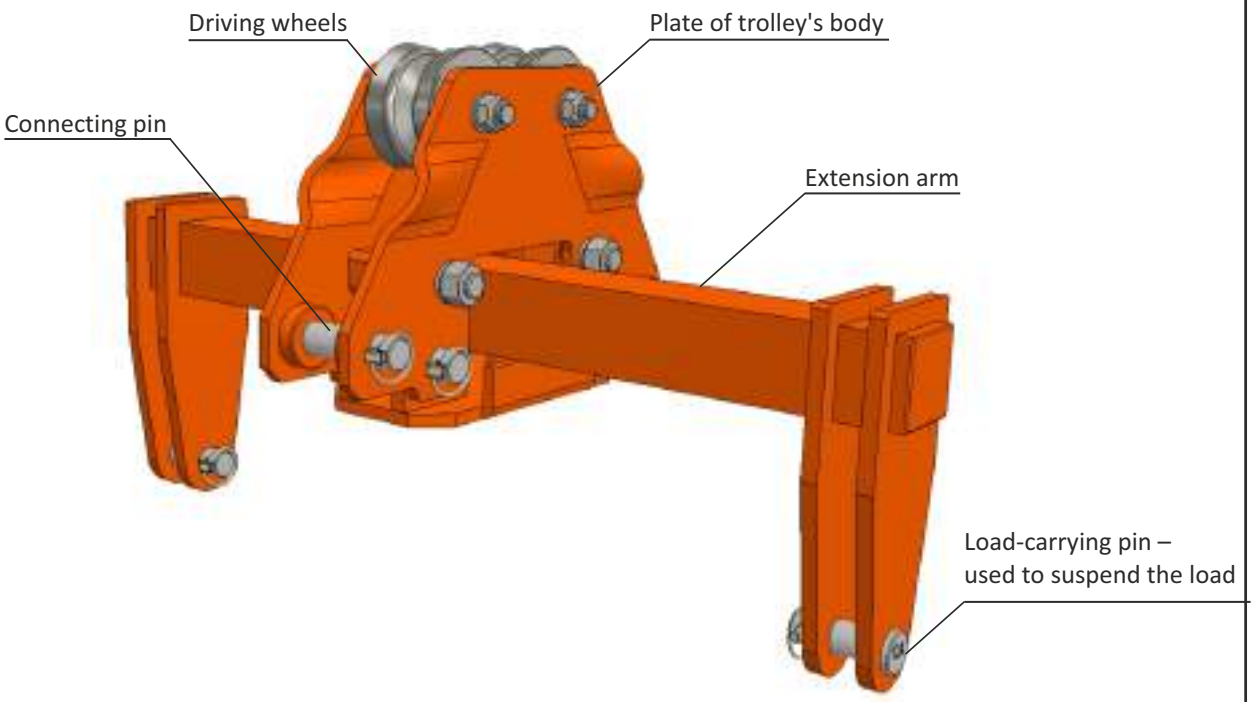
Type: 20-160

Technical parameters

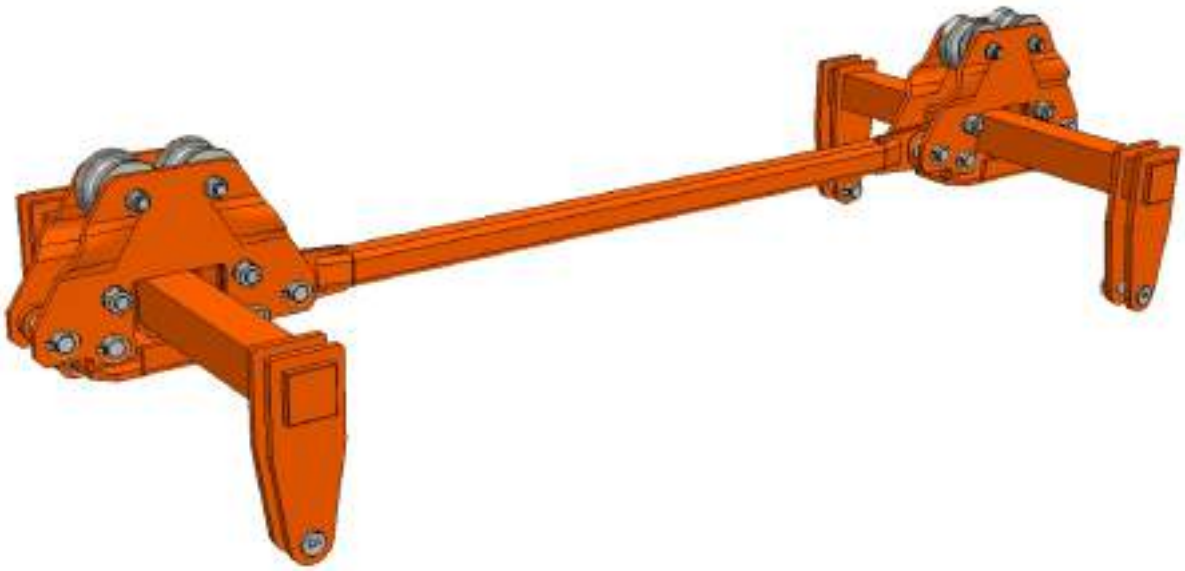
Load capacity	4000 kg
Weight of trolley	106-125 kg
Length of extension arm	800-1250 mm
Height	490 mm
Pulling or pushing force	60 kN
Speed of travelling	2 m/s
Rail profile	I 155, I 140E, I 140V
Maximum inclination of the route	27°

Figure

The trolley with extension arms type 20-160



Trolleys with extension arms type 20-160, double compound



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CARBOMECH Sp. z o.o.

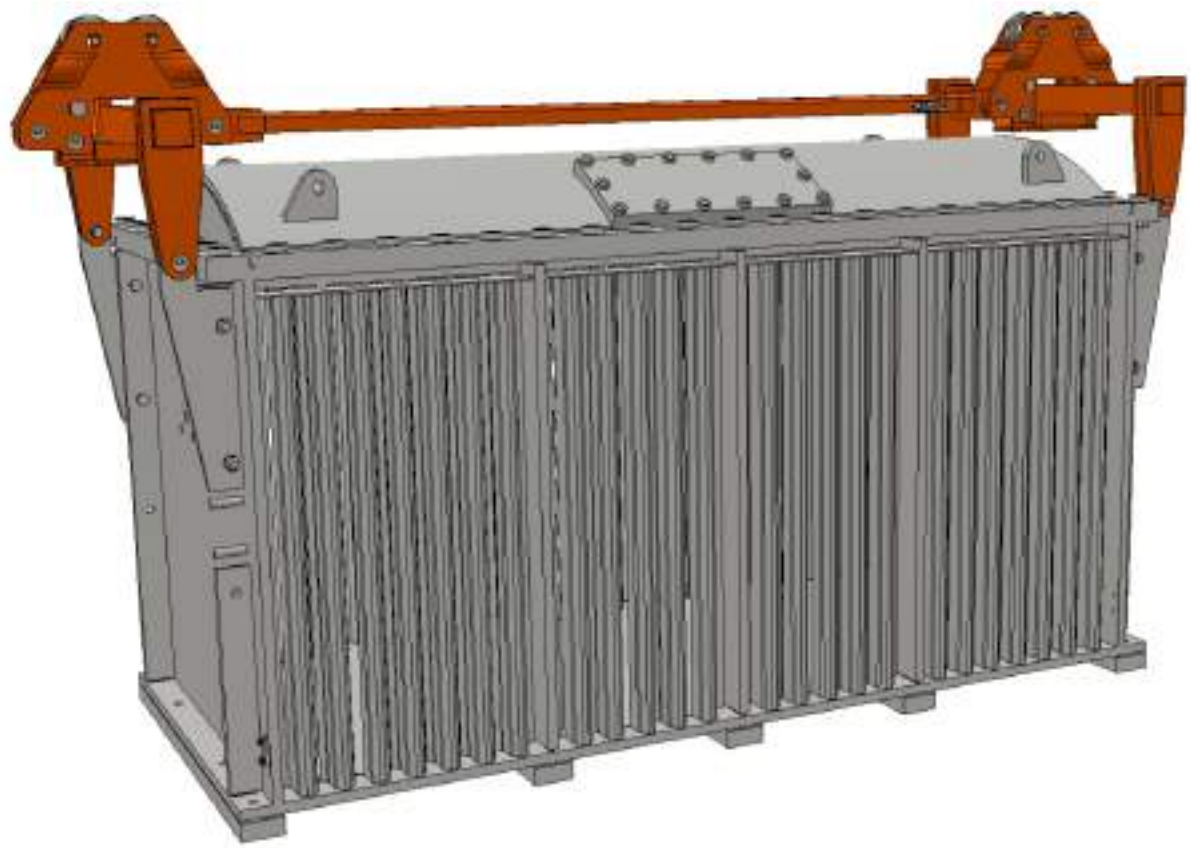
Specification

No. specifications: I/06b

Name: The trolley with an extension arm

Type: 20-160

Trolleys with extension arms type 20-160 suspended the transformer station



Purpose

Trolleys with extension arms type 20-160 are used to transport loads, along the tracks of a suspended monorail transport system, installed in underground mines, in methane and non-methane areas, in excavations of the A, B and C class of methane explosion hazard, as well as the A and B class of coal dust explosion hazard.

Trolleys are intended for the installation in the transport unit of a train with electric system, driven by a self-locking sliding device of 20-101 type. Trolleys can also be joined directly or coupled with a transport unit and a diesel locomotive, switching trolley and other types of drive, approved for application in underground mines.

Aadditional information

Declaration, concerning the meeting of the technical requirements, by the product.

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CARBOMECH Sp. z o.o.

Specification

No. specifications: I/07a

Name: Connecting rods

Type: 20

Technical parameters

Rod type	Length L [mm]	Weight m [kg]	Pulling and pushing force [kN]
20-371	330 – 4000	5 – 40	60
20-374	300 – 1500	2,5 – 7,5	
20-374.1	300 – 1500	2,5 – 7,5	
20-375	300 – 1500	1,5 – 6,5	
20-383	330 – 4000	5,5 – 50	
20-391	300 – 1200	7,5 – 12,7	

Figure

Figure 1 – 20-371

Figure 2 – 20-374

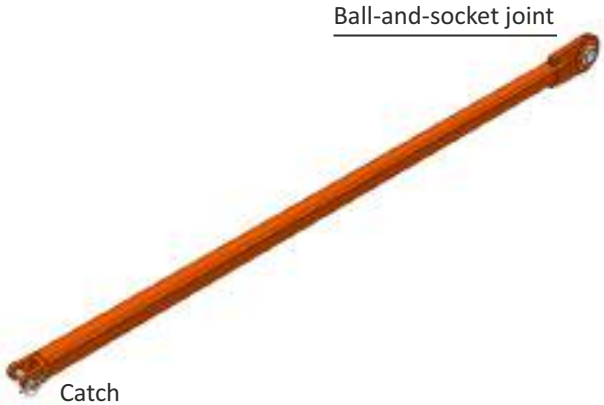

Figure 3 – 20-374.1

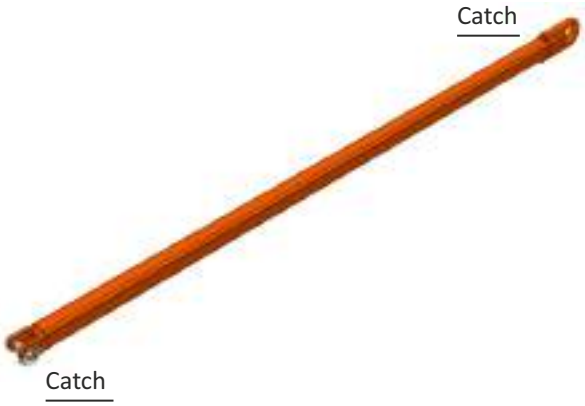

Figure 4 – 20-375

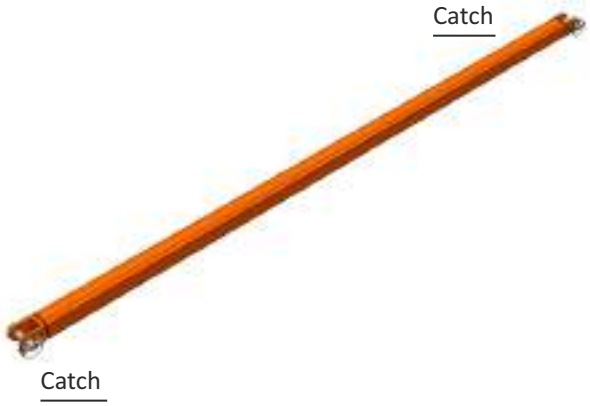

Figure 5 – 20-383

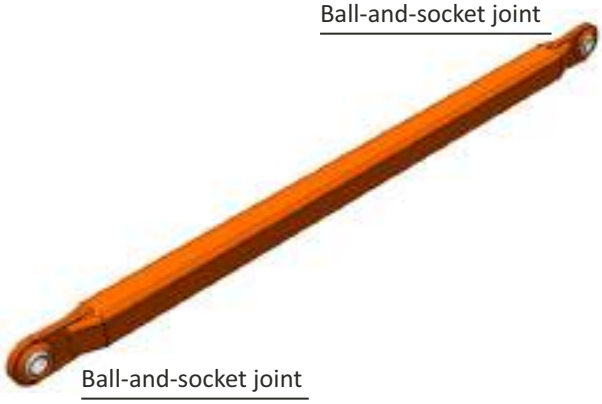

Figure 6 – 20-391

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CARBOMECH Sp. z o.o.

Specification

No. specifications: I/07b

Name: Connecting rods

Type: 20

Purpose

Connecting rods of the following types: 20-371, 20-374, 20-374.1, 20-375, 20-383 and 20-391 are used to connect means of transport, into a transport unit, which travels on the tracks of suspended monorail transport systems, installed in underground mines, in methane and non-methane areas, in excavations of the A, B and C class of methane explosion hazard, as well as the A and B class of coal dust explosion hazard. Connecting rods are intended for the installation in the transport unit of a train with electric system, driven by a self-locking sliding device of 20-101 type. Rods can also be use to couple a transport unit with a diesel locomotive, switching car and other types of drive, approved for application in underground mines.

Aadditional information

Declaration, concerning the meeting of the technical requirements, by the product.

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CARBOMECH Sp. z o.o.

Specification

No. specifications: I/08a

Name: Double - trolleys set

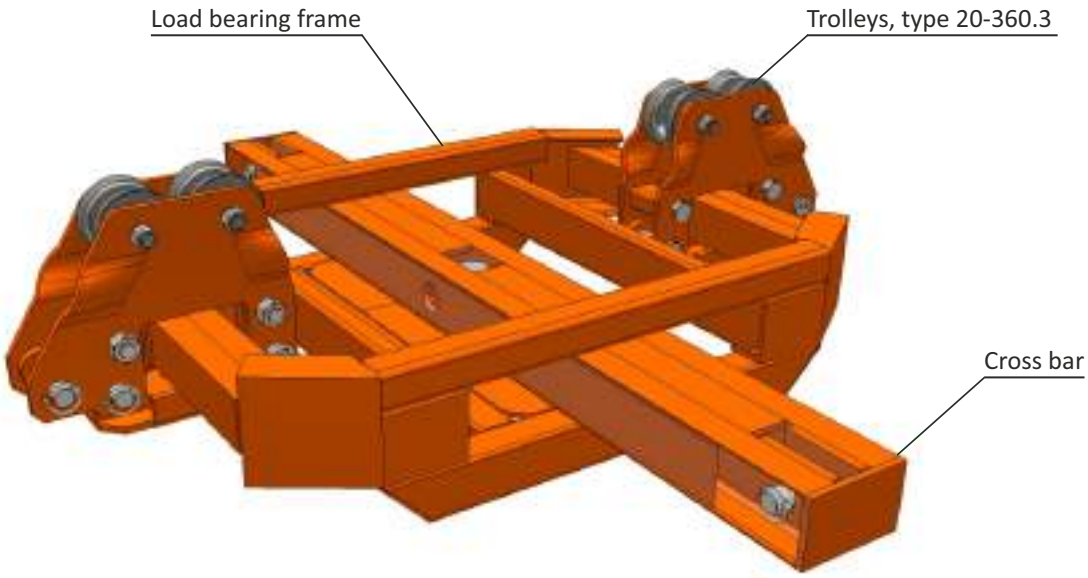
Type: 20-60.4

Technical parameters

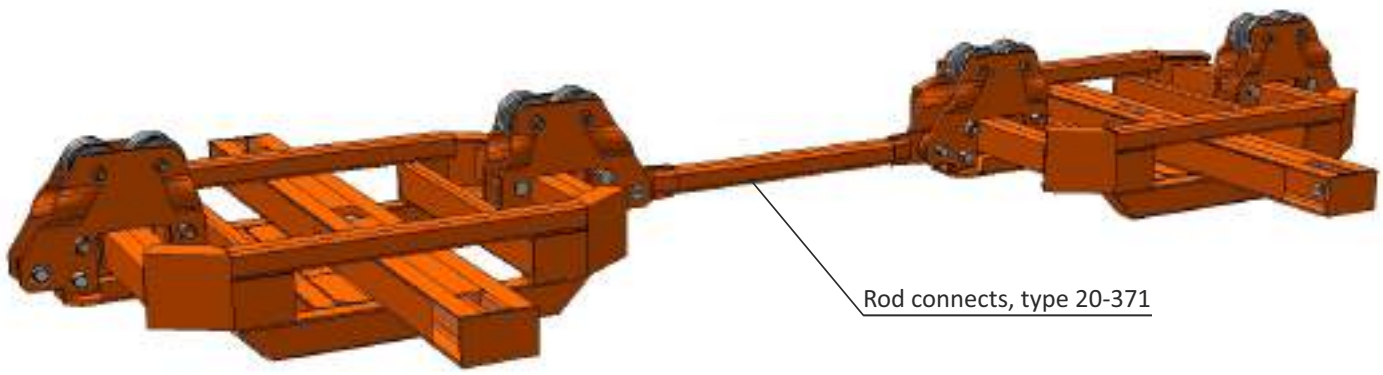
Load capacity	5990 kg
Weight of frame	255-328 kg
Length of frame	1100-1500 mm
Width of frame	600 and 800 mm
Length of cross bar	975-1650 mm
Pulling or pushing force	60 kN
Speed of travelling	2 m/s
Rail profile	I 155, I 140E, I 140V
Maximum inclination of the route	27°

Figure

Double - trolleys set type 20-60.4



Double - trolleys set, type 20-60.4 combined in a transport unit



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CARBOMECH Sp. z o.o.

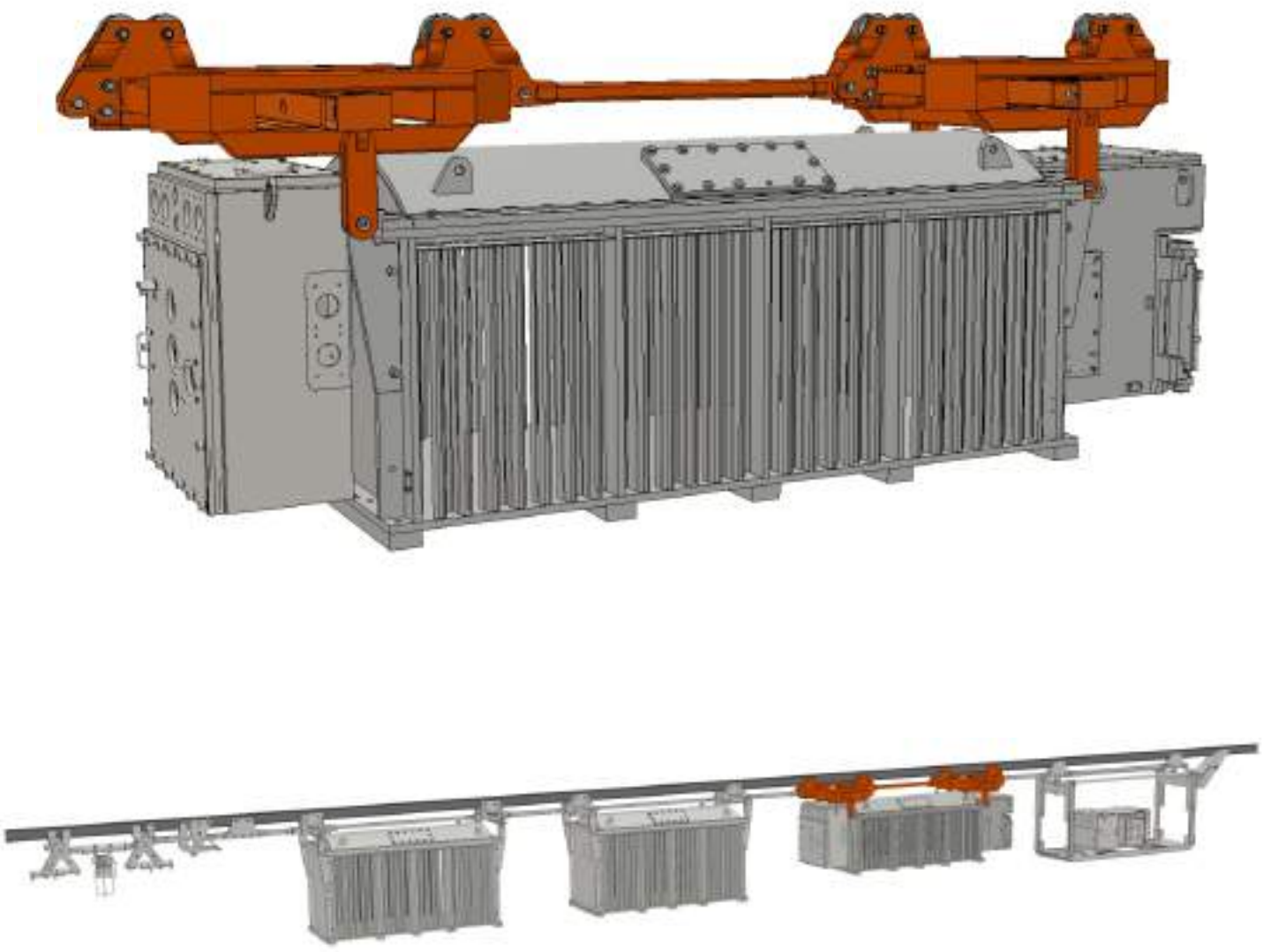
Specification

No. specifications: I/08b

Name: Double - trolleys set

Type: 20-60.4

Suspension of to transformer station using double - trolleys set, type 20-60.4 combined in a transport unit



Purpose

Double-trolleys set type 20-60.4 is used to transport various types of electrical equipment, as well as other machines and equipment, along the tracks of a suspended monorail transport system, installed in underground mines, in methane and non-methane areas, in excavations of the A, B and C class of methane explosion hazard, as well as the A and B class of coal dust explosion hazard.

Double-trolleys set type 20-60.4 is intended for the installation in the transport unit of a train with electric system, driven by a self-locking sliding device of 20-101 type. Double-trolleys set can also be joined directly or coupled with a transport unit and a diesel locomotive, switching car and other types of drive, approved for application in underground mines.

Aadditional information

Declaration, concerning the meeting of the technical requirements, by the product.

CARBOMECH Sp. z o.o.

Specification

No. specifications: I/09a

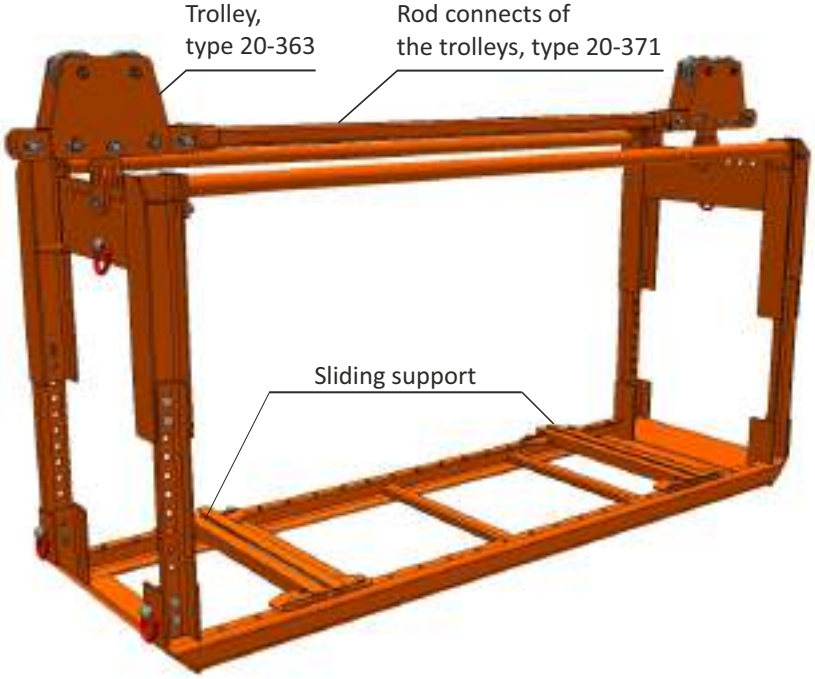
Name: The pallet

Type: 20-316

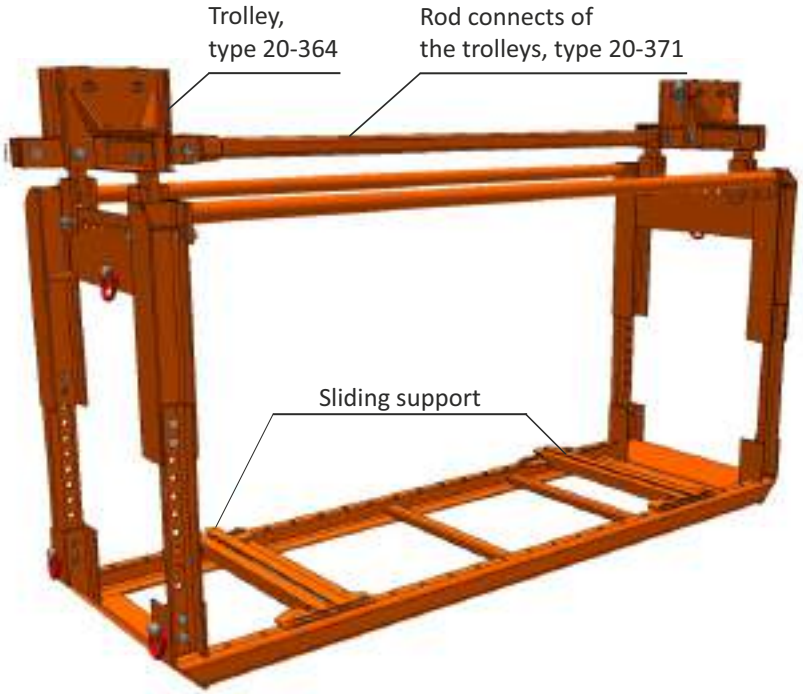
Technical parameters

Load capacity	3200 kg
Length of pallet	2500-3600 mm
Width of pallet	800 – 1400 mm
Height of pallet	1000-2500 mm
Weight of pallet	455-670 kg
Pulling or pushing force	60 kN
Speed of travelling	2 m/s
Rail profile	I 155, I 140E, I 140V
Maximum inclination of the route	27°

Figure



The pallet type 20-316, suspended onto trolleys, type 20-363



The pallet type 20-316, suspended onto trolleys, type 20-364

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CARBOMECH Sp. z o.o.

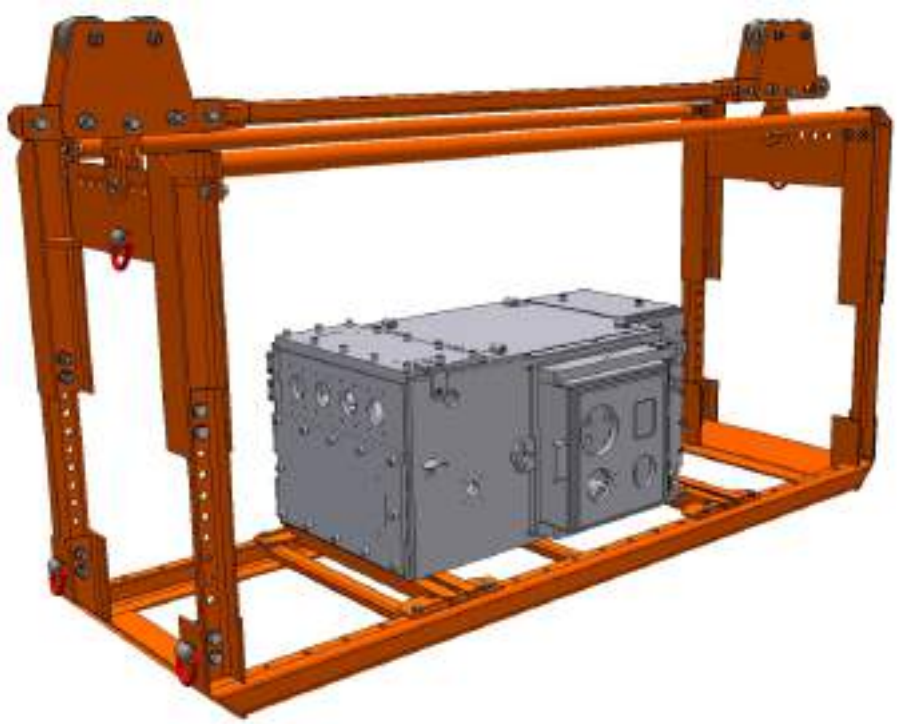
Specification

No. specifications: I/09b

Name: The pallet

Type: 20-316

The pallet type 20-316 with a compact station



Purpose

The pallet type 20-316 is used to transport various types of electrical equipment, as well as other machines and equipment, along the tracks of a suspended monorail transport system, installed in underground mines, in methane and non-methane areas, in excavations of the A, B and C class of methane explosion hazard, as well as the A and B class of coal dust explosion hazard.

The pallet is intended for the installation in the transport unit of a train with electric system, driven by a self-locking sliding device of 20-101 type. The pallet can also be joined directly or coupled with a transport unit and a diesel locomotive, switching car and other types of drive, approved for application in underground mines.

Aadditional information

Declaration, concerning the meeting of the technical requirements, by the product.

CARBOMECH Sp. z o.o.

Specification

No. specifications: I/10a

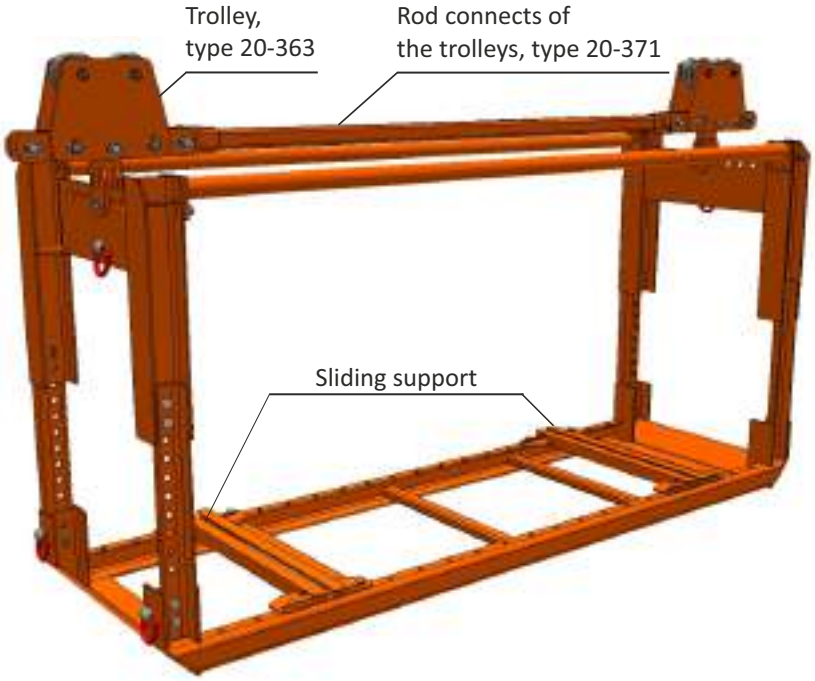
Name: The pallet

Type: 20-318

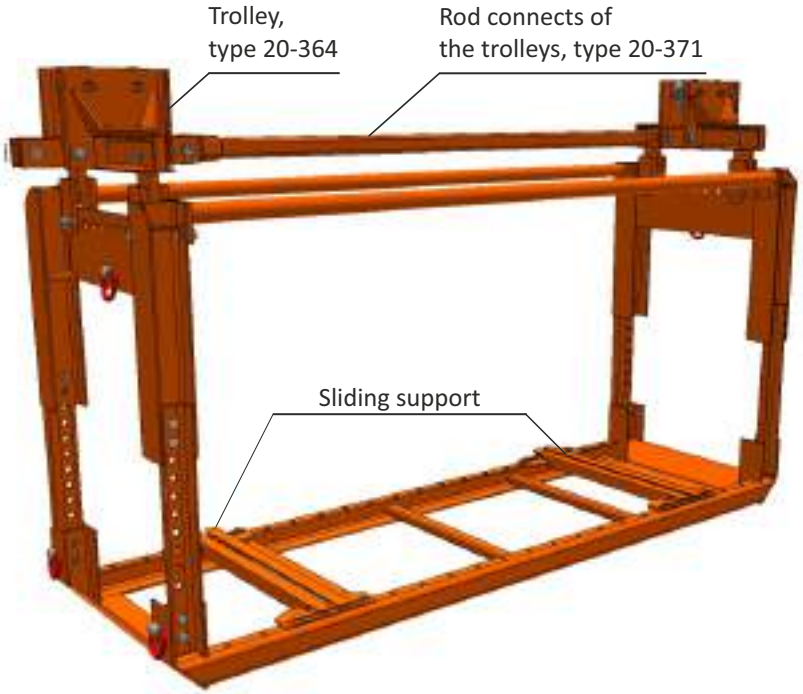
Technical parameters

Load capacity	5000 kg
Length of pallet	2500-3600 mm
Width of pallet	800 – 1400 mm
Height of pallet	1000-2500 mm
Weight of pallet	455-680 kg
Pulling or pushing force	60 kN
Speed of travelling	2 m/s
Rail profile	I 155, I 140E, I 140V
Maximum inclination of the route	27°

Figure



The pallet type 20-318, suspended onto trolleys, type 20-363



The pallet type 20-318, suspended onto trolleys, type 20-364

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CARBOMECH Sp. z o.o.

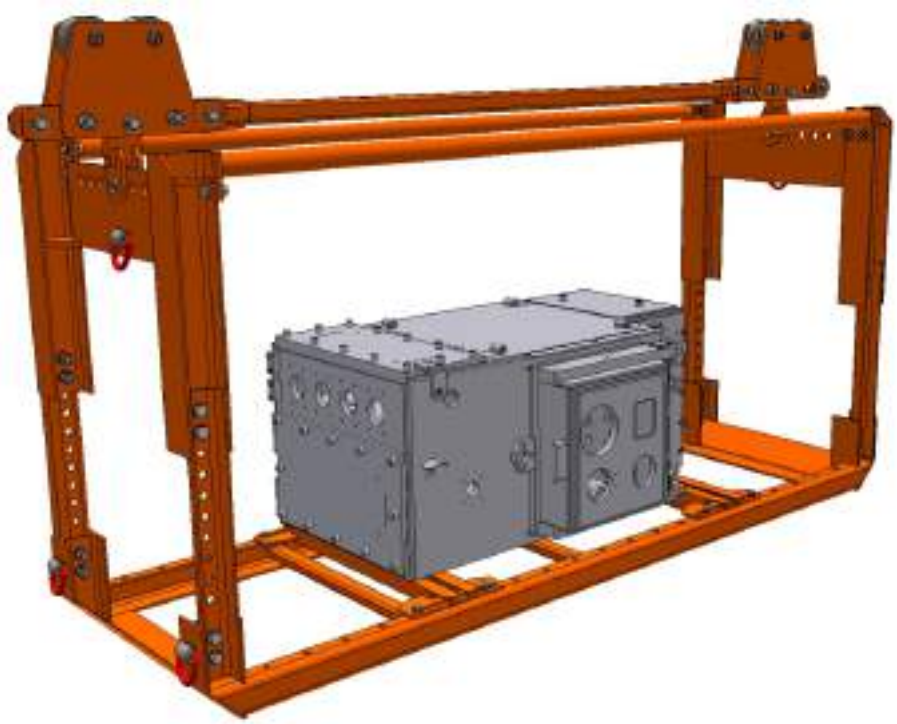
Specification

No. specifications: I/10b

Name: The pallet

Type: 20-318

The pallet type 20-318 with a compact station



Purpose

The pallet type 20-318 is used to transport various types of electrical equipment, as well as other machines and equipment, along the tracks of a suspended monorail transport system, installed in underground mines, in methane and non-methane areas, in excavations of the A, B and C class of methane explosion hazard, as well as the A and B class of coal dust explosion hazard.

The pallet is intended for the installation in the transport unit of a train with electric system, driven by a self-locking sliding device of 20-101 type. The pallet can also be joined directly or coupled with a transport unit and a diesel locomotive, switching car and other types of drive, approved for application in underground mines.

Aadditional information

Declaration, concerning the meeting of the technical requirements, by the product.

CARBOMECH Sp. z o.o.

Specification

No. specifications: II/01a

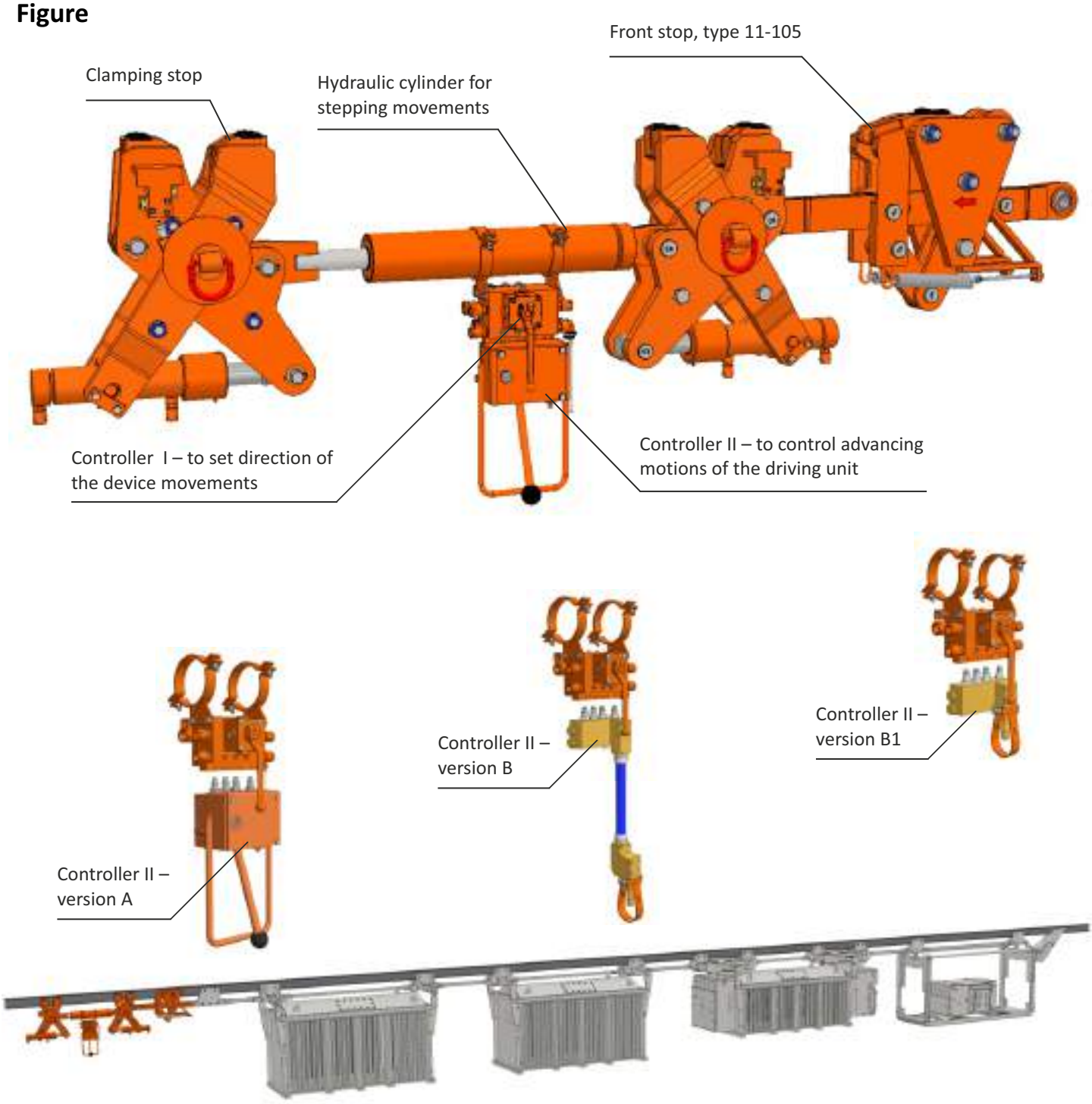
Name: The self-braking advancing device

Type: 11-101-105

Technical parameters

Weight	695 kg
Maximum pulling force	110 kN
Travelling speed	0,59 m/min
Minimum supply pressure	21,0 MPa
Maximum supply pressure	25,0 MPa
Working fluid (agent)	Hydraulic oil, HFA emulssion
Rail profile	I 155, I 140E, I 140V
Maximum slope angle of the monorail	27°

Figure



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CARBOMECH Sp. z o.o.

Specification

No. specifications: II/01b

Name: The self-braking advancing device

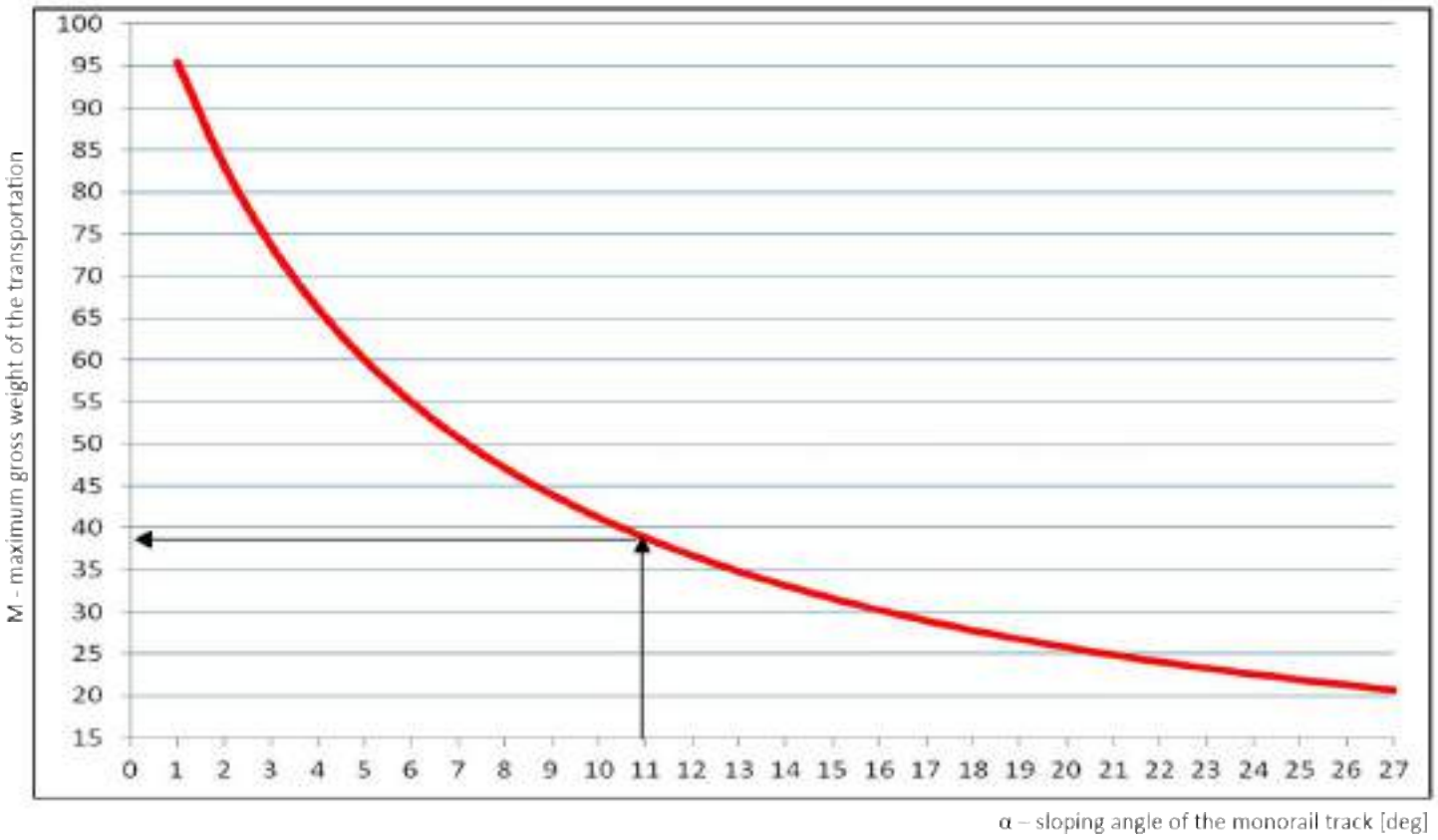
Type: 11-101-105

Calculation of the maximum gross weight allowed for the transportation train with load

The maximum weight of the transportation train pulled/pushed by means of the self-braking unit of the type 11-101 can be calculated from the formula below:

$$M = \frac{F}{(\sin\alpha + \mu\cos\alpha)\cdot g}$$

where:
F – maximum pulling/pushing force F =60kN/20kN,
α – maximum local sloping angle of a running track,
μ – friction coefficient between the unit and the monorail surface, μ = 0.1,
g – gravitational acceleration, g = 9.81 m/s2.
The foregoing formula and the method to define the maximum weight M versus the sloping angle of the monorail track is explained on the graph below.



Purpose

The driving unit of the type 11-101-105 is a traction device designed to push or pull transportation trains on overhead monorails with the cross-section profiles of I-155, I140E or 140V. Typical applications include traction of energy trains with electric equipment, dust extraction appliances, cooling systems, etc. that are moved in pace with the coal face advance. The unit can be operated on running monorails made up of rails with the maximum longitudinal load to rail joints of 110 kN.

The driving unit are installed in underground mines, in methane and non-methane areas.

Aadditional information

- Declaration, concerning the meeting of the technical requirements, by the product.
- EC /EU Declaration of Conformity

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CARBOMECH Sp. z o.o.

Specification

No. specifications: II/02

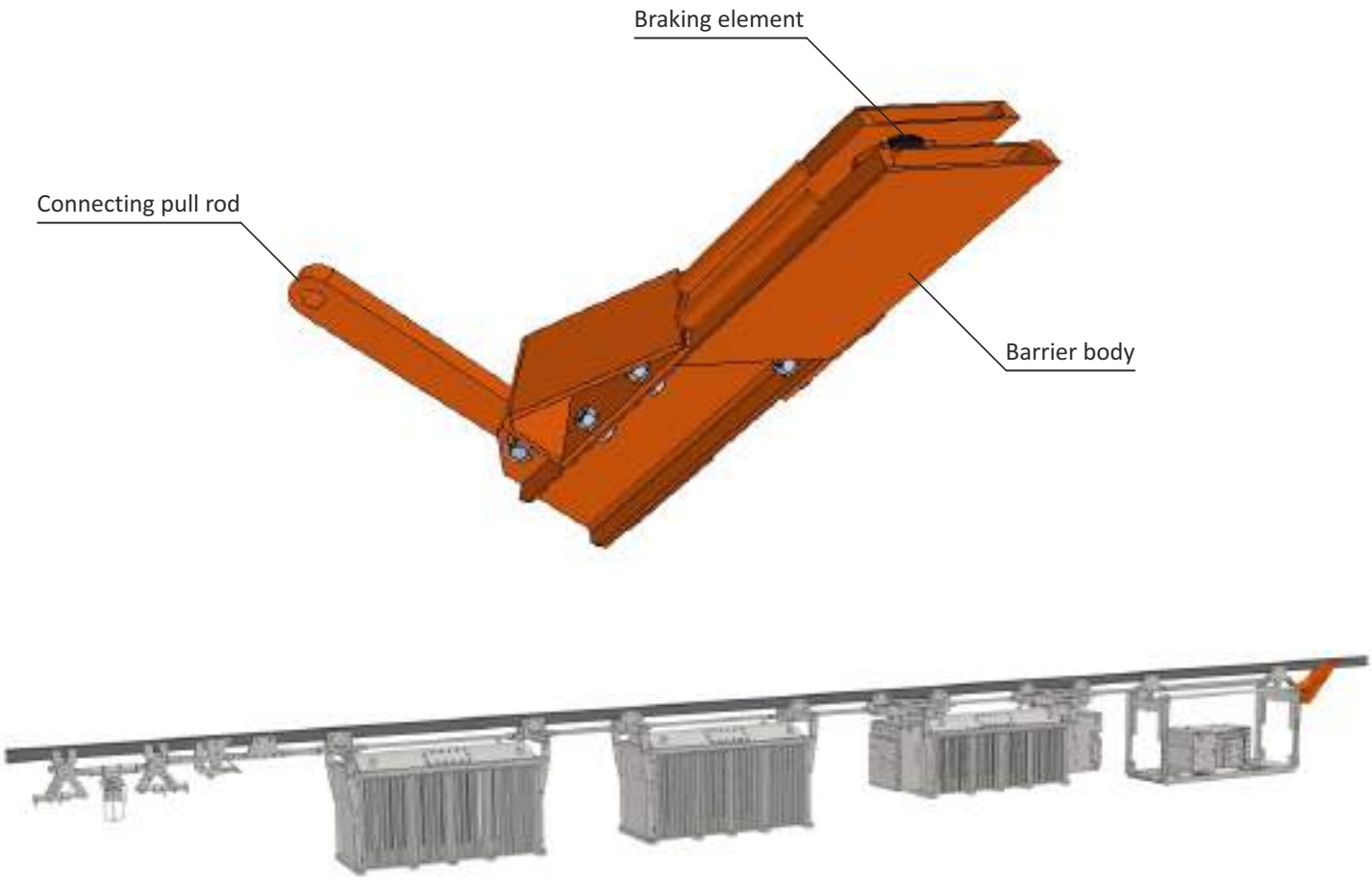
Name: The rear barrier

Type: 11-107

Technical parameters

Length of barrier	950 mm
Width of body	244 mm
Weight of rear barrier	88 kg
Pulling force	110 kN
Speed of travel	70 m/h
Rail profile	I 155, I 140E, I 140V
Maximum inclination of the route	27°

Figure



Purpose

The rear barrier type 11-107 is used stop the braking device of the transport unit. It is intended to be installed at the end of the transport unit that travels along the tracks of a suspended monorail transport system, installed in underground mines, in methane and non-methane areas, in excavations of the A, B and C class of methane explosion hazard, as well as the A and B class of coal dust explosion hazard.

The design of the rear barrier enables the stopping of the transport unit on the track. It is intended to secure the transport unit, against its automatic rolling down the track (installed on an elevation).

The rear barrier 11-107 is intended for the installation in the transport unit of a train with electric system, driven by a self-locking sliding device of 11-101 type. The barrier can also be joined directly or coupled with a transport unit or other types of drive, approved for application in underground mines.

Aadditional information

Declaration, concerning the meeting of the technical requirements, by the product.

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CARBOMECH Sp. z o.o.

Specification

No. specifications: II/03

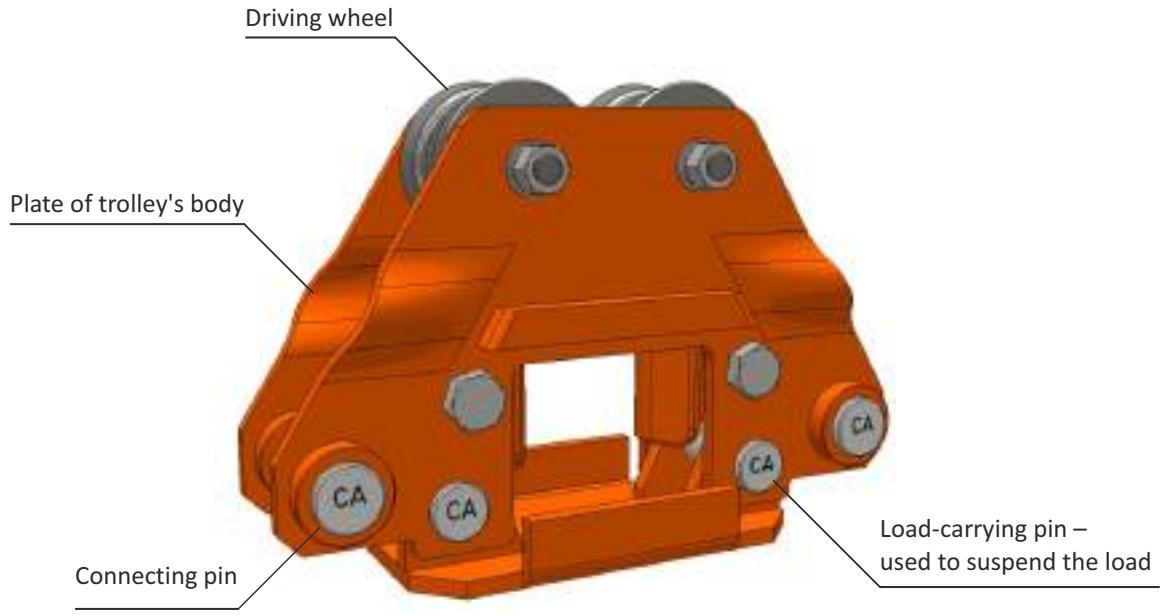
Name: The trolley

Type: 11-360.4

Technical parameters

Load capacity	4000 kg
Weight	46 kg
Pulling or pushing force	110 kN
Speed of travelling	2 m/s
Rail profile	I 155, I 140E, I 140V
Maximum inclination of the route	27°

Figure



Purpose

Trolleys of 11-360.4 are used to transport loads, along the tracks of a suspended monorail transport system, installed in underground mines, in methane and non-methane areas, in excavations of the A, B and C class of methane explosion hazard, as well as the A and B class of coal dust explosion hazard.

Trolleys are intended for the installation in the transport unit of a train with electric system, driven by a self-locking sliding device of 11-101 type. Trolleys can also be joined directly or coupled with a transport unit and a diesel locomotive, switching car and other types of drive, approved for application in underground mines.

Aadditional information

Declaration, concerning the meeting of the technical requirements, by the product.

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CARBOMECH Sp. z o.o.

Specification

No. specifications: II/04

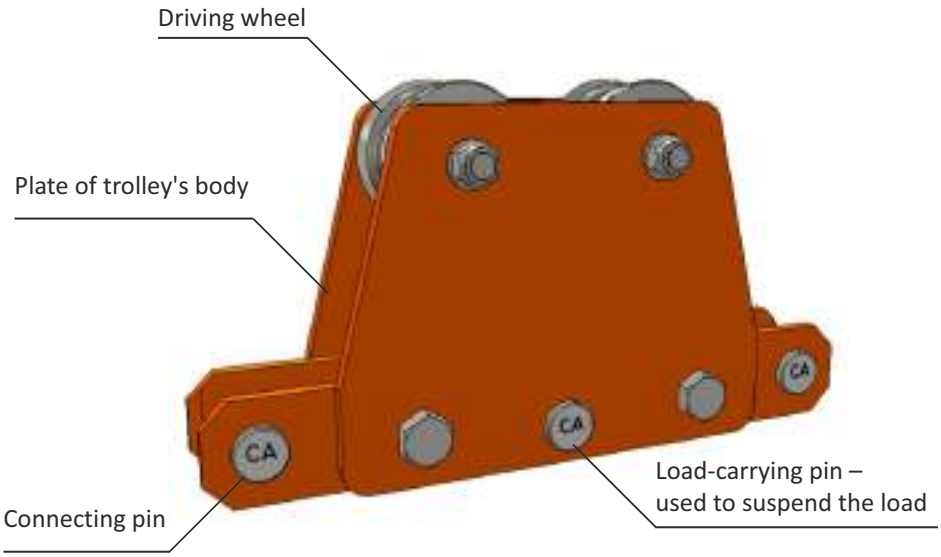
Name: The trolley

Type: 11-363

Technical parameters

Load capacity	4000 kg
Weight	45 kg
Pulling or pushing force	110 kN
Speed of travelling	2 m/s
Rail profile	I 155, I 140E, I 140V
Maximum inclination of the route	27°

Figure



Purpose

Trolleys of 11-363 are used to transport loads, along the tracks of a suspended monorail transport system, installed in underground mines, in methane and non-methane areas, in excavations of the A, B and C class of methane explosion hazard, as well as the A and B class of coal dust explosion hazard.

Trolleys are intended for the in the transport unit of a train with electric system, driven by a self-locking sliding device of 11-101 type. Trolleys can also be joined directly or coupled with a transport unit and a diesel locomotive, switching car and other types of drive, approved for application in underground mines.

Aadditional information

Declaration, concerning the meeting of the technical requirements, by the product.

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CARBOMECH Sp. z o.o.

Specification

No. specifications: II/05a

Name: The trolley with extension arms

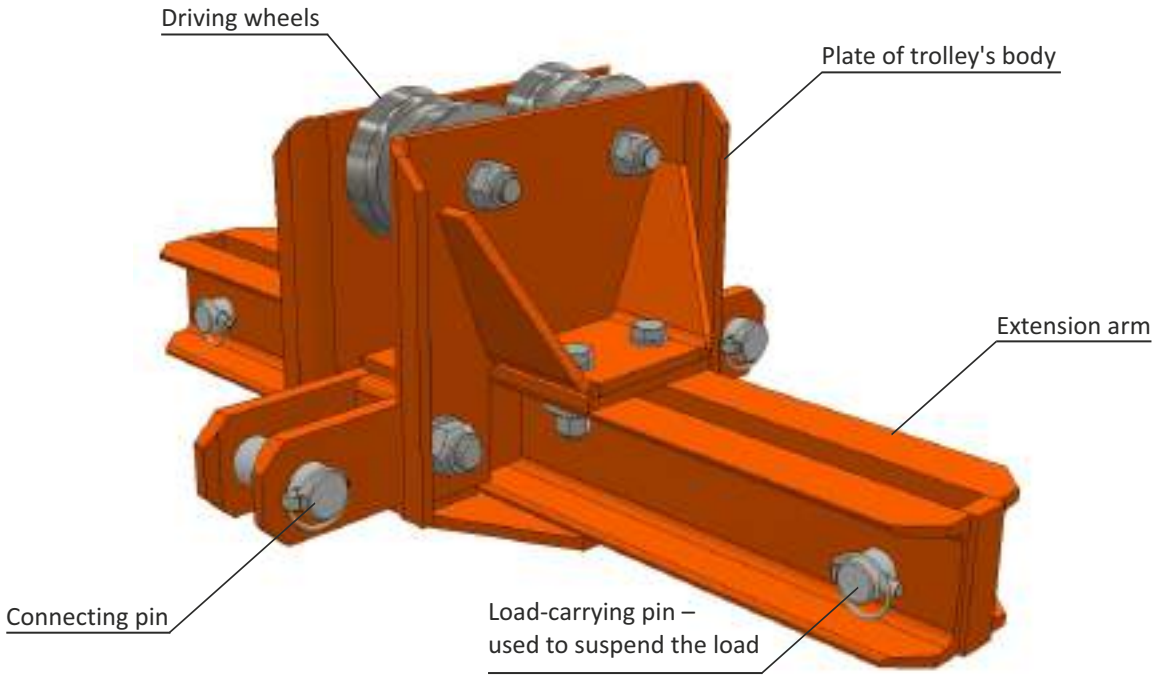
Type: 11-364

Technical parameters

Load capacity	4000 kg
Weight	67-72 kg
Length of extension arm	624-924 mm
Height	327 mm
Pulling or pushing force	110 kN
Speed of travelling	2 m/s
Rail profile	I 155, I 140E, I 140V
Maximum inclination of the route	27°

Figure

The trolley with extension arms type 11-364



Trolleys with extension arms type 11-364, double compound

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CARBOMECH Sp. z o.o.

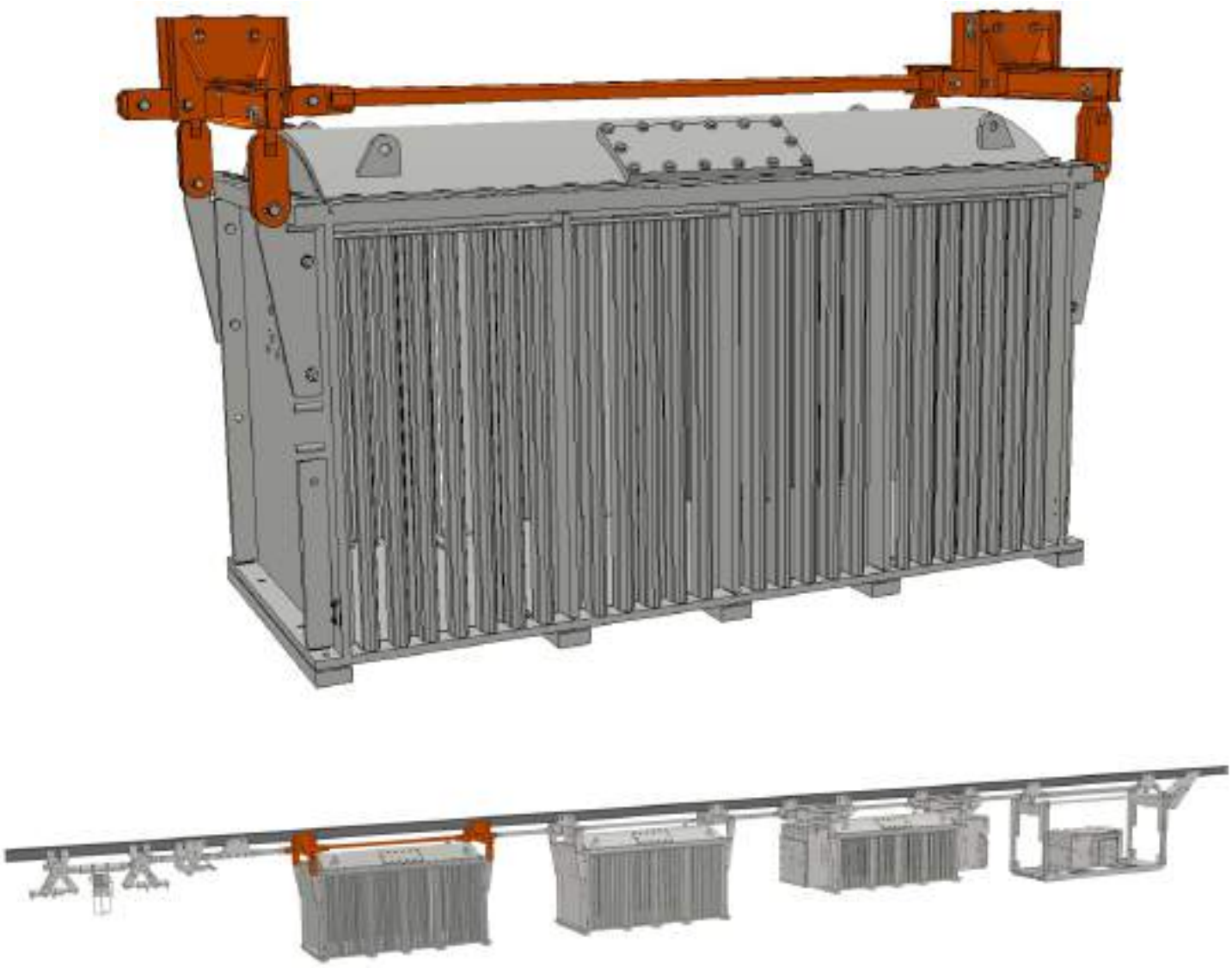
Specification

No. specifications: II/05b

Name: The trolley with extension arms

Type: 11-364

Trolleys unit with extension arms, type 11-364 suspended the transformer station



Purpose

Trolleys with extension arms type 11-364 are used to transport loads, along the tracks of a suspended monorail transport system, installed in underground mines, in methane and non-methane areas, in excavations of the A, B and C class of methane explosion hazard, as well as the A and B class of coal dust explosion hazard.

Trolleys are intended for the installation in the transport unit of a train with electric system, driven by a self-locking sliding device of 11-101 type.Trolleys can also be joined directly or coupled with a transport unit and a diesel locomotive, switching trolley and other types of drive, approved for application in underground mines.

Aadditional information

Declaration, concerning the meeting of the technical requirements, by the product.

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CARBOMECH Sp. z o.o.

Specification

No. specifications: II/06a

Name: The trolley with an extension arm

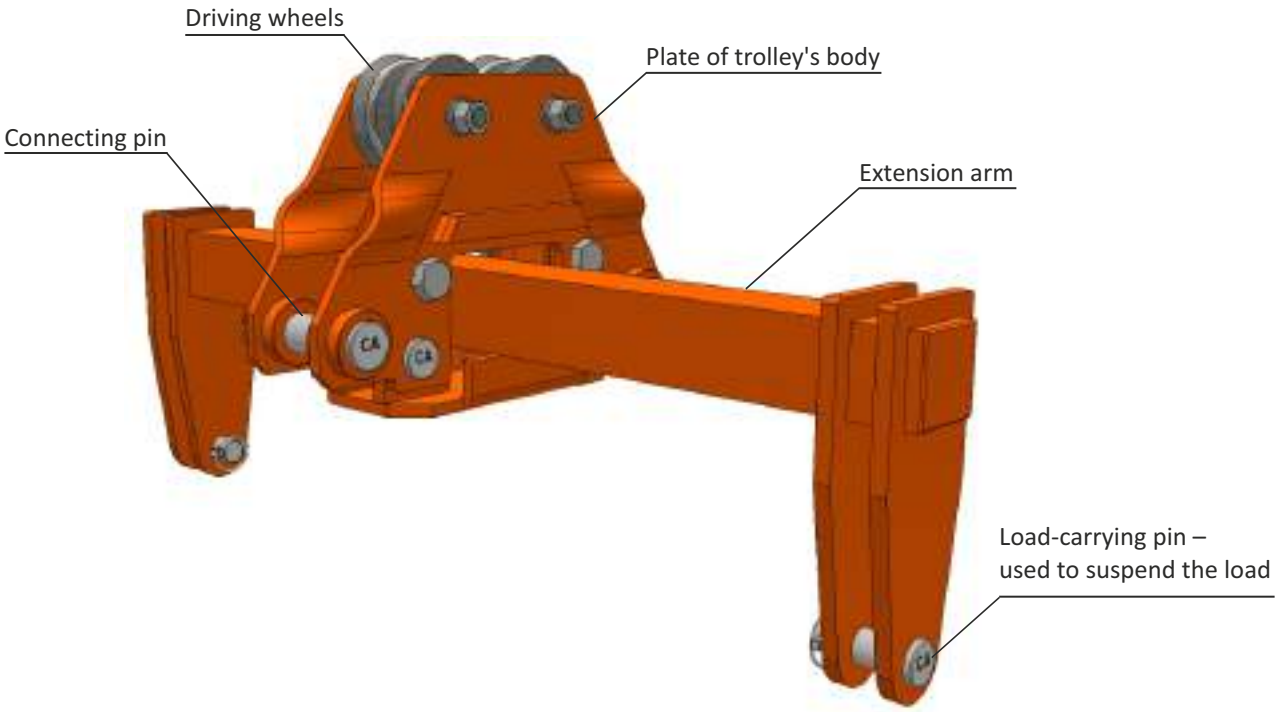
Type: 11-160

Technical parameters

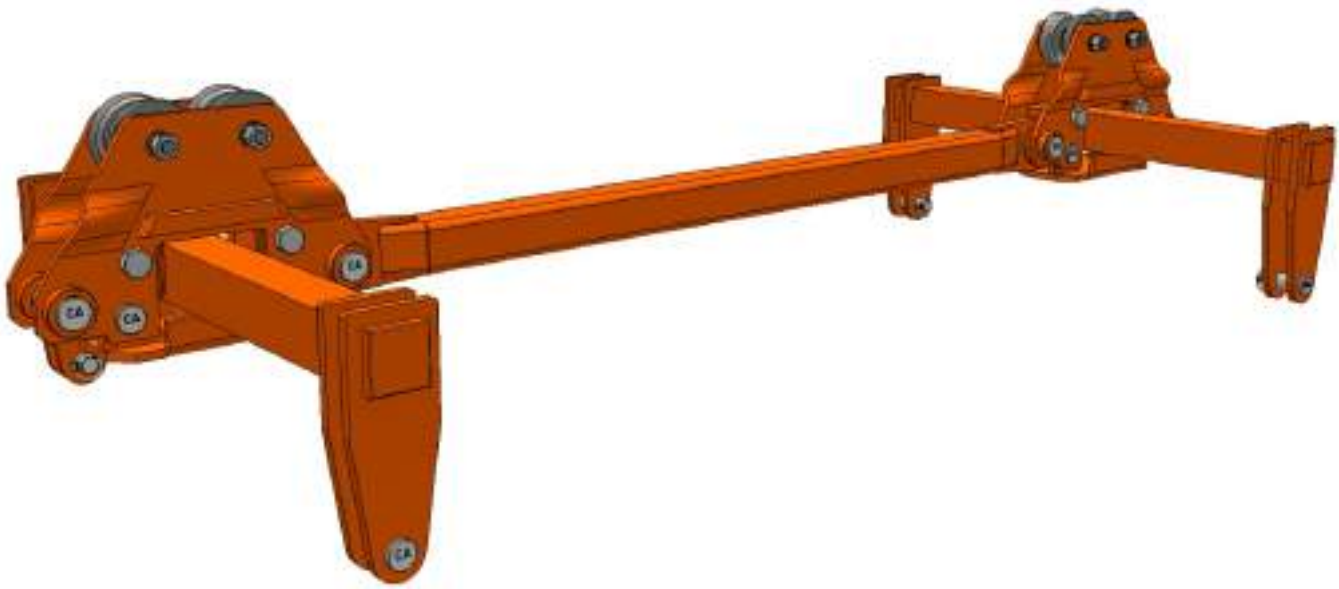
Load capacity	4000 kg
Weight of trolley	106-125 kg
Length of extension arm	800-1250 mm
Height	520 mm
Pulling or pushing force	110 kN
Speed of travelling	2 m/s
Rail profile	I 155, I 140E, I 140V
Maximum inclination of the route	27°

Figure

The trolley with extension arms type 11-160



Trolleys with extension arms type 11-160, double compound



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CARBOMECH Sp. z o.o.

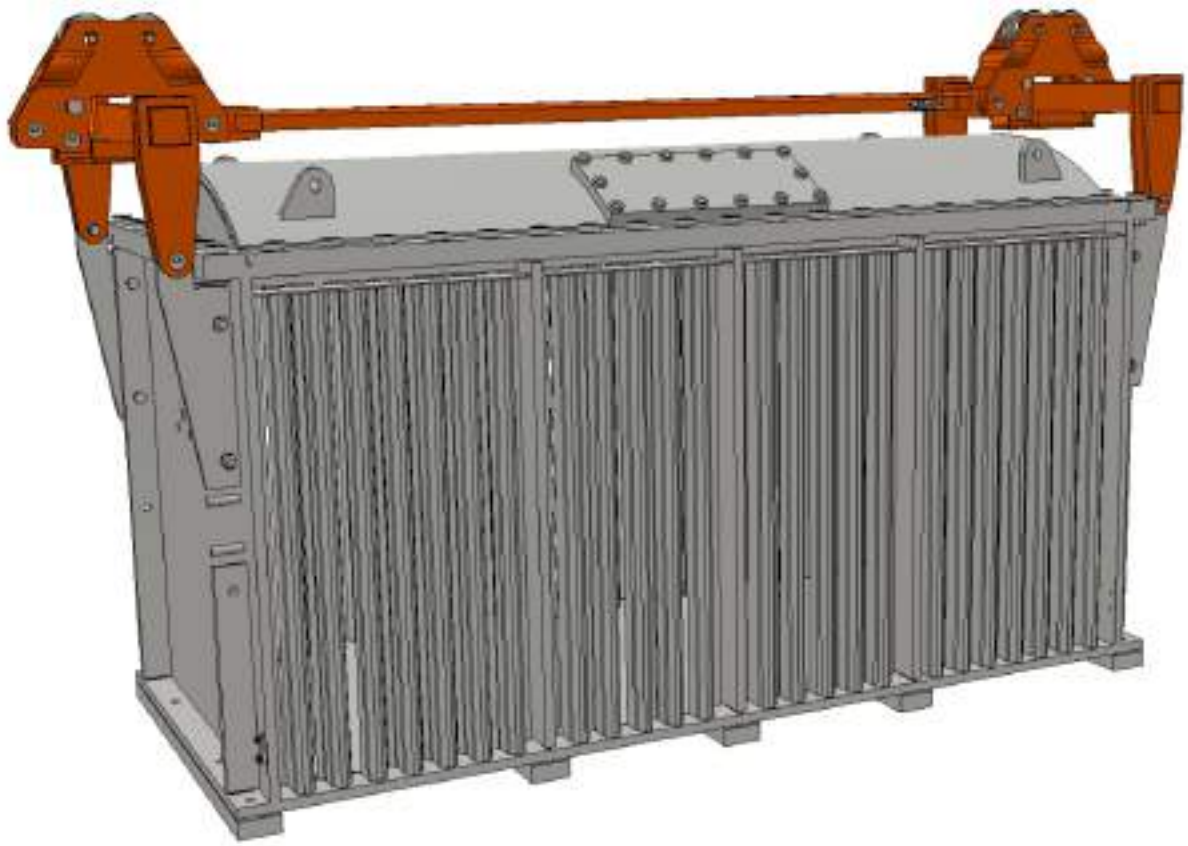
Specification

No. specifications: II/06b

Name: The trolley with an extension arm

Type: 11-160

Trolleys with extension arms type 11-160 suspended the transformer station



Purpose

Trolleys with extension arms type 11-160 are used to transport loads, along the tracks of a suspended monorail transport system, installed in underground mines, in methane and non-methane areas, in excavations of the A, B and C class of methane explosion hazard, as well as the A and B class of coal dust explosion hazard.

Trolleys are intended for the installation in the transport unit of a train with electric system, driven by a self-locking sliding device of 11-101 type. Trolleys can also be joined directly or coupled with a transport unit and a diesel locomotive, switching trolley and other types of drive, approved for application in underground mines.

Aadditional information

Declaration, concerning the meeting of the technical requirements, by the product.

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CARBOMECH Sp. z o.o.

Specification

No. specifications: II/07a

Name: Connecting rods

Type: 11

Technical parameters

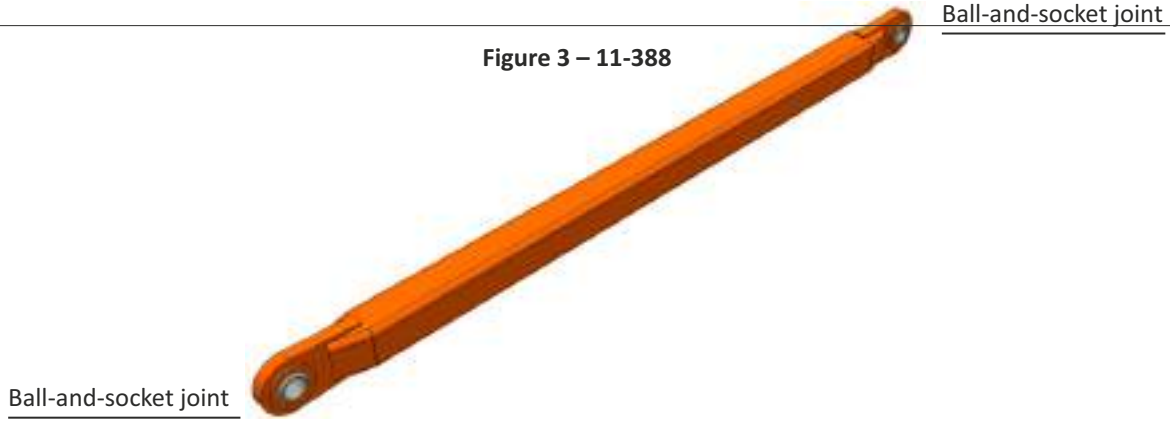
Rod type	Length L [mm]	Weight m [kg]	Pulling and pushing force [kN]
11-386	330 – 800	9 – 15	110
11-387	800 – 1600	17 – 29	
11-388	1600 – 3000	2,5 – 7,5	

Figure

Figure 1 – 11-386

Figure 2 – 11-387

Figure 3 – 11-388



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CARBOMECH Sp. z o.o.

Specification

No. specifications: II/07b

Name: Connecting rods

Type: 11

Purpose

Connecting rods of the following types: 11-386, 11-387, 11-388 are used to connect means of transport, into a transport unit, which travels on the tracks of suspended monorail transport systems, installed in underground mines, in methane and non-methane areas, in excavations of the A, B and C class of methane explosion hazard, as well as the A and B class of coal dust explosion hazard.

Connecting rods are intended for the installation in the transport unit of a train with electric system, driven by a self-locking sliding device of 11-101 type. Rods can also be use to couple a transport unit with a diesel locomotive, switching car and other types of drive, approved for application in underground mines.

Aadditional information

Declaration, concerning the meeting of the technical requirements, by the product.

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CARBOMECH Sp. z o.o.

Specification

No. specifications: II/08a

Name: Double - trolleys set

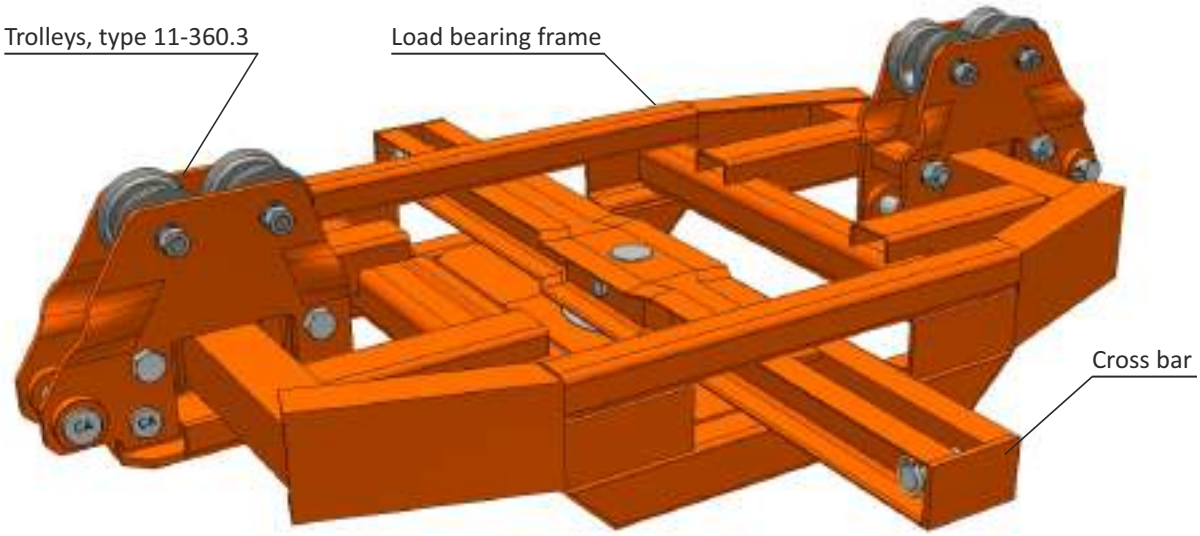
Type: 11-60.4

Technical parameters

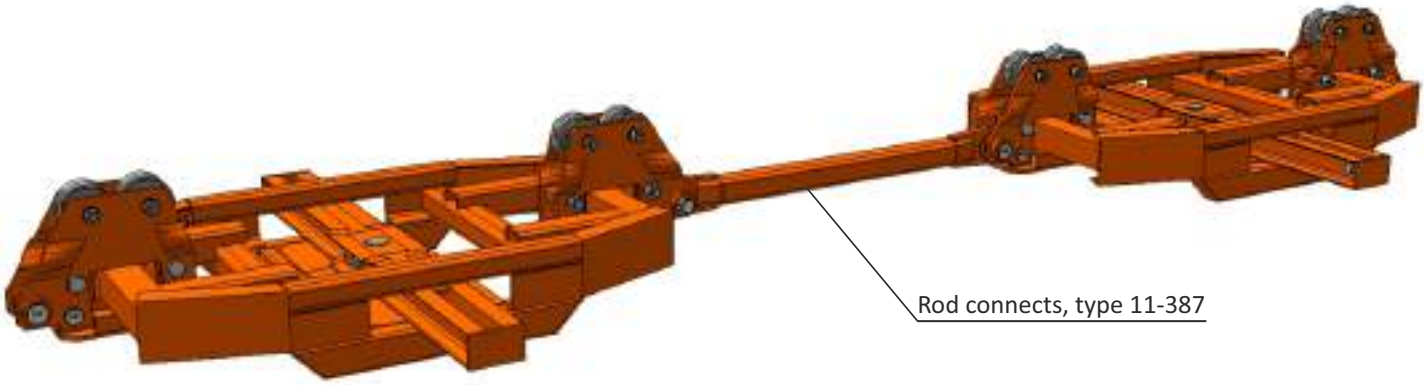
Load capacity	5000 kg
Weight of frame	308-323 kg
Length of frame	1100-1500 mm
Width of frame	800 mm
Length of cross bar	1050-1500 mm
Pulling or pushing force	110 kN
Speed of travelling	2 m/s
Rail profile	I 155, I 140E, I 140V
Maximum inclination of the route	27°

Figure

Double - trolleys set type 11-60.4



Double - trolleys set, type 11-60.4 combined in a transport unit



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CARBOMECH Sp. z o.o.

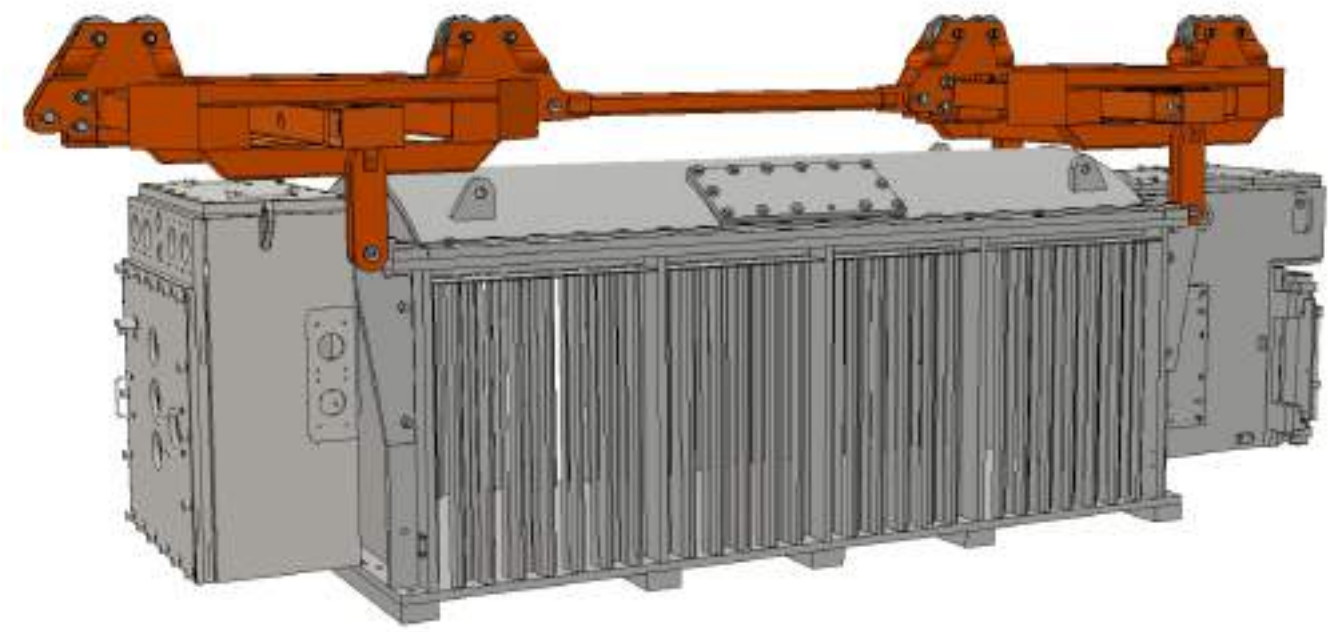
Specification

No. specifications: II/08b

Name: Double - trolleys set

Type: 11-60.4

Suspension of to transformer station using double - trolleys set, type 11-60.4 combined in a transport unit



Purpose

Double-trolleys set type 11-60.4 is used to transport various types of electrical equipment, as well as other machines and equipment, along the tracks of a suspended monorail transport system, installed in underground mines, in methane and non-methane areas, in excavations of the A, B and C class of methane explosion hazard, as well as the A and B class of coal dust explosion hazard.

Double-trolleys set is intended for the installation in the transport unit of a train with electric system, driven by a self-locking sliding device of 11-101 type. Double-trolleys can also be joined directly or coupled with a transport unit and a diesel locomotive, switching car and other types of drive, approved for application in underground mines.

Aadditional information

Declaration, concerning the meeting of the technical requirements, by the product.

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CARBOMECH Sp. z o.o.

Specification

No. specifications: II/09a

Name: Double - trolleys set

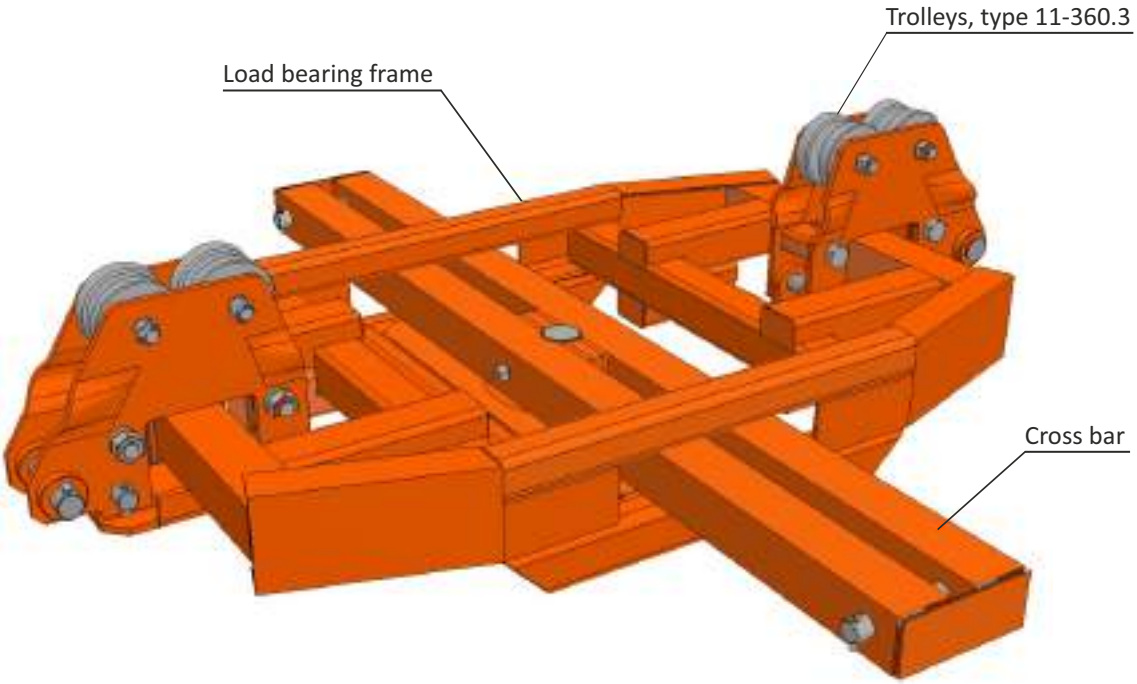
Type: 11-60.5

Technical parameters

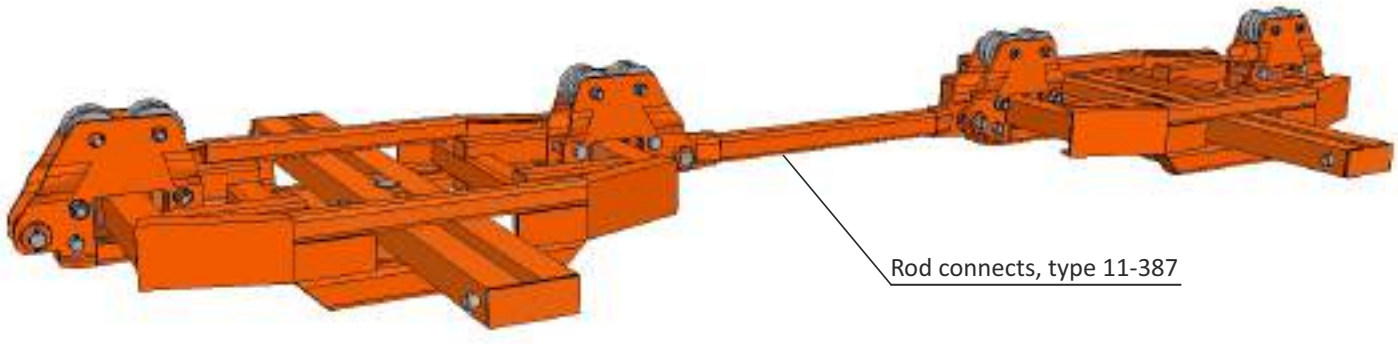
Load capacity	8000 kg
Weight of frame	448-534 kg
Length of frame	1300-1500 mm
Width of frame	800 mm
Length of cross bar	1050-1800 mm
Pulling or pushing force	110 kN
Speed of travelling	2 m/s
Rail profile	I 155, I 140E, I 140V
Maximum inclination of the route	27°

Figure

Double - trolleys set type 11-60.5



Double - trolleys set, type 11-60.5 combined in a transport unit



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CARBOMECH Sp. z o.o.

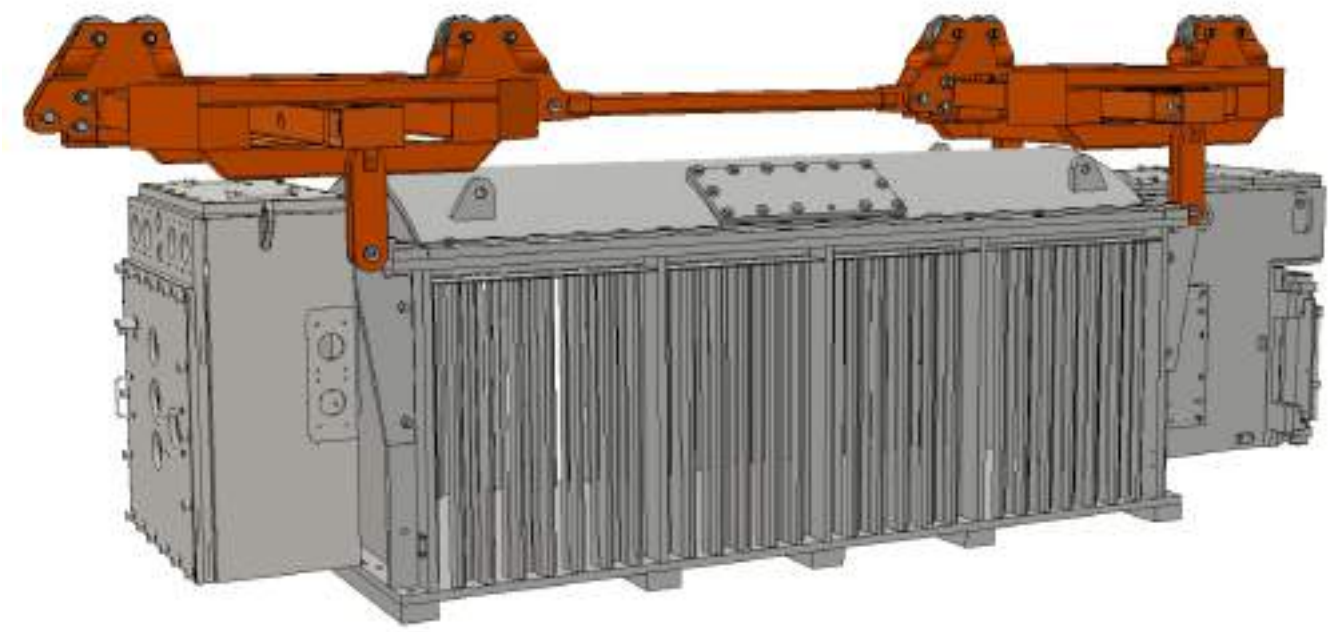
Specification

No. specifications: II/09b

Name: Double - trolleys set

Type: 11-60.5

Suspension of to transformer station using double - trolleys set, type 11-60.5 combined in a transport unit



Purpose

Double-trolleys set type 11-60.5 is used to transport various types of electrical equipment, as well as other machines and equipment, along the tracks of a suspended monorail transport system, installed in underground mines, in methane and non-methane areas, in excavations of the A, B and C class of methane explosion hazard, as well as the A and B class of coal dust explosion hazard.

Double-trolleys set is intended for the installation in the transport unit of a train with electric system, driven by a self-locking sliding device of 11-101 type. Double-trolleys set can also be joined directly or coupled with a transport unit and a diesel locomotive, switching car and other types of drive, approved for application in underground mines.

Aadditional information

Declaration, concerning the meeting of the technical requirements, by the product.

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CARBOMECH Sp. z o.o.

Specification

No. specifications: II/10a

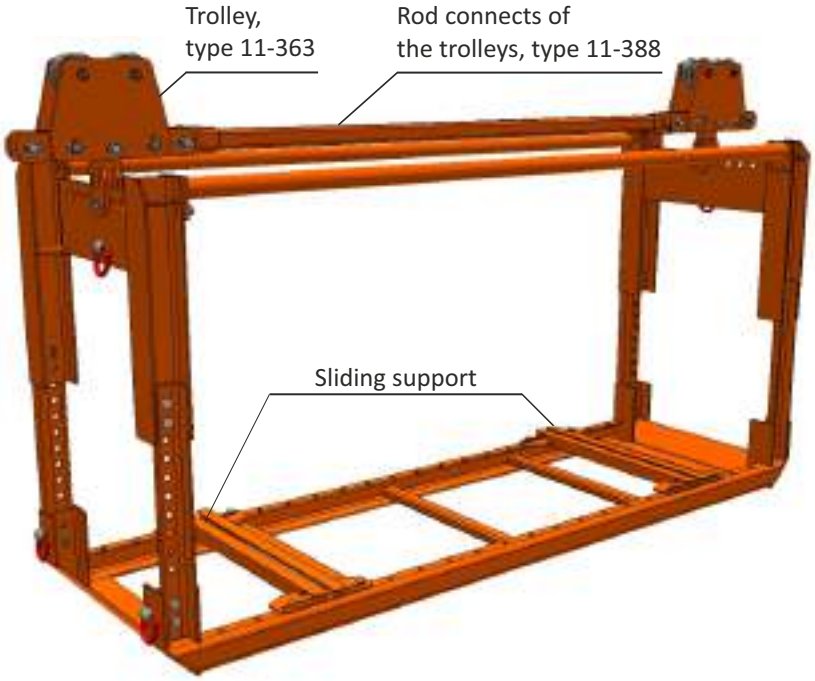
Name: The pallet

Type: 11-316

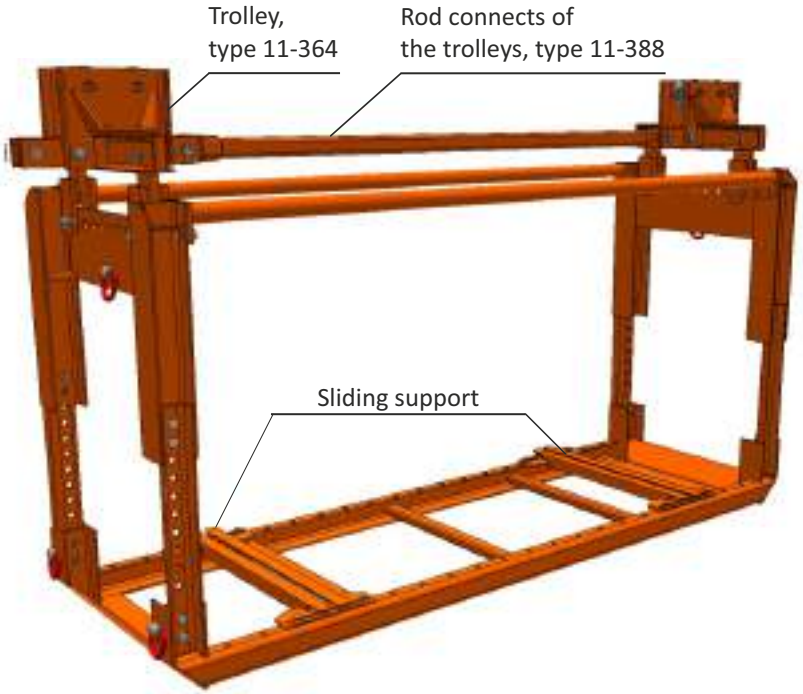
Technical parameters

Load capacity	3200 kg
Length of pallet	2500-3600 mm
Width of pallet	800 – 1400 mm
Height of pallet	1337-2837 mm
Weight of pallet	462-709 kg
Pulling or pushing force	110 kN
Speed of travelling	2 m/s
Rail profile	I 155, I 140E, I 140V
Maximum inclination of the route	27°

Figure



The pallet type 11-316, suspended onto trolleys, type 11-363



The pallet type 11-316, suspended onto trolleys, type 11-364

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CARBOMECH Sp. z o.o.

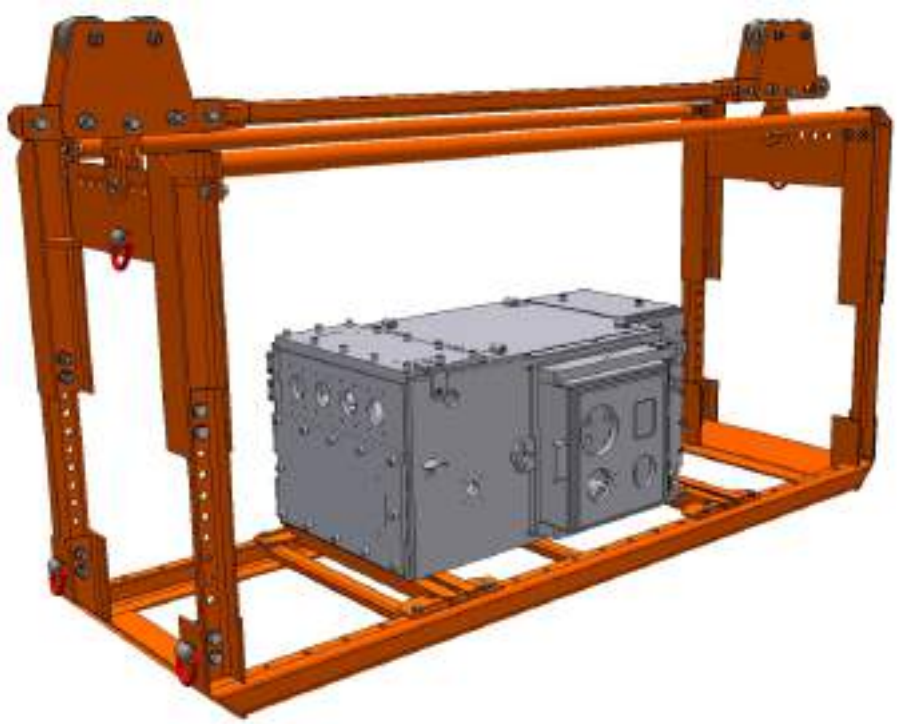
Specification

No. specifications: II/10b

Name: The pallet

Type: 11-316

The pallet type 11-316 with a compact



Purpose

The pallet type 11-316 is used to transport various types of electrical equipment, as well as other machines and equipment, along the tracks of a suspended monorail transport system, installed in underground mines, in methane and non-methane areas, in excavations of the A, B and C class of methane explosion hazard, as well as the A and B class of coal dust explosion hazard.

The pallet is intended for the installation in the transport unit of a train with electric system, driven by a self-locking sliding device of 11-101 type. The pallet can also be joined directly or coupled with a transport unit and a diesel locomotive, switching car and other types of drive, approved for application in underground mines.

Aadditional information

Declaration, concerning the meeting of the technical requirements, by the product.

Carbomech Sp. z o.o. ul. Szyb Walenty 34 41-700 Ruda Śląska e-mail: biuro@carbomech.com.pl
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CARBOMECH Sp. z o.o.

Specification

No. specifications: II/11a

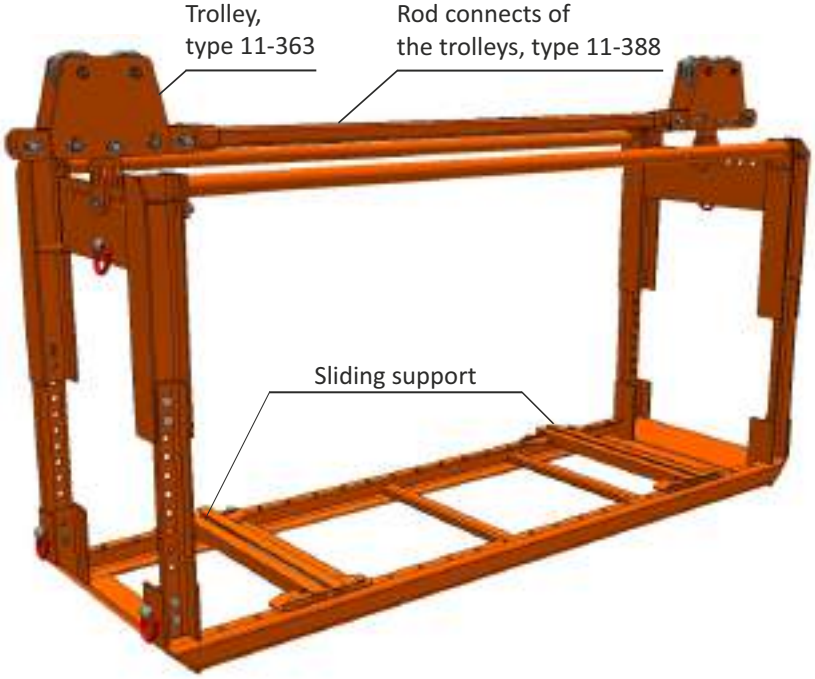
Name: The pallet

Type: 11-318

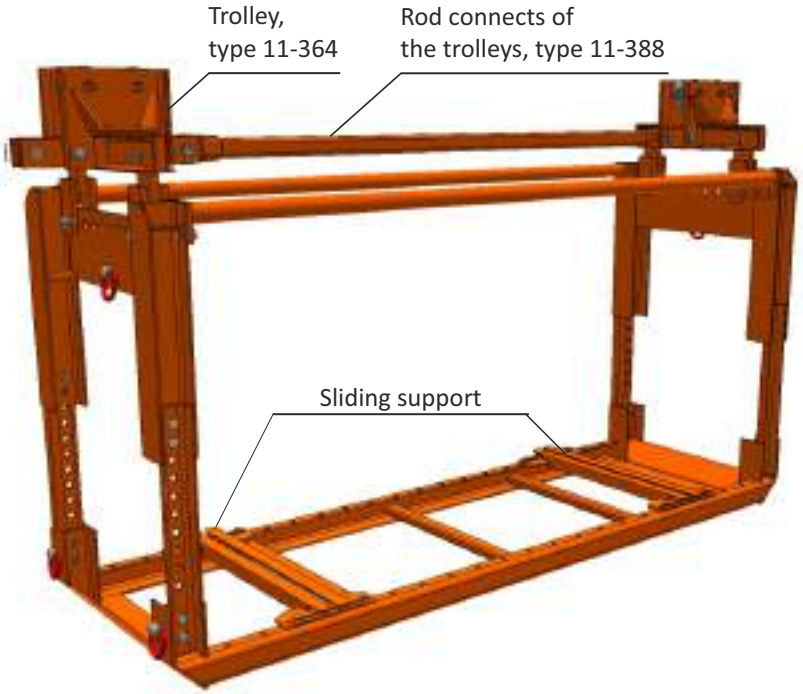
Technical parameters

Load capacity	5000 kg
Length of pallet	2500-3600 mm
Width of pallet	800 – 1400 mm
Height of pallet	1337-2837 mm
Weight of pallet	488-737 kg
Pulling or pushing force	110 kN
Speed of travelling	2 m/s
Rail profile	I 155, I 140E, I 140V
Maximum inclination of the route	27°

Figure



The pallet type 11-318, suspended onto trolleys, type 11-363



The pallet type 11-318, suspended onto trolleys, type 11-364

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CARBOMECH Sp. z o.o.

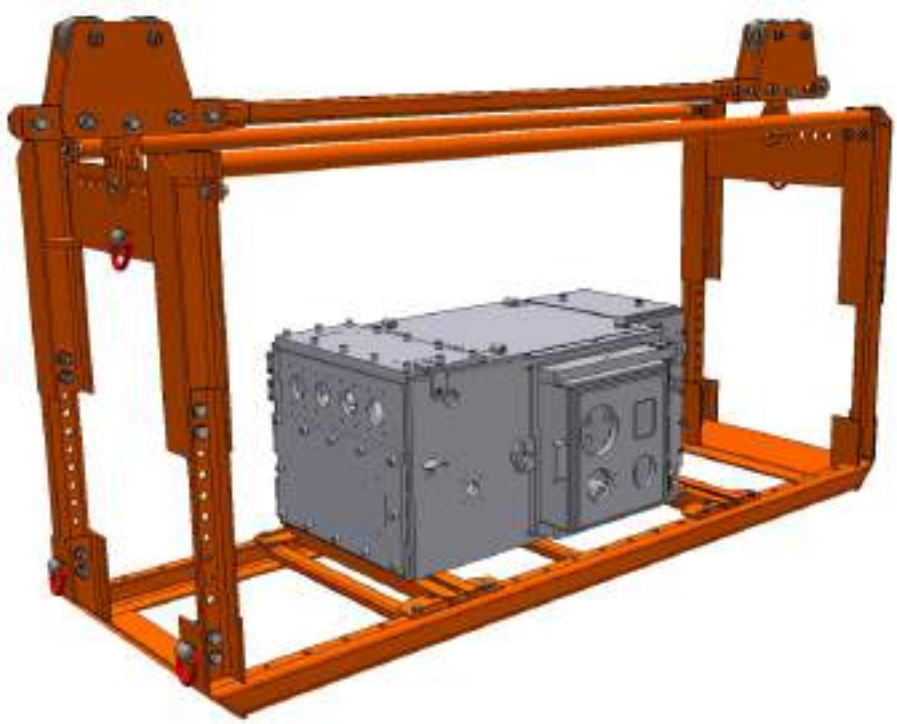
Specification

No. specifications: II/11b

Name: The pallet

Type: 11-318

The pallet type 11-318 with a compact station



Purpose

The pallet type 11-318 is used to transport various types of electrical equipment, as well as other machines and equipment, along the tracks of a suspended monorail transport system, installed in underground mines, in methane and non-methane areas, in excavations of the A, B and C class of methane explosion hazard, as well as the A and B class of coal dust explosion hazard.

The pallet is intended for the installation in the transport unit of a train with electric system, driven by a self-locking sliding device of 11-101 type. The pallet can also be joined directly or coupled with a transport unit and a diesel locomotive, switching car and other types of drive, approved for application in underground mines.

Aadditional information

Declaration, concerning the meeting of the technical requirements, by the product.

CARBOMECH Sp. z o.o.

Specification

No. specifications: II/12a

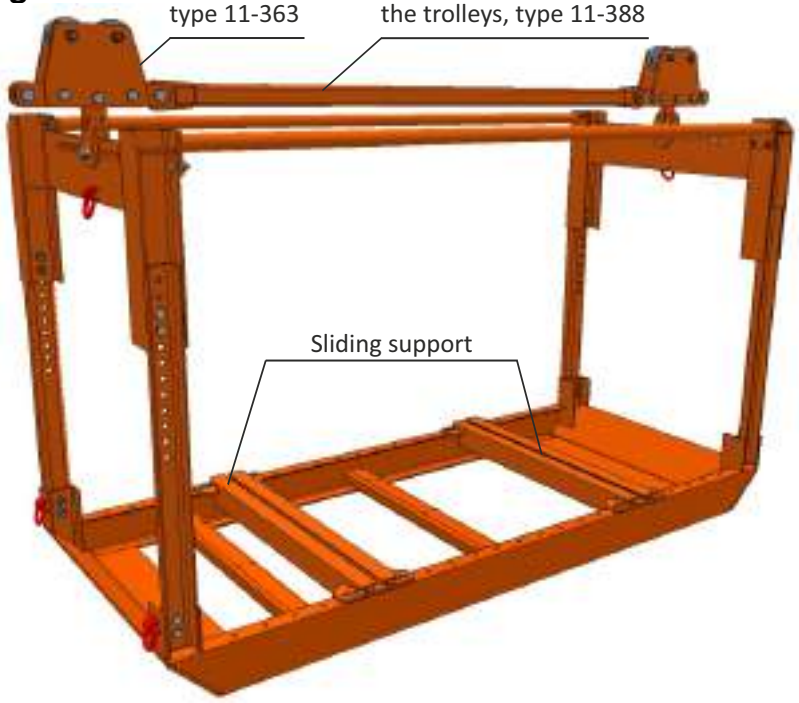
Name: The pallet

Type: 11-319

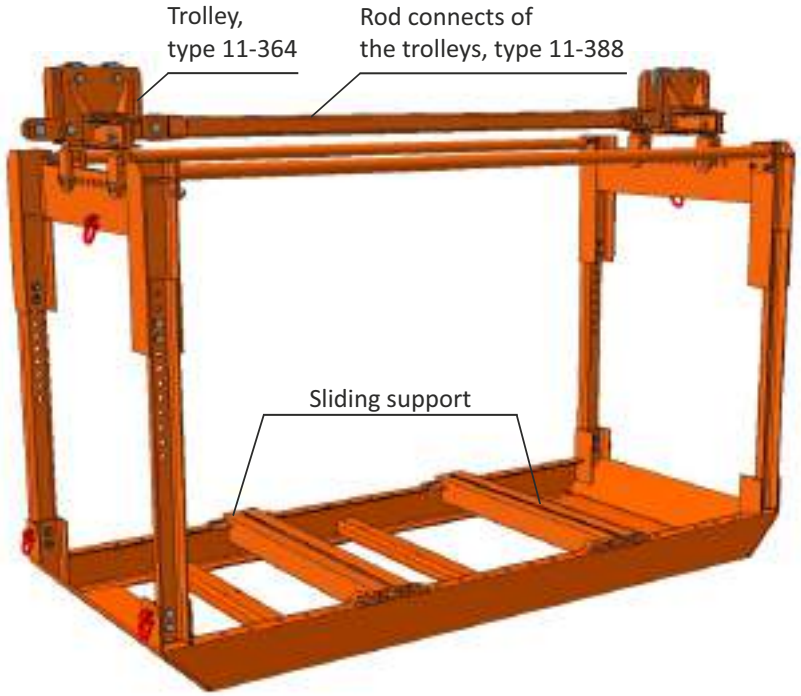
Technical parameters

Load capacity	7000 kg
Length of pallet	1400-4700 mm
Width of pallet	800 – 1800 mm
Height of pallet	1200-3000 mm
Weight of pallet	610-1063 kg
Pulling or pushing force	110 kN
Speed of travelling	2 m/s
Rail profile	I 155, I 140E, I 140V
Maximum inclination of the route	27°

Figure



The pallet type 11-319, suspended onto trolleys, type 11-363



The pallet type 11-319, suspended onto trolleys, type 11-364

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www.carbomech.com.pl tel. +48 32 340-10-26 +48 32 340-10-35 fax +48 32 240-17-13

CARBOMECH Sp. z o.o.

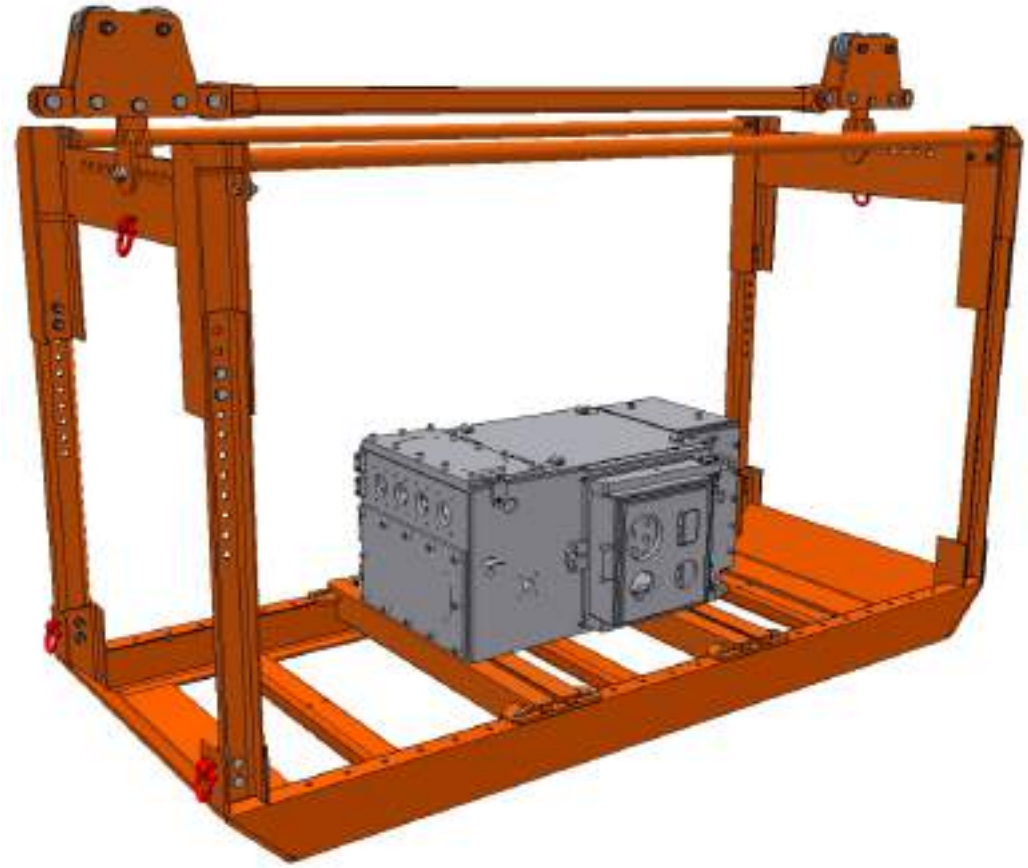
Specification

No. specifications: II/12b

Name: The pallet

Type: 11-319

The pallet type 11-319 with a compact station



Purpose

The pallet type 11-319 is used to transport various types of electrical equipment, as well as other machines and equipment, along the tracks of a suspended monorail transport system, installed in underground mines, in methane and non-methane areas, in excavations of the A, B and C class of methane explosion hazard, as well as the A and B class of coal dust explosion hazard.

The pallet is intended for the installation in the transport unit of a train with electric system, driven by a self-locking sliding device of 11-101 type. The pallet can also be joined directly or coupled with a transport unit and a diesel locomotive, switching car and other types of drive, approved for application in underground mines.

Aadditional information

Declaration, concerning the meeting of the technical requirements, by the product.

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CARBOMECH Sp. z o.o.

Specification

No. specifications: II/13a

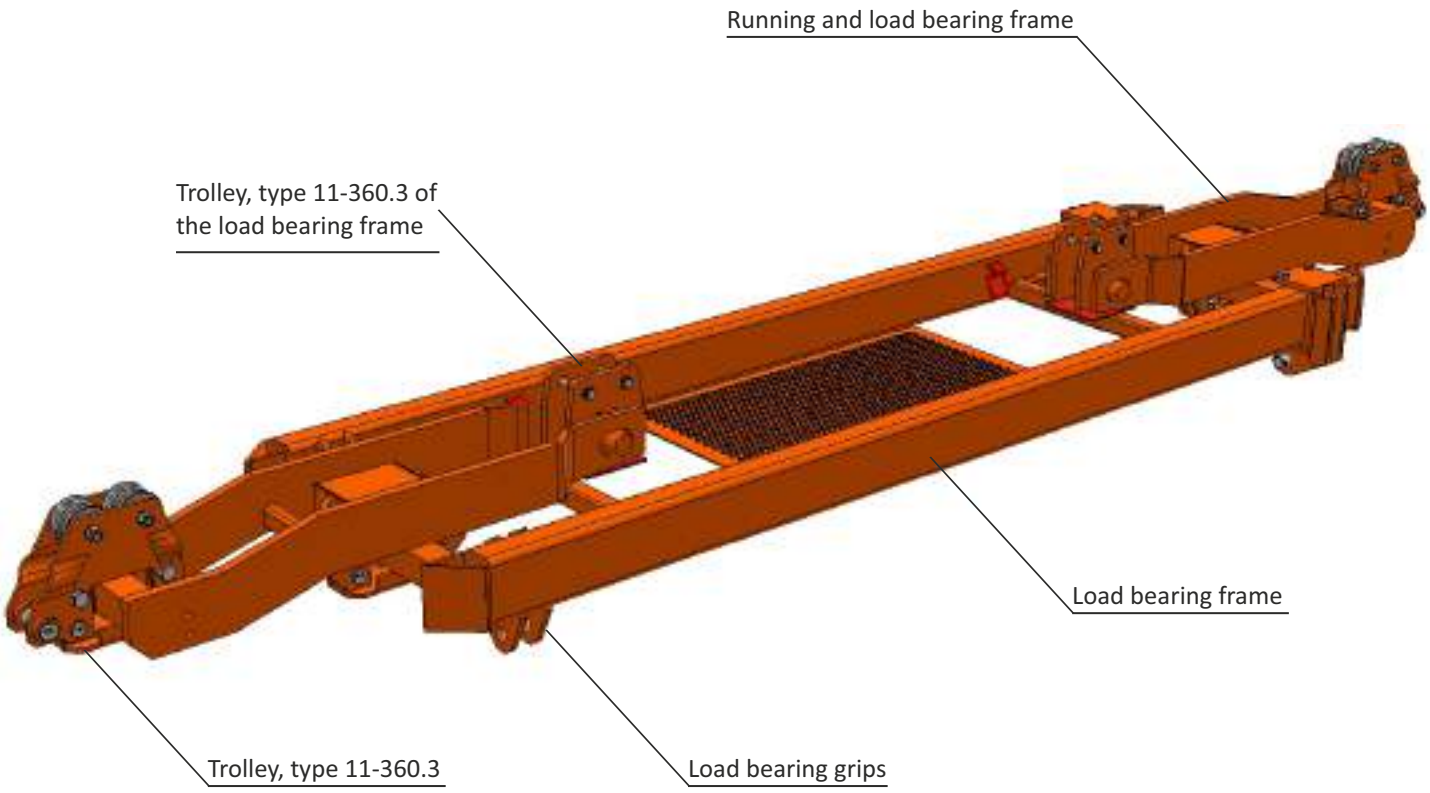
Name: The frame

Type: 11-325

Technical parameters

Load capacity	10500 kg
Spacing of transportation set trolleys	1400 mm
Load bearing frame length	5240-6440 mm
Load bearing frame width	800-1000 mm
Width of frame	1084-1251 kg
Pulling or pushing	110 kN
Speed of pallet travel	2 m/s
Rail profile	I 155, I 140E, I 140V
Maximum inclination of the route	27°

Figure



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CARBOMECH Sp. z o.o.

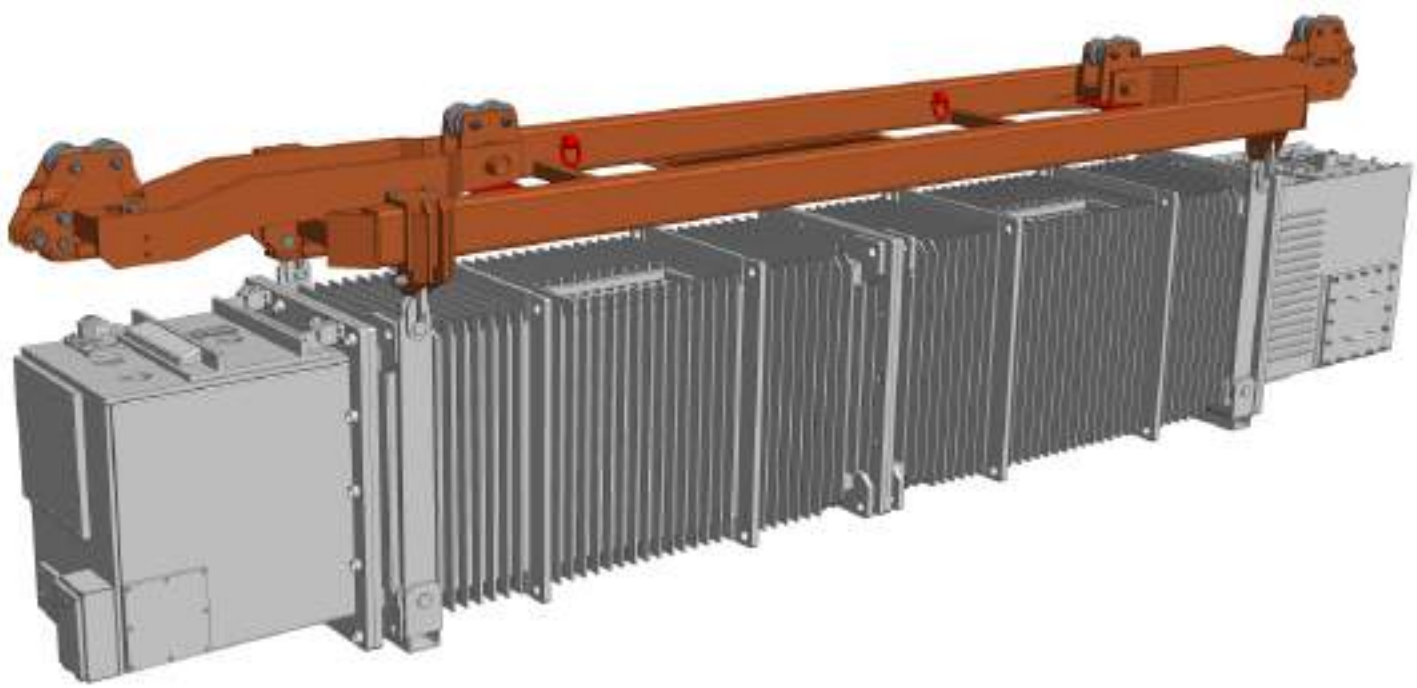
Specification

No. specifications: II/13b

Name: The frame

Type: 11-325

Suspension of to transformer station using a frame, type 11-325



Purpose

The frame type 11-325 is used to transport various types of electrical equipment, as well as other machines and equipment, along the tracks of a suspended monorail transport system, installed in underground mines, in methane and non-methane areas, in excavations of the A, B and C class of methane explosion hazard, as well as the A and B class of coal dust explosion hazard.

The frame is intended for the installation in the transport unit of a train with electric system, driven by a self-locking sliding device of 11-101 type. The frame can also be joined directly or coupled with a transport unit and a diesel locomotive, switching car and other types of drive, approved for application in underground mines.

Aadditional information

Declaration, concerning the meeting of the technical requirements, by the product.

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CARBOMECH Sp. z o.o.

Specification

No. specifications: III/01a

Name: The sling

Type: 11-100

Technical parameters

The sling type 11-100 is composed of the following parts:
- running trolley, type 1-606
- monolayer belt sling with the end lugs, type ZP-7,5
- hanger for cable festoon, type 5-3 (version I or II)
- belt link, type CP-20

Figure

Figure 1. Running trolley, type 1-606, monolayer belt sling with end lugs, type ZP-7,5, belt link, type CP20

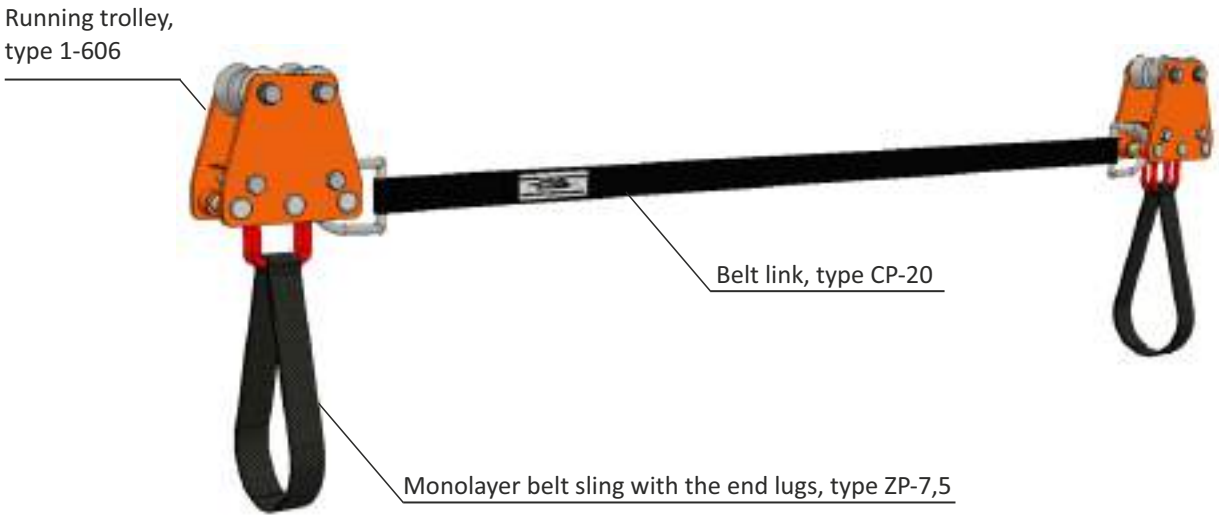
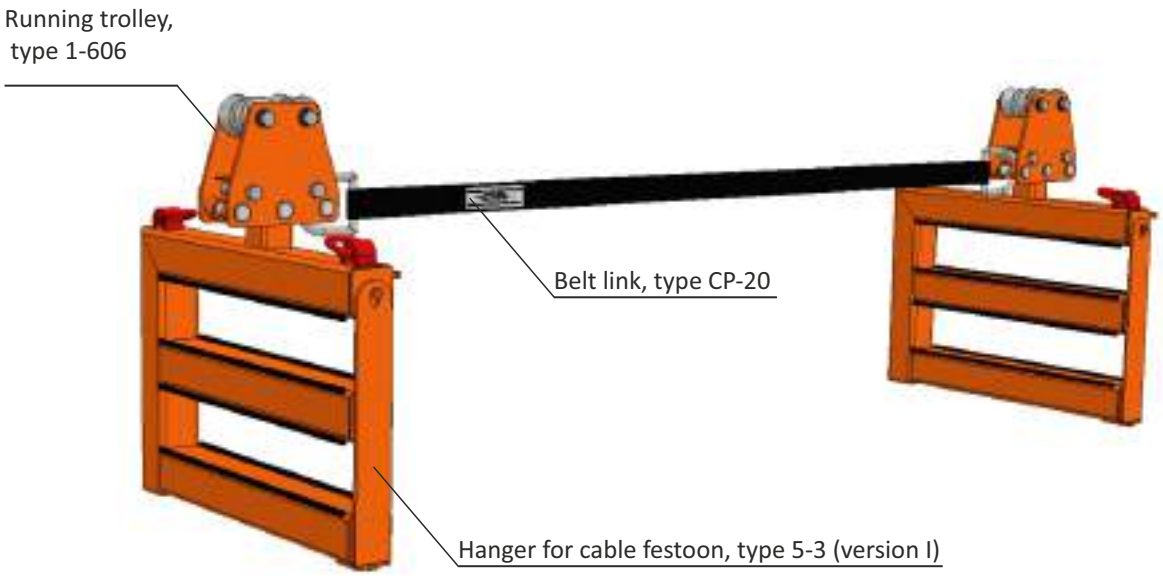


Figure 2. Running trolley, type 1-606, hanger for cable festoon, type 5-3 (version I), belt link, type CP20



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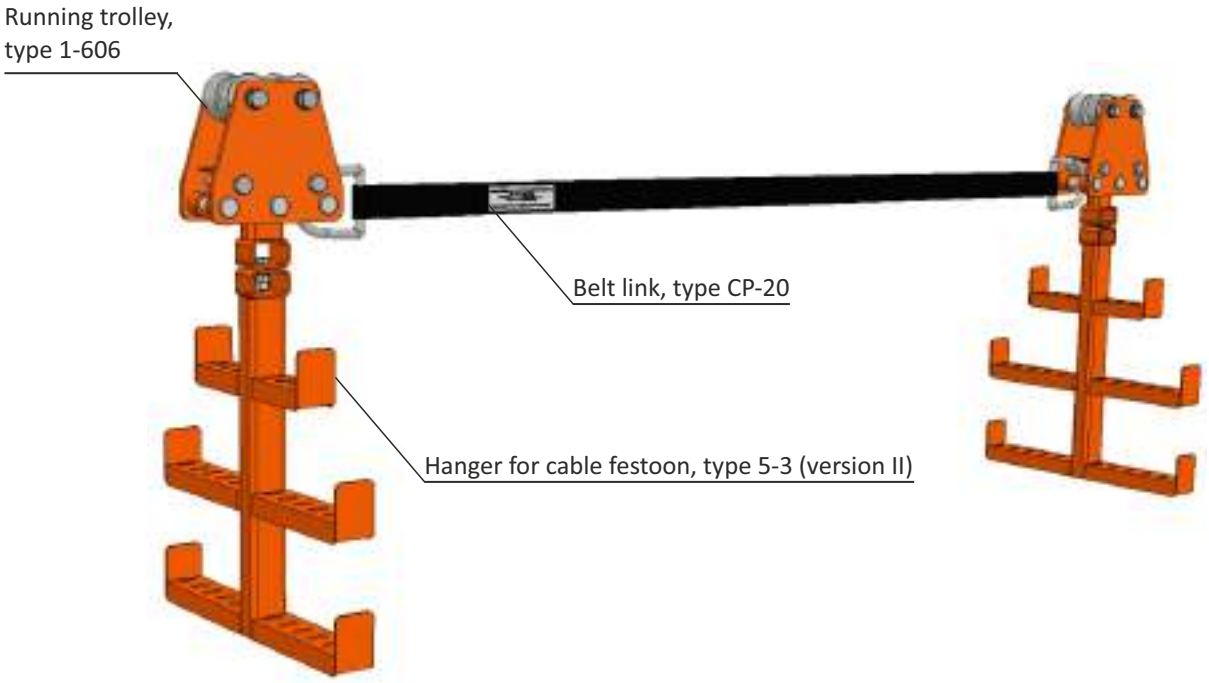
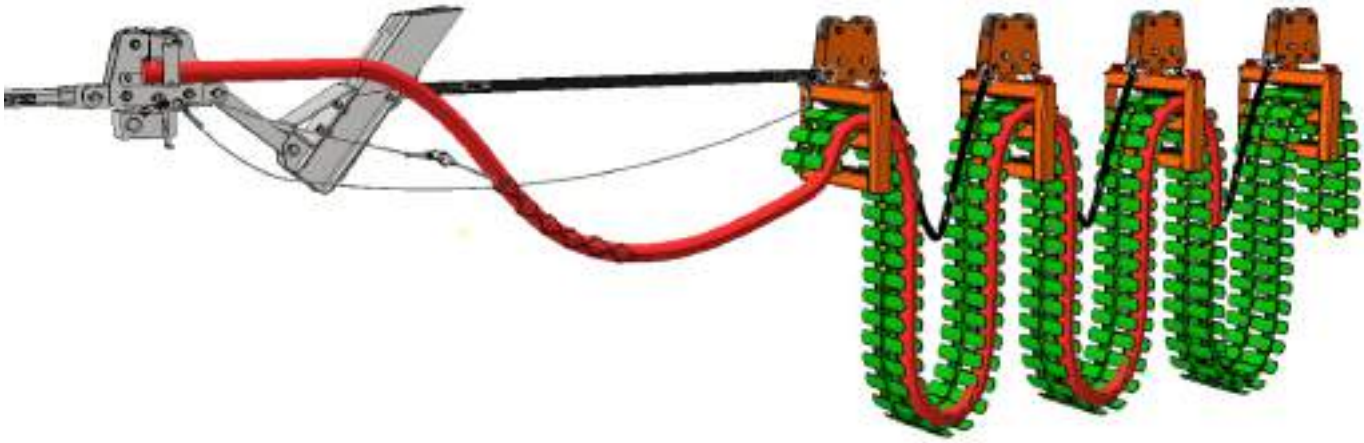
CARBOMECH Sp. z o.o.	Specification	No. specifications: III/01b
	Name: The sling	
	Type: 11-100	

Figure 3. Running trolley, type 1-606, hanger for cable festoon, type 5-3 (version II), belt link, type CP-20



Application example



Purpose

The sling of the type 11-100 is designed for suspension of electric cables and conductors as well as hydraulic hoses down a specific section of a roadway with displacement of suspended lines in pace with the progress of mining works.

The sling protects suspended lines against mechanical damage and prevents from twisting of lines. Use of the sling of the type 11-100 eliminates the risk of shorts or breaks in cables and conductors, which contributes to improvement of occupational safety conditions.

The sling can be used in underground workings of mining operations in areas degree of methane explosion hazard.

Aadditional information

Declaration, concerning the meeting of the technical requirements, by the product.

CARBOMECH Sp. z o.o.

Specification

No. specifications: III/02a

Name: The sling

Type: 11-200

Technical parameters

The sling type 11-200 is composed of the following parts:
- running trolley, type 1-605
- monolayer belt sling with the end lugs, type ZP-7,5
- hanger for cable festoon, type 5-3 (version I or II)
- belt link, type CP-20

Figure

Figure 1. Running trolley, type 1-605, monolayer belt sling with end lugs, type ZP-7,5, belt link, type CP-20

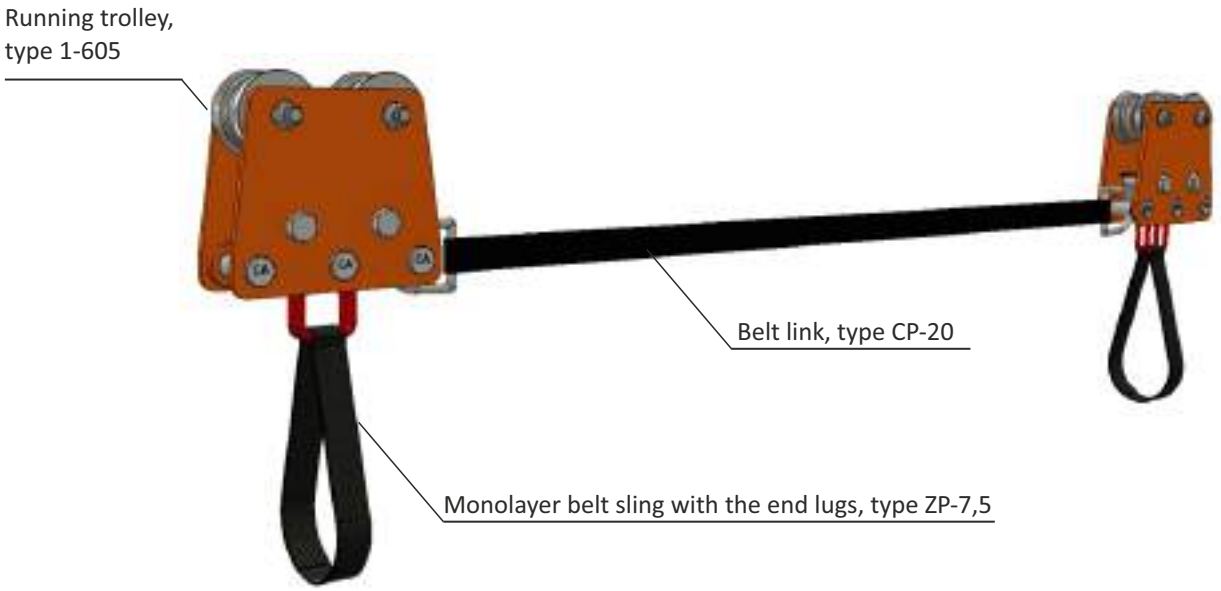
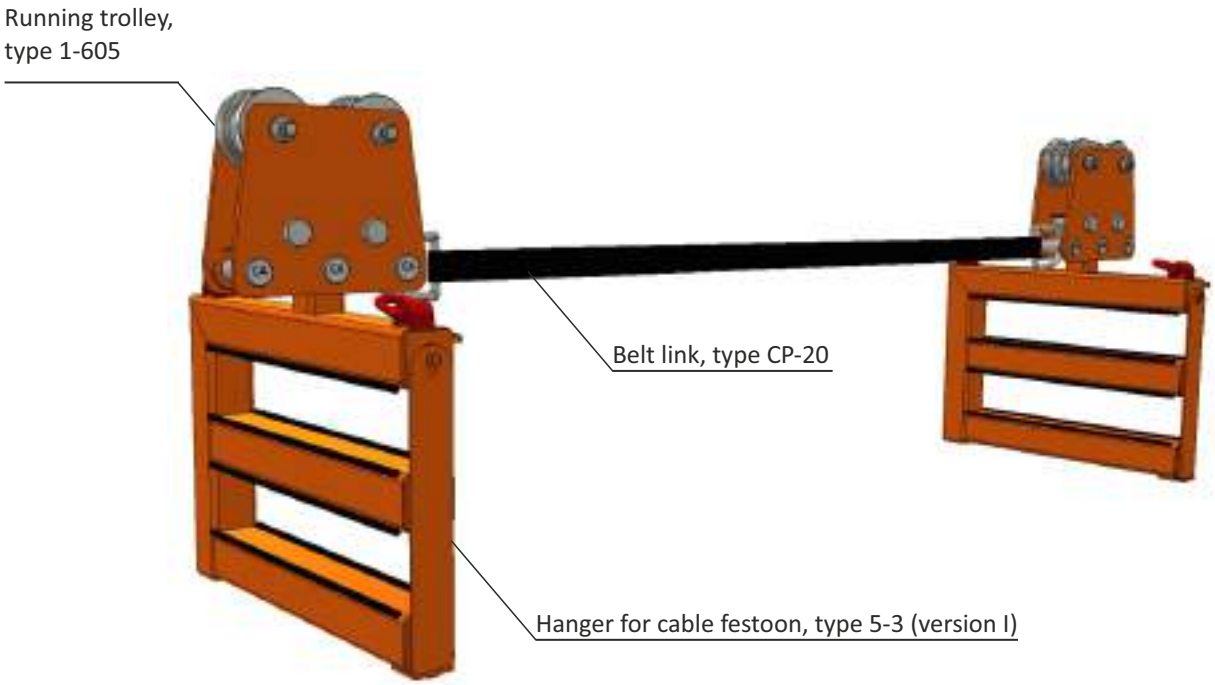


Figure 2. Running trolley, type 1-605, hanger for cable festoon, type 5-3 (version I), belt link, type CP-20



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CARBOMECH Sp. z o.o.

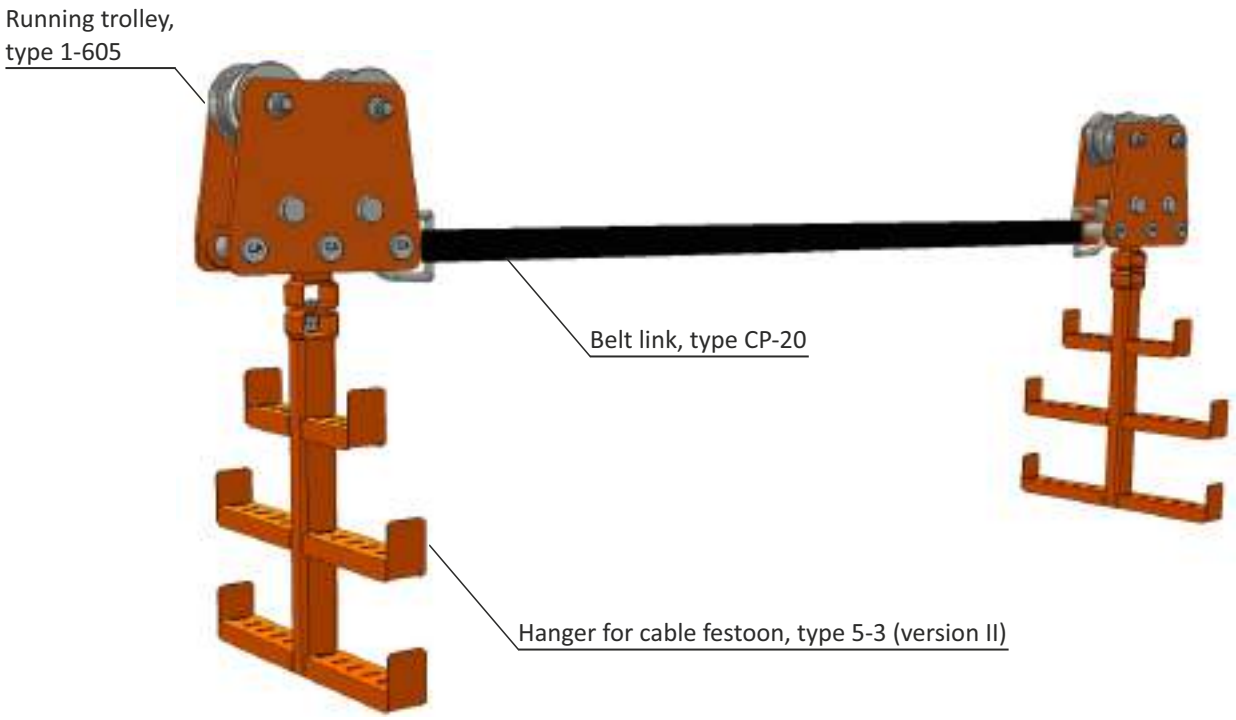
Specification

No. specifications: III/02b

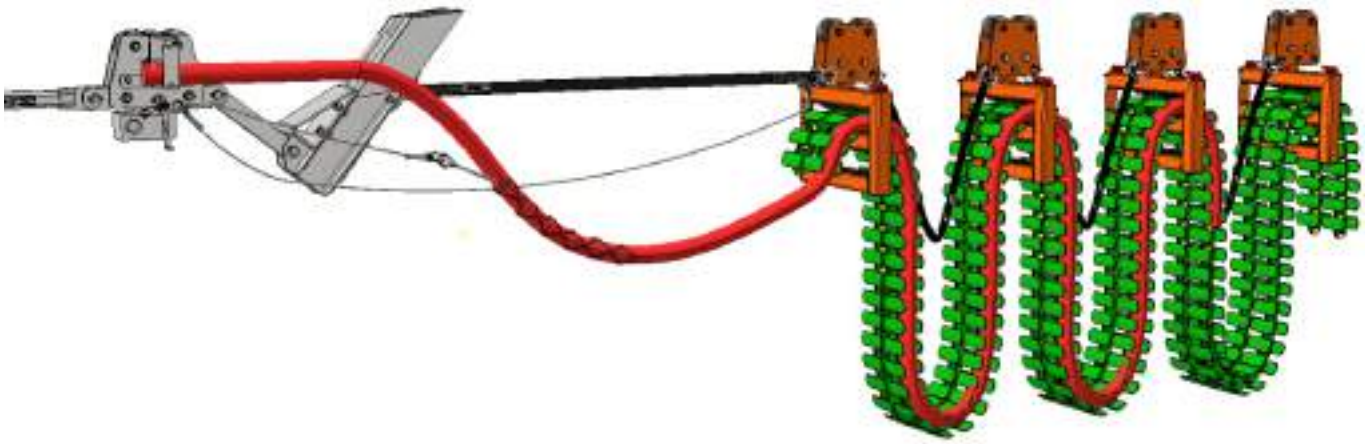
Name: The sling

Type: 11-200

Figure 3. Running trolley, type 1-605, hanger for cable festoon, type 5-3 (version II), belt link, type CP-20



Пример использования



Purpose

The sling of the type 11-200 is designed for suspension of electric cables and conductors as well as hydraulic hoses down a specific section of a roadway with displacement of suspended lines in pace with the progress of mining works.

The sling protects suspended lines against mechanical damage and prevents from twisting of lines. Use of the sling of the type 11-200 eliminates the risk of shorts or breaks in cables and conductors, which contributes to improvement of occupational safety conditions.

The sling can be used in underground workings of mining operations in areas degree of methane explosion hazard.

Aadditional information

Declaration, concerning the meeting of the technical requirements, by the product.

CARBOMECH Sp. z o.o.

Specification

No. specifications: III/03

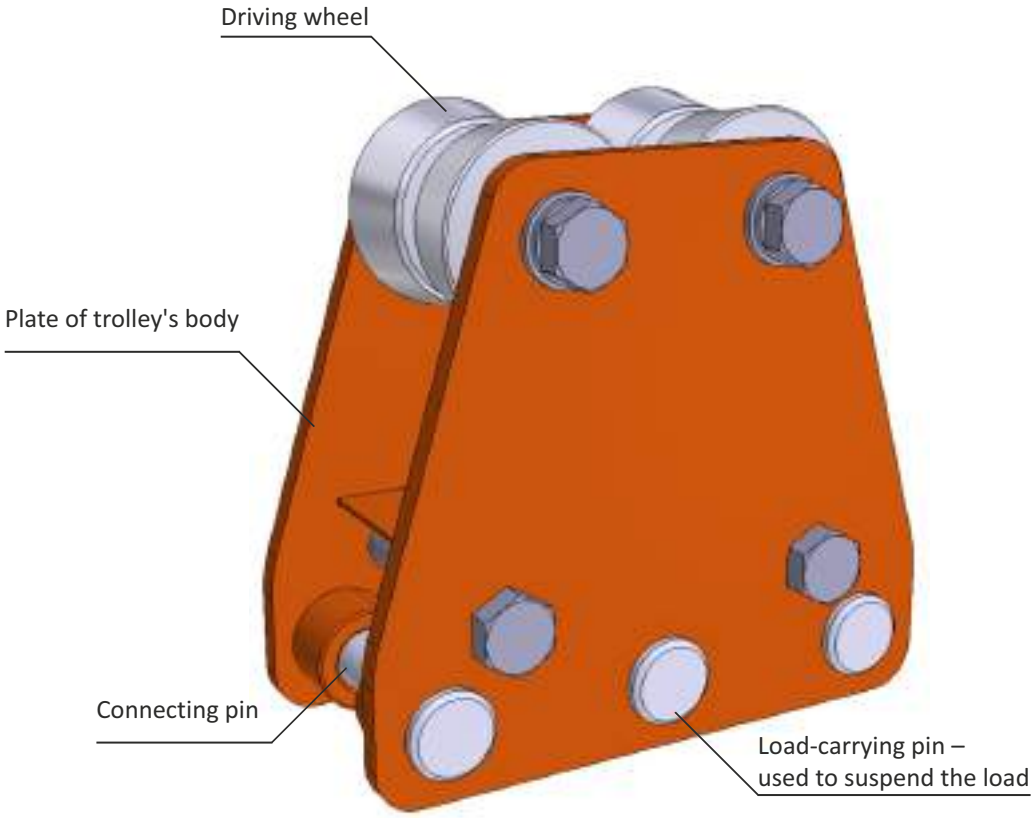
Name: The trolley

Type: 1-606

Technical parameters

Load capacity	1500 kg
Weight	9 kg
Pulling or pushing force	20 kN
Speed of travelling	2 m/s
Rail profile	I 155, I 140E, I 140V
Maximum inclination of the route	27°

Figure



Purpose

Trolleys of 1-606 are used to transport loads, along the tracks of a suspended monorail transport system, installed in underground mines, in methane and non-methane areas. Trolleys are intended for the in the transport unit of a train with electric system, driven by a self-locking sliding device of 20-101 or 11-101.

Aadditional information

Declaration, concerning the meeting of the technical requirements, by the product.

CARBOMECH Sp. z o.o.

Specification

No. specifications: III/04

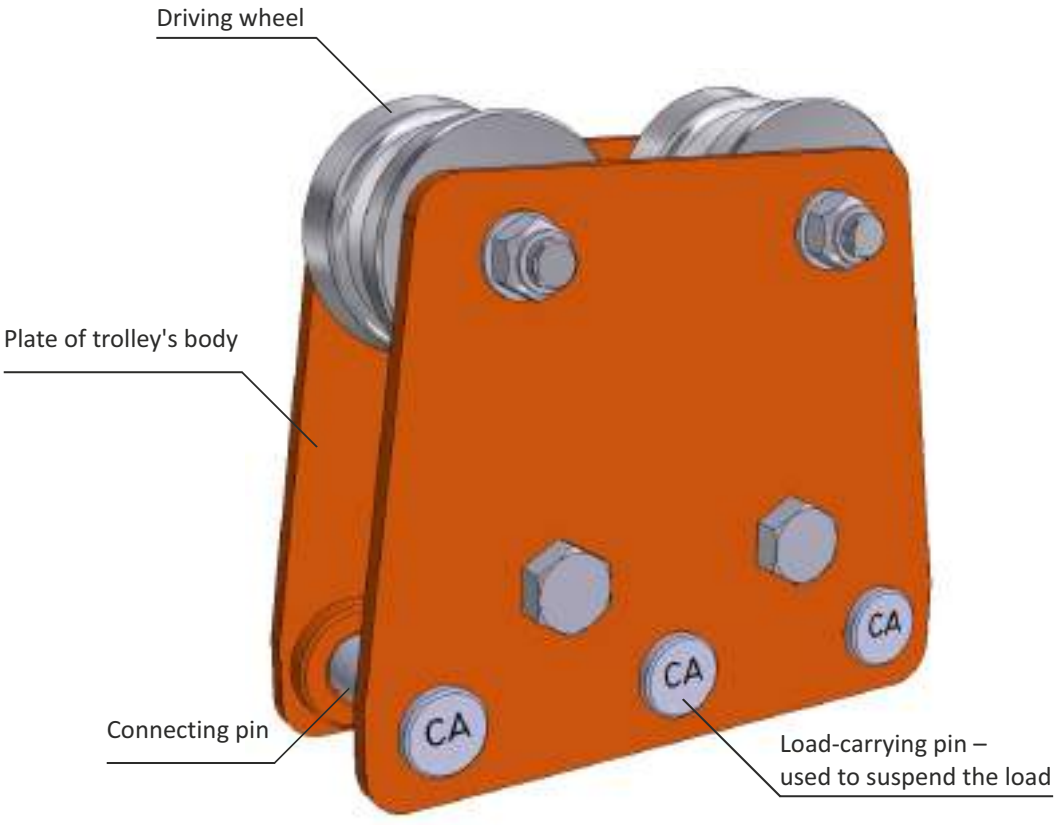
Name: The trolleys

Type: 1-605

Technical parameters

Load capacity	2000 kg
Weight	28 kg
Pulling or pushing force	20 kN
Speed of travelling	2 m/s
Rail profile	I 155, I 140E, I 140V
Maximum inclination of the route	27°

Figure



Purpose

The trolleys of 1-605 are used to transport loads, along the tracks of a suspended monorail transport system, installed in underground mines, in methane and non-methane areas. The trolleys are intended for the in the transport unit of a train with electric system, driven by a self-locking sliding device of 20-101 or 11-101.

Aadditional information

Declaration, concerning the meeting of the technical requirements, by the product.

CARBOMECH Sp. z o.o.

Specification

No. specifications: III/05

Name: The belt link

Type: CP-20

Technical parameters

Minimum length	750 mm
Maximum length	3000 mm
Dedweight of the link	0,9-1,2 kg
Maximum travelling speed of trolleys coupled with the link	1 m/s
Maximum pulling force (with the sefty factor n=3)	20 kN

Figure

Purpose

The belt link , type CP-20 is designed to couple trolleys, type 1-604, 1-605 and 1-606 to arrange a transportation train for displacements of cable, conductor and hydraulic hose set.

Use of the belt link, type CP-20 to connect troley protects suspension of electrical cables and conductors as well hydraulic hoses with displacement of suspended lined in pace with the progress of mining work and protects suspended lines against mechanical damage and twisting of lines.

Aadditional information

Declaration, concerning the meeting of the technical requirements, by the product.

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CARBOMECH Sp. z o.o.

Specification

No. specifications: III/06

Name: Monolayer belt sling with end lugs

Type: ZP-7,5

Technical parameters

Minimum length	750 mm
Maximum length	10000 mm
End lug weight	0,9-4,0 kg
Maximum lifting speed	0,5 m/s (rapid lifting with jerks must be avoided)
Ambient temperature for the sling operation	from -40 to 100ºC (according to PN-EN 1492-1 A1)

Working load limit WLL

straight arrangement with the angle of 0º	7,5 kN
for a lop	6,0 kN
for the deflection angle up to 45º	10,5 kN
for the deflection angle from 45º to 60º	7,5 kN

Safety factor

for a belt sling	n=5
for polyester strips	n=7
for metal parts	n=4

Figure

Purpose

The monolayer belt sling with the lugs, type ZP-7,5 is enable the suspending/hanging of a load into trolley of the suspended monorail transport system.

The monolayer belt sling with lugs, type 7,5 can be installed in underground excavations of mining work operations, in methane and non-methane areas.

Aadditional information

EC Declaration of Conformity
Declaration, concerning the meeting of the technical requirements, by the product.

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CARBOMECH Sp. z o.o.

Specification

No. specifications: III/08a

Name: Manually operated running trolley

Type: R-150/R250

Technical parameters

Characteristic	R-150	R-250
Load capacity	150 kg	250 kg
Load capacity, a double set	300 kg	500 kg
Place of work	**Track of a suspended monorail system**	
Speed	0 ÷ 1,0 m/s	0 ÷ 1,0 m/s
Weight	5,7 kg	6,0 kg

Figure

Figure 1 – Manually operated running trolley, type R-150

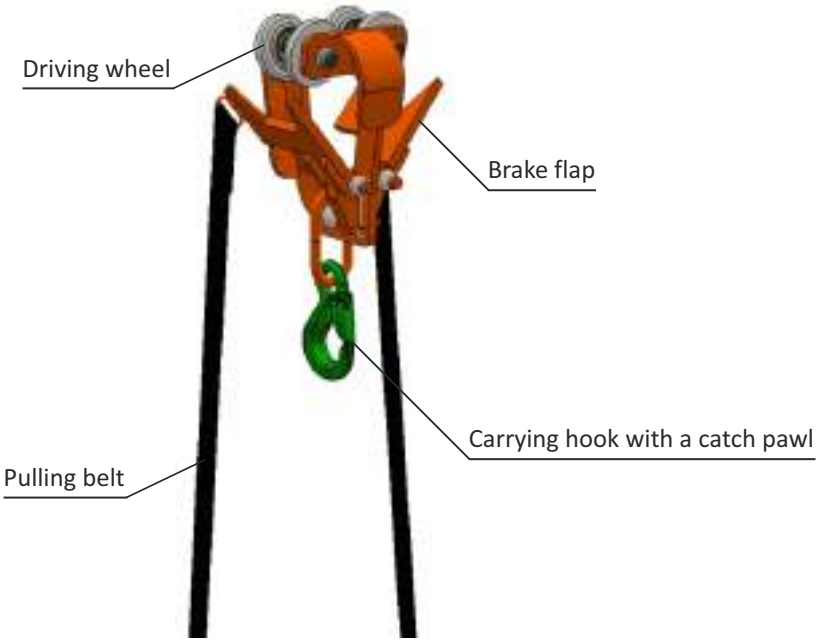

Figure 2 – Manually operated running trolley, type R-250

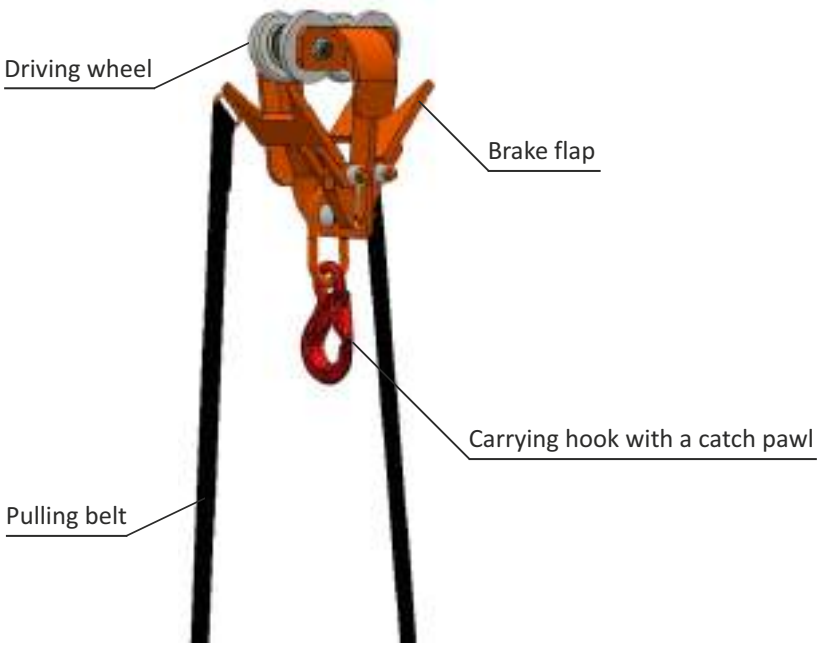

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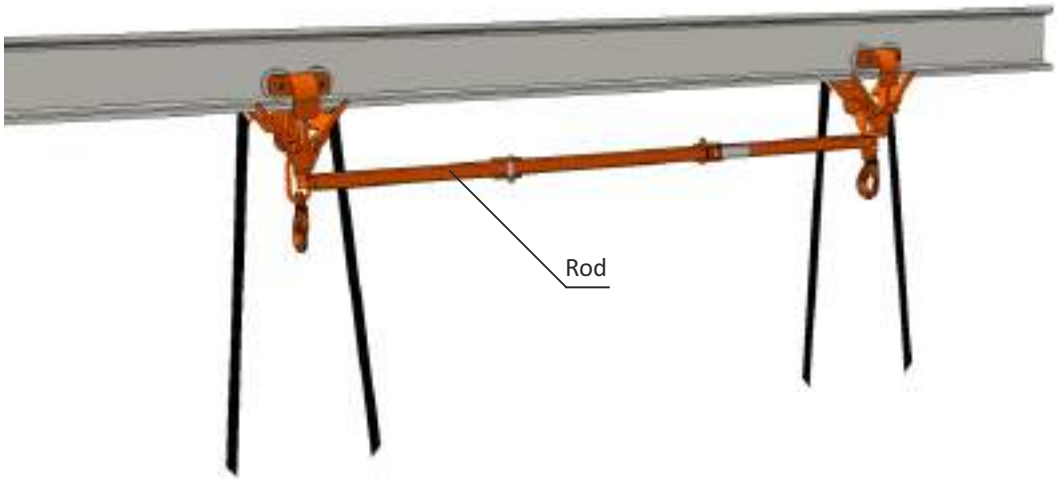
Figure 3. Double running trolleys set, type R-150/R-250 connected by rod



Application example

Purpose

Manually operated running trolley, type R-150/R-250 is used to transport loads to 150 kg (for the running trolley, type R-150) and 250 kg (for the running trolley, type R-250).

In order to make transport longer elements it is necessary to use the double running trolleys set type R-150/R-250 connected by rod.

The running trolley, type R-150/R-250 can be used in underground excavations of mining work operations, in methane and non-methane areas.

Aadditional information

Declaration, concerning the meeting of the technical requirements, by the product.

CARBOMECH Sp. z o.o.

Specification

No. specifications: III/09a

Name: Lightweight overhead monorail track

Technical parameters

Rail profile	Equal flange tees T70 (to PN-EN 10055:1999)
Maximum length of rail sections	2.0 m
Maximum slope of tracks:	
For manual haulage of loads	± 4º
For haulage of a cable bundle	± 27º
Deflection angle of rails at joints, in the vertical plane	max ±7º
Deflection angle of rails at joints, in the horizontal plane	max ±0,5º
Minimum radius of track bends, in the horizontal plane	R = 4 m
Height dimension of the bottom link for joints	≤ 40 mm
Working load limit for rail joints down the direction of suspension	5 kN
working load limit for rail joints down the direction of tracks	10 kN
Maximum haulage speed of transportation units	1 m/s
Length of straight rail sections, type I or II	typically 2m (0.5 m, 1.0 m, 1.5 m upon individual orders)
Length of intermediate rails	typically 2m (0.5 m or 1.0 m upon individual orders)
Length of interfacing rails	1.0 m

Purpose

The lightweight overhead monorail track is designed for transportation of suspended loads with manual haulage of load items or by means of suspended trolleys of the R-150 or R-250 types with immediate braking. These trolleys can be used as single units or combined in transportation sets, where pairs of trolleys are coupled by means of a connecting rod.

The lightweight overhead track can be also used to convey bundles of electric cables and conductors as well as hydraulic hoses suspended from trolleys of the 1-604 type.

The track is a set of rails arranged and mutually interconnected according to the layout required by a user with consideration of needs and local conditions. The track is suspended on roof hangers and stabilized by means of side tendons.

All rails of the monorail track, including straight and curved sections, are made of steel equal flange tees T70 (to PN-EN 10055:1999). The track is suspended from roof support frames of a roadway by means of chain hangers. The same chain hangers can be also used to suspend a track from anchor bolts driven into the roadway roof.

The set of components designed to assemble lightweight overhead track include:

- straight rails, type I – designed for construction of straight sections of an overhead track,
- straight rails, type II – designed for construction of straight sections of an overhead track,
- curved rails – designed for constructions of bent sections of an overhead track,
- right /left hand side intermediate rails – designed to make connections between straight and curved rails,
- interfacing rails – to make connections between straight rails and rails of overhead tracks from other manufacturers.

Auxiliary equipment for overhead tracks:

- hangers to suspend the track from roadway support frames and to stabilize the track.
- suspension chains with long chain links 13 x 82 x 50 designed to PN -75/M-84543,
- shackles with the maximum working load limit (WLL) ≥ 1.0 to suspend rails, tendons for stabilization of an overhead track.

Aadditional information

Declaration, concerning the meeting of the technical requirements, by the product.

Figure

Fig.1. Installation of a lightweight track – option I

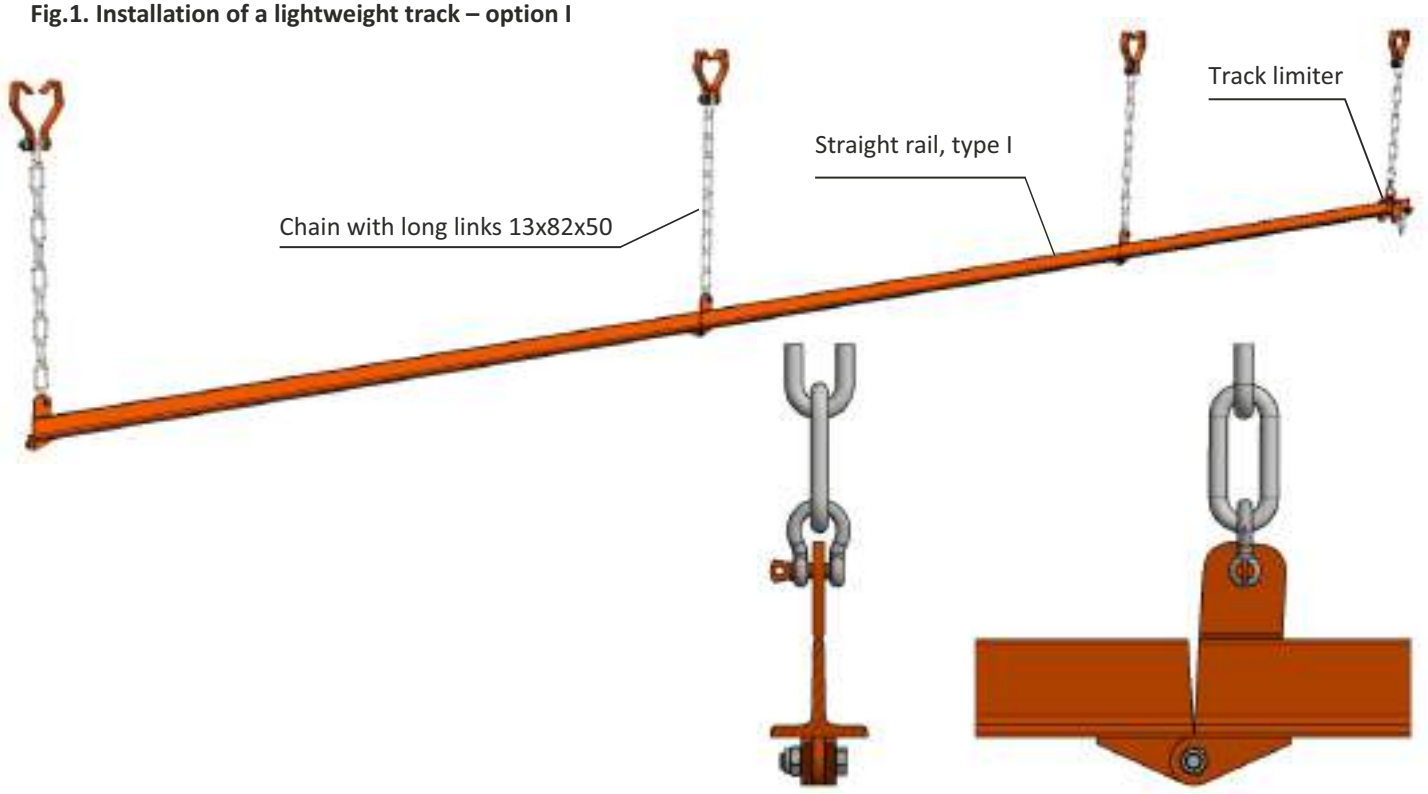


Fig. 2 - Connecting rails - version I

Fig. 3. Installation of a lightweight track – option II

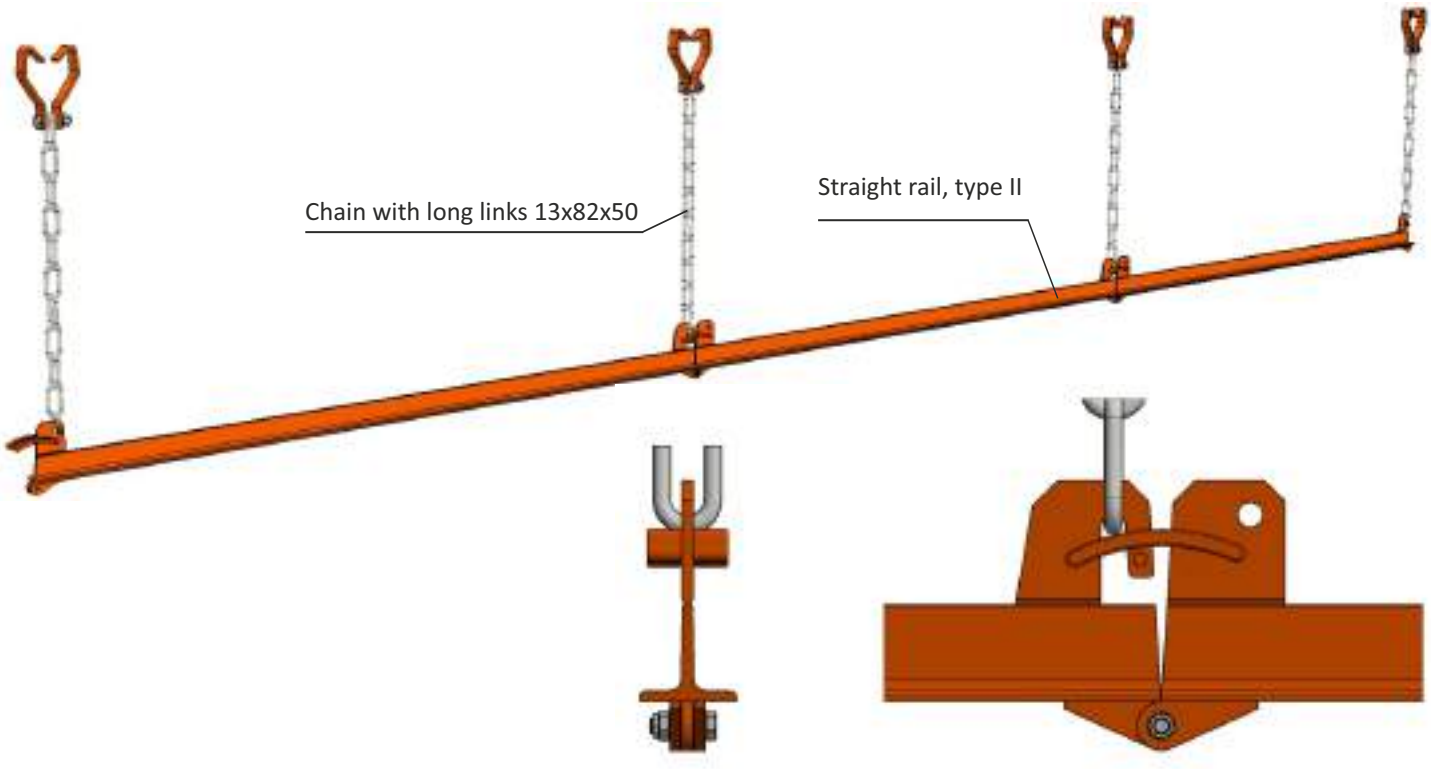


Fig. 4 - Connecting rails - version II

CARBOMECH Sp. z o.o.

Specification

No. specifications: III/11/1/a

Name: Additional elements for suspended transport set

Technical parameters

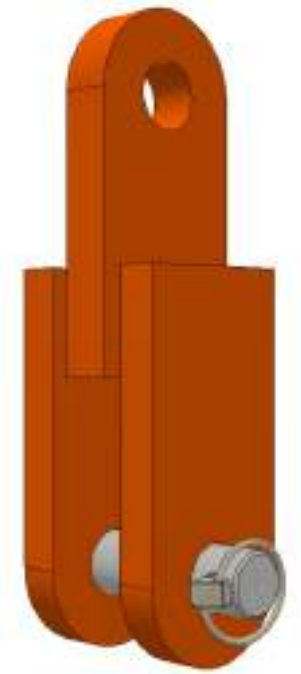
The fastening element, type 11-502/H, 11-503/H
are elements embedded between the load ad carrying handles
of the components of the suspended monorail transport system.
Their purpose is hold the suspended load.

Figure

Figure 1. Cross connector, 20-502/H type

Load capacity	40 kN
Height	160 ÷ 500 mm

Figure 2. Parallel connector, 20-503/H type



Load capacity	40 kN
Height	160 ÷ 500 mm

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CARBOMECH Sp. z o.o.

Specification

No. specifications: III/11/1/b

Name: Additional elements for suspended transport set

Purpose

Cross connectors, 11-502 type and parallel connectors are intended for the fastening of loads to the handles of the components of the suspended transport system. They have been designed as welded structures.

The coupling between the connectors load and fastening handles is carried.

Aadditional information

Declaration, concerning the meeting of the technical requirements, by the product.

CARBOMECH Sp. z o.o.

Specification

No. specifications: III/11/2

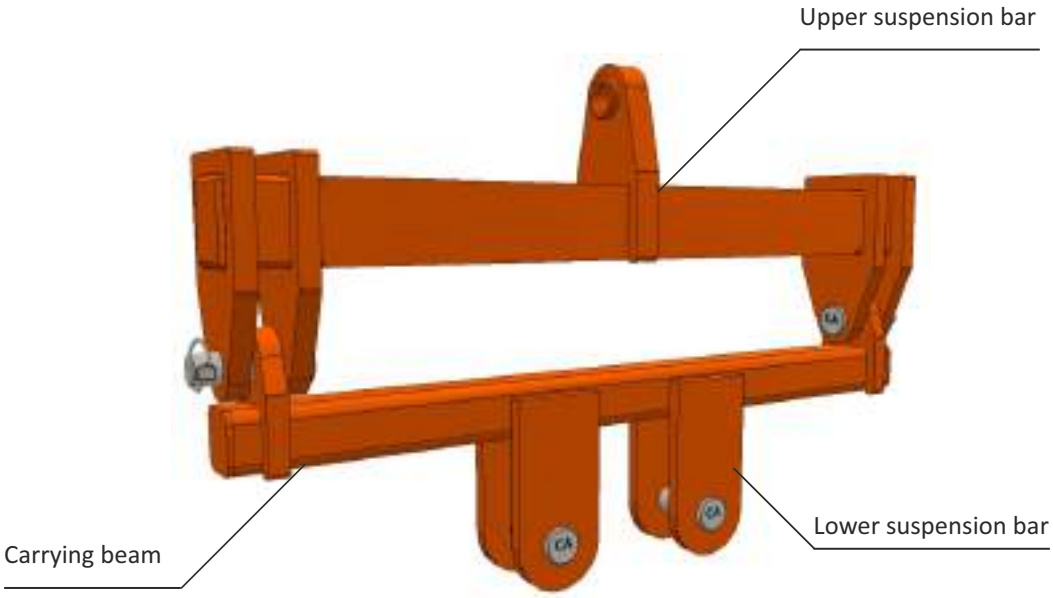
Name: Additional elements for suspended transport set

Technical parameters

The fastening element, type 11-505/L
are elements embedded between the load ad carrying handles
of the components of the suspended monorail transport system.
Their purpose is hold the suspended load.

Figure

Figure 3. Cross-bar, type 11-505/L



Load capacity [kN]	Width of cross –bar, type 11-505/L [mm]										
	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800
Q	40	40	40	37,5	34,5	32	29,5	27,5	26	24,5	23

Purpose

The cross-bar, type 11-505/L is used to lift and carrying heavy elements.
It is suspended by hook to the trolley of the transportation unit type 20-363/11-363.

Aadditional information

Declaration, concerning the meeting of the technical requirements, by the product.

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CARBOMECH Sp. z o.o.

Specification

No. specifications: III/11/3

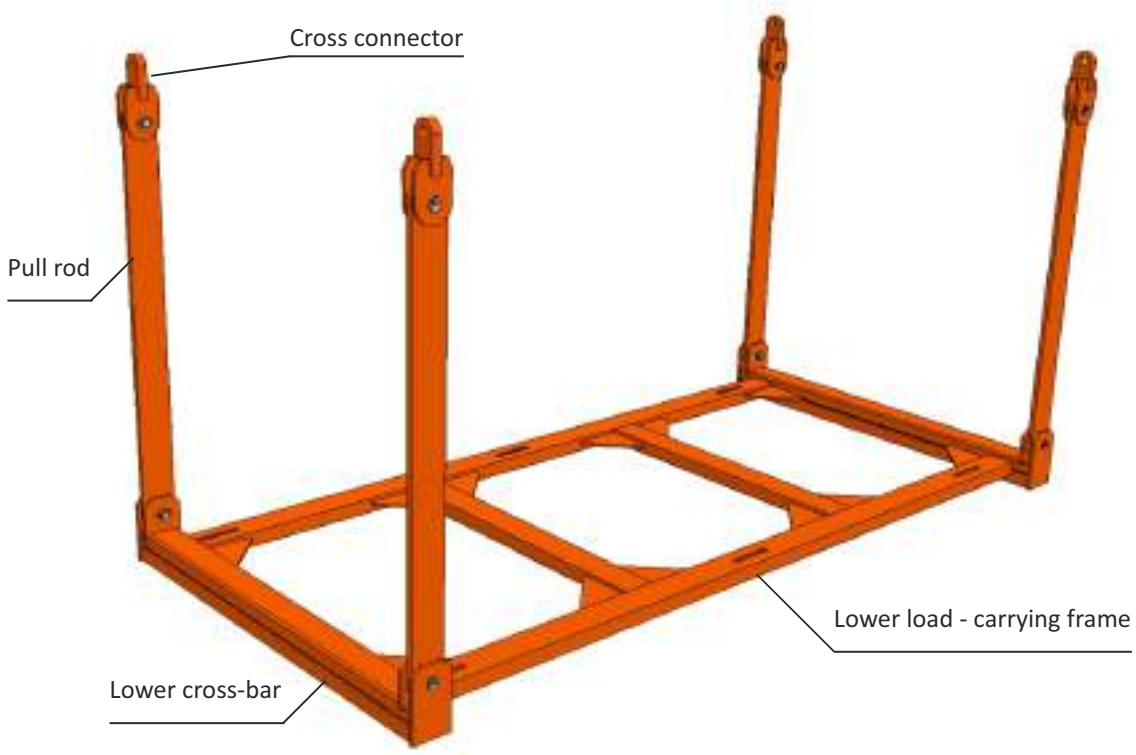
Name: Additional elements for suspended transport set

Technical parameters

The fastening element, type 20-60.4/11-60.4/11-60.5
are elements embedded between the load ad carrying handles
of the components of the suspended monorail transport system.
Their purpose is hold the suspended load.

Figure

Figure 4. Hoop, type 20-60.4/11-60.4/11-60.5



Purpose

The hoop of type 20-60.4/11-60.4/11-60.5 is comprised of the following elements:
- lower load-carrying frame, type 11-60.5/xxx
- four cross connectors,
- four pull rods

Symbol xxx means about the electrical device type, that is located of the frame (compact station or transformer station).
The hoop is connected to the double-trolley set type 20-60.4/11-60.4/11-60.5.

Aadditional information

Declaration, concerning the meeting of the technical requirements, by the product.

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CARBOMECH Sp. z o.o.

Specification

No. specifications: III/11/4

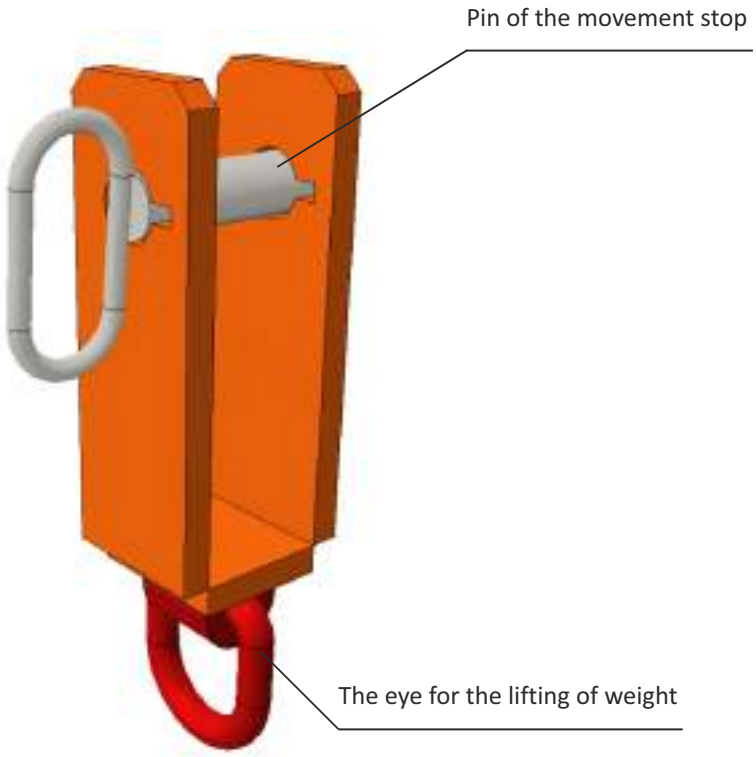
Name: Additional elements for suspended transport set

Technical parameters

Fastening element, type 11-409.3

Figure

Figure 5. 30 kN movement stop with an eye, type 11-409.3.



Purpose

The 30kN movement stop with an eye, type 11-409.3 is intended to be used as:

- an elements that protects against unintended movement of trolleys or loads that have been installed on the track of the monorail transport system;
- as an element that determines the section of the rail of the monorail transport system the train will travel along;
- as an element that secures a working station or the area of loading/unloading, in any place on the route of the monorail transport system, against an unintentional collision with the means of transport that travel along the route;
- as an auxiliary element that enables the using of the rail of the monorail transport system to lift loads (max weight of 30kN) and load them onto the load-carrying and transport elements of the transport units.

Aadditional information

Declaration, concerning the meeting of the technical requirements, by the product

CARBOMECH Sp. z o.o.

Specification

No. specifications: III/12/2

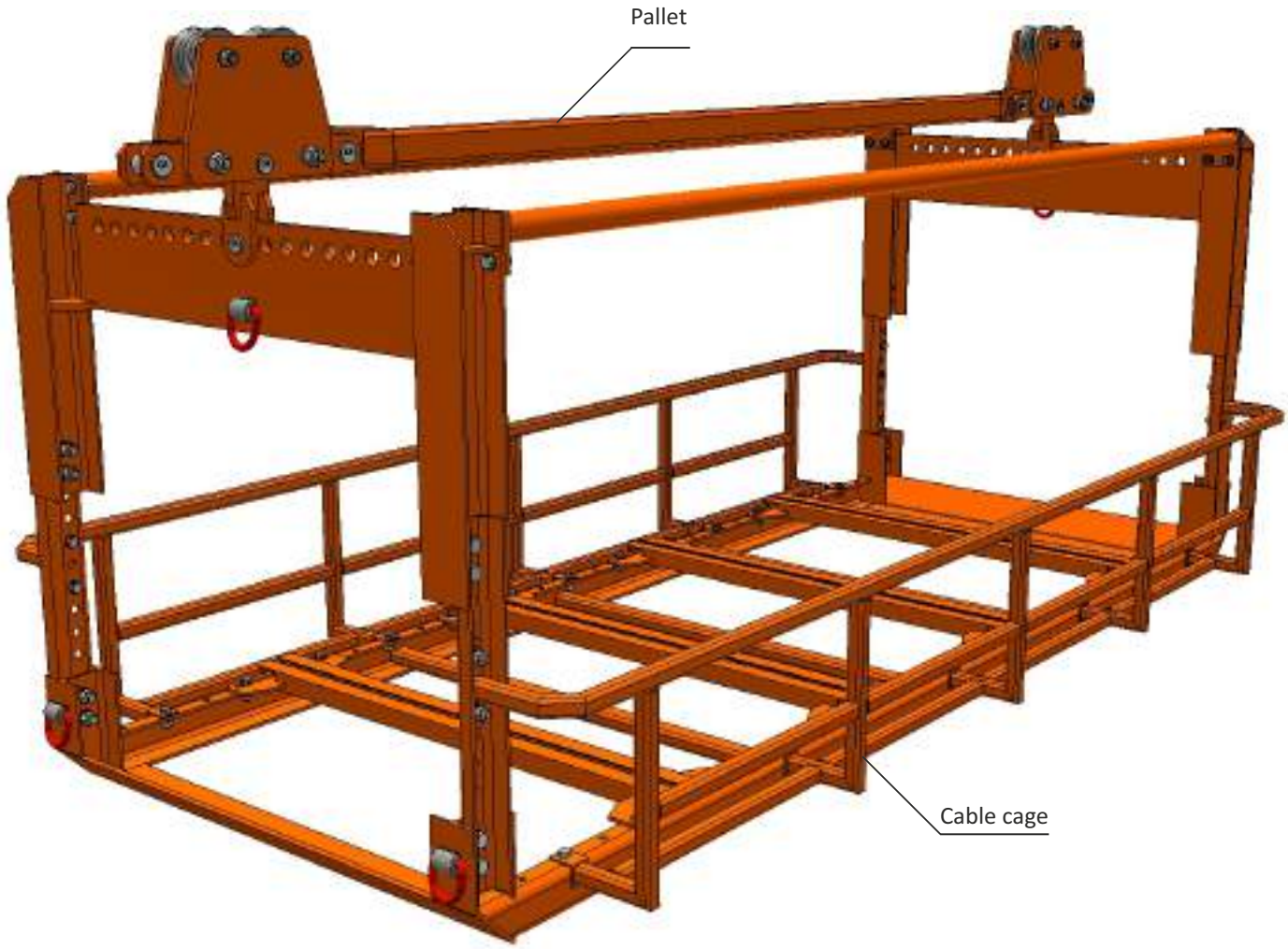
Name: Additional elements to suspended transport set

Technical parameters

Additional elements represent addition to a commercial offer in terms of equipment the electrical train.

Figure

Figure 4. Container for cable.
- Pallet, type 20-316/11-316 with a cable cage.



Purpose

The cable container is attached to the pallet, type 20-316/11-316.
The cable cage is used to protect electric cables are obtained with the moving progress of the longwall.

Aadditional information

Declaration, concerning the meeting of the technical requirements, by the product

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CARBOMECH Sp. z o.o.

Specification

No. specifications: III/12/3/a

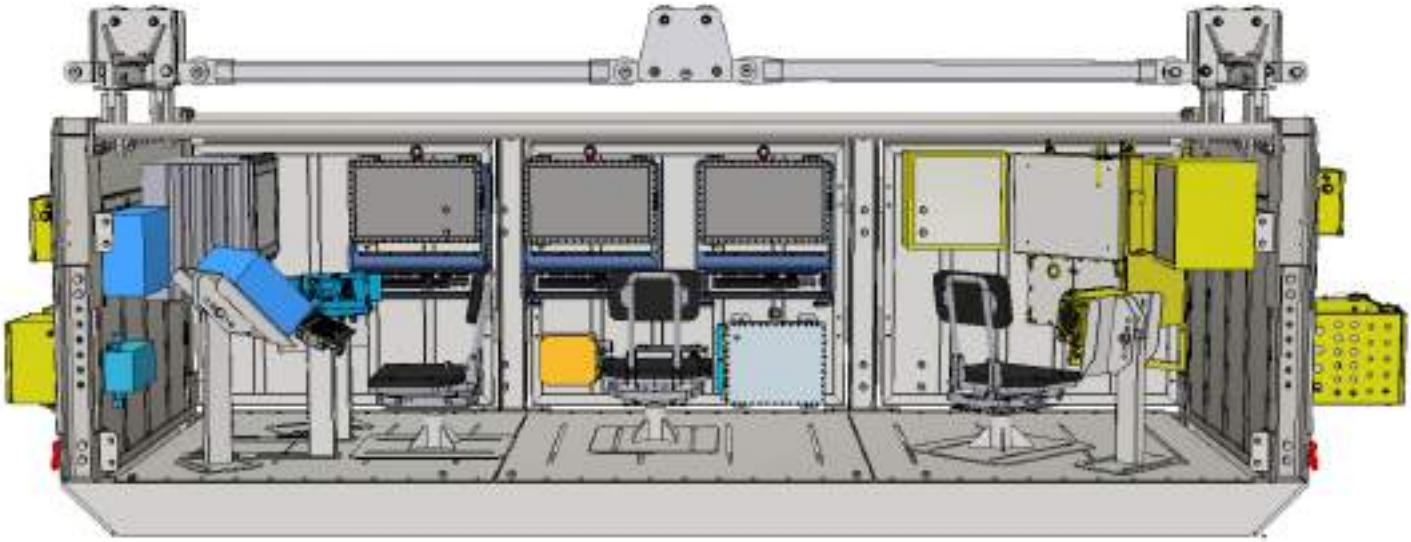
Name: Additional elements to suspended transport set

Technical parameters

Additional elements represent addition to a commercial offer in terms of equipment the electrical train.

Figure

Figure 5. Pallet, type 20-316/11-316/20-318/11-318/11-319 with additional equipments – cabin for monitoring the automatic operation of the longwall machine complex.

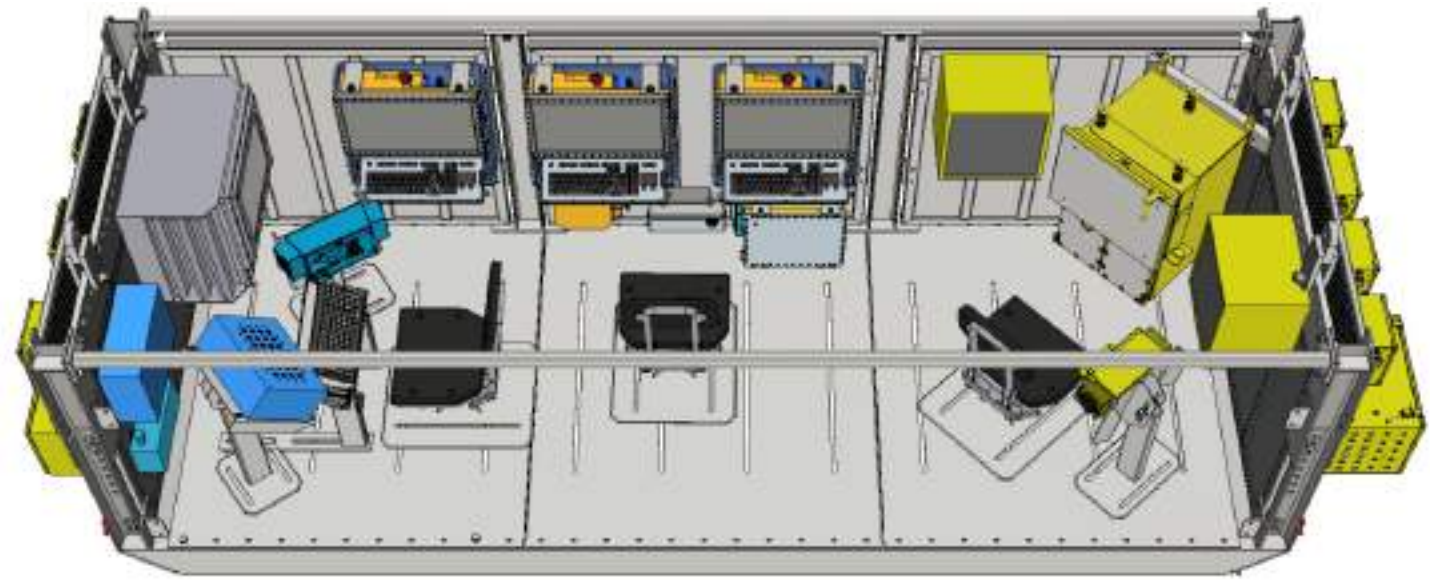


CARBOMECH Sp. z o.o.

Specification

No. specifications: III/12/3/b

Name: Additional elements to suspended transport set



Purpose

The pallet, type 20-316/11-316/20-318/11-318/11-319 with additional electrical equipment is used as a cabin for monitoring of the automatic operation system the longwall machine complex.
Inside the cabin are mounted:
- operator's seats,
- openwork sheets for the light electric equipment (automatic control system of conveyors, crusher, longwall shearer and roof support)

Aadditional information

All of the additional elements of the suspended transport set can be used in methane hazards zones.
Declaration, concerning the meeting of the technical requirements, by the product.

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CARBOMECH Sp. z o.o.

Specification

No. specifications: III/12/4

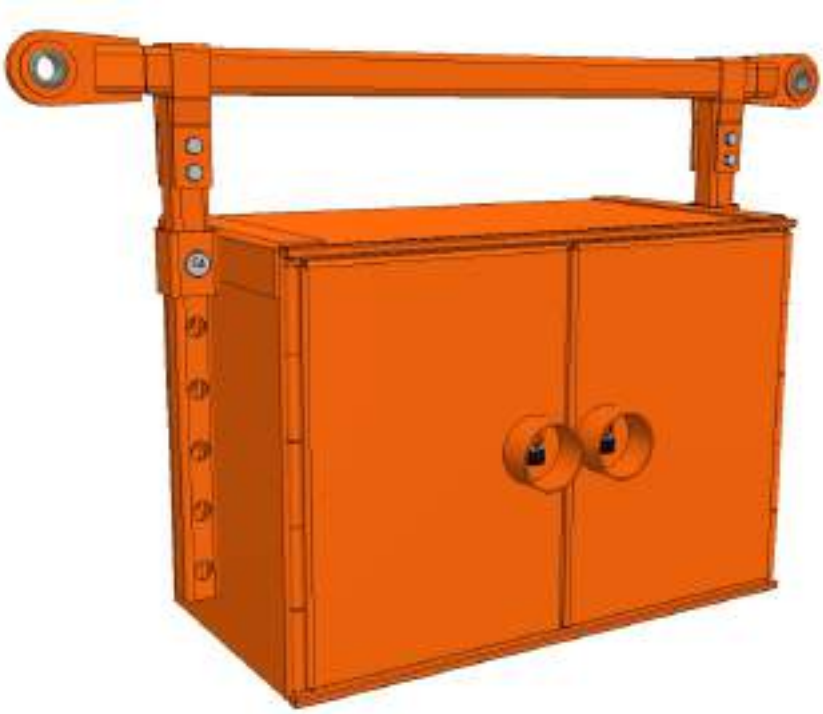
Name: Additional elements to suspended transport set

Technical parameters

Additional elements represent addition to a commercial offer in terms of equipment the electrical train.

Figure

Figure 6. Cabinet for spare parts or tools, type 20-351/11-351



Load capacity	300 kg
Length	1250 mm
Width	556 mm
Height	710 mm

Purpose

The cabinet, type 20-351/11-351 is intended for spare parts or tools. It can be installed on the rod that connects elements/parts of the transport unit. The centre of the cabinet is divided in two or four parts. The cabinet has a door that opens to the sides.

Aadditional information

All of the additional elements of the suspended transport set can be used in methane hazards zones.
Declaration, concerning the meeting of the technical requirements, by the product.

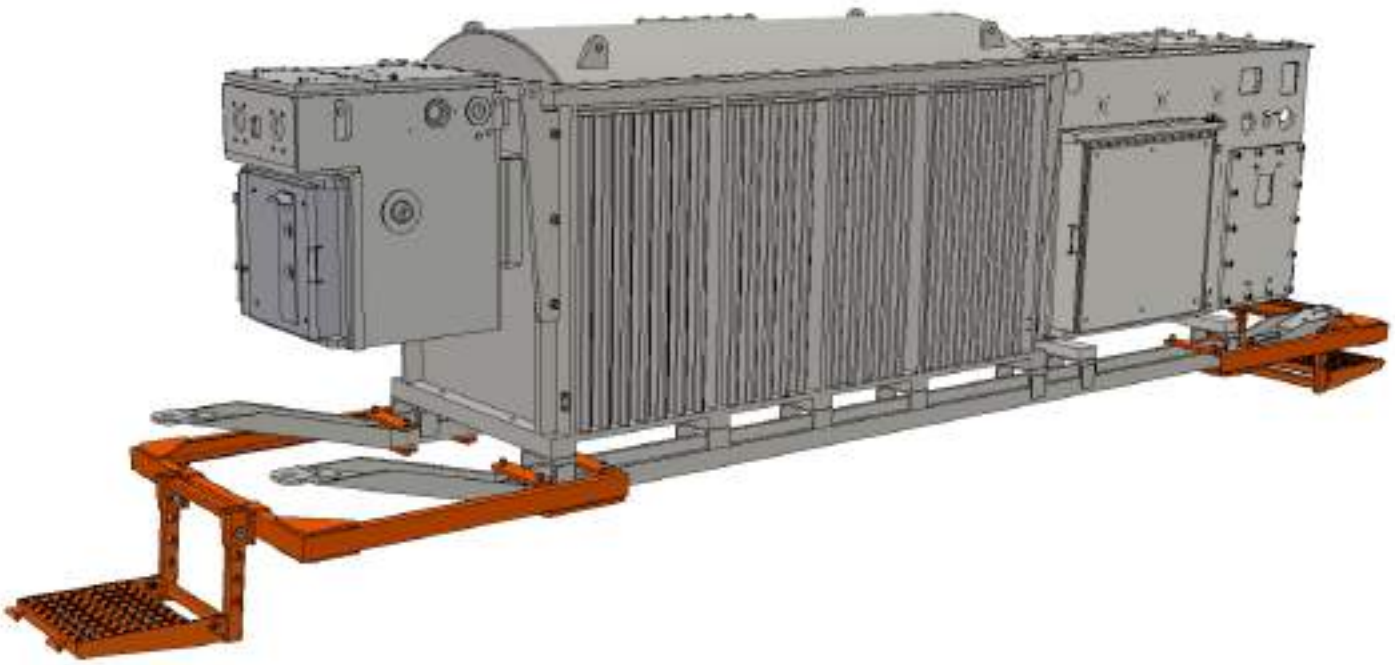
Technical parameters

Additional elements represent addition to a commercial offer in terms of equipment the electrical train.

Figure

Figure 7. Step, type 20-408

Figure 7a. Step, type 20-408 directly suspended onto a transformer station

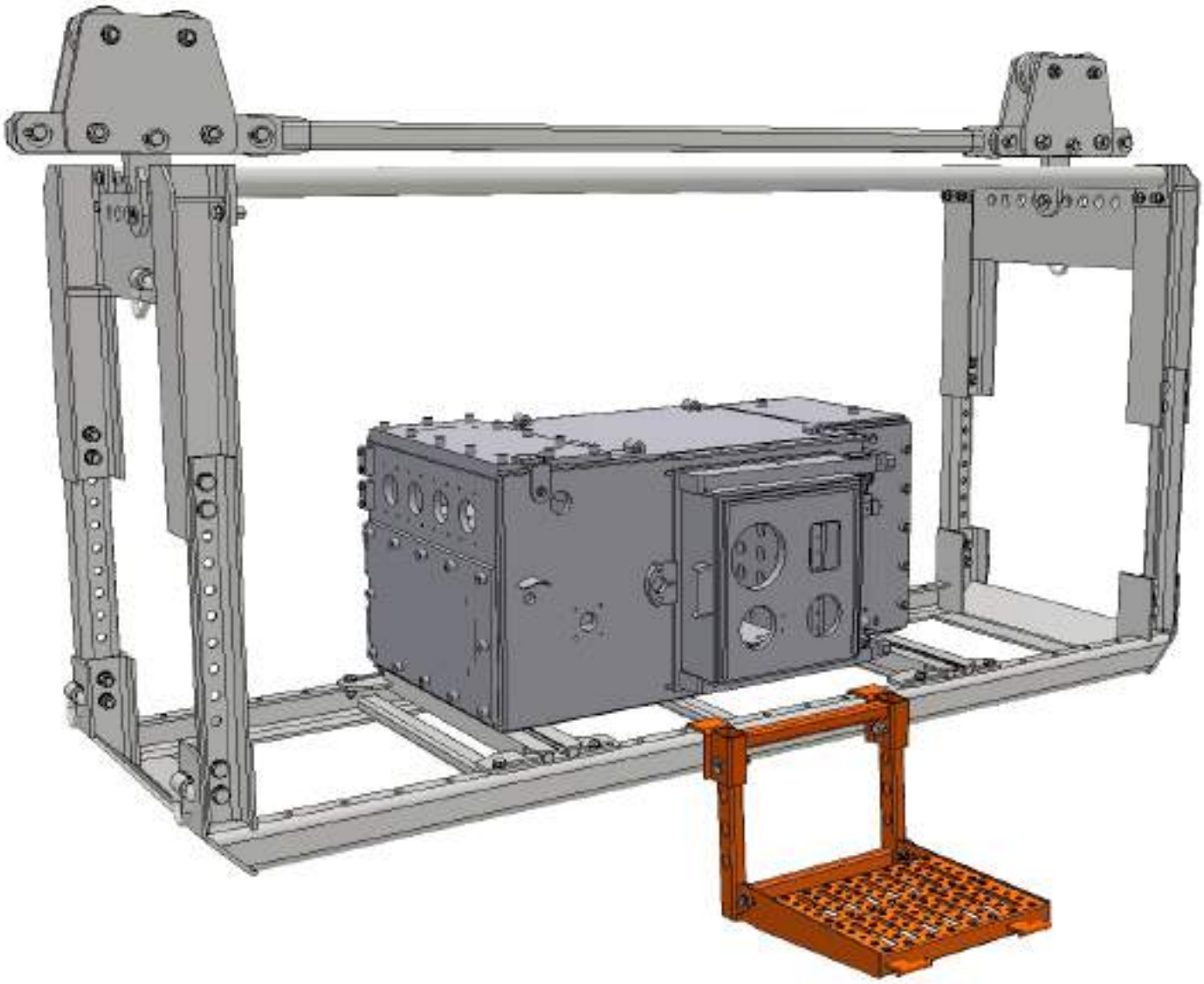


CARBOMECH Sp. z o.o.

Specification

No. specifications: III/12/5/b

Name: Additional elements to suspended transport set



Purpose

The step, type 20-408 enables easy access to the electric equipments loaded on the pallet or facilitates service work on the transformer.

The step, 20-408 can be directly suspended onto frame of the pallet type 20-316/11-316/20-318/11-318/11-319 or a transformer station.

Aadditional information

All of the additional elements of the suspended transport set can be used in methane hazards zones.
Declaration, concerning the meeting of the technical requirements, by the product.

CARBOMECH Sp. z o.o.	Specification	No. specifications: III/12/6/a
	Name: Additional elements to suspended transport set	

Technical parameters

Additional elements represent addition to a commercial offer in terms of equipment the electrical train.

Figure

Figure 8a. Ladder (version I)

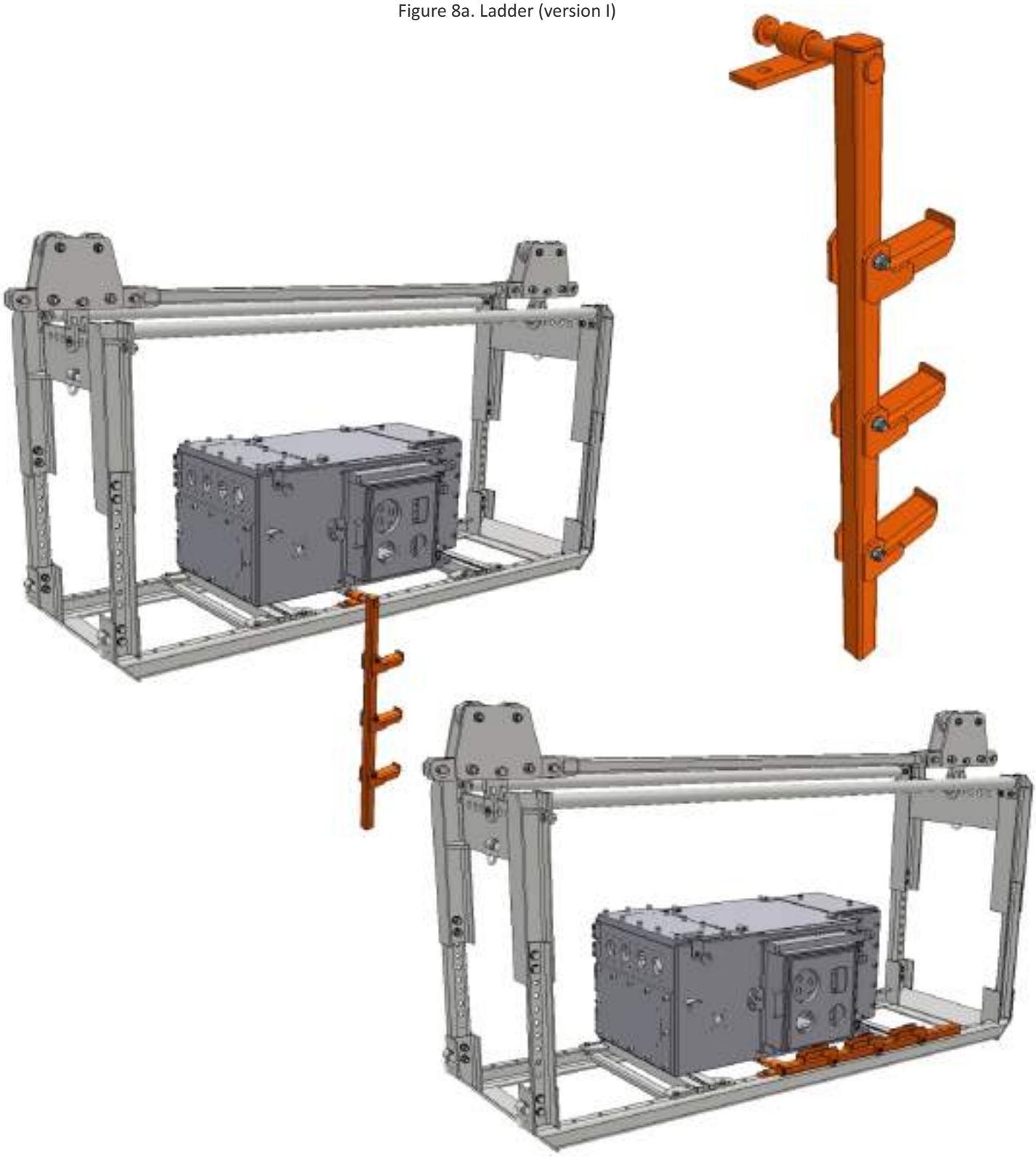


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Figure 8b. Ladder (version II)

Purpose

The ladder (version I) enables easy access onto load-carrying frame of the pallet, type 20-316/11-316/20-318/11-318/11-319.
The ladder (version II) is suspended on to step, type 20-408

Aadditional information

All of the additional elements of the suspended transport set can be used in methane hazards zones Declaration, concerning the meeting of the technical requirements, by the product

CARBOMECH Sp. z o.o.

Specification

No. specifications: III/12/7

Name: Additional elements to suspended transport set

Technical parameters

Additional elements represent addition to a commercial offer in terms of equipment the electrical train.

Figure

Figure 9a. Hanger for the flameproof lamp, suspended onto rod, type 11/20

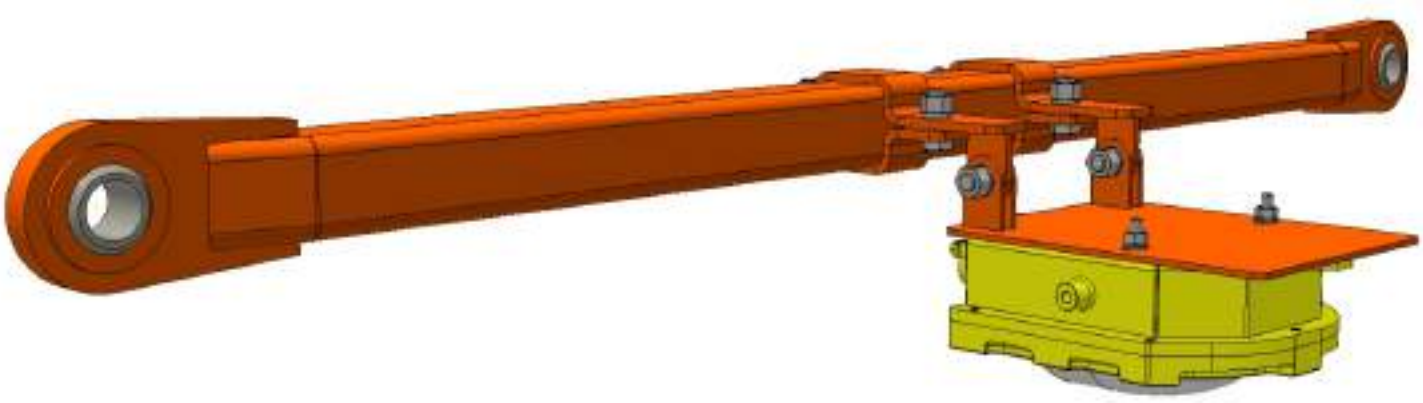
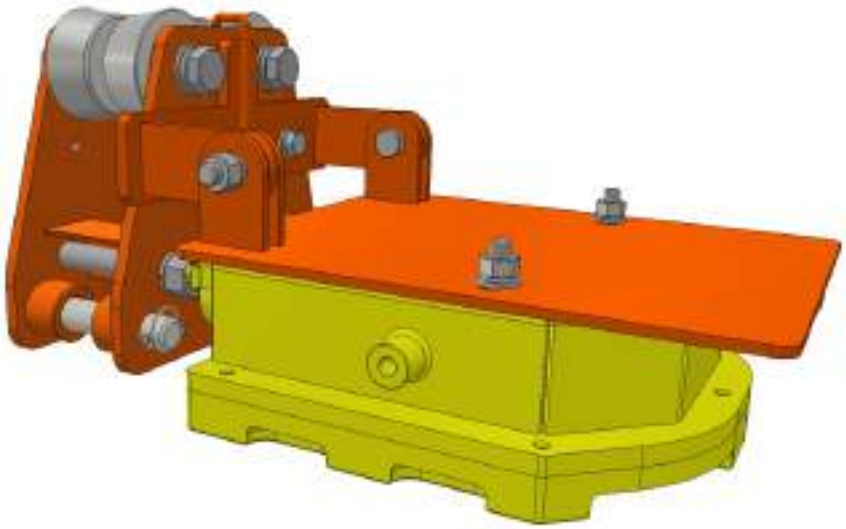


Figure 9b. Hanger for the flameproof lamp, suspended onto trolley type 1-606



Purpose

Hanger for the flameproof lamp can be mounted onto rod, type 20/11 or trolley type 1-606.

Aadditional information

All of the additional elements of the suspended transport set can be used in methane hazards zones.
Declaration, concerning the meeting of the technical requirements, by the product.

CARBOMECH Sp. z o.o.

Specification

No. specifications: IV/01/a

Name: Travelling working platform

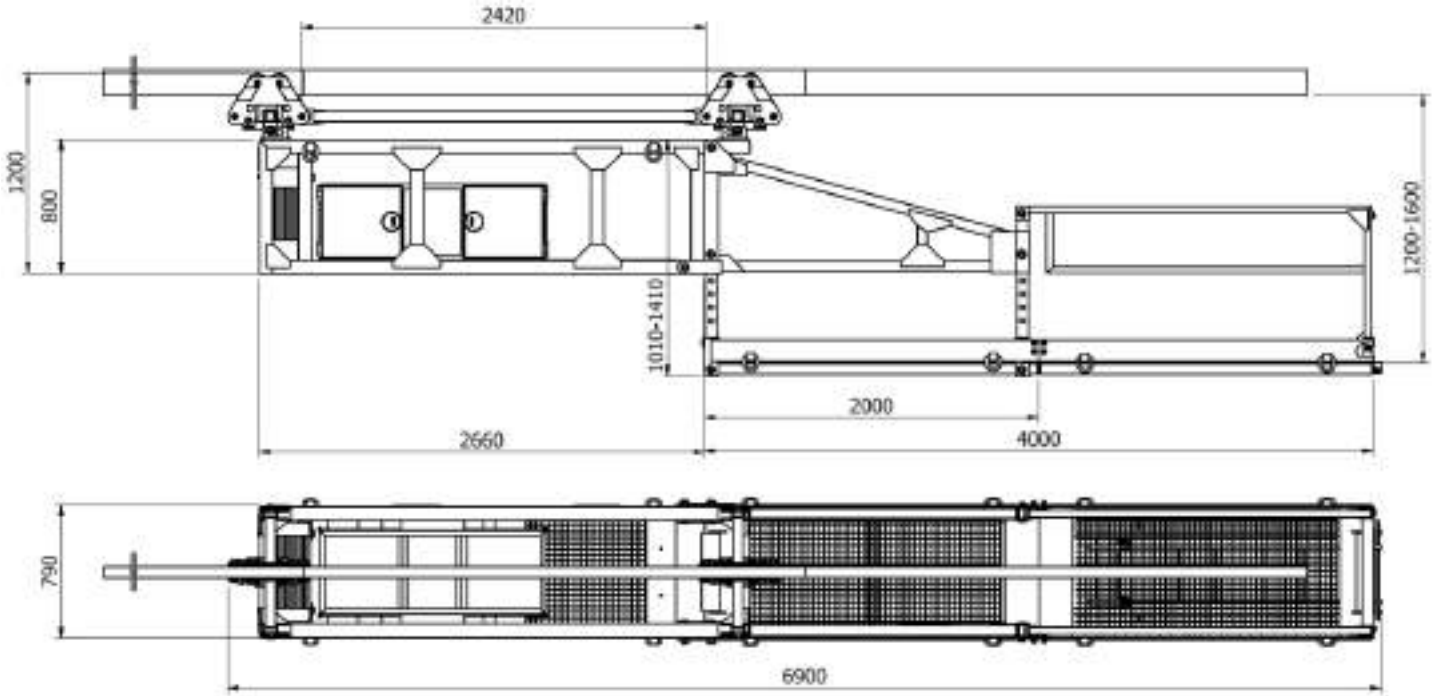
Type: 8-351.1

Technical parameters

Installation place	Overhead monorail track: - rail profile I 155 (I140E to DIN) or 140 V - maximum length of rail sections - 3000 mm
Weight of the working platform	520 kg (w/o a ladder)
Weight of the load-bearing frame	335 kg (w/o a toolbox and a counterweight)
Weight of the counterweight	600 kg
Working load of the platform with personnel	350 kg
Weight of the complete platform	ca. 1720 kg (with two trolleys 20-360.4 and the coupling rod 20-371) ca. 1770 kg (with two trolleys 11-360.4 and the coupling rod 11-388)
TThe towing /pushing force acting onto the platform must be less or equal the maximum limit of towing /pushing force allowed for rolling trolleys and coupling rods used for coupling	60 kN: for trolleys 20-360.4 and the coupling rod 20-371. 110 kN: for trolleys 11-360.4 and the coupling rod 11-388
Haulage speed of the platform prepared for displacements by dismounting of the working floor	less or equal 2 m/s
Maximum haulage speed of the working platform ready for use, down the distance of a single rail section	less or equal 0.2 m/s
Maximum slope angle of the haulage path	within limits specified in the approval for a towing device, rolling trolleys and a coupling rod used for the specific application, but not more than ±12º due to the requirement to maintain stability of the platform with personnel working on board
	when the slope angle of the overhead track is not more than ± 4º the travelling platform can be hauled by means of a towing device with manual actuation

Figure

Fig. 1. Travelling working platform, type 8-351.1 – overall dimensions



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CARBOMECH Sp. z o.o.

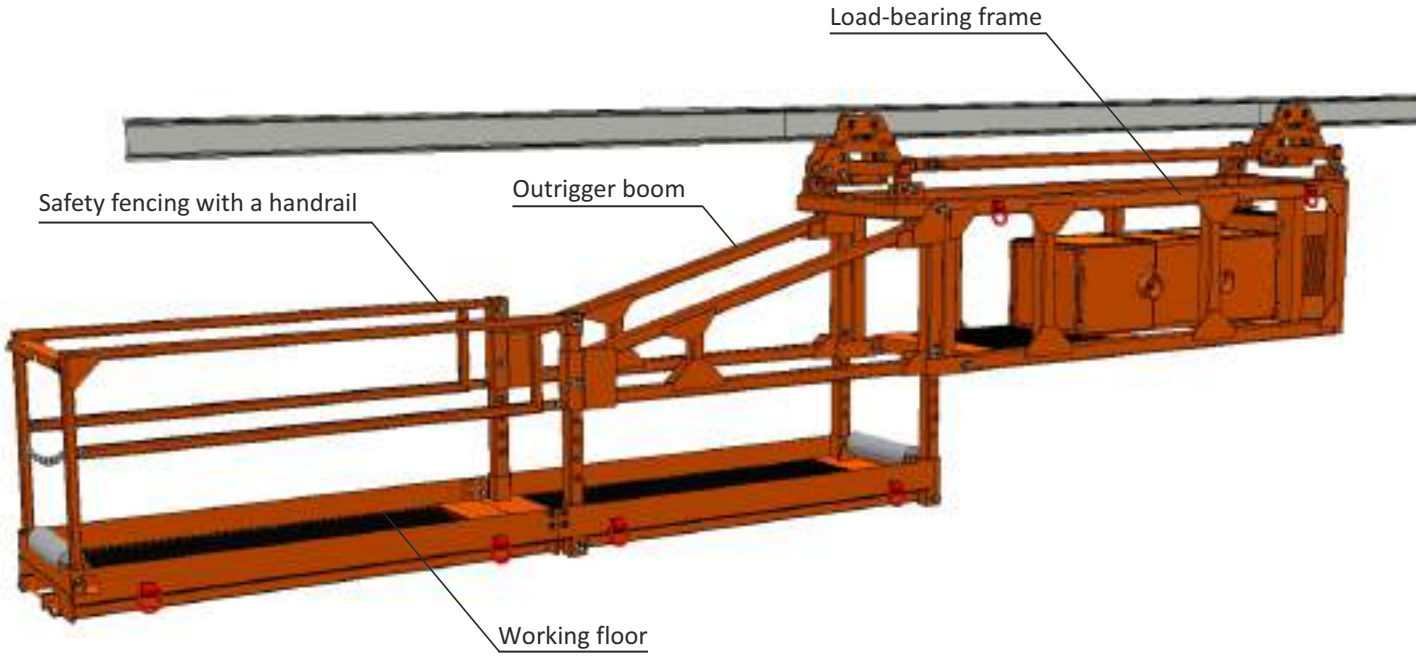
Specification

No. specifications: IV/01/b

Name: Travelling working platform

Type: 8-351.1

Fig. 2. Travelling platform for works on overhead monorail tracks of the type 8-351 (installation, dismounting, maintenance and repairs)



Purpose

The travelling working platform, type 8-351.1, is designed for installation or removing of track rails as well as for repair or maintenance jobs on tracks for overhead monorails with the length of track section not more than 3 m. Design properties of the working platform enables suspension of it from trolleys of the types 20-360.4 or 11-360.4 arranged into a twin rolling unit by connection of them with a self-braking hauling device of the types 20-101, 20-102 or 11-101. The platform can be also coupled with a diesel locomotive, a shuttle car or any other towing device approved for application in underground areas of mining operations.

In mining workings, where the slope angle of the overhead track is not more than ± 4º the travelling platform can be hauled by means of a towing device with manual actuation.

Aadditional information

Declaration, concerning the meeting of the technical requirements, by the product.

CARBOMECH Sp. z o.o.

Specification

No. specifications: VI/01

Name: Self-locking clips for shaft cables

Type: 3-201 do 3-212 (.S; .L; .C)

Technical parameters

Cable holding force: the design of the steel shaft cable clip provides a cable holding force with a factor of safety of 6 against the load by the cable with the length of the gap between the supports.

Mechanical strength of the handle: the design of the handles ensures its load capacity (strength) exceeding the cable holding force.

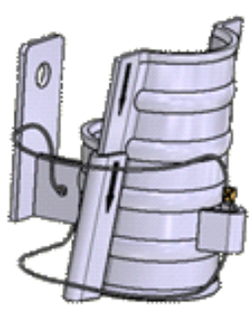
Scope of cable clip application

Variant of cable clip	Intended use of the clip	Weight [kg]
3-201, 3-201.S, 3-201.L, 3-201.C	for cables with outer diameter of 10÷13 mm	0,28 - 0,29
3-202, 3-202.S, 3-202.L, 3-202.C	for cables with outer diameter of 14÷17 mm	0,30 – 0,31
3-203, 3-203.S, 3-203.L, 3-203.C	for cables with outer diameter of 18÷21 mm	0,32 – 0,33
3-204, 3-204.S, 3-204.L, 3-204.C	for cables with outer diameter of 22÷27 mm	0,33 – 0,35
3-205, 3-205.S, 3-205.L, 3-205.C	for cables with outer diameter of 28÷33 mm	0,37 – 0,40
3-206, 3-206.S, 3-206.L, 3-206.C	for cables with outer diameter of 34÷39 mm	0,40 – 0,45
3-207, 3-207.S, 3-207.L, 3-207.C	for cables with outer diameter of 40÷47 mm	0,49 – 0,52
3-208, 3-208.S, 3-208.L, 3-208.C	for cables with outer diameter of 48÷55 mm	0,57 – 0,60
3-209, 3-209.S, 3-209.L, 3-209.C	for cables with outer diameter of 56÷63 mm	0,64 – 0,70
3-210, 3-210.S, 3-210.L, 3-210.C	for cables with outer diameter of 64÷73 mm	1.48 - 1,50
3-211, 3-211.S, 3-211.L, 3-211.C	for cables with outer diameter of 74÷83 mm	1,59 – 1,60
3-212, 3-212.S, 3-212.L, 3-212.C	for cables with outer diameter of 84÷94 mm	1,68 – 1,70

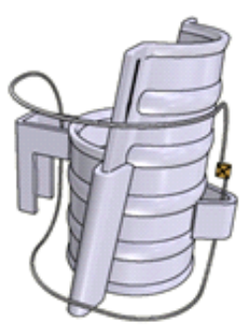
Figure

Clip for shaft cables - variant 3-201 ÷ 3-212.

Clip for shaft cables - variant 3-201.S ÷ 3-212.S



Clip for shaft cables - variant 3-201.L ÷ 3-212.L



Clip for shaft cables - variant 3-201.C ÷ 3-212.C

Intended use

Self-locking clips for shaft cables are made of stainless steel. They are designed for mounting telecommunication cables, fiber optic, signaling and power supply cables in shafts and workings of mines with a slope of more than 45°. The cable clips are designed for use in underground mines, in methane and non-methane fields of workings classified as "a", "b" or "c" methane explosion hazard and in workings belonging to class "A" or "B" of coal dust explosion hazard.

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