wibe group

Cable Support Systems with Fire-Resistant Functionality

Technical information

stago powered by wibe group

Contents

Wibe Group

Four of the world's leading cable management brands offering a complete, innovative range of cable ladders, cable trays and mesh trays – for applications ranging from commercial buildings to extreme demanding industrial environments.

General

What is fire-resistant functionality?

Fire disasters that result in loss of life capture everyone's attention. Often, a seemingly minor fire can have severe consequences due to smoke development. The suffocating smoke deprives people of the chance to reach safety in time. Notable examples include the fire disasters at Düsseldorf Airport, the Mont Blanc and Gotthard tunnels, and, in the Netherlands, the fires in Volendam and at Schiphol Airport. Time and again, smoke and the often extremely toxic gases prove to have a major impact on the chances of escape. Analysis of the causes and consequences of these disasters has led to new insights and measures aimed at drastically reducing the number of casualties in the future.

New building regulations now require the use of less flammable construction materials and installation components. Evacuation procedures and general fire safety regulations are also evolving rapidly. For electrical installers, a key aspect of this issue is ensuring the continued operation of certain critical components of the electrical installation. Even when cabling is located within the fire zone, systems such as fire alarms, evacuation systems, passenger and fire-fighting lifts, sprinkler systems, and similar installations must continue to function reliably.

The implementation of measures that ensure the continued operation of these critical systems is referred to as fire-resistant functionality. This can be defined as follows:

> The implementation of measures that ensure certain devices and installation components continue to function for a specified period after the outbreak of a fire, with the aim of providing people with a means of escape.

Fire-resistant functionality can be achieved in various ways. One method involves enclosing cabling in fireproof architectural structures. However, in electrical engineering, the use of special types of cables installed with adapted support structures and mounting methods is becoming increasingly common.

When is fire-resistant functionality required?

Fire-resistant functionality is now an essential part of building design. Public buildings, where many people work or gather, are subject to strict safety regulations. The general aim is to use construction materials that produce minimal smoke and to design structures that maintain integrity for longer periods and prevent fire from spreading rapidly throughout the building.

General

Electrical installers also face safety regulations. In their field, strict requirements apply to the following installation components:

- Fire alarm systems
- Emergency lighting
- Escape route signage
- Alarm and public address systems
- Extraction and ventilation systems
- Passenger and fire-fighting lifts
- Sprinkler systems

These requirements are enforced through standards and technical specifications, as well as practical guidelines and fire brigade regulations. The installer bears significant responsibility, as extensive knowledge of applicable standards is expected.

Standards

Several key standards apply within electrical engineering. The NEN 1010 is considered the foundation for electrical installations. In addition, several specialised standards are crucial for fire-resistant functionality:

NEN 2535: Fire alarm systems

Lists cables that must be installed in such a way that the functionality of this system is guaranteed for at least 30 minutes. The relevant cables are described in detail.

NEN 2575: Evacuation systems

Also provides a detailed list of cables that must continue to function for at least 30 minutes after a fire alarm.

NEN 2443: Car parks

States that power cables for fire prevention systems must be positioned so that they continue to function for at least 60 minutes after a fire alarm.

VAS: Sprinkler systems

Specifies that power cables for sprinkler pumps must continue to function for at least 90 minutes after a fire alarm.

In addition to these standards for electrical installers, there are also important standards for manufacturers of installation materials. These include:

NEN 50265: Self-extinguishing cables
NEN 50266: Flame-retardant cables
NEN 50267: Halogen-free cables
NEN 50268: Low smoke cables
NEN 50200: Cables up to 20 mm with fire-resistant functionality
NEN 50362: Cables over 20 mm with fire-resistant functionality
DIN 4102, Part 12: Cable support structures with fire-resistant functionality

General

DIN 4102, Part 12

A special place in the field of fire-resistant functionality is held by the German standard DIN 4102, Part 12. In the Netherlands, this standard has been more or less adopted due to the absence of a comparable Dutch or European standard. Manufacturers of both cables and cable support systems refer to and test according to this standard. The reason is that it provides detailed descriptions of constructions, tests, and trials related to fire-resistant functionality.

The standard is based on the principle that cabling and its method of support are inextricably linked and together can ensure reproducible fire-resistant performance. It defines “standard cable support constructions” with precise specifications. The idea is that if a construction has proven itself through extensive testing, certain variations of it may also be installed. This also means that certified cable support systems may carry certified cables from other manufacturers. The reverse also applies, allowing for mutual interchangeability.

Standard Support Constructions According to DIN 4102, Part 12

According to DIN 4102, Part 12, a cable support construction is considered standard when the following main conditions are met:

- Maximum suspension/support distance: 1200 mm
- Maximum cable tray width: 300 mm; cable ladder width: 400 mm
- Cable tray perforation pattern: 15% (±5%)
- Side height of cable tray or ladder: 60 mm
- Steel sheet thickness: 1.5 mm
- Maximum cable load: 10 kg/m for trays, 20 kg/m for ladders
- Maximum rung spacing for ladders: 150 mm
- Suspension via hanging brackets with wall brackets
- Additional suspension using threaded rods attached to the bracket

When all materials of the cable support construction are successfully tested according to the precisely defined test method, a certificate is issued by the certification body.
Standard support constructions offer the major advantage that any certified cable from any manufacturer may be used within Stago cable support systems for fire-resistant functionality.

Cable-Specific Support Constructions According to DIN 4102, Part 12

To develop cost-effective cable support systems with fire-resistant functionality, more and more constructions are being designed and tested outside the specifications mentioned above. These are classified as non-standard or cable-specific support constructions, for which a certificate is also issued upon successful testing.

For these non-standard constructions, only the tested combination of cable and support system may be used internationally. However, in the Netherlands, mutual interchangeability of cables and support systems is permitted according to NPR 2576, Article E.2.1.

General

Classification System

A key aspect of DIN 4102, Part 12 is the classification of fire-resistant functionality into several categories.
These classes indicate the duration for which functionality is maintained:

- E30 – functionality maintained for 30 minutes
- E60 – functionality maintained for 60 minutes
- E90 – functionality maintained for 90 minutes

All relevant standards specify the class in which the cabling is categorised.

Recommendations Regarding Fire-Resistant Functionality

In addition to the standards mentioned earlier, several important recommendations related to fire-resistant functionality are also provided:

NTA 8012: Fire Risk Analysis of Electrical Installations

Offers a points-based methodology for assessing the fire risk of buildings. It also incorporates the European Construction Products Directive (CPD). The analysis prescribes the use of specific cables in buildings with fire risk.

NPR 2576: Practical Guideline for Fire-Resistant Functionality

Provides an overview of cable system solutions with fire-resistant functionality, as well as architectural solutions (e.g. protective enclosures) and technical solutions (e.g. ring circuits, fail-safe systems). Regarding cable solutions, the following criteria are outlined:

- Cables with fire-resistant functionality must be certified according to NEN-EN 50200, NEN-EN 50362, and DIN 4102, Part 12
- Cable support systems must be certified according to DIN 4102, Part 12
- Fastening materials must be certified according to DIN 4102, Part 2
- The performance requirement is determined by the lowest classification (30, 60, or 90 minutes)
- Deviations from installation distances specified in NEN 1010 are permitted, provided they are documented in the certificate
- Mechanical damage due to fire must be excluded
- Fire-resistant functionality cannot be guaranteed on plasterboard or steel profile walls
- The fire-resistant cable route must be labelled at strategic points

Additionally, local recommendations and rules must be considered, like the Recommendations of the Dutch Fire Brigade Federation and the VAS for sprinkler systems.

General

Test setup with cable ladders

Test setup with cable ladders after the 90-minute fire test

Test setup with cable trays

Test setup with cable trays after the 90-minute fire test

Fire Testing and Certification

Conducting fire tests is essential to verify whether specific cabling and cable support systems meet the required standards.
These tests are carried out by specialised testing institutes authorised to issue certificates. A key requirement is the presence of a large furnace, as the aim is to simulate realistic fire conditions.

Test Procedure

In a spacious furnace (minimum dimensions: 3×2×2.5 m), a section of the installation is reconstructed as accurately as possible. Cable support systems, including all necessary suspension components and connectors, are mounted onto structural support frames. The standard support construction described in DIN 4102, Part 12 is used as a reference, or deliberately deviated from—always in a way that maximises the likelihood of success.

Cables are mounted onto the cable support systems and/or brackets. Typically, two power cables of 4×1.5 mm² and two of 4×50 mm² are used. For low-voltage cables, two of each type are also installed. Each cable includes an S-bend, secured with brackets within the support system. Every cable is connected to a power source (400 VAC for power cables, 110 VAC for low-voltage cables). Each circuit is protected by a fuse and equipped with current meters.

Additional ballast (steel chains or steel weights) is added to the cable support systems to simulate full load conditions of 10 or 20 kg/m.
The furnace is ignited, reaching a temperature of approximately 1000°C after 90 minutes.

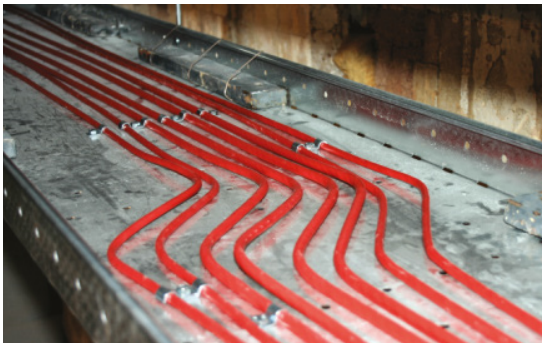
Depending on the classification (E30 or E90), the test is deemed successful if no short circuits or interruptions occur in the cable conductors.
The test setup and a detailed description of the materials used—both cables and support systems—are documented in a test report.

If the electrical installer uses the specified materials and installs them according to the certified method, sufficient assurance is provided for fire-resistant functionality.

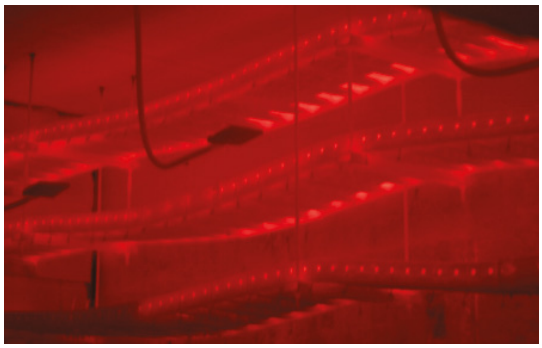
Wibe Group conducts fire behaviour testing of structural materials at IBMB MPA Braunschweig in Germany, TNO Delft, and KEMA Arnhem. These renowned institutes have extensive experience with the fire tests and certifications described above.

General

IBMB MPA in Braunschweig



Test setup with cables in mandatory S-bend configuration



Intense heat immediately after the fire test

Commercial and Industrial Installations

The applicable standards primarily address fire-resistant functionality in public buildings such as hospitals, theatres, museums, metro lines, airports, department stores, office buildings, and schools.
However, fire-resistant functionality is also relevant in industrial environments. The controlled shutdown of industrial production processes is often critical to prevent disasters beyond fire alone.

In such cases, no general standards apply; instead, solutions must be tailored to the specific production process and circumstances.

Mounting Techniques

Cable brackets and support systems must be securely mounted to walls and/or ceilings, which themselves must be sufficiently fire-resistant.
The mounting materials must also be certified by the manufacturer. While many established manufacturers offer certified mounting materials for fire-resistant functionality, Stago includes several wall anchors and impact anchors in its range that have proven highly effective in practice. These materials are, of course, also certified.

Certificates for Fire-Resistant Functionality

The materials described in this catalogue are certified by IBMB MPA Braunschweig, TNO Delft, and KEMA Arnhem.
The relevant certificates are registered under the following numbers:

3201/3363-1

Cable installation on ladder trays, standard support construction

3201/3363-2

Cable installation on cable trays, standard support construction

3201/3363-3

Cable installation on vertical ladder trays and C-profiles, standard support construction

P-3147/2424-MPA BS

Cable-specific support constructions

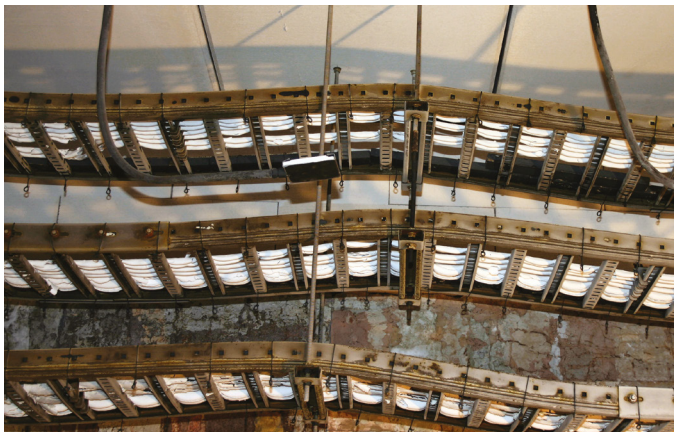
2004-CVB-R0376 TNO

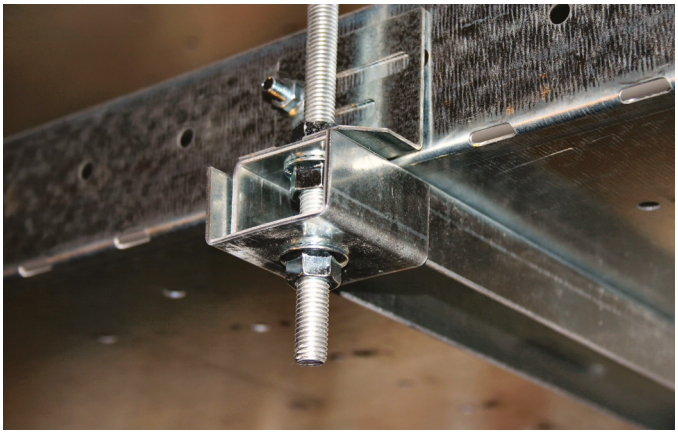
Special support constructions

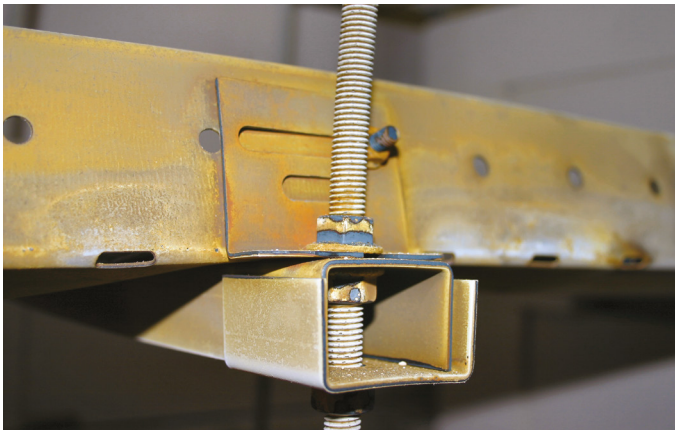
P-3537/421/09-MPA BS

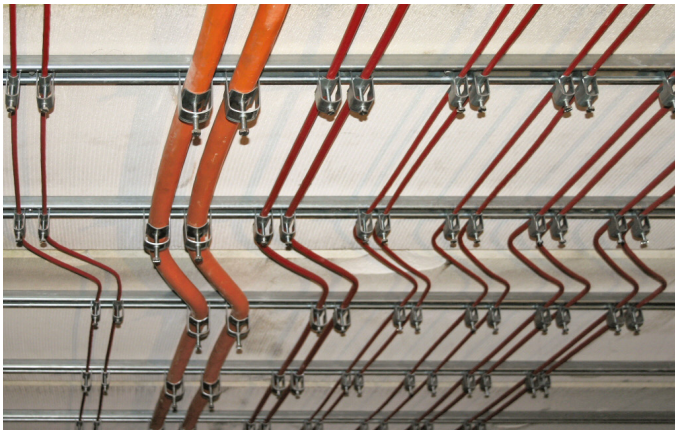
Special support constructions with Mesh trays
Copies of these certificates are available upon request.

General



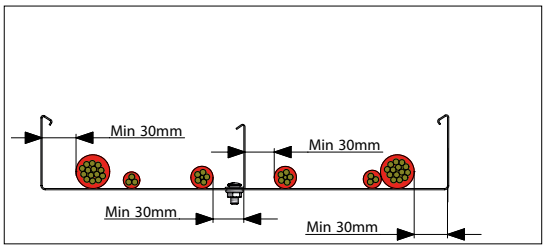


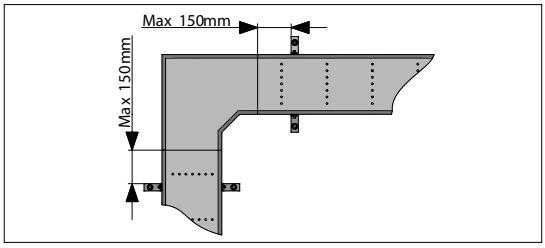


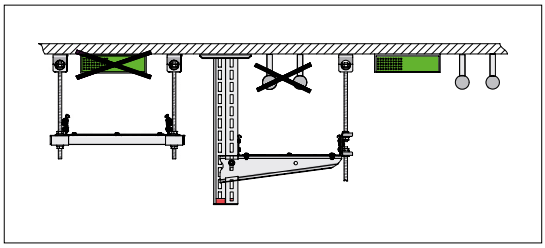


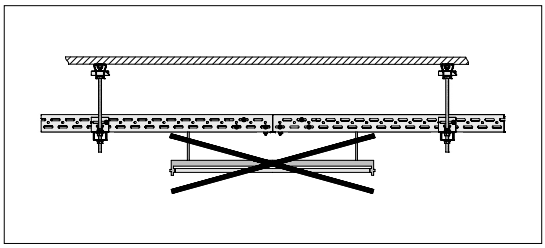
The photos above provide an impression of the fire behaviour of our cable support systems. These images were taken during various fire tests conducted at IBMB Braunschweig and TNO Delft, and show the situation before and after the test.

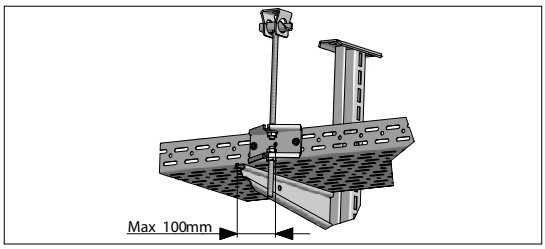
Mounting instructions

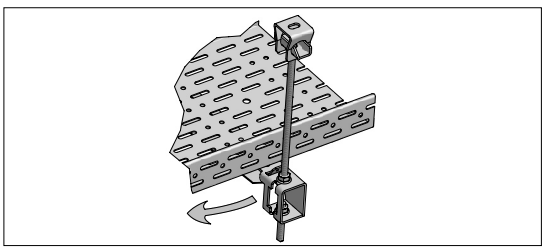


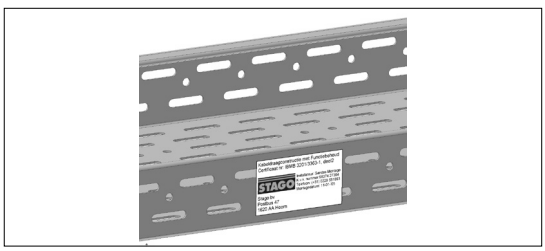












General Installation Instructions

Materials behave significantly differently in a fire situation compared to normal conditions. For cable support systems, steel is the primary material. The load-bearing capacity of steel decreases considerably at high temperatures, and the material begins to soften.

Installing cable support systems with integrated fire-resistant functionality therefore requires special care. This catalogue presents and describes the installation of various system variants in detail. It is important to follow the construction drawings provided in this catalogue, as only these constructions are certified. In exceptional cases, deviations from the certificate may be permitted, but approval must always be obtained from the relevant authorities (e.g. local fire brigade or building control).

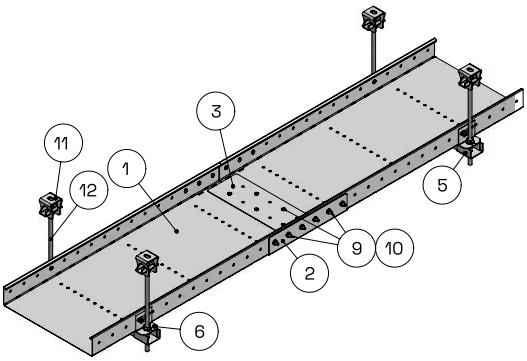
Additional Installation Instructions

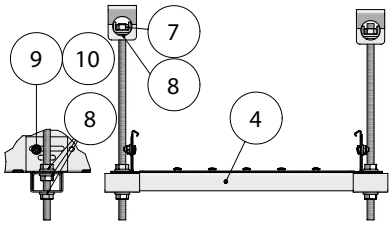
We also provide the following guidelines for correct and professional installation:

- Cables in cable trays and ladder systems must be installed at least 30 mm from the side wall or partition, in accordance with DIN 4102/12.
- Installing a partition wall, secured with M6x16 screws, is permitted.
- Standard accessories such as bends, offsets, and branch pieces may be used, provided an additional suspension point is installed no more than 150 mm from each end.
- In Wibe Group's standard cable support constructions with integrated fire-resistant functionality, cables from any manufacturer may be used, provided they are certified. In non-standard constructions, only the cable brands specified in the certificate may be used, in accordance with DIN 4102/12. However, for the Dutch market, any certified cable may be used in accordance with NPR 2576, Article E.2.1.
- No other types of installations or constructions may be installed above cable support systems with integrated fire-resistant functionality.
- It is not permitted to install additional systems such as lighting fixtures or air ducts.
- In principle, only cables with integrated fire-resistant functionality should be installed in fire-resistant cable support systems. However, the use of "standard" cables is allowed if they are halogen-free, the total cable load is not exceeded, and they are separated by a partition.
- The pendulum mounting plate must be installed in close proximity to the supporting bracket.
- When using the adjustable ceiling bracket, it can be positioned so that the M10 pendulum can be swivelled out of the mounting bracket for post-installation of additional cabling.
- Cable support systems with integrated fire-resistant functionality must be clearly labelled as such. NPR 2576 specifies the required label content. A template is available as a Word document via our website www.stago.nl. Labels must be placed at strategic locations.
- Painting cable support systems with integrated fire-resistant functionality is permitted with approval from advisory bodies.
- The use of covers on cable support systems with fire-resistant functionality is permitted where required by NEN 1010. The total load capacity of the system must not be exceeded.

Economical fire-resistant functionality constructions

Fire-Resistant Construction with Standard Cable Tray KG 281





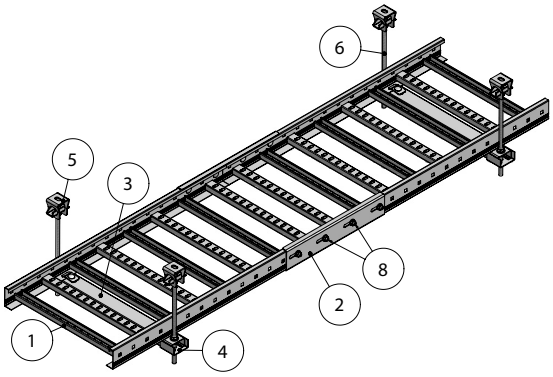
Cert. No. P-3147/2424-MPA-BS
The most economical fire-resistant cable tray system in the Netherlands! Based on standard cable tray KG 281 (thickness = 1 mm), supplemented with only a few specific fire-resistant components.

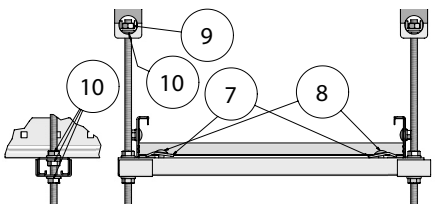
Ceiling installation with support profile / 2 x M10

Installation criteria:
- Support spacing: max. 1.2 m
- Cable weight: max. 10 kg/m per tray
- Number of layers: max. 2 layers mounted vertically
- Cable-specific support construction according to DIN 4102/12
- Class E30 and E90
- Certified for Draka, Daetwyler, and Eupen cables
- Compliant with NPR 2576 for use with any certified cable brand

Construction components:
1. Cable tray KG 281, thickness 1 mm, width 120 to 330 mm
2. U-shaped connector
3. Bottom connector
4. Support profile
5. Reinforcement bracket
6. Mounting bracket
7. M10 nut
8. M10 flange nut
9. M10x16 mounting screw
10. M6 flange nut
11. Adjustable ceiling bracket (optional)
12. M10 threaded rod

Fire-Resistant Construction with Standard Cable Ladder LB 4000





Cert. No. P-3147/2424-MPA-BS
The most economical fire-resistant cable ladder system in the Netherlands! Based on standard cable ladder LB 4000 (thickness = 1 mm), supplemented with only a few specific fire-resistant components.

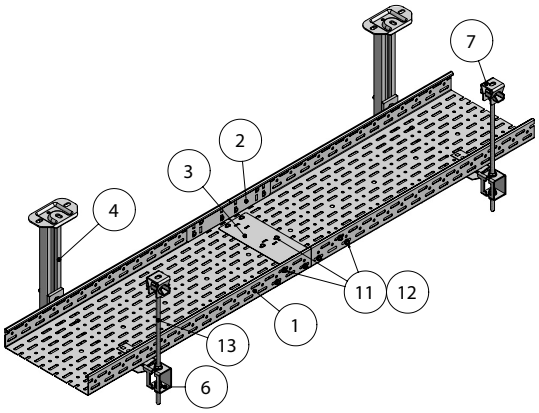
Ceiling installation with HSO support profile / 2 x M10 threaded rods

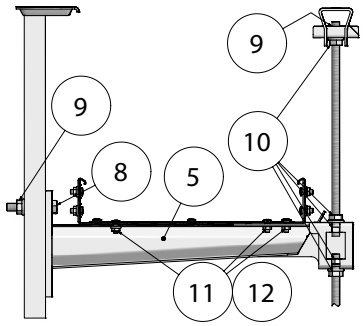
Installation criteria:
- Support spacing: max. 1.2 m
- Cable weight: max. 20 kg/m per ladder
- Number of layers: max. 2 layers mounted vertically
- Cable-specific support construction according to DIN 4102/12
- Class E30 and E90
- Certified for Daetwyler and Eupen cables
- Compliant with NPR 2576 for use with any certified cable brand

Construction components:
1. Cable ladder LB 4000, thickness 1 mm, width 200 to 400 mm
2. H2160 connector plate
3. HSO support profile
4. Reinforcement bracket
5. Adjustable ceiling bracket (optional)
6. M10 threaded rod
7. H42 profile clamp
8. Screw set 22S
9. M10 nut
10. M10 flange nut

Economical fire-resistant functionality constructions

Fire-Resistant Construction with Cable Tray KB 184, Thickness 1.5 mm





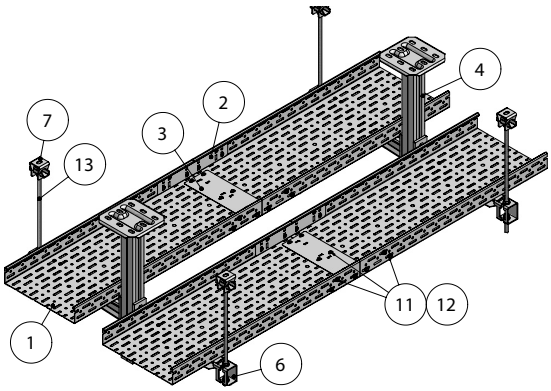
Cert. No. 3201/3363-2-Mu
Standard cable support construction according to DIN 4102/12, suspended with single hanging bracket, console, and M10 threaded rod.

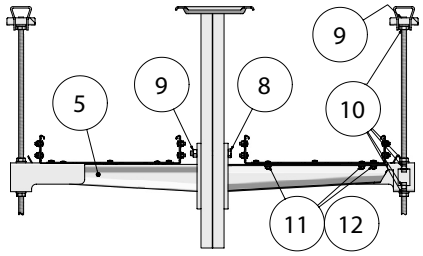
Ceiling installation with Vertical piece 2F / Cantilever arm 50 / M10 threaded rod

Installation criteria:
- Support spacing: max. 1.2 m
- Cable weight: max. 10 kg/m per tray
- Number of layers: max. 3 layers mounted vertically
- Standard support construction according to DIN 4102/12
- Class E30 and E90
- Suitable for any certified cable brand

Construction components:
1. Cable tray KB 184, thickness 1.5 mm, width 100 to 300 mm
2. Connector plate
3. Bottom connector
4. Vertical piece 2F
5. Cantilever arm 50
6. Rod bracket 82
7. Adjustable ceiling bracket (optional)
8. M10x60 bolt
9. M10 nut
10. M10 flange nut
11. M6x16 mounting screw
12. M6 flange nut
13. M10 threaded rod

Fire-Resistant Construction with Cable Tray KB 184, Thickness 1.5 mm





Cert. No. 3201/3363-2-Mu
Standard cable support construction according to DIN 4102/12, suspended with double hanging bracket, console, and M10 threaded rod.

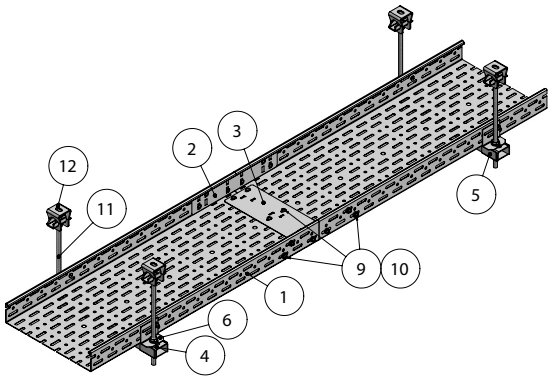
Ceiling installation with Vertical piece 20 / Cantilever arm 50 / M10 threaded rod

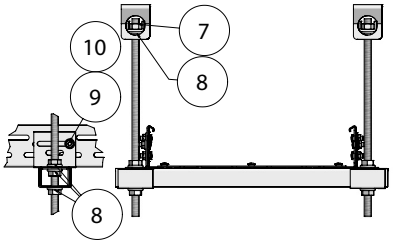
Installation criteria:
- Support spacing: max. 1.2 m
- Cable weight: max. 10 kg/m per tray
- Number of layers: max. 3 layers mounted vertically
- Standard support construction according to DIN 4102/12
- Class E30 and E90
- Suitable for any certified cable brand

Construction components:
1. Cable tray KB 184, thickness 1.5 mm, width 100 to 300 mm
2. Connector plate
3. Bottom connector
4. Vertical piece 20
5. Cantilever arm 50
6. Rod bracket 82
7. Adjustable ceiling bracket (optional)
8. M10x100 bolt
9. M10 nut
10. M10 flange nut
11. M6x16 mounting screw
12. M6 flange nut
13. M10 threaded rod

Economical fire-resistant functionality constructions

Fire-Resistant Construction with Cable Tray KB 184, Thickness 1.5 mm





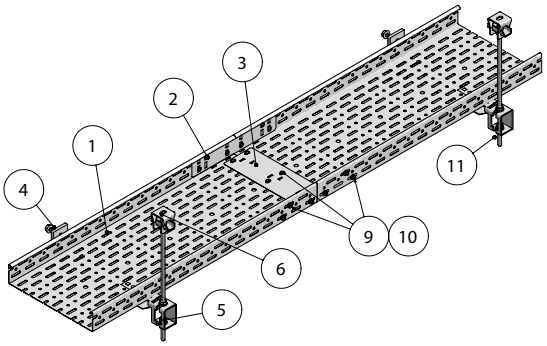
Cert. No. 3201/3363-2-Mu
Standard cable support construction in accordance with DIN 4102/12, suspended using support profile and M10 threaded rod.

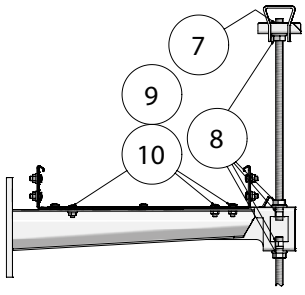
Ceiling installation with support profile / 2 x M10 threaded rods

Installation criteria:
- Support spacing: max. 1.2 m
- Cable weight: max. 10 kg/m per tray
- Number of layers: max. 2 layers mounted vertically
- Standard support construction in accordance with DIN 4102/12
- Class E30 and E90
- Suitable for any certified cable brand

Construction components:
1. Cable tray KB 184, thickness 1.5 mm, width 100 to 300 mm
2. Connector plate
3. Bottom connector
4. Support profile
5. Reinforcement bracket
6. Mounting bracket
7. M10 nut
8. M10 flange nut
9. M6x16 mounting screw
10. M6 flange nut
11. M10 threaded rod

Fire-Resistant Construction with Cable Tray KB 184, Thickness 1.5 mm





Cert. No. 3201/3363-2-Mu
Standard cable support construction in accordance with DIN 4102/12, suspended using double hanging bracket, console, and M10 threaded rod.

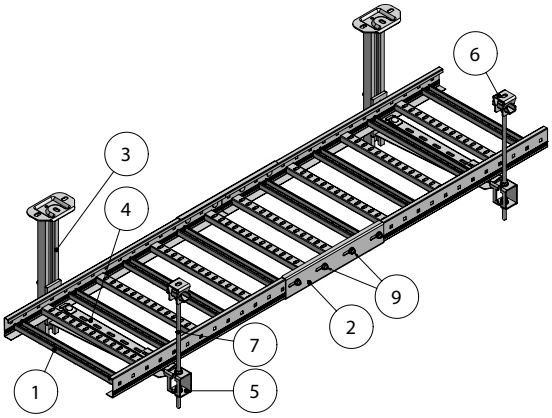
Ceiling installation with Vertical piece 20 / Cantilever arm 50 / M10 threaded rod

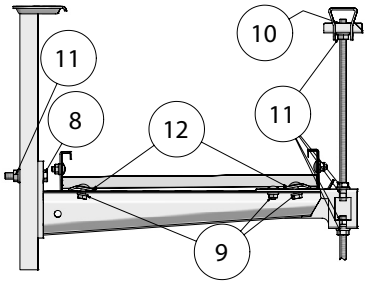
Installation criteria:
- Support spacing: max. 1.2 m
- Cable weight: max. 10 kg/m per tray
- Number of layers: max. 3 layers mounted vertically
- Standard support construction in accordance with DIN 4102/12
- Class E30 and E90
- Suitable for any certified cable brand

Construction components:
1. Cable tray KB 184, thickness 1.5 mm, width 100 to 300 mm
2. Connector plate
3. Bottom connector
4. Vertical piece 20
5. Cantilever arm 50
6. Rod bracket 82
7. Adjustable ceiling bracket (optional)
8. M10x100 bolt
9. M10 nut
10. M10 flange nut
11. M6x16 mounting screw
12. M6 flange nut
13. M10 threaded rod

Economical fire-resistant functionality constructions

Fire-Resistant Construction with Cable Ladder LB 4000, Thickness 1.5 mm





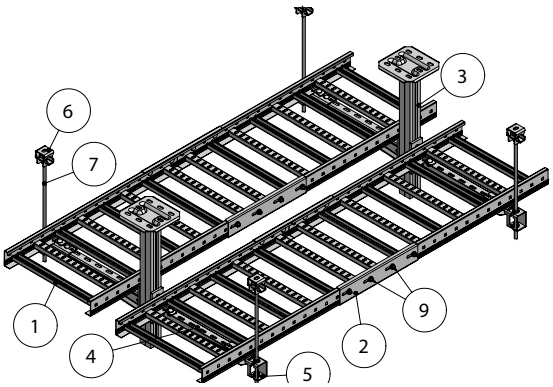
Cert. No. 3201/3363-1-Mu
Standard cable support construction in accordance with DIN 4102/12, suspended using single hanging bracket, console, and M10 threaded rod.

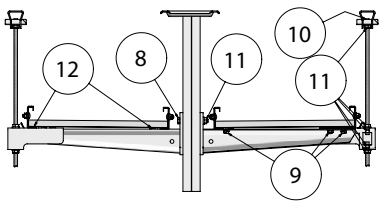
Ceiling installation with Vertical piece 2F / Cantilever arm 50 / M10 threaded rod

Installation criteria:
- Support spacing: max. 1.2 m
- Cable weight: max. 20 kg/m per ladder
- Number of layers: max. 2 layers mounted vertically
- Standard support construction in accordance with DIN 4102/12
- Class E30 and E90
- Suitable for any certified cable brand

Construction components:
1. Cable ladder LB 4000, thickness 1.5 mm, width 200 to 400 mm
2. Connector plate H2160
3. Hanging bracket 2F
4. Cantilever arm 50
5. Rod bracket 82
6. Adjustable ceiling bracket (optional)
7. M10 threaded rod
8. M10x60 bolt
9. Screw set 22S
10. M10 nut
11. M10 flange nut
12. Profile clamp H42

Fire-Resistant Construction with Cable Ladder LB 4000, Thickness 1.5 mm





Cert. No. 3201/3363-1-Mu
Standard cable support construction in accordance with DIN 4102/12, suspended using double hanging bracket, console, and M10 threaded rod.

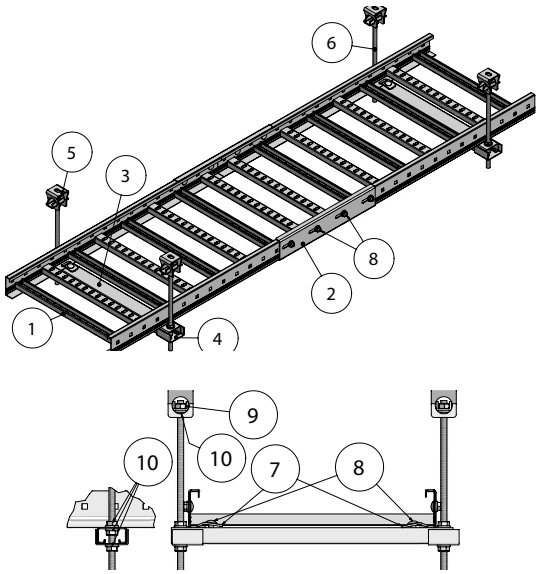
Ceiling installation with Vertical piece 20 / Cantilever arm 50 / M10 threaded rod

Installation criteria:
- Support spacing: max. 1.2 m
- Cable weight: max. 20 kg/m per ladder
- Number of layers: multiple layers mounted side-by-side and/or vertically
- Standard support construction in accordance with DIN 4102/12
- Class E30 and E90
- Suitable for any certified cable brand

Construction components:
1. Cable ladder LB 4000, thickness 1.5 mm, width 200 to 400 mm
2. Connector plate H2160
3. Hanging bracket 20
4. Cantilever arm 50
5. Rod bracket 82
6. Adjustable ceiling bracket (optional)
7. M10 threaded rod
8. M10x100 bolt
9. Screw set 22S
10. M10 nut
11. M10 flange nut
12. Profile clamp H42

Economical fire-resistant functionality constructions

Fire-Resistant Construction with Cable Ladder LB 4000, Thickness 1.5 mm



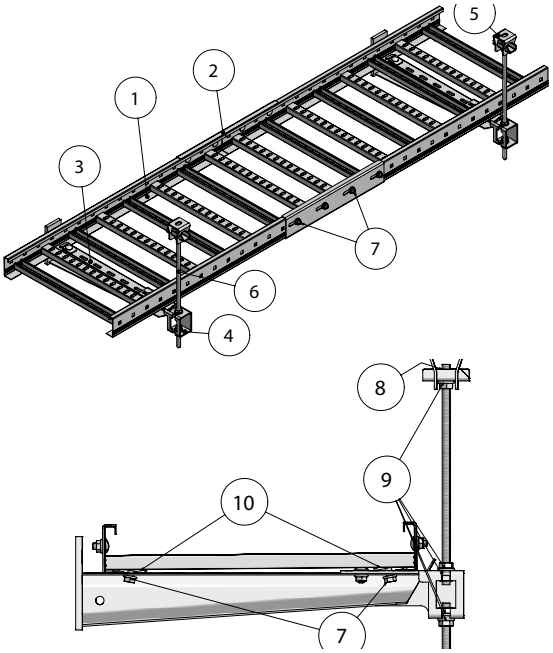
Cert. No. 3201/3363-1-Mu
Standard cable support construction in accordance with DIN 4102/12, suspended using support profile and M10 threaded rod.

Ceiling installation with HS0 support profile / M10 threaded rod

Installation criteria:
- Support spacing: max. 1.2 m
- Cable weight: max. 20 kg/m per tray
- Number of layers: max. 2 layers mounted vertically
- Standard support construction in accordance with DIN 4102/12
- Class E30 and E90
- Suitable for any certified cable brand

Construction components:
1. Cable ladder LB 4000, thickness 1.5 mm, width 200 to 400 mm
2. Connector plate H2160
3. Support beam HS0
4. Reinforcement bracket
5. Adjustable ceiling bracket (optional)
6. M10 threaded rod
7. Profile clamp H42
8. Screw set 22S
9. M10 nut
10. M10 flange nut

Fire-Resistant Construction with Cable Ladder LB 4000, Thickness 1.5 mm



Cert. No. 3201/3363-1-Mu
Standard cable support construction in accordance with DIN 4102/12, wall-mounted using wall bracket and M10 threaded rod.

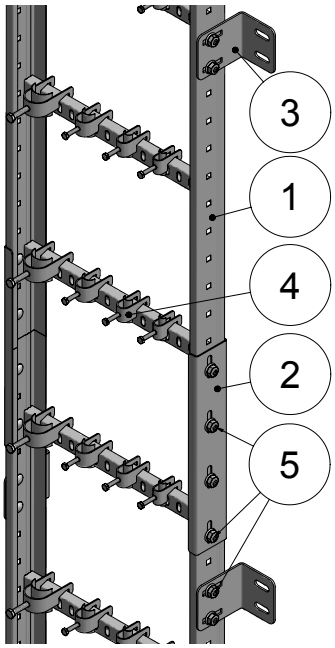
Wall installation with Cantilever arm 50 and M10 threaded rod

Installation criteria:
- Support spacing: max. 1.2 m
- Cable weight: max. 20 kg/m per tray
- Number of layers: max. 2 layers mounted vertically
- Standard support construction in accordance with DIN 4102/12
- Class E30 and E90
- Suitable for any certified cable brand

Construction components:
1. Cable ladder LB 4000, thickness 1.5 mm, width 200 to 400 mm
2. Connector plate H2160
3. Cantilever arm 50
4. Rod bracket 82
5. Adjustable ceiling bracket (optional)
6. M10 threaded rod
7. Screw set 22S
8. M10 nut
9. M10 flange nut
10. Profile clamp H42

Economical fire-resistant functionality constructions

Fire-Resistant Construction with Vertical Cable Ladder LB 4000 BS, Thickness 1.5 mm



Cert. No. 3201/3363-3-Mu
Standard cable support construction in accordance with DIN 4102/12, vertically mounted with wall support.

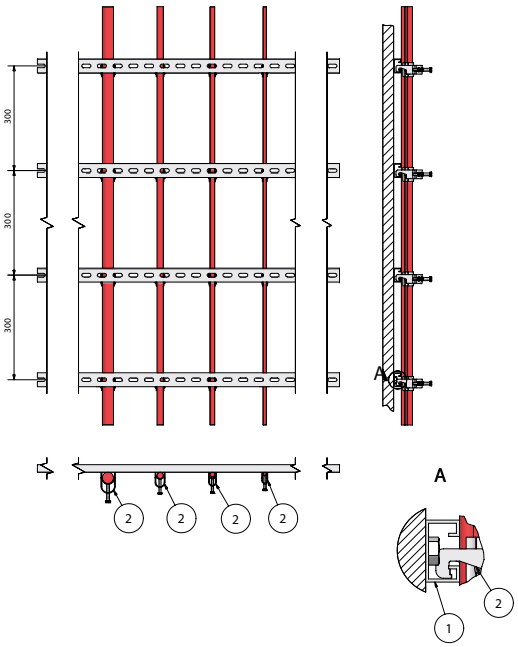
Wall installation with Wall bracket H1160

Installation criteria:
- Vertical mounting distance: max. 1 m
- Cable weight: max. 20 kg/m per tray
- Standard support construction in accordance with DIN 4102/12
- Class E30 and E90
- Suitable for any certified cable brand

Construction components:
1. Cable ladder LB 4000 BS, thickness 1.5 mm, up to 400 mm wide
2. Connector plate H2160
3. Wall bracket H1160
4. Cable bracket A1
5. Screw set 22S

Note:
Maximum vertical height is 3.5 m, after which a horizontal offset of at least 0.3 m or a fire barrier is required.

Fire-Resistant Construction with C-Profile and Cable Brackets



Cert. No. 3201/3363-3-Mu
Standard cable support construction in accordance with DIN 4102/12, vertically mounted with C-profile.

Wall installation with C-profile

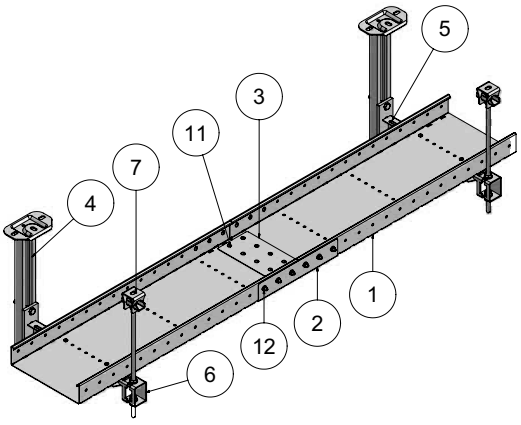
Installation criteria:
- Mounting distance: max. 0.3 m
- Standard support construction in accordance with DIN 4102/12
- Class E30 and E90
- Suitable for any certified cable brand

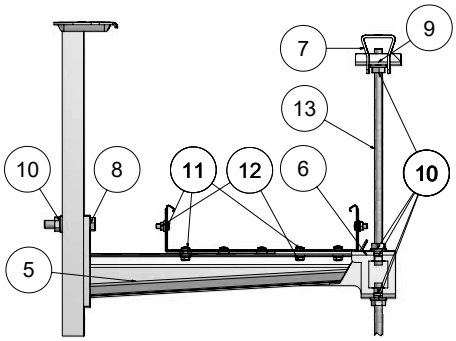
Construction components:
1. C-profile 24/40
2. Cable bracket A1

Note:
Maximum vertical height is 3.5 m, after which a horizontal offset of at least 0.3 m or a fire barrier is required.

Cable-specific fire-resistant functionality constructions

Fire-Resistant Construction with Cable Tray KG 281, Thickness 1 mm





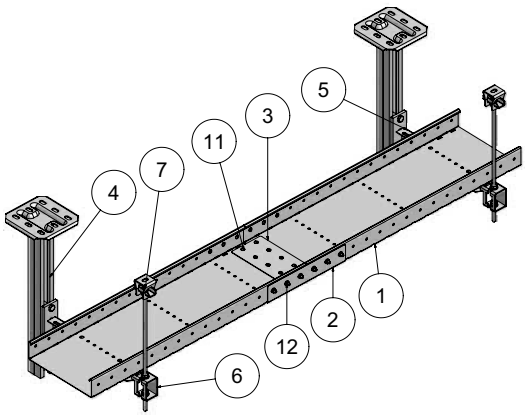
Cert. No. P-3147/2424-MPA-BS
Cable-specific support construction in accordance with DIN 4102/12, suspended using single hanging bracket, console, and M10 threaded rod.

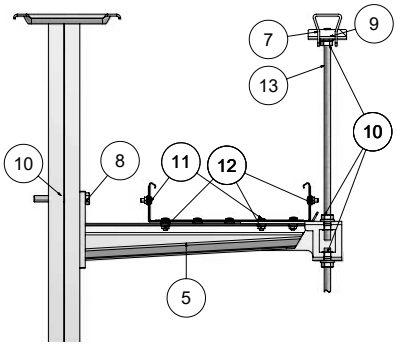
Ceiling installation with Vertical piece 2F / Cantilever arm 50 / M10 threaded rod

Installation criteria:
- Support spacing: max. 1.2 m
- Cable weight: max. 10 kg/m per tray
- Number of layers: max. 3 layers mounted vertically
- Cable-specific support construction in accordance with DIN 4102/12
- Class E30 and E90
- Certified for Daetwyler and Eupen cables
- Compliant with NPR 2576 for use with any certified cable brand

Construction components:
1. Cable tray KG 281, thickness 1 mm, width 120 to 330 mm
2. U-shaped connector
3. Bottom connector
4. Vertical piece 2F
5. Cantilever arm 50
6. Rod bracket 82
7. Adjustable ceiling bracket (optional)
8. M10x60 bolt
9. M10 nut
10. M10 flange nut
11. M6x16 mounting screw
12. M6 flange nut
13. M10 threaded rod

Fire-Resistant Construction with Cable Tray KG 281, Thickness 1 mm





Cert. No. 3201/3363-2-Mu / P-3147/2424-MPA-BS
Cable-specific support construction in accordance with DIN 4102/12, suspended using double hanging bracket, console, and M10 threaded rod.

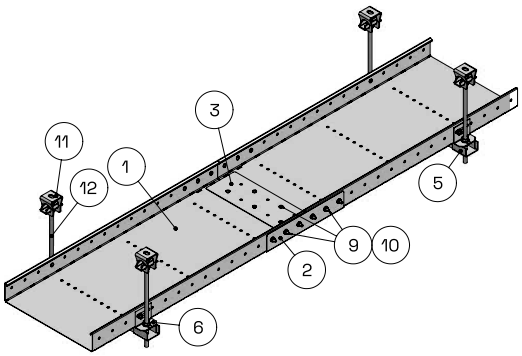
Ceiling installation with Vertical piece 20 / Cantilever arm 50 / M10 threaded rod

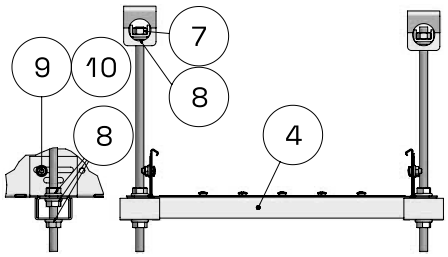
Installation criteria:
- Support spacing: max. 1.2 m
- Cable weight: max. 10 kg/m per tray
- Number of layers: max. 3 layers mounted vertically
- Cable-specific support construction in accordance with DIN 4102/12
- Class E30 and E90
- Certified for Daetwyler and Eupen cables
- Compliant with NPR 2576 for use with any certified cable brand

Construction components:
1. Cable tray KG 281, thickness 1 mm, width 120 to 330 mm
2. U-shaped connector
3. Bottom connector
4. Vertical piece 20
5. Cantilever arm 50
6. Rod bracket 82
7. Adjustable ceiling bracket (optional)
8. M10x80 bolt
9. M10 nut
10. M10 flange nut
11. M6x16 mounting screw
12. M6 flange nut
13. M10 threaded rod

Cable-specific fire-resistant functionality constructions

Fire-Resistant Construction with Cable Tray KG 281, Thickness 1 mm





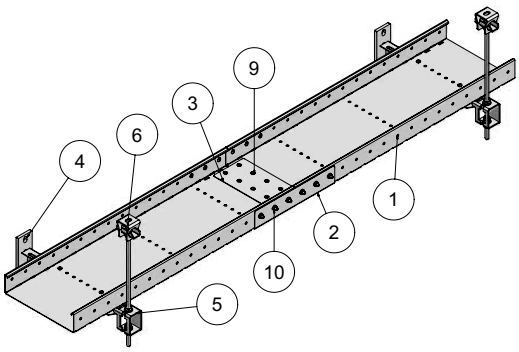
Cert. No. P-3147/2424-MPA-BS
Cable-specific support construction in accordance with DIN 4102/12, suspended using support profile and M10 threaded rod.

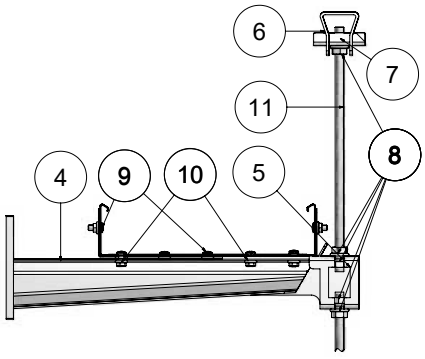
Ceiling installation with support profile / 2 x M10 threaded rods

Installation criteria:
- Support spacing: max. 1.2 m
- Cable weight: max. 10 kg/m per tray
- Number of layers: max. 2 layers mounted vertically
- Cable-specific support construction in accordance with DIN 4102/12
- Class E30 and E90
- Certified for Draka, Daetwyler, and Eupen cables
- Compliant with NPR 2576 for use with any certified cable brand

Construction components:
1. Cable tray KG 281, thickness 1 mm, width 120 to 330 mm
2. U-shaped connector
3. Bottom connector
4. Support profile
5. Reinforcement bracket
6. Mounting bracket
7. M10 nut
8. M10 flange nut
9. M6x16 mounting screw
10. M6 flange nut
11. Adjustable ceiling bracket (optional)
12. M10 threaded rod

Fire-Resistant Construction with Cable Tray KG 281, Thickness 1 mm





Cert. No. 3201/3363-2-Mu / P-3147/2424-MPA-BS
Cable-specific support construction in accordance with DIN 4102/12, wall-mounted using wall bracket and M10 threaded rod.

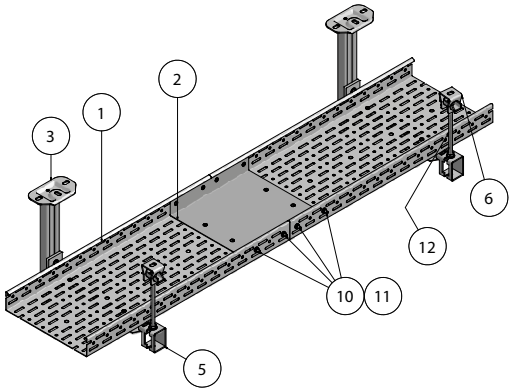
Wall installation with Cantilever arm 50 and M10 threaded rod

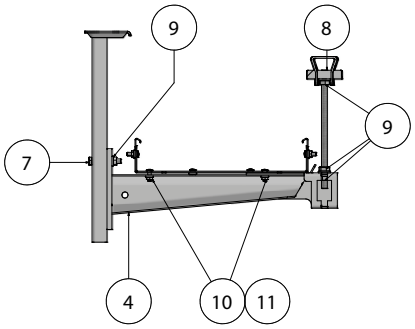
Installation criteria:
- Support spacing: max. 1.2 m
- Cable weight: max. 10 kg/m per tray
- Number of layers: max. 3 layers mounted vertically
- Cable-specific support construction in accordance with DIN 4102/12
- Class E30 and E90
- Certified for Daetwyler and Eupen cables
- Compliant with NPR 2576 for use with any certified cable brand

Construction components:
1. Cable tray KG 281, thickness 1 mm, width 120 to 330 mm
2. U-shaped connector
3. Bottom connector
4. Cantilever arm 50
5. Rod bracket 82
6. Adjustable ceiling bracket (optional)
7. M10 nut
8. M10 flange nut
9. M6x16 mounting screw
10. M6 flange nut
11. M10 threaded rod

Cable-specific fire-resistant functionality constructions

Fire-Resistant Construction with Cable Tray KB 184, Thickness 1.5 mm





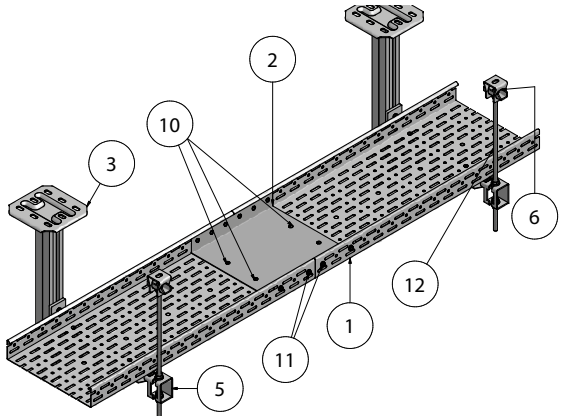
Cert. No. P-3147/2424-MPA-BS
Cable-specific support construction in accordance with DIN 4102/12, suspended using single hanging bracket, console, and M10 threaded rod.

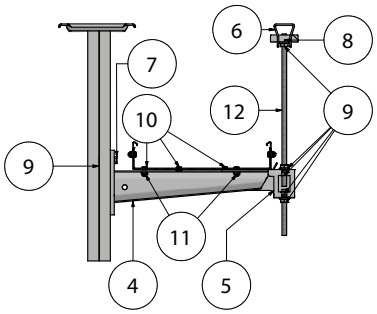
Ceiling installation with Vertical piece 2F / Cantilever arm 50 / M10 threaded rod

Installation criteria:
- Support spacing: max. 1.2 m
- Cable weight: max. 10 kg/m per tray
- Number of layers: max. 3 layers mounted vertically
- Cable-specific support construction in accordance with DIN 4102/12
- Class E30 and E90
- Certified for Daetwyler and Eupen cables
- Compliant with NPR 2576 for use with any certified cable brand

Construction components:
1. Cable tray KB 184, thickness 1.5 mm, width 100 to 400 mm
2. U-shaped connector
3. Vertical piece 2F
4. Cantilever arm 50
5. Rod bracket 82
6. Adjustable ceiling bracket (optional)
7. M10x60 bolt
8. M10 nut
9. M10 flange nut
10. M6x16 mounting screw
11. M6 flange nut
12. M10 threaded rod

Fire-Resistant Construction with Cable Tray KB 184, Thickness 1.5 mm





Cert. No. 3201/3363-2-Mu / P-3147/2424-MPA-BS
Cable-specific support construction in accordance with DIN 4102/12, suspended using double hanging bracket, console, and M10 threaded rod.

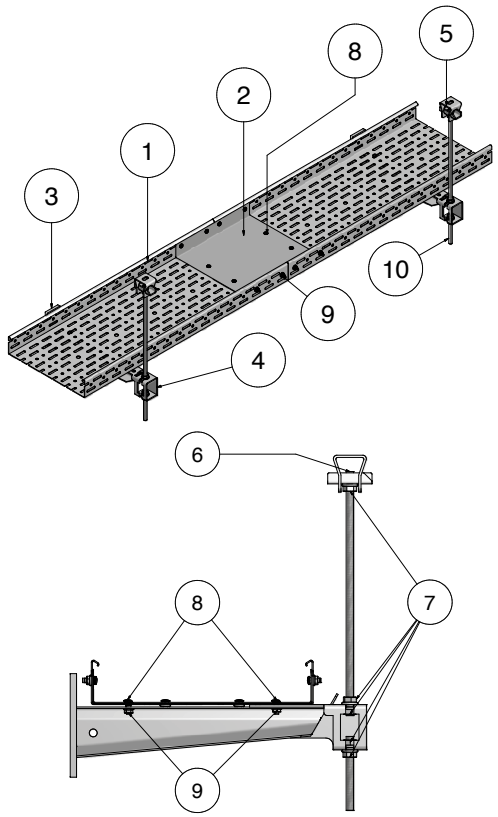
Ceiling installation with Vertical piece 20 / Cantilever arm 50 / M10 threaded rod

Installation criteria:
- Support spacing: max. 1.2 m
- Cable weight: max. 10 kg/m per tray
- Number of layers: max. 3 layers mounted vertically
- Cable-specific support construction in accordance with DIN 4102/12
- Class E30 and E90
- Certified for Daetwyler and Eupen cables
- Compliant with NPR 2576 for use with any certified cable brand

Construction components:
1. Cable tray KB 184, thickness 1.5 mm, up to 400 mm wide
2. U-shaped connector
3. Vertical piece 20
4. Cantilever arm 50
5. Rod bracket 82
6. Adjustable ceiling bracket (optional)
7. M10x80 bolt
8. M10 nut
9. M10 flange nut
10. M6x16 mounting screw
11. M6 flange nut
12. M10 threaded rod

Cable-specific fire-resistant functionality constructions

Fire-Resistant Construction with Cable Tray KB 184, Thickness 1.5 mm



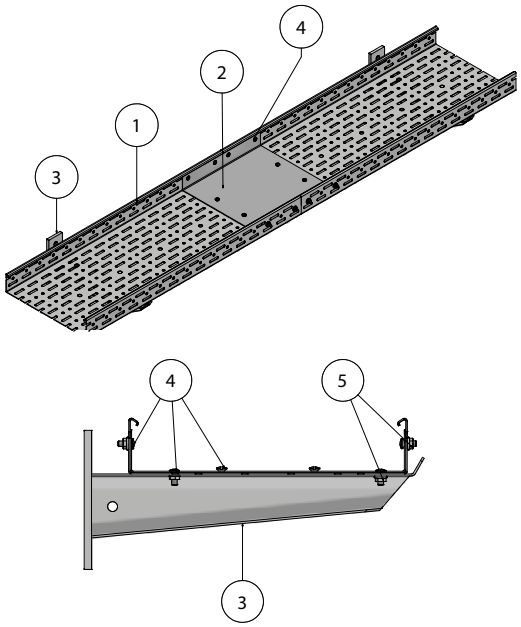
Cert. No. 3201/3363-2-Mu / P-3147/2424-MPA-BS
Cable-specific support construction in accordance with DIN 4102/12, wall-mounted using wall bracket and M10 threaded rod.

Wall installation with Cantilever arm 50 and M10 threaded rod

Installation criteria:
- Support spacing: max. 1.2 m
- Cable weight: max. 10 kg/m per tray
- Number of layers: max. 3 layers mounted vertically
- Cable-specific support construction in accordance with DIN 4102/12
- Class E30 and E90
- Certified for Daetwyler and Eupen cables
- Compliant with NPR 2576 for use with any certified cable brand

Construction components:
1. Cable tray KB 184, thickness 1.5 mm, width 100 to 300 mm
2. U-shaped connector
3. Cantilever arm 50
4. Rod bracket 82
5. Adjustable ceiling bracket (optional)
6. M10 nut
7. M10 flange nut
8. M6x16 mounting screw
9. M6 flange nut
10. M10 threaded rod

Fire-Resistant Construction with Cable Tray KB 184, Thickness 1.5 mm



Cert. No. 3201/3363-2-Mu / P-3147/2424-MPA-BS
Cable-specific support construction in accordance with DIN 4102/12, wall-mounted using free-hanging wall bracket.

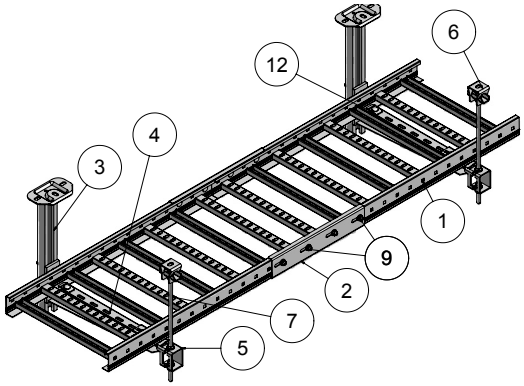
Wall installation with free-hanging Cantilever arm 50F

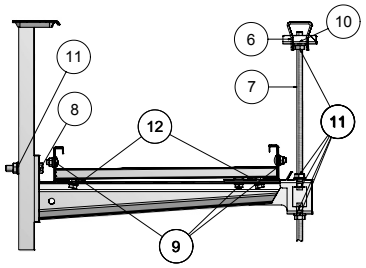
Installation criteria:
- Support spacing: max. 1.2 m
- Cable weight: max. 10 kg/m per tray
- Cable-specific support construction in accordance with DIN 4102/12
- Class E30 and E90
- Certified for Daetwyler cables
- Compliant with NPR 2576 for use with any certified cable brand

Construction components:
1. Cable tray KB 184, thickness 1.5 mm, width 100 to 300 mm
2. U-shaped connector
3. Cantilever arm 50F
4. M6x16 mounting screw
5. M6 flange nut

Cable-specific fire-resistant functionality constructions

Fire-Resistant Construction with Cable Ladder LB 4000, Thickness 1 mm





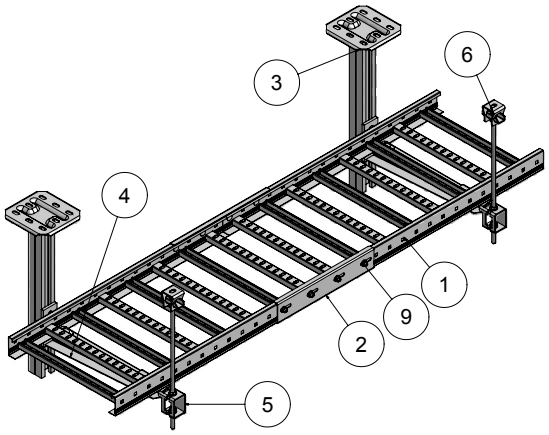
Cert. No. 3201/3363-1-Mu / P-3147/2424-MPA-BS
Cable-specific support construction in accordance with DIN 4102/12, suspended using single hanging bracket, console, and M10 threaded rod.

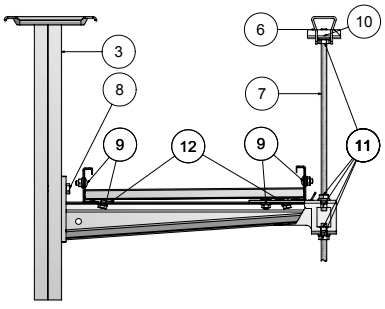
Ceiling installation with Vertical piece 2F / Cantilever arm 50 / M10 threaded rod

Installation criteria:
- Support spacing: max. 1.2 m
- Cable weight: max. 20 kg/m per tray
- Number of layers: max. 2 layers mounted vertically
- Cable-specific support construction in accordance with DIN 4102/12
- Class E30 and E90
- Certified for Daetwyler and Eupen cables
- Compliant with NPR 2576 for use with any certified cable brand

Construction components:
1. Cable ladder LB 4000, thickness 1 mm, width 200 to 400 mm
2. Connector plate H2160
3. Hanging bracket 2F
4. Cantilever arm 50
5. Rod bracket 82
6. Adjustable ceiling bracket (optional)
7. M10 threaded rod
8. M10x60 bolt
9. Screw set 22S
10. M10 nut
11. M10 flange nut
12. Profile clamp H42

Fire-Resistant Construction with Cable Ladder LB 4000, Thickness 1 mm





Cert. No. 3201/3363-1-Mu / P-3147/2424-MPA-BS
Cable-specific support construction in accordance with DIN 4102/12, suspended using double hanging bracket, console, and M10 threaded rod.

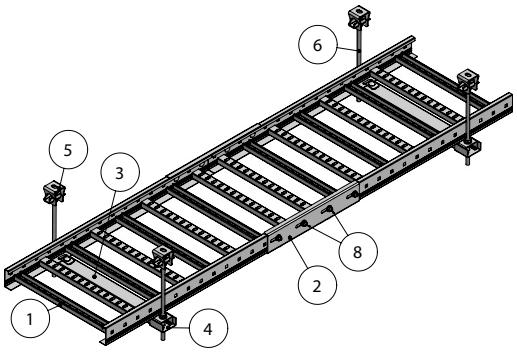
Ceiling installation with Vertical piece 20 / Cantilever arm 50 / M10 threaded rod

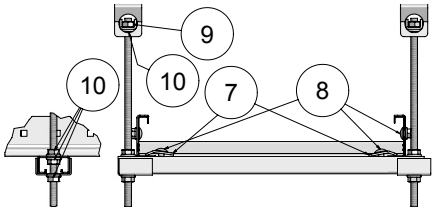
Installation criteria:
- Support spacing: max. 1.2 m
- Cable weight: max. 20 kg/m per tray
- Number of layers: max. 2 layers mounted vertically
- Cable-specific support construction in accordance with DIN 4102/12
- Class E30 and E90
- Certified for Daetwyler and Eupen cables
- Compliant with NPR 2576 for use with any certified cable brand

Construction components:
1. Cable ladder LB 4000, thickness 1 mm, width 200 to 400 mm
2. Connector plate H2160
3. Hanging bracket 20
4. Cantilever arm 50
5. Rod bracket 82
6. Adjustable ceiling bracket (optional)
7. M10 threaded rod
8. M10x100 bolt
9. Screw set 22S
10. M10 nut
11. M10 flange nut
12. Profile clamp H42

Cable-specific fire-resistant functionality constructions

Fire-Resistant Construction with Cable Ladder LB 4000, Thickness 1 mm





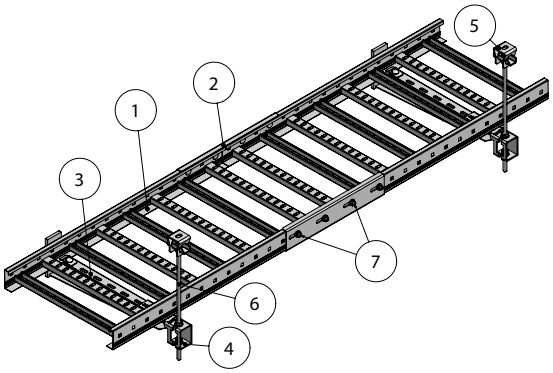
Cert. No. 3201/3363-1-Mu / P-3147/2424-MPA-BS
Standard cable support construction in accordance with DIN 4102/12, suspended using support profile and M10 threaded rods.

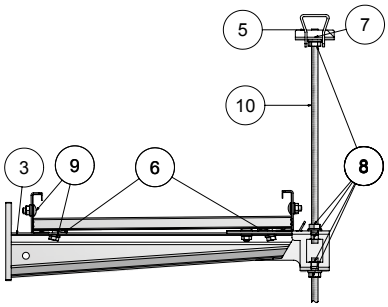
Ceiling installation with HS0 support profile / 2 x M10 threaded rods

Installation criteria:
- Support spacing: max. 1.2 m
- Cable weight: max. 20 kg/m per tray
- Number of layers: max. 2 layers mounted vertically
- Cable-specific support construction in accordance with DIN 4102/12
- Class E30 and E90
- Certified for Daetwyler cables
- Compliant with NPR 2576 for use with any certified cable brand

Construction components:
1. Cable ladder LB 4000, thickness 1 mm, width 200 to 400 mm
2. Connector plate H2160
3. Support beam HS0
4. Reinforcement bracket
5. Adjustable ceiling bracket (optional)
6. M10 threaded rod
7. Profile clamp H42
8. Screw set 22S
9. M10 nut
10. M10 flange nut

Fire-Resistant Construction with Cable Ladder LB 4000, Thickness 1 mm





Cert. No. 3201/3363-1-Mu / P-3147/2424-MPA-BS
Standard cable support construction in accordance with DIN 4102/12, wall-mounted using wall bracket and M10 threaded rod.

Wall installation with Cantilever arm 50 and M10 threaded rod

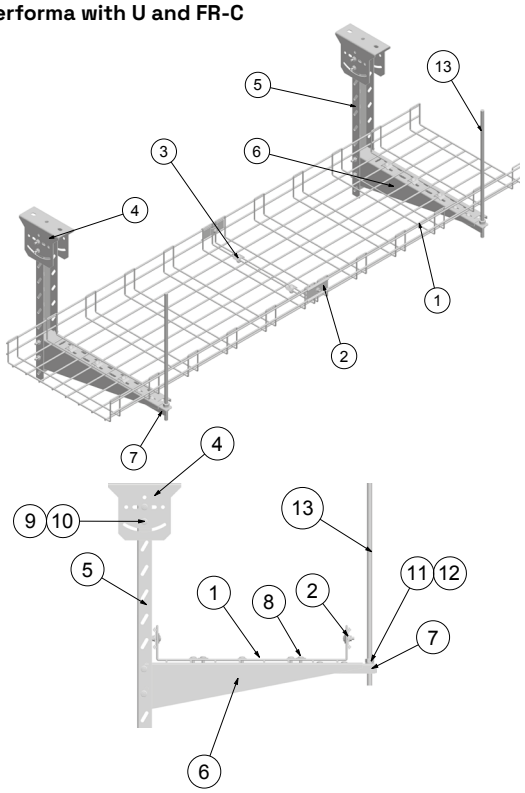
Installation criteria:
- Support spacing: max. 1.2 m
- Cable weight: max. 20 kg/m per tray
- Number of layers: max. 2 layers mounted vertically
- Cable-specific support construction in accordance with DIN 4102/12
- Class E30 and E90
- Certified for Daetwyler cables
- Compliant with NPR 2576 for use with any certified cable brand

Construction components:
1. Cable ladder LB 4000, thickness 1 mm, width 200 to 400 mm
2. Connector plate
3. Cantilever arm 50
4. Rod bracket 82
5. Adjustable ceiling bracket (optional)
6. Profile clamp H42
7. M10 nut
8. M10 flange nut
9. Screw set 22S
10. M10 threaded rod

Cable-specific fire-resistant functionality constructions

Fire-Resistant Construction with Mesh Tray Performa REZ

Performa with U and FR-C



Cert. No. P-3537/421/09-MPA BS
Cable-specific support construction in accordance with DIN 4102/12, suspended using adjustable ceiling bracket, U-profile, adjustable console, pendulum mounting angle, and M10 threaded rod.

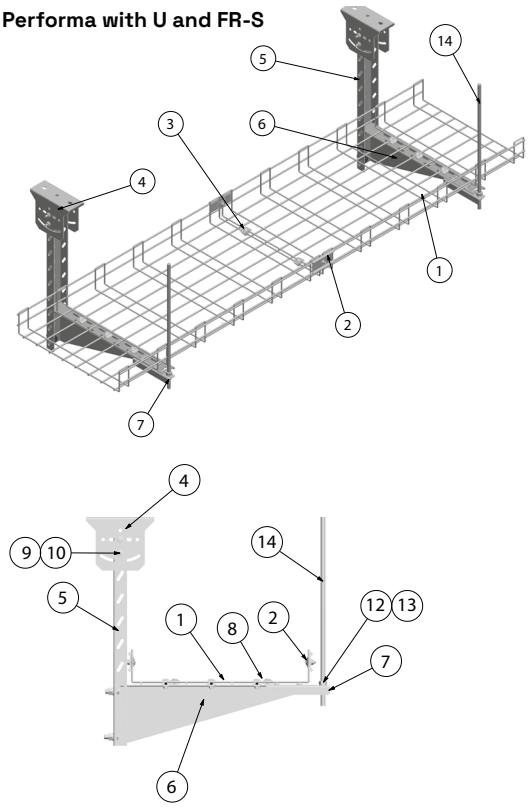
Ceiling installation with U-profile / adjustable console FR-C / M10 threaded rod

Installation criteria:
- Support spacing: max. 1.2 m
- Cable weight: max. 10 kg/m per Mesh tray
- Number of layers: max. 2 layers mounted vertically
- Cable-specific support construction in accordance with DIN 4102/12
- Class E30 and E90
- Certified for Daetwyler cables
- Compliant with NPR 2576 for use with any certified cable brand

Construction components:
1. Mesh tray Performa REZ, width 100 to 400 mm
2. Side connector plate Performa
3. Coupling clamp Performa
4. Adjustable ceiling bracket Performa
5. U-profile Performa
6. Console FR-C Performa
7. Pendulum mounting angle Performa
8. Mounting clamp Performa
9. M6x20 bolt
10. M6 nut
11. M10 nut
12. M10 washer
13. M10 threaded rod

Fire-Resistant Construction with Mesh tray Performa REZ

Performa with U and FR-S



Cert. No. P-3537/421/09-MPA BS
Cable-specific support construction in accordance with DIN 4102/12, suspended using ceiling bracket, U-profile, fixed console, pendulum mounting angle, and M10 threaded rod.

Ceiling installation with U-profile / fixed console FR-S / M10 threaded rod

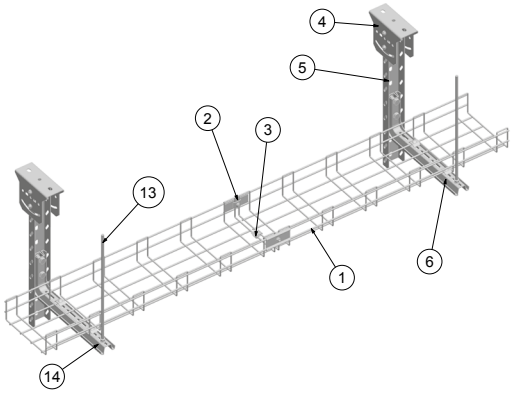
Installation criteria:
- Support spacing: max. 1.2 m
- Cable weight: max. 10 kg/m per Mesh tray
- Number of layers: max. 2 layers mounted vertically
- Cable-specific support construction in accordance with DIN 4102/12
- Class E30 and E90
- Certified for Daetwyler cables
- Compliant with NPR 2576 for use with any certified cable brand

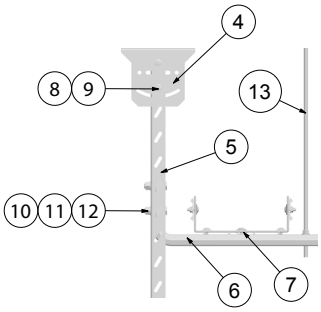
Construction components:
1. Mesh tray Performa REZ, width 100 to 400 mm
2. Side connector plate Performa
3. Coupling clamp Performa
4. Adjustable ceiling bracket Performa
5. U-profile Performa
6. Console FR-S Performa
7. Pendulum mounting angle Performa
8. Mounting clamp Performa
9. M6x20 bolt
10. M6 nut
11. M10x40 bolt
12. M10 nut
13. M10 washer
14. M10 threaded rod

Cable-specific fire-resistant functionality constructions

Fire-Resistant Construction with Mesh tray Performa REZ

Performa with U and Omega SO





Cert. No. P-3537/421/09-MPA BS
Cable-specific support construction in accordance with DIN 4102/12, suspended using ceiling bracket, U-profile, Omega console, pendulum mounting angle, and M10 threaded rod.

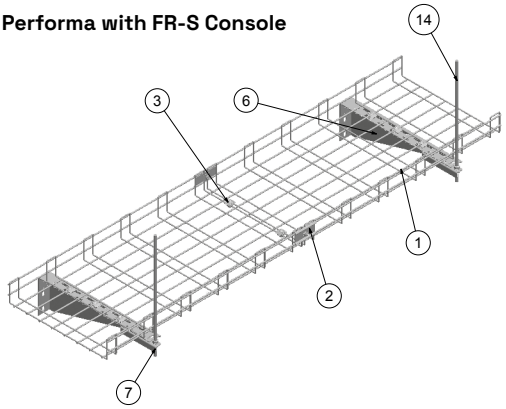
Ceiling installation with U-profile / Omega console SO / M10 threaded rod

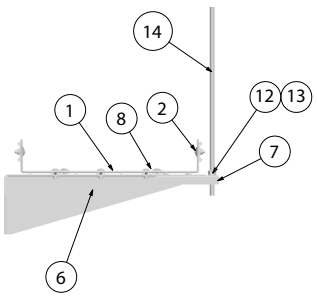
Installation criteria:
- Support spacing: max. 1.2 m
- Cable weight: max. 10 kg/m per Mesh tray
- Number of layers: max. 2 layers mounted vertically
- Cable-specific support construction in accordance with DIN 4102/12
- Class E30 and E90
- Certified for Daetwyler cables
- Compliant with NPR 2576 for use with any certified cable brand

Construction components:
1. Mesh tray Performa REZ, width 100 to 200 mm
2. Side connector plate Performa
3. Coupling clamp Performa
4. Adjustable ceiling bracket Performa
5. U-profile Performa
6. Omega console SO Performa
7. Mounting clamp Performa
8. M6x20 bolt
9. M6 nut
10. M10x40 bolt
11. M10 nut
12. M10 washer
13. M10 threaded rod
14. Pendulum mounting angle Performa

Fire-Resistant Construction with Mesh tray Performa REZ

Performa with FR-S Console





Cert. No. P-3537/421/09-MPA BS
Cable-specific support construction in accordance with DIN 4102/12, wall-mounted using console, pendulum mounting angle, and M10 threaded rod.

Wall installation with FR-S console / M10 threaded rod

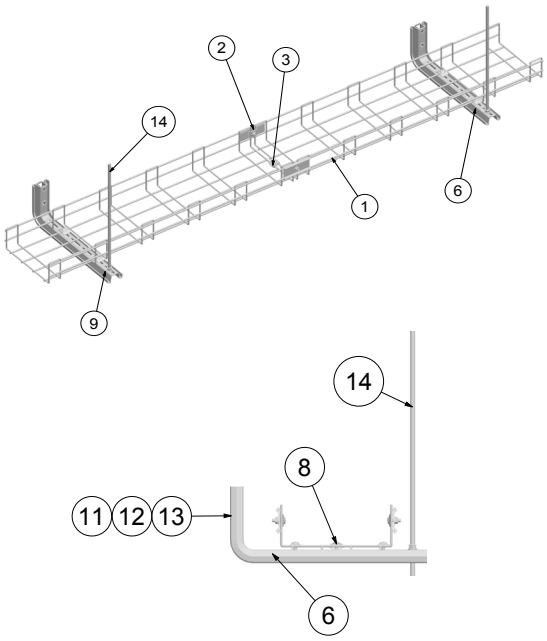
Installation criteria:
- Support spacing: max. 1.2 m
- Cable weight: max. 10 kg/m per Mesh tray
- Number of layers: max. 2 layers mounted vertically
- Cable-specific support construction in accordance with DIN 4102/12
- Class E30 and E90
- Certified for Daetwyler cables
- Compliant with NPR 2576 for use with any certified cable brand

Construction components:
1. Mesh tray Performa REZ, width 100 to 400 mm
2. Side connector plate Performa
3. Coupling clamp Performa
4. FR-S console Performa
5. Pendulum mounting angle Performa
6. Mounting clamp Performa
7. M10 nut
8. M10 washer
9. M10 threaded rod

Cable-specific fire-resistant functionality constructions

Fire-Resistant Construction with Mesh tray Performa REZ

Performa with Omega SO Console



Cert. No. P-3537/421/09-MPA BS
Cable-specific support construction in accordance with DIN 4102/12, wall-mounted using Omega console, pendulum mounting angle, and M10 threaded rod.

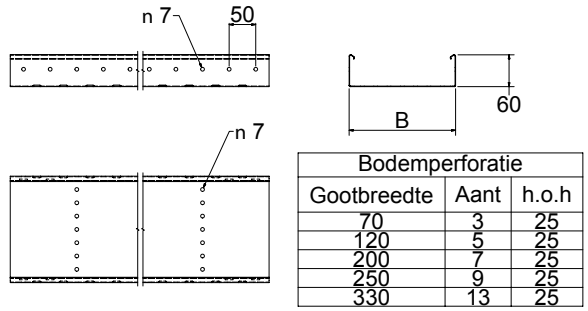
Wall installation with Omega SO console / M10 threaded rod

Installation criteria:
- Support spacing: max. 1.2 m
- Cable weight: max. 10 kg/m per Mesh tray
- Number of layers: max. 2 layers mounted vertically
- Cable-specific support construction in accordance with DIN 4102/12
- Class E30 and E90
- Certified for Daetwyler cables
- Compliant with NPR 2576 for use with any certified cable brand

Construction components:
1. Mesh tray Performa REZ, width 100 to 200 mm
2. Side connector plate Performa
3. Coupling clamp Performa
4. Omega SO console Performa
5. Mounting clamp Performa
6. Pendulum mounting angle Performa
7. M10x40 bolt
8. M10 nut
9. M10 washer
10. M10 threaded rod

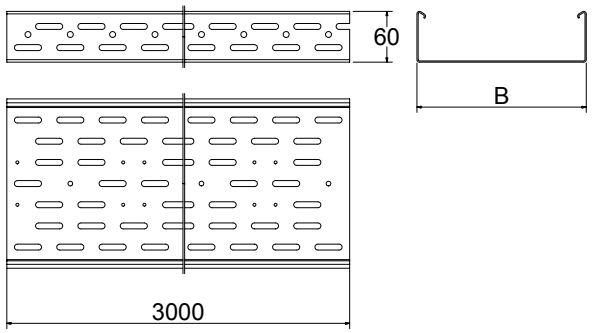
Measurements

Lengthmateriaal

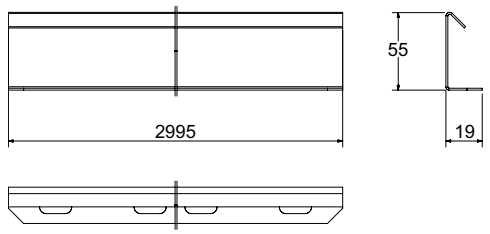


Bodemperforatie		
Gootbreedte	Aant	h.o.h
70	3	25
120	5	25
200	7	25
250	9	25
330	13	25

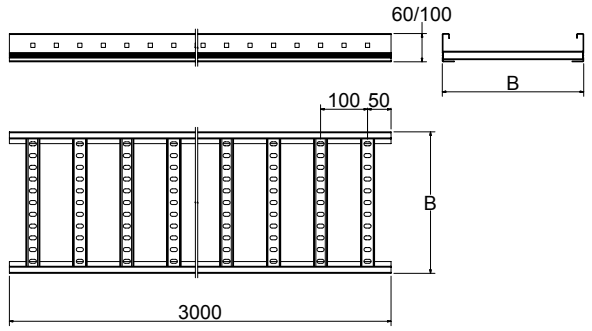
Cable tray KG 281 side perforation, D=0,1 mm



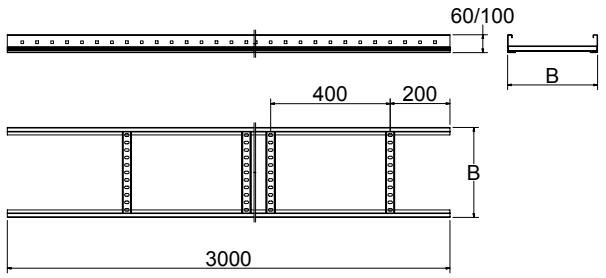
Kabelbaan KB 184 perforated, D=1,5 mm



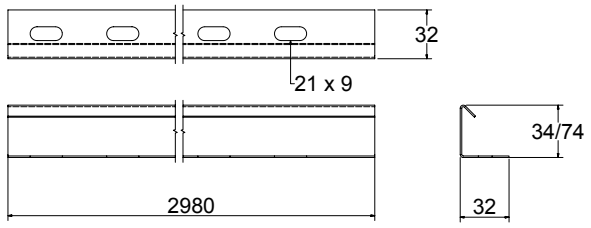
Separation wall for KG 281 and KB 184



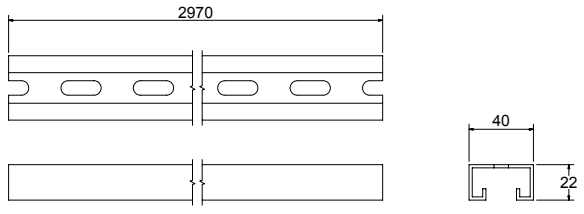
Ladderbaan LB 4000, D=1mm and D=1,5mm



Stijgladderbaan LB 400 BS, D=1,5 mm



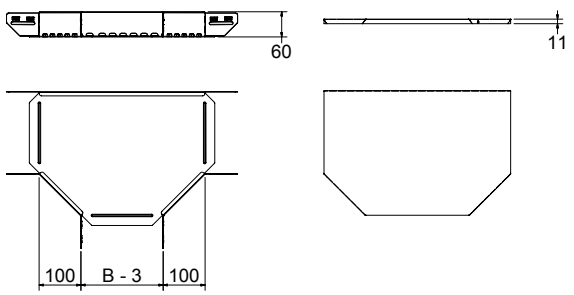
Separation wall for LB 4000



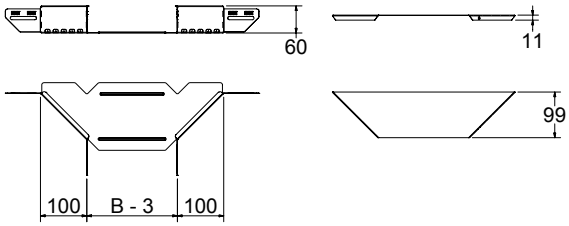
Pendant/fixing rail 24/40

Measurements

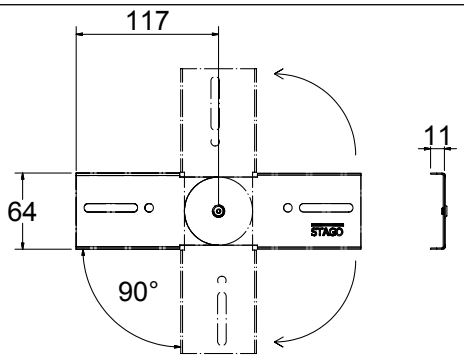
Accessories



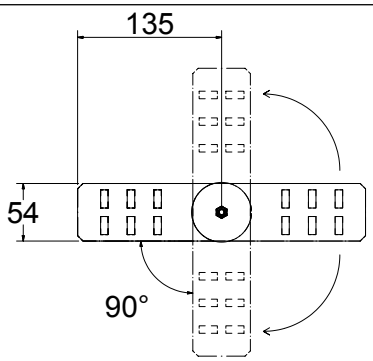
Bend 90° KG 281 and KB 284



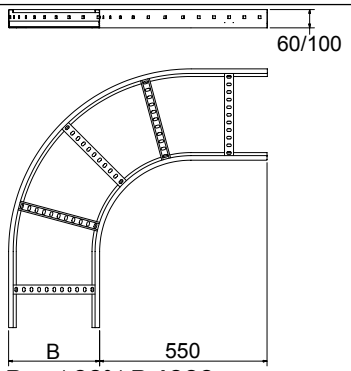
Branching piece KG 281 and KB 284



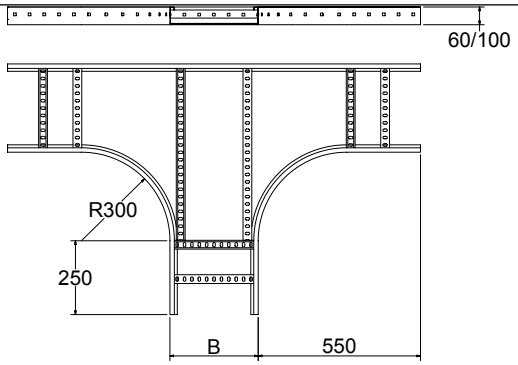
Adjustable hinge coupler KG 281



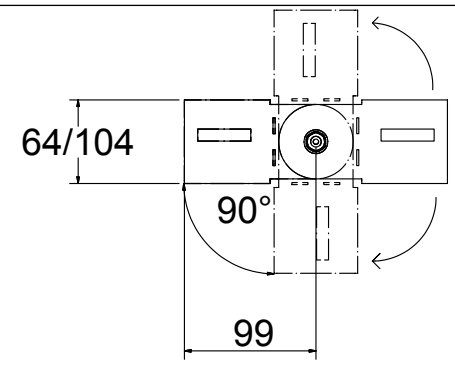
Adjustable hinge coupler KB 184



Bend 90° LB 4000



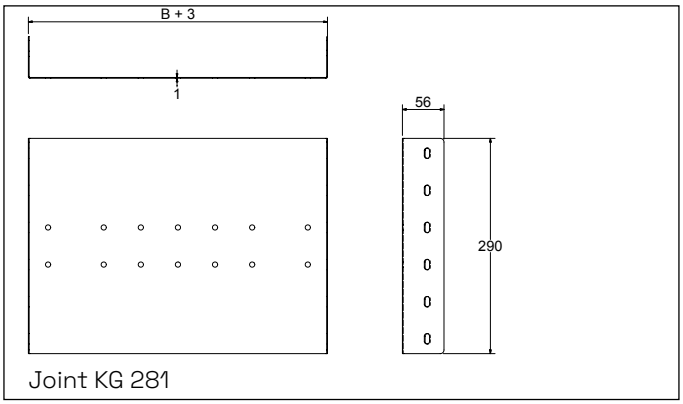
T-piece LB 4000



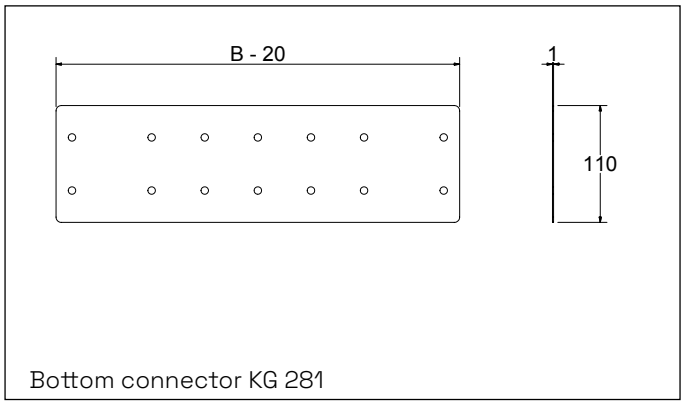
Hinge coupler LB 4000

Measurements

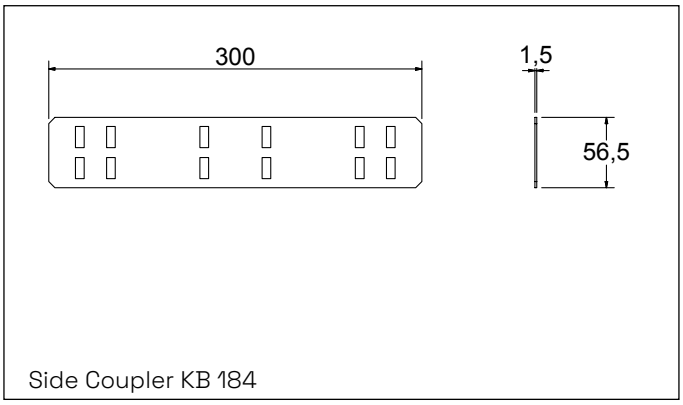
Universal accessories / mounting material



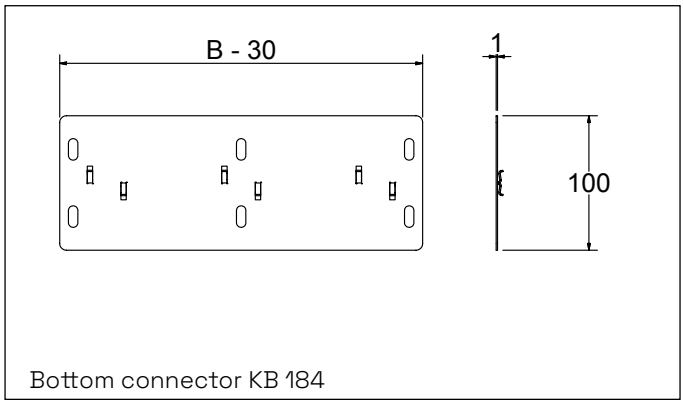
Joint KG 281



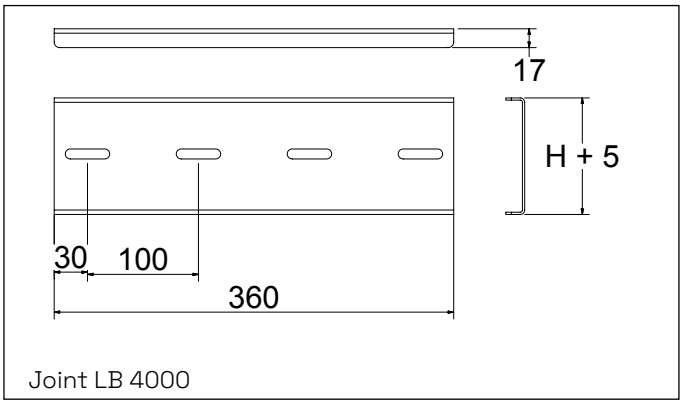
Bottom connector KG 281



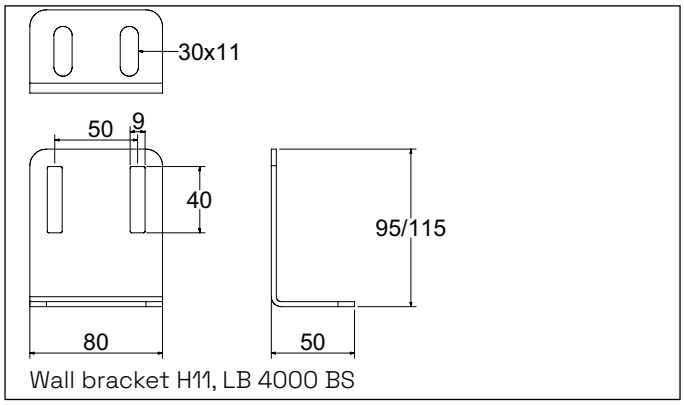
Side Coupler KB 184



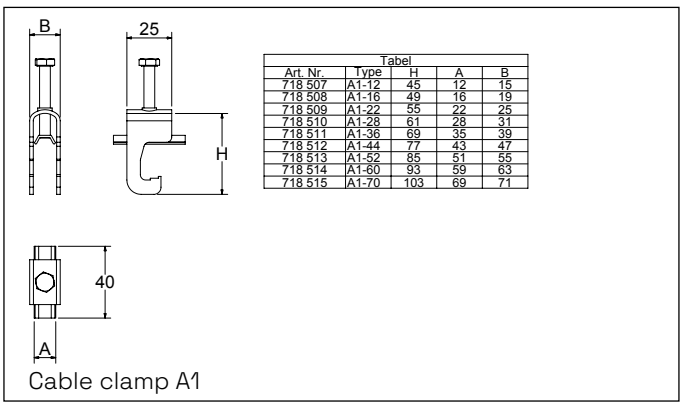
Bottom connector KB 184



Joint LB 4000



Wall bracket H11, LB 4000 BS



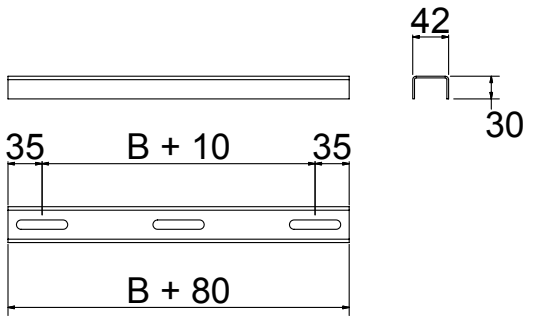
Tabel

Art. Nr.	Type	H	A	B
718 507	A1-12	45	12	15
718 508	A1-16	49	16	19
718 509	A1-22	55	22	25
718 510	A1-28	61	28	31
718 511	A1-36	69	35	39
718 512	A1-44	77	43	47
718 513	A1-52	85	51	55
718 514	A1-60	93	59	63
718 515	A1-70	103	69	71

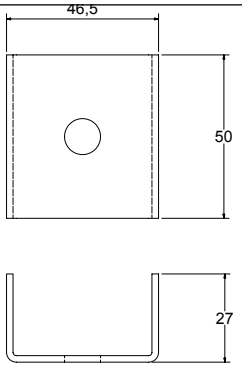
Cable clamp A1

Measurements

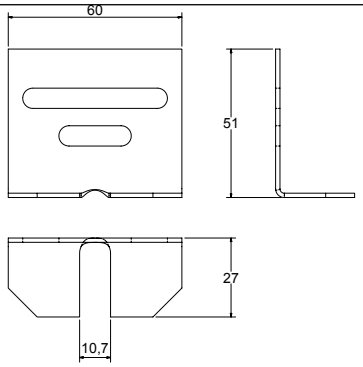
Suspension



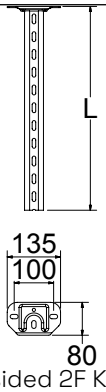
Support beam KG 281 and KB 184



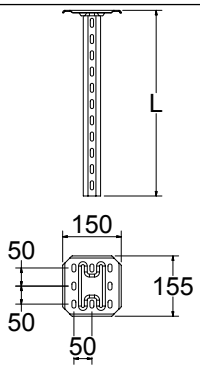
Reinforcement bracket KG 281 and KB 184



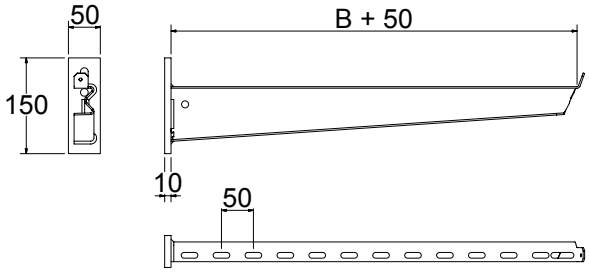
OEM bracket KG 281 and KB 184



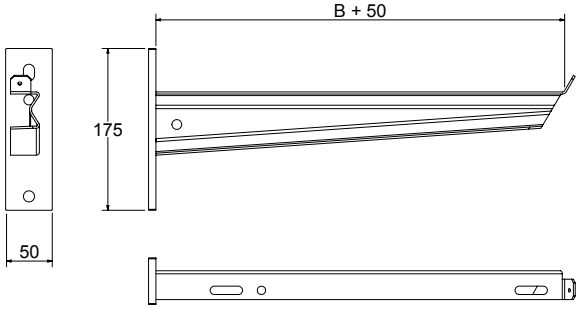
Vertical piece single-sided 2F KB 184 and LB 4000



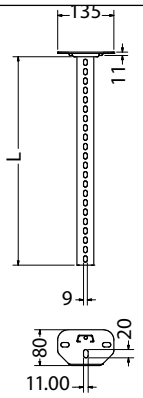
Vertical piece double-sided 20, KB 184 and LB 4000



Cantilever arm 50, KB 184 and LB 4000



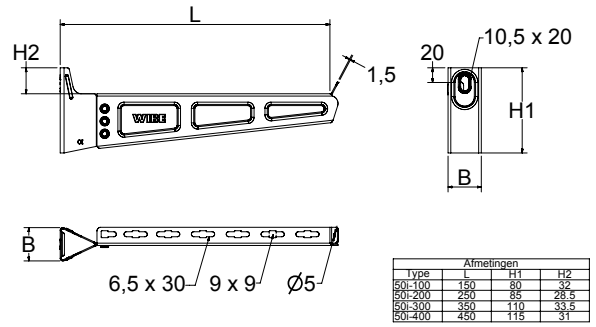
Cantilever arm 50F, KB 184



Vertical piece 2

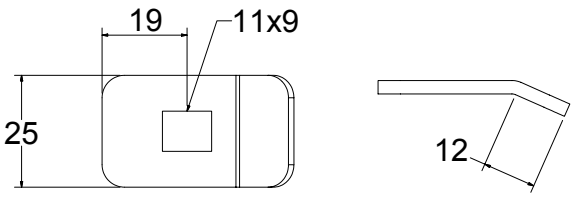
Measurements

Suspension

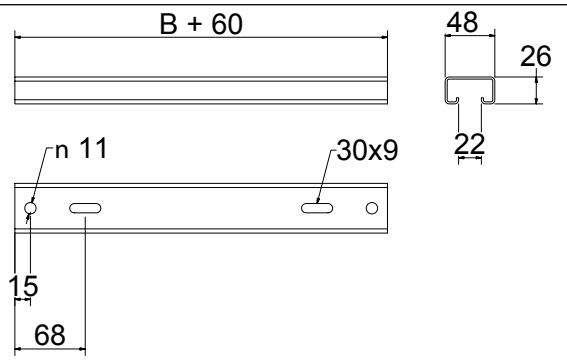


Afmetingen			
Type	L	H1	H2
50i-100	150	80	32
50i-200	250	85	28,5
50i-300	350	110	33,5
50i-400	450	115	31

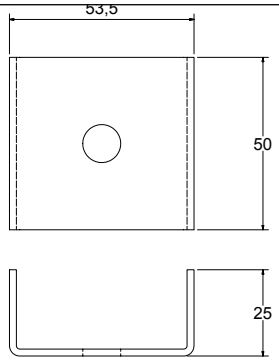
Cantilever arm 50i



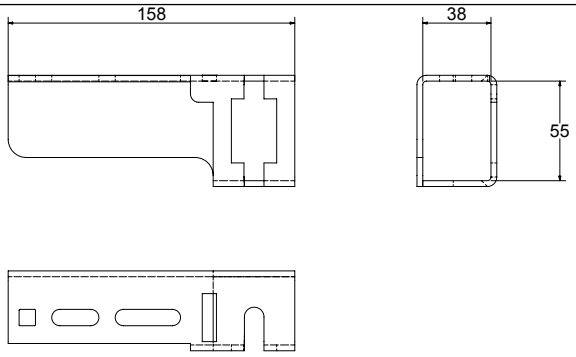
Ladder beam clamp H42, LB 4000



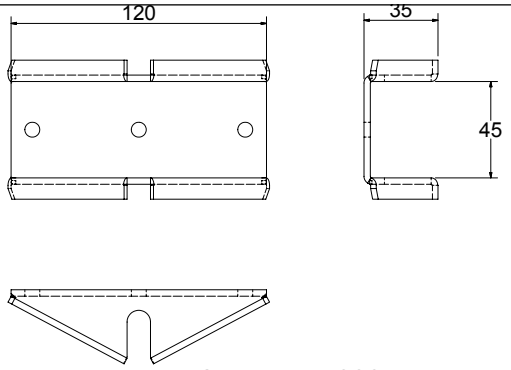
Support beam HS0, LB 4000



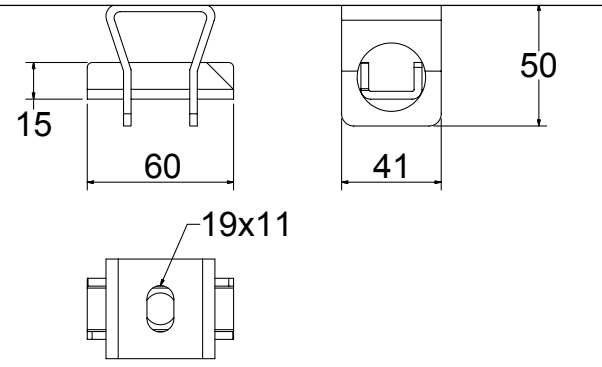
Reinforcement bracket LB 4000



Rod bracket 82, KG 281, KB 184 and LB 4000



Rod bracket KB 184 and LB 4000



Ceiling attachment KG 281, KB 184 and LB 4000