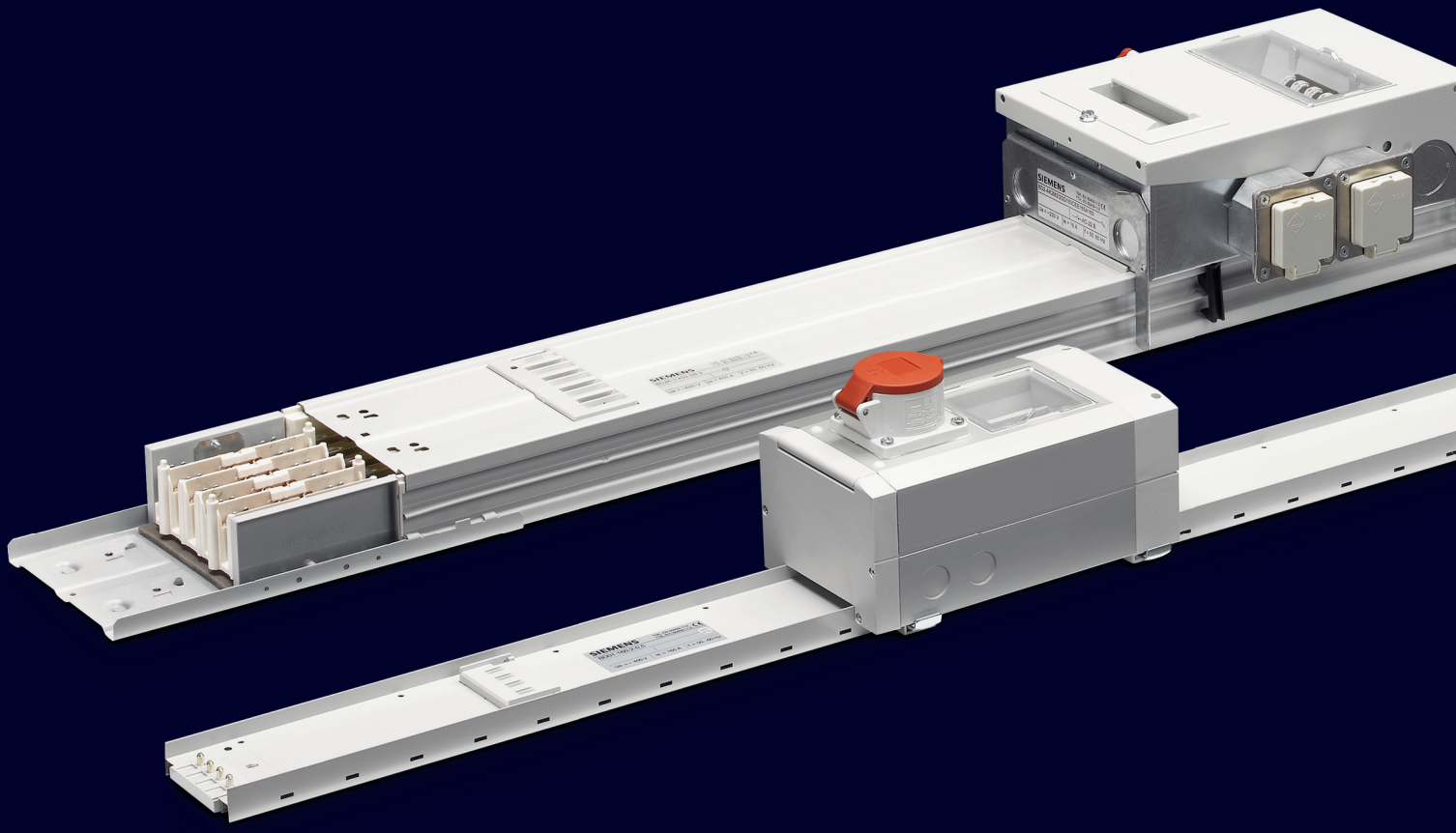
SIEMENS



Catalog
LV 70

Edition
2023

SIVACON

Busbar Trunking Systems SIVACON 8PS

BD01, BD2 up to 1250 A

siemens.com/busbar

Related catalogs

Low-Voltage Power Distribution and Electrical Installation Technology LV 10
SENTRON • SIVACON • ALPHA

PDF (E86060-K8280-A101-B7-7600)

SIVACON 8PS LV 70
Busbar Trunking Systems
BD01, BD2 up to1250 A

E86060-K1870-A101-B1-7600

SIVACON 8PS LV 70P
Busbar Trunking Systems
BD01, BD2 up to1250 A
Price List, only available in German

PDF

Catalog PDF
Digital versions of the catalogs are available in the Siemens Industry Online Support.

www.siemens.com/lowvoltage/catalogs

Miscellaneous

SiePortal
Information and Ordering Platform
on the Internet

sieportal.siemens.com

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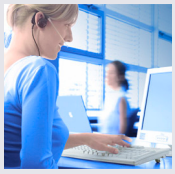
www.siemens.com/lowvoltage

Product Support



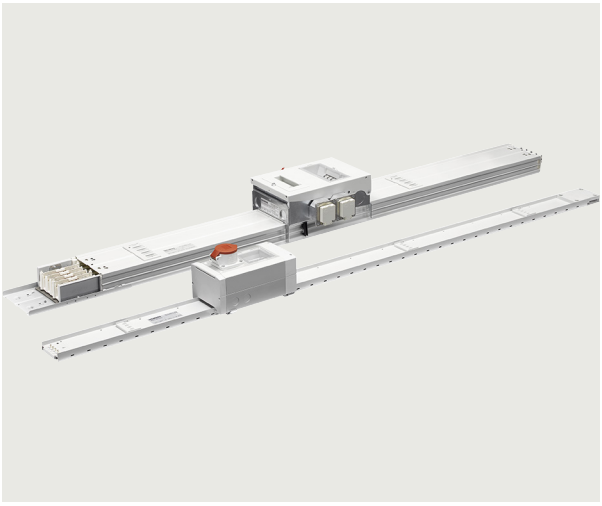
Expert advice on technical questions with a wide range of demand-optimized services for all our products and systems.

www.siemens.com/product-support

SIVACON 8PS Busbar Trunking Systems

BD01, BD2 up to 1250 A

Totally Integrated Power – SIVACON 8PS



Catalog LV 70 · 2023

Supersedes:
Catalog LV 70 · 2019
Price List LV 70 P · 2021

Refer to the Industry Mall for current updates of this catalog:
www.siemens.com/industrymall

The products and systems listed in this catalog are manufactured and distributed using a certified management system (according to ISO 9001, ISO 14001 and BS OHSAS 18001).

Introduction 1

Busbar Trunking Systems, Overview 2

BD01 System – 40 ... 160 A 3

BD2 System – 160 ... 1250 A 4

Appendix 5

Systems and solutions for safe and reliable power distribution

In an era of high population growth, increasing urbanization, technological change, and cost pressures, the sustainable management of limited resources is an important issue. Rising energy demands must today be reconciled with increasing environmental awareness and a desire for reduction in CO2 emissions. At the same time, requirements concerning reliability, personal safety, and productivity are increasing.

Siemens systems and solutions for low-voltage and medium-voltage power distribution support reliable and cost-efficient energy supply for the future, and provide answers to the challenges of tomorrow.

Safe, reliable, innovative, and future-oriented

Innovative systems and solutions for every application
International development teams and customer-focused manufacturing centers incorporate country-specific requirements into our research and development activities. Whether for primary or secondary power distribution, or for green isolated grids, whether for outdoor or indoor applications – our systems and solutions offer the right answer.

Standards for high availability and optimal personal protection
Our high-quality systems and solutions are developed according to relevant international standards. Thus, they offer a very high degree of personal and operating safety.

Sustainability and investment protection
In the area of grid stability, power generation on the basis of renewable energies entails new challenges. The durable systems and solutions from Siemens enable you to achieve your economic and environmental objectives. Low-voltage and medium-voltage switchgear, energy storage, and busbar trunking systems simplify the integration of renewable energy sources.

Their integration in existing control or automation systems as well as in smart grids can be achieved using a variety of protocols (such as IEC 61850, PROFINET, MODBUS, DNP).

Reliable local support
Our local experts are there for you around the world, helping you develop solutions for your energy supply, and providing you with specific expertise on project management and financial services in your projects. Important aspects of safety, logistics, and environmental protection are considered. We advise you as an end customer or planner. Especially in the planning phase, our experts from Totally Integrated Power (TIP) will provide you with professional consulting, software tools, specification texts, and planning manuals.

More information
www.siemens.com/mediumvoltage

Your advantages at a glance

- A full range of systems and solutions – from low to medium voltage
- High cost-efficiency through innovative, durable, and future-oriented products
- High switchgear availability and personal safety
- Contribution to increasing energy efficiency
- Reliable and competent local support – from planning to operation

For your application, we provide high-quality and standard-conforming systems and solutions that ensure maximum availability and personal safety while contributing significantly to a sustainable energy supply.

Tailored systems and solutions for utilities, industry, and infrastructure

Maintaining the balance between economy and ecology with continuing globalization – these are challenges that the majority of industries face today. Flexibility is becoming more important, development cycles are becoming shorter, and time-to-market is becoming crucial.

Your business success is based on a reliable and flexible energy supply. This results in high demands on suppliers of electrical systems and solutions.

Whether in the supply of cities and infrastructure, or for industrial plants – with Siemens systems and solutions you will always have the right solution for a reliable and cost-efficient energy supply – whether you are operating regionally or globally.

Regional customers

- Our maintenance-free and compact gas-insulated switchgear support utilities in building more cost-efficient and reliable grids, as well as in integrating into smart grids.
- For wind farms and turbines, our busbar trunking systems and medium-voltage switchgear are used, ensuring a reliable connection to the power grid. Energy storage solutions enable the integration of an increasing number of wind turbines into distribution grids, without requiring that such grids be expanded immediately.
- Modern infrastructure, such as hospitals, office buildings, and airports, must meet stringent requirements in terms of safety, low environmental impact, and integration of renewable energy. Our low- and medium-voltage switchgear and busbar trunking systems ensure a high level of safety, flexibility, and functionality.

Globally operating customers and EPCs

- In the oil and gas industry or in mining, for example, our prefabricated solution in a container features efficiency, safety, and reliability for supplying power under extremely difficult environmental conditions. It gives you an efficient and economical alternative to conventionally installed medium-voltage substations.
- Chemical production must be supplied with power around-the-clock on a cost-efficient yet extremely flexible basis. With our switchgear, we offer you an efficient and reliable energy supply.
- In the automotive industry and in data centers, busbar trunking systems offer a stable electrical infrastructure while providing flexibility for the connection of loads in case of subsequent modifications or expansions.
- In the metal industry or in the pulp and paper industry – i.e. wherever large amounts of energy are required on demand and peak loads need to be reduced – our energy storage system offers the right solution.

Innovative systems for utilities

System examples:
- 8DA/8DB
- NXPLUS C
- 8DJH
- NXAIR

Flexible systems for wind energy systems

System examples:
- NXPLUS C Wind
- 8DJH
- SIVACON 8PS System LDM

Overhead line applications

System examples:
- Fusesaver
- 3AD
- 3AF
- SDV6/7

Integrated solutions for cities and infrastructure

System examples:
- 8DJH
- SIVACON S8
- SIVACON 8PS

Fit for extreme conditions in the oil and gas industry

System examples:
- NXPLUS C
- NXAIR
- E-House

Reliability in the power supply of data centers

System examples:
- 8DJH
- NXAIR
- SIVACON S8
- SIVACON 8PS

Reliability under harsh conditions in mining

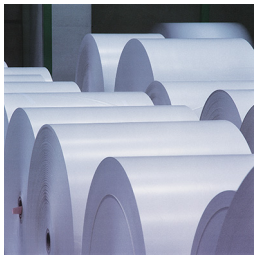
System examples:
- 8DA
- NXPLUS C
- NXAIR

Strong performance for the metal industry

System examples:
- NXPLUS C
- NXAIR
- SIESTORAGE

Cost-efficient power distribution for chemical plants

System examples:
- NXPLUS C
- NXAIR
- SIVACON S8



High availability in the pulp and paper industry

System examples:
- NXPLUS C
- NXAIR
- SIVACON S8
- SIESTORAGE

Reliable and flexible solutions for the automotive industry

System examples:
- NXPLUS C
- NXAIR
- SIVACON S8
- SIVACON 8PS
- SIESTORAGE

High-quality energy supply for the food and beverage industry

System examples:
- 8DJH
- NXAIR
- SIVACON S8
- SIVACON 8PS

Sustainability @Siemens

Transforming the everyday to create a better tomorrow.

For more information, see www.siemens.com/sustainabililty-figures

As a company, Siemens considers environmental, social and governance (ESG) criteria from all angles with its DEGREE framework (decarbonization, ethics, governance, resource efficiency, equity and employability). We are not only committed to reducing the carbon footprint in our own operations to net zero by 2030, but also helping our customers achieve their decarbonization and sustainability goals.

Mission & strategy

As a focused technology company, Siemens is committed to addressing the world's most profound challenges by leveraging the synergies between digitalization and sustainability.

Technology with aim and purpose

We develop technologies that connect the real and digital worlds and enable our customers to positively transform the industries that form the backbone of our economy: industry, infrastructure, transportation and healthcare.

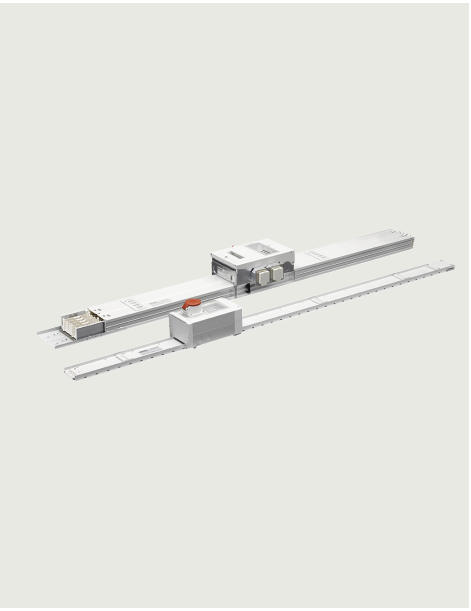
Our contribution

Siemens makes an impact every day by providing innovative solutions in response to challenges relating to environmental protection, decarbonization, health and safety. Innovative solutions that have a clear goal: to make the world more sustainable, more integrative and a better place to live.

Sustainability facts

For almost 175 years, Siemens has been driven by the desire to improve the lives of people around the world with our technologies.

Introduction



1/2 **SIVACON 8PS busbar trunking systems in use**

1/4 **Comprehensive support**

SIVACON 8PS busbar trunking systems in use

Overview

Busbar trunking systems in the low-voltage range ensure the reliable transmission and distribution of electrical energy from the transformer through the main distribution board and sub-distribution board to the load. Siemens offers a complete range of high-performance systems:

- BD01 system for 40 A to 160 A
- BD2 system for 160 A to 1250 A
- LR system for 400 A to 6300 A
- LD system for 1100 A to 5000 A
- LI system for 800 A to 6300 A

SIVACON 8PS busbar trunking systems provide the highest reliability thanks to tested low-voltage switchgear and controlgear assemblies. Design verified according to IEC 61439-1/-6. Metal enclosures lend the systems high short-circuit withstand strength and low fire load for greater safety for persons and buildings.

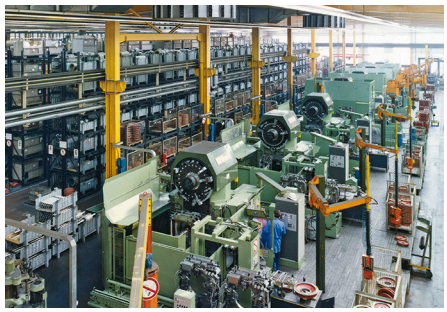
Other advantages:

- Well arranged network structure
- Easy retrofitting when loads change
- Low operating costs thanks to high availability
- Easy planning and mounting

With the communication-capable SIVACON 8PS busbar trunking systems, power distribution can be combined with building automation

Power for loads with no fixed location

The BD01 system is ideal for power distribution (up to 160 A) in craft and trade. The busbars can be easily and quickly connected. An anti-rotation feature (prevents incorrect fitting on the tap off point) ensures easy conversion. Other advantages: Minimum stock keeping and straightforward planning thanks to one standard size for five different current ratings.



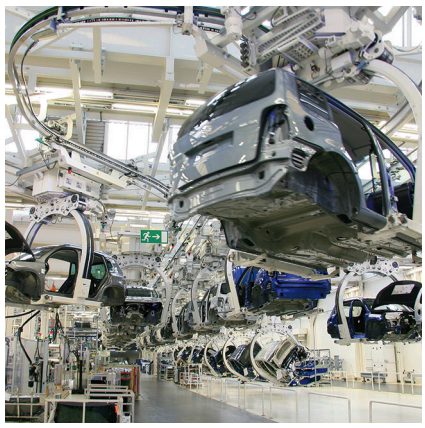
The BD01 system is quickly mounted and ideally suited for use in craft and trade.

The universal solution for high power levels in a small space

The BD2 system (up to 1250 A) supplies energy to medium-size loads in buildings and all sectors of industry. Pre-assembled tap-off units with the most diverse equipment enable universal use. With only two standard sizes for all current ratings, stock keeping and planning are greatly facilitated.

High availability in production

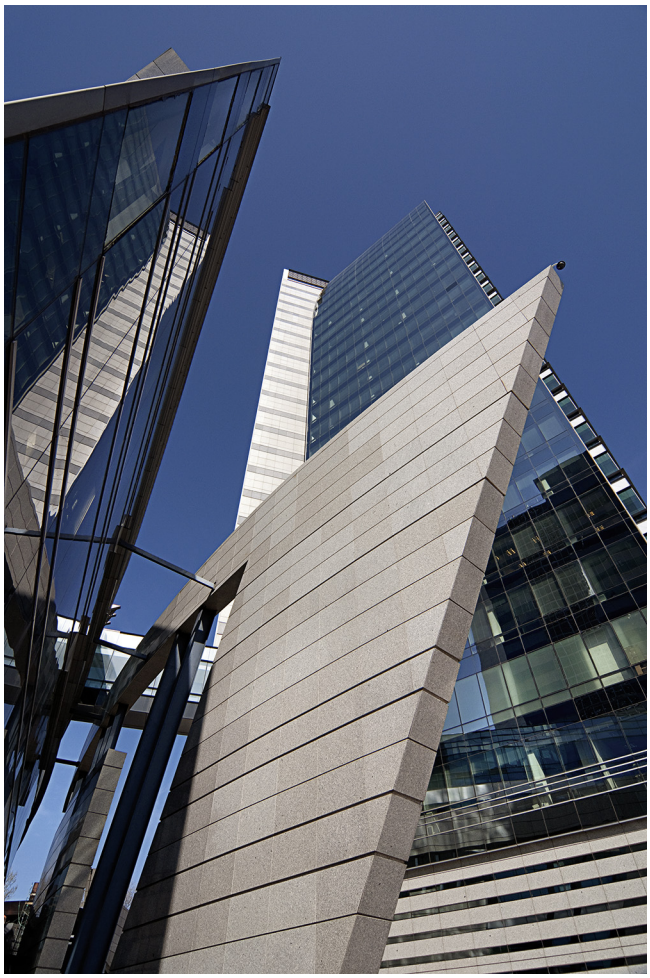
The ventilated LD system (up to 5000 A) transmits electricity to production facilities with a high demand for power, e.g. in the automobile industry. A separate PE busbar enables the assured response of the switching and protection device over long conducting paths. The high short-circuit withstand strength permits protection by medium-voltage circuit breakers for the transmission of power between the transformer and the main infeed. Tap-off units up to 1250 A can be plugged in without causing any problems.



The ideal system for production lines needing a great deal of power is the LD system up to 5000 A.

Flexible power supply for multi-floor buildings

The LI sandwich system (up to 6300 A) is used wherever large amounts of power have to be transmitted independently of position. Be it for radio broadcasting stations, data centers, or Internet providers – conductor configurations with an isolated PE conductor and double neutral conductor cross-section ensure an interference-free power supply. Tap-off units up to 1250 A are available as standard.



The LI busbar trunking system is the perfect equipment for multi-floor buildings where large quantities of power need to be transported, uninfluenced by the mounting position of the system.

Safe power transmission for petrochemicals

The encapsulated LR system (up to 6300 A) is extremely resistant to external interference thanks to its high degree of protection. It ensures the safe transmission of power in severe weather as well as under harsh industrial conditions with dust, dirt, and aggressive media.

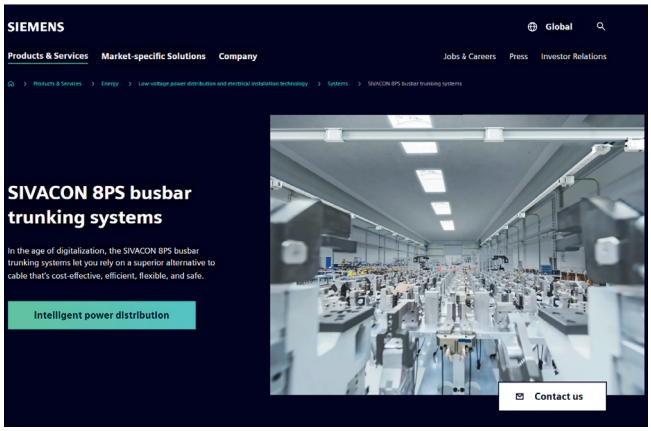
Typical applications are the petrochemical industry, refuse incineration plants and power stations.

In the petrochemical industry with its harsh ambient conditions, it is the LR system that provides for fault-free power transmission.

Comprehensive support

Overview

SIVACON 8PS on the Internet



Visit us on the Internet. You can obtain additional information on our SIVACON 8PS busbar trunking systems,
www.siemens.com/busbar

Tender specification texts

For your support, we offer you a comprehensive range of specification texts:
www.siemens.com/specifications

Reliable local support

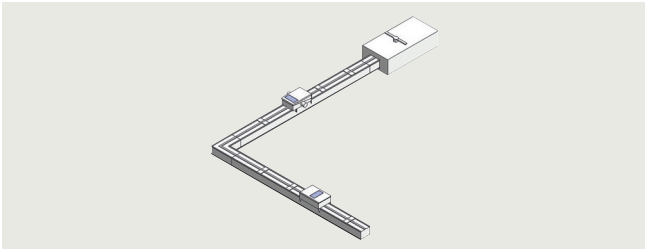
Our local experts are there for you around the world, helping you develop solutions for your energy supply, and providing you with specific expertise on project management and financial services. Important aspects such as safety, logistics, and environmental protection are considered.

We will be glad to advise you as an end user or project planner. Especially in the planning phase, our experts from Totally Integrated Power (TIP) will provide you with professional consulting, software tools, specification texts, and planning manuals.

SIVACON 8PS busbar trunking systems - The intelligent alternative to cables - BIM

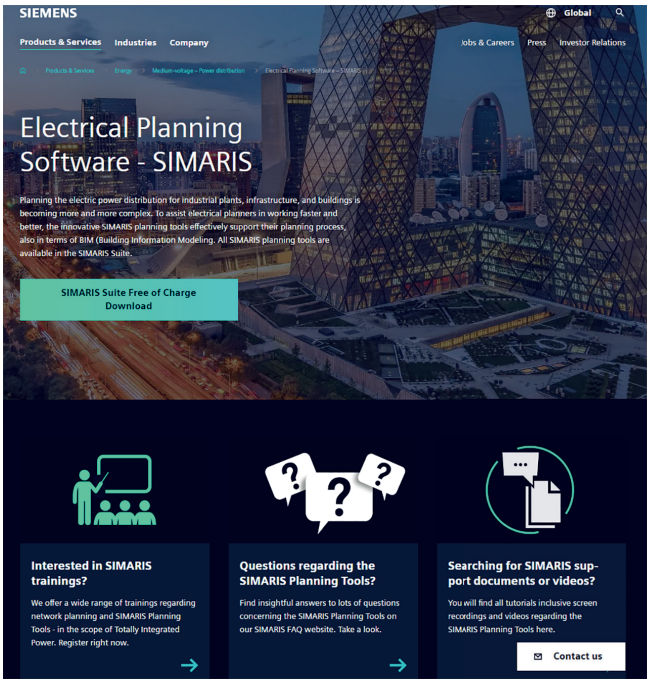
BIM data for electrical planning
- revit-data available for the BD01, BD2, LD, and LI systems
- Easy adjustment of the busbar run to the shape of the building
- Collision-free busbar runs with overlapping components such as water pipes and ventilation shafts

Data for Building Information Modeling (BIM): Efficiency from planning to maintenance thanks to the use of BIM data



Convenient electrical planning with SIMARIS software tools

Planning electric power distribution for industrial plants, infrastructure, and buildings is becoming more and more complex. To help electrical planning engineers to work faster and better under existing conditions, the innovative SIMARIS software tools effectively support the planning process.



SIMARIS design

For network calculations and dimensioning, SIMARIS design offers a secure solution from the broad product portfolio of power distribution, according to recognized rules and standards (VDE, IEC), and specific requirements. The specific components that are required are selected automatically on the basis of the given project structure and the basic data collected. Advanced users can buy the SIMARIS design professional version which provides additional functions: Display and dimensioning of networks with parallel network operation, automatic selectivity evaluation, export of the created project for further processing in SIMARIS project, creation of active and passive emergency power supply systems.

SIMARIS project

The software tool SIMARIS project enables you to create project documents quickly, easily, and clearly to fit the space and budget requirements of your complete power distribution system. Based on the systems and devices determined, you can also create a list of specifications in GAEB D81 or RTF format – in German or English – at the click of a button, since the relevant specification texts are stored for all the components, configured automatically, and compiled in a project-specific manner.

SIMARIS busbarplan

Do you want to plan busbar runs in compliance with BIM and automatically check their constructability according to configuration rules? That is exactly what the free SIMARIS busbarplan software lets you do.

SIMARIS busbarplan is available in English and German as a plug-in for Autodesk Revit. Simply download the SIMARIS Suite to begin working with SIMARIS busbarplan. This will allow you to design the digital twin for future-oriented planning in the context of BIM (Building Information Modeling)!

SIMARIS busbarplan lets you select the right busbar trunking systems for your projects, and quickly and easily plan the run layout in the building. Additional components like tap-off units, fire barriers, and connection elements can be selected from dialog boxes and complete the busbar run.

Routings are automatically checked for constructability according to the latest technical configuration rules. Thanks to a smart interface, you can further process your planned busbar trunking systems in SIMARIS project in order to obtain budget prices, functional bills of material, and tender specification texts!

SIMARIS sketch

With SIMARIS sketch, you can intuitively create the 3D routing of the busbar trunking systems BD01, BD2, LD, and LI for your particular project. These routings, including accessories, are directly represented in 3D, allowing an easy and helpful 3D visualization of how the busbar routing will look in the project.

For further information, see www.siemens.com/simaris

SIVACON 8PS busbar trunking systems configurator

The product configurator (selection aid) enables you to order busbar trunking systems up to 1250 A and is available in the Industry Mall. The same configurator is included in Interactive Catalog CA 01.

The following configurators are available:

- SIVACON 8PS system BD01, 40 A to 160 A
- SIVACON 8PS system BD2, 160 A to 1250 A

Configurators can be found at https://mall.industry.siemens.com/mall/en/WW/Catalog/Configurators

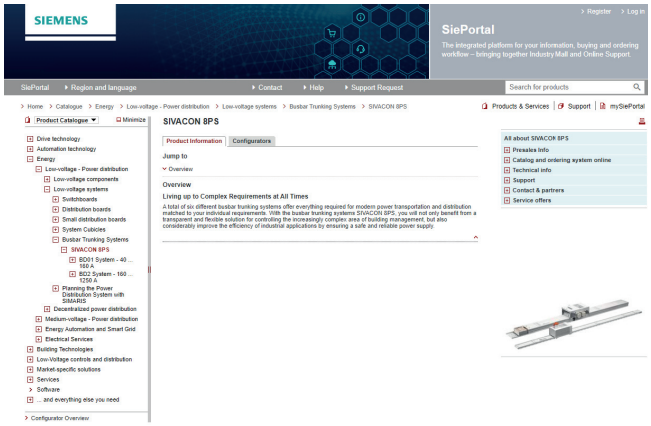
More information

- Industry Mall

Information and order platform on the Internet: www.siemens.com/industrymall

Comprehensive support

Technical documentation on the Internet

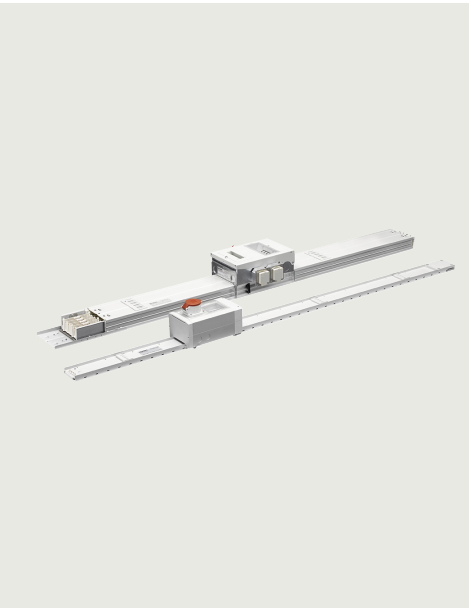


You will find an overview of the available technical documents for SIVACON 8PS busbar trunking systems on our daily updated website at https://mall.industry.siemens.com/mall/en/uk/Catalog/Products/10023269?tree=CatalogTree

Support

If you would like to obtain more information, please contact our Siemens
Customer Support Center.
Tel.:+49 180 524 8437
Fax:+49 180 524 2471
(Charges depending on provider)
E-mail: support.ic@siemens.com

Busbar Trunking Systems, Overview



Contents
2/2 Overview

System overview
2/3 Overview
2/4 Benefits
2/5 More information

Features overview
2/6 Overview

Principles of busbar trunking system planning
2/8 Overview

Communication-capable busbar trunking systems for industry and buildings
2/9 Overview

Busbars instead of cables
2/10 Overview

Busbar Trunking Systems, Overview

Contents

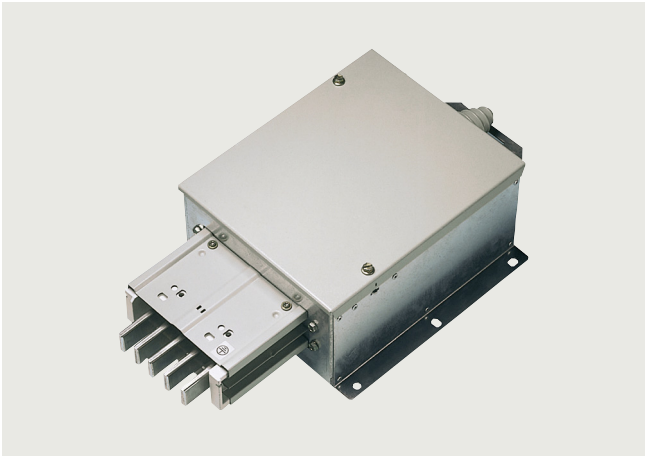
Overview

Busbar trunking systems

This catalog contains:

- BD01 system up to 160 A
- BD2 system up to 1250 A

Systems up to 6300 A on request.

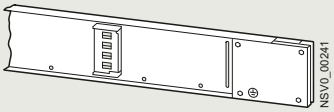


Feeding unit (end feeding unit)

Trunking unit with tap-off unit

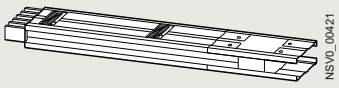
BD01 and BD2 busbar trunking systems

BD01 system – 40 A up to 160 A



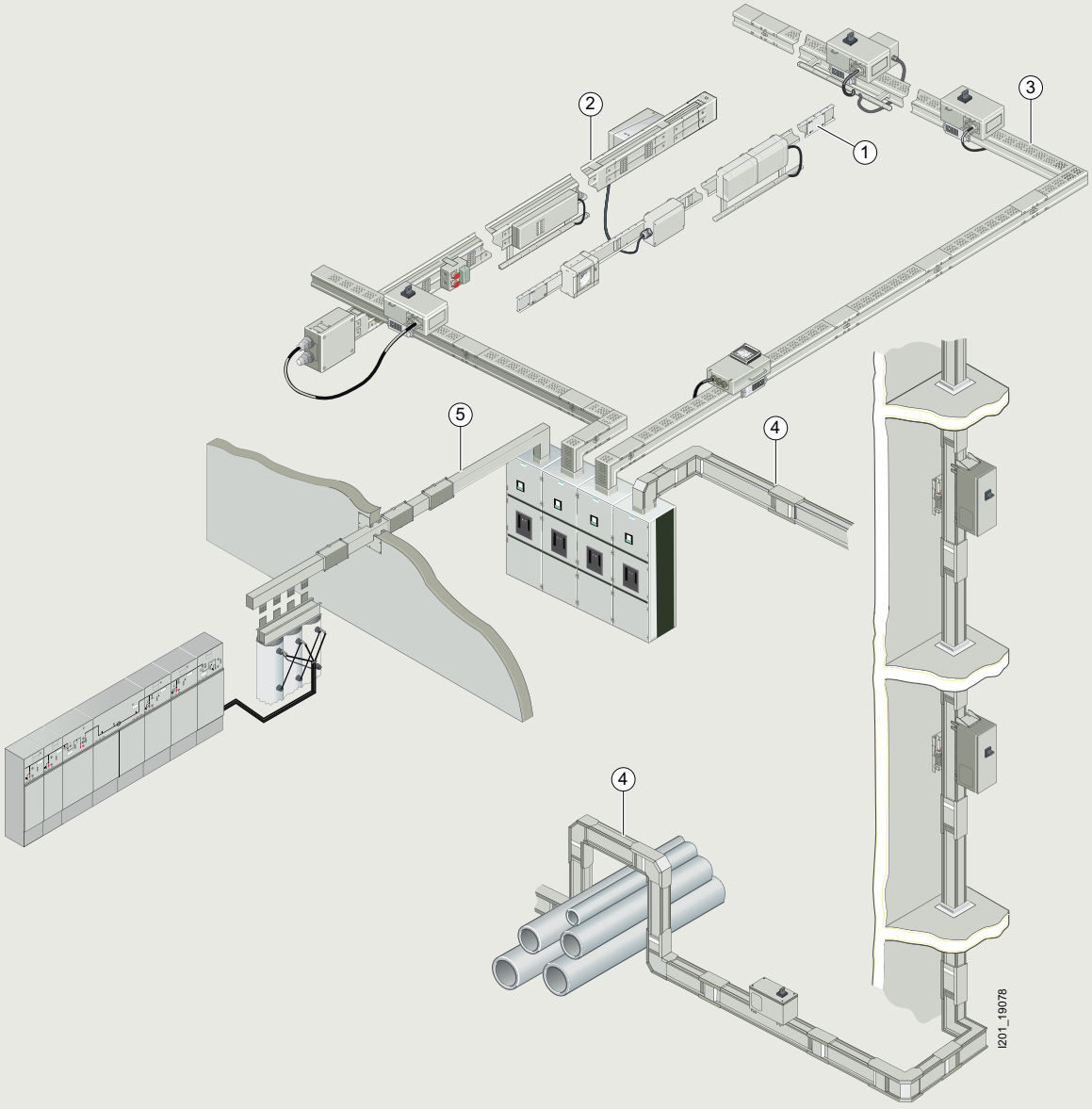
	Page
System overview of busbar trunking systems	2/3
Features overview of busbar trunking systems	2/6
Contents: BD01 system	3/1
Overview	3/2
Design	3/3
Technical specifications	3/8
Selection and ordering data	3/10
Configuration	3/22
Dimensional drawings	3/28

BD2 system – 160 A up to 1250 A



	Page
System overview of busbar trunking systems	2/3
Features overview of busbar trunking systems	2/6
Contents: BD2 system	4/1
Overview	4/2
Design	4/3
Technical specifications	4/8
Selection and ordering data	4/17
Configuration	4/67
Fire barrier	4/87
Dimensional drawings	4/93

Overview



1 System BD01
2 System BD2
3 System LD
4 System LI
5 System LR

Benefits

① *BD01 system up to 160 A*

The busbar trunking system for power transmission in craft and trade:

- High degree of protection up to IP55
- Flexible power supply
- Easy and quick planning
- Time-saving mounting
- Reliable mechanical and electrical connection technology
- High stability, low weight
- Few basic modules required
- Storage-friendly system
- Variable junction units
- Versatile tap-off units
- Positive opening and closing of tap-off points

② *BD2 system up to 1250 A*

The busbar trunking system for operation in the harsh industrial world:

- High degree of protection up to IP55
- Easy and quick planning
- Time-saving and economical mounting
- Reliable and safe operation
- Flexible modular system with simple solutions for every application
- Early planning of the power distribution system without exact knowledge of load locations
- Early readiness for operation thanks to fast and simple mounting
- Innovative design: No more compensation units to compensate elongation
- Tap-off units and tap-off points codable at the factory
- Sealable throughout

③ *LD system up to 5000 A*

The busbar trunking system for optimized power distribution in industry:

- Degree of protection up to IP54
- Quick and easy mounting
- Reliable and safe operation
- Space-saving, compact design up to 5000 A in one enclosure
- Load tap-offs up to 1250 A
- Design verified connection to distribution boards and transformers

④ *LI system up to 6300 A*

The busbar trunking system for power transmission and distribution in infrastructure – e.g. in multi-floor buildings – and in industrial applications:

- Reliable and easy to install
- Reliable and safe operation
- Load tap-offs up to 1250 A
- Tested connection to distribution boards (design verified connection to SIVACON S8) and transformers

⑤ *LR system*

The busbar trunking system for power transmission under extreme ambient conditions (IP68).

Detailed information about this system is available from the Siemens branch located close to you.

More information

SIVACON 8PS busbar trunking systems configurator

Busbar trunking systems up to 1250 A can be ordered using the product configurator (selection aid).

The following configurators are available:

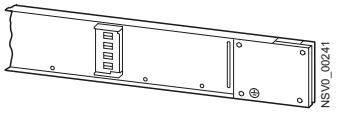
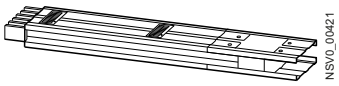
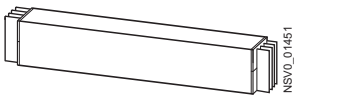
- SIVACON 8PS BD01 system, 40 ... 160 A
- SIVACON 8PS BD2 system, 160 ... 1250 A

Internet

www.siemens.com/busbar

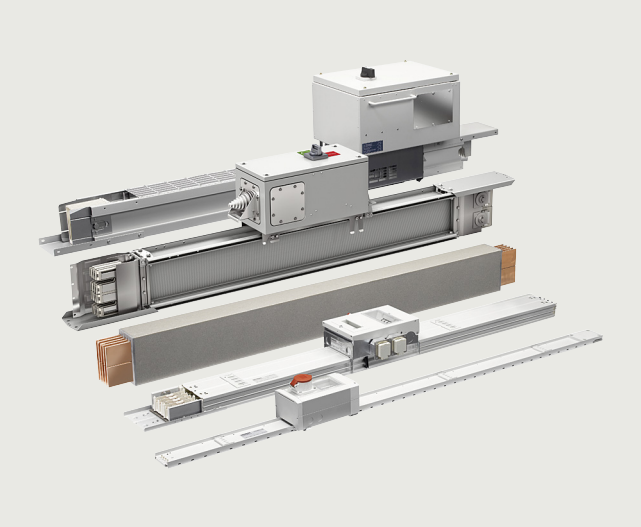
Features overview

Overview

Busbar trunking systems	Rated current A	Rated operational voltage V AC	Frequency Hz	Number of active conductors	Degree of protection	Ambient temperature, min./max. °C
BD01 	40 63 100 125 160	400	50	4 (PE = enclosure)	Up to IP55	–5/+40
BD2A **BD2C** 	160 ... 1000 160 ... 1250	690	50	5	Up to IP55	–5/+40
LDA1 ... LDA8 **LDC2 ... LDC8** 	1100 ... 4000 2000 ... 5000	1000	50	4 or 5	Up to IP54	–5/+40
LI-A0800 ... LI-A5000 **LI-C1000 ... LI-C6300** 	800 ... 5000 1000 ... 6300	1000	50	3, 4, 5, 6 (PE = enclosure)	Up to IP66	–5/+40
LRA01 ... LRA29 **LRC01 ... LRC29** 	400 ... 5000 630 ... 6300	1000	50	4, 5	IP68	–5/+40

Mounting position	Length m	Tap-off points	Tap-off units	Material	Fire load kWh/m
Edgewise, flat (tap-off points downwards)	2 3	On one side every 0.5 or 1 m	Up to 63 A	Insulated Al or Cu conductors, painted sheet-steel enclosure	0.76
Edgewise, flat and vertical	0.5 ... 3.25	None On two sides offset every 0.25 or 0.5 m	Up to 530 A	Al or Cu- busbars, painted sheet-steel enclosure	0.6 ... 0.67 (without tap-off points)
Horizontal, edgewise and vertical	0.5 ... 3.2	None On one side every 1 m On two sides every 1 m	Up to 1250 A	Insulated Al or Cu busbars, painted sheet-steel enclosure	4.16 ... 8.83 (without tap-off points)
Horizontal, edgewise and vertical	0.35 ... 3	None Up to 3 tap-off points per side on lengths up to 3 m	Up to 1250 A	Insulated Al or Cu busbars, painted aluminum enclosure	On request
Horizontal, edgewise and vertical	0.5 ... 3	None On one side selectable	Up to 630 A	Epoxy resin system, Al or Cu busbars	–

Overview



SIVACON 8PS busbar trunking systems for currents from 40 to 6300 A

When it comes to developing a power distribution concept complete with the configuration of systems and system components, the end user's requirements have to be coordinated with the manufacturer's possibilities.

Descriptions are provided accordingly of the individual systems, their technical features, and their fields of application. Another element is the graphic representation of the various busbar trunking elements. All details of importance for the planning work are emphasized and explained.

You will find ideas for a ready-to-use planning solution in chapters 3 to 5 of "Configuration information". For example, the basics of dimensioning are presented in detail along with in-depth information on topics such as system construction, short-circuit protection, fire barriers or functional endurance.

Services and engineering tools are available from Siemens to simplify the drawing up of customer specifications.

General information

When developing the planning concept of a power supply system, it is necessary not only to consider the standards and specifications in force, but also to clarify the correlations between economy and technology. Electrical equipment such as distribution boards and transformers must be dimensioned and selected so that they represent an optimum in their entirety and not just individually.

All components must be sufficiently dimensioned for the loads which arise during operation at rated values as well as in the event of a fault. Other decisive points to be considered when drawing up the power concept are:

- The type, utilization, and shape of building (e.g. high-rise, flat-roof, and number of floors)
- Determination of load centers and selection of possible supply routes and locations for transformers and main distribution boards
- Determination of building-related connected loads according to specific loads per unit area dependent on the building's use
- Specifications and requirements imposed by the building authorities
- Requirements imposed by the power supply companies

The result will never be a single solution, but several versions which must be assessed with regard to their technical and economic implications. The following requirements are paramount in this connection:

- Easy and clear-cut planning
- Long endurance
- High availability
- Low fire load
- Flexible adaptation to changes within the building

In most applications, these requirements are easily met by the use of suitable busbar trunking systems. For this reason, busbar trunking systems rather than the cable installation method are being used more and more often by engineering offices for the transmission and distribution of power. Siemens offers busbar trunking systems from 40 to 6300 A:

- The BD01 busbar trunking system from 40 A to 160 A for supplying power to workshops with tap-off units up to 63 A
- The BD2 system from 160 A to 1250 A for supplying power to medium-size loads in buildings and in industry
- The ventilated LD system from 1100 A to 5000 A for supplying loads with medium power consumption in industry
- The LI sandwich system from 800 A to 6300 A for supplying large amounts of power in buildings
- The LR encapsulated system from 400 A to 6300 A for power transmission in extreme ambient conditions (IP68)

Overview

Busbar trunking systems

The strengths of busbar trunking systems lie in the transmission and distribution, as well as in the switching and protection of electrical power.

The integration of automation and building management technology in the Siemens busbar trunking systems results in additional benefits, and at the same time increases the flexibility of the busbar trunking system.

The combination of standard tap-off units with standard ancillary equipment units ensures efficiency particularly in planning, installation, and operation.

Advantages of the system solution during planning:

- Modular system
- Tested standard components
- Free choice of bus system
- Use of common bus systems

Advantages of the system solution during commissioning:

- Easy and quick installation
- Commissioning possible in steps
- Flexible in case of modifications and expansions

Advantages of the system solution during operation:

- Transparency of switching states
- Central recording of power costs
- Increase in plant availability as a result of immediate detection of the type of fault and its location
- Preventive maintenance through recording of operating hours and operating cycles

Busbars instead of cables

Overview

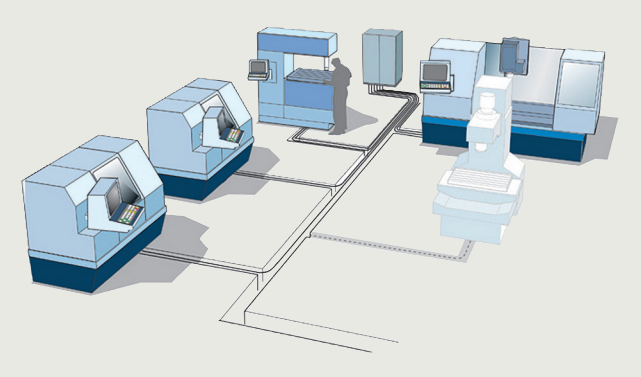
Easier when it comes to planning

Easy to plan, quick to install, and flexible to use: Busbar trunking systems from Siemens bring energy economically into any building. The power distribution system can be precisely planned from the total connected load and the type and number of loads. Clarity is assured by the line-shaped network structure with regularly arranged load tap-offs. Using standardized sizes, all applications can be implemented quickly and in minimum space.

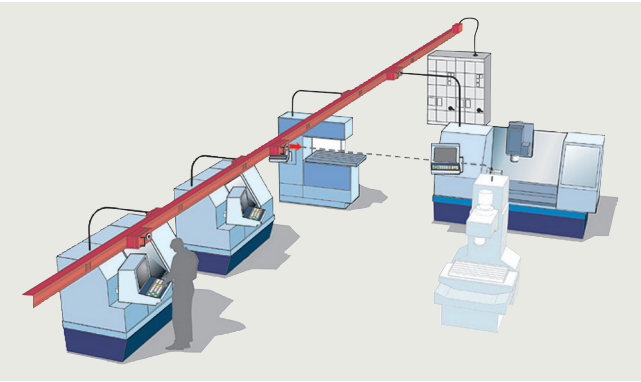
Quicker when it comes to installing

Benefits during installation: Two-man assembly of busbar trunking systems saves time and money compared to the costly cable installation method. Installation errors are practically ruled out by the safe and user-guided connection technology. No special tools are required. Another benefit for quick installation: Siemens busbar trunking systems are easy and therefore quick to mount with large distances between fixing centers (up to 4 m for busbars compared to every 1.5 m for cables).

Busbar trunking systems from Siemens are a cost-efficient alternative to cable installation.



With cable installation, new loads are connected by way of an additional sub-distribution board, which is costly and time-consuming



Tap-off units near the loads make local arrangements more transparent

High short-circuit withstand strength and minimum fire load mean greater safety

A step ahead in terms of safety – be it short-circuit withstand strength or fire load. The BD2A-250 busbar trunking systems have a fire load of just 1.32 kWh/m, for example, while the figure for comparable cables (NYY 4 × 95/50 mm^2) is 5.19 kWh/m. Also, the busbars are halogen-free. Busbar trunking systems from Siemens have a high short-circuit withstand strength. And the near-load protection against short circuits also facilitates troubleshooting.

High fire load with cables

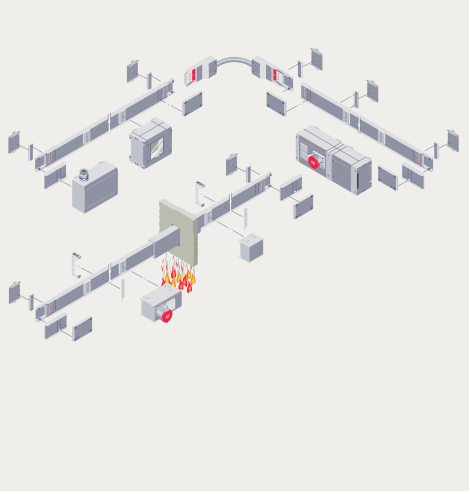
Low fire load with busbar trunking system

More flexible in case of modifications and expansions

If the power distribution system has to be adapted to new requirements, the busbar will take you quicker to your goal.

For example, new tap-off units can simply be mounted on the tap-off points. The system can be expanded and modified without difficulty. Tap-off units and system parts increase the flexibility. Cost-intensive downtimes are eliminated or minimized. The power distribution system enables faultless operation with high user-friendliness and safety.

BD01 System – 40 ... 160 A



Introduction
3/2 Overview
3/3 Benefits
3/3 Design
3/6 Accessories

General data
3/8 Technical specifications

Trunking units
3/10 Selection and ordering data

Junction units, feeding units
3/11 Selection and ordering data

Tap-off units
3/12 Selection and ordering data

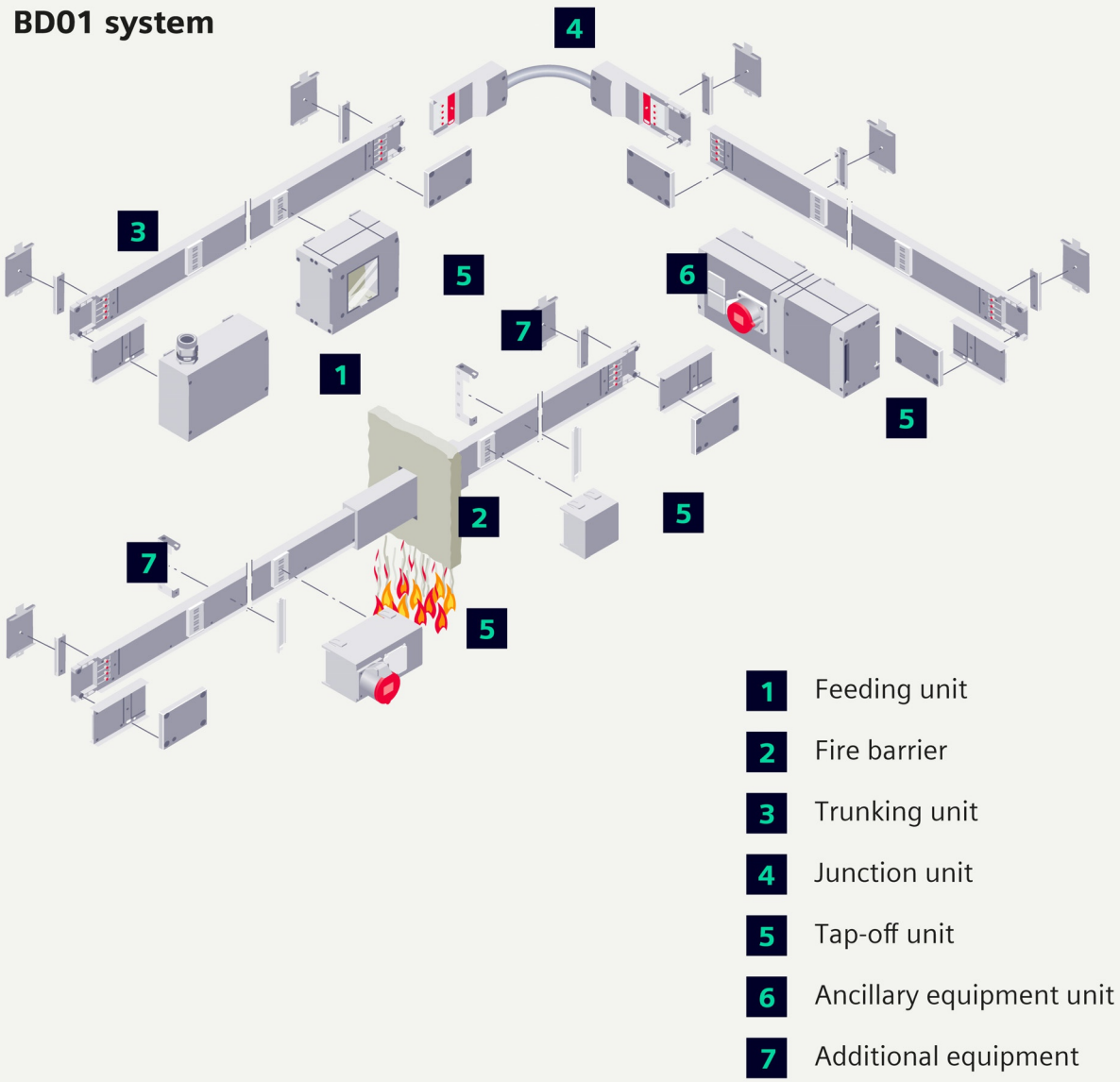
Ancillary equipment units
3/18 Selection and ordering data

Additional equipment
3/20 Selection and ordering data

Configuration information
3/22 Overview
3/23 Design
3/26 Function

Configuration aids
3/28 Dimensional drawings

Overview



Version

Design verified low-voltage switchgear and controlgear assembly according to

- IEC 61439-1
- IEC 61439-6

Degree of protection

- Degree of protection IP54 with tap-off points at sides and bottom
- Degree of protection IP55 with additional equipment

Components

Trunking units

- 5-conductor configuration
- 2 or 3 tap-off points at a distance of 1 m
- 4 or 6 tap-off points at a distance of 0.5 m
- Lengths of 2 m and 3 m

Junction unit

- Flexible junction unit

Feeding units
- Universal feeding unit

Tap-off units and ancillary equipment units:
- Up to 63 A
- With built-in parts or for customized device installation
- For 3, 4 or 9 modular widths (MW)
- With or without device installation unit

Ancillary equipment units
- For 4 or 9 modular widths (MW)
- With or without device installation unit
- With or without socket assembly

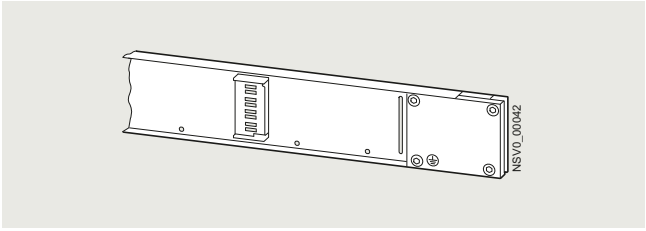
Additional equipment
- Fixing brackets and suspension brackets
- Accessories for degree of protection IP55
- Fire barriers EI 90
- Coding sets

Benefits

- Flexible power supply
- Easy and quick planning
- Time-saving mounting
- Reliable mechanical and electrical connection technology
- High stability, low weight
- Small number of components
- Storage-friendly system
- Variable change of the direction of the busbar run
- Versatile tap-off units
- Positive opening and closing of tap-off points

Design

Trunking units

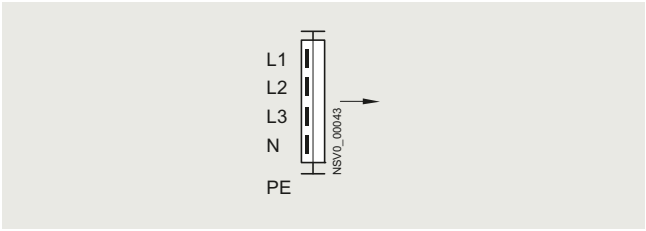


The trunking units are available in 2 and 3 meter lengths. They comprise a galvanized metal enclosure painted light gray (RAL 7035). They are equipped with 4 bars for L1, L2, L3, N (aluminum conducting paths, copper for 160 A; silver-plated copper pick-up and connection contacts).

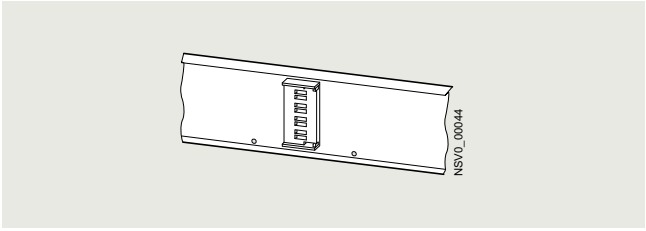
The enclosure of the trunking unit also serves as PE conductor.

Five levels of current are available in only one size: 40 A, 63 A, 100 A, 125 A and 160 A.

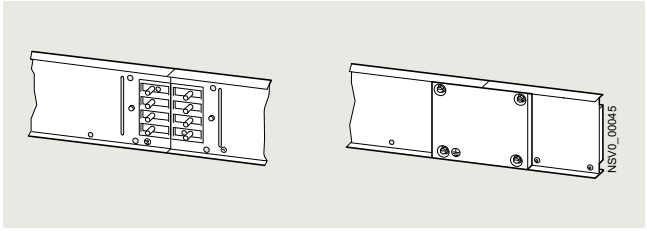
The tap-off points are arranged on one side at a distance of 0.5 or 1 m apart. The 2 m lengths have two or four tap-off points, the 3 m lengths have three or six.



The tap-off points are finger-safe. They are opened automatically by the tap-off units and close by themselves when the tap-off units are removed.



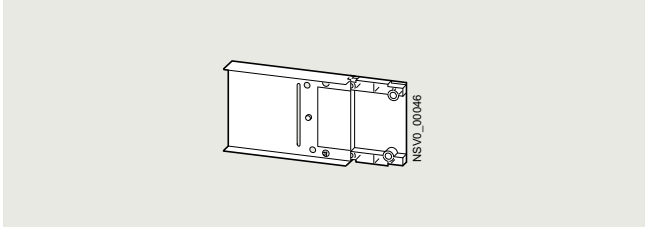
Connection technology



Assembly of the trunking units, also with end flanges and feeding units, is fast and inherently secure. The trunking unit or end flange is simply inserted in the lower enclosure of the joint block. After fitting the upper part of the joint block or the feeding unit, a safe connection is produced by tightening four screws. The PE path is established automatically when the enclosures are connected.

An expansion compensation is integrated into the joint block.

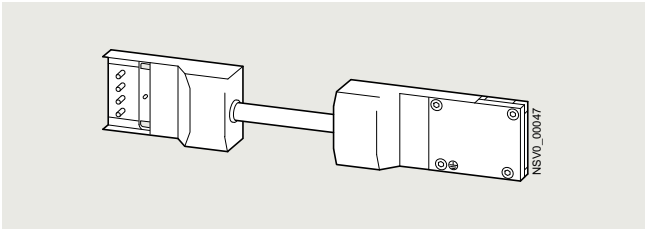
End flanges



The end flanges serve as protection against electric shock at the ends of a busbar run. They are suitable for use with all systems. Two end flanges are supplied as standard with each feeding unit.

Introduction

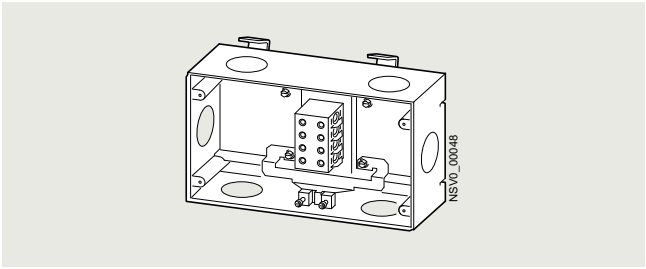
Junction units



The junction units are available in 100 A and 160 A versions, each in lengths of 0.5 m and 1 m. They consist of flexible conducting paths.

Flexible junction units mean that the busbar run can be routed in any direction. The 0.5 m version is recommended for right angles, the 1 m version for bypassing obstacles or for coping with height offsets.

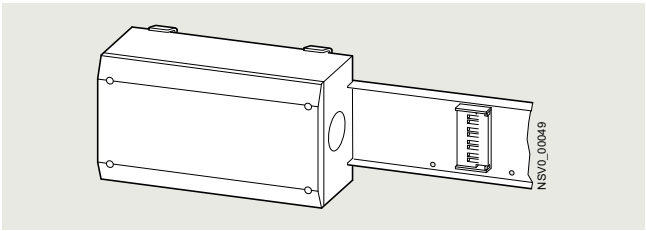
Feeding units



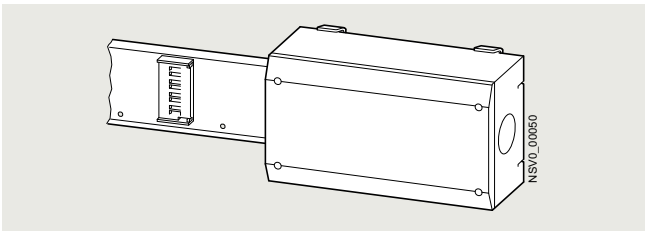
Two versions are available, one for 100 A and one for 160 A.

The feeding unit can be used as:

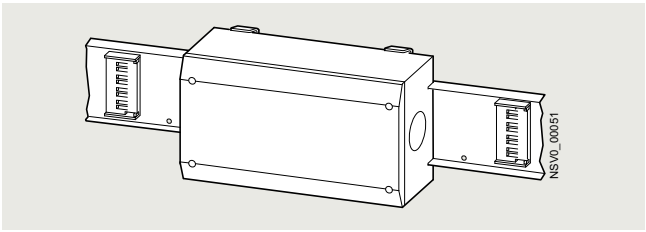
- Entry feeding unit



- End feeding unit



- Center feeding unit



Two end flanges are included in the scope of supply with each unit.

M32, M40 and M50 cable entries are possible from four sides. With the 160 A version, the M63 cable entry is possible on the side. Plastic cable glands with strain relief must be used (not included in scope of supply of unit).

In the case of the feeding units, the BD01-B fixing brackets must be used at the bottom of the joint block in accordance with page 3/23.

Molded plastic-enclosed tap-off units

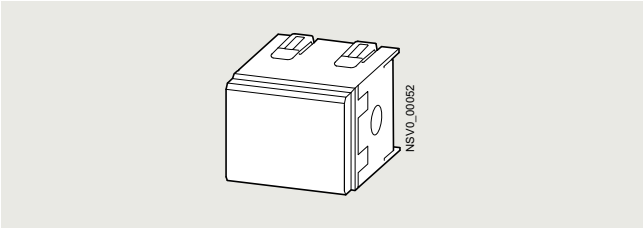
Common features

- Molded-plastic enclosure
- Partially transparent cover for switching and protection devices
- Power pick-up through silver-plated Lyra contacts
- Incorrect mounting is reliably prevented.
- Cable entry is from one side only (use plastic cable glands with strain relief, not included in scope of supply of unit).
- The tap-off unit must first be removed before it can be opened and the cable can be connected.
- The connecting cables should be supported separately if necessary.

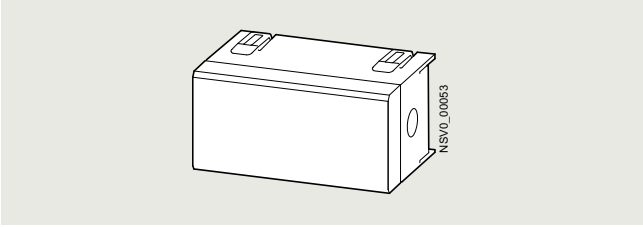
Tap-off units with components fitted

- Two sizes (16 A and 32 A) for three cylindrical fuses (10 mm × 38 mm)
- One size with 3 MW space requirement (1 MW = 18 mm)

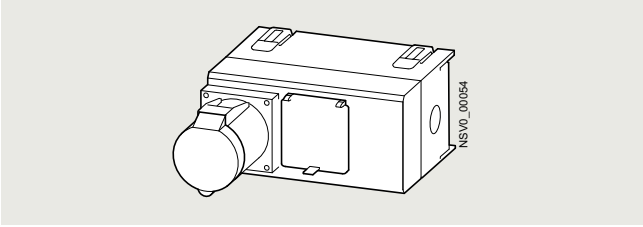
There are various versions with fuse bases, miniature circuit breakers, Schuko and CEE socket outlets up to and including 32 A.



BD01-AK01X/ZS



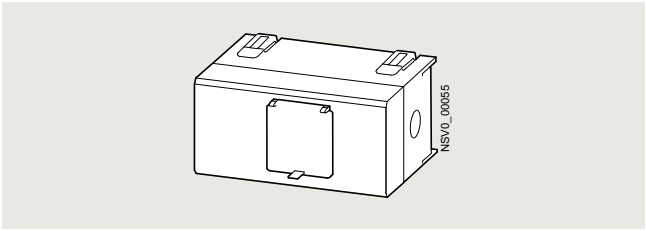
BD01-AK02X/ZS3



BD01-AK02M0/CEE165A163

Tap-off units for free arrangement of components

- One size with 3 MW space requirement (1 MW = 18 mm), for operation from the outside through a flap integrated in the cover.
- Installation of devices (e.g. miniature circuit breakers) according to DIN 43871 up to and including 32 A possible.



BD01-AK02M0/F

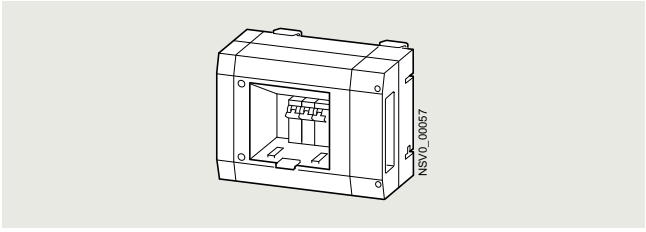
Tap-off units made of aluminum

Common features

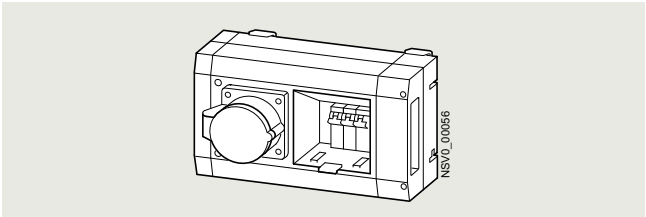
- The enclosure is made from aluminum and molded plastic at both ends.
- A DIN rail is integrated for component mounting.
- Power pick-up through silver-plated Lyra contacts
- The disconnector integrated in the tap-off unit ensures that the tap-off unit is de-energized when the cover is open.
- The tap-off unit can only be fitted to or removed from the tap-off point with its cover open (contacts retracted).
- Incorrect mounting is reliably prevented.
- Cable entry is possible from three directions (use plastic cable glands with strain relief; not included in scope of supply of unit).
- Can be combined with ancillary equipment units for additional functions.
- The connecting cables should be supported separately if necessary.

Tap-off units with components fitted

- Two sizes with 4 MW or 9 MW space requirement (1 MW = 18 mm)
- Various versions with fuse bases, miniature circuit breakers up to and including 63 A, with Schuko and CEE socket outlets up to and including 32 A
- Versions with fitted miniature circuit breaker have a device installation unit
- Degree of protection IP55 not available for versions with device installation unit BD01-GK.M./F



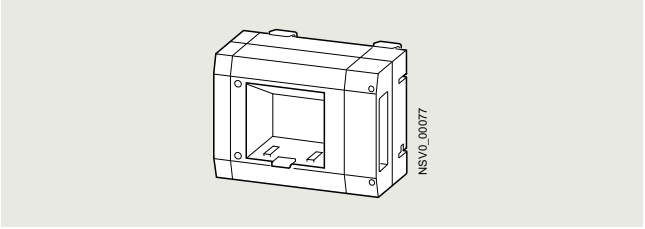
BD01-AK1M1/A163



BD01-AK2M1/CEE165A163

Tap-off units for free arrangement of components

- Two sizes with 4 MW and 9 MW space requirement (1 MW = 18 mm)
- Without or with device installation unit for external actuation (two sizes with 4 MW and 9 MW)
- Installation of devices (e.g. miniature circuit breakers) according to DIN 43871 up to and including 63 A possible



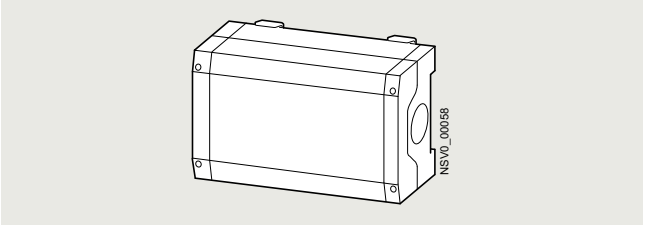
BD01-AK1M1/F

Ancillary equipment units

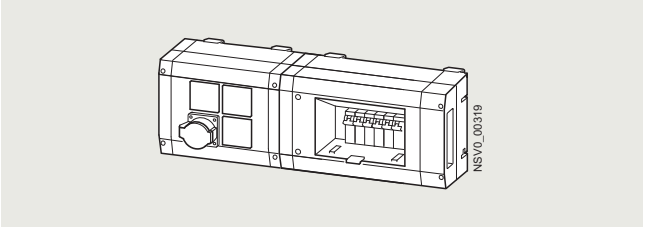
The ancillary equipment units are used for expanding the tap-off units or infeeds used. They can be mounted to the side of them.

Common features

- The enclosure is made from aluminum and molded plastic at the front faces.
- Cable entry is possible from four directions (use plastic cable glands with strain relief; not included in scope of supply of unit).
- The connecting cables should be supported separately if necessary
- Can be combined with tap-off or feeding units
- A DIN rail is integrated for component mounting.
- Two sizes with 4 MW and 9 MW space requirement (1 MW = 18 mm)
- Without or with Schuko or CEE socket outlets
- Without or with device installation unit for external actuation (two sizes with 4 MW and 9 MW)
- Installation of devices (e.g. fuse bases) according to DIN 43871 up to and including 35 A possible
- Degree of protection IP55 not available for versions with device installation unit BD01-AK.M./F



BD01-GK2X/F



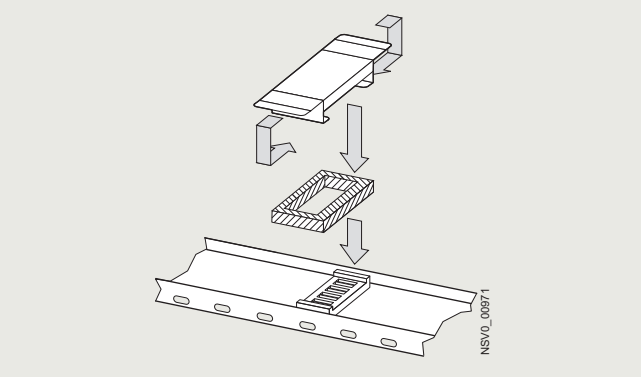
BD01-GK1X/... (left) with BD01-AK2M2/... (right)

Accessories

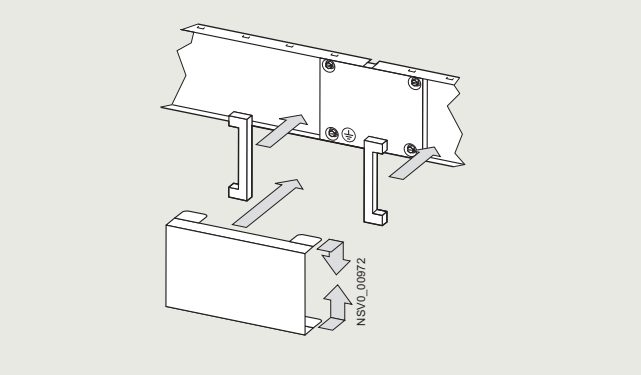
Additional equipment for IP55

Trunking units

The higher degree of protection is achieved by means of additional seals and a flange at the tap-off point or connection point.



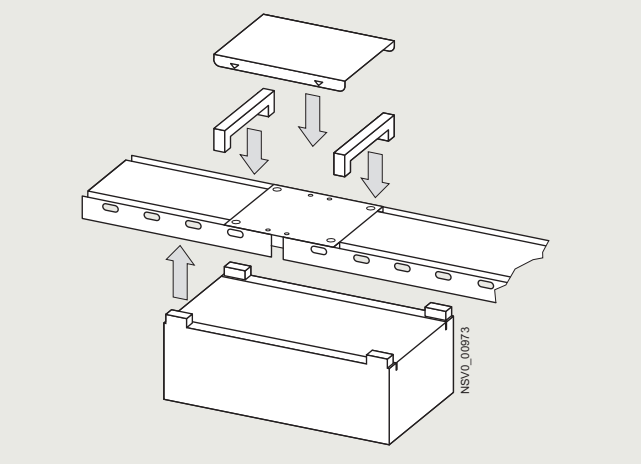
Tap-off point: BD01-FAS



Connection point: BD01-FS

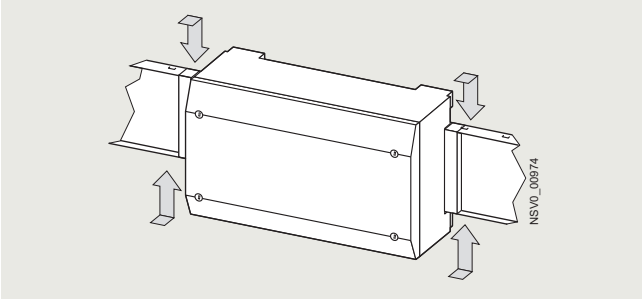
Feeding units

With mounting position at the bottom, the higher degree of protection is achieved by means of additional seals and a flange at the connection point.

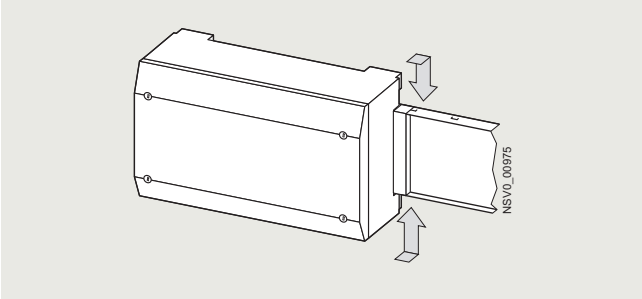


Mounting position at the bottom: BD01-FES

With mounting position at the side or top, the higher degree of protection is achieved by means of additional seals and an edge protection at the sides of the feeding unit. When the feeding unit is installed at the end of a busbar run, just one seal and one edge protection are needed.



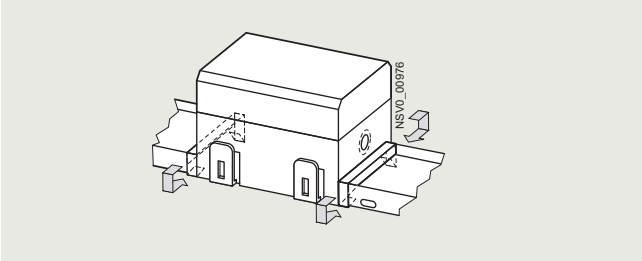
Mounting position at the side: 2 × BD01-KS



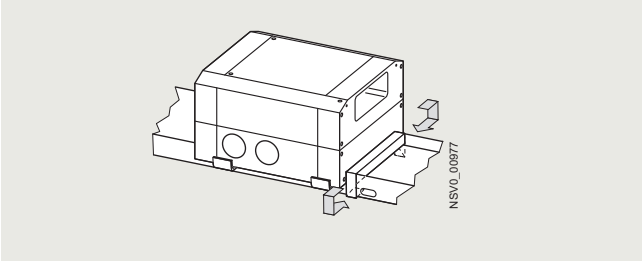
Mounting position at the side and end of a busbar run: BD01-KS

Tap-off units

The higher degree of protection is achieved by means of additional seals and an edge protection at the sides of the tap-off unit.



BD01-AK01X-IP55, BD01-AK02X-IP55



BD01-AK1X-IP55, BD01-AK2X-IP55

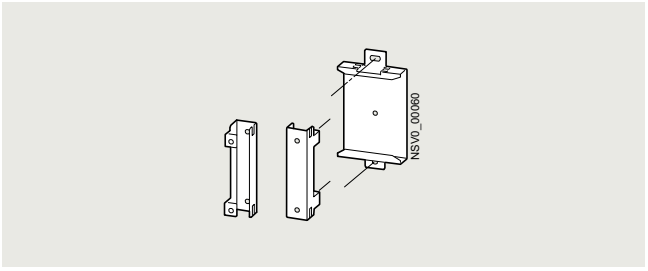
Fixing

Universal fixing brackets, horizontal

The universal fixing brackets can be used for wall and ceiling mounting. At normal mechanical load, the maximum fixing distance is 3 m for edgewise mounting and 1.5 m for flat mounting.

At higher mechanical stress (e.g. pulling of plugs), an intermediate suspension with an additional fixing bracket at the trunking unit is recommended.

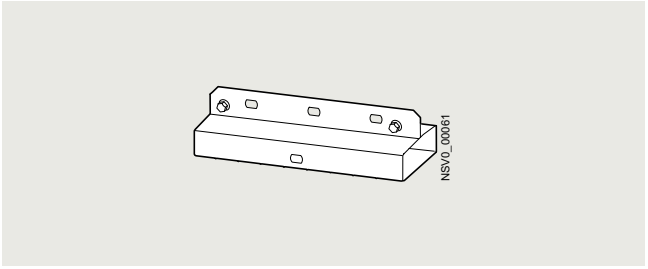
Once the fixing point is decided, the tabs on the fixing bracket are pushed in to fix the busbar run.



BD01-B

Hanger brackets, horizontal

These fixing brackets can be used for suspension of flat-mounted trunking units. They can also be fastened at the connection points in order to increase the mechanical strength of the trunking units.

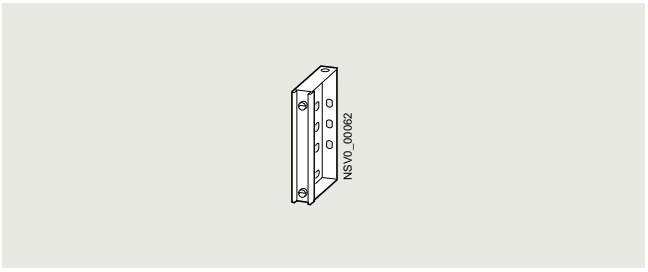


BD01-BAP

Suspension brackets, horizontal

The suspension brackets can be used for wall, ceiling, and suspension mounting of the system. They can be fitted at any point of the trunking unit. At normal mechanical load, the maximum fixing distance is 3 m for edgewise mounting and 1.5 m for flat mounting.

At higher mechanical loads (e.g. pulling of plugs), an intermediate support with an additional fixing bracket at the trunking unit is recommended.

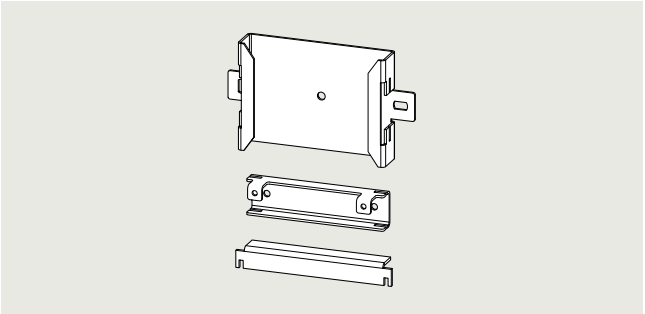


BD01-BA

Vertical fixing brackets

The fixing bracket can be used for vertical wall mounting.

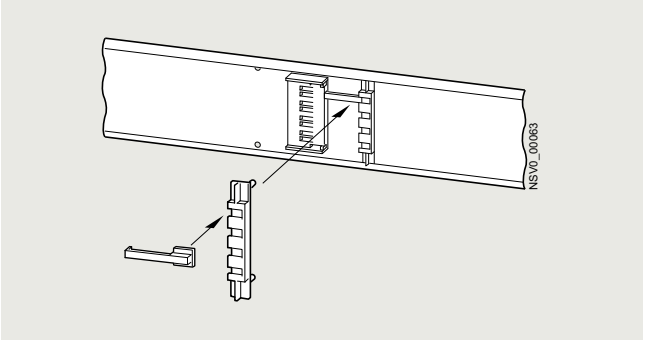
The max. fixing distance is 3 m. To ensure that the busbar run is stable, a suspension bracket BD01-BA must be used midway between 2 vertical fixing brackets.



BD01-BV

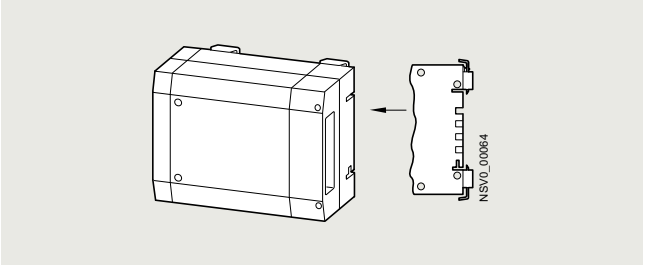
Coding

The systems can be coded for different frequencies or voltages. For this purpose, the BD01-K coding set can be fitted on site to the installed system at each tap-off point. Four coding positions are possible.



Coding on the tap-off point

Tap-off units can be coded by the customer by adapting the front face.



Coding on the tap-off unit

Sealing

Every tap-off point on the trunking unit can be sealed.

Feeding, junction, tap-off, and ancillary equipment units can be made sealable with additional components (on request).

General data

Cable glands

For the feeding, tap-off, and ancillary equipment units, use plastic cable glands with strain relief (not included in scope of supply).

Terminals

For the equipment of the tap-off units and ancillary equipment units, screw terminals from Siemens, Weidmüller, or Phoenix must be used for the N and PE connection. We recommend the 8WH terminal blocks from Siemens (see Catalog LV 10 "Low-Voltage Power Distribution and Electrical Installation Technology", and Catalog LV 52 "Terminal Blocks").

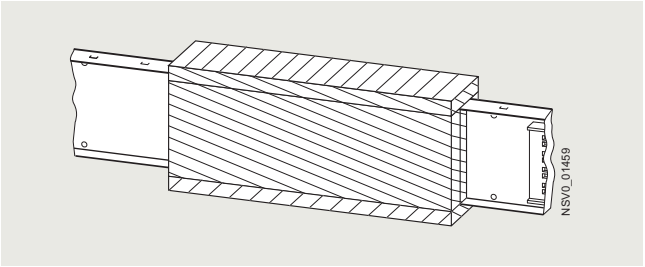
Fire barriers

If the busbar trunking system is routed through a fire wall or ceiling, a fire barrier must be fitted. Depending on the customer's requirements, Siemens offers the fire resistance class EI 90 (see page 3/21).

Factory-fitted equipment:

- External fire barrier as kit for mounting by the customer

Mineral mortar or fire barrier sealant to seal any gaps between the busbar trunking element and the building element must be provided by the customer.



BD01-S90 fire barrier (for mounting by the customer)

The approval papers for Germany must be ordered separately:

- BD01-S90-ZUL-D approval kit
  (certificate of approval and declaration of conformity)

3

Technical specifications

General technical specifications

Type		BD01-...
Standards and specifications		IEC/EN 61439-1 and -6
Resistance to climate		Damp heat, steady state, according to IEC 60068-2-78 Damp heat, cyclic, according to IEC 60068-2-30
Ambient temperature min./max./24-h mean	°C	-5/+40/+35
Degree of protection according to IEC/EN 60529		
• Edgewise; tap-off points at the side		IP54, increase to IP55 with additional equipment
• Flat, tap-off points at the bottom		IP54, increase to IP55 with additional equipment
• Flat, tap-off points at the top		IP50, increase to IP55 with additional equipment
Material		
• Trunking units		Galvanized, painted sheet steel
• Busbars		Al or Cu
• Pick-up and connection contacts		Cu, silver-plated
Mounting position / installation location		Horizontal, vertical / indoors (outdoor installation on request)
Weights		See Selection and ordering data

Overload and short-circuit protection

Busbar trunking systems must be protected against overload and short circuits. Fuses and miniature circuit breakers must be selected so that the admissible current-carrying capacity corresponding with the ambient conditions is not exceeded. For overload and short-circuit protection, we recommend the use of motor protecting switches or circuit breakers.

Tap-off units

Type		BD01-AK...
Version		3- or 5-pole
Rated current I_n	A	63
Switching capacity of the built-in disconnector according to IEC/EN 60947-3 at 400 V		
• Utilization category		AC-20B
• Degree of protection		IP54, increase to IP55 with additional equipment

[1] See page 3/20

Feeding and tap-off units, conductor cross-sections (geometric)

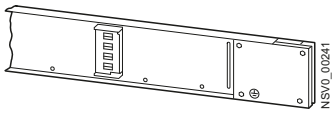
Version	Type	L1, L2, L3		N		PE	
		min. mm^2	max. mm^2	min. mm^2	max. mm^2	min. mm^2	max. mm^2
Feeding units	BD01-E	6 (so, st)	50 (st)	6 (so, st)	50 (st)	6 (so, st)	50 (st)
	BD01-160-E	25 (st)	95 (st)	25 (st)	95 (st)	16 (st)	50 (st)
Tap-off units	BD01-AK01X/ZS	0.75 (f, st)	10 (so, f, st)	0.75 (f, st)	10 (so, f, st)	0.75 (f, st)	10 (so, f, st)
	BD01-AK02X/ZS3	0.75 (f, st)	10 (so, f, st)	0.75 (f, st)	10 (so, f, st)	0.75 (f, st)	10 (so, f, st)
	BD01-AK02M0/A163	0.75 (so, st)	16 (so)	0.75 (f, st)	10 (so, f, st)	0.75 (f, st)	10 (so, f, st)
	BD01-AK02M0/A323	0.75 (so, st)	16 (so)	0.75 (f, st)	10 (so, f, st)	0.75 (f, st)	10 (so, f, st)
	BD01-AK1M1/A101	0.75 (so, st)	16 (so)	0.75 (so, f)	2.5 (so, f)	0.75 (so, f)	2.5 (so, f)
	BD01-AK1M1/A161	0.75 (so, st)	16 (so)	0.75 (so, f)	2.5 (so, f)	0.75 (so, f)	2.5 (so, f)
	BD01-AK1M1/A321	0.75 (so, st)	16 (so)	0.75 (so, f)	2.5 (so, f)	0.75 (so, f)	2.5 (so, f)
	BD01-AK1M1/A...	0.75 (so, st)	16 (so)	0.75 (f, st)	10 (so, f, st)	0.75 (so, st)	16 (so)
	BD01-AK1M1/A...N	0.75 (so, st)	16 (so)	0.75 (so, st)	16 (so)	0.75 (so, st)	16 (so)
	BD01-AK1X/S14	0.5 (f, st)	4 (so)	0.75 (f, st)	10 (so, f, st)	0.75 (so, st)	16 (so)
	BD01-AK1X/S18	0.5 (f, st)	16 (so, f, st)	0.75 (f, st)	10 (so, f, st)	0.75 (so, st)	16 (so)
	BD01-AK1X/GB...	0.75 (so, st)	16 (so)	0.75 (f, st)	10 (so, f, st)	0.75 (so, st)	16 (so)
	BD01-AK2X/F1451	0.75 (so, st)	16 (so)	0.75 (f, st)	10 (so, f, st)	0.75 (so, st)	16 (so)
	BD01-AK2X/S27	0.75 (f, st)	10 (so, f, st)	0.75 (f, st)	10 (so, f, st)	0.75 (so, st)	16 (so)
	BD01-AK2HX/S33	1.5 (f, st)	16 (f, st)	0.75 (f, st)	16 (so, f, st)	0.75 (so, st)	16 (so, st)

f = finely stranded with end sleeve, so = solid, st = stranded

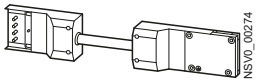
Trunking units

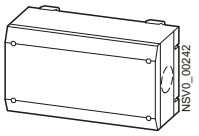
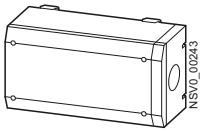
Type			BD01-40	BD01-63	BD01-100	BD01-125	BD01-160
Conducting paths							
Rated insulation voltage U_i		V AC/DC	400/400	400/400	400/400	400/400	400/400
Rated operational voltage U_e		V AC	400	400	400	400	400
Frequency		Hz	50 ... 60	50 ... 60	50 ... 60	50 ... 60	50 ... 60
Rated current I_n		A	40	63	100	125	160
Impedance per unit length of conducting paths with 50 Hz and 20 °C busbar temperature							
• Resistance R_{20}		mΩ/m	3.960	1.936	0.938	0.910	0.578
• Reactance X_{20}		mΩ/m	0.280	0.324	0.286	0.300	0.273
• Impedance Z_{20}		mΩ/m	3.970	1.968	0.994	1.000	0.642
Impedance per unit length of conducting paths in the event of a fault							
• Resistance R_F		mΩ/m	5.991	4.128	2.841	2.420	2.189
• Reactance X_F		mΩ/m	1.396	1.248	1.186	0.940	0.973
• Impedance Z_F		mΩ/m	6.151	4.312	3.078	2.600	2.395
Zero-sequence impedance according to IEC/EN 60909 (VDE 0102)							
• Resistance R_0	Phase to N	mΩ/m	15.904	7.911	4.115	3.810	3.167
• Reactance X_0	Phase to N	mΩ/m	2.128	2.058	1.797	1.630	1.656
• Impedance Z_0	Phase to N	mΩ/m	16.045	8.175	4.490	4.140	3.574
• Resistance R_0	Phase to PE	mΩ/m	10.086	8.565	6.648	5.430	5.343
• Reactance X_0	Phase to PE	mΩ/m	2.909	3.338	3.067	2.320	2.355
• Impedance Z_0	Phase to PE	mΩ/m	10.498	9.183	7.322	5.910	5.839
Short-circuit withstand strength							
Rated peak withstand current I_{pk}		kA	2.55	6.30	15.30	15.30	15.30
Rated short-time withstand current I_{cw} (t = 1 s)		kA	0.58	1.15	2.50	2.50	2.50
Rated short-time withstand current I_{cw} (t = 0.1 s)		kA	1.70	4.20	9.00	9.00	9.00
Conductors							
Number of active conductors			4	4	4	4	4
Conductor cross-section							
• L1, L2, L3		mm^2	7.9	15.7	34.1	34.1	34.1
• N		mm^2	7.9	15.7	34.1	34.1	34.1
• PE (enclosure) ≙ Cu		mm^2	20.0	20.0	20.0	20.0	20.0
Conductor material			Al	Al	Al	Al	Cu
Fire load		kWh/m	0.76	0.76	0.76	0.76	0.76
Max. thermal load, I^2t value		$A^2s \times 10^6$	0.29	1.76	8.10	8.10	8.10
Max. fixing distances at normal mechanical load		m					
• Horizontal edgewise, vertical		m	3	3	3	3	3
• Horizontal flat		m	1.5	1.5	1.5	1.5	1.5
• Horizontal flat with BD01-BAP		m	3	3	3	3	3

Selection and ordering data

Version	Rated current I_n	Length	Tap-off points		SD	Type	Article No.	PS*/ P. unit	Weight per unit
			Number	Spacing					
	A	m		m	d				kg
Trunking units									
Straight trunking unit with joint block Sheet-steel enclosure, color similar to RAL 7035 (light gray), codable tap-off points  NSV0_00241	40	3	6	0.5	X	**BD01-40-3-0,5**	**BVP:034253**	1 unit	4.350
			3	1	X	**BD01-40-3-1**	**BVP:233551**	1 unit	4.350
		2	4	0.5	X	**BD01-40-2-0,5**	**BVP:034254**	1 unit	3.000
			2	1	X	**BD01-40-2-1**	**BVP:233552**	1 unit	3.000
	63	3	6	0.5	X	**BD01-63-3-0,5**	**BVP:034255**	1 unit	4.600
			3	1	X	**BD01-63-3-1**	**BVP:233553**	1 unit	4.600
		2	4	0.5	X	**BD01-63-2-0,5**	**BVP:034256**	1 unit	3.200
			2	1	X	**BD01-63-2-1**	**BVP:233555**	1 unit	3.200
	100	3	6	0.5	X	**BD01-100-3-0,5**	**BVP:034257**	1 unit	5.200
			3	1	X	**BD01-100-3-1**	**BVP:233556**	1 unit	5.200
		2	4	0.5	X	**BD01-100-2-0,5**	**BVP:034258**	1 unit	3.600
			2	1	X	**BD01-100-2-1**	**BVP:233557**	1 unit	3.600
		1	2	0.5	X	**BD01-100-1-0,5**	**BVP:201965**	1 unit	2.000
	125	3	6	0.5	X	**BD01-125-3-0,5**	**BVP:090163**	1 unit	5.200
			3	1	X	**BD01-125-3-1**	**BVP:233559**	1 unit	5.200
		2	4	0.5	X	**BD01-125-2-0,5**	**BVP:090161**	1 unit	3.600
			2	1	X	**BD01-125-2-1**	**BVP:233560**	1 unit	3.600
	160	3	6	0.5	X	**BD01-160-3-0,5**	**BVP:090164**	1 unit	8.000
			3	1	X	**BD01-160-3-1**	**BVP:233563**	1 unit	8.000
		2	4	0.5	X	**BD01-160-2-0,5**	**BVP:090162**	1 unit	5.400
			2	1	X	**BD01-160-2-1**	**BVP:233567**	1 unit	5.400

Selection and ordering data

Version	Rated current I_n	Length	SD	Type	Article No.	PS*/ P. unit	Weight per unit
	A	m	d				kg
Junction units							
Flexible junction unit with joint block 	100	0.5	X	**BD01-R1**	**BVP:034260**	1 unit	1.200
		1	X	**BD01-R2**	**BVP:034261**	1 unit	2.050
	160	0.5	X	**BD01-160-R1**	**BVP:090166**	1 unit	1.750
		1	X	**BD01-160-R2**	**BVP:090167**	1 unit	3.050

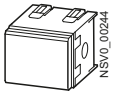
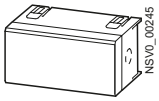
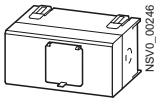
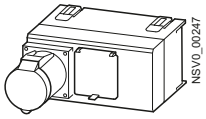
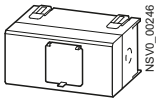
Version	Rated current I_n	Conductor cross-section	SD	Type	Article No.	PS*/ P. unit	Weight per unit
	A	mm^2	d				kg
Feeding units							
Molded-plastic enclosure, with 2 end flanges Can be fitted at all connection terminals and the busbar run ends, can be combined with BD01-GK... ancillary equipment units							
• 6 cable entries from 4 sides 	100	50 [1]	X	**BD01-E**	**BVP:034259**	1 unit	1.000
• Cable entry from 2 sides 	160	95 [2]	X	**BD01-160-E**	**BVP:090165**	1 unit	1.400

Use plastic cable glands with strain relief (not included in scope of supply).

[1] Use M32, M40 or M50 cable glands.

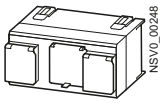
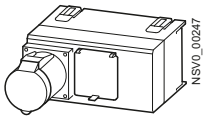
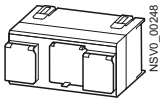
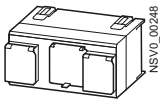
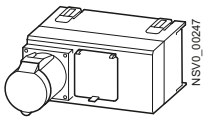
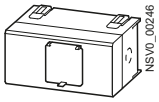
[2] Use M63 cable glands.

Selection and ordering data

Version	Rated current I_n	Rated operational voltage U_e	SD	Type	Article No.	PS*/ P. unit	Weight per unit
	A	V	d				kg
Tap-off units, molded plastic, size 01							
With fuse base for 3 cylindrical fuses 10 mm × 38 mm 	16	400	X	**BD01-AK01X/ZS**	**BVP:087483**	1 unit	0.300
Tap-off units, molded plastic, size 02							
With fuse base for 3 cylindrical fuses 10 mm × 38 mm 	32	400	X	**BD01-AK02X/ZS3**	**BVP:085090**	1 unit	0.400
Tap-off units, molded plastic, size 02, with device installation unit							
With 3-pole miniature circuit breaker 16 A, characteristic B							
• Without socket outlet 	16	400	X	**BD01-AK02M0/A163**	**BVP:085089**	1 unit	0.800
• With 1 CEE socket outlet 16 A, 5-pole 	16	400	X	**BD01-AK02M0/ CEE165A163**	**BVP:085092**	1 unit	0.980
With 3-pole miniature circuit breaker 32 A, characteristic C 	32	400	X	**BD01-AK02M0/A323**	**BVP:085094**	1 unit	0.800

Fuse links are not included in scope of supply.

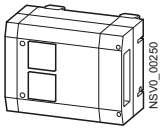
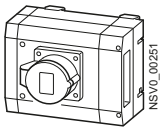
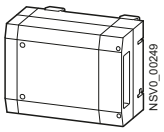
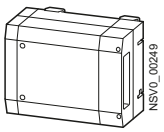
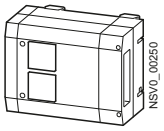
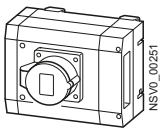
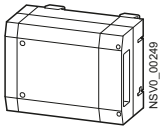
Use plastic cable glands with strain relief (not included in scope of supply).

Version	Rated current I_n	Rated operational voltage U_e	SD	Type	Article No.	PS*/ P. unit	Weight per unit
	A	V	d				kg
Tap-off units, molded plastic, size 02, with device installation unit							
With 1-pole miniature circuit breaker 16 A, characteristic B, wired to L1							
• With 2 Schuko socket outlets 16 A 	16	230	X	**BD01-AK02M0/ 2SD163A161**	**BVP:085096**	1 unit	0.700
• With 1 CEE socket outlet 16 A, 3-pole 	16	230	X	**BD01-AK02M0/ CEE163A161**	**BVP:090170**	1 unit	0.700
• With 2-pole residual current operated circuit breaker 16 A/30 mA and with 2 Schuko socket outlets 16 A 	16	230	X	**BD01-AK02M0/ 2SD163FIA161**	**BVP:090168**	1 unit	0.950
With 1-pole fuse base D01, wired to L1							
• With 2 Schuko socket outlets 16 A 	16	230	X	**BD01-AK02M0/ 2SD163S14**	**BVP:085095**	1 unit	0.800
• With 1 CEE socket outlet 16 A, 3-pole 	16	230	X	**BD01-AK02M0/ CEE163S14**	**BVP:090169**	1 unit	0.800
For free arrangement of components (P_v max. 13 W), 3 MW (MW = modular width), with integrated DIN rail 	32	400	X	**BD01-AK02M0/F**	**BVP:085093**	1 unit	0.500

Adapter ring / screw adapter, fuse links, and screw cap are not included in scope of supply.

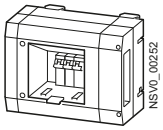
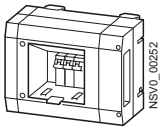
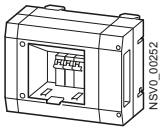
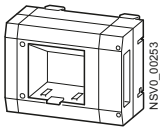
Use plastic cable glands with strain relief (not included in scope of supply).

Tap-off units

Version	Rated current I_n	Rated operational voltage U_e	SD	Type	Article No.	PS*/ P. unit	Weight per unit
	A	V	d				kg
Tap-off units, aluminum, size 1							
With 1-pole fuse base D01, wired to L1							
• With 2 Schuko socket outlets 16 A 	16	230	X	**BD01-AK1X/ 2SD163S14**	**BVP:034268**	1 unit	1.400
• With 1 CEE socket outlet 16 A, 3-pole 	16	230	X	**BD01-AK1X/ CEE163S14**	**BVP:034270**	1 unit	1.380
With 3-pole fuse base 3 × D01 	16	400	X	**BD01-AK1X/S14**	**BVP:034264**	1 unit	1.400
With 3-pole fuse base 3 × D02 	35	400	X	**BD01-AK1X/S18**	**BVP:034265**	1 unit	1.400
With 1-pole miniature circuit breaker 16 A, characteristic B, wired to L1							
• With 2 Schuko socket outlets 16 A 	16	230	X	**BD01-AK1X/ 2SD163A161**	**BVP:034269**	1 unit	1.470
• With 1 CEE socket outlet 16 A, 3-pole 	16	230	X	**BD01-AK1X/ CEE163A161**	**BVP:034271**	1 unit	1.435
For free arrangement of components (P_V max. 13 W), 4 MW (MW = modular width), with integrated DIN rail 	35	400	X	**BD01-AK1X/F**	**BVP:034272**	1 unit	1.000

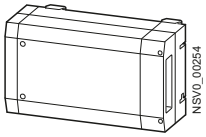
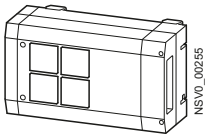
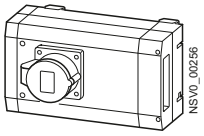
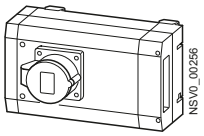
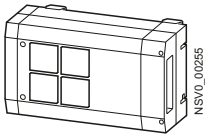
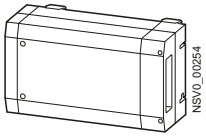
Adapter ring / screw adapter, fuse links, and screw cap are not included in scope of supply.

Use plastic cable glands with strain relief (not included in scope of supply).

Version	Rated current I_n	Rated operational voltage U_e	SD	Type	Article No.	PS*/ P. unit	Weight per unit
	A	V	d				kg
Tap-off units, aluminum, size 1, with device installation unit							
With 3 × 1-pole miniature circuit breaker 10 A, characteristic B 	10	230	X	**BD01-AK1M1/A101**	**BVP:203098**	1 unit	1.600
With 3 × 1-pole miniature circuit breaker 16 A, characteristic B 	16	230	X	**BD01-AK1M1/A161**	**BVP:034266**	1 unit	1.600
With 3-pole miniature circuit breaker 32 A, characteristic C 	32	230	X	**BD01-AK1M1/A323**	**BVP:034267**	1 unit	1.600
For free arrangement of components (P_v max. 13 W), 4 MW (MW = modular width), with integrated DIN rail 	35	230	X	**BD01-AK1M1/F**	**BVP:034273**	1 unit	1.000

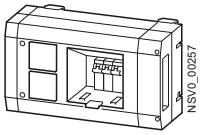
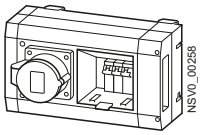
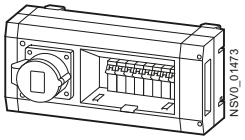
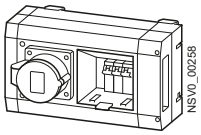
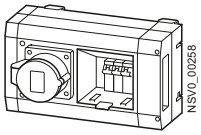
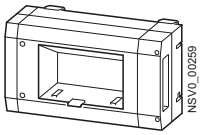
Use plastic cable glands with strain relief (not included in scope of supply).

Tap-off units

Version	Rated current I_n	Rated operational voltage U_e	SD	Type	Article No.	PS*/ P. unit	Weight per unit
	A	V	d				kg
Tap-off units, aluminum, size 2							
With 3-pole fuse base S27/S33 							
• With 3-pole fuse base S27, screw adapter system	25	400	X	**BD01-AK2X/S27**	**BVP:034274**	1 unit	1.700
• With 3-pole fuse base S33, screw adapter system	63	400	X	**BD01-AK2HX/S33**	**BVP:233568**	1 unit	1.700
With 2 × 1-pole fuse base D01 and with 4 Schuko socket outlets 16 A, wired to L1 	16	230	X	**BD01-AK2X/ 4SD163S14**	**BVP:034277**	1 unit	2.000
With 3 × 1-pole fuse base D01 and with 1 CEE socket outlet 16 A, 5-pole 	16	400	X	**BD01-AK2X/ CEE165S14**	**BVP:034279**	1 unit	1.850
With 3 × 1-pole fuse base D02 and with 1 CEE socket outlet 32 A, 5-pole 	32	400	X	**BD01-AK2X/ CEE325S18**	**BVP:034281**	1 unit	2.000
With 2 × 1-pole miniature circuit breaker 16 A, characteristic B, with 4 Schuko socket outlets 16 A, wired to L1 	16	230	X	**BD01-AK2X/ 4SD163A161**	**BVP:034278**	1 unit	2.100
For free arrangement of components, 9 MW (MW = modular width), with integrated DIN rail 							
• For free arrangement of components (P_v max. 16 W)	35	400	X	**BD01-AK2X/F**	**BVP:034283**	1 unit	1.300
• For free arrangement of components (P_v max. 22.5 W)	63	400	X	**BD01-AK2HX/F**	**BVP:233570**	1 unit	1.300

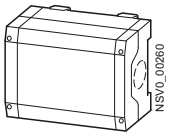
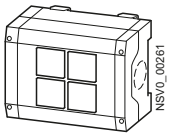
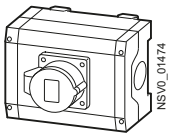
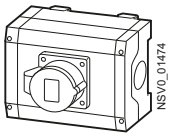
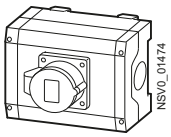
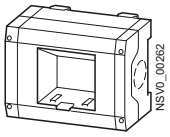
Adapter ring / screw adapter, fuse links, and screw cap are not included in scope of supply.

Use plastic cable glands with strain relief (not included in scope of supply).

Version	Rated current I_n	Rated operational voltage U_e	SD	Type	Article No.	PS*/ P. unit	Weight per unit
	A	V	d				kg
Tap-off units, aluminum, size 2, with device installation unit							
With 1-pole miniature circuit breaker 16 A, characteristic B, with 2-pole residual current operated circuit breaker 16 A/30 mA and with 2 Schuko socket outlets 16 A, wired to L1 	16	230	X	**BD01-AK2M1/ 2SD163FIA161**	**BVP:034276**	1 unit	2.000
With 1-pole miniature circuit breaker 16 A, characteristic C, with 2-pole residual current operated circuit breaker 25 A/30 mA and with 1 CEE socket outlet 16 A, 3-pole, wired to L1 	16	230	X	**BD01-AK2M1/ CEE163FIA161**	**BVP:660867**	1 unit	2.000
With 3-pole miniature circuit breaker 16 A, characteristic C, with 4-pole residual current operated circuit breaker 25 A/30 mA and with 1 CEE socket outlet 16 A, 5-pole 	16	400	X	**BD01-AK2M2/ CEE165FIA163**	**BVP:660866**	1 unit	3.500
With 3-pole miniature circuit breaker 16 A, characteristic C, and with 1 CEE socket outlet 16 A, 5-pole 	16	400	X	**BD01-AK2M1/ CEE165A163**	**BVP:034280**	1 unit	2.000
With 3-pole miniature circuit breaker 32 A, characteristic C, and with 1 CEE socket outlet 32 A, 5-pole 	32	400	X	**BD01-AK2M1/ CEE325A323**	**BVP:034282**	1 unit	2.100
For free arrangement of components, 9 MW (MW = modular width), with integrated DIN rail 							
• For free arrangement of components (P_v max. 16 W)	35	400	X	**BD01-AK2M2/F**	**BVP:034284**	1 unit	1.360
• For free arrangement of components (P_v max. 22.5 W)	63	400	X	**BD01-AK2HM2/F**	**BVP:233571**	1 unit	1.360

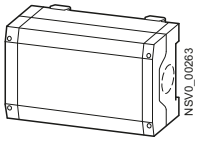
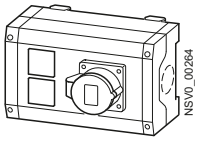
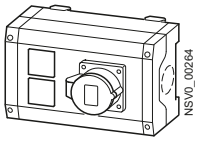
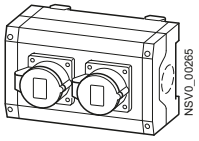
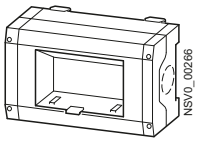
Use plastic cable glands with strain relief (not included in scope of supply).

Selection and ordering data

Version	Rated operational voltage U_e	SD	Type	Article No.	PS*/ P. unit	Weight per unit
	V	d				kg
Ancillary equipment units, aluminum, size 1						
For free arrangement of components (P_v max. 13 W), 4 MW (MW = modular width), with integrated DIN rail Can be used for • Overvoltage protection • Remote control / remote switching • ... 	400	X	**BD01-GK1X/F**	**BVP:034285**	1 unit	0.800
With 4 Schuko socket outlets 16 A 	400	X	**BD01-GK1X/4SD163**	**BVP:034287**	1 unit	1.200
With 1 CEE socket outlet 16 A, 3-pole 	400	X	**BD01-GK1X/CEE163**	**BVP:660808**	1 unit	0.950
With 1 CEE socket outlet 16 A, 5-pole 	400	X	**BD01-GK1X/CEE165**	**BVP:660809**	1 unit	1.000
With 1 CEE socket outlet 32 A, 5-pole 	400	X	**BD01-GK1X/CEE325**	**BVP:660810**	1 unit	1.040
Ancillary equipment units, aluminum, size 1, with device installation unit						
For free arrangement of components (P_v max. 13 W), 4 MW (MW = modular width), with integrated DIN rail Can be used for • Remote control / remote switching • Intelligence • Device installation unit for installing devices, e.g. miniature circuit breakers 	400	X	**BD01-GK1M1/F**	**BVP:034286**	1 unit	0.800

Ancillary equipment units are supplied with the cable gland for enclosure connection.

Use plastic cable glands with strain relief (not included in scope of supply).

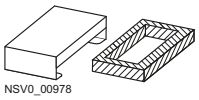
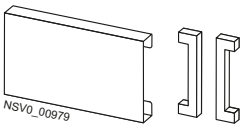
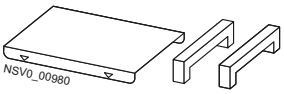
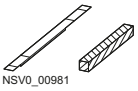
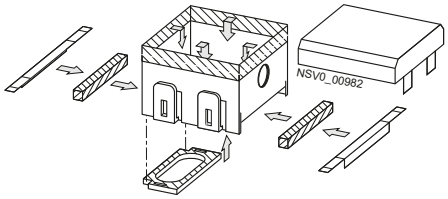
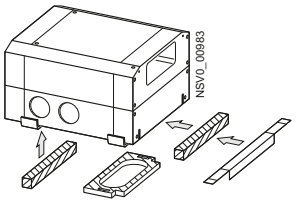
Version	Rated operational voltage U_e	SD	Type	Article No.	PS*/ P. unit	Weight per unit
	V	d				kg
Ancillary equipment units, aluminum, size 2						
For free arrangement of components (P_v max. 16 W), 9 MW (MW = modular width), with integrated DIN rail Can be used for • Overvoltage protection • Remote control / remote switching • ... 	400	X	**BD01-GK2X/F**	**BVP:034288**	1 unit	1.100
With 2 Schuko socket outlets 16 A and 1 CEE socket outlet 16 A, 5-pole 	400	X	**BD01-GK2X/ 2SD163CEE165**	**BVP:034291**	1 unit	1.600
With 2 Schuko socket outlets 16 A and 1 CEE socket outlet 32 A, 5-pole 	400	X	**BD01-GK2X/ 2SD163CEE325**	**BVP:660811**	1 unit	1.800
With 1 CEE socket outlet 16 A, 3-pole, and 1 CEE socket outlet 16 A, 5-pole 	400	X	**BD01-GK2X/ CEE163CEE165**	**BVP:034290**	1 unit	1.500
Ancillary equipment units, aluminum, size 2, with device installation unit						
For free arrangement of components (P_v max. 16 W), 9 MW (MW = modular width), with integrated DIN rail Can be used for • Remote control / remote switching • Intelligence • Device installation unit for installing devices, e.g. miniature circuit breakers 	400	X	**BD01-GK2M2/F**	**BVP:034289**	1 unit	1.100

Ancillary equipment units are supplied with the cable gland for enclosure connection.

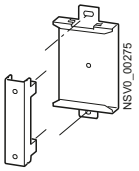
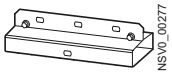
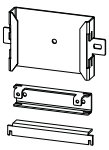
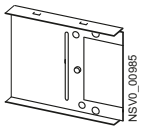
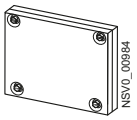
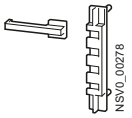
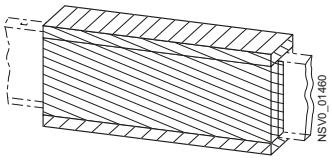
Use plastic cable glands with strain relief (not included in scope of supply).

Additional equipment

Selection and ordering data

Version		SD	Type	Article No.	PS*/ P. unit	Weight per unit
		d				kg
Additional equipment for degree of protection IP55						
For tap-off points		X	**BD01-FAS**	**BVP:610363**	5 units	0.100
 NSV0_00978						
For connection points		X	**BD01-FS**	**BVP:610362**	5 units	0.150
 NSV0_00979						
For feeding units						
• Mounting position at the bottom		X	**BD01-FES**	**BVP:610364**	1 unit	0.150
 NSV0_00980						
• Mounting position at the side or top		X	**BD01-KS**	**BVP:611057**	1 unit	0.030
 NSV0_00981						
For tap-off units / ancillary equipment units, not for versions with device installation unit BD01-AK/GK..M..						
• Size 01X, 02X	Size 01	X	**BD01-AK01X-IP55**	**BVP:610365**	1 unit	0.050
	Size 02	X	**BD01-AK02X-IP55**	**BVP:610366**	1 unit	0.050
 NSV0_00982						
• Size 1X, 2X	Size 1	X	**BD01-AK1X-IP55**	**BVP:610367**	1 unit	0.050
	Size 2	X	**BD01-AK2X-IP55**	**BVP:610368**	1 unit	0.050
 NSV0_00983						

3

Version	Rated current I_n	SD	Type	Article No.	PS*/ P. unit	Weight per unit
	A	d				kg
Fixing						
Universal fixing brackets, horizontal 	--	X	**BD01-B**	**BVP:034262**	10 units	0.167
Suspension brackets, horizontal 	--	X	**BD01-BA**	**BVP:081945**	10 units	0.167
Hanger brackets, horizontal • For suspension by cable or pendant chain • At the connection point 	--	X	**BD01-BAP**	**BVP:203522**	5 units	0.576
Suspension brackets, vertical 	--	X	**BD01-BV**	**BVP:662591**	5 units	0.576
Mounting parts						
End flanges 	--	X	**BD01-EF**	**BVP:611071**	1 unit	0.300
Joint blocks 	100 160	X X	**BD01-100-KB** **BD01-160-KB**	**BVP:201966** **BVP:201967**	1 unit 1 unit	0.350 0.350
Coding						
Coding sets • 4 coding positions 	--	X	**BD01-K**	**BVP:034263**	10 units	0.010
Fire barriers EI 90						
Fire barrier kits For mounting by the customer with fire barrier plates and fixing screws 	--	X	**BD01-S90**	**BVP:611354**	1 unit	1.500
Fire barrier approval kit (required only for Germany)	--	X	**BD01-S90-ZUL-D**	**BVP:611373**	1 unit	0.200

Configuration information

Overview

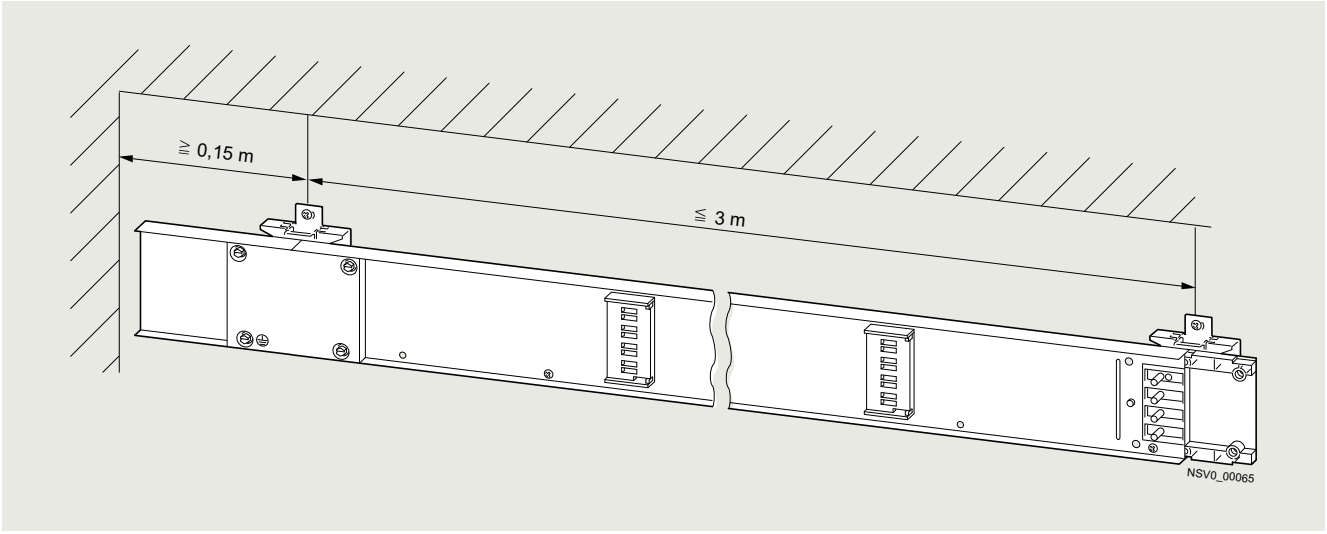
Specimen text for tenders

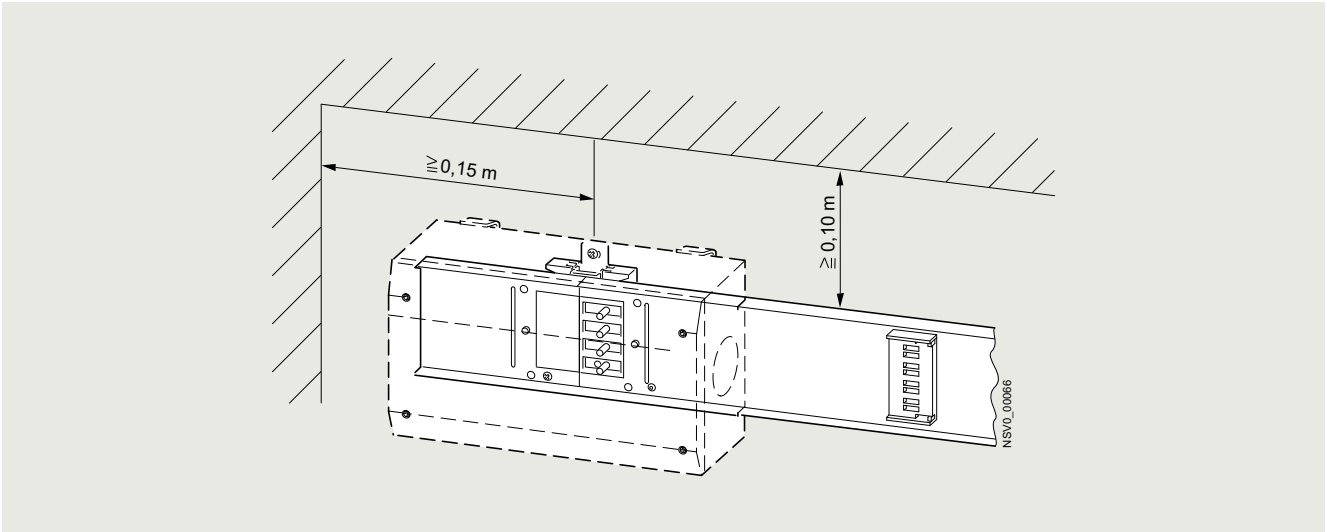
Item	Quantity	Description	Unit price		Amount	
	... m	Busbar trunking system (see Appendix for diagram) • As design verified low-voltage switchgear and controlgear assembly according to IEC/EN 61439-1 and -6 • Rated current, corresponds to thermal rated current at max. +40 °C and +35 °C in the 24-h mean for indoor installation • Rated insulation voltage U_i = 400 V AC, 400 V DC • Rated operational voltage ...V, ...Hz • Rated peak withstand current of busbar trunking system, ... kA tested according to IEC/EN 61439-1 and -6 • Degree of protection IP54 with tap-off points at sides and bottom, otherwise IP50; increase to IP55 with additional equipment • 5-conductor configuration: L1, L2, L3, N, PE • Busbars: silver-plated copper connection and pick-up contacts; aluminum or copper conducting paths; supported by insulated busbar supports • Trunking units sheet-steel enclosed, galvanized and with paint finish; color: light gray, RAL 7035 • Halogen-free • Busbar connection via joint block with built-in expansion compensation • Tap-off points on one side, every 0.5 m or 1 m • Supplied ready for connection with all assembly parts • Made by Siemens • Type BD01-... Comprising:				

Design

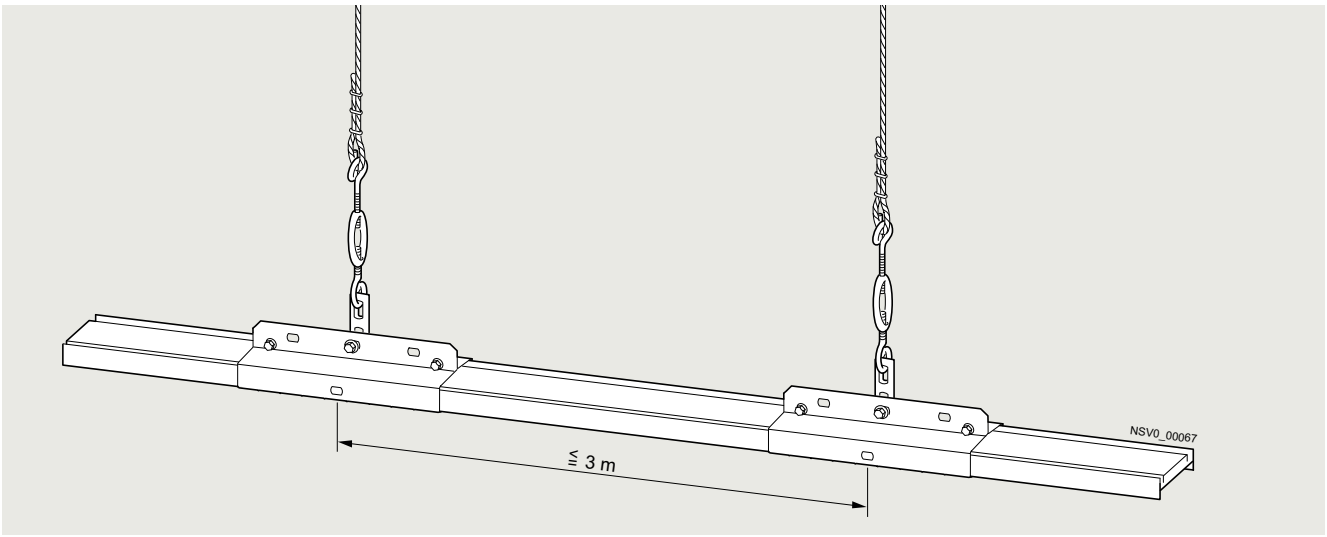
Fixing

Wall or ceiling mounting with BD01-B



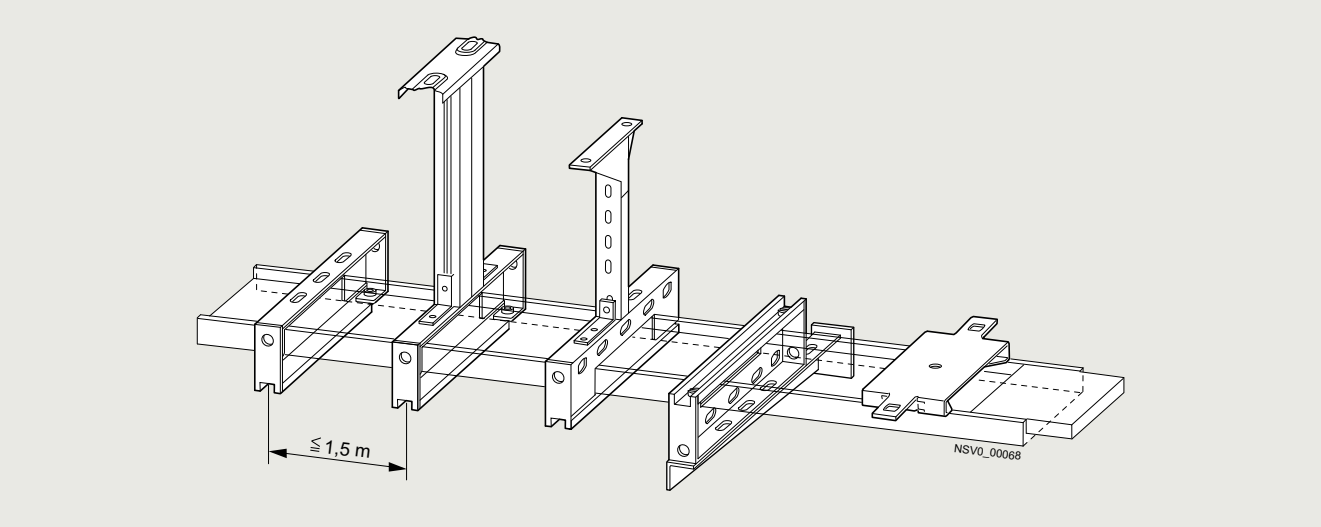


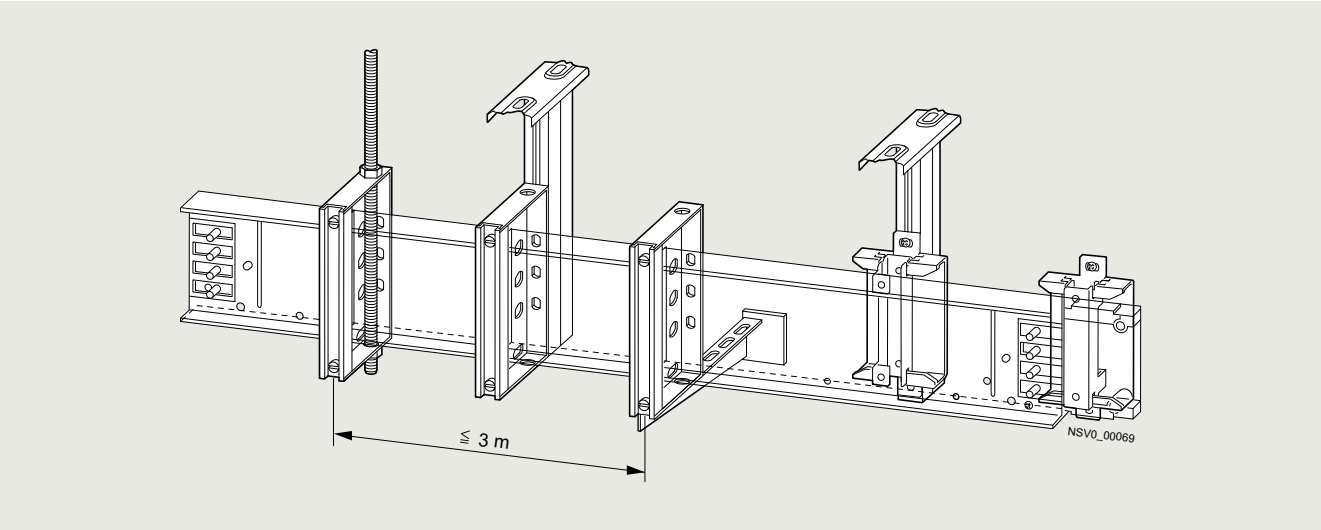
Pendant suspension using BD01-BAP (at connection point)



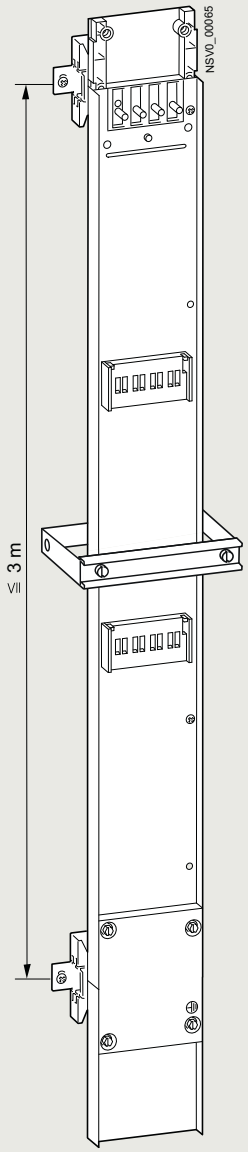
Configuration information

Mounting examples with BD01-B and BD01-BA





Mounting example with BD01-BV (central BD01-BA for stabilization)



Function

Required details

The following data must be considered when configuring the busbar runs:

- Position, direction, number, type, and approximate connected loads of the consumers, cos φ.
- Rated diversity factor α.
- If information is not available, use only the rated diversity factor
- Feeding transformers (short-circuit current)
- Nature of the installation site (dimensions, construction of the building, transport paths, cellar)
- Routing of supply lines from other power sources
- Crane operation
- Special requirements

Operational current

The operational current is calculated using the following formula:

$$I_B = \frac{P_{inst} \times \alpha \times b}{\sqrt{3} \times U_e \times \cos \varphi} \times 10^3$$

with:

I_B	=	Operational current	(A)
P_{inst}	=	Installed power	(kW)
α	=	Rated diversity factor	
b	=	Supply factor	
		b = 1 = One-sided infeed	
		b = ½ = Two-sided infeed	
U_e	=	Rated operational voltage	(V)
cos φ	=	Power factor (p.f.)	

If no information is available about the actual currents occurring simultaneously, the following values according to IEC/EN 60439-1 or IEC/EN 61439-1 apply:

Number of main circuits	Rated diversity factor α
2 and 3	0.9
4 and 5	0.8
6 up to and including 9	0.7
10 and more	0.6

Short-circuit protection

The systems can be protected against short circuit by fitting LV HRC fuses (gL) into the incoming supply; the fuse size to be appropriate for the prospective short-circuit current at the place of installation.

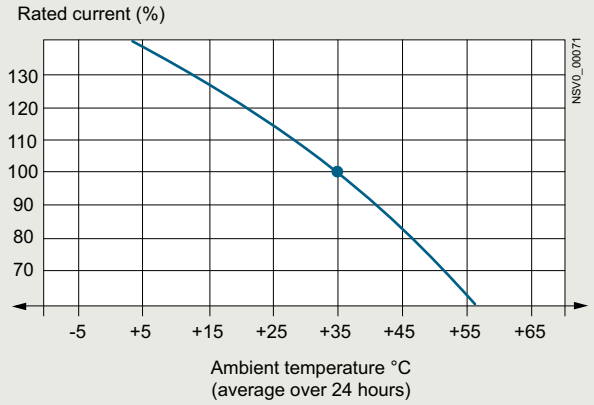
Overcurrent protection devices for overload and short-circuit protection

Busbar trunking systems must be protected against overload and short circuits. Fuses and miniature circuit breakers must be selected so that the admissible current-carrying capacity corresponding with the ambient conditions is not exceeded.

Due to their high response threshold (1.3 to 1.6 times rated current) and their long rupturing times at small overcurrents, fuses are not suitable for overload protection. Therefore we recommend the use of circuit breakers.

The prospective network short-circuit current and the let-through characteristic of the switching devices must be taken into account in each case.

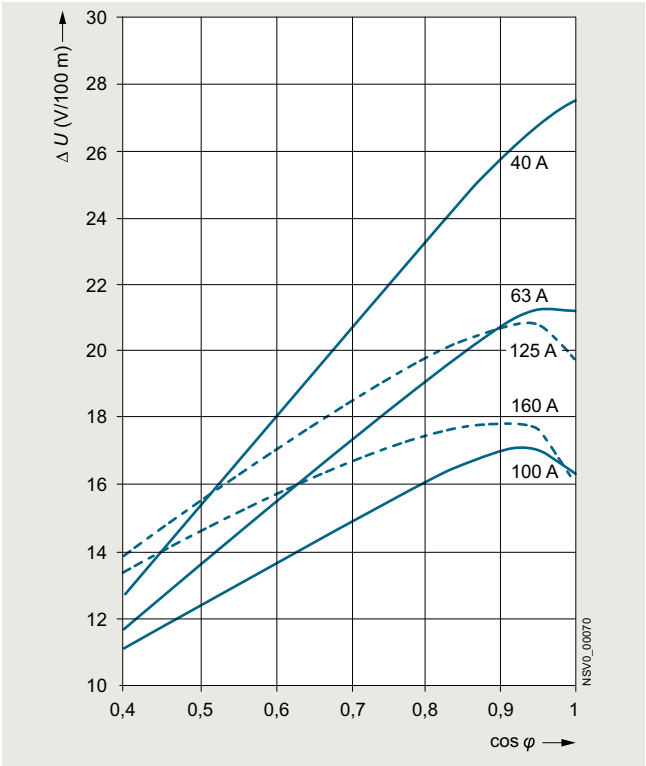
Temperature characteristic of BD01 systems



Voltage drop

Voltage drop at rated current

(Load distribution factor *a* = 1)



Calculation of the voltage drop

For long busbar runs, it may be necessary to calculate the voltage drop.

$$\Delta U = a \times \sqrt{3} \times I_B \times l \times (R \times \cos\varphi + X \times \sin\varphi) \times 10^{-3} \quad \text{(V)}$$

with

ΔU	=	Voltage drop	(V)
I_B	=	Operational current	(A)
l	=	Length	(m)
a	=	Load distribution factor	see table
R	=	Ohmic resistance R_{20}	(mΩ/m)
X	=	Inductive resistance X_{20}	(mΩ/m)
cos φ	=	Power factor (p.f.)	

Factor *a* used in the equation for calculating the voltage drop is dependent on the load distribution.

Load distribution		Factor *a*
A → B	Infeed at A, 1 tap-off at B	1
A → B C D E	Infeed at A, tap-offs at B, C, D, E	0.5
B A C	Infeed at A, tap-offs at B, C	0.25
B D A E C	Infeed at A, tap-offs at B, C, D, E	0.125
A → ← B, C D E F	Infeed at A, B, tap-offs at C, D, E, F	0.25

Fire barrier

General requirements

The state building authorities (Germany) or regional/international requirements demand that buildings are designed so that "spreading of fire is prevented, and that effective fire fighting and rescue of persons is facilitated".

To this end, all BD01-..... busbar trunking systems can be equipped with a fire barrier and comply with classification EI 90 according to EN 13501-2.

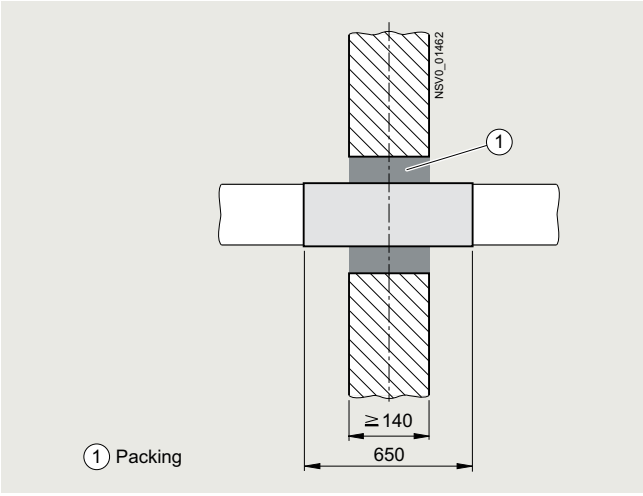
Specifically in Germany:

- A general type approval from the German Institute for Building Engineering (Deutsches Institut für Bautechnik in Berlin DIBt) in Berlin is available: aBG No. Z-19.53-2486.
- The aBG shall be available at the point of use and can be ordered as a fire protection approval kit BD01-S90-ZUL-D.

Configuration

To ensure the fire barrier function according to EI 90, the following points must be observed when configuring and installing trunking units with fire barriers:

- The center of the fire barrier in the trunking unit must be positioned in the center of the fire wall
- There are no tap-off points in the area covered by the fire barrier
- The trunking units must be installed by an approved fire barrier installation specialist



Positioning in the fire wall

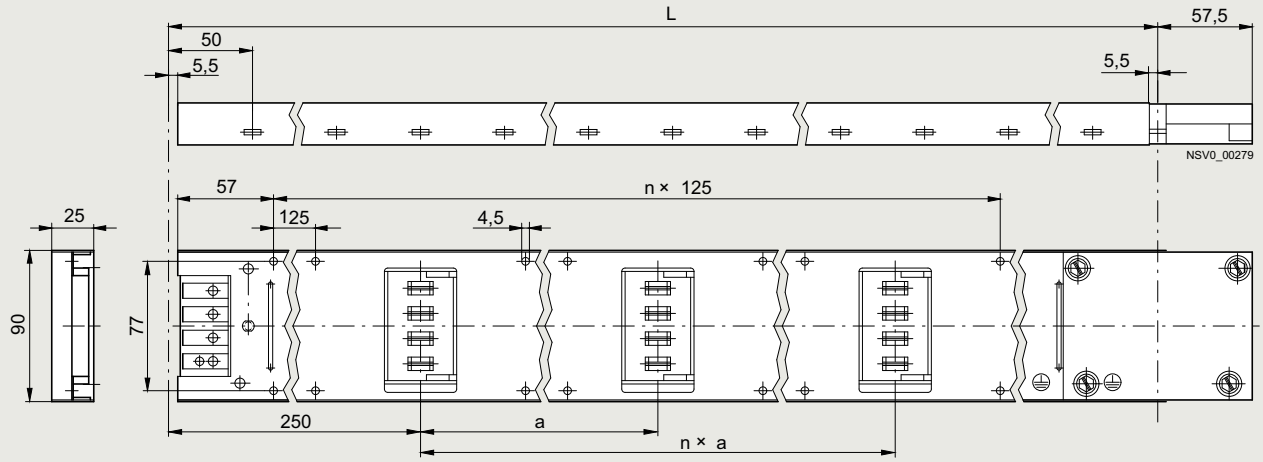
Observe the following when installing the trunking units:

- Mounting of the fire barrier part on the busbar trunking element by the customer (see pages 3/21 and 3/38)
- The opening ① between the busbar trunking element and the building element must be filled with mineral-based mortar or fire barrier sealant
- The mortar or fire barrier sealant must conform to the applicable regulations for establishing fire resistance class or the construction of the wall or ceiling
- The installation must be carried out according to the specifications on the approval papers. The approval papers can be ordered separately

Dimensional drawings

Trunking units

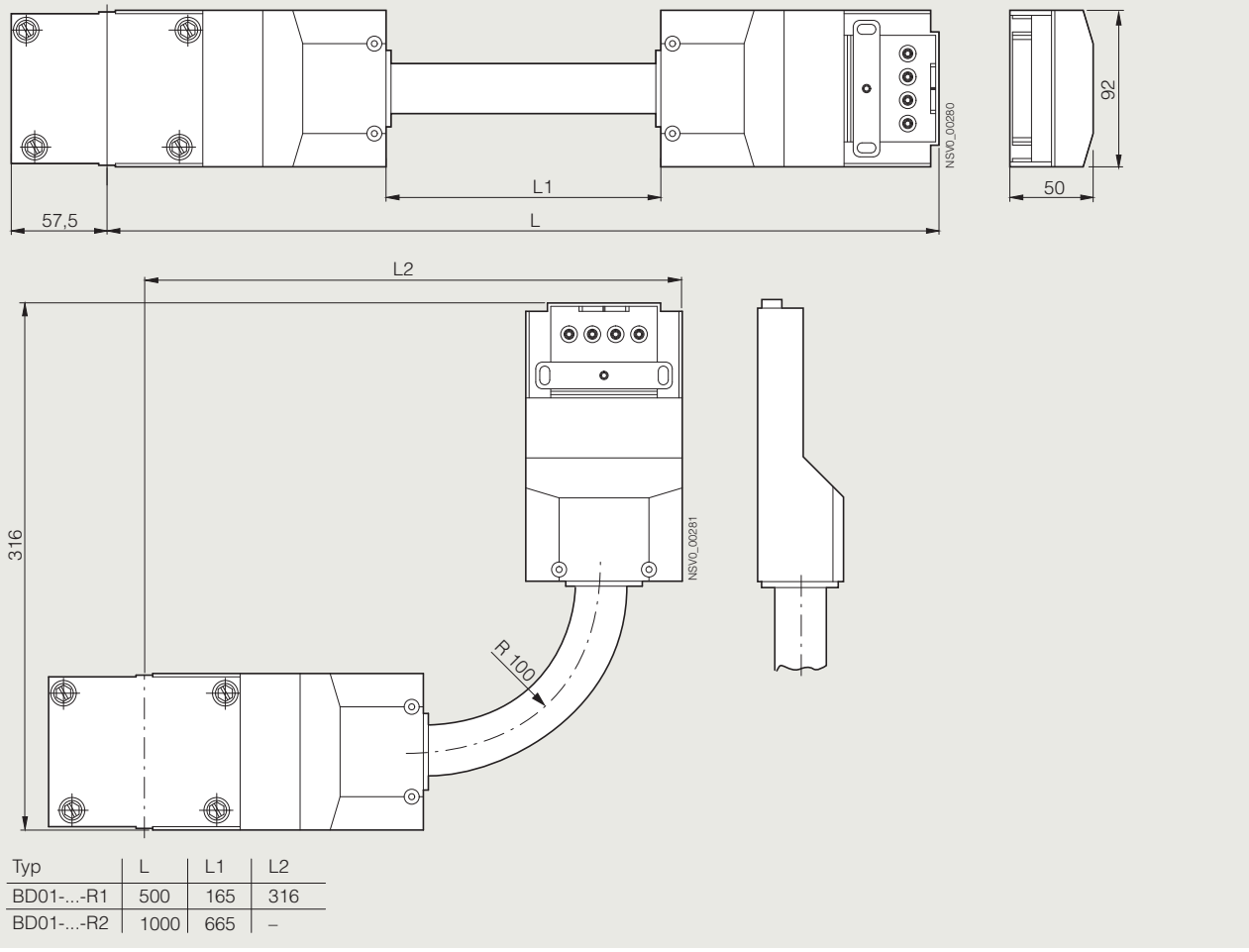
BD01-...



L	a	Number of tap-off points
2000	500	4
	1000	2
3000	500	6
	1000	3

Junction units

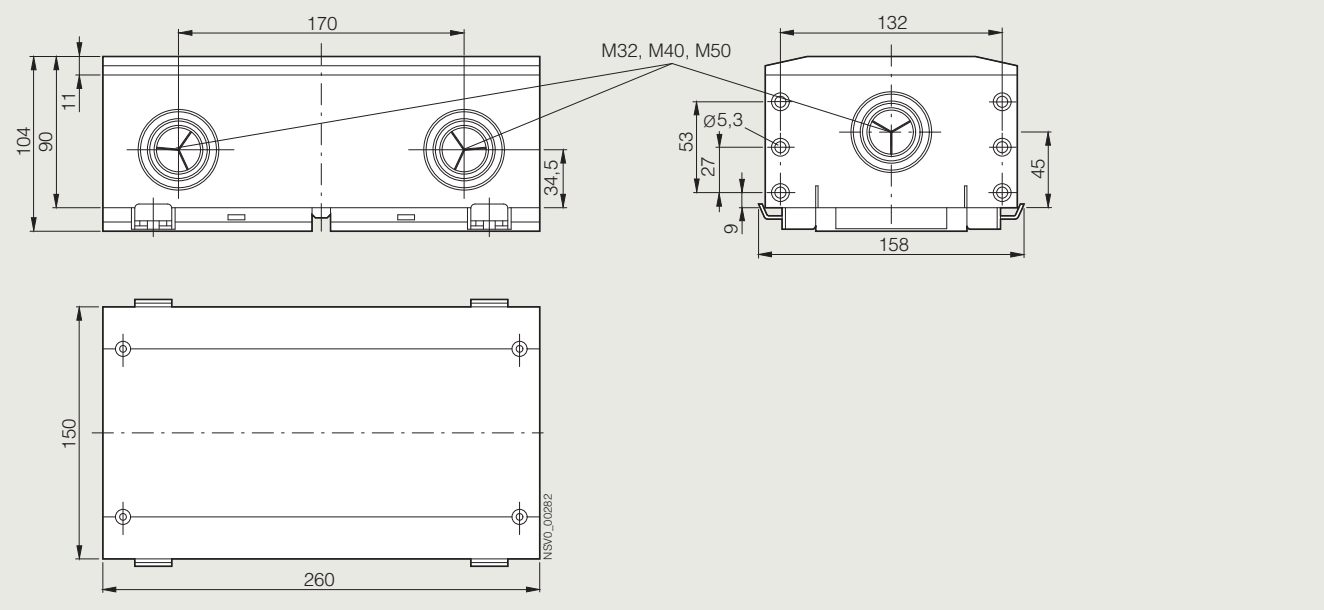
BD01(-160)-R1, BD01(-160)-R2



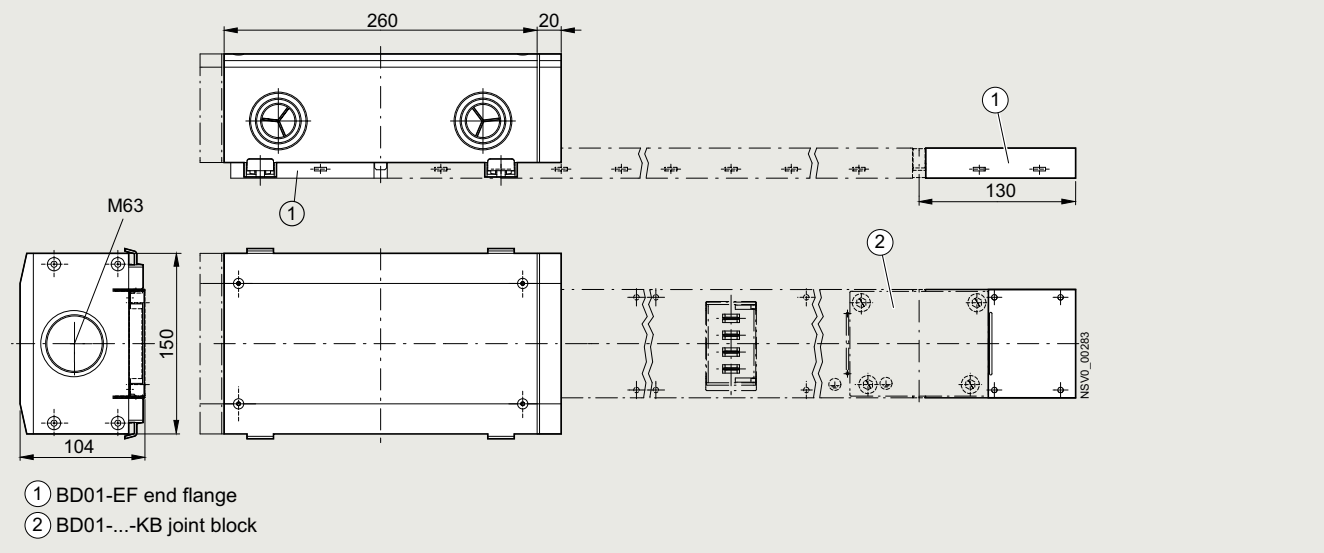
Typ	L	L1	L2
BD01-...-R1	500	165	316
BD01-...-R2	1000	665	–

Feeding units

BD01-E



BD01-160-E



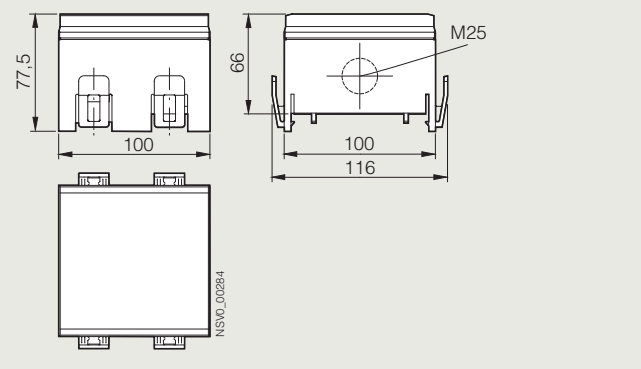
(1) BD01-EF end flange
(2) BD01-...-KB joint block

Configuration aids

Tap-off units

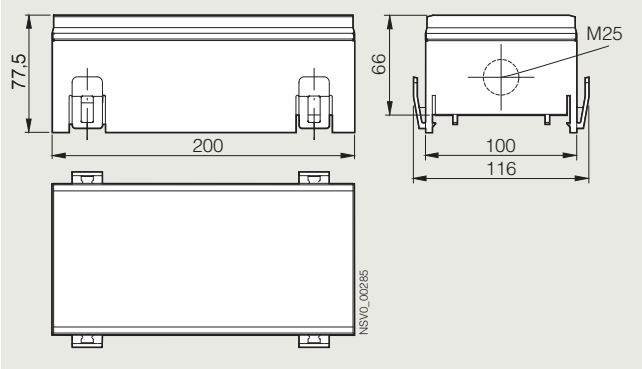
Tap-off units size 01

BD01-AK01X/ZS



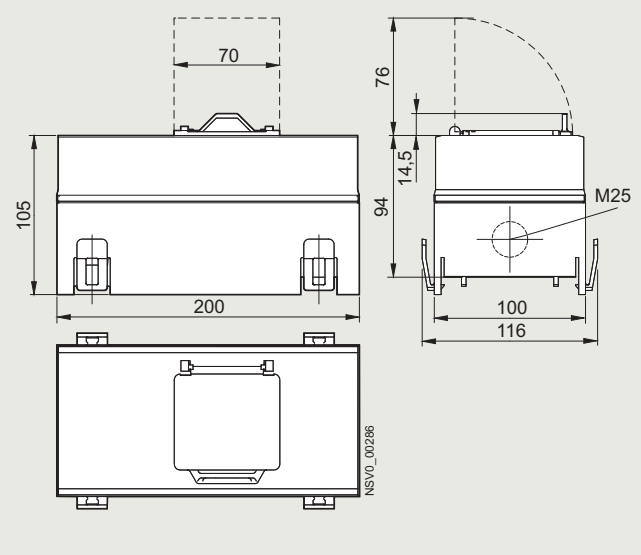
Tap-off units size 02

BD01-AK02X/ZS3

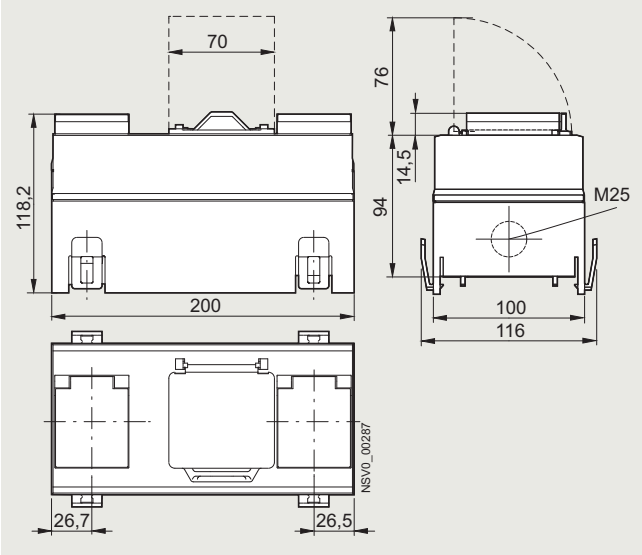


Tap-off units size 02, with device installation unit

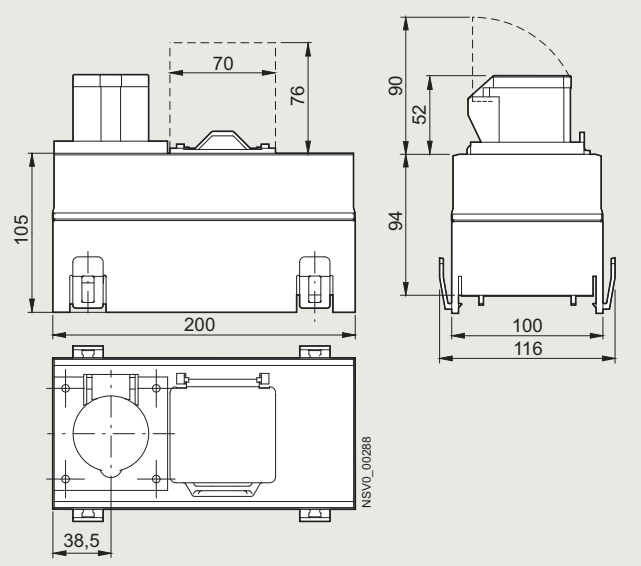
BD01-AK02M0/A163
BD01-AK02M0/A323
BD01-AK02M0/F



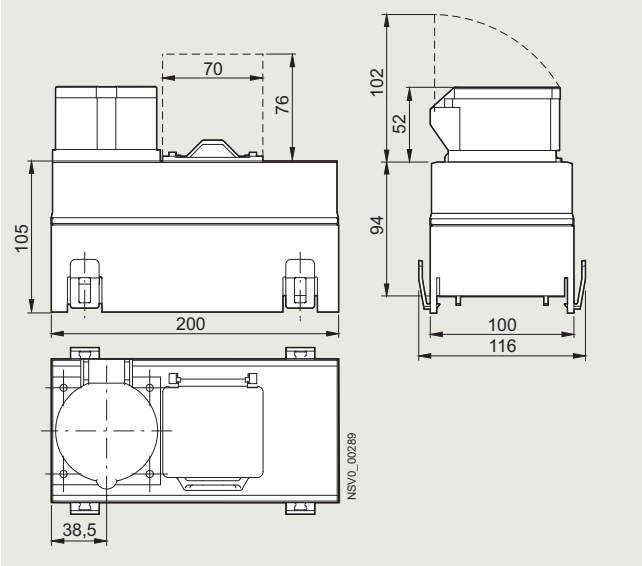
BD01-AK02M0/2SD163S14
BD01-AK02M0/2SD163A161
BD01-AK02M0/2SD163FIA161



BD01-AK02M0/CEE163S14
BD01-AK02M0/CEE163A161



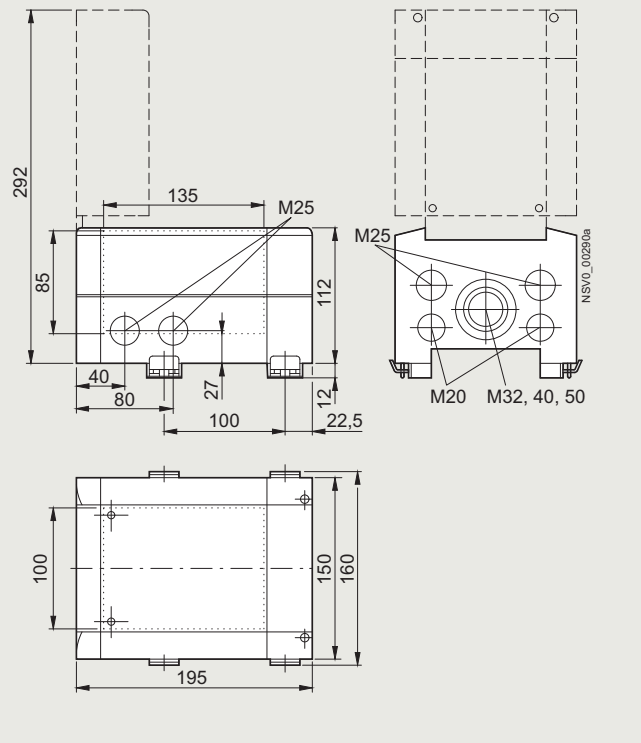
BD01-AK02M0/CEE165A163



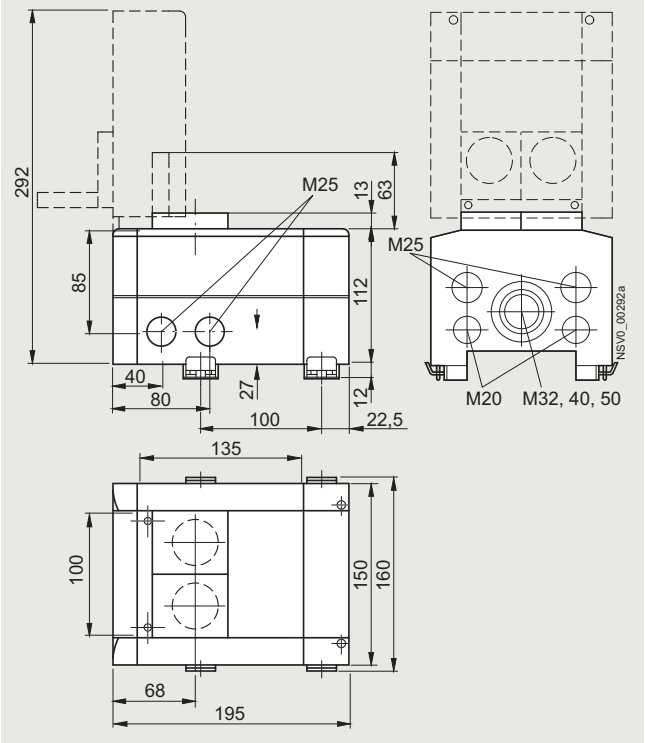
Dashed lines: free space for opening the flap

Tap-off units size 1

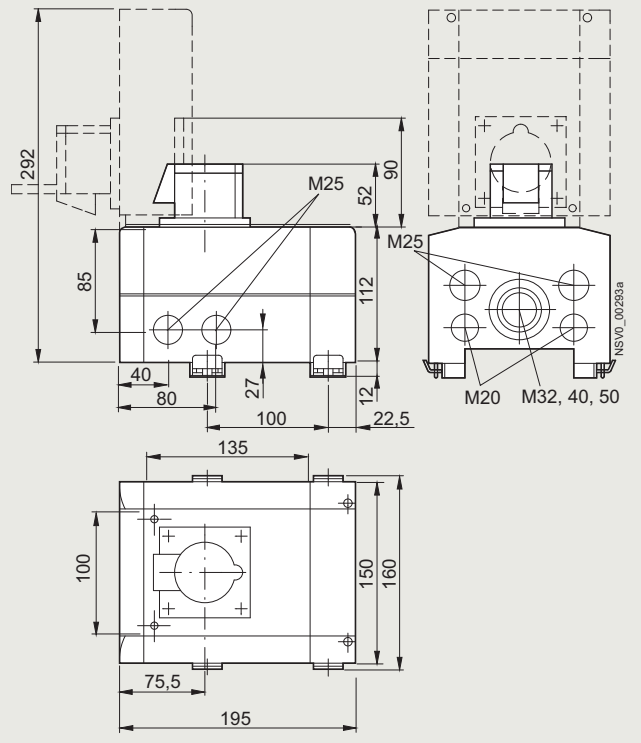
BD01-AK1X/S...
BD01-AK1X/F



BD01-AK1X/2SD...

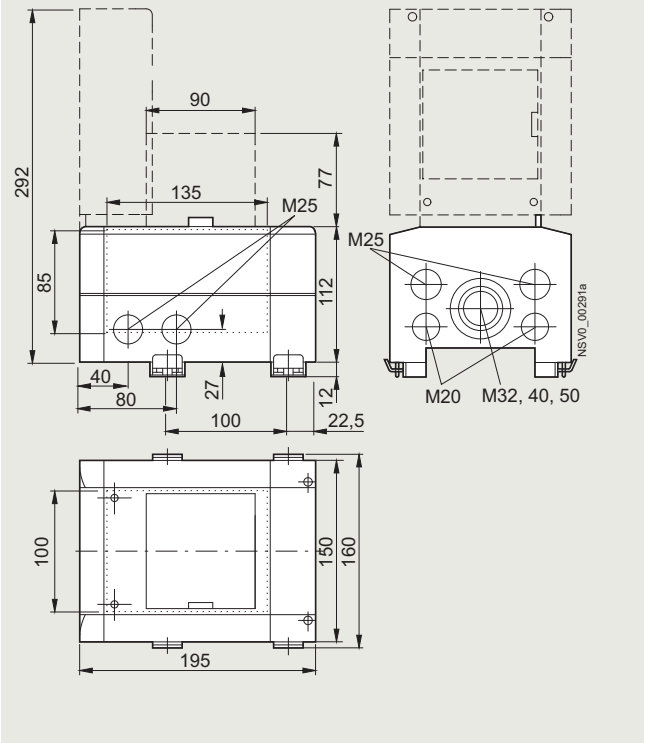


BD01-AK1X/CEE163...



Tap-off units size 1, with device installation unit

BD01-AK1M1/A...
BD01-AK1M1/F

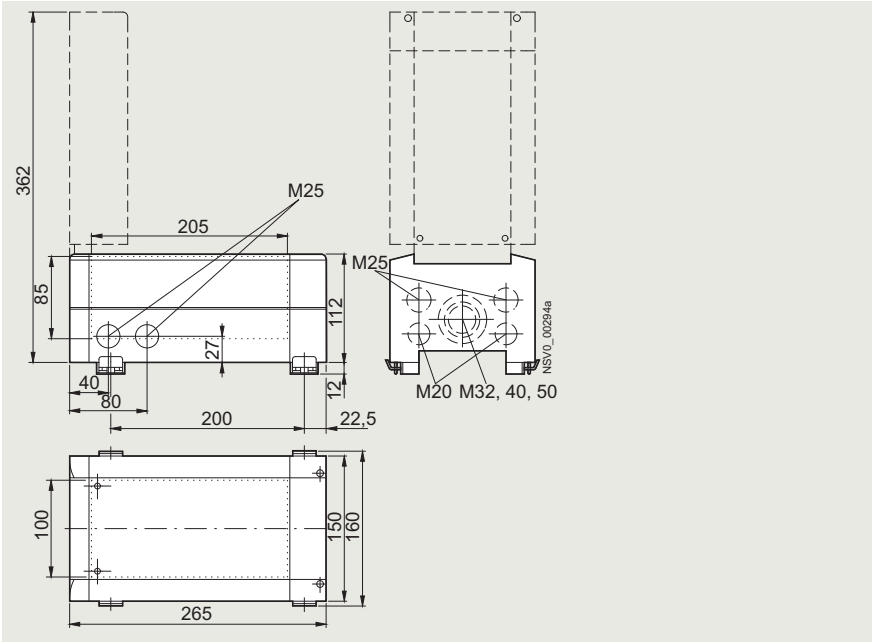


Dotted lines: usable component fitting space
Dashed lines: free space for opening the flap

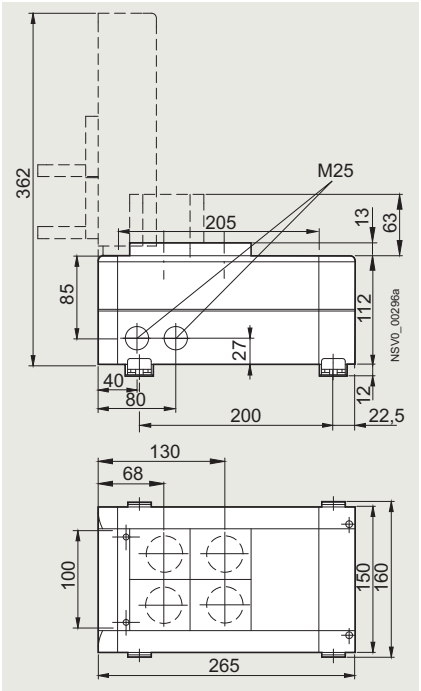
Configuration aids

Tap-off units size 2

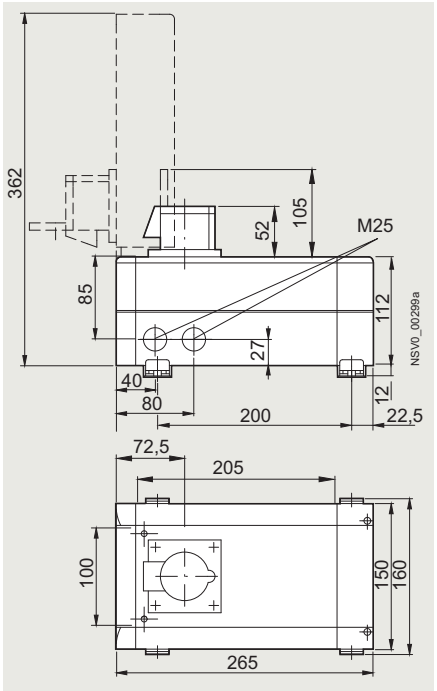
BD01-AK2X/F..., BD01-AK2HX/F...
BD01-AK2X/S..., BD01-AK2HX/S...



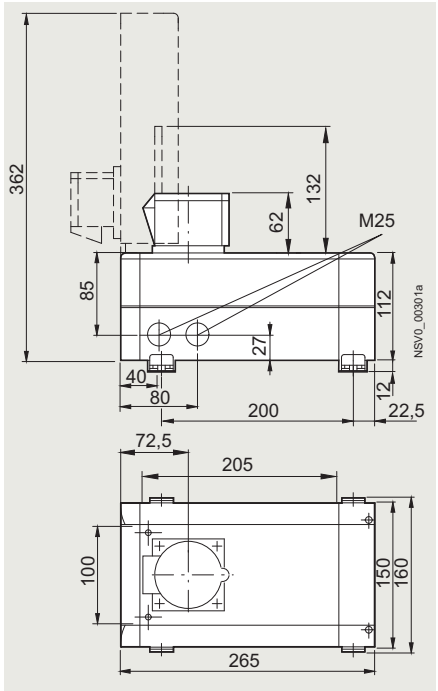
BD01-AK2X/4SD...



BD01-AK2X/CEE165...



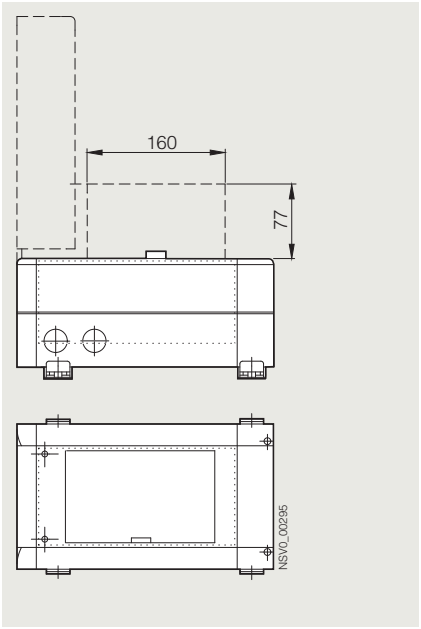
BD01-AK2X/CEE325...



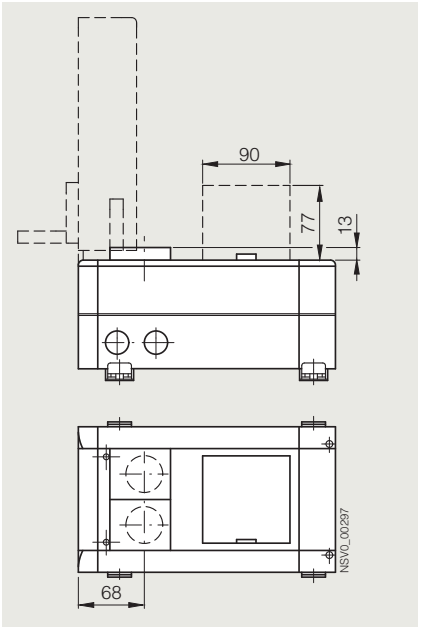
Dotted lines: usable component fitting space
Dashed lines: free space for opening the flap

Tap-off units size 2, with device installation unit

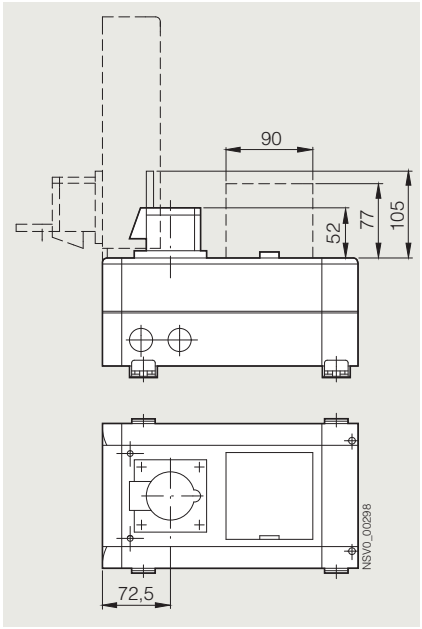
BD01-AK2M2/F, BD01-AK2HM2/F
BD01-AK2HM2/A...



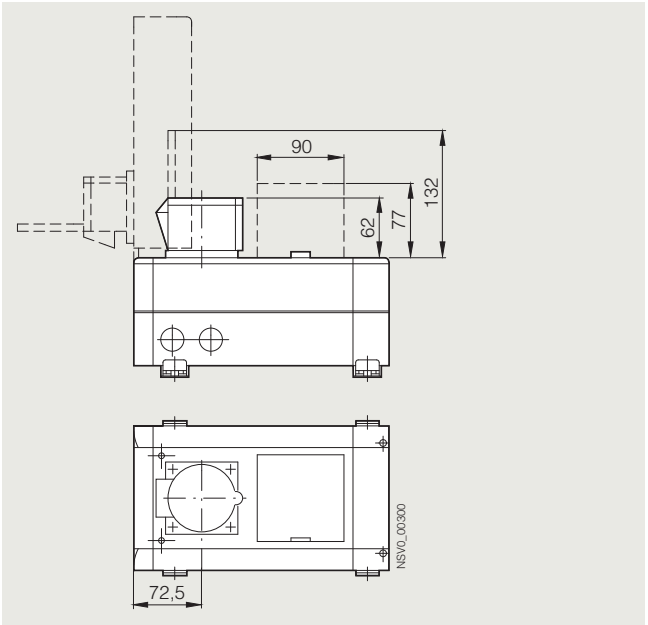
BD01-AK2M1/2SD...



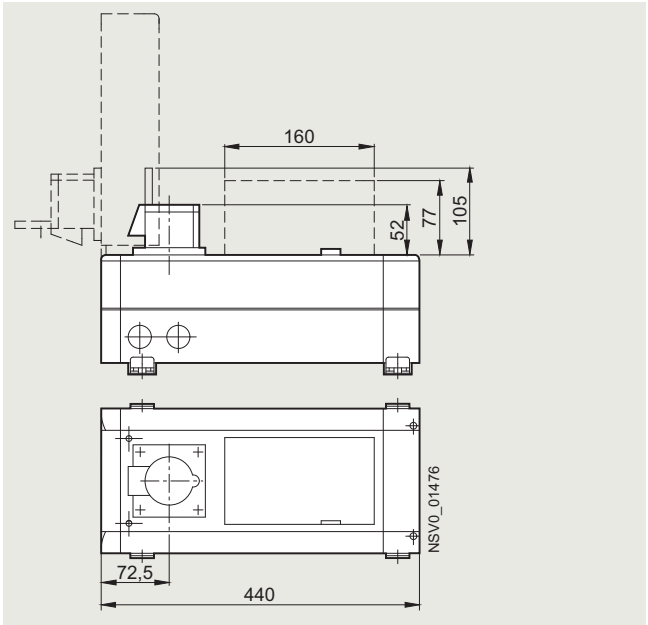
BD01-AK2M1/CEE163...,
BD01-AK2M1/CEE165...



BD01-AK2M1/CEE325...



BD01-AK2M2/CEE165...



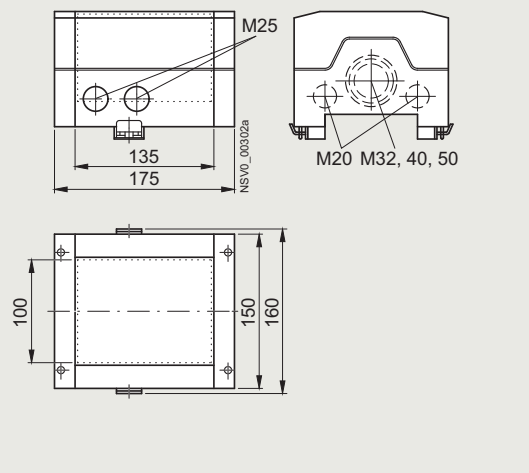
Dotted lines: usable component fitting space
Dashed lines: free space for opening the flap

Configuration aids

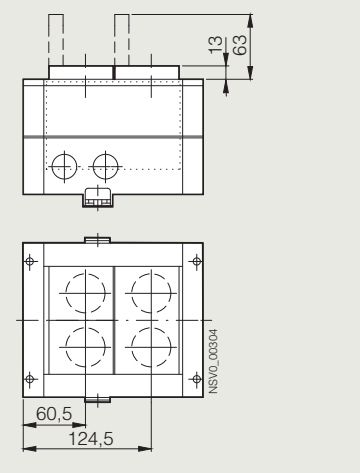
Ancillary equipment units

Ancillary equipment units size 1

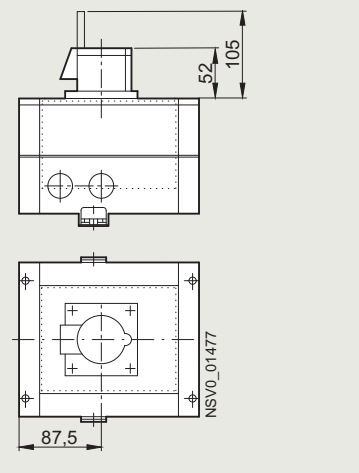
BD01-GK1X/F



BD01-GK1X/4SD163

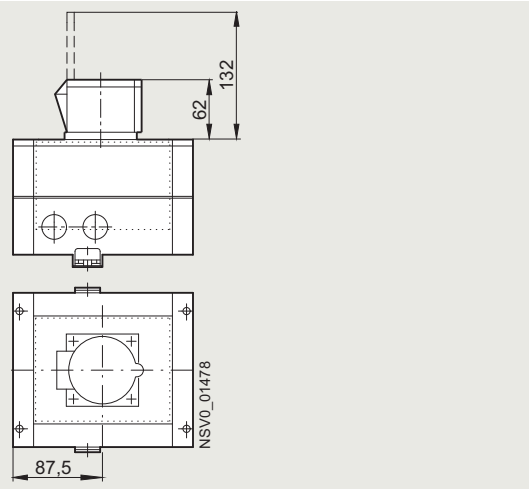


BD01-GK1X/CEE163
BD01-GK1X/CEE165

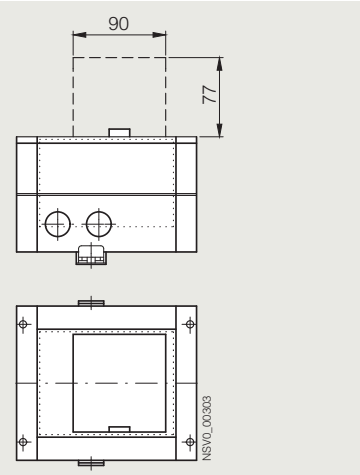


Ancillary equipment units size 1, with device installation unit

BD01-GK1X/CEE325



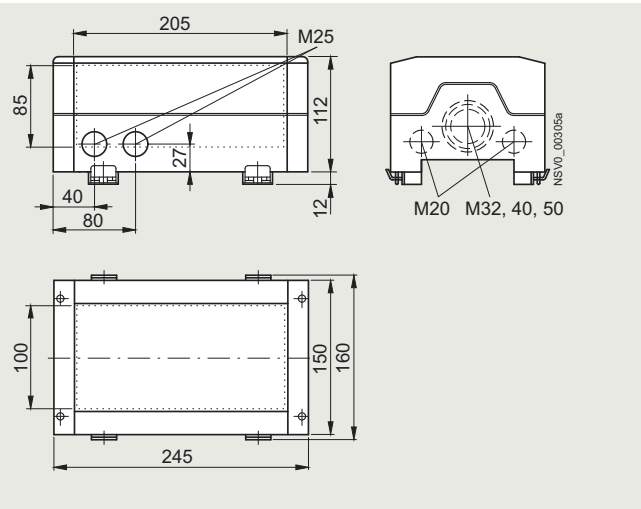
BD01-GK1M1/F



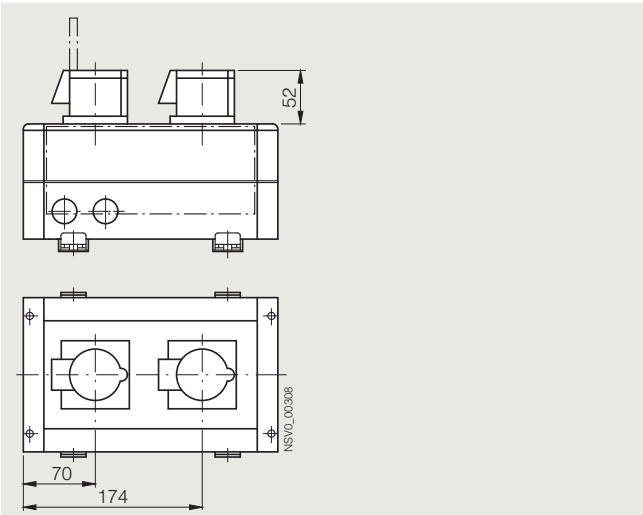
Dotted lines: usable component fitting space
Dashed lines: free space for opening the flap

Ancillary equipment units size 2

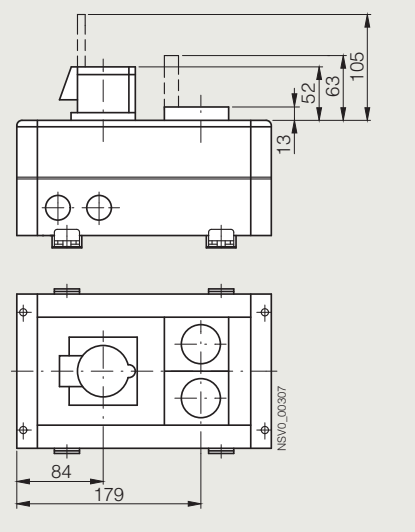
BD01-GK2X/F



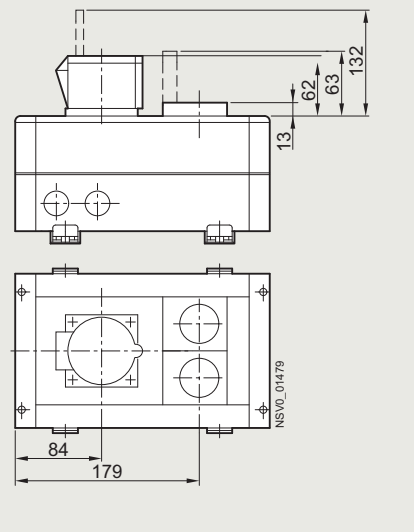
BD01-GK2X/CEE163CEE165



BD01-GK2X/2SD163CEE165

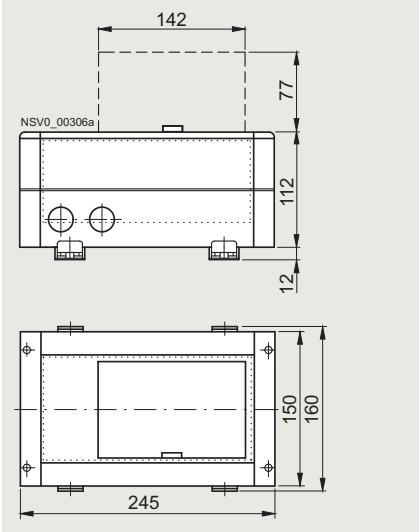


BD01-GK2X/2SD163CEE325



Ancillary equipment units size 2, with device installation unit

BD01-GK2M2/F

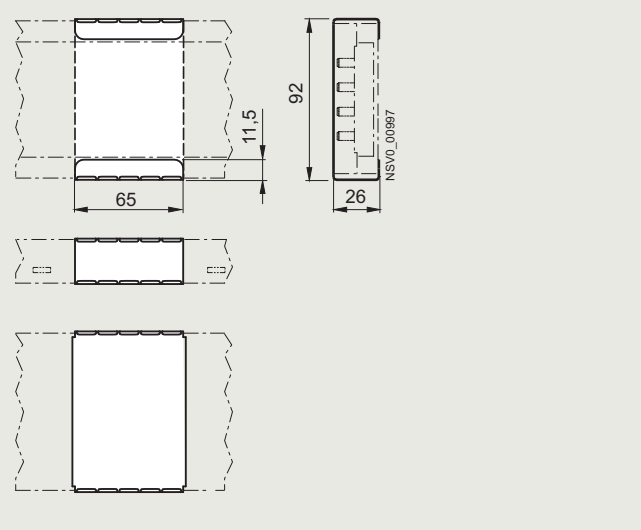


Dotted lines: usable component fitting space
Dashed lines: free space for opening the flap

Protective covers according to IP55

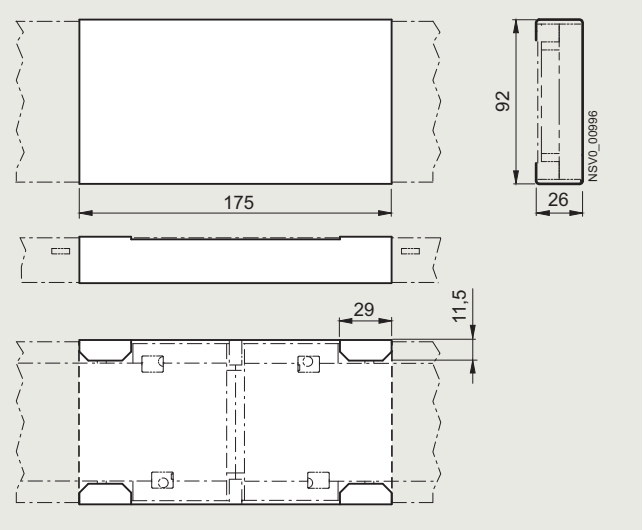
For tap-off point

BD01-FAS



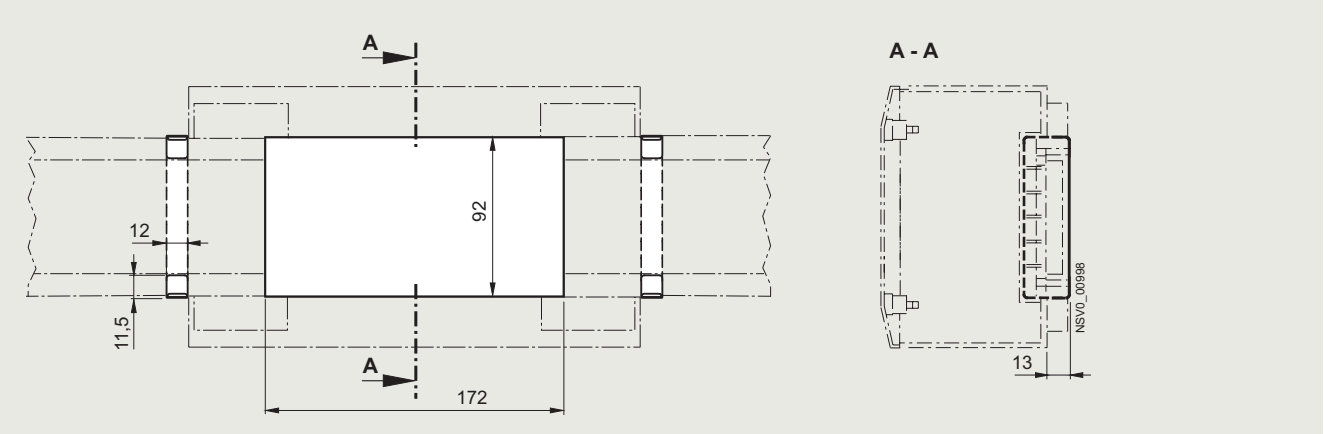
For connection point

BD01-FS



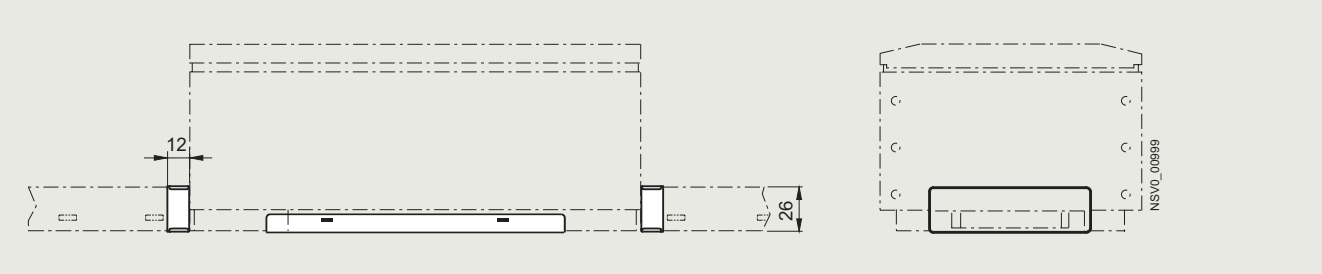
For feeding unit at bottom

BD01-FES

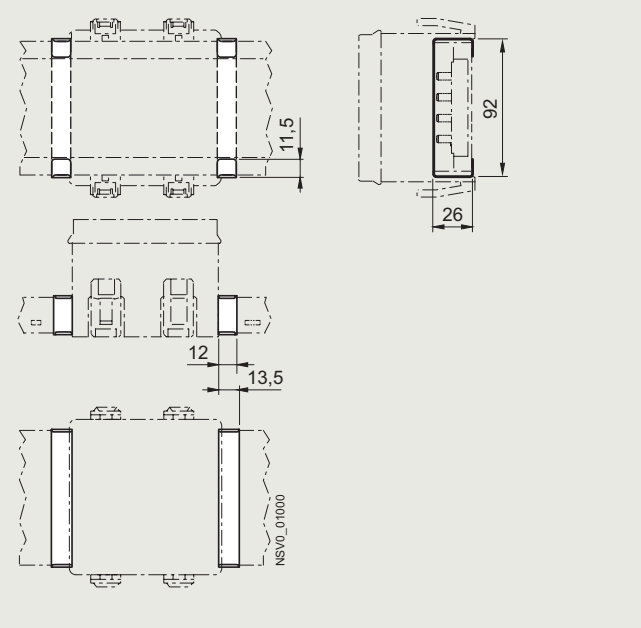


Configuration aids

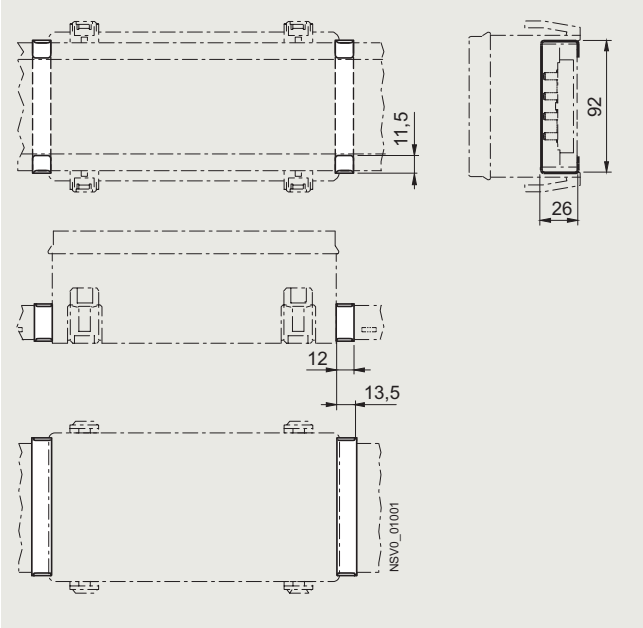
For feeding unit at side, top
BD01-KS



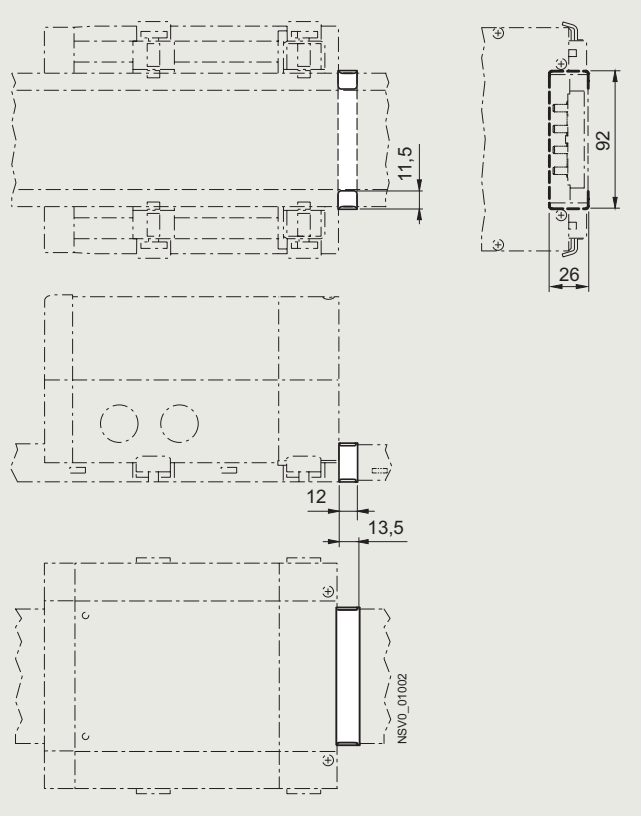
For tap-off unit
BD01-AK01X-IP55



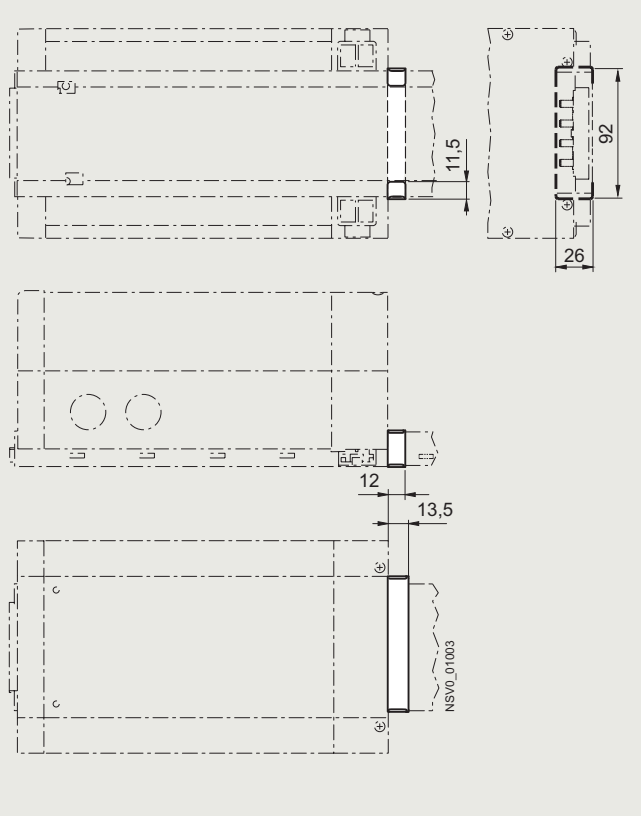
For tap-off unit
BD01-AK02X-IP55



For tap-off unit
BD01-AK1X-IP55

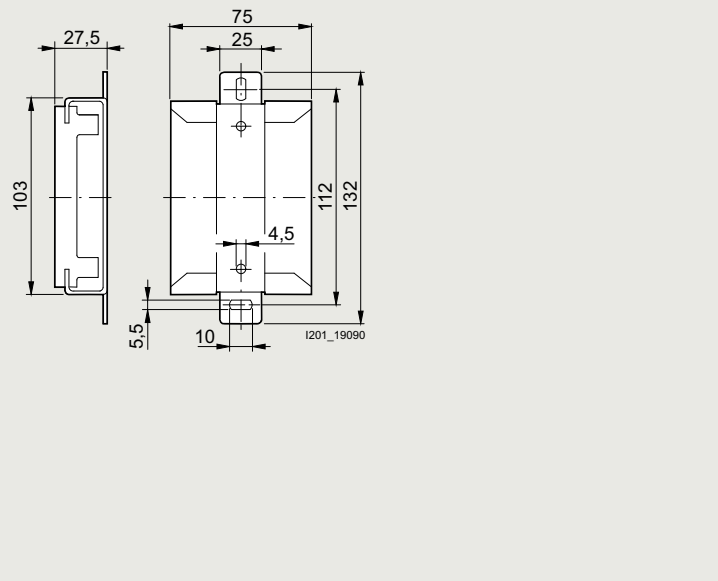


For tap-off unit
BD01-AK2X-IP55

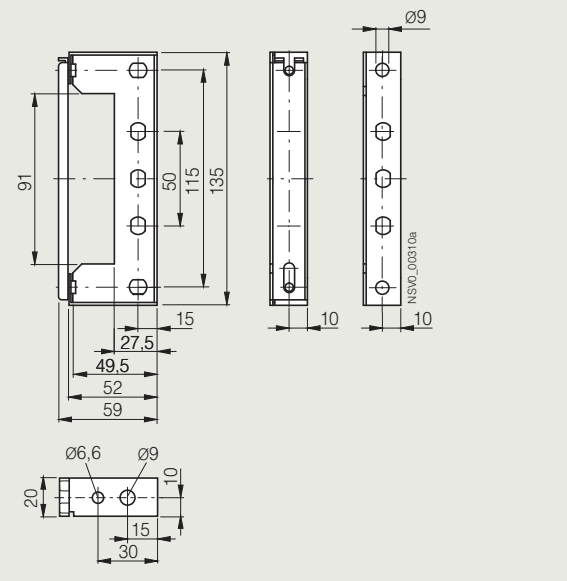


Fixing

Universal fixing bracket
BD01-B

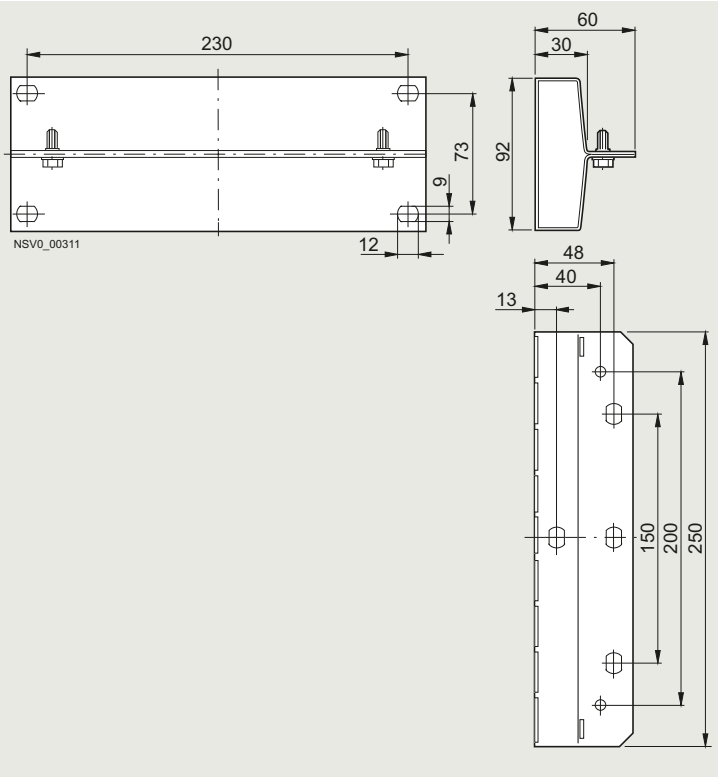


Suspension bracket
BD01-BA

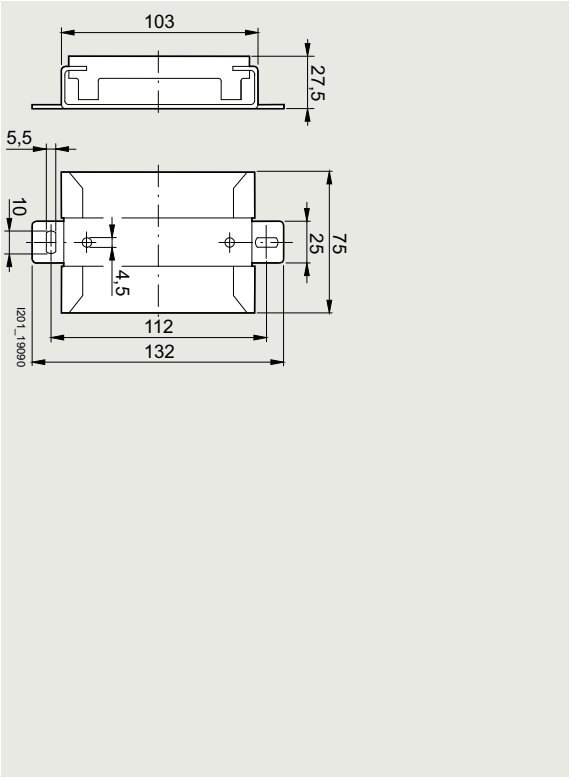


Configuration aids

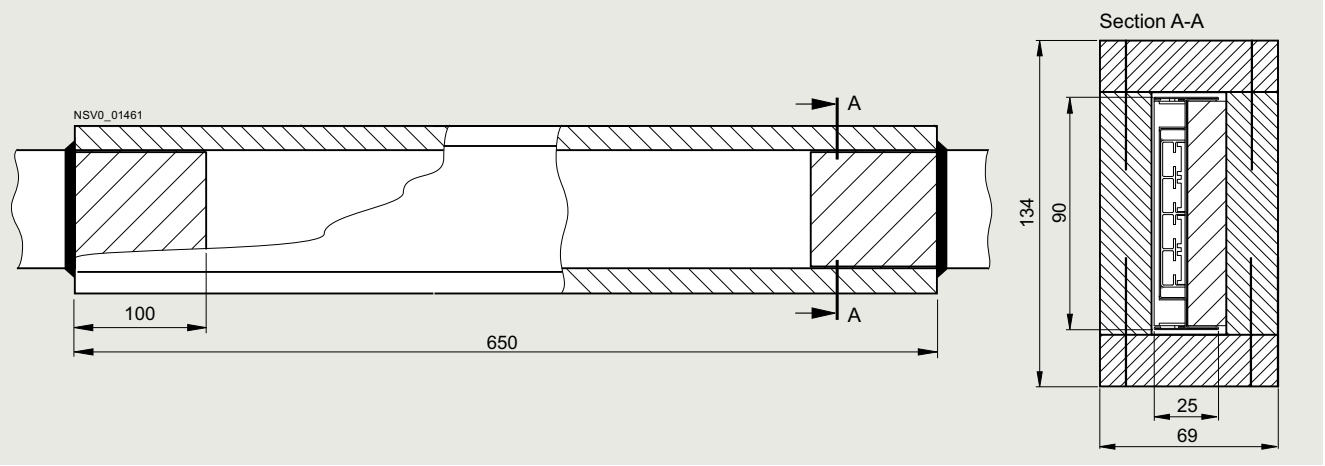
Hanger bracket
BD01-BAP

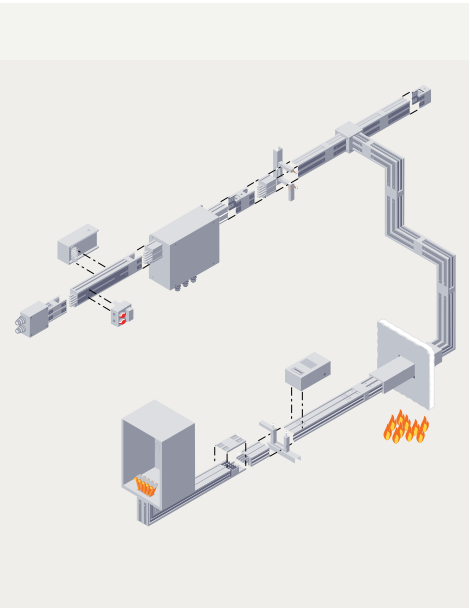


Fixing bracket, vertical mounting
BD01-BV



Fire barrier
BD01-S90





Introduction
4/2 Overview
4/3 Design

General data
4/8 Technical specifications

Trunking units
4/17 Selection and ordering data

Junction units
4/23 Selection and ordering data

Feeding units
4/39 Selection and ordering data

Tap-off units
4/43 Selection and ordering data

Ancillary equipment units
4/62 Selection and ordering data

Additional equipment
4/63 Selection and ordering data

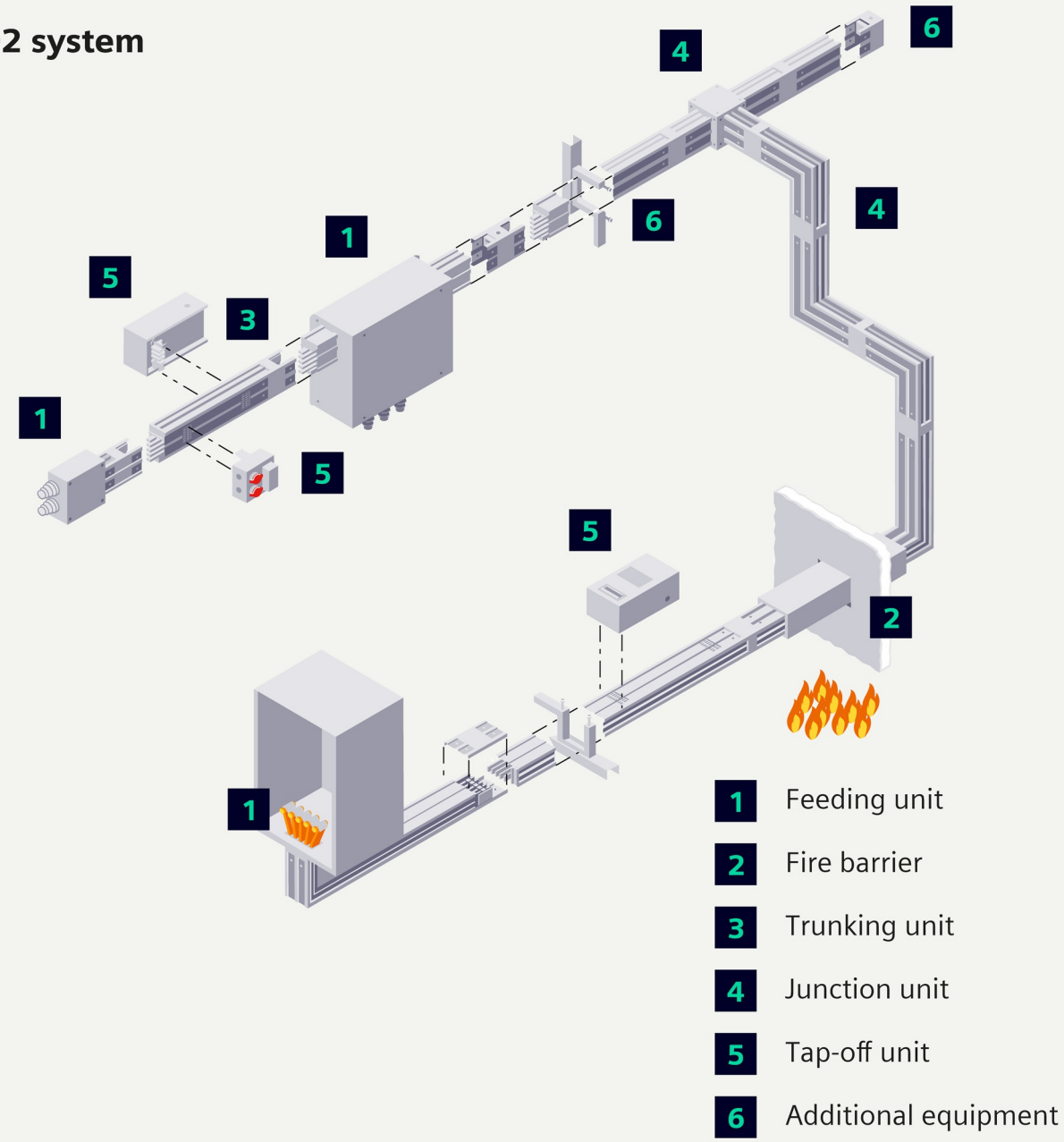
Configuration information
4/67 Overview
4/69 Design
4/75 Function
4/77 Configuration
4/81 More information

Fire barriers
4/87 Overview

DC applications
4/92 Overview
4/92 Selection and ordering data

Configuration aids
4/93 Dimensional drawings

Overview



BD2, the universal busbar trunking system for the current range from 160 A to 1250 A

- Design verified low-voltage switchgear and controlgear assembly according to IEC 61439-1/-6
- Degree of protection IP55 for trunking units and junction units
- Only two enclosure dimensions (up to 400 A / up to 1250 A) for the entire rated current range
- Five conductors made of copper or aluminum, nickel-plated and tinned
- Connection of the system components with a single-bolt terminal
- Horizontal and vertical run layout possible
- Standard enclosure color RAL 7035, light gray (powder-coated)
- Can be used in an AC and DC system (see page 4/92)

Components

Straight trunking units

- Standard lengths 3.25 m, 2.25 m, and 1.25 m
- Optional lengths from 0.5 m to 3.24 m
- Optional fire barrier for wall and ceiling cut-outs, fire resistance classes EI 30 to EI 120

  For version with tap-off points
  - With tap-off points on two sides, offset in a grid of 0.25 m or 0.5 m
  - Sealable and encodable
  - The leading/delayed PE contact at the tap-off unit provides positive opening or closing of the tap-off point

Junction units

- L-, Z-, and T-units in different mounting positions, with different limb lengths, and optionally with fire barrier
- Flexible junction unit with flexible copper conductors

Feeding units

- Entry/end feeding units
- Center feeding units
- Distribution board feeding units
- Entry/end feeding units with switch disconnector

Tap-off units

- With fuse bases in different sizes and versions up to 530 A
- With fuse switch disconnectors / switch disconnectors with fuses up to 320 A
- With miniature circuit breakers up to 125 A
- With molded case circuit breakers up to 550 A
- As empty tap-off units for local expansion up to 400 A

Additional equipment

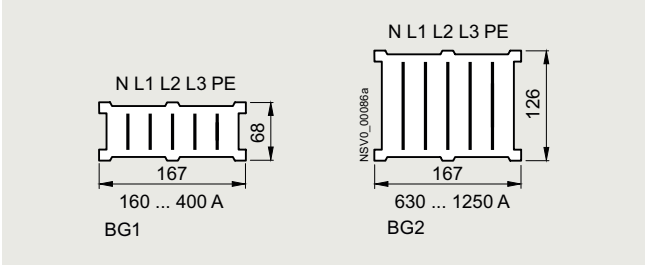
- End flange
- Degree of protection IP55
  - Additional components for tap-off units
- Fixing
  - Universal fixing brackets for horizontal run layouts
  - Fixing elements for vertical run layouts
- Joint block

Design

Trunking units

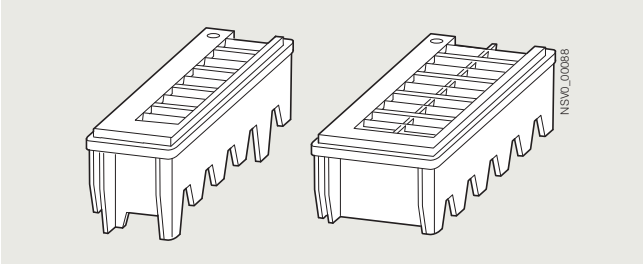
The trunking units consist of a sheet-steel enclosure in two different overall heights.

- Size 1: for rated operational current 160 - 400 A
- Size 2: for rated operational current 630 - 1250 A



The galvanized enclosure is powder-coated. The standard color is RAL 7035 (light gray). Other colors are possible. The degree of protection is IP55. As conductors, aluminum or copper profiles can be used that are nickel-plated or tinned over their entire length. The conductors for phases, neutral conductor, and protective conductor have an identical cross-section.

For the power distribution, there are tap-off points in the trunking unit on which these tap-off units can be plugged. The tap-off point contains an access to the conductor bars, which is not opened until the unit is plugged on. Due to its leading PE contact, safe contacting is ensured. The systems of size 1 up to 400 A have tap-off points with a single-row contact opening; as of size 2 (from 630 A) the opening has two rows.



Left: Tap-off point size 1 up to 400 A
Right: Tap-off point for size 2 up to 1250 A

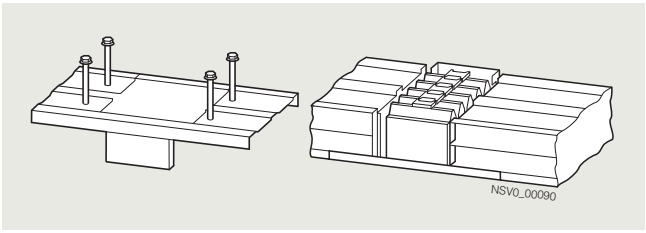
Introduction

Connection technology

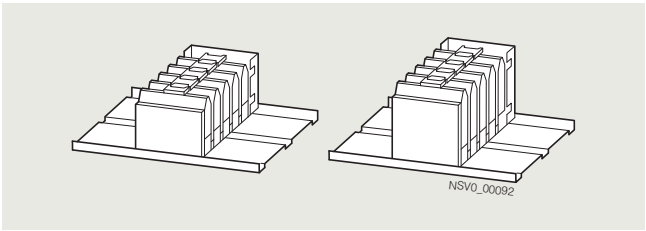
The trunking units are connected for both sizes using a single-bolt joint block, which is always mounted on one side of each trunking unit. All five conductor bars are connected simultaneously with this joint block, and the contact pressure is applied by means of a bolt. The bolt is simply tightened with a wrench as far as it will go. This provides optimum and uniform contact pressure. The enclosure can only be closed when the joint block is fully tightened. The connection is therefore permanently maintenance-free.

Each joint block also contains an expansion compensation for the conductor bars: Because of the Joule heat, the conductor bars expand in the enclosure; this movement is absorbed by the integrated expansion laminations. No special expansion compensation elements are therefore required.

Joint block

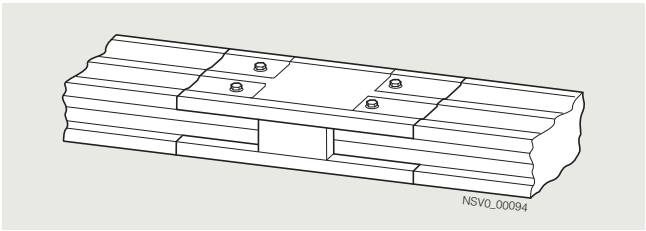


Left: Flange cover
Right: Joint block

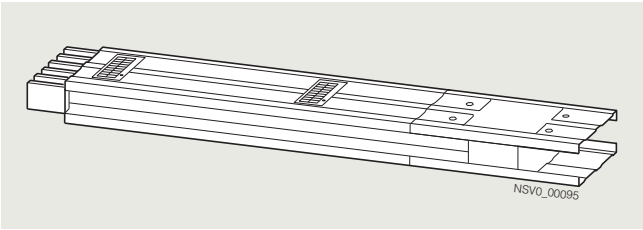


Left: BD2-400-EK for 160 to 400 A
Right: BD2-1250-EK for 630 to 1250 A

Four screws provide the mechanical connection to the enclosure, and this is completed with the mounting of 2 lateral protection plates.



Straight trunking units



Straight trunking units can be supplied between 0.5 m and 3.25 m, where

- 1.25 m
- 2.25 m
- 3.25 m

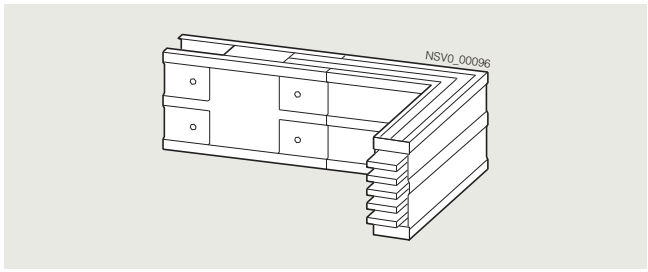
are the standard dimensions. The other dimensions can be ordered as optional lengths.

The straight trunking units can be supplied with tap-off points on both sides. The distance between the tap-off points is 250 mm, these always being alternately on the front and rear sides.

For currents from 400 A, trunking units without tap-off points are also available.

For adjustment of the BD2 busbar lengths by the customer, special components are available, the length of which can be adjusted on site in a range between 500 mm and 1250 mm.

Junction units



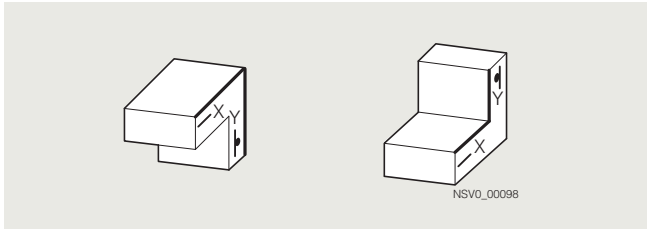
Junction units are necessary, for example, to follow the contours of the building or to adjust to local requirements with the busbar trunking system:

The following contours can be distinguished:

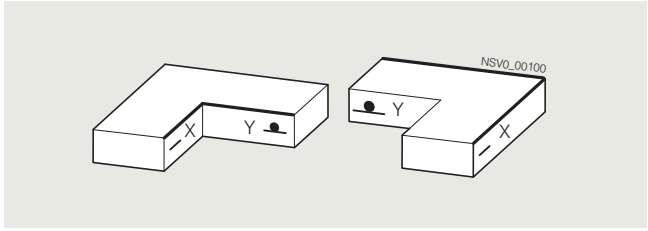
L-unit

Simple 90° junction unit in the horizontal or vertical direction.

The limb lengths of the junction units can be selected in some cases.



Left: L-unit rear ("knee, rear")
Right: L-unit front ("knee, front")



Left: L-unit right ("elbow, right")
Right: L-unit left ("elbow, left")

L-unit with configurable angle:

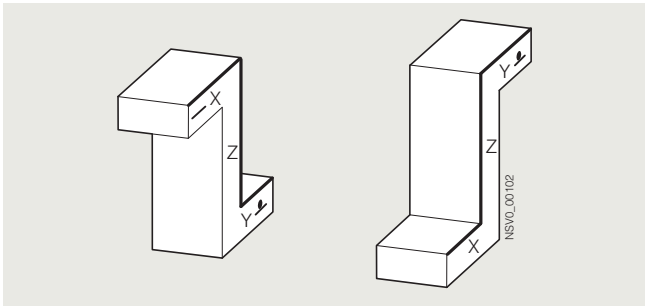
Single junction unit in the horizontal or vertical direction, for which the angle can be selected between 85° and 175°, in steps of 5°.

The limb lengths of the junction units can be selected in some cases.

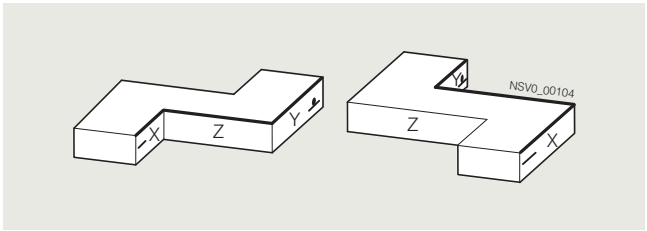
Z-units

Double 90° junction unit in the horizontal or vertical direction.

The limb lengths of the junction units can be selected in some cases.



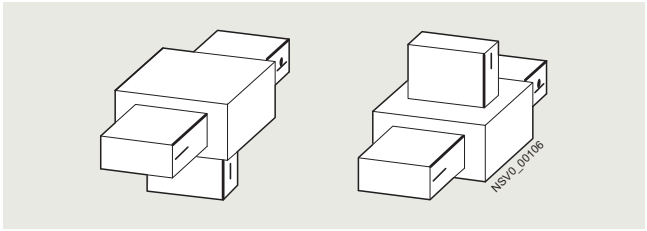
Left: Z-unit rear
Right: Z-unit front



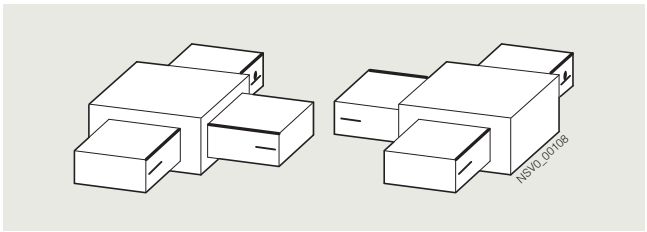
Left: Z-unit right
Right Z-unit left

T-units

Straight trunking unit with an integrated 90° junction unit in the horizontal or vertical direction.



Left: T-unit rear
Right: T-unit front



Left: T-unit right
Right T-unit left

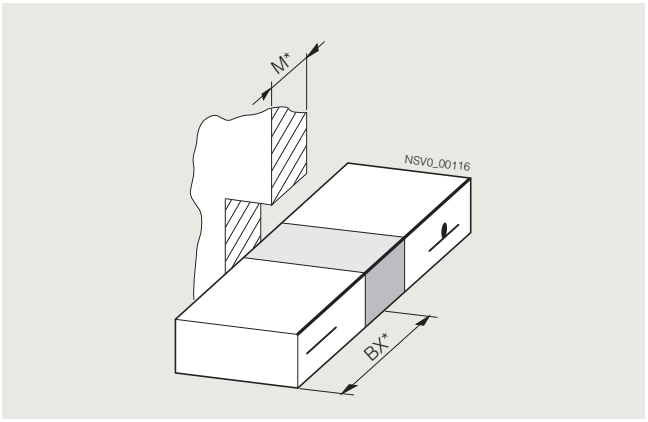
4

Introduction

Fire barrier

To route a busbar trunking system through a fire wall or ceiling, a fire barrier must be used. For the BD2 system, fire barrier elements with fire resistance classes EI 30 to EI 120 according to EN 13501 are available. These have been tested according to EN 1366 Part 3. Verification of the tests according to IEC 61409-6 Clause 10 is also covered.

The fire barrier elements are available for straight trunking units and junction units, and are implemented with internal and external planking at the factory. Installation must be performed properly and considering the regulations valid at the installation site. For Germany, for example, this must be done according to the requirements of the relevant approval.



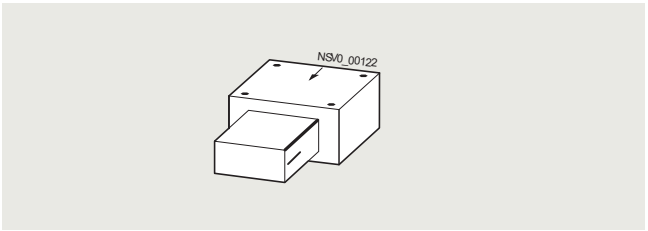
Fire barrier for trunking units and junction units

Feeding units

To supply power to the BD2 busbar trunking system, there are different feeding unit versions available:

End feeding units

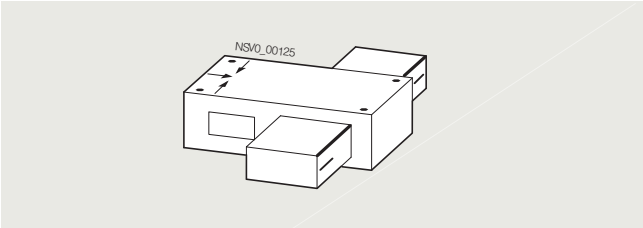
These are used to connect cables to the busbar run. To do this, the connection points for conductor connection are located in an enclosure. The cables are introduced through the front face of the feeding unit. To implement a lateral cable entry, an additional cabling box can be attached. The cable is brought into the feeding unit through cable grommets or through a closed aluminum plate, which can be provided with cable glands by the customer.



BD2.-...-EE end feeding units

Center feeding units

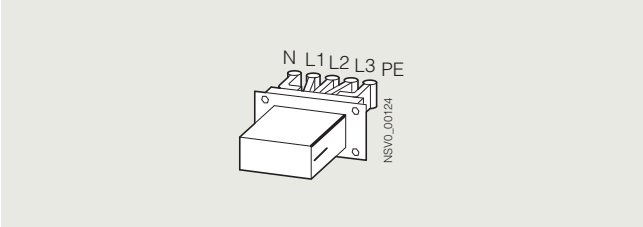
In this case, the cables are connected to a continuous busbar run. The cable can be brought in through cable support sleeves on three sides. Aluminum plates can be chosen, here too, just like for the end feeding units.



BD2.-...-ME center feeding units

Distribution board feeding units

This component connects an enclosure (e.g. switchgear) to a BD2 system. The internal connections between switching and the busbar connection system must be made by the switchboard manufacturer.



BD2.-...-VE distribution board feeding unit

Tap-off units

The BD2 system provides numerous tap-off units in different sizes, with different features and equipment.

The following characteristics apply to all tap-off units of the BD2 system:

- An anti-rotation feature prevents incorrect mounting of the tap-off unit
- The tap-off units can be plugged on while energized (exception: tap-off units with fuse base BD2-AK0*-SNH*)
- The plugging process of the tap-off unit is finger-safe (IPxxB)
- The tap-off units of size AK04/05/06 have a fitting tool for simple and safe mounting with an additional disconnected position.

Tap-off units of the BD2-AK2 and BD2-AK3 series are equipped with a cover-integrated switch disconnector: This ensures that the tap-off unit is de-energized when it is open, so that it can be removed from the BD2 system in no-load condition.

Moreover, there are various sizes of tap-off units with different equipment:

Tap-off units with fuses

Tap-off units for various fuse elements are provided in a current range from 16 A to 530 A. The customer connections are either implemented for direct cable connection or with socket outlets.

Tap-off units with fuse disconnector

Between 125 A and 320 A, tap-off units with fuse switch disconnectors or switch disconnectors with fuse are available. The customer connection is made directly at the switching device.

Tap-off units with miniature circuit breakers

There is a large selection of tap-off units with miniature circuit breakers in the rated current range from 16 A to 125 A, optionally with RCD, measuring device, and powerline transmission. The connection to the loads is made through socket outlets or direct connection.

Tap-off units with molded case circuit breakers

With 40 A to 550 A, the tap-off units with molded case circuit breakers cover a wide current range. Various trip units are available, and it is also possible to choose between 3-pole and 4-pole switching devices as well as between manual and motor operation. Some tap-off units also provide metering functions and powerline technology. The customer connection is made directly at the switching device.

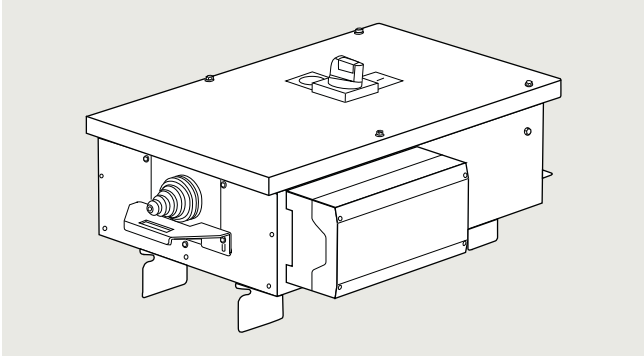
Tap-off units for customer equipment

Between 25 A and 400 A, empty tap-off units are provided to be equipped by the customer. There are to options for this: In the empty tap-off units with free arrangement of components, the components are selected and installed by the customer. There are also prepared empty tap-off units for installation of predefined Siemens molded case circuit breakers, which can be installed by following the instructions supplied.

powerline data transmission

Energy data and energy by plug-and-play:
The innovative powerline technology (PLT) makes this possible for the SIVACON 8PS busbar trunking systems – economically and safely.

Energy data is simply transferred to the automation and energy management systems, as well as to cloud-based systems (IoT). Data and current travel the same path via the conductor circuits and phases of the BD2 busbar trunking system.



BD2 TOUs with 3VA and preparation for measurement:

BD2-AK04(5,6)/LSD-3VA22-M-160-3-ET350-T

BD2 TOUs with 3VA and powerline communication:

BD2-AK03(4,5,6)/LSD-3VA22-M-160-3-ET350-PLT

BD2 powerline retrofit kits:

BD2-PLT-KIT-CT1-AK04(5,6)

BD2 repeater:

BD2-PLT-REP

Accessories for completing the busbar installation:

Accessories for tap-off units

For the tap-off units of sizes AK02, AK03, AK2, and AK3, ancillary equipment units are available for direct mounting: They make space for additional components.

To upgrade the degree of protection to IP55, sealing sets for retrofitting on site are available.

Fixing brackets

To install the busbars horizontally or vertically, different system fixing elements are available. You will find details of these in the chapter on configuration.

End flanges

To cover the final element of a busbar trunking system safely, an end flange is mounted.

Protective sleeves

To ensure mechanical protection in wall and ceiling cut-outs, a component for this purpose is available in the two sizes. This protective sleeve is not suitable as a fire barrier.

General data

Technical specifications

General system data

Type		BD2-...
Standards and specifications		IEC/EN 61439-1 and -6
Rated insulation voltage U_i	V AC/DC	690/800
Rated operational voltage and power transmission	V DC	800
Rated operational voltage U_e	V AC/DC	690/600
Frequency	Hz	0 ... 60[1)]
Rated current $I_{nA\ AC}$ / $I_{nA\ DC}$ (three-phase current / DC)		
• Aluminum busbars	A	160 ... 1000 / 277 ... 1732
• Copper busbars	A	160 ... 1250 / 277 ... 2165
Resistance to climate		
• Damp heat, steady state, according to IEC 60068-2-78		40 °C/93 %/RH/56d
• Damp heat, cyclic, according to IEC 60068-2-30		56 x (25 ... 40 °C/3 h; 40 °C/9 h; 40 ... 25 °C/3_..._6 h; 25 °C/6 h) 95 % RH
• Cold according to IEC 60068-2-1		-45 °C, 16 h
• Temperature change according to IEC 60068-2-14		-45 ... 55 °C; 5 cycles (1 °C/min); holding time min. 30 min
• Salt spray test according to IEC 60068-2-52		Severity grade 3
• Ice formation according to IEC 60068-2-61		Composite test of damp heat, cyclic [56x (25-40 °C/3h; 40 °C/9h; 40-25 °C/3-6h; 25 °C/6h)/95 %RH] + cold [-45 °C, 16 h]
Ambient temperature min./max./24-h mean	°C	-5/+40/+35
Environmental classes were derived from climatic resistance tests		
• Climatic		1K5 (storage) = 3K7L (operation without exposure to the sun); 2K2 (transport)
• Chemically active		Salt spray, more contaminants optional 1C2 (storage) = 3C2 (operation) = 2C2 (transport)
• Biological		Is covered by IP degrees of protection and type of packaging 1B2 (storage) = 3B2 (operation) = 2B2 (transport)
• Mechanically active		Is covered by IP degrees of protection and type of packaging 1S2 (storage) = 3S2 (operation) = 2S2 (transport)
Degree of protection according to IEC/EN 60529 (installation type 2)		
• Trunking units, without tap-off points		IP55
• Trunking units, without tap-off points, size 1[2)]		IP55
• Trunking units, without tap-off points, size 2[2)]		IP52, IP55 with additional equipment BD2-FAS
• Feeding units		IP54
• Tap-off units		IP54, IP55 with additional equipment BD2-AK ... IP55[3)]
• Junction units (L-, Z-elbow)		IP55
• Junction units (T-, flexible)		IP52
Material		
• Trunking units, feeding units, tap-off units (without BD2-AK1/...)		Sheet steel, galvanized and powder-coated (RAL 7035)
• BD2-AK1/... tap-off units		Molded-plastic enclosure, light gray (RAL 7035)
• Busbars		
- BD2A		Aluminum busbars, nickel-plated and tinned
- BD2C		Copper busbars, nickel-plated and tinned
Mounting position / installation location		Horizontal, vertical / indoors (outdoor installation on request)
Weights		See Selection and ordering data

1) Tap-off units 50 to 60 Hz

2) Size 1/2, see page 4/3.

3) See page 4/65, cannot be combined with tap-off units with device installation unit.

Trunking units with aluminum conductor

Type				BD2A-.-160	BD2A-.-250	BD2A-.-400
Conducting paths						
Rated insulation voltage U_i			V AC/DC	690/800	690/800	690/800
Rated operational voltage U_e			V AC/DC	690/600	690/600	690/600
Frequency			Hz	0 ... 60	0 ... 60	0 ... 60
Rated current $I_{nA\ AC}$ three-phase current			A	160	250	400
Rated current $I_{nA\ DC}$ direct current			A	277	433	693
Impedance per unit length of conducting paths with 50 Hz and 20 °C ambient temperature (cold bars)						
• Resistance		R_{20}	mΩ/m	0.527	0.315	0.176
• Reactance		X_{20}	mΩ/m	0.151	0.112	0.089
• Impedance		Z_{20}	mΩ/m	0.548	0.335	0.197
Impedance per unit length of conducting paths with 50 Hz and 20 °C ambient temperature (busbar in operationally warm condition)						
• Resistance		R_1	mΩ/m	0.780	0.467	0.260
• Reactance		X_1	mΩ/m	0.151	0.112	0.089
• Impedance		Z_1	mΩ/m	0.794	0.480	0.275
Impedance per unit length of conducting paths in the event of a fault						
• Resistance		R_F	mΩ/m	1.058	0.634	0.341
• Reactance		X_F	mΩ/m	0.299	0.220	0.193
• Impedance		Z_F	mΩ/m	1.099	0.671	0.392
Zero-sequence impedance according to IEC/EN 60909 (VDE 0102)	Phase to N	R_0	mΩ/m	2.166	1.329	0.789
		X_0	mΩ/m	0.918	0.753	0.639
		Z_0	mΩ/m	2.353	1.527	1.015
	Phase to PE	R_0	mΩ/m	2.166	1.329	0.786
		X_0	mΩ/m	0.897	0.735	0.624
		Z_0	mΩ/m	2.344	1.519	1.004
• Warm resistance / direct current per pole		R'_{dc_warm}	mΩ/m	0.377	0.219	0.118
• Resistance of conducting paths with 0 Hz and 20 °C busbar temperature		$R_{+/-\ 20}$	mΩ/m	0.255	0.148	0.080
• Resistance of conducting paths with 0 Hz and busbar in operationally warm condition		$R_{+/-\_warm}$	mΩ/m	0.377	0.219	0.118
• Resistance of conducting paths at 0 Hz and 20 °C busbar temperature		R_{PE_20}	mΩ/m	0.527	0.315	0.176
• Resistance of conducting paths with 0 Hz and busbar in operationally warm condition		R_{PE_warm}	mΩ/m	0.780	0.467	0.260
Short-circuit withstand strength						
• Rated peak withstand current I_{pk}			kA	17	32	40
• Rated short-time withstand current I_{cw}		t = 1 s	kA	5.5	10	16
		t = 0.1 s	kA	12	22	28
• Max. thermal load I^2t			$A^2s\ 10^6$	30.25	100	256
Number of conductors				5	5	5
Conductor material				Al	Al	Al
Conductor cross-section		L1, L2, L3	mm^2	63	108	205
		N	mm^2	63	108	205
		PE	mm^2	63	108	205
Busbar distribution for DC				+ / - / + / - / PE	+ / - / + / - / PE	+ / - / + / - / PE
Conductor cross-section		L+	mm^2	126	216	410
		L-	mm^2	126	216	410
		PE	mm^2	63	108	205
Max. fixing distances of trunking units at normal mechanical load						
• Conductor flat (enclosure: edgewise position)			m	4	4	4
• Conductor flat (enclosure: edgewise position) with BD2-BD[1)]			m	4	4	4
• Conductor edgewise (enclosure: flat position)			m	3.5	3.5	3.5
Fire load[2)]			kWh/m	1.32	1.32	1.32

1) When using BD2-BD spacer bracket.

2) Values for trunking units with tap-off points.
For more values, see page 4/16.

The equivalent copper cross-section of the exterior profile of the enclosure is:
- 64 mm^2 for size 1 up to 400 A
- 77 mm^2 for size 2 from 630 A to 1250 A

The following must be noted in this context:
1. This enclosure cross-section does not apply to the two flange covers at the connection point.
2. The complete enclosure comprises two enclosure halves and flange covers at the connection point. These items form part of the protective measures. The impact of the enclosure is taken into account in the measurements of the fault loops for the impedance in the event of a fault (Z_f) and for the impedance (Z_{20}) according to the currently valid technical specifications.

General data

Trunking units with aluminum conductor

Type				BD2A-.-630	BD2A-.-800	BD2A-.-1000
Conducting paths						
Rated insulation voltage U_i			V AC/DC	690/800	690/800	690/800
Rated operational voltage U_e			V AC/DC	690/600	690/600	690/600
Frequency			Hz	0 ... 60	0 ... 60	0 ... 60
Rated current $I_{nA\ AC}$ three-phase current			A	630	800	1000
Rated current $I_{nA\ DC}$ direct current			A	1091	1386	1732
Impedance per unit length of conducting paths with 50 Hz and 20 °C ambient temperature (cold bars)						
• Resistance		R_{20}	mΩ/m	0.093	0.076	0.048
• Reactance		X_{20}	mΩ/m	0.041	0.039	0.055
• Impedance		Z_{20}	mΩ/m	0.101	0.085	0.073
• Resistance of conducting paths with 0 Hz and 20 °C busbar temperature		$R_{+/-\ 20}$	mΩ/m	0.042	0.034	0.023
• Resistance of conducting paths with 0 Hz and busbar in operationally warm condition		$R_{+/-\_warm}$	mΩ/m	0.062	0.050	0.034
• Resistance of conducting paths at 0 Hz and 20 °C busbar temperature		R_{PE_20}	mΩ/m	0.093	0.076	0.148
• Resistance of conducting paths with 0 Hz and busbar in operationally warm condition		R_{PE_warm}	mΩ/m	0.137	0.112	0.072
Impedance per unit length of conducting paths with 50 Hz and 20 °C ambient temperature (busbar in operationally warm condition)						
• Resistance		R_1	mΩ/m	0.137	0.112	0.072
• Reactance		X_1	mΩ/m	0.041	0.039	0.055
• Impedance		Z_1	mΩ/m	0.143	0.119	0.090
• Warm resistance / direct current per pole		R'_{dc_warm}	mΩ/m	0.062	0.050	0.034
Impedance per unit length of conducting paths in the event of a fault						
• Resistance		R_F	mΩ/m	0.187	0.153	0.105
• Reactance		X_F	mΩ/m	0.079	0.076	0.069
• Impedance		Z_F	mΩ/m	0.203	0.171	0.125
Zero-sequence impedance according to IEC/EN 60909 (VDE 0102)	Phase to N	R_0	mΩ/m	0.414	0.348	0.252
		X_0	mΩ/m	0.321	0.300	0.276
		Z_0	mΩ/m	0.524	0.459	0.374
	Phase to PE	R_0	mΩ/m	0.411	0.345	0.252
		X_0	mΩ/m	0.315	0.297	0.276
		Z_0	mΩ/m	0.518	0.455	0.374
Short-circuit withstand strength						
• Rated peak withstand current I_{pk}			kA	64	84	90
• Rated short-time withstand current I_{cw}		t = 1 s	kA	26	32	34
		t = 0.1 s	kA	45	59	63
• Max. thermal load I^2t			$A^2s\ 10^6$	676	1024	1156
Number of conductors				5	5	5
Conductor material				Al	Al	Al
Conductor cross-section		L1, L2, L3	mm^2	381	446	699
		N	mm^2	381	446	699
		PE	mm^2	381	446	699
Busbar distribution for DC				+ / - / + / - / PE	+ / - / + / - / PE	+ / - / + / - / PE
Conductor cross-section		L+	mm^2	762	892	1398
		L-	mm^2	762	892	1398
		PE	mm^2	381	446	699
Max. fixing distances of trunking units at normal mechanical load						
• Conductor flat (enclosure: edgewise position)			m	3.5	3.5	3
• Conductor flat (enclosure: edgewise position) with BD2-BD[1)]			m	1.75	1.75	1.5
• Conductor edgewise (enclosure: flat position)			m	3	3	2.5
Fire load[2)]			kWh/m	2	2	2

1) When using BD2-BD spacer bracket.

2) Values for trunking units with tap-off points.
For more values, see page 4/16.

Trunking units with copper conductor

Type				BD2C-.-160	BD2C-.-250	BD2C-.-400
Conducting paths						
Rated insulation voltage U_i			V AC/DC	690/800	690/800	690/800
Rated operational voltage U_e			V AC/DC	690/600	690/600	690/600
Frequency			Hz	0 ... 60	0 ... 60	0 ... 60
Rated current $I_{nA\ AC}$ three-phase current			A	160	250	400
Rated current $I_{nA\ DC}$ direct current			A	277	433	693
Impedance per unit length of conducting paths with 50 Hz and 20 °C ambient temperature (cold bars)						
• Resistance		R_{20}	mΩ/m	0.311	0.311	0.139
• Reactance		X_{20}	mΩ/m	0.143	0.143	0.088
• Impedance		Z_{20}	mΩ/m	0.342	0.342	0.164
• Resistance of conducting paths with 0 Hz and 20 °C busbar temperature		$R_{+/-\ 20}$	mΩ/m	0.147	0.147	0.063
• Resistance of conducting paths with 0 Hz and busbar in operationally warm condition		$R_{+/-\_warm}$	mΩ/m	0.218	0.218	0.093
• Resistance of conducting paths at 0 Hz and 20 °C busbar temperature		R_{PE_20}	mΩ/m	0.311	0.311	0.139
• Resistance of conducting paths with 0 Hz and busbar in operationally warm condition		R_{PE_warm}	mΩ/m	0.460	0.460	0.206
Impedance per unit length of conducting paths with 50 Hz and 20 °C ambient temperature (busbar in operationally warm condition)						
• Resistance		R_1	mΩ/m	0.460	0.460	0.206
• Reactance		X_1	mΩ/m	0.143	0.143	0.088
• Impedance		Z_1	mΩ/m	0.482	0.482	0.224
• Warm resistance / direct current per pole		R'_{dc_warm}	mΩ/m	0.218	0.218	0.093
Impedance per unit length of conducting paths in the event of a fault						
• Resistance		R_F	mΩ/m	0.625	0.625	0.281
• Reactance		X_F	mΩ/m	0.281	0.281	0.169
• Impedance		Z_F	mΩ/m	0.685	0.685	0.327
Zero-sequence impedance according to IEC/EN 60909 (VDE 0102)	Phase to N	R_0	mΩ/m	1.308	1.311	0.642
		X_0	mΩ/m	0.879	0.882	0.621
		Z_0	mΩ/m	1.576	1.580	0.893
	Phase to PE	R_0	mΩ/m	1.308	1.311	0.639
		X_0	mΩ/m	0.855	0.861	0.612
		Z_0	mΩ/m	1.563	1.568	0.885
Short-circuit withstand strength						
• Rated peak withstand current I_{pk}			kA	17	32	40
• Rated short-time withstand current I_{cw}		t = 1 s	kA	5.5	10	16
		t = 0.1 s	kA	12	22	28
• Max. thermal load I^2t			$A^2s\ 10^6$	30.25	100	256
Number of conductors				5	5	5
Conductor material				Cu	Cu	Cu
Conductor cross-section		L1, L2, L3	mm^2	63	63	146
		N	mm^2	63	63	146
		PE	mm^2	63	63	146
Busbar distribution for DC				+ / - / + / - / PE	+ / - / + / - / PE	+ / - / + / - / PE
Conductor cross-section		L+	mm^2	126	126	292
		L-	mm^2	126	126	292
		PE	mm^2	63	63	146
Max. fixing distances of trunking units at normal mechanical load						
• Conductor flat (enclosure: edgewise position)			m	4	4	4
• Conductor flat (enclosure: edgewise position) with BD2-BD[1)]			m	4	4	4
• Conductor edgewise (enclosure: flat position)			m	3.5	3.5	3.5
Fire load[2)]			kWh/m	1.32	1.32	1.32

1) When using BD2-BD spacer bracket.

2) Values for trunking units with tap-off points.
For more values, see page 4/16.

General data

Trunking units with copper conductor

Type				BD2C-.-630	BD2C-.-800	BD2C-.-1000	BD2C-.-1250
Conducting paths							
Rated insulation voltage U_i			V AC/DC	690/800	690/800	690/800	690/800
Rated operational voltage U_e			V AC/DC	690/600	690/600	690/600	690/600
Frequency			Hz	0 ... 60	0 ... 60	0 ... 60	0 ... 60
Rated current $I_{nA\ AC}$ three-phase current			A	630	800	1000	1250
Rated current $I_{nA\ DC}$ direct current			A	1091	1386	1732	2165
Impedance per unit length of conducting paths with 50 Hz and 20 °C ambient temperature (cold bars)							
• Rresistance		R_{20}	mΩ/m	0.050	0.050	0.044	0.030
• Reactance		X_{20}	mΩ/m	0.038	0.038	0.038	0.035
• Impedance		Z_{20}	mΩ/m	0.063	0.063	0.058	0.046
• Resistance of conducting paths with 0 Hz and 20 °C busbar temperature		$R_{+/-\ 20}$	mΩ/m	0.022	0.022	0.020	0.013
• Resistance of conducting paths with 0 Hz and busbar in operationally warm condition		$R_{+/-\_warm}$	mΩ/m	0.033	0.033	0.030	0.019
• Resistance of conducting paths at 0 Hz and 20 °C busbar temperature		R_{PE_20}	mΩ/m	0.050	0.050	0.044	0.030
• Resistance of conducting paths with 0 Hz and busbar in operationally warm condition		R_{PE_warm}	mΩ/m	0.066	0.074	0.066	0.045
Impedance per unit length of conducting paths with 50 Hz and 20 °C ambient temperature (busbar in operationally warm condition)							
• Resistance		R_1	mΩ/m	0.066	0.074	0.066	0.045
• Reactance		X_1	mΩ/m	0.038	0.038	0.038	0.035
• Impedance		Z_1	mΩ/m	0.076	0.083	0.076	0.057
• Warm resistance / direct current per pole		R'_{dc_warm}	mΩ/m	0.033	0.033	0.030	0.019
Impedance per unit length of conducting paths in the event of a fault							
• Resistance		R_F	mΩ/m	0.101	0.101	0.090	0.062
• Reactance		X_F	mΩ/m	0.073	0.073	0.071	0.065
• Impedance		Z_F	mΩ/m	0.125	0.125	0.114	0.090
Zero-sequence impedance according to IEC/EN 60909 (VDE 0102)	Phase to N	R_0	mΩ/m	0.243	0.243	0.219	0.165
		X_0	mΩ/m	0.279	0.279	0.279	0.258
		Z_0	mΩ/m	0.370	0.370	0.355	0.306
	Phase to PE	R_0	mΩ/m	0.243	0.243	0.219	0.162
		X_0	mΩ/m	0.279	0.279	0.276	0.252
		Z_0	mΩ/m	0.370	0.370	0.352	0.300
Short-circuit withstand strength							
• Rated peak withstand current I_{pk}			kA	64	84	90	90
• Rated short-time withstand current I_{cw}		t = 1 s	kA	26	32	34	34
		t = 0.1 s	kA	45	59	63	63
• Max. thermal load I^2t			$A^2s\ 10^6$	676	1024	1156	1156
Number of conductors				5	5	5	5
Conductor material				Cu	Cu	Cu	Cu
Conductor cross-section		L1, L2, L3	mm^2	415	415	468	699
		N	mm^2	415	415	468	699
		PE	mm^2	415	415	468	699
Busbar distribution for DC				+ / - / + / - / PE	+ / - / + / - / PE	+ / - / + / - / PE	+ / - / + / - / PE
Conductor cross-section		L+	mm^2	830	830	936	1398
		L-	mm^2	830	830	936	1398
		PE	mm^2	415	415	468	699
Max. fixing distances of trunking units at normal mechanical load							
• Conductor flat (enclosure: edgewise position)			m	4	3.5	3	2
• Conductor flat (enclosure: edgewise position) with BD2-BD[1)]			m	2	1.75	1.5	1
• Conductor edgewise (enclosure: flat position)			m	3.5	3	2.5	1.5
Fire load[2)]			kWh/m	2	2	2	2

1) When using BD2-BD spacer bracket.

2) Values for trunking units with tap-off points.
For more values, see page 4/16.

Tap-off units

Type	BD2-...		
	AK1	AK2	AK3
Rated current I_n	25 A	63 A	125 A
Switching capacity of contact system	AC-22B	--	--
Switching capacity of the built-in disconnector according to IEC/EN 60947-3 at 400 V	--	AC-22B	AC-21B
Max. admissible rated prospective short-circuit withstand current when tap-off units with miniature circuit breakers are used:	10 kA_{rms}: For higher prospective short-circuit currents, the "back-up protection"[1] for the miniature circuit breakers must be noted. 25 kA_{rms}: For higher rated prospective short-circuit currents, the upstream switching and protection device must limit to: - max. let-through energy I^2t = 12 × 10^4 A^2s; - max. let-through current I_D = 9.5 kA		

Important configuring notes:

Not every tap-off unit has a rated voltage of 690 V and a short-circuit withstand strength according to the system value.

The short-circuit withstand strength and rated voltage of the tap-off units used in a system must be appropriate for it.

If the rated voltage of a tap-off unit does not match, choose one equipped with the appropriate components. Higher short-circuit currents must be limited by upstream switching and protection devices (e.g. circuit breakers).

Feeding units

Conductor cross-sections (geometric)[1]

Version	Type	L1, L2, L3		N		PE		Size of terminal screws, bolts L1, L2, L3, N, PE
		min. mm^2	max. mm^2	min. mm^2	max. mm^2	min. mm^2	max. mm^2	
Feeding units with bolt terminal	BD2.-250-EE	(1–3) × 6	1 × 150, 2 × 70	(1–3) × 6	1 × 150, 2 × 70	(1–3) × 6	1 × 150, 2 × 70	M10
	BD2.-400-EE	(1–3) × 10 [2]	1 × 240, 2 × 120	(1–3) × 10 [2]	1 × 240, 2 × 120	(1–3) × 10 [2]	1 × 240, 2 × 120	M12
	BD2.-1000-EE	(1–3) × 10 [2]	3 × 240	(1–3) × 10 [2]	3 × 240	(1–3) × 10 [2]	2 × 240, 3 × 185	M12
	BD2.-1250-EE	(1–4) × 10 [2]	3 × 300, 4 × 240	(1–4) × 10 [2]	3 × 300, 4 × 240	(1–4) × 10 [2]	3 × 300, 4 × 240	M12
Feeding units with switch disconnector	BD2C-250 (315)-EESC	1 × 10 [2]	1 × 240	1 × 10 [2]	1 × 240	Armoring		M10
	BD2C-400-EESC	1 × 10 [2]	1 × 240, 2 × 120	1 × 10 [2]	1 × 240, 2 × 120	Armoring		M12
	BD2C-630 (800) -EESC	1 × 10 [2]	2 × 240	1 × 10 [2]	2 × 240	Armoring		M12
Center feeding units with bolt terminal	BD2.-400-ME	(1–3) × 10 [2]	2 × 240, 3 × 185	(1–3) × 10 [2]	2 × 240, 3 × 185	(1–3) × 10 [2]	2 × 240, 3 × 185	M12
	BD2.-1000-ME	(1–5) × 10 [2]	(1–5) × 300	(1–5) × 10 [2]	(1–5) × 300	(1–5) × 10 [2]	(1–5) × 300	M12

[1] Conductor cross-sections relate to Cu cables. Cross-sections and diameters for Al cables on request.

[2] Minimum possible cable cross-section for cable lugs.

Cable and wiring entries

Type		BD2.-250-EE	BD2.-400-EE	BD2.-1000-EE, BD2.-400-ME	BD2.-1000-ME	BD2.-1250-EE
Cable grommets		1 × KT3[1]	2 × KT4[1]	3 × KT4[1]	6 × KT4[1]	4 × KT4[1]
For cable diameter	mm	14 ... 54	14 ... 68	14 ... 68	14 ... 68	14 ... 68

[1] With strain relief.

Cable entry plate for single-conductor configuration (undrilled cable entry plates)

Type	BD2.-250-EE	BD2.-400-EE	BD2.-1000-EE	BD2.-1250-EE
Cable entry plate	BD2-250-EBAL	BD2-400-EBAL	BD2-1000-EBAL	BD2-1250-EBAL
Number of cable entries (maximum)	10 × M32, 5 × M40	10 × M40	15 × M40, 6 × M50 and 4 × M40	20 × M40

Use plastic cable glands with strain relief (not included in scope of supply).

Cable entry plate for single-conductor configuration with center feeding units (undrilled cable entry plates)

Type	BD2.-400-ME...	BD2.-1000-ME
Cable entry plate	BD2-400-MBAL	BD2-1000-MBAL
Number of cable entries (maximum)	12 × M40 and 3 × M32, 6 × M50 and 4 × M40	31 × M40, 16 × M50 and 4 × M40

Use plastic cable glands with strain relief (not included in scope of supply).

General data

Tap-off units

Conductor cross-sections (geometric)[1)]

Designation	Type	L1, L2, L3		N		PE		Size of terminal screws, bolts L1, L2, L3, PE, N
		min. mm^2	max. mm^2	min. mm^2	max. mm^2	min. mm^2	max. mm^2	
Up to 25 A	BD2-AK1/S14	0.5 (f, st)	4 (so)	1 (so, f, st)	6 (so, st)	1 (so, f, st)	6 (so, st)	--
	BD2-AK1/S18	0.5 (f, st)	16 (so, f, st)	1 (so, f, st)	6 (so, st)	1 (so, f, st)	6 (so, st)	--
	BD2-AK1/A...	0.75 (so, st)	16 (so)	1 (so, f, st)	6 (so, st)	1 (so, f, st)	6 (so, st)	--
	BD2-AK1/A...N	0.75 (so, st)	16 (so)	0.75 (so, st)	16 (so)	1 (so, f, st)	6 (so, st)	--
	BD2-AK1/F...	0.75 (so, st)	16 (so)	1 (so, st)	6 (so)	1 (so, f, st)	6 (so, st)	--
	BD2-AK1/F...N	0.75 (so, st)	16 (so)	0.75 (so, st)	16 (so)	1 (so, f, st)	6 (so, st)	--
Up to 63 A	BD2-AK.2X/S18	0.5 (f, st)	25 (f, st)	1 (so, f, st)	16 (so, st)	1 (so, f, st)	16 (so, st)	--
	BD2-AK.2X/S27	0.75 (f, st)	10 (so, f, st)	1 (so, f, st)	6 (so, st)	1 (so, f, st)	6 (so, st)	--
	BD2-AK.2X/S33	1.5 (f, st)	25 (f, st)	2.5 (so, f, st)	16 (so, st)	2.5 (so, f, st)	16 (so, st)	--
	BD2-AK.2M2/A...	0.75 (so, st)	25 (st)	2.5 (so, f, st)	25 (st)	2.5 (so, f, st)	25 (st)	--
	BD2-AK.2M2/A...N	0.75 (so, st)	25 (st)	0.75 (so, f, st)	25 (st)	2.5 (so, f, st)	25 (st)	--
	BD2-AK.2X/F...	0.75 (so, st)	25 (st)	2.5 (so, f, st)	25 (st)	2.5 (so, f, st)	25 (st)	--
Up to 125 A	BD2-AK03X/F... (FS...)	2.5 (so, st)	50 (st)	2.5 (so, st)	50 (st)	2.5 (so, st)	50 (st)	--
	BD2-AK03X/LSD40-LSD125	2.5 (so, st)	50 (st)	2.5 (so, st)	50 (st)	2.5 (so, st)	50 (st)	--
	BD2-AK3X/GS00	16	70	16	50	10	50	M8
	BD2-AK.3X/GSTZ(A)00	16	70	16	50	10	50	M8
Up to 250 A	BD2-AK04/SNH1	6	150	6	150	6	150	M10
	BD2-AK04/FS...	6	150	6	150	6	150	M10
	BD2-AK04/LS...	6	120 (st)	6 (so, st)	150	6	150	M8
Up to 400 A	BD2-AK05/SNH2	10	2 × 120	10	2 × 120	10	2 × 120	M10
	BD2-AK05/FS...	10	2 × 120	10	2 × 120	10	2 × 120	M10
	BD2-AK05/LS...	10	2 × 120	10	2 × 120	10	2 × 120	M10
Up to 530 A	BD2-AK06/SNH3	10	2 × 240	10	2 × 240	10	2 × 240	M12
	BD2-AK06/LS...	10	2 × 240	10	2 × 240	10	2 × 240	M12

so = solid, st = stranded, f = finely stranded with end sleeve

1) Conductor cross-sections relate to Cu cables with circular conductors.

Cable and wiring entries

Type		BD2-AK1/...	BD2-AK.2...	BD2-AK.3...	BD2-AK04	BD2-AK05	BD2-AK06
Cable grommets		M25[1)]	–	–	KT3[2)]	2 × KT4[2)]	2 × KT4[2)]
Cable glands[3)]		–	M25, M32, M40	M25, M63	–	–	–
For cable diameter[4)]	mm	11 ... 16	11 ... 27	11 ... 42	14 ... 54	14 ... 68	14 ... 68
Min./max. cable entry capacity for multi-core cables							
• NYY...	mm^2	5 × 1.5 to 5 × 4	5 × 1.5 to 5 × 16	5 × 1.5 to 5 × 25	–	–	–
• NYCWY...[5)]	mm^2	4 × 1.5 to 4 × 2.5	4 × 1.5 to 4 × 16	4 × 1.5 to 4 × 50	5 × 1.5 to 4 × 150	2 × 5 × 1.5 to 2 × 4 × 150	2 × 5 × 10 to 2 × 4 × 240
Cable entry plate for singe-core cable (plates fitted, undrilled)							
• Max. number of cable entries		–	–	–	10 × M40	10 × M32, 5 × M40	10 × M40

1) Strain relief in BD2-AK1/...

2) With strain relief.

3) For cable glands: Use plastic cable glands with strain relief (not included in scope of supply).

4) Diameter values relate to Cu cables. Cross-sections and diameters for Al cables on request.

5) Fifth conductor: concentric conductor.

Connection of aluminum cables in tap-off units, incoming cable connection units

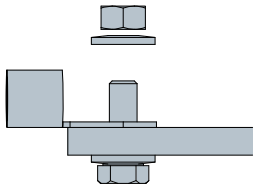
When using aluminum cables, special connection conditions must be taken into account.

Cable lug, connection accessories

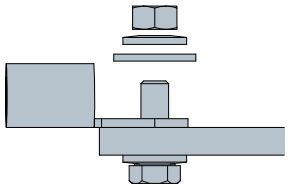
- When using special aluminum/copper cable lugs, the connection accessories delivered as standard can be used.
- When using aluminum cable lugs with copper insert, the connection accessories delivered as standard can be used if the diameter of the copper insert is at least equal or greater than the outside diameter of the delivered conical spring washer.
- When using aluminum cable lugs without copper insert, an additional "oversized" plain washer (according to ISO 7093) must be added to each cable lug (see ex.). This may require the delivered bolt to be replaced by a longer bolt.

  The aluminum cable lug used must be galvanically tinned.

Example: Connection of cable lug to connection lug



Connection of copper cable lug with standard connection accessories



Connection of aluminum cable lug with additional washer according to ISO 7093

Insertion in tap-off and feeding units

Due to the numerous manufacturers of aluminum cables and aluminum cable lugs available on the market, with partly differing dimensions, the customer must check to which extent the cable lugs and aluminum cables can be inserted in the tap-off or feeding units and connected.

In this context, the manufacturer specifications for the bending radii of the cables must be particularly observed. Insertion at the front face is recommended.

Particular attention must be paid to compliance with clearances in air and creepage distances at the connection lugs. Additional measures may be required (e.g. with phase barriers, insulation of cable lugs, etc.).

General data

Fire loads

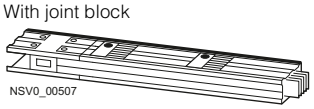
Type (without single-bolt joint block)	Fire load kWh/m
Trunking units	
BD2.-.-160-SB-.	1.32
BD2.-.-160-WB-.	1.32
BD2.-.-250-SB-.	1.32
BD2.-.-250-WB-.	1.32
BD2.-.-400-SB-.	1.32
BD2.-.-400-WB-.	1.32
BD2.-.-400-SO-.	0.60
BD2.-.-400-WO-.	0.60
BD2.-.-630-SB-.	2.00
BD2.-.-630-WB-.	2.00
BD2.-.-630-SO-.	0.67
BD2.-.-630-WO-.	0.67
BD2.-.-800-SB-.	2.00
BD2.-.-800-WB-.	2.00
BD2.-.-800-SO-.	0.67
BD2.-.-800-WO-.	0.67
BD2.-.-1000-SB-.	2.00
BD2.-.-1000-WB-.	2.00
BD2.-.-1000-SO-.	0.67
BD2.-.-1000-WO-.	0.67
BD2.-.-1250-SB-.	2.00
BD2.-.-1250-WB-.	2.00
BD2.-.-1250-SO-.	0.67
BD2.-.-1250-WO-.	0.67
Junction units	
BD2.-400-L..	1.27
BD2.-400-Z..	1.88
BD2.-1000-L..	1.27
BD2.-1250-L..	1.27
BD2.-1250-Z..	1.88
BD2.-400-T..	2.00
BD2.-1000-T..	2.00
BD2.-1250-T..	2.00
Feeding units	kWh
BD2.-250-EE	3.20
BD2.-250-VE	3.00
BD2.-400-EE	3.50
BD2.-400-ME	3.90
BD2.-400-VE	3.20
BD2.-1000-EE	3.80
BD2.-1250-EE	4.10
BD2.-1000-VE	3.60
BD2.-1250-VE	4.00
BD2-1000-ME	8.10
Ancillary equipment units	
BD2-GKX/F	0.4
BD2-GKM2/F	1.5

Type	Fire load kWh
Tap-off units	
BD2-AK1/S14	6.9
BD2-AK1/S18	6.9
BD2-AK1/A163	5.83
BD2-AK1/CEE165S14	8.5
BD2-AK1/CEE165A163	8.7
BD2-AK1/2CEE163S14	9.5
BD2-AK1/2CEE163A161	7.5
BD2-AK1/3SD163S14	8
BD2-AK1/3SD163A161	8.3
BD2-AK.2X/S18	4.8
BD2-AK.2X/S27	2.94
BD2-AK.2X/S33	2.94
BD2-AK2X/CEE325S33	4.57
BD2-AK.2M2/A323	5.1
BD2-AK2M2/CEE325A323	6.7
BD2-AK2X/CEE635S33	5.8
BD2-AK2X/2CEE165S14	7.9
BD2-AK2X/2CEE165S27/FORMP	6.1
BD2-AK2M2/2SD163CEE165A163	6.9
BD2-AK2M2/2CEE165A163	9.4
BD2-AK.2M2/A323N	5.1
BD2-AK.2M2/A633	5
BD2-AK.2M2/A633N	5.3
BD2-AK.2X/F1451-3(N)	5.9
BD2-AK.2X/F2258-3(N)	6.1
BD2-AK.2X/F1451-3(N)	5.9
BD2-AK.3X/GS00	8.07
BD2-AK.3X/GST.00	9.07
BD2-AK03M2/A1253(N)	5.7
BD2-AK04/SNH1	10.12
BD2-AK04/FS...-3	16.65
BD2-AK04/FS...-4	20.0
BD2-AK05/SNH2	12.16
BD2-AK05/FS...-3	18.6
BD2-AK05/FS...-4	22.0
BD2-AK06/SNH3	14.2
BD2-AK04/LSD(M)-3VA.-3	17
BD2-AK05/LSD(M)-3VA.-3	19
BD2-AK06/LSD(M)-3VA...-3.	22
BD2-AK04/LSD(M)-3VA.-4	20
BD2-AK05/LSD(M)-3VA.-4	23
BD2-AK06/LSD(M)-3VA...-4.	26
Additional equipment	
BD2-400-EK	1.64
BD2-400-FE	–
BD2-400-BB	–
BD2-400-HF	–
BD2-400-HFE	–
BD2-400-VF	–
BD2-1250-EK	2.46
BD2-1250-FE	–
BD2-1250-BB	–
BD2-1250-HF	–
BD2-1250-HFE	–

Type	Fire load kWh
BD2-FAS	–
BD2-AK...-IP55	–
BD2-400-FS.	–
BD2-1250-FS.	–
BD2-SD163	0.1
BD2-CEE163	0.2
BD2-CEE165	0.2
BD2-CEE325	0.3
BD2-AG	–
BD2-APO	–
BD2-APM	–

Selection and ordering data

With aluminum busbars

Version	Rated current I_{nA}	Length	Tap-off points		SD	Tap-off point distance 0.5 m L1, L2, L3, N, PE		PS*/ P. unit	Weight per unit
			Number	Spacing					
	A	m		m	d	Type	Article No.		kg
Standard lengths, with tap-off points on both sides									
With joint block  NSV0_00507	160	3.25	12	0.5	X	**BD2A-3-160-SB-3**	**BVP:261480**	1 unit	20.000
		2.25	8	0.5	X	**BD2A-3-160-SB-2**	**BVP:261479**	1 unit	14.000
		1.25	4	0.5	X	**BD2A-3-160-SB-1**	**BVP:261478**	1 unit	8.400
	250	3.25	12	0.5	X	**BD2A-3-250-SB-3**	**BVP:261483**	1 unit	22.200
		2.25	8	0.5	X	**BD2A-3-250-SB-2**	**BVP:261482**	1 unit	16.500
		1.25	4	0.5	X	**BD2A-3-250-SB-1**	**BVP:261481**	1 unit	8.600
	400	3.25	12	0.5	X	**BD2A-3-400-SB-3**	**BVP:261489**	1 unit	26.000
		2.25	8	0.5	X	**BD2A-3-400-SB-2**	**BVP:261488**	1 unit	19.000
		1.25	4	0.5	X	**BD2A-3-400-SB-1**	**BVP:261487**	1 unit	12.000
	630	3.25	12	0.5	X	**BD2A-3-630-SB-3**	**BVP:261501**	1 unit	39.900
		2.25	8	0.5	X	**BD2A-3-630-SB-2**	**BVP:261500**	1 unit	27.500
		1.25	4	0.5	X	**BD2A-3-630-SB-1**	**BVP:261499**	1 unit	19.100
	800	3.25	12	0.5	X	**BD2A-3-800-SB-3**	**BVP:261507**	1 unit	39.900
		2.25	8	0.5	X	**BD2A-3-800-SB-2**	**BVP:261506**	1 unit	27.500
		1.25	4	0.5	X	**BD2A-3-800-SB-1**	**BVP:261505**	1 unit	19.100
	1000	3.25	12	0.5	X	**BD2A-3-1000-SB-3**	**BVP:261513**	1 unit	51.000
		2.25	8	0.5	X	**BD2A-3-1000-SB-2**	**BVP:261512**	1 unit	35.000
		1.25	4	0.5	X	**BD2A-3-1000-SB-1**	**BVP:261511**	1 unit	23.200
Standard lengths, without tap-off points									
With joint block  NSV0_00508	400	3.25	--	--	X	**BD2A-3-400-SO-3**	**BVP:261492**	1 unit	25.300
		2.25	--	--	X	**BD2A-3-400-SO-2**	**BVP:261491**	1 unit	19.000
		1.25	--	--	X	**BD2A-3-400-SO-1**	**BVP:261490**	1 unit	12.000
	630	3.25	--	--	X	**BD2A-3-630-SO-3**	**BVP:261504**	1 unit	40.900
		2.25	--	--	X	**BD2A-3-630-SO-2**	**BVP:261503**	1 unit	28.500
		1.25	--	--	X	**BD2A-3-630-SO-1**	**BVP:261502**	1 unit	19.600
	800	3.25	--	--	X	**BD2A-3-800-SO-3**	**BVP:261510**	1 unit	40.900
		2.25	--	--	X	**BD2A-3-800-SO-2**	**BVP:261509**	1 unit	28.500
		1.25	--	--	X	**BD2A-3-800-SO-1**	**BVP:261508**	1 unit	19.600
	1000	3.25	--	--	X	**BD2A-3-1000-SO-3**	**BVP:261516**	1 unit	52.000
		2.25	--	--	X	**BD2A-3-1000-SO-2**	**BVP:261515**	1 unit	36.000
		1.25	--	--	X	**BD2A-3-1000-SO-1**	**BVP:261514**	1 unit	23.700
Length adaptable by the customer, without tap-off points, without fire barriers									
With joint block  NSV0_00508	400	1.25	--	--	X	**BD2A-400-WO-AL**	**BVP:611350**	1 unit	12.000
	1000	1.25	--	--	X	**BD2A-1000-WO-AL**	**BVP:611351**	1 unit	23.700
Length for ship bulkhead, A60									
With joint block  NSV0_00508	160	1.25	--	--	X	**BD2A-3-160-SO-1-A60**	**BVP:662547**	1 unit	8.400
	250	1.25	--	--	X	**BD2A-3-250-SO-1-A60**	**BVP:662548**	1 unit	8.600
	400	1.25	--	--	X	**BD2A-3-400-SO-1-A60**	**BVP:662549**	1 unit	12.000
	630	1.25	--	--	X	**BD2A-3-630-SO-1-A60**	**BVP:662550**	1 unit	19.600
	800	1.25	--	--	X	**BD2A-3-800-SO-1-A60**	**BVP:662551**	1 unit	19.600
	1000	1.25	--	--	X	**BD2A-3-1000-SO-1-A60**	**BVP:662552**	1 unit	23.700

Configuration details on request.

Special colors available on request.

Version	SD	Type suffix	Article No.	PS*/ P. unit	Weight per unit
	d				kg
Fire barriers (optional, installed in the factory)					
Fire barriers EI 90	X	**+BD2A-400-EI90-SLBX***	**BVP:662598**	1 unit	1.000
Fire barriers EI 90	X	**+BD2A-1000-EI90-SLBX***	**BVP:662599**	1 unit	1.000
Fire barriers EI 120	X	**+BD2A-400-EI120-SLBX***	**BVP:662600**	1 unit	1.500
Fire barriers EI 120	X	**+BD2A-1000-EI120-SLBX***	**BVP:662601**	1 unit	1.500

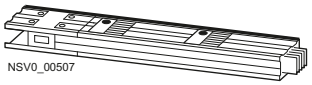
For BX* you must specify the required dimension from the center of the joint block (end without joint block) to the center of the fire wall or fire ceiling.

For the configuration of the fire barrier, see page 4/87.

For approval in Germany:
BD2-S90(S120)-ZUL-D fire barrier approval kit,
see page 4/65.

Trunking units

With aluminum busbars

Version	Rated current I_{nA}	Length	Tap-off points		SD	**Tap-off point distance 0.5 m L1, L2, L3, N, PE**		PS*/ P. unit	Weight per unit
			Number	Spacing					
	A	m		m	d	Type	Article No.		kg
Optional lengths, with tap-off points on both sides									
With joint block  NSV0_00507	160	2.26 ... 3.24	8 ... 12	0.5	X	**BD2A-3-160-WB-3W***	**BVP:261517**	1 unit	20.000
		1.26 ... 2.24	4 ... 8	0.5	X	**BD2A-3-160-WB-2W***	**BVP:261518**	1 unit	15.000
	250	2.26 ... 3.24	8 ... 12	0.5	X	**BD2A-3-250-WB-3W***	**BVP:261519**	1 unit	21.900
		1.26 ... 2.24	4 ... 8	0.5	X	**BD2A-3-250-WB-2W***	**BVP:261520**	1 unit	16.300
	400	2.26 ... 3.24	8 ... 12	0.5	X	**BD2A-3-400-WB-3W***	**BVP:261523**	1 unit	25.300
		1.26... 2.24	4 ... 8	0.5	X	**BD2A-3-400-WB-2W***	**BVP:261524**	1 unit	18.500
	630	2.26 ... 3.24	8 ... 12	0.5	X	**BD2A-3-630-WB-3W***	**BVP:261527**	1 unit	45.900
		1.26 ... 2.24	4 ... 8	0.5	X	**BD2A-3-630-WB-2W***	**BVP:261528**	1 unit	31.500
	800	2.26 ... 3.24	8 ... 12	0.5	X	**BD2A-3-800-WB-3W***	**BVP:261529**	1 unit	45.900
		1.26... 2.24	4 ... 8	0.5	X	**BD2A-3-800-WB-2W***	**BVP:261530**	1 unit	31.500
	1000	2.26 ... 3.24	8 ... 12	0.5	X	**BD2A-3-1000-WB-3W***	**BVP:261531**	1 unit	57.000
		1.26 ... 2.24	4 ... 8	0.5	X	**BD2A-3-1000-WB-2W***	**BVP:261532**	1 unit	39.000
Optional lengths, without tap-off points									
With joint block  NSV0_00508	400	2.26 ... 3.24	--	--	X	**BD2A-3-400-WO-3W***	**BVP:261533**	1 unit	25.300
		1.26 ... 2.24	--	--	X	**BD2A-3-400-WO-2W***	**BVP:261534**	1 unit	18.500
		0.50 ... 1.24	--	--	X	**BD2A-3-400-WO-1W***	**BVP:261535**	1 unit	11.600
	630	2.26 ... 3.24	--	--	X	**BD2A-3-630-WO-3W***	**BVP:261539**	1 unit	45.900
		1.26 ... 2.24	--	--	X	**BD2A-3-630-WO-2W***	**BVP:261540**	1 unit	31.500
		0.50 ... 1.24	--	--	X	**BD2A-3-630-WO-1W***	**BVP:261541**	1 unit	19.900
	800	2.26 ... 3.24	--	--	X	**BD2A-3-800-WO-3W***	**BVP:261542**	1 unit	45.900
		1.26 ... 2.24	--	--	X	**BD2A-3-800-WO-2W***	**BVP:261543**	1 unit	31.500
		0.50 ... 1.24	--	--	X	**BD2A-3-800-WO-1W***	**BVP:261544**	1 unit	19.900
	1000	2.26 ... 3.24	--	--	X	**BD2A-3-1000-WO-3W***	**BVP:261545**	1 unit	57.000
		1.26 ... 2.24	--	--	X	**BD2A-3-1000-WO-2W***	**BVP:261546**	1 unit	39.000
		0.50 ... 1.24	--	--	X	**BD2A-3-1000-WO-1W***	**BVP:261547**	1 unit	24.000

Special colors available on request.

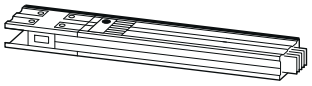
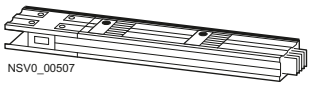
Version	SD	Type suffix	Article No.	PS*/ P. unit	Weight per unit
	d				kg
Fire barriers (optional, installed in the factory)					
Fire barriers EI 90	X	**+BD2A-400-EI90-SLBX***	**BVP:662598**	1 unit	1.000
Fire barriers EI 90	X	**+BD2A-1000-EI90-SLBX***	**BVP:662599**	1 unit	1.000
Fire barriers EI 120	X	**+BD2A-400-EI120-SLBX***	**BVP:662600**	1 unit	1.500
Fire barriers EI 120	X	**+BD2A-1000-EI120-SLBX***	**BVP:662601**	1 unit	1.500

For BX* you must specify the required dimension from the center of the joint block (end without joint block) to the center of the fire wall or fire ceiling.

For the configuration of the fire barrier, see page 4/87.

For approval in Germany:
BD2-S90(S120)-ZUL-D fire barrier approval kit,
see page 4/65.

With aluminum busbars

Version	Rated current I_{nA}	Length	Tap-off points		SD	**Tap-off point distance 0.5 m L1, L2, L3, N, PE**		PS*/ P. unit	Weight per unit
			Number	Spacing					
	A	m		m	d	Type	Article No.		kg
Optional lengths, with one tap-off point (eMobility length)									
With joint block 	160	2.26 ... 3.24	1	--	X	**BD2A-3-160-W1-3W***	**8PS5203-0AA00-0AA1**	1 unit	20.000
	250	2.26 ... 3.24	1	--	X	**BD2A-3-250-W1-3W***	**8PS5203-0AA00-0AA3**	1 unit	21.900
	400	2.26 ... 3.24	1	--	X	**BD2A-3-400-W1-3W***	**8PS5203-0AA00-0AA5**	1 unit	25.300
	630	2.26 ... 3.24	1	--	X	**BD2A-3-630-W1-3W***	**8PS5203-0AA00-0AA7**	1 unit	45.900
	800	2.26 ... 3.24	1	--	X	**BD2A-3-800-W1-3W***	**8PS5203-0AA00-1AA0**	1 unit	45.900
	1000	2.26 ... 3.24	1	--	X	**BD2A-3-1000-W1-3W***	**8PS5203-0AA00-1AA2**	1 unit	57.000
Optional lengths, with two tap-off points on one side (eMobility length)									
With joint block 	160	2.26 ... 3.24	2	--	X	**BD2A-3-160-W2-3W***	**8PS5203-0AA00-0AA2**	1 unit	20.000
	250	2.26 ... 3.24	2	--	X	**BD2A-3-250-W2-3W***	**8PS5203-0AA00-0AA4**	1 unit	21.900
	400	2.26 ... 3.24	2	--	X	**BD2A-3-400-W2-3W***	**8PS5203-0AA00-0AA6**	1 unit	25.300
	630	2.26 ... 3.24	2	--	X	**BD2A-3-630-W2-3W***	**8PS5203-0AA00-0AA8**	1 unit	45.900
	800	2.26 ... 3.24	2	--	X	**BD2A-3-800-W2-3W***	**8PS5203-0AA00-1AA1**	1 unit	45.900
	1000	2.26 ... 3.24	2	--	X	**BD2A-3-1000-W2-3W***	**8PS5203-0AA00-1AA3**	1 unit	57.000

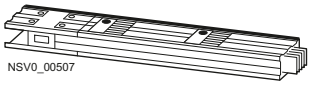
Cannot be combined with a fire barrier.

Special colors available on request.

For position of tap-off point, see page 4/93.

Trunking units

With copper busbars

Version	Rated current I_{nA}	Length	Tap-off points		SD	Tap-off point distance 0.5 m L1, L2, L3, N, PE		PS*/ P. unit	Weight per unit
			Number	Spacing					
	A	m		m	d	Type	Article No.		kg
Standard lengths, with tap-off points on both sides									
With joint block  NSV0_00507	160	3.25	12	0.5	X	**BD2C-3-160-SB-3**	**BVP:261712**	1 unit	27.500
		2.25	8	0.5	X	**BD2C-3-160-SB-2**	**BVP:261711**	1 unit	20.100
		1.25	4	0.5	X	**BD2C-3-160-SB-1**	**BVP:261710**	1 unit	10.600
	250	3.25	12	0.5	X	**BD2C-3-250-SB-3**	**BVP:261715**	1 unit	27.500
		2.25	8	0.5	X	**BD2C-3-250-SB-2**	**BVP:261714**	1 unit	20.100
		1.25	4	0.5	X	**BD2C-3-250-SB-1**	**BVP:261713**	1 unit	10.600
	400	3.25	12	0.5	X	**BD2C-3-400-SB-3**	**BVP:261721**	1 unit	34.400
		2.25	8	0.5	X	**BD2C-3-400-SB-2**	**BVP:261720**	1 unit	24.700
		1.25	4	0.5	X	**BD2C-3-400-SB-1**	**BVP:261719**	1 unit	15.100
	630	3.25	12	0.5	X	**BD2C-3-630-SB-3**	**BVP:261733**	1 unit	60.800
		2.25	8	0.5	X	**BD2C-3-630-SB-2**	**BVP:261732**	1 unit	41.900
		1.25	4	0.5	X	**BD2C-3-630-SB-1**	**BVP:261731**	1 unit	26.900
	800	3.25	12	0.5	X	**BD2C-3-800-SB-3**	**BVP:261739**	1 unit	60.800
		2.25	8	0.5	X	**BD2C-3-800-SB-2**	**BVP:261738**	1 unit	41.900
		1.25	4	0.5	X	**BD2C-3-800-SB-1**	**BVP:261737**	1 unit	26.900
	1000	3.25	12	0.5	X	**BD2C-3-1000-SB-3**	**BVP:261745**	1 unit	80.700
		2.25	8	0.5	X	**BD2C-3-1000-SB-2**	**BVP:261744**	1 unit	55.500
		1.25	4	0.5	X	**BD2C-3-1000-SB-1**	**BVP:261743**	1 unit	34.400
	1250	3.25	12	0.5	X	**BD2C-3-1250-SB-3**	**BVP:261751**	1 unit	120.900
		2.25	8	0.5	X	**BD2C-3-1250-SB-2**	**BVP:261750**	1 unit	83.100
		1.25	4	0.5	X	**BD2C-3-1250-SB-1**	**BVP:261749**	1 unit	49.400
Standard lengths, without tap-off points									
With joint block  NSV0_00508	400	3.25	--	--	X	**BD2C-3-400-SO-3**	**BVP:261724**	1 unit	33.700
		2.25	--	--	X	**BD2C-3-400-SO-2**	**BVP:261723**	1 unit	24.700
		1.25	--	--	X	**BD2C-3-400-SO-1**	**BVP:261722**	1 unit	15.100
	630	3.25	--	--	X	**BD2C-3-630-SO-3**	**BVP:261736**	1 unit	61.800
		2.25	--	--	X	**BD2C-3-630-SO-2**	**BVP:261735**	1 unit	42.900
		1.25	--	--	X	**BD2C-3-630-SO-1**	**BVP:261734**	1 unit	27.400
	800	3.25	--	--	X	**BD2C-3-800-SO-3**	**BVP:261742**	1 unit	61.800
		2.25	--	--	X	**BD2C-3-800-SO-2**	**BVP:261741**	1 unit	42.900
		1.25	--	--	X	**BD2C-3-800-SO-1**	**BVP:261740**	1 unit	27.400
	1000	3.25	--	--	X	**BD2C-3-1000-SO-3**	**BVP:261748**	1 unit	81.700
		2.25	--	--	X	**BD2C-3-1000-SO-2**	**BVP:261747**	1 unit	56.500
		1.25	--	--	X	**BD2C-3-1000-SO-1**	**BVP:261746**	1 unit	34.900
	1250	3.25	--	--	X	**BD2C-3-1250-SO-3**	**BVP:261754**	1 unit	121.900
		2.25	--	--	X	**BD2C-3-1250-SO-2**	**BVP:261753**	1 unit	84.100
		1.25	--	--	X	**BD2C-3-1250-SO-1**	**BVP:261752**	1 unit	49.900
Standard length, adaptable by the customer, without tap-off points									
With joint block  NSV0_00508	400	1.25	--	--	X	**BD2C-400-WO-AL**	**BVP:611352**	1 unit	15.100
	1250	1.25	--	--	X	**BD2C-1250-WO-AL**	**BVP:611353**	1 unit	49.900

Special colors available on request.

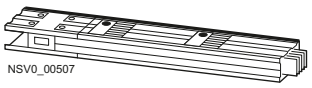
Version	SD	Type suffix	Article No.	PS*/ P. unit	Weight per unit
	d				kg
Fire barriers (optional)					
Fire barriers EI 90	X	**+BD2C-400-EI90-SLBX***	**BVP:662602**	1 unit	1.000
Fire barriers EI 90	X	**+BD2C-1250-EI90-SLBX***	**BVP:662603**	1 unit	1.000
Fire barriers EI 120	X	**+BD2C-400-EI120-SLBX***	**BVP:662604**	1 unit	1.500
Fire barriers EI 120	X	**+BD2C-1250-EI120-SLBX***	**BVP:662605**	1 unit	1.500

For BX* you must specify the required dimension from the center of the joint block (end without joint block) to the center of the fire wall or fire ceiling.

For the configuration of the fire barrier, see page 4/87.

For approval in Germany:
BD2-S90(S120)-ZUL-D fire barrier approval kit,
see page 4/65.

With copper busbars

Version	Rated current I_{nA}	Length	Tap-off points Number	Tap-off points Spacing	SD	Tap-off point distance 0.5 m L1, L2, L3, N, PE Type	Article No.	PS*/ P. unit	Weight per unit
	A	m		m	d				kg
Optional lengths, with tap-off points on both sides									
With joint block  NSV0_00507	160	2.26 ... 3.24	8 ... 12	0.5	X	**BD2C-3-160-WB-3W***	**BVP:261755**	1 unit	27.200
		1.26 ... 2.24	4 ... 8	0.5	X	**BD2C-3-160-WB-2W***	**BVP:261756**	1 unit	19.900
	250	2.26 ... 3.24	8 ... 12	0.5	X	**BD2C-3-250-WB-3W***	**BVP:261757**	1 unit	27.200
		1.26 ... 2.24	4 ... 8	0.5	X	**BD2C-3-250-WB-2W***	**BVP:261758**	1 unit	19.900
	400	2.26 ... 3.24	8 ... 12	0.5	X	**BD2C-3-400-WB-3W***	**BVP:261761**	1 unit	33.700
		1.26 ... 2.24	4 ... 8	0.5	X	**BD2C-3-400-WB-2W***	**BVP:261762**	1 unit	24.200
	630	2.26 ... 3.24	8 ... 12	0.5	X	**BD2C-3-630-WB-3W***	**BVP:261765**	1 unit	66.800
		1.26 ... 2.24	4 ... 8	0.5	X	**BD2C-3-630-WB-2W***	**BVP:261766**	1 unit	45.900
	800	2.26 ... 3.24	8 ... 12	0.5	X	**BD2C-3-800-WB-3W***	**BVP:261767**	1 unit	66.800
		1.26 ... 2.24	4 ... 8	0.5	X	**BD2C-3-800-WB-2W***	**BVP:261768**	1 unit	45.900
	1000	2.26 ... 3.24	8 ... 12	0.5	X	**BD2C-3-1000-WB-3W***	**BVP:261769**	1 unit	86.700
		1.26 ... 2.24	4 ... 8	0.5	X	**BD2C-3-1000-WB-2W***	**BVP:261770**	1 unit	59.500
	1250	2.26 ... 3.24	8 ... 12	0.5	X	**BD2C-3-1250-WB-3W***	**BVP:261771**	1 unit	126.900
		1.26 ... 2.24	4 ... 8	0.5	X	**BD2C-3-1250-WB-2W***	**BVP:261772**	1 unit	87.100
Optional lengths, without tap-off points									
With joint block  NSV0_00508	400	2.26 ... 3.24	--	--	X	**BD2C-3-400-WO-3W***	**BVP:261773**	1 unit	33.700
		1.26 ... 2.24	--	--	X	**BD2C-3-400-WO-2W***	**BVP:261774**	1 unit	24.200
		0.50 ... 1.24	--	--	X	**BD2C-3-400-WO-1W***	**BVP:261775**	1 unit	14.700
	630	2.26 ... 3.24	--	--	X	**BD2C-3-630-WO-3W***	**BVP:261779**	1 unit	66.800
		1.26 ... 2.24	--	--	X	**BD2C-3-630-WO-2W***	**BVP:261780**	1 unit	45.900
		0.50 ... 1.24	--	--	X	**BD2C-3-630-WO-1W***	**BVP:261781**	1 unit	27.700
	800	2.26 ... 3.24	--	--	X	**BD2C-3-800-WO-3W***	**BVP:261782**	1 unit	66.800
		1.26 ... 2.24	--	--	X	**BD2C-3-800-WO-2W***	**BVP:261783**	1 unit	45.900
		0.50 ... 1.24	--	--	X	**BD2C-3-800-WO-1W***	**BVP:261784**	1 unit	27.700
	1000	2.26 ... 3.24	--	--	X	**BD2C-3-1000-WO-3W***	**BVP:261785**	1 unit	86.700
		1.26 ... 2.24	--	--	X	**BD2C-3-1000-WO-2W***	**BVP:261786**	1 unit	59.500
		0.50 ... 1.24	--	--	X	**BD2C-3-1000-WO-1W***	**BVP:261787**	1 unit	34.900
	1250	2.26 ... 3.24	--	--	X	**BD2C-3-1250-WO-3W***	**BVP:261788**	1 unit	126.900
		1.26 ... 2.24	--	--	X	**BD2C-3-1250-WO-2W***	**BVP:261789**	1 unit	87.100
		0.50 ... 1.24	--	--	X	**BD2C-3-1250-WO-1W***	**BVP:261790**	1 unit	50.200

Special colors available on request.

Version	SD	Type suffix	Article No.	PS*/ P. unit	Weight per unit
	d				kg
Fire barriers (optional)					
Fire barriers EI 90	X	**+BD2C-400-EI90-SLBX***	**BVP:662602**	1 unit	1.000
Fire barriers EI 90	X	**+BD2C-1250-EI90-SLBX***	**BVP:662603**	1 unit	1.000
Fire barriers EI 120	X	**+BD2C-400-EI120-SLBX***	**BVP:662604**	1 unit	1.500
Fire barriers EI 120	X	**+BD2C-1250-EI120-SLBX***	**BVP:662605**	1 unit	1.500

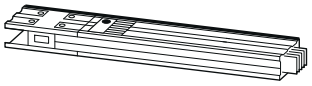
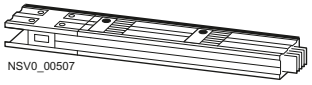
For BX* you must specify the required dimension from the center of the joint block (end without joint block) to the center of the fire wall or fire ceiling.

For the configuration of the fire barrier, see page 4/87.

For approval in Germany:
BD2-S90(S120)-ZUL-D fire barrier approval kit,
see page 4/65.

Trunking units

With copper busbars

Version	Rated current I_{nA}	Length	Tap-off points		SD	Tap-off point distance 0.5 m L1, L2, L3, N, PE		PS*/ P. unit	Weight per unit
			Number	Spacing					
	A	m		m	d	Type	Article No.		kg
Optional lengths, with one tap-off point (eMobility length)									
With joint block 	160	2.26 ... 3.24	1	--	X	**BD2C-3-160-W1-3W***	**8PS5403-0AA00-0AA1**	1 unit	27.200
	250	2.26 ... 3.24	1	--	X	**BD2C-3-250-W1-3W***	**8PS5403-0AA00-0AA3**	1 unit	27.200
	400	2.26 ... 3.24	1	--	X	**BD2C-3-400-W1-3W***	**8PS5403-0AA00-0AA5**	1 unit	33.700
	630	2.26 ... 3.24	1	--	X	**BD2C-3-630-W1-3W***	**8PS5403-0AA00-0AA7**	1 unit	66.800
	800	2.26 ... 3.24	1	--	X	**BD2C-3-800-W1-3W***	**8PS5403-0AA00-1AA0**	1 unit	66.800
	1000	2.26 ... 3.24	1	--	X	**BD2C-3-1000-W1-3W***	**8PS5403-0AA00-1AA2**	1 unit	86.700
	1250	2.26 ... 3.24	1	--	X	**BD2C-3-1250-W1-3W***	**8PS5403-0AA00-1AA4**	1 unit	126.900
Optional lengths, with two tap-off points on one side (eMobility length)									
With joint block 	160	2.26 ... 3.24	2	--	X	**BD2C-3-160-W2-3W***	**8PS5403-0AA00-0AA2**	1 unit	27.200
	250	2.26 ... 3.24	2	--	X	**BD2C-3-250-W2-3W***	**8PS5403-0AA00-0AA4**	1 unit	27.200
	400	2.26 ... 3.24	2	--	X	**BD2C-3-400-W2-3W***	**8PS5403-0AA00-0AA6**	1 unit	33.700
	630	2.26 ... 3.24	2	--	X	**BD2C-3-630-W2-3W***	**8PS5403-0AA00-0AA8**	1 unit	66.800
	800	2.26 ... 3.24	2	--	X	**BD2C-3-800-W2-3W***	**8PS5403-0AA00-1AA1**	1 unit	66.800
	1000	2.26 ... 3.24	2	--	X	**BD2C-3-1000-W2-3W***	**8PS5403-0AA00-1AA3**	1 unit	86.700
	1250	2.26 ... 3.24	2	--	X	**BD2C-3-1250-W2-3W***	**8PS5403-0AA00-1AA5**	1 unit	126.900

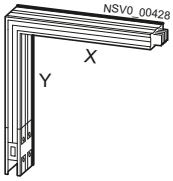
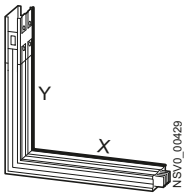
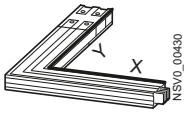
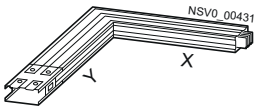
Cannot be combined with a fire barrier.

Special colors available on request.

For position of tap-off point, see page 4/93.

Selection and ordering data

With aluminum busbars

Version	Length/ Optional length	SD	Rated current I_{nA} 160 A, 250 A, 400 A		PS*/ P. unit	Weight per unit
		d	Type	Article No.		kg
L-units (with joint block)						
Knee, rear 	X0.36/ Y0.36	X	**BD2A-400-LH**	**BVP:261793**	1 unit	8.500
	X0.36 ... 1.25/ Y0.36	X	**BD2A-400-LH-X***	**BVP:261846**	1 unit	18.000
	X0.36/ Y0.36 ... 1.25	X	**BD2A-400-LH-Y***	**BVP:261847**	1 unit	18.000
	X0.36 ... 1.25/ Y0.36 ... 1.25	X	**BD2A-400-LH-X*/Y***	**BVP:261848**	1 unit	28.000
Knee, front 	X0.36/ Y0.36	X	**BD2A-400-LV**	**BVP:261796**	1 unit	8.500
	X0.36 ... 1.25/ Y0.36	X	**BD2A-400-LV-X***	**BVP:261849**	1 unit	18.000
	X0.36/ Y0.36 ... 1.25	X	**BD2A-400-LV-Y***	**BVP:261850**	1 unit	18.000
	X0.36 ... 1.25/ Y0.36 ... 1.25	X	**BD2A-400-LV-X*/Y***	**BVP:261851**	1 unit	28.000
Elbow, right 	X0.36/ Y0.36	X	**BD2A-400-LR**	**BVP:261795**	1 unit	8.000
	X0.36 ... 1.25/ Y0.36	X	**BD2A-400-LR-X***	**BVP:261852**	1 unit	18.000
	X0.36/ Y0.36 ... 1.25	X	**BD2A-400-LR-Y***	**BVP:261853**	1 unit	18.000
	X0.36 ... 1.25/ Y0.36 ... 1.25	X	**BD2A-400-LR-X*/Y***	**BVP:261854**	1 unit	28.000
Elbow, left 	X0.36/ Y0.36	X	**BD2A-400-LL**	**BVP:261794**	1 unit	8.000
	X0.36 ... 1.25/ Y0.36	X	**BD2A-400-LL-X***	**BVP:261855**	1 unit	18.000
	X0.36/ Y0.36 ... 1.25	X	**BD2A-400-LL-Y***	**BVP:261856**	1 unit	18.000
	X0.36 ... 1.25/ Y0.36 ... 1.25	X	**BD2A-400-LL-X*/Y***	**BVP:261857**	1 unit	28.000

Special colors available on request.

Version	SD	Type suffix	Article No.	PS*/ P. unit	Weight per unit
	d				kg
Fire barrier for L-units (optional)					
Fire barrier EI 90 in X-limb	X	**+BD2A-400-EI90-BX***	**BVP:662531**	1 unit	1.000
Fire barrier EI 90 in Y-limb	X	**+BD2A-400-EI90-BY***	**BVP:662535**	1 unit	1.000
Fire barrier EI 120 in X-limb	X	**+BD2A-400-EI120-BX***	**BVP:662533**	1 unit	1.500
Fire barrier EI 120 in Y-limb	X	**+BD2A-400-EI120-BY***	**BVP:662537**	1 unit	1.500

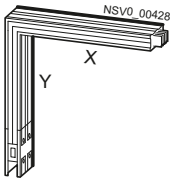
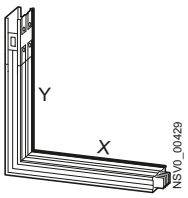
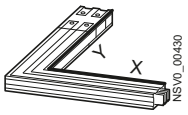
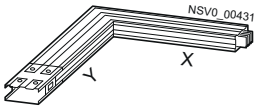
For BX* or BY* you must specify the required dimension from the center of the joint block (for BX*: end without joint block) to the center of the fire wall or fire ceiling.

For the configuration of the fire barrier, see page 4/87.

For approval in Germany:
BD2-S90(S120)-ZUL-D fire barrier approval kit, see page 4/65.

Junction units

With aluminum busbars

Version	Length/ Optional length	SD	Rated current I_{nA} 630 A, 800 A, 1000 A		PS*/ P. unit	Weight per unit
		d	Type	Article No.		kg
L-units (with joint block)						
Knee, rear 	X0.36/ Y0.36	X	**BD2A-1000-LH**	**BVP:261803**	1 unit	17.000
	X0.36 ... 1.25/ Y0.36	X	**BD2A-1000-LH-X***	**BVP:261874**	1 unit	38.000
	X0.36/ Y0.36 ... 1.25	X	**BD2A-1000-LH-Y***	**BVP:261875**	1 unit	38.000
	X0.36 ... 1.25/ Y0.36 ... 1.25	X	**BD2A-1000-LH-X*/Y***	**BVP:261876**	1 unit	59.000
Knee, front 	X0.36/ Y0.36	X	**BD2A-1000-LV**	**BVP:261806**	1 unit	17.000
	X0.36 ... 1.25/ Y0.36	X	**BD2A-1000-LV-X***	**BVP:261877**	1 unit	38.000
	X0.36/ Y0.36 ... 1.25	X	**BD2A-1000-LV-Y***	**BVP:261878**	1 unit	38.000
	X0.36 ... 1.25/ Y0.36 ... 1.25	X	**BD2A-1000-LV-X*/Y***	**BVP:261879**	1 unit	59.000
Elbow, right 	X0.36/ Y0.36	X	**BD2A-1000-LR**	**BVP:261805**	1 unit	17.000
	X0.36 ... 1.25/ Y0.36	X	**BD2A-1000-LR-X***	**BVP:261880**	1 unit	38.000
	X0.36/ Y0.36 ... 1.25	X	**BD2A-1000-LR-Y***	**BVP:261881**	1 unit	38.000
	X0.36 ... 1.25/ Y0.36 ... 1.25	X	**BD2A-1000-LR-X*/Y***	**BVP:261882**	1 unit	59.000
Elbow, left 	X0.36/ Y0.36	X	**BD2A-1000-LL**	**BVP:261804**	1 unit	17.000
	X0.36 ... 1.25/ Y0.36	X	**BD2A-1000-LL-X***	**BVP:261827**	1 unit	38.000
	X0.36/ Y0.36 ... 1.25	X	**BD2A-1000-LL-Y***	**BVP:261828**	1 unit	38.000
	X0.36 ... 1.25/ Y0.36 ... 1.25	X	**BD2A-1000-LL-X*/Y***	**BVP:261829**	1 unit	59.000

Optional lengths:
For X* and Y* you must specify the required dimension in meters from the center of the joint block to the outside edge of the trunking unit.

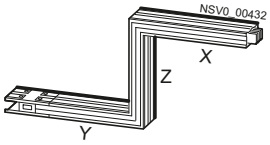
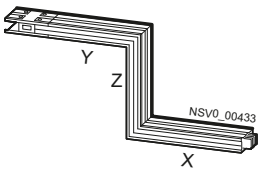
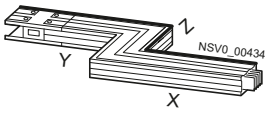
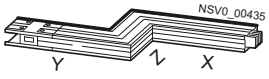
Special colors available on request.

Version	SD	Type suffix	Article No.	PS*/ P. unit	Weight per unit
	d				kg
Fire barrier for L-units (optional)					
Fire barrier EI 90 in X-limb	X	**+BD2A-1000-EI90-BX***	**BVP:662532**	1 unit	1.000
Fire barrier EI 90 in Y-limb	X	**+BD2A-1000-EI90-BY***	**BVP:662536**	1 unit	1.000
Fire barrier EI 120 in X-limb	X	**+BD2A-1000-EI120-BX***	**BVP:662534**	1 unit	1.500
Fire barrier EI 120 in Y-limb	X	**+BD2A-1000-EI120-BY***	**BVP:662538**	1 unit	1.500

For BX* or BY* you must specify the required dimension from the center of the joint block (for BX*: end without joint block) to the center of the fire wall or fire ceiling.

For approval in Germany:
BD2-S90(S120)-ZUL-D fire barrier approval kit,
see page 4/65.

With aluminum busbars

Version	Length/ Optional length	SD	Rated current I_{nA} 160 A, 250 A, 400 A		PS*/ P. unit	Weight per unit
		d	Type	Article No.		kg
Z-units (with joint block)						
Rear 	X0.36/ Y0.36/ Z0.14 ... 1.25	X	**BD2A-400-ZH-Z***	**BVP:261814**	1 unit	13.000
	X0.36 ... 0.60/ Y0.36 ... 0.60/ Z0.14 ... 1.25	X	**BD2A-400-ZH-X*/Y*/Z***	**BVP:261822**	1 unit	16.000
Front 	X0.36/ Y0.36/ Z0.14 ... 1.25	X	**BD2A-400-ZV-Z***	**BVP:261813**	1 unit	13.000
	X0.36 ... 0.60/ Y0.36 ... 0.60/ Z0.14 ... 1.25	X	**BD2A-400-ZV-X*/Y*/Z***	**BVP:261821**	1 unit	16.000
Right 	X0.36/ Y0.36/ Z0.34 ... 1.25	X	**BD2A-400-ZR-Z***	**BVP:261811**	1 unit	13.000
	X0.36 ... 0.60/ Y0.36 ... 0.60/ Z0.34 ... 1.25	X	**BD2A-400-ZR-X*/Y*/Z***	**BVP:261819**	1 unit	16.000
Left 	X0.36/ Y0.36/ Z0.34 ... 1.25	X	**BD2A-400-ZL-Z***	**BVP:261812**	1 unit	13.000
	X0.36 ... 0.60/ Y0.36 ... 0.60/ Z0.34 ... 1.25	X	**BD2A-400-ZL-X*/Y*/Z***	**BVP:261820**	1 unit	16.000

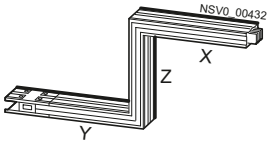
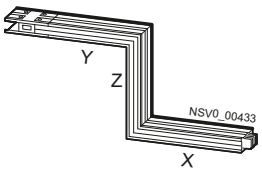
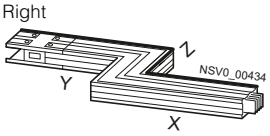
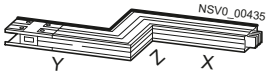
Optional lengths: For X* and Y* you must specify the required dimension in meters from the center of the joint block to the outside edge of the trunking unit, for Z* from the outside edge to the outside edge of the trunking unit.

Special colors available on request.

Fire barrier on the Z-limb on request.

Junction units

With aluminum busbars

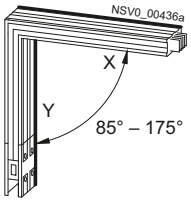
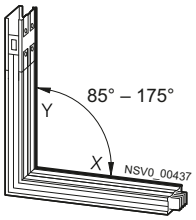
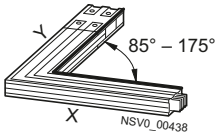
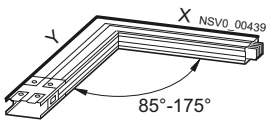
Version	Length/ Optional length	SD	Rated current I_{nA} 630 A, 800 A, 1000 A		PS*/ P. unit	Weight per unit
		d	Type	Article No.		kg
Z-units (with joint block)						
Rear 	X0.36/ Y0.36/ Z0.26 ... 1.25	X	**BD2A-1000-ZH-Z***	**BVP:261818**	1 unit	26.000
	X0.36 ... 0.60/ Y0.36 ... 0.60/ Z0.26 ... 1.25	X	**BD2A-1000-ZH-X*/Y*/Z***	**BVP:261826**	1 unit	32.000
Front 	X0.36/ Y0.36/ Z0.26 ... 1.25	X	**BD2A-1000-ZV-Z***	**BVP:261817**	1 unit	26.000
	X0.36 ... 0.60/ Y0.36 ... 0.60/ Z0.26 ... 1.25	X	**BD2A-1000-ZV-X*/Y*/Z***	**BVP:261825**	1 unit	32.000
Right 	X0.36/ Y0.36/ Z0.34 ... 1.25	X	**BD2A-1000-ZR-Z***	**BVP:261815**	1 unit	26.000
	X0.36 ... 0.60/ Y0.36 ... 0.60/ Z0.34 ... 1.25	X	**BD2A-1000-ZR-X*/Y*/Z***	**BVP:261823**	1 unit	32.000
Left 	X0.36/ Y0.36/ Z0.34 ... 1.25	X	**BD2A-1000-ZL-Z***	**BVP:261816**	1 unit	26.000
	X0.36 ... 0.60/ Y0.36 ... 0.60/ Z0.34 ... 1.25	X	**BD2A-1000-ZL-X*/Y*/Z***	**BVP:261824**	1 unit	32.000

Optional lengths: For X* and Y* you must specify the required dimension in meters from the center of the joint block to the outside edge of the trunking unit, for Z* from the outside edge to the outside edge of the trunking unit.

Special colors available on request.

Fire barrier on the Z-limb on request.

With aluminum busbars

Version	Length/ Optional length	SD	Rated current I_{nA} 160 A, 250 A, 400 A		PS*/ P. unit	Weight per unit
		d	Type	Article No.		kg
L-units (with joint block), with configurable angle 85° ... 175°						
Knee, rear 	X0.36/ Y0.36	X	**BD2A-400-LH-G***	**BVP:261858**	1 unit	8.000
	X0.36 ... 1.25/ Y0.36	X	**BD2A-400-LH-X*-G***	**BVP:261859**	1 unit	18.000
	X0.36/ Y0.36 ... 1.25	X	**BD2A-400-LH-Y*-G***	**BVP:261860**	1 unit	18.000
	X0.36 ... 1.25/ Y0.36 ... 1.25	X	**BD2A-400-LH-X*/Y*-G***	**BVP:261861**	1 unit	28.000
Knee, front 	X0.36/ Y0.36	X	**BD2A-400-LV-G***	**BVP:261862**	1 unit	8.000
	X0.36 ... 1.25/ Y0.36	X	**BD2A-400-LV-X*-G***	**BVP:261863**	1 unit	18.000
	X0.36/ Y0.36 ... 1.25	X	**BD2A-400-LV-Y*-G***	**BVP:261864**	1 unit	18.000
	X0.36 ... 1.25/ Y0.36 ... 1.25	X	**BD2A-400-LV-X*/Y*-G***	**BVP:261865**	1 unit	28.000
Elbow, right 	X0.36/ Y0.36	X	**BD2A-400-LR-G***	**BVP:261866**	1 unit	8.000
	X0.36 ... 1.25/ Y0.36	X	**BD2A-400-LR-X*-G***	**BVP:261867**	1 unit	18.000
	X0.36/ Y0.36 ... 1.25	X	**BD2A-400-LR-Y*-G***	**BVP:261868**	1 unit	18.000
	X0.36 ... 1.25/ Y0.36 ... 1.25	X	**BD2A-400-LR-X*/Y*-G***	**BVP:261869**	1 unit	28.000
Elbow, left 	X0.36/ Y0.36	X	**BD2A-400-LL-G***	**BVP:261870**	1 unit	8.000
	X0.36 ... 1.25/ Y0.36	X	**BD2A-400-LL-X*-G***	**BVP:261871**	1 unit	18.000
	X0.36/ Y0.36 ... 1.25	X	**BD2A-400-LL-Y*-G***	**BVP:261872**	1 unit	18.000
	X0.36 ... 1.25/ Y0.36 ... 1.25	X	**BD2A-400-LL-X*/Y*-G***	**BVP:261873**	1 unit	28.000

Change of direction, knee and elbow: For G* you must specify the required number of degrees in 5° increments.

Optional lengths: For X* and Y* you must specify the required dimension in meters from the center of the joint block to the outside edge of the trunking unit.

Special colors available on request.

Version	SD	Type suffix	Article No.	PS*/ P. unit	Weight per unit
	d				kg
Fire barrier for L-units (optional)					
Fire barrier EI 90 in X-limb	X	**+BD2A-400-EI90-BX***	**BVP:662531**	1 unit	1.000
Fire barrier EI 90 in Y-limb	X	**+BD2A-400-EI90-BY***	**BVP:662535**	1 unit	1.000
Fire barrier EI 120 in X-limb	X	**+BD2A-400-EI120-BX***	**BVP:662533**	1 unit	1.500
Fire barrier EI 120 in Y-limb	X	**+BD2A-400-EI120-BY***	**BVP:662537**	1 unit	1.500

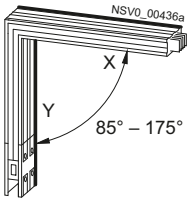
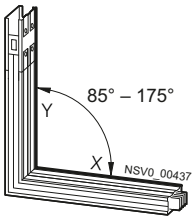
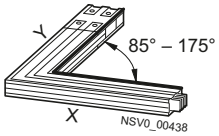
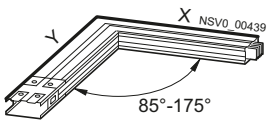
For BX* or BY* you must specify the required dimension from the center of the joint block (for BX*: end without joint block) to the center of the fire wall or fire ceiling.

For the configuration of the fire barrier, see page 4/87.

For approval in Germany:
BD2-S90(S120)-ZUL-D fire barrier approval kit,
see page 4/65.

Junction units

With aluminum busbars

Version	Length/ Optional length	SD	Rated current I_{nA} 630 A, 800 A, 1000 A		PS*/ P. unit	Weight per unit
		d	Type	Article No.		kg
L-units (with joint block), with configurable angle 85° ... 175°						
Knee, rear 	X0.36/ Y0.36	X	**BD2A-1000-LH-G***	**BVP:261830**	1 unit	17.000
	X0.36 ... 1.25/ Y0.36	X	**BD2A-1000-LH-X*-G***	**BVP:261831**	1 unit	38.000
	X0.36/ Y0.36 ... 1.25	X	**BD2A-1000-LH-Y*-G***	**BVP:261832**	1 unit	38.000
	X0.36 ... 1.25/ Y0.36 ... 1.25	X	**BD2A-1000-LH-X*/Y*-G***	**BVP:261833**	1 unit	59.000
Knee, front 	X0.36/ Y0.36	X	**BD2A-1000-LV-G***	**BVP:261834**	1 unit	17.000
	X0.36 ... 1.25/ Y0.36	X	**BD2A-1000-LV-X*-G***	**BVP:261835**	1 unit	38.000
	X0.36/ Y0.36 ... 1.25	X	**BD2A-1000-LV-Y*-G***	**BVP:261836**	1 unit	38.000
	X0.36 ... 1.25/ Y0.36 ... 1.25	X	**BD2A-1000-LV-X*/Y*-G***	**BVP:261837**	1 unit	59.000
Elbow, right 	X0.36/ Y0.36	X	**BD2A-1000-LR-G***	**BVP:261838**	1 unit	17.000
	X0.36 ... 1.25/ Y0.36	X	**BD2A-1000-LR-X*-G***	**BVP:261839**	1 unit	38.000
	X0.36/ Y0.36 ... 1.25	X	**BD2A-1000-LR-Y*-G***	**BVP:261840**	1 unit	38.000
	X0.36 ... 1.25/ Y0.36 ... 1.25	X	**BD2A-1000-LR-X*/Y*-G***	**BVP:261841**	1 unit	59.000
Elbow, left 	X0.36/ Y0.36	X	**BD2A-1000-LL-G***	**BVP:261842**	1 unit	17.000
	X0.36 ... 1.25/ Y0.36	X	**BD2A-1000-LL-X*-G***	**BVP:261843**	1 unit	38.000
	X0.36/ Y0.36 ... 1.25	X	**BD2A-1000-LL-Y*-G***	**BVP:261844**	1 unit	38.000
	X0.36 ... 1.25/ Y0.36 ... 1.25	X	**BD2A-1000-LL-X*/Y*-G***	**BVP:261845**	1 unit	59.000

Change of direction, knee and elbow: For G* you must specify the required number of degrees in 5° increments.

Optional lengths: For X* and Y* you must specify the required dimension in meters from the center of the joint block to the outside edge of the trunking unit.

Special colors available on request.

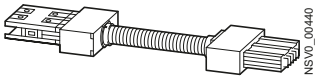
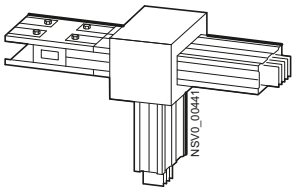
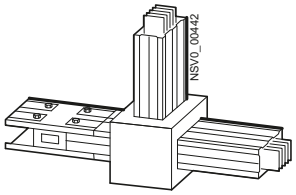
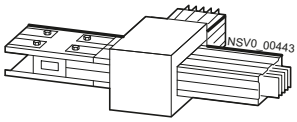
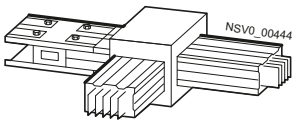
Version	SD	Type suffix	Article No.	PS*/ P. unit	Weight per unit
	d				kg
Fire barrier for L-units (optional)					
Fire barrier EI 90 in X-limb	X	**+BD2A-1000-EI90-BX***	**BVP:662532**	1 unit	1.000
Fire barrier EI 90 in Y-limb	X	**+BD2A-1000-EI90-BY***	**BVP:662536**	1 unit	1.000
Fire barrier EI 120 in X-limb	X	**+BD2A-1000-EI120-BX***	**BVP:662534**	1 unit	1.500
Fire barrier EI 120 in Y-limb	X	**+BD2A-1000-EI120-BY***	**BVP:662538**	1 unit	1.500

For BX* or BY* you must specify the required dimension from the center of the joint block (for BX*: end without joint block) to the center of the fire wall or fire ceiling.

For the configuration of the fire barrier, see page 4/87.

For approval in Germany:
BD2-S90(S120)-ZUL-D fire barrier approval kit,
see page 4/65.

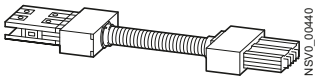
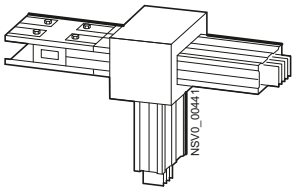
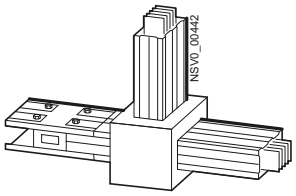
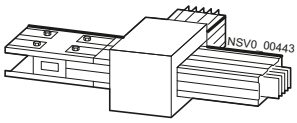
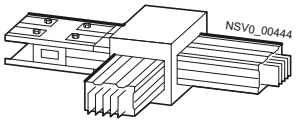
With aluminum busbars

Version	Length	SD	Rated current I_{nA} 160 A, 250 A, 400 A		PS*/ P. unit	Weight per unit
		d	Type	Article No.		kg
Flexible junction units (with joint block)						
	1.25	X	**BD2-400-R**	**BVP:045889**	1 unit	11.000
T-units (with joint block)						
Rear 	0.36	X	**BD2A-400-TH**	**BVP:261797**	1 unit	12.800
Front 	0.36	X	**BD2A-400-TV**	**BVP:261800**	1 unit	12.800
Right 	0.36	X	**BD2A-400-TR**	**BVP:261799**	1 unit	12.800
Left 	0.36	X	**BD2A-400-TL**	**BVP:261798**	1 unit	12.800

Special colors available on request.

Junction units

With aluminum busbars

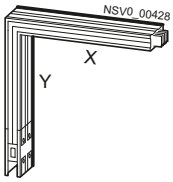
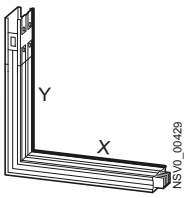
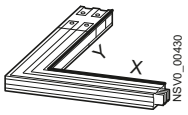
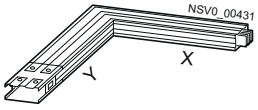
Version	Length	SD	Rated current I_{nA} 630 A, 800 A, 1000 A[1]		PS*/ P. unit	Weight per unit
		d	Type	Article No.		kg
Flexible junction units (with joint block)						
	1.75	X	**BD2-800-R**	**BVP:045890**	1 unit	22.000
T-units (with joint block)						
Rear 	0.36	X	**BD2A-1000-TH**	**BVP:261807**	1 unit	25.000
Front 	0.36	X	**BD2A-1000-TV**	**BVP:261810**	1 unit	25.000
Right 	0.36	X	**BD2A-1000-TR**	**BVP:261809**	1 unit	25.000
Left 	0.36	X	**BD2A-1000-TL**	**BVP:261808**	1 unit	25.000

Special colors available on request.

[1] BD2-800-R for use up to 800 A.

4

With copper busbars

Version	Length/ Optional length	SD	Rated current I_{nA} 160 A, 250 A, 400 A		PS*/ P. unit	Weight per unit
		d	Type	Article No.		kg
L-units (with joint block)						
Knee, rear 	X0.36/ Y0.36	X	**BD2C-400-LH**	**BVP:261885**	1 unit	15.200
	X0.36 ... 1.25/ Y0.36	X	**BD2C-400-LH-X***	**BVP:261938**	1 unit	31.500
	X0.36/ Y0.36 ... 1.25	X	**BD2C-400-LH-Y***	**BVP:261939**	1 unit	31.500
	X0.36 ... 1.25/ Y0.36 ... 1.25	X	**BD2C-400-LH-X*/Y***	**BVP:261940**	1 unit	48.200
Knee, front 	X0.36/ Y0.36	X	**BD2C-400-LV**	**BVP:261888**	1 unit	15.200
	X0.36 ... 1.25/ Y0.36	X	**BD2C-400-LV-X***	**BVP:261941**	1 unit	31.500
	X0.36/ Y0.36 ... 1.25	X	**BD2C-400-LV-Y***	**BVP:261942**	1 unit	31.500
	X0.36 ... 1.25/ Y0.36 ... 1.25	X	**BD2C-400-LV-X*/Y***	**BVP:261943**	1 unit	48.200
Elbow, right 	X0.36/ Y0.36	X	**BD2C-400-LR**	**BVP:261887**	1 unit	13.300
	X0.36 ... 1.25/ Y0.36	X	**BD2C-400-LR-X***	**BVP:261944**	1 unit	30.100
	X0.36/ Y0.36 ... 1.25	X	**BD2C-400-LR-Y***	**BVP:261945**	1 unit	30.100
	X0.36 ... 1.25/ Y0.36 ... 1.25	X	**BD2C-400-LR-X*/Y***	**BVP:261946**	1 unit	46.600
Elbow, left 	X0.36/ Y0.36	X	**BD2C-400-LL**	**BVP:261886**	1 unit	13.300
	X0.36 ... 1.25/ Y0.36	X	**BD2C-400-LL-X***	**BVP:261947**	1 unit	30.100
	X0.36/ Y0.36 ... 1.25	X	**BD2C-400-LL-Y***	**BVP:261948**	1 unit	30.100
	X0.36 ... 1.25/ Y0.36 ... 1.25	X	**BD2C-400-LL-X*/Y***	**BVP:261949**	1 unit	46.600

Optional lengths: For X* and Y* you must specify the required dimension in meters from the center of the joint block to the outside edge of the trunking unit (see also page 4/74).

Special colors available on request.

Version	SD	Type suffix	Article No.	PS*/ P. unit	Weight per unit
	d				kg
Fire barrier for L-units (optional)					
Fire barrier EI 90 in X-limb	X	**+BD2C-400-EI90-BX***	**BVP:662539**	1 unit	1.000
Fire barrier EI 90 in Y-limb	X	**+BD2C-400-EI90-BY***	**BVP:662543**	1 unit	1.000
Fire barrier EI 120 in X-limb	X	**+BD2C-400-EI120-BX***	**BVP:662541**	1 unit	1.500
Fire barrier EI 120 in Y-limb	X	**+BD2C-400-EI120-BY***	**BVP:662545**	1 unit	1.500

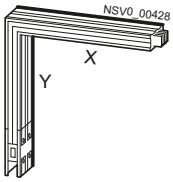
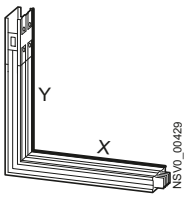
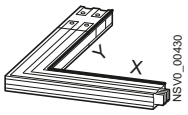
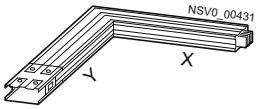
For BX* or BY* you must specify the required dimension from the center of the joint block (for BX*: end without joint block) to the center of the fire wall or fire ceiling.

For the configuration of the fire barrier, see page 4/87.

For approval in Germany:
BD2-S90(S120)-ZUL-D fire barrier approval kit, see page 4/65.

Junction units

With copper busbars

Version	Length/ Optional length	SD	Rated current I_{nA} 630 A, 800 A, 1000 A, 1250 A		PS*/ P. unit	Weight per unit
		d	Type	Article No.		kg
L-units (with joint block)						
Knee, rear 	X0.36/ Y0.36	X	**BD2C-1250-LH**	**BVP:261895**	1 unit	31.900
	X0.36 ... 1.25/ Y0.36	X	**BD2C-1250-LH-X***	**BVP:261966**	1 unit	72.300
	X0.36/ Y0.36 ... 1.25	X	**BD2C-1250-LH-Y***	**BVP:261967**	1 unit	72.300
	X0.36 ... 1.25/ Y0.36 ... 1.25	X	**BD2C-1250-LH-X*/Y***	**BVP:261968**	1 unit	112.800
Knee, front 	X0.36/ Y0.36	X	**BD2C-1250-LV**	**BVP:261898**	1 unit	31.900
	X0.36 ... 1.25/ Y0.36	X	**BD2C-1250-LV-X***	**BVP:261969**	1 unit	72.300
	X0.36/ Y0.36 ... 1.25	X	**BD2C-1250-LV-Y***	**BVP:261970**	1 unit	72.300
	X0.36 ... 1.25/ Y0.36 ... 1.25	X	**BD2C-1250-LV-X*/Y***	**BVP:261971**	1 unit	112.800
Elbow, right 	X0.36/ Y0.36	X	**BD2C-1250-LR**	**BVP:261897**	1 unit	29.500
	X0.36 ... 1.25/ Y0.36	X	**BD2C-1250-LR-X***	**BVP:261972**	1 unit	70.000
	X0.36/ Y0.36 ... 1.25	X	**BD2C-1250-LR-Y***	**BVP:261973**	1 unit	70.000
	X0.36 ... 1.25/ Y0.36 ... 1.25	X	**BD2C-1250-LR-X*/Y***	**BVP:261974**	1 unit	110.500
Elbow, left 	X0.36/ Y0.36	X	**BD2C-1250-LL**	**BVP:261896**	1 unit	29.500
	X0.36 ... 1.25/ Y0.36	X	**BD2C-1250-LL-X***	**BVP:261919**	1 unit	70.000
	X0.36/ Y0.36 ... 1.25	X	**BD2C-1250-LL-Y***	**BVP:261920**	1 unit	70.000
	X0.36 ... 1.25/ Y0.36 ... 1.25	X	**BD2C-1250-LL-X*/Y***	**BVP:261921**	1 unit	110.500

Optional lengths: For X* and Y* you must specify the required dimension in meters from the center of the joint block to the outside edge of the trunking unit.

Special colors available on request.

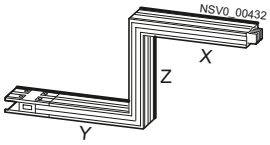
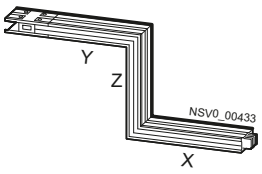
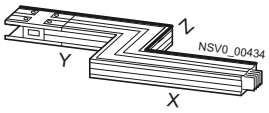
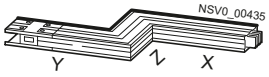
Version	SD	Type suffix	Article No.	PS*/ P. unit	Weight per unit
	d				kg
Fire barrier for L-units (optional)					
Fire barrier EI 90 in X-limb	X	**+BD2C-1250-EI90-BX***	**BVP:662540**	1 unit	1.000
Fire barrier EI 90 in Y-limb	X	**+BD2C-1250-EI90-BY***	**BVP:662544**	1 unit	1.000
Fire barrier EI 120 in X-limb	X	**+BD2C-1250-EI120-BX***	**BVP:662542**	1 unit	1.500
Fire barrier EI 120 in Y-limb	X	**+BD2C-1250-EI120-BY***	**BVP:662546**	1 unit	1.500

For BX* or BY* you must specify the required dimension from the center of the joint block (for BX*: end without joint block) to the center of the fire wall or fire ceiling.

For the configuration of the fire barrier, see page 4/87.

For approval in Germany:
BD2-S90(S120)-ZUL-D fire barrier approval kit,
see page 4/65.

With copper busbars

Version	Length/ Optional length	SD	Rated current I_{nA} 160 A, 250 A, 400 A		PS*/ P. unit	Weight per unit
		d	Type	Article No.		kg
Z-units (with joint block)						
Rear 	X0.36/ Y0.36/ Z0.14 ... 1.25	X	**BD2C-400-ZH-Z***	**BVP:261906**	1 unit	29.700
	X0.36 ... 0.60/ Y0.36 ... 0.60/ Z0.14 ... 1.25	X	**BD2C-400-ZH-X*/Y*/Z***	**BVP:261914**	1 unit	37.100
Front 	X0.36/ Y0.36/ Z0.14 ... 1.25	X	**BD2C-400-ZV-Z***	**BVP:261905**	1 unit	29.700
	X0.36 ... 0.60/ Y0.36 ... 0.60/ Z0.14 ... 1.25	X	**BD2C-400-ZV-X*/Y*/Z***	**BVP:261913**	1 unit	37.100
Right 	X0.36/ Y0.36/ Z0.34 ... 1.25	X	**BD2C-400-ZR-Z***	**BVP:261903**	1 unit	27.600
	X0.36 ... 0.60/ Y0.36 ... 0.60/ Z0.34 ... 1.25	X	**BD2C-400-ZR-X*/Y*/Z***	**BVP:261911**	1 unit	34.100
Left 	X0.36/ Y0.36/ Z0.34 ... 1.25	X	**BD2C-400-ZL-Z***	**BVP:261904**	1 unit	27.600
	X0.36 ... 0.60/ Y0.36 ... 0.60/ Z0.34 ... 1.25	X	**BD2C-400-ZL-X*/Y*/Z***	**BVP:261912**	1 unit	34.100

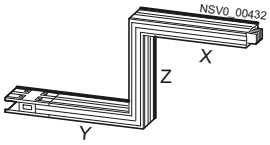
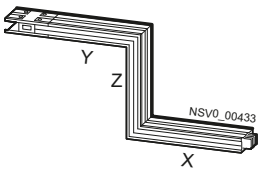
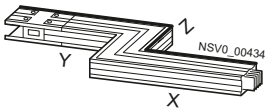
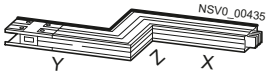
Optional lengths: For X* and Y* you must specify the required dimension in meters from the center of the joint block to the outside edge of the trunking unit, for Z* from the outside edge to the outside edge of the trunking unit.

Special colors available on request.

Fire barrier on the Z-limb on request.

Junction units

With copper busbars

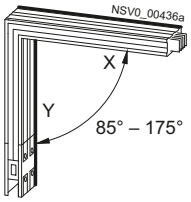
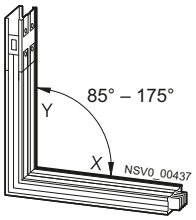
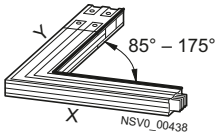
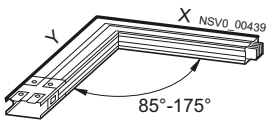
Version	Length/ Optional length	SD	Rated current I_{nA} 630 A, 800 A, 1000 A, 1250 A		PS*/ P. unit	Weight per unit
		d	Type	Article No.		kg
Z-units (with joint block)						
Rear 	X0.36/ Y0.36/ Z0.26 ... 1.25	X	**BD2C-1250-ZH-Z***	**BVP:261910**	1 unit	67.800
	X0.36 ... 0.60/ Y0.36 ... 0.60/ Z0.26 ... 1.25	X	**BD2C-1250-ZH-X*/Y*/Z***	**BVP:261918**	1 unit	83.500
Front 	X0.36/ Y0.36/ Z0.26 ... 1.25	X	**BD2C-1250-ZV-Z***	**BVP:261909**	1 unit	67.800
	X0.36 ... 0.60/ Y0.36 ... 0.60/ Z0.26 ... 1.25	X	**BD2C-1250-ZV-X*/Y*/Z***	**BVP:261917**	1 unit	83.500
Right 	X0.36/ Y0.36/ Z0.34 ... 1.25	X	**BD2C-1250-ZR-Z***	**BVP:261907**	1 unit	64.300
	X0.36 ... 0.60/ Y0.36 ... 0.60/ Z0.34 ... 1.25	X	**BD2C-1250-ZR-X*/Y*/Z***	**BVP:261915**	1 unit	78.600
Left 	X0.36/ Y0.36/ Z0.34 ... 1.25	X	**BD2C-1250-ZL-Z***	**BVP:261908**	1 unit	64.300
	X0.36 ... 0.60/ Y0.36 ... 0.60/ Z0.34 ... 1.25	X	**BD2C-1250-ZL-X*/Y*/Z***	**BVP:261916**	1 unit	78.600

Optional lengths: For X* and Y* you must specify the required dimension in meters from the center of the joint block to the outside edge of the trunking unit, for Z* from the outside edge to the outside edge of the trunking unit.

Special colors available on request.

Fire barrier on the Z-limb on request.

With copper busbars

Version	Length/ Optional length	SD	Rated current I_{nA} 160 A, 250 A, 400 A		PS*/ P. unit	Weight per unit
		d	Type	Article No.		kg
L-units (with joint block), with configurable angle 85° ... 175°						
Knee, rear 	X0.36/ Y0.36	X	**BD2C-400-LH-G***	**BVP:261950**	1 unit	14.700
	X0.36 ... 1.25/ Y0.36	X	**BD2C-400-LH-X*-G***	**BVP:261951**	1 unit	31.500
	X0.36/ Y0.36 ... 1.25	X	**BD2C-400-LH-Y*-G***	**BVP:261952**	1 unit	31.500
	X0.36 ... 1.25/ Y0.36 ... 1.25	X	**BD2C-400-LH-X*/Y*-G***	**BVP:261953**	1 unit	48.200
Knee, front 	X0.36/ Y0.36	X	**BD2C-400-LV-G***	**BVP:261954**	1 unit	14.700
	X0.36 ... 1.25/ Y0.36	X	**BD2C-400-LV-X*-G***	**BVP:261955**	1 unit	31.500
	X0.36/ Y0.36 ... 1.25	X	**BD2C-400-LV-Y*-G***	**BVP:261956**	1 unit	31.500
	X0.36 ... 1.25/ Y0.36 ... 1.25	X	**BD2C-400-LV-X*/Y*-G***	**BVP:261957**	1 unit	48.200
Elbow, right 	X0.36/ Y0.36	X	**BD2C-400-LR-G***	**BVP:261958**	1 unit	13.300
	X0.36 ... 1.25/ Y0.36	X	**BD2C-400-LR-X*-G***	**BVP:261959**	1 unit	30.100
	X0.36/ Y0.36 ... 1.25	X	**BD2C-400-LR-Y*-G***	**BVP:261960**	1 unit	30.100
	X0.36 ... 1.25/ Y0.36 ... 1.25	X	**BD2C-400-LR-X*/Y*-G***	**BVP:261961**	1 unit	46.600
Elbow, left 	X0.36/ Y0.36	X	**BD2C-400-LL-G***	**BVP:261962**	1 unit	13.300
	X0.36 ... 1.25/ Y0.36	X	**BD2C-400-LL-X*-G***	**BVP:261963**	1 unit	30.100
	X0.36/ Y0.36 ... 1.25	X	**BD2C-400-LL-Y*-G***	**BVP:261964**	1 unit	30.100
	X0.36 ... 1.25/ Y0.36 ... 1.25	X	**BD2C-400-LL-X*/Y*-G***	**BVP:261965**	1 unit	46.600

Change of direction, knee and elbow: For G* you must specify the required number of degrees in 5° increments.

Optional lengths: For X* and Y* you must specify the required dimension in meters from the center of the joint block to the outside edge of the trunking unit.

Special colors available on request.

Version	SD	Type suffix	Article No.	PS*/ P. unit	Weight per unit
	d				kg
Fire barrier for L-units (optional)					
Fire barrier EI 90 in X-limb	X	**+BD2C-400-EI90-BX***	**BVP:662539**	1 unit	1.000
Fire barrier EI 90 in Y-limb	X	**+BD2C-400-EI90-BY***	**BVP:662543**	1 unit	1.000
Fire barrier EI 120 in X-limb	X	**+BD2C-400-EI120-BX***	**BVP:662541**	1 unit	1.500
Fire barrier EI 120 in Y-limb	X	**+BD2C-400-EI120-BY***	**BVP:662545**	1 unit	1.500

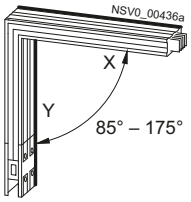
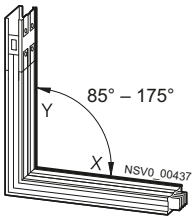
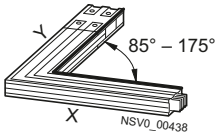
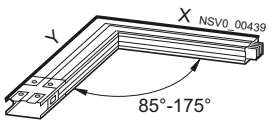
For BX* or BY* you must specify the required dimension from the center of the joint block (for BX*: end without joint block) to the center of the fire wall or fire ceiling.

For the configuration of the fire barrier, see page 4/87.

For approval in Germany:
BD2-S90(S120)-ZUL-D fire barrier approval kit,
see page 4/65.

Junction units

With copper busbars

Version	Length/ Optional length	SD	Rated current I_{nA} 630 A, 800 A, 1000 A, 1250 A		PS*/ P. unit	Weight per unit
		d	Type	Article No.		kg
L-units (with joint block), with configurable angle 85° ... 175°						
Knee, rear 	X0.36/ Y0.36	X	**BD2C-1250-LH-G***	**BVP:261922**	1 unit	31.900
	X0.36 ... 1.25/ Y0.36	X	**BD2C-1250-LH-X*-G***	**BVP:261923**	1 unit	72.300
	X0.36/ Y0.36 ... 1.25	X	**BD2C-1250-LH-Y*-G***	**BVP:261924**	1 unit	72.300
	X0.36 ... 1.25/ Y0.36 ... 1.25	X	**BD2C-1250-LH-X*/Y*-G***	**BVP:261925**	1 unit	112.800
Knee, front 	X0.36/ Y0.36	X	**BD2C-1250-LV-G***	**BVP:261926**	1 unit	31.900
	X0.36 ... 1.25/ Y0.36	X	**BD2C-1250-LV-X*-G***	**BVP:261927**	1 unit	72.300
	X0.36/ Y0.36 ... 1.25	X	**BD2C-1250-LV-Y*-G***	**BVP:261928**	1 unit	72.300
	X0.36 ... 1.25/ Y0.36 ... 1.25	X	**BD2C-1250-LV-X*/Y*-G***	**BVP:261929**	1 unit	112.800
Elbow, right 	X0.36/ Y0.36	X	**BD2C-1250-LR-G***	**BVP:261930**	1 unit	29.500
	X0.36 ... 1.25/ Y0.36	X	**BD2C-1250-LR-X*-G***	**BVP:261931**	1 unit	70.000
	X0.36/ Y0.36 ... 1.25	X	**BD2C-1250-LR-Y*-G***	**BVP:261932**	1 unit	70.000
	X0.36 ... 1.25/ Y0.36 ... 1.25	X	**BD2C-1250-LR-X*/Y*-G***	**BVP:261933**	1 unit	110.500
Elbow, left 	X0.36/ Y0.36	X	**BD2C-1250-LL-G***	**BVP:261934**	1 unit	29.500
	X0.36 ... 1.25/ Y0.36	X	**BD2C-1250-LL-X*-G***	**BVP:261935**	1 unit	70.000
	X0.36/ Y0.36 ... 1.25	X	**BD2C-1250-LL-Y*-G***	**BVP:261936**	1 unit	70.000
	X0.36 ... 1.25/ Y0.36 ... 1.25	X	**BD2C-1250-LL-X*/Y*-G***	**BVP:261937**	1 unit	110.500

Change of direction, knee and elbow: For G* you must specify the required number of degrees in 5° increments.

Optional lengths: For X* and Y* you must specify the required dimension in meters from the center of the joint block to the outside edge of the trunking unit.

Special colors available on request.

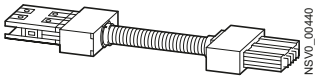
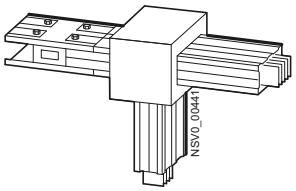
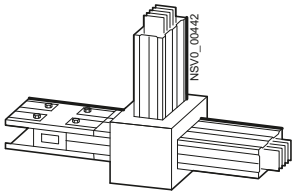
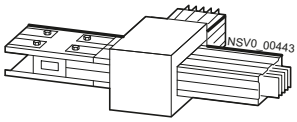
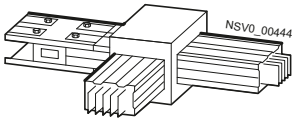
Version	SD	Type suffix	Article No.	PS*/ P. unit	Weight per unit
	d				kg
Fire barrier for L-units (optional)					
Fire barrier EI 90 in X-limb	X	**+BD2C-1250-EI90-BX***	**BVP:662540**	1 unit	1.000
Fire barrier EI 90 in Y-limb	X	**+BD2C-1250-EI90-BY***	**BVP:662544**	1 unit	1.000
Fire barrier EI 120 in X-limb	X	**+BD2C-1250-EI120-BX***	**BVP:662542**	1 unit	1.500
Fire barrier EI 120 in Y-limb	X	**+BD2C-1250-EI120-BY***	**BVP:662546**	1 unit	1.500

For BX* or BY* you must specify the required dimension from the center of the joint block (for BX*: end without joint block) to the center of the fire wall or fire ceiling.

For the configuration of the fire barrier, see page 4/87.

For approval in Germany:
BD2-S90(S120)-ZUL-D fire barrier approval kit,
see page 4/65.

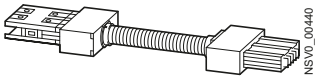
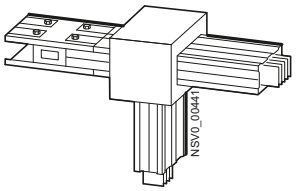
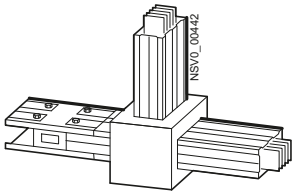
With copper busbars

Version	Length	SD	Rated current I_{nA} 160 A, 250 A, 400 A		PS*/ P. unit	Weight per unit
		d	Type	Article No.		kg
Flexible junction units (with joint block)						
	1.25	X	**BD2-400-R**	**BVP:045889**	1 unit	11.000
T-units (with joint block)						
Rear 	0.36	X	**BD2C-400-TH**	**BVP:261889**	1 unit	21.900
Front 	0.36	X	**BD2C-400-TV**	**BVP:261892**	1 unit	21.900
Right 	0.36	X	**BD2C-400-TR**	**BVP:261891**	1 unit	16.700
Left 	0.36	X	**BD2C-400-TL**	**BVP:261890**	1 unit	16.700

Special colors available on request.

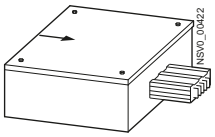
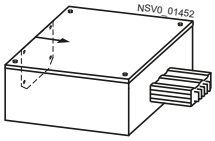
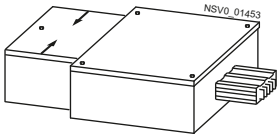
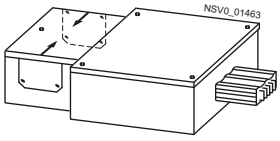
Junction units

With copper busbars

Version	Length	SD	Rated current I_{nA} 630 A, 800 A, 1000 A, 1250 A[1]		PS*/ P. unit	Weight per unit
		d	Type	Article No.		kg
Flexible junction unit (with joint block)						
	1.75	X	**BD2-800-R**	**BVP:045890**	1 unit	22.000
T-units (with joint block)						
Rear 	0.36	X	**BD2C-1250-TH**	**BVP:261899**	1 unit	49.300
Front 	0.36	X	**BD2C-1250-TV**	**BVP:261902**	1 unit	49.300

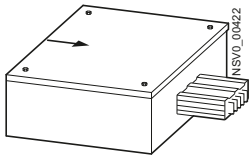
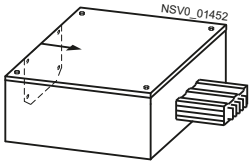
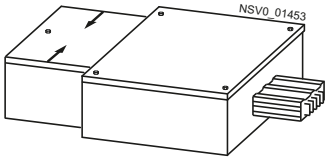
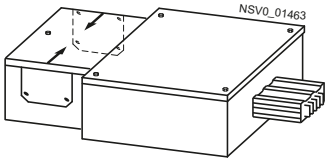
1) BD2-800-R for use up to 800 A.

Selection and ordering data

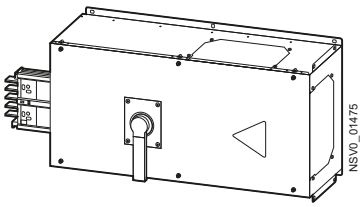
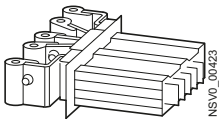
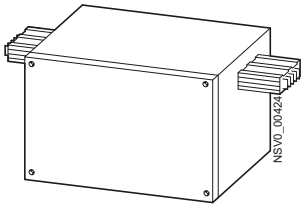
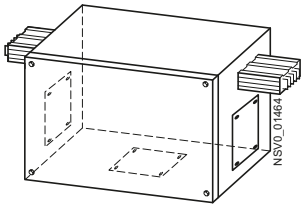
Version	SD	Rated current I_{nA} 160 A, 250 A		PS*/ P. unit	Weight per unit	SD	Rated current I_{nA} 160 A, 250 A, 400 A		PS*/ P. unit	Weight per unit
	d	Type	Article No.		kg	d	Type	Article No.		kg
Feeding units										
End feeding units without joint block Bolt terminal (bolt included in scope of supply); PE position can be changed Cable entry for multi-core cables from the front 										
• Aluminum	X	**BD2A-250-EE**	**BVP:261993**	1 unit	6.600	X	**BD2A-400-EE**	**BVP:261995**	1 unit	13.300
• Copper	X	**BD2C-250-EE**	**BVP:262001**	1 unit	8.900	X	**BD2C-400-EE**	**BVP:262003**	1 unit	16.300
With cable entry plate[1] Cable entry for single-core cables from the front 										
• Aluminum	X	**BD2A-250-EE-EBAL**	**BVP:611093**	1 unit	6.600	X	**BD2A-400-EE-EBAL**	**BVP:611097**	1 unit	13.300
• Copper	X	**BD2C-250-EE-EBAL**	**BVP:611094**	1 unit	8.900	X	**BD2C-400-EE-EBAL**	**BVP:611098**	1 unit	16.300
With cabling box Cable entry for multi-core cables from 2 sides 										
• Aluminum		--				X	**BD2A-400-EE-KR**	**BVP:611095**	1 unit	16.500
• Copper		--				X	**BD2C-400-EE-KR**	**BVP:611096**	1 unit	19.500
With cabling box and cable entry plate[1] Cable entry for single-core cables from 2 sides 										
• Aluminum		--				X	**BD2A-400-EE-KR-EBAL**	**BVP:611099**	1 unit	16.500
• Copper		--				X	**BD2C-400-EE-KR-EBAL**	**BVP:611100**	1 unit	19.500

[1] Single-core cable entry plate, undrilled.

Feeding units

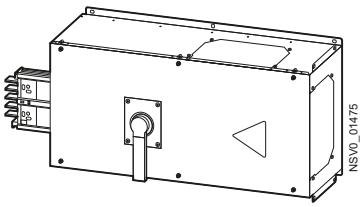
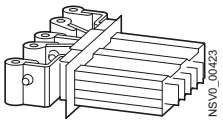
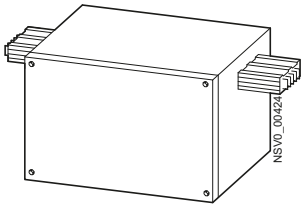
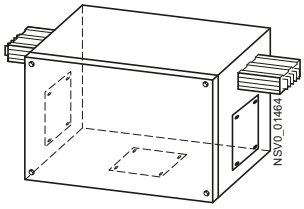
Version	SD	Rated current I_{nA} 630 A, 800 A, 1000 A		PS*/ P. unit	Weight per unit	SD	Rated current I_{nA} 1250 A		PS*/ P. unit	Weight per unit
	d	Type	Article No.		kg	d	Type	Article No.		kg
Feeding units										
End feeding units without joint block										
Bolt terminal (bolt included in scope of supply); PE position can be changed										
Cable entry for multi-core cables from the front										
										
• Aluminum	X	**BD2A-1000-EE**	**BVP:261998**	1 unit	14.900		**--**			
• Copper	X	**BD2C-1000-EE**	**BVP:262006**	1 unit	22.100	X	**BD2C-1250-EE**	**BVP:262009**	1 unit	27.100
With cable entry plate[1]										
Cable entry for single-core cables from the front										
										
• Aluminum	X	**BD2A-1000-EE-EBAL**	**BVP:611103**	1 unit	14.900		**--**			
• Copper	X	**BD2C-1000-EE-EBAL**	**BVP:611104**	1 unit	22.100	X	**BD2C-1250-EE-EBAL**	**BVP:611108**	1 unit	27.100
With cabling box										
Cable entry for multi-core cables from 2 sides										
										
• Aluminum	X	**BD2A-1000-EE-KR**	**BVP:611101**	1 unit	19.900		**--**			
• Copper	X	**BD2C-1000-EE-KR**	**BVP:611102**	1 unit	27.100	X	**BD2C-1250-EE-KR**	**BVP:611107**	1 unit	32.100
With cabling box and cable entry plate[1]										
Cable entry for single-core cables from 2 sides										
										
• Aluminum	X	**BD2A-1000-EE-KR-EBAL**	**BVP:611105**	1 unit	19.900		**--**			
• Copper	X	**BD2C-1000-EE-KR-EBAL**	**BVP:611106**	1 unit	27.100	X	**BD2C-1250-EE-KR-EBAL**	**BVP:611109**	1 unit	32.100

[1] Single-core cable entry plate, undrilled.

Version	SD	Rated current I_{nA} 160 A, 250 A		PS*/ P. unit	Weight per unit	SD	Rated current I_{nA} 160 A, 250 A, 400 A		PS*/ P. unit	Weight per unit
	d	Type	Article No.		kg	d	Type	Article No.		kg
Feeding units										
End feeding units with 3-pole switch disconnector and with cable entry plate[1]										
Cable entry for single-core cables from 3 sides										
										
• Copper	X	**BD2C-250-EESC**	**BVP:611343**	1 unit	16.300	X	**BD2C-315-EESC**	**BVP:611344**	1 unit	28.000
• Copper		--				X	**BD2C-400-EESC**	**BVP:611345**	1 unit	33.000
Distribution board feeding units without joint block										
Bolt terminal (bolt included in scope of supply); PE position can be changed										
										
• Aluminum	X	**BD2A-250-VE**	**BVP:261994**	1 unit	2.100	X	**BD2A-400-VE**	**BVP:261996**	1 unit	3.500
• Copper	X	**BD2C-250-VE**	**BVP:262002**	1 unit	4.400	X	**BD2C-400-VE**	**BVP:262004**	1 unit	6.500
Center feeding units without joint block										
Bolt terminal (bolt included in scope of supply); edgewise, flat and PE positions can be changed (by rotating the whole busbar piece)										
Cable entry for multi-core cables from 3 sides										
										
• Aluminum		--				X	**BD2A-400-ME**	**BVP:261997**	1 unit	28.000
• Copper		--				X	**BD2C-400-ME**	**BVP:262005**	1 unit	36.600
With cable entry plate[1]										
Cable entry for single-core cables from 3 sides										
										
• Aluminum		--				X	**BD2A-400-ME-MBAL**	**BVP:611110**	1 unit	28.000
• Copper		--				X	**BD2C-400-ME-MBAL**	**BVP:611111**	1 unit	36.600

[1] Single-core cable entry plate, undrilled.

Feeding units

Version	SD	Rated current I_{nA} 630 A, 800 A, 1000 A		PS*/ P. unit	Weight per unit	SD	Rated current I_{nA} 1250 A		PS*/ P. unit	Weight per unit
	d	Type	Article No.		kg	d	Type	Article No.		kg
Feeding units										
End feeding units with 3-pole switch disconnector and with cable entry plate[1]										
Cable entry for single-core cables from 3 sides										
										
• Copper	X	**BD2C-630-EESC**	**BVP:611346**	1 unit	39.000		--			
• Copper	X	**BD2C-800-EESC**	**BVP:611347**	1 unit	39.000		--			
Distribution board feeding units without joint block										
Bolt terminal (bolt included in scope of supply); PE position can be changed										
										
• Aluminum	X	**BD2A-1000-VE**	**BVP:261999**	1 unit	4.700		--			
• Copper	X	**BD2C-1000-VE**	**BVP:262007**	1 unit	11.800	X	**BD2C-1250-VE**	**BVP:262010**	1 unit	16.300
Center feeding units without joint block										
Bolt terminal (bolt included in scope of supply); edgewise, flat and PE positions can be changed (by rotating the whole busbar piece)										
Cable entry for multi-core cables from 3 sides										
										
• Aluminum	X	**BD2A-1000-ME**	**BVP:262000**	1 unit	47.000		--			
• Copper	X	**BD2C-1000-ME**	**BVP:262008**	1 unit	75.500		--			
With cable entry plate[1]										
Cable entry for single-core cables from 3 sides										
										
• Aluminum	X	**BD2A-1000-ME-MBAL**	**BVP:611112**	1 unit	47.000		--			
• Copper	X	**BD2C-1000-ME-MBAL**	**BVP:611113**	1 unit	75.500		--			

[1] Single-core cable entry plate, undrilled.

Overview

Fuse holders	Fuse disconnectors	Miniature circuit breakers	Molded case circuit breakers	Empty tap-off units
16 A (can be plugged onto trunking units size 1 and size 2)				
BD2-AK1/S14		BD2-AK1/A163		
BD2-AK1/2CEE163S14		BD2-AK1/2CEE163A161		
BD2-AK1/CEE165S14		BD2-AK1/CEE165A163		
BD2-AK1/3SD163S14		BD2-AK1/3SD163A161		
BD2-AK2X/2CEE165S14		BD2-AK1/CEE163FIA161		
BD2-AK2X/2CEE165S27/ FORMP		BD2-AK1/2SD163FIA161		
		BD2-AK2M2/CEE165FIA163		
		BD2-AK2M2/2SD163CEE165 A163		
		BD2-AK2M2/2CEE165A163		
		BD2-AK023/3RCBO-161NC-3CEE163		
		BD2-AK023/3A161C-PAC-3CEE163		
		BD2-AK023/3A161C-3CEE163		
		BD2-AK023/3A161C-PAC		
		BD2-AK023/3A161C-PAC-RCCB-3CEE163		
		BD2-AK023/3A161C-RCCB-3CEE163		
		BD2-AK023/ 3A251C-PAC-3RCBO161NC-3CEE163		
		BD2-AK023/A163C-PAC-CEE165		
		BD2-AK023/A163C-CEE165		
		BD2-AK023/A163C-PAC		
		BD2-AK023/A163C-RCCB-PAC-CEE165		
		BD2-AK023/A163C-RCCB-CEE165		
		BD2-AK023/3A161NC-PAC-3CEE163		
		BD2-AK023/3A161NC-3CEE163		
		BD2-AK023/3A161NC-PAC		
		BD2-AK023/A163NC-PAC-CEE165		
		BD2-AK023/A163NC-CEE165		
		BD2-AK023/A163NC-PAC		
		BD2-AK023/ A163NC-RCCB-PAC-CEE165		
		BD2-AK023/A163NC-RCCB-CEE165		
25 A (can be plugged onto trunking units size 1 and size 2)				
BD2-AK1/S18				BD2-AK1/F
BD2-AK02X/S27				
BD2-AK02X/F1038-3				
BD2-AK02X/F1038-3N				
BD2-AK2X/S27				

Tap-off units

Fuse holders	Fuse disconnectors	Miniature circuit breakers	Molded case circuit breakers	Empty tap-off units
32 A (can be plugged onto trunking units size 1 and size 2)				
BD2-AK02X/F1451-3		BD2-AK02M2/A323		
BD2-AK02X/F1451-3N		BD2-AK02M2/A323N		
BD2-AK2X/CEE325S33		BD2-AK2M2/A323		
		BD2-AK2M2/CEE325A323		
		BD2-AK023/3RCBO-321NC-3CEE323		
		BD2-AK023/3A321C-PAC-3CEE323		
		BD2-AK023/3A321C-3CEE323		
		BD2-AK023/3A321C-PAC		
		BD2-AK023/3A321C-PAC-RCCB-3CEE323		
		BD2-AK023/3A321C-RCCB-3CEE323		
		BD2-AK023/3A401C-PAC-3RCBO321NC-3CEE323		
		BD2-AK023/A323C-PAC-CEE325		
		BD2-AK023/A323C-CEE325		
		BD2-AK023/A323C-PAC		
		BD2-AK023/A323C-RCCB-PAC-CEE325		
		BD2-AK023/A323C-RCCB-CEE325		
		BD2-AK023/3A321NC-PAC-3 CEE323		
		BD2-AK023/3A321NC-3CEE323		
		BD2-AK023/3A321NC-PAC		
		BD2-AK023/A323NC-PAC-CEE325		
		BD2-AK023/A323NC-CEE325		
		BD2-AK023/A323NC-PAC		
		BD2-AK023/A323NC-RCCB-PAC-CEE325		
		BD2-AK023/A323NC-RCCB-C EE325		
40 A (can be plugged onto trunking units size 1 and size 2)				
			BD2-AK03/LSD-3VA11-S-040-3-TM240	
			BD2-AK03/LSD-3VA11-M-040-3-TM240	
			BD2-AK03/LSD-3VA11-M-040-4-TM240	
			BD2-AK03/LSD-3VA21-M-040-3-ET350	
			BD2-AK03/LSD-3VA21-M-040-4-ET350	
63 A (can be plugged onto trunking units size 1 and size 2)				
BD2-AK02X/S18		BD2-AK02M2/A633	BD2-AK03/LSD-3VA11-S-063-3-TM240	BD2-AK02X/F
BD2-AK02X/S33		BD2-AK02M2/A633N	BD2-AK03/LSD-3VA11-M-063-3-TM240	BD2-AK02M2/F
BD2-AK02X/F2258-3		BD2-AK03/A63-3-PAC22-PLT	BD2-AK03/LSD-3VA11-M-063-4-TM240	BD2-AK2X/F
BD2-AK02X/F2258-3N			BD2-AK03/LSD-3VA21-M-063-3-ET350	BD2-AK2M2/F
BD2-AK2X/S18			BD2-AK03/LSD-3VA21-M-063-4-ET350	
BD2-AK2X/S33				
BD2-AK2X/CEE635S33				
80 A (can be plugged onto trunking units size 1 and size 2)				
			BD2-AK03/LSD-3VA11-M-080-3-TM240	
			BD2-AK03/LSD-3VA11-M-080-4-TM240	
			BD2-AK03/LSD-3VA11-S-080-3-TM240	

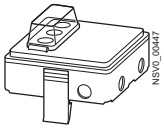
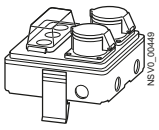
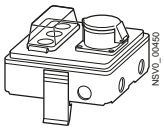
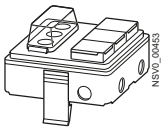
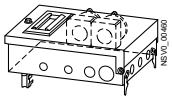
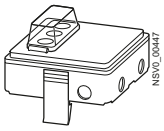
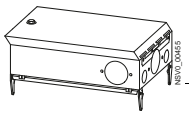
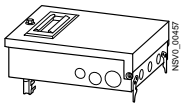
Fuse holders	Fuse disconnectors	Miniature circuit breakers	Molded case circuit breakers	Empty tap-off units
100 A (can be plugged onto trunking units size 1 and size 2)				
BD2-AK03X/F2258-3			BD2-AK03/LSD-3VA11-S-100-3-TM240	
BD2-AK03X/F2258-3N			BD2-AK03/LSD-3VA11-M-100-3-TM240	
			BD2-AK03/LSD-3VA11-M-100-4-TM240	
			BD2-AK03/LSD-3VA21-M-100-3-ET350	
			BD2-AK03/LSD-3VA21-M-100-4-ET350	
125 A (can be plugged onto trunking units size 1 and size 2)				
BD2-AK3X/GS00	BD2-AK3X/GSTZ00	BD2-AK03M2/A1253	BD2-AK03/LSD-3VA11-S-125-3-TM240	BD2-AK3M2/F
	BD2-AK03X/GSTA00	BD2-AK03M2/A1253N	BD2-AK03/LSD-3VA11-M-125-3-TM240	BD2-AK03X/F
	BD2-AK03X/FS125IEC-3		BD2-AK03/LSD-3VA11-M-125-4-TM240	BD2-AK03M2/F
	BD2-AK03X/FS125BS-3		BD2-AK03/LSD-3VA21-M-125-3-ET350	BD2-AK03/LSD-3VAXX-M-125-3-F
	BD2-AK03X/FS125IEC-4		BD2-AK03/LSD-3VA21-M-125-4-ET350	BD2-AK03/LSD-3VAXX-M-125-4-F
				BD2-AK03/EE-125/F
160 A (can be plugged onto trunking units size 1 and size 2)				
			BD2-AK04/LSD-3VA12-S-160-3-TM240	
			BD2-AK04/LSM-3VA12-S-160-3-TM240	
			BD2-AK04/LSD-3VA12-M-160-3-TM240	
			BD2-AK04/LSD-3VA12-M-160-4-TM240	
			BD2-AK04/LSM-3VA12-M-160-3-TM240	
			BD2-AK04/LSD-3VA22-M-160-3-ET350	
			BD2-AK04/LSD-3VA22-M-160-4-ET350	
			BD2-AK04/LSM-3VA22-M-160-3-ET350	
			BD2-AK04/LSM-3VA22-M-160-4-ET350	
			BD2-AK04/LSD-3VA22-M-160-3-ET350-T	
			BD2-AK04/LSD-3VA22-M-160-3-ET350-PLT	
200 A (can be plugged onto trunking units size 1 and size 2)				
			BD2-AK04/LSD-3VA12-S-200-3-TM240	
			BD2-AK04/LSM-3VA12-S-200-3-TM240	
			BD2-AK04/LSD-3VA12-M-200-3-TM240	
			BD2-AK04/LSM-3VA12-M-200-3-TM240	
			BD2-AK04/LSD-3VA12-M-200-4-TM240	
215 A (can be plugged onto trunking units size 1 and size 2)				
			BD2-AK04/LSD-3VA22-M-250-3-ET350	
			BD2-AK04/LSM-3VA22-M-250-3-ET350	
			BD2-AK04/LSD-3VA22-M-250-4-ET350	
			BD2-AK04/LSM-3VA22-M-250-4-ET350	
			BD2-AK04/LSD-3VA22-M-250-3-ET350-T	
			BD2-AK04/LSD-3VA22-M-250-3-ET350-PLT	
225 A (can be plugged onto trunking units size 1 and size 2)				
	BD2-AK04/FS250IEC-3		BD2-AK04/LSD-3VA12-S-250-3-TM240	BD2-AK04/LSD-3VA12-M-250-3-F
	BD2-AK04/FS250BS-3		BD2-AK04/LSM-3VA12-S-250-3-TM240	BD2-AK04/LSD-3VA22-M-250-3-F
	BD2-AK04/FS250IEC-4		BD2-AK04/LSD-3VA12-M-250-3-TM240	BD2-AK04/LSD-3VA12-M-250-4-F
	BD2-AK04/FS250BS-4		BD2-AK04/LSM-3VA12-M-250-3-TM240	BD2-AK04/LSD-3VA22-M-250-4-F
			BD2-AK04/LSD-3VA12-M-250-4-TM240	

Tap-off units

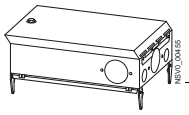
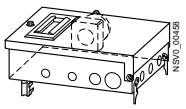
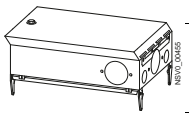
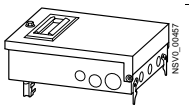
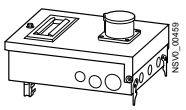
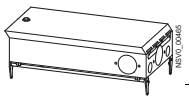
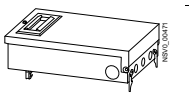
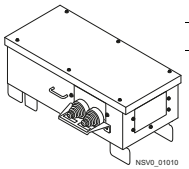
Fuse holders	Fuse disconnectors	Miniature circuit breakers	Molded case circuit breakers	Empty tap-off units
250 A (can be plugged onto trunking units size 1 and size 2)				
BD2-AK04/SNH1				BD2-AK04/EE-250/F
320 A (can be plugged onto trunking units size 2 only)				
	BD2-AK05/FS400IEC-3			
	BD2-AK05/FS400BS-3			
	BD2-AK05/FS400IEC-4			
	BD2-AK05/FS400BS-4			
355 A (can be plugged onto trunking units size 2 only)				
			BD2-AK05/LSD-3VA13-S-400-3-TM240	
			BD2-AK05/LSD-3VA13-S-400-4-TM240	
			BD2-AK05/LSM-3VA13-S-400-3-TM240	
			BD2-AK05/LSM-3VA13-S-400-4-TM240	
			BD2-AK05/LSD-3VA13-M-400-3-TM240	
			BD2-AK05/LSD-3VA13-M-400-4-TM240	
			BD2-AK05/LSM-3VA13-M-400-3-TM240	
			BD2-AK05/LSM-3VA13-M-400-4-TM240	
380 A (can be plugged onto trunking units size 2 only)				
			BD2-AK05/LSD-3VA24-M-400-3-ET350	BD2-AK05/LSD-3VA24-M-400-3-F
			BD2-AK05/LSD-3VA24-M-400-4-ET350	BD2-AK05/LSD-3VA24-M-400-4-F
			BD2-AK05/LSM-3VA24-M-400-3-ET350	BD2-AK05/LSD-3VA13-M-400-3-F
			BD2-AK05/LSM-3VA24-M-400-4-ET350	BD2-AK05/LSD-3VA13-M-400-4-F
			BD2-AK05/LSD-3VA24-M-400-3-ET350-PLT	
			BD2-AK05/LSD-3VA24-M-400-3-ET350-T	
400 A (can be plugged onto trunking units size 2 only)				
BD2-AK05/SNH2				BD2-AK05/EE-400/F
430 A (can be plugged onto trunking units size 2 only)				
			BD2-AK06/LSD-3VA14-M-630-3-TM240	
			BD2-AK06/LSD-3VA14-M-630-4-TM240	
			BD2-AK06/LSD-3VA14-S-630-3-TM240	
			BD2-AK06/LSD-3VA14-S-630-4-TM240	
			BD2-AK06/LSM-3VA14-M-630-3-TM240	
			BD2-AK06/LSM-3VA14-M-630-4-TM240	
			BD2-AK06/LSM-3VA14-S-630-3-TM240	
			BD2-AK06/LSM-3VA14-S-630-4-TM240	
530 A (can be plugged onto trunking units size 2 only)				
BD2-AK06/SNH3			BD2-AK06/LSD-3VA15-M-630-3-TM240	
			BD2-AK06/LSD-3VA15-M-630-4-TM240	
550 A (can be plugged onto trunking units size 2 only)				
			BD2-AK06/LSD-3VA25-M-630-3-ET350	
			BD2-AK06/LSD-3VA25-M-630-3-ET350-PLT	
			BD2-AK06/LSD-3VA25-M-630-3-ET350-T	
			BD2-AK06/LSD-3VA25-M-630-4-ET350	

Selection and ordering data

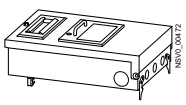
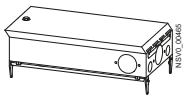
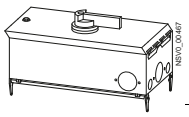
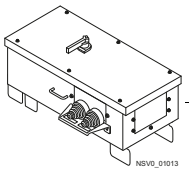
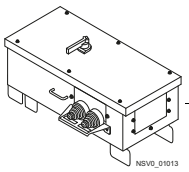
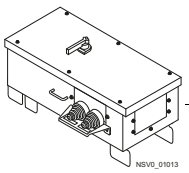
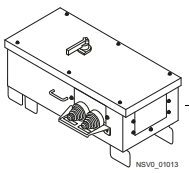
Fuse holders

Version	Rated current I_{nc}	Rated operational voltage U_e	Fuse holder	Connection	Cover-integrated switch disconnector	SD	Type	Article No.	PS*/ P. unit	Weight per unit
	A	V		A		d				kg
Tap-off units with fuse holder, rated current I_{nc} 16 A										
• Without socket outlet 	16	400	3 × D01	Direct	--	X	**BD2-AK1/S14**	**BVP:047113**	1 unit	1.100
• With socket outlets 	16	230	2 × D01	2 x CEE 16 A, 3-pole, wired to L1	--	X	**BD2-AK1/2CEE163S14**	**BVP:047167**	1 unit	1.200
• With socket outlet 	16	400	3 × D01	1 x CEE 16 A, 5-pole	--	X	**BD2-AK1/CEE165S14**	**BVP:047230**	1 unit	1.200
• With socket outlets 	16	230	3 × D01	3 x Schuko, 16 A, 3-pole, wired to L1	--	X	**BD2-AK1/3SD163S14**	**BVP:047284**	1 unit	1.400
• With socket outlets 	16	400	2 x (3 x D01)	2 CEE, 16 A, 5-pole	Yes	X	**BD2-AK2X/2CEE165S14**	**BVP:203148**	1 unit	4.800
	16	400	2 x (3 x S27), with screw adapter system	2 CEE, 16 A, 5-pole	Yes	X	**BD2-AK2X/ 2CEE165S27/ FORMP**	**BVP:203149**	1 unit	4.900
Tap-off units with fuse holder, rated current I_{nc} 25 A										
• Without socket outlet 	25	400	3 x D02	Direct	--	X	**BD2-AK1/S18**	**BVP:047112**	1 unit	1.150
With fuse base 	25	500	3 x S27 with screw adapter system	Direct	--	X	**BD2-AK02X/S27**	**BVP:262439**	1 unit	3.940
	25	400	3 x SP38 for cylindrical fuses 10 × 38 mm	Direct	--	X	**BD2-AK02X/F1038-3**	**BVP:262469**	1 unit	5.500
	25	400	4 x SP38 for cylindrical fuses 10 × 38 mm	Direct	--	X	**BD2-AK02X/F1038-3N**	**BVP:262470**	1 unit	5.500
• Without socket outlet 	25	500	3 x S27 with screw adapter system	Direct	Yes	X	**BD2-AK2X/S27**	**BVP:203136**	1 unit	3.940

Tap-off units

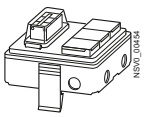
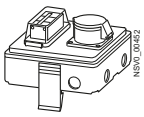
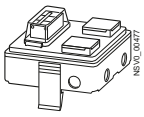
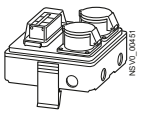
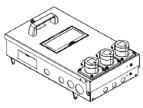
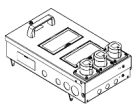
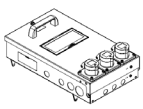
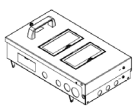
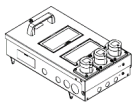
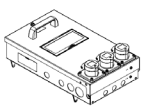
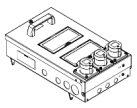
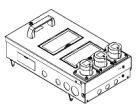
Version	Rated current I_{nc}	Rated operational voltage U_e	Fuse holder	Connection	Cover-integrated switch disconnector	SD	Type	Article No.	PS*/ P. unit	Weight per unit
	A	V		A		d				kg
Tap-off units with fuse holder, rated current I_{nc} 32 A										
• Without socket outlet										
	32	400	3 x SP51 for cylindrical fuses 14 × 51 mm	Direct	--	X	**BD2-AK02X/F1451-3**	**BVP:262471**	1 unit	5.500
	32	400	4 x SP51 for cylindrical fuses 14 × 51 mm	Direct	--	X	**BD2-AK02X/F1451-3N**	**BVP:262472**	1 unit	5.500
• With socket outlet	32	400	3 x S33 with screw adapter system	1 x CEE 32 A, 5-pole	Yes	X	**BD2-AK2X/CEE325S33**	**BVP:203142**	1 unit	5.100
										
Tap-off units with fuse holder, rated current I_{nc} 63 A										
With fuse base										
	63	400	3 x D02	Direct	--	X	**BD2-AK02X/S18**	**BVP:262438**	1 unit	4.140
	63	500	3 x S33 with screw adapter system	Direct	--	X	**BD2-AK02X/S33**	**BVP:262450**	1 unit	4.200
	63	400	3 x SP58 for cylindrical fuses 22 × 58 mm	Direct	--	X	**BD2-AK02X/F2258-3**	**BVP:262473**	1 unit	5.700
	63	400	4 x SP58 for cylindrical fuses 22 × 58 mm	Direct	--	X	**BD2-AK02X/F2258-3N**	**BVP:262474**	1 unit	5.700
• Without socket outlet	63	400	3 x D02	Direct	Yes	X	**BD2-AK2X/S18**	**BVP:203135**	1 unit	4.140
	63	500	3 x S33 with screw adapter system	Direct	Yes	X	**BD2-AK2X/S33**	**BVP:203138**	1 unit	4.200
• With socket outlet	63	400	3 x S33 with screw adapter system	1 x CEE 63 A, 5-pole	Yes	X	**BD2-AK2X/CEE635S33**	**BVP:203146**	1 unit	5.680
										
Tap-off units with fuse holder, rated current I_{nc} 100 A										
With fuse base										
	100	690	3 x SP58 for cylindrical fuses 22 × 58 mm	Direct	--	X	**BD2-AK03X/F2258-3**	**BVP:262497**	1 unit	7.500
	100	690	4 x SP58 for cylindrical fuses 22 × 58 mm	Direct	--	X	**BD2-AK03X/F2258-3N**	**BVP:262498**	1 unit	7.500
	125	690	3 x NH00	Direct	Yes	X	**BD2-AK3X/GS00**	**BVP:203162**	1 unit	5.400
	250	690	3 x NH1	Direct	--	X	**BD2-AK04/SNH1**	**BVP:610421**	1 unit	30.000
	400	690	3 x NH2	Direct	--	X	**BD2-AK05/SNH2**	**BVP:610422**	1 unit	35.000
	530	690	3 x NH3	Direct	--	X	**BD2-AK06/SNH3**	**BVP:610423**	1 unit	40.000

Fuse disconnectors

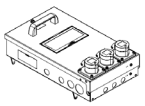
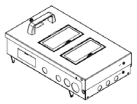
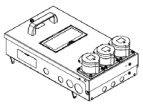
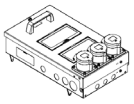
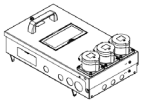
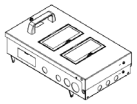
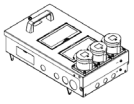
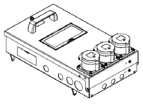
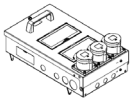
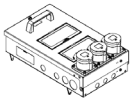
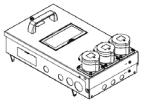
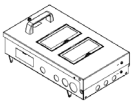
Version	Rated current I_{nc}	Rated operational voltage U_e	Switching device	Connection	Cover-integrated switch disconnector	SD	Type	Article No.	PS*/ P. unit	Weight per unit
	A	V		A		d				kg
Tap-off units with fuse disconnector										
With fuse switch disconnector										
	125	690	Fuse switch disconnector, 3-pole, NH00	Direct	Yes	X	**BD2-AK3X/GSTZ00**	**BVP:203163**	1 unit	6.960
	125	690	Fuse switch disconnector, 3-pole, NH00	Direct	--	X	**BD2-AK03X/GSTA00**	**BVP:262496**	1 unit	6.960
With switch disconnector with fuses										
	125	400	Switch disconnector with fuses, 3-pole, NH00, IEC	Direct	--	X	**BD2-AK03X/FS125IEC-3**	**BVP:262499**	1 unit	7.940
	125	400	Switch disconnector with fuses, 3-pole, NH00, BS	Direct	--	X	**BD2-AK03X/FS125BS-3**	**BVP:262500**	1 unit	7.940
	125	400	Switch disconnector with fuses, 4-pole, NH00, IEC	Direct	--	X	**BD2-AK03X/FS125IEC-4**	**BVP:262501**	1 unit	8.280
	225	400	Switch disconnector with fuses, 3-pole, NH1, IEC	Direct	--	X	**BD2-AK04/FS250IEC-3**	**BVP:610409**	1 unit	30.000
	225	400	Switch disconnector with fuses, 3-pole, NH1, BS	Direct	--	X	**BD2-AK04/FS250BS-3**	**BVP:610411**	1 unit	30.000
	225	400	Switch disconnector with fuses, 4-pole, NH1, IEC	Direct	--	X	**BD2-AK04/FS250IEC-4**	**BVP:610410**	1 unit	30.000
	225	400	Switch disconnector with fuses, 4-pole, NH1, BS	Direct	--	X	**BD2-AK04/FS250BS-4**	**BVP:610412**	1 unit	30.000
	320	400	Switch disconnector with fuses, 3-pole, NH2, IEC	Direct	--	X	**BD2-AK05/FS400IEC-3**	**BVP:610413**	1 unit	35.000
	320	400	Switch disconnector with fuses, 3-pole, NH2, BS	Direct	--	X	**BD2-AK05/FS400BS-3**	**BVP:610415**	1 unit	35.000
	320	400	Switch disconnector with fuses, 4-pole, NH2, IEC	Direct	--	X	**BD2-AK05/FS400IEC-4**	**BVP:610414**	1 unit	35.000
	320	400	Switch disconnector with fuses, 4-pole, NH2, BS	Direct	--	X	**BD2-AK05/FS400BS-4**	**BVP:610416**	1 unit	35.000

Tap-off units

Miniature circuit breakers

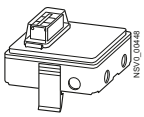
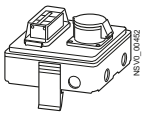
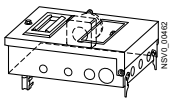
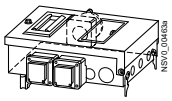
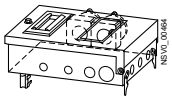
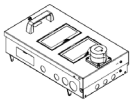
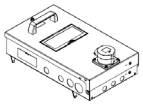
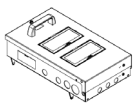
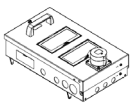
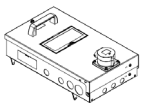
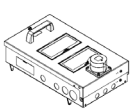
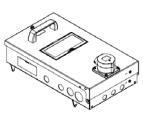
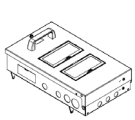
	1st switching device	2nd switching device	Measure-ment	Connection	Cover-inte-grated switch discon-nector	SD	Type	Article No.	PS*/ P. unit	Weight per unit
						d				kg
Tap-off units with miniature circuit breaker										
Rated operational voltage Ue 230 V										
	Rated current I_{nc} 16 A									
	3 x MCB, 1P, B, 16 A	--	--	3 x Schuko, 3-pole, 16 A	--	X	**BD2-AK1/3SD163A161**	**BVP:047335**	1 unit	1.300
	1 x MCB, 1P, C, 16 A	RCCB, 2-pole, type A, I_n: 25 A, 30 mA	--	2 x CEE, 3-pole, 16 A	--	X	**BD2-AK1/CEE163FIA161**	**BVP:660869**	1 unit	1.500
	1 x MCB, 1P, B, 16 A	RCCB, 2-pole, type A, I_n: 25 A, 30 mA	--	2 x Schuko, 3-pole, 16 A		X	**BD2-AK1/2SD163FIA161**	**BVP:660870**	1 unit	1.300
	2 x MCB, 1P, B, 16 A	--	--	2 x CEE, 3-pole, 16 A	--	X	**BD2-AK1/2CEE163A161**	**BVP:047231**	1 unit	1.400
	3 x RCBO, 10 kA, 1P+N, type A, 30 mA, C, 16 A	--	--	3 x CEE, 3-pole, 16 A	--	X	**BD2-AK023/3RCBO-161NC-3CEE163**	**BVP:662646**	1 unit	5.100
	3 x MCB, 15 kA, 1P, C, 16 A	--	PAC2200	3 x CEE, 3-pole, 16 A	--	X	**BD2-AK023/3A161C-PAC-3CEE163**	**BVP:662640**	1 unit	5.100
	3 x MCB, 15 kA, 1P, C, 16 A	--	--	3 x CEE, 3-pole, 16 A	--	X	**BD2-AK023/3A161C-3CEE163**	**BVP:662656**	1 unit	4.900
	3 x MCB, 15 kA, 1P, C, 16 A	--	PAC2200	Direct	--	X	**BD2-AK023/3A161C-PAC**	**BVP:662664**	1 unit	4.600
	3 x MCB, 15 kA, 1P, C, 16 A	RCCB, 2-pole, type A, I_n: 16 A, 30 mA	PAC2200	3 x CEE, 3-pole, 16 A	--	X	**BD2-AK023/3A161C-PAC-RCCB-3CEE163**	**BVP:662632**	1 unit	5.600
	3 x MCB, 15 kA, 1P, C, 16 A	RCCB, 2-pole, type A, I_n: 16 A, 30 mA	--	3 x CEE, 3-pole, 16 A	--	X	**BD2-AK023/3A161C-RCCB-3CEE163**	**BVP:662648**	1 unit	5.400
	3 x MCB, 15 kA, 1P, C, 25 A	RCBO, 10 kA, 1P+N, type A, 30 mA, C, 16 A	PAC2200	3 x CEE, 3-pole, 16 A	--	X	**BD2-AK023/ 3A251C-PAC-3RCBO161NC-3CEE163**	**BVP:662670**	1 unit	5.600
	3 x MCB, 15 kA, 1P+N, C, 16 A	--	PAC2200	3 x CEE, 3-pole, 16 A	--	X	**BD2-AK023/3A161NC-PAC-3CEE163**	**BVP:662638**	1 unit	5.300

4

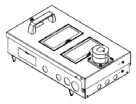
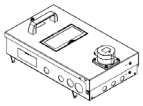
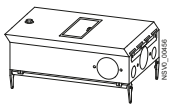
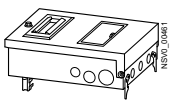
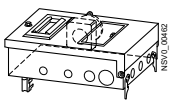
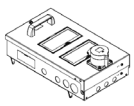
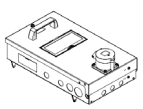
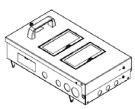
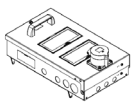
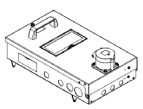
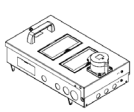
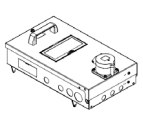
	1st switching device	2nd switching device	Measure-ment	Connection	Cover-inte-grated switch discon-nector	SD	Type	Article No.	PS*/ P. unit	Weight per unit
						d				kg
Tap-off units with miniature circuit breaker										
Rated operational voltage Ue 230 V										
	Rated current I_{nc} 16 A									
	3 x MCB, 15 kA, 1P+N, C, 16 A	--	--	3 x CEE, 3-pole, 16 A	--	X	**BD2-AK023/3A161NC-3CEE163**	**BVP:662654**	1 unit	5.100
	3 x MCB, 15 kA, 1P+N, C, 16 A	--	PAC2200	Direct	--	X	**BD2-AK023/3A161NC-PAC**	**BVP:662662**	1 unit	4.900
	Rated current I_{nc} 32 A									
	3 x RCBO, 10 kA, 1P+N, type A, 30 mA, C, 32 A	--	--	3 x CEE, 3-pole, 32 A	--	X	**BD2-AK023/3RCBO-321NC-3CEE323**	**BVP:662650**	1 unit	5.500
	3 x MCB, 15 kA, 1P, C, 32 A	--	PAC2200	3 x CEE, 3-pole, 32 A	--	X	**BD2-AK023/3A321C-PAC-3CEE323**	**BVP:662644**	1 unit	5.400
	3 x MCB, 15 kA, 1P, C, 32 A	--	--	3 x CEE, 3-pole, 32 A	--	X	**BD2-AK023/3A321C-3CEE323**	**BVP:662660**	1 unit	5.200
	3 x MCB, 15 kA, 1P, C, 32 A	--	PAC2200	Direct	--	X	**BD2-AK023/3A321C-PAC**	**BVP:662668**	1 unit	4.600
	3 x MCB, 15 kA, 1P, C, 32 A	RCCB, 2-pole, type A, I_n: 40 A, 30 mA	PAC2200	3 x CEE, 3-pole, 32 A	--	X	**BD2-AK023/3A321C-PAC-RCCB-3CEE323**	**BVP:662636**	1 unit	6.000
	3 x MCB, 15 kA, 1P, C, 32 A	RCCB, 2-pole, type A, I_n: 40 A, 30 mA		3 x CEE, 3-pole, 32 A	--	X	**BD2-AK023/3A321C-RCCB-3CEE323**	**BVP:662652**	1 unit	5.700
	3 x MCB, 15 kA, 1P, C, 40 A	RCBO, 10 kA, 1P+N, type A, 30 mA, C, 32 A	PAC2200	3 x CEE, 3-pole, 32 A	--	X	**BD2-AK023/3A401C-PAC-3RCBO321NC-3CEE323**	**BVP:662634**	1 unit	6.000
	3 x MCB, 15 kA, 1P+N, C, 32 A	--	PAC2200	3 x CEE, 3-pole, 32 A	--	X	**BD2-AK023/3A321NC-PAC-3CEE323**	**BVP:662642**	1 unit	5.700
	3 x MCB, 15 kA, 1P+N, C, 32 A	--	--	3 x CEE, 3-pole, 32 A	--	X	**BD2-AK023/3A321NC-3CEE323**	**BVP:662658**	1 unit	5.400
	3 x MCB, 15 kA, 1P+N, C, 32 A	--	PAC2200	Direct	--	X	**BD2-AK023/3A321NC-PAC**	**BVP:662666**	1 unit	4.900

4

Tap-off units

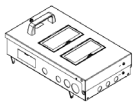
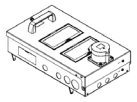
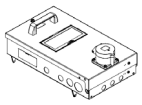
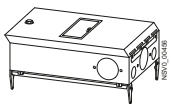
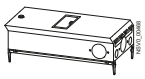
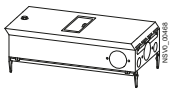
	1st switching device	2nd switching device	Measure-ment	Connection	Cover-inte-grated switch discon-nector	SD	Type	Article No.	PS*/ P. unit	Weight per unit
						d				kg
Tap-off units with miniature circuit breaker										
Rated operational voltage Ue 400 V										
	Rated current I_{nc} 16 A									
	1 x MCB, 3P, C, 16 A	--	--	Direct	--	X	**BD2-AK1/A163**	**BVP:047146**	1 unit	1.400
	1 x MCB, 3P, C, 16 A	--	--	1 x CEE, 5-pole, 16 A	--	X	**BD2-AK1/CEE165A163**	**BVP:047283**	1 unit	1.500
	1 x MCB, 3P, C, 16 A	RCCB, 4-pole, type A, I_n: 25 A, 30 mA	--	1 x CEE, 5-pole, 16 A	Yes	X	**BD2-AK2M2/CEE165FIA163**	**BVP:660868**	1 unit	6.100
	1 x MCB, 3P, B, 16 A; 2 x MCB, 1P, B, 16 A	--	--	1 x CEE, 5-pole, 16 A, 2 x Schuko, 3-pole, 16 A	Yes	X	**BD2-AK2M2/2SD163CEE 165A163**	**BVP:203150**	1 unit	5.600
	2 x MCB, 3P, C, 16 A	--	--	2 x CEE, 5-pole, 16 A	Yes	X	**BD2-AK2M2/2CEE165 A163**	**BVP:203151**	1 unit	5.400
	1 x MCB, 15 kA, 3P, C, 16 A	--	PAC2200	1 x CEE, 5-pole, 16 A	--	X	**BD2-AK023/A163C-PAC-CEE165**	**BVP:662641**	1 unit	4.800
	1 x MCB, 15 kA, 3P, C, 16 A	--	--	1 x CEE, 5-pole, 16 A	--	X	**BD2-AK023/A163C-CEE165**	**BVP:662657**	1 unit	4.600
	1 x MCB, 15 kA, 3P, C, 16 A	--	PAC2200	Direct	--	X	**BD2-AK023/A163C-PAC**	**BVP:662665**	1 unit	4.600
	1 x MCB, 15 kA, 3P, C, 16 A	RCCB, 4-pole, type A, I_n: 25 A, 30 mA	PAC2200	1 x CEE, 5-pole, 16 A	--	X	**BD2-AK023/A163C-RCCB-PAC-CEE165**	**BVP:662633**	1 unit	5.100
	1 x MCB, 15 kA, 3P, C, 16 A	RCCB, 4-pole, type A, I_n: 25 A, 30 mA	--	1 x CEE, 5-pole, 16 A	--	X	**BD2-AK023/A163C-RCCB-CEE165**	**BVP:662649**	1 unit	4.900
	1 x MCB, 15 kA, 3P+N, C, 16 A	--	PAC2200	1 x CEE, 5-pole, 16 A	--	X	**BD2-AK023/A163NC-PAC-CEE165**	**BVP:662639**	1 unit	4.900
	1 x MCB, 15 kA, 3P+N, C, 16 A	--	--	1 x CEE, 5-pole, 16 A	--	X	**BD2-AK023/A163NC-CEE165**	**BVP:662655**	1 unit	4.600
	1 x MCB, 15 kA, 3P+N, C, 16 A	--	PAC2200	Direct	--	X	**BD2-AK023/A163NC-PAC**	**BVP:662663**	1 unit	4.700

4

	1st switching device	2nd switching device	Measure-ment	Connection	Cover-inte-grated switch discon-nector	SD	Type	Article No.	PS*/ P. unit	Weight per unit
						d				kg
Tap-off units with miniature circuit breaker										
Rated operational voltage Ue 400 V										
	Rated current I_{nc} 16 A									
	1 x MCB, 15 kA, 3P+N, C, 16 A	RCCB, 4-pole, type A, I_n: 25 A, 30 mA	PAC2200	1 x CEE, 5-pole, 16 A	--	X	**BD2-AK023/ A163NC-RCCB-PAC-CEE165**	**BVP:662671**	1 unit	5.400
	1 x MCB, 15 kA, 3P+N, C, 16 A	RCCB, 4-pole, type A, I_n: 25 A, 30 mA	--	1 x CEE, 5-pole, 16 A	--	X	**BD2-AK023/A163NC-RCCB-CEE165**	**BVP:662647**	1 unit	5.000
	Rated current I_{nc} 32 A									
	1 x MCB, 3P, C, 32 A	--	--	Direct	--	X	**BD2-AK02M2/A323**	**BVP:262451**	1 unit	4.380
	1 x MCB, 3p+N, C, 32 A	--	--	Direct	--	X	**BD2-AK02M2/A323N**	**BVP:262452**	1 unit	4.800
	1 x MCB, 3P, C, 32 A	--	--	Direct	Yes	X	**BD2-AK2M2/A323**	**BVP:203144**	1 unit	4.380
	1 x MCB, 3P, C, 32 A	--	--	1 x CEE, 5-pole, 32 A	Yes	X	**BD2-AK2M2/CEE325A323**	**BVP:207986**	1 unit	4.900
	1 x MCB, 15 kA, 3P, C, 32 A	--	PAC2200	1 x CEE, 5-pole, 32 A	--	X	**BD2-AK023/A323C-PAC-CEE325**	**BVP:662645**	1 unit	4.890
	1 x MCB, 15 kA, 3P, C, 32 A	--	--	1 x CEE, 5-pole, 32 A	--	X	**BD2-AK023/A323C-CEE325**	**BVP:662661**	1 unit	4.700
	1 x MCB, 15 kA, 3P, C, 32 A	--	PAC2200	Direct	--	X	**BD2-AK023/A323C-PAC**	**BVP:662669**	1 unit	4.600
	1 x MCB, 15 kA, 3P, C, 32 A	RCCB, 4-pole, type A, I_n: 40 A, 30 mA	PAC2200	1 x CEE, 5-pole, 32 A	--	X	**BD2-AK023/A323C-RCCB-PAC-CEE325**	**BVP:662637**	1 unit	5.200
	1 x MCB, 15 kA, 3P, C, 32 A	RCCB, 4-pole, type A, I_n: 40 A, 30 mA	--	1 x CEE, 5-pole, 32 A	--	X	**BD2-AK023/A323C-RCCB-CEE325**	**BVP:662653**	1 unit	5.000
	1 x MCB, 15 kA, 3P+N, C, 32 A	--	PAC2200	1 x CEE, 5-pole, 32 A	--	X	**BD2-AK023/A323NC-PAC-CEE325**	**BVP:662643**	1 unit	5.000
	1 x MCB, 15 kA, 3P+N, C, 32 A	--	--	1 x CEE, 5-pole, 32 A	--	X	**BD2-AK023/A323NC-CEE325**	**BVP:662659**	1 unit	4.700

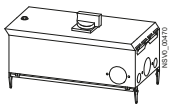
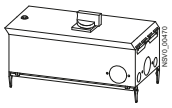
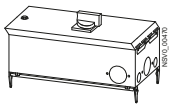
4

Tap-off units

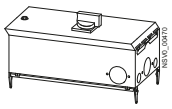
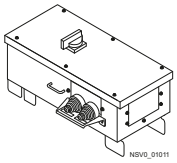
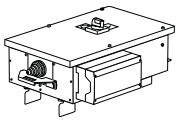
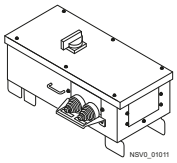
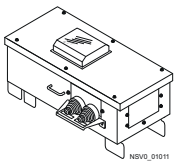
	1st switching device	2nd switching device	Measure-ment	Connection	Cover-inte-grated switch discon-nector	SD	Type	Article No.	PS*/ P. unit	Weight per unit
						d				kg
Tap-off units with miniature circuit breaker										
Rated operational voltage Ue 400 V										
	Rated current I_{nc} 32 A									
	1 x MCB, 15 kA, 3P+N, C, 32 A	--	PAC2200	Direct	--	X	**BD2-AK023/A323NC-PAC**	**BVP:662667**	1 unit	4.700
	1 x MCB, 15 kA, 3P+N, C, 32 A	RCCB, 4-pole, type A, I_n: 40 A, 30 mA	PAC2200	1 x CEE, 5-pole, 32 A	--	X	**BD2-AK023/A323NC-RCCB-PAC-CEE325**	**BVP:662635**	1 unit	5.300
	1 x MCB, 15 kA, 3P+N, C, 32 A	RCCB, 4-pole, type A, I_n: 40 A, 30 mA	--	1 x CEE, 5-pole, 32 A	--	X	**BD2-AK023/A323NC-RCCB-CEE325**	**BVP:662651**	1 unit	5.100
	Rated current I_{nc} 63 A									
	1 x MCB, 3P, C, 63 A	--	--	Direct	--	X	**BD2-AK02M2/A633**	**BVP:262453**	1 unit	5.100
	1 x MCB, 3P+N, C, 63 A	--	--	Direct	--	X	**BD2-AK02M2/A633N**	**BVP:262454**	1 unit	5.200
	3 x MCB, 1P, C, 63 A	--	PAC2200 + PLT modem	Direct	--	X	**BD2-AK03/A63-3-PAC22-PLT**	**BVP:662606**	1 unit	7.760
	Rated current I_{nc} 125 A									
	1 x MCB, 3P, C, 125 A			Direct		X	**BD2-AK03M2/A1253**	**BVP:262485**	1 unit	5.800
	1 x MCB, 3P+N, C, 125 A			Direct		X	**BD2-AK03M2/A1253N**	**BVP:262486**	1 unit	6.000

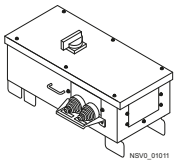
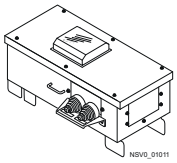
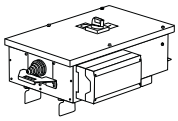
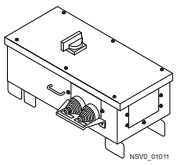
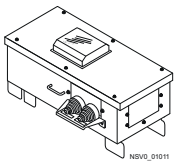
4

With molded case circuit breaker

	Rated operational voltage U_e	Circuit breaker	Trip unit / Measure-ment	Poles	Rated short-circuit breaking capacity I_{cu}	Setting range I_r	SD	Type	Article No.	PS*/ P. unit	Weight per unit
	V		A		A	A	d				kg
Rated current I_{nc} 40 A											
	Rotary operating mechanism, with thermal-magnetic trip unit, direct connection										
	400	3VA11 40 A	TM240	3	36	28...40	X	**BD2-AK03/LSD-3VA11-S-040-3-TM240**	**BVP:662444**	1 unit	11.000
	400	3VA11 40 A	TM240	3	55	28...40	X	**BD2-AK03/LSD-3VA11-M-040-3-TM240**	**BVP:662445**	1 unit	11.000
	400	3VA11 40 A	TM240	4	55	28...40	X	**BD2-AK03/LSD-3VA11-M-040-4-TM240**	**BVP:662511**	1 unit	11.000
	Rotary operating mechanism, with electronic trip unit, selective, direct connection										
	400	3VA21 40 A	ETU350	3	55	16...40	X	**BD2-AK03/LSD-3VA21-M-040-3-ET350**	**BVP:662454**	1 unit	11.000
	400	3VA21 40 A	ETU350	4	55	16...40	X	**BD2-AK03/LSD-3VA21-M-040-4-ET350**	**BVP:662455**	1 unit	11.000
Rated current I_{nc} 63 A											
	Rotary operating mechanism, with thermal-magnetic trip unit, direct connection										
	400	3VA11 63 A	TM240	3	36	44...63	X	**BD2-AK03/LSD-3VA11-S-063-3-TM240**	**BVP:662446**	1 unit	11.000
	400	3VA11 63 A	TM240	3	55	44...63	X	**BD2-AK03/LSD-3VA11-M-063-3-TM240**	**BVP:662447**	1 unit	11.000
	400	3VA11 63 A	TM240	4	55	44...63	X	**BD2-AK03/LSD-3VA11-M-063-4-TM240**	**BVP:662512**	1 unit	11.000
	Rotary operating mechanism, with electronic trip unit, selective, direct connection										
	400	3VA21 63 A	ETU350	3	55	25...63	X	**BD2-AK03/LSD-3VA21-M-063-3-ET350**	**BVP:662456**	1 unit	11.000
	400	3VA21 63 A	ETU350	4	55	25...63	X	**BD2-AK03/LSD-3VA21-M-063-4-ET350**	**BVP:662457**	1 unit	11.000
Rated current I_{nc} 80 A											
	Rotary operating mechanism, with thermal-magnetic trip unit, direct connection										
	400	3VA11 80 A	TM240	3	36	56...80	X	**BD2-AK03/LSD-3VA11-S-080-3-TM240**	**BVP:662448**	1 unit	11.000
	400	3VA11 80 A	TM240	3	55	56...80	X	**BD2-AK03/LSD-3VA11-M-080-3-TM240**	**BVP:662449**	1 unit	11.000
	400	3VA11 80 A	TM240	4	55	56...80	X	**BD2-AK03/LSD-3VA11-M-080-4-TM240**	**BVP:662513**	1 unit	11.000
Rated current I_{nc} 100 A											
	Rotary operating mechanism, with thermal-magnetic trip unit, direct connection										
	400	3VA11 100 A	TM240	3	36	70...100	X	**BD2-AK03/LSD-3VA11-S-100-3-TM240**	**BVP:662440**	1 unit	11.000
	400	3VA11 100 A	TM240	3	55	70...100	X	**BD2-AK03/LSD-3VA11-M-100-3-TM240**	**BVP:662441**	1 unit	11.000
	400	3VA11 100 A	TM240	4	55	70...100	X	**BD2-AK03/LSD-3VA11-M-100-4-TM240**	**BVP:662514**	1 unit	11.000
	Rotary operating mechanism, with electronic trip unit, selective, direct connection										
	400	3VA21 100 A	ETU350	3	55	40...100	X	**BD2-AK03/LSD-3VA21-M-100-3-ET350**	**BVP:662450**	1 unit	11.000
	400	3VA21 100 A	ETU350	4	55	40...100	X	**BD2-AK03/LSD-3VA21-M-100-4-ET350**	**BVP:662451**	1 unit	11.000

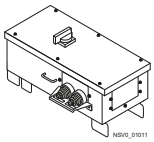
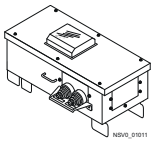
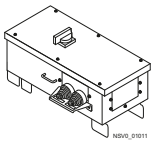
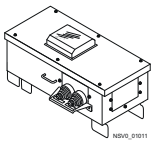
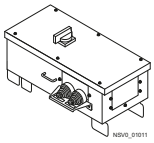
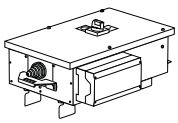
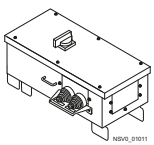
Tap-off units

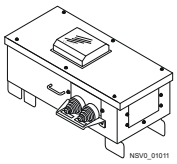
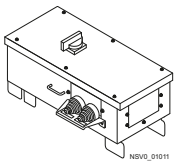
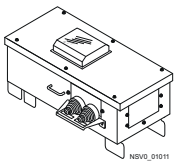
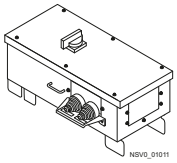
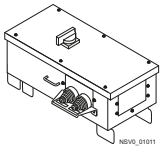
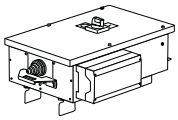
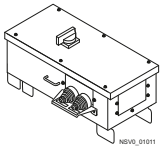
	Rated operational voltage U_e	Circuit breaker	Trip unit / Measure-ment	Poles	Rated short-circuit breaking capacity I_{cu}	Setting range I_r	SD	Type	Article No.	PS*/ P. unit	Weight per unit
	V		A		A	A	d				kg
Rated current I_{nc} 125 A											
	Rotary operating mechanism, with thermal-magnetic trip unit, direct connection										
	400	3VA11 125 A	TM240	3	36	88...125	X	**BD2-AK03/LSD-3VA11-S-125-3-TM240**	**BVP:662442**	1 unit	11.000
	400	3VA11 125 A	TM240	3	55	88...125	X	**BD2-AK03/LSD-3VA11-M-125-3-TM240**	**BVP:662443**	1 unit	11.000
	400	3VA11 125 A	TM240	4	55	88...125	X	**BD2-AK03/LSD-3VA11-M-125-4-TM240**	**BVP:662515**	1 unit	11.000
	Rotary operating mechanism, with electronic trip unit, selective, direct connection										
	400	3VA21 160 A	ETU350	3	55	63...160	X	**BD2-AK03/LSD-3VA21-M-125-3-ET350**	**BVP:662452**	1 unit	11.000
	400	3VA21 160 A	ETU350	4	55	63...160	X	**BD2-AK03/LSD-3VA21-M-125-4-ET350**	**BVP:662453**	1 unit	11.000
Rated current I_{nc} 160 A											
	Rotary operating mechanism, with thermal-magnetic trip unit, direct connection										
	400	3VA12 160 A	TM240	3	36	112...160	X	**BD2-AK04/LSD-3VA12-S-160-3-TM240**	**BVP:662462**	1 unit	27.000
	400	3VA12 160 A	TM240	3	55	112...160	X	**BD2-AK04/LSD-3VA12-M-160-3-TM240**	**BVP:662463**	1 unit	27.000
	400	3VA12 160 A	TM240	4	55	112...160	X	**BD2-AK04/LSD-3VA12-M-160-4-TM240**	**BVP:662516**	1 unit	27.000
	Rotary operating mechanism, with electronic trip unit, selective, direct connection										
	400	3VA22 160 A	ETU350	3	55	63...160	X	**BD2-AK04/LSD-3VA22-M-160-3-ET350**	**BVP:662473**	1 unit	28.000
	400	3VA22 160 A	ETU350	4	55	63...160	X	**BD2-AK04/LSD-3VA22-M-160-4-ET350**	**BVP:662475**	1 unit	29.000
	With measurement and powerline modem										
	400	3VA22 160 A, incl. Primary wiring and current transformer	ETU350 / CT + PAC2200 + PLT modem	3	55	63...160	X	**BD2-AK04/LSD-3VA22-M-160-3-ET350-PLT**	**BVP:662563**	1 unit	28.000
	With 3 current transformers										
	400	3VA22 160 A	ETU350 / CT	3	55	63...160	X	**BD2-AK04/LSD-3VA22-M-160-3-ET350-T**	**BVP:662571**	1 unit	28.000
	***Motor operating mechanism, with thermal-magnetic trip unit, direct connection***										
	400	3VA12 160 A	TM240	3	36	112...160	X	**BD2-AK04/LSM-3VA12-S-160-3-TM240**	**BVP:662460**	1 unit	27.500
	400	3VA12 160 A	TM240	3	55	112...160	X	**BD2-AK04/LSM-3VA12-M-160-3-TM240**	**BVP:662461**	1 unit	27.500
	Motor operating mechanism, with electronic trip unit, selective, direct connection										
	400	3VA22 160 A	ETU350	3	55	63...160	X	**BD2-AK04/LSM-3VA22-M-160-3-ET350**	**BVP:662472**	1 unit	28.500
	400	3VA22 160 A	ETU350	4	55	63...160	X	**BD2-AK04/LSM-3VA22-M-160-4-ET350**	**BVP:662474**	1 unit	29.500

	Rated operational voltage U_e	Circuit breaker	Trip unit / Measure-ment	Poles	Rated short-circuit breaking capacity I_{cu}	Setting range I_r	SD	Type	Article No.	PS*/ P. unit	Weight per unit
	V		A		A	A	d				kg
Rated current I_{nc} 200 A											
	Rotary operating mechanism, with thermal-magnetic trip unit, direct connection										
	400	3VA12 200 A	TM240	3	36	140...200	X	**BD2-AK04/LSD-3VA12-S-200-3-TM240**	**BVP:662466**	1 unit	27.000
	400	3VA12 200 A	TM240	3	55	140...200	X	**BD2-AK04/LSD-3VA12-M-200-3-TM240**	**BVP:662467**	1 unit	27.000
	400	3VA12 200 A	TM240	4	55	140...200	X	**BD2-AK04/LSD-3VA12-M-200-4-TM240**	**BVP:662517**	1 unit	27.000
	***Motor operating mechanism, with thermal-magnetic trip unit, direct connection***										
	400	3VA12 200 A	TM240	3	36	140...200	X	**BD2-AK04/LSM-3VA12-S-200-3-TM240**	**BVP:662464**	1 unit	27.500
	400	3VA12 200 A	TM240	3	55	140...200	X	**BD2-AK04/LSM-3VA12-M-200-3-TM240**	**BVP:662465**	1 unit	27.500
Rated current I_{nc} 215 A											
	Rotary operating mechanism, with electronic trip unit, selective, direct connection										
	400	3VA22 250 A	ETU350	3	55	100...250	X	**BD2-AK04/LSD-3VA22-M-250-3-ET350**	**BVP:662477**	1 unit	28.000
	With measurement and powerline modem										
	400	3VA22 250 A	ETU350/ CT + PAC2200 + PLT modem	3	55	100...250	X	**BD2-AK04/LSD-3VA22-M-250-3-ET350-PLT**	**BVP:662564**	1 unit	28.500
	With 3 current transformers										
	400	3VA22 250 A, incl. Primary wiring and current transformer	ETU350 / CT	3	55	100...250	X	**BD2-AK04/LSD-3VA22-M-250-3-ET350-T**	**BVP:662572**	1 unit	28.000
	400	3VA22 250 A	ETU350	4	55	100...250	X	**BD2-AK04/LSD-3VA22-M-250-4-ET350**	**BVP:662479**	1 unit	29.000
	***Motor operating mechanism, with electronic trip unit, selective, direct connection***										
	400	3VA22 250 A	ETU350	3	55	100...250	X	**BD2-AK04/LSM-3VA22-M-250-3-ET350**	**BVP:662476**	1 unit	28.500
	400	3VA22 250 A	ETU350	4	55	100...250	X	**BD2-AK04/LSM-3VA22-M-250-4-ET350**	**BVP:662478**	1 unit	29.500

4

Tap-off units

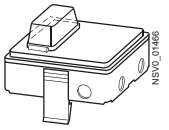
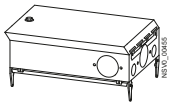
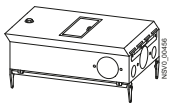
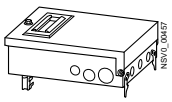
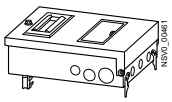
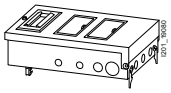
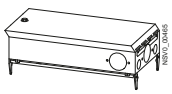
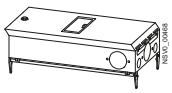
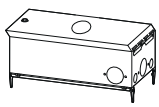
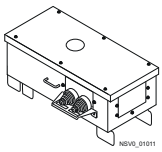
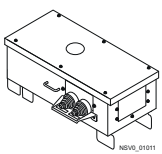
	Rated operational voltage U_e	Circuit breaker	Trip unit / Measure-ment	Poles	Rated short-circuit breaking capacity I_{cu}	Setting range I_r	SD	Type	Article No.	PS*/ P. unit	Weight per unit
	V		A		A	A	d				kg
Rated current I_{nc} 225 A											
	Rotary operating mechanism, with thermal-magnetic trip unit, direct connection										
	400	3VA12 250 A	TM240	3	36	175...250	X	**BD2-AK04/LSD-3VA12-S-250-3-TM240**	**BVP:662470**	1 unit	27.000
	400	3VA12 250 A	TM240	3	55	175...250	X	**BD2-AK04/LSD-3VA12-M-250-3-TM240**	**BVP:662471**	1 unit	27.000
	400	3VA12 250 A	TM240	4	55	175...250	X	**BD2-AK04/LSD-3VA12-M-250-4-TM240**	**BVP:662518**	1 unit	27.000
	Motor operating mechanism, with thermal-magnetic trip unit, direct connection										
	400	3VA12 250 A	TM240	3	36	175...250	X	**BD2-AK04/LSM-3VA12-S-250-3-TM240**	**BVP:662468**	1 unit	27.500
	400	3VA12 250 A	TM240	3	55	175...250	X	**BD2-AK04/LSM-3VA12-M-250-3-TM240**	**BVP:662469**	1 unit	27.500
Rated current I_{nc} 355 A											
	Rotary operating mechanism, with thermal-magnetic trip unit, direct connection										
	400	3VA13 400 A	TM240	3	36	280...400	X	**BD2-AK05/LSD-3VA13-S-400-3-TM240**	**BVP:662486**	1 unit	45.000
	400	3VA13 400 A	TM240	4	36	280...400	X	**BD2-AK05/LSD-3VA13-S-400-4-TM240**	**BVP:662498**	1 unit	45.000
	400	3VA13 400 A	TM240	3	55	280...400	X	**BD2-AK05/LSD-3VA13-M-400-3-TM240**	**BVP:662487**	1 unit	45.000
	400	3VA13 400 A	TM240	4	55	280...400	X	**BD2-AK05/LSD-3VA13-M-400-4-TM240**	**BVP:662499**	1 unit	45.000
	Motor operating mechanism, with thermal-magnetic trip unit, direct connection										
	400	3VA13 400 A	TM240	3	36	280...400	X	**BD2-AK05/LSM-3VA13-S-400-3-TM240**	**BVP:662484**	1 unit	45.000
	400	3VA13 400 A	TM240	4	36	280...400	X	**BD2-AK05/LSM-3VA13-S-400-4-TM240**	**BVP:662496**	1 unit	45.000
	400	3VA13 400 A	TM240	3	55	280...400	X	**BD2-AK05/LSM-3VA13-M-400-3-TM240**	**BVP:662485**	1 unit	45.000
	400	3VA13 400 A	TM240	4	55	280...400	X	**BD2-AK05/LSM-3VA13-M-400-4-TM240**	**BVP:662497**	1 unit	45.000
Rated current I_{nc} 380 A											
	Rotary operating mechanism, with electronic trip unit, selective, direct connection										
	400	3VA24 400 A	ETU350	3	55	160...400	X	**BD2-AK05/LSD-3VA24-M-400-3-ET350**	**BVP:662489**	1 unit	45.000
	400	3VA24 400 A	ETU350	4	55	160...400	X	**BD2-AK05/LSD-3VA24-M-400-4-ET350**	**BVP:662491**	1 unit	46.000
	With measurement and powerline modem										
	400	3VA24 400 A	ETU350 / CT + PAC2200 + PLT modem	3	55	160...400	X	**BD2-AK05/LSD-3VA24-M-400-3-ET350-PLT**	**BVP:662565**	1 unit	45.000
	With 3 current transformers										
	400	3VA24 400 A	ETU350 / CT	3	55	160...400	X	**BD2-AK05/LSD-3VA24-M-400-3-ET350-T**	**BVP:662573**	1 unit	45.000

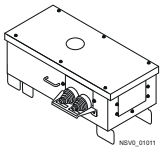
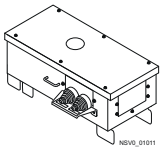
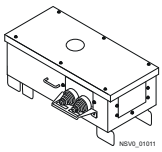
	Rated operational voltage U_e	Circuit breaker	Trip unit / Measurement	Poles	Rated short-circuit breaking capacity I_{cu}	Setting range I_r	SD	Type	Article No.	PS*/ P. unit	Weight per unit
	V		A		A	A	d				kg
	Motor operating mechanism, with electronic trip unit, selective, direct connection										
	400	3VA24 400 A	ETU350	3	55	160...400	X	**BD2-AK05/LSM-3VA24-M-400-3-ET350**	**BVP:662488**	1 unit	45.500
	400	3VA24 400 A	ETU350	4	55	160...400	X	**BD2-AK05/LSM-3VA24-M-400-4-ET350**	**BVP:662490**	1 unit	46.500
Rated current I_{nc} 430 A											
	Rotary operating mechanism, with thermal-magnetic trip unit, direct connection										
	400	3VA14 500 A	TM240	3	36	350...500	X	**BD2-AK06/LSD-3VA14-S-630-3-TM240**	**BVP:662502**	1 unit	45.000
	400	3VA14 500 A	TM240	4	36	350...500	X	**BD2-AK06/LSD-3VA14-S-630-4-TM240**	**BVP:662508**	1 unit	47.500
	400	3VA14 500 A	TM240	3	55	350...500	X	**BD2-AK06/LSD-3VA14-M-630-3-TM240**	**BVP:662503**	1 unit	45.800
	400	3VA14 500 A	TM240	4	55	350...500	X	**BD2-AK06/LSD-3VA14-M-630-4-TM240**	**BVP:662509**	1 unit	47.800
	Motor operating mechanism, with thermal-magnetic trip unit, direct connection										
	400	3VA14 500 A	TM240	3	36	350...500	X	**BD2-AK06/LSM-3VA14-S-630-3-TM240**	**BVP:662500**	1 unit	41.000
	400	3VA14 500 A	TM240	4	36	350...500	X	**BD2-AK06/LSM-3VA14-S-630-4-TM240**	**BVP:662506**	1 unit	43.500
	400	3VA14 500 A	TM240	3	55	350...500	X	**BD2-AK06/LSM-3VA14-M-630-3-TM240**	**BVP:662501**	1 unit	37.900
	400	3VA14 500 A	TM240	4	55	350...500	X	**BD2-AK06/LSM-3VA14-M-630-4-TM240**	**BVP:662507**	1 unit	40.400
Rated current I_{nc} 530 A											
	Rotary operating mechanism, with electronic trip unit, selective, direct connection										
	400	3VA15 630 A	TM240	3	55	440...630	X	**BD2-AK06/LSD-3VA15-M-630-3-TM240**	**BVP:662555**	1 unit	56.000
	400	3VA15 630 A	TM240	4	55	440...630	X	**BD2-AK06/LSD-3VA15-M-630-4-TM240**	**BVP:662556**	1 unit	59.000
Rated current I_{nc} 550 A											
	Rotary operating mechanism, with electronic trip unit, selective, direct connection										
	400	3VA25 630 A	ETU350	3	55	250...630	X	**BD2-AK06/LSD-3VA25-M-630-3-ET350**	**BVP:662504**	1 unit	56.000
	400	3VA25 630 A	ETU350	4	55	250...630	X	**BD2-AK06/LSD-3VA25-M-630-4-ET350**	**BVP:662505**	1 unit	59.000
	With measurement and powerline modem										
	400	3VA25 630 A incl. Primary wiring and current transformer	ETU350 / CT + PAC2200 + PLT modem	3	55	250...630	X	**BD2-AK06/LSD-3VA25-M-630-3-ET350-PLT**	**BVP:662566**	1 unit	57.600
	With 3 current transformers										
	400	3VA25 630 A	ETU350 / CT	3	55	250...630	X	**BD2-AK06/LSD-3VA25-M-630-3-ET350-T**	**BVP:662574**	1 unit	55.300

4

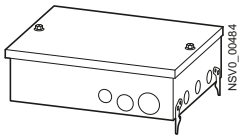
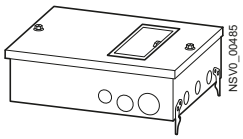
Tap-off units

Empty tap-off units

	Rated operational voltage U_e	Prepared for switching devices	Mounting space	Cover-integrated switch disconnector	SD	Type	Article No.	PS*/ P. unit	Weight per unit
	V		A		d				kg
Empty tap-off units, rated current I_{nc} 25 A ($P_{V\ max}$ = 13 W)									
	400	--	4 MW	--	X	**BD2-AK1/F**	**BVP:203247**	1 unit	0.700
Empty tap-off units, rated current I_{nc} 63 A ($P_{V\ max}$ = 22.5 W)									
	690	--	9 MW	--	X	**BD2-AK02X/F**	**BVP:262457**	1 unit	3.800
	690	--	9 MW (hinged cover)	--	X	**BD2-AK02M2/F**	**BVP:262458**	1 unit	3.900
	690	--	9 MW	Yes	X	**BD2-AK2X/F**	**BVP:203251**	1 unit	3.800
	690	--	9 MW (hinged cover)	Yes	X	**BD2-AK2M2/F**	**BVP:203252**	1 unit	3.900
Empty tap-off units, rated current I_{nc} 125 A ($P_{V\ max}$ = 40 W)									
	690	--	2 x 9 MW (hinged cover)	Yes	X	**BD2-AK3M2/F**	**BVP:660926**	1 unit	5.140
	690	--	With mounting plate	--	X	**BD2-AK03X/F**	**BVP:262487**	1 unit	5.200
	690	--	9 MW (hinged cover)	--	X	**BD2-AK03M2/F**	**BVP:262488**	1 unit	5.300
	400	3VA21 160 A 3-pole	--	--	X	**BD2-AK03/LSD-3VAXX-M-125-3-F**	**BVP:662458**	1 unit	6.500
	400	3VA21 160 A 4-pole	--	--	X	**BD2-AK03/LSD-3VAXX-M-125-4-F**	**BVP:662459**	1 unit	6.500
	400	--	--	--	X	**BD2-AK03/EE-125/F**	**BVP:662526**	1 unit	6.500
Empty tap-off units, rated current I_{nc} 225 A									
	400	3VA12 250 A 3-pole	--	--	X	**BD2-AK04/LSD-3VA12-M-250-3-F**	**BVP:662480**	1 unit	26.000
	400	3VA22 250 A 3-pole	--	--	X	**BD2-AK04/LSD-3VA22-M-250-3-F**	**BVP:662481**	1 unit	26.000
	400	3VA12 250 A 4-pole	--	--	X	**BD2-AK04/LSD-3VA12-M-250-4-F**	**BVP:662522**	1 unit	20.500
	400	3VA22 250 A 4-pole	--	--	X	**BD2-AK04/LSD-3VA22-M-250-4-F**	**BVP:662483**	1 unit	26.000

	Rated operational voltage U_e	Prepared for switching devices	Mounting space	Cover-integrated switch disconnector	SD	Type	Article No.	PS*/ P. unit	Weight per unit
	V		A		d				kg
Empty tap-off units, rated current I_{nc} 250 A ($P_{v\ max}$ = 45 W)									
	400	--	--	--	X	**BD2-AK04/EE-250/F**	**BVP:662527**	1 unit	21.700
Empty tap-off units, rated current I_{nc} 380 A									
	400	3VA24 400 A 3-pole	--	--	X	**BD2-AK05/LSD-3VA24-M-400-3-F**	**BVP:662492**	1 unit	40.000
	400	3VA24 400 A 4-pole	--	--	X	**BD2-AK05/LSD-3VA24-M-400-4-F**	**BVP:662493**	1 unit	40.000
	400	3VA13 400 A 3-pole	--	--	X	**BD2-AK05/LSD-3VA13-M-400-3-F**	**BVP:662494**	1 unit	40.000
	400	3VA13 400 A 4-pole	--	--	X	**BD2-AK05/LSD-3VA13-M-400-4-F**	**BVP:662495**	1 unit	40.000
Empty tap-off units, rated current I_{nc} 400 A ($P_{v\ max}$ = 72 W)									
	400	--	--	--	X	**BD2-AK05/EE-400/F**	**BVP:662528**	1 unit	28.500

Selection and ordering data

Version	Can be used for	Max. power loss P_v	Rated operational voltage U_e	SD	Type	Article No.	PS*/ P. unit	Weight per unit
		W	V	d				kg
Sheet-steel enclosures								
Ancillary equipment units, for free arrangement of components Integrated DIN rail for 9 MW (MW = modular width) 	• Overvoltage protection • Remote control / remote switching • Fuse bases • Miniature circuit breakers (MCBs) • ...	30	400	X	**BD2-GKX/F**	**BVP:203165**	1 unit	2.800
Sheet-steel enclosures with device installation unit								
Ancillary equipment units, for free arrangement of components Integrated DIN rail for 9 MW (MW = modular width) 	• Remote control / remote switching • Miniature circuit breakers (MCBs) • Energy meters • ...	30	400	X	**BD2-GKM2/F**	**BVP:203166**	1 unit	2.500

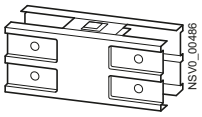
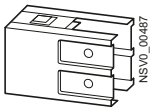
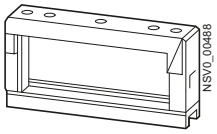
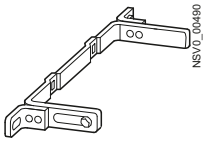
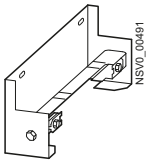
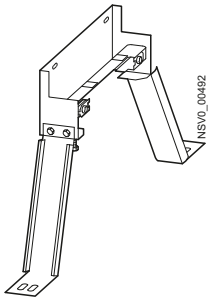
Ancillary equipment units are used in combination with tap-off units AK02, AK2, AK03, or AK3.

Special colors available on request.

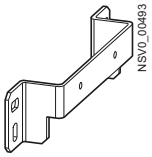
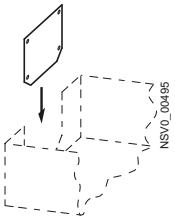
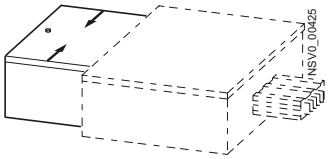
Including screw set for connecting the enclosures.

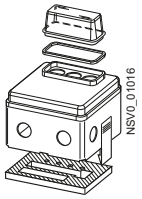
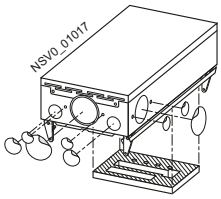
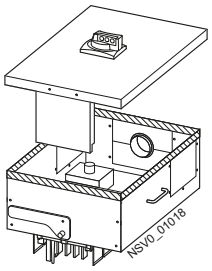
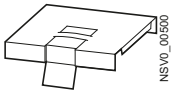
Use plastic cable glands with strain relief (not included in scope of supply).

Selection and ordering data

Version	SD	Size 1 160 A ... 400 A		PS*/ P. unit	Weight per unit	SD	Size 2 630 A ... 1250 A		PS*/ P. unit	Weight per unit
	d	Type	Article No.		kg	d	Type	Article No.		kg
Joint blocks										
	X	**BD2-400-EK**	**BVP:661391**	1 unit	3.500	X	**BD2-1250-EK**	**BVP:261989**	1 unit	6.480
End flanges										
	X	**BD2-400-FE**	**BVP:043977**	1 unit	0.980	X	**BD2-1250-FE**	**BVP:261990**	1 unit	1.280
Fixing										
Fixing brackets for flat and edgewise installation, two per fixing bracket 	X	**BD2-400-BB**	**BVP:045154**	5 units	0.440	X	**BD2-1250-BB**	**BVP:261987**	5 units	0.540
Spacers for 40 mm distance, suitable for fixing brackets (two per fixing bracket) 	X	**BD2-DSB**	**BVP:203532**	10 units	0.030	X	**BD2-DSB**	**BVP:203532**	10 units	0.030
Spacer brackets for wall and ceiling mounting, suitable for fixing brackets 	X	**BD2-BD**	**BVP:034228**	5 units	0.440	X	**BD2-BD**	**BVP:034228**	5 units	0.440
Fixing for mounting rail e.g. Unistrut P1000, P1000, "set of 2 units" 	X	**BD2-BVC**	**BVP:611348**	5 units	0.500	X	**BD2-BVC**	**BVP:611348**	5 units	0.500
Fixing elements for vertical busbar runs										
• Wall mounting, distance from wall adjustable 	X	**BD2-BWV**	**BVP:045503**	1 unit	1.560	X	**BD2-BWV**	**BVP:045503**	1 unit	1.560
• Ceiling mounting 	X	**BD2-BDV**	**BVP:045504**	1 unit	4.500	X	**BD2-BDV**	**BVP:045504**	1 unit	4.500

Additional equipment

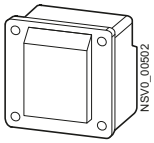
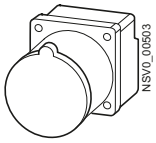
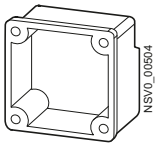
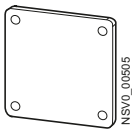
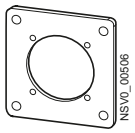
Version	SD	Size 1 160 A ... 400 A		PS*/ P. unit	Weight per unit	SD	Size 2 630 A ... 1250 A		PS*/ P. unit	Weight per unit
	d	Type	Article No.		kg	d	Type	Article No.		kg
Fixing										
Fixing brackets for vertical wall mounting on a connecting flange 	X	**BD2-BVF**	**BVP:203531**	5 units	0.500	X	**BD2-BVF**	**BVP:203531**	5 units	0.500
Protective sleeves										
	X	**BD2-400-D**	**BVP:045505**	1 unit	4.000	X	**BD2-1250-D**	**BVP:261988**	1 unit	4.000
Cable entry										
Cable entry plates for single-core cable entry, undrilled (drilling template included in scope of supply) 										
• Suitable for end feeding units 250 A	X	**BD2-250-EBAL**	**BVP:203530**	1 unit	0.300		**--**			
• Suitable for end feeding units or cabling boxes										
- Up to 400 A or 1000 A	X	**BD2-400-EBAL**	**BVP:045507**	1 unit	0.500	X	**BD2-1000-EBAL**	**BVP:261976**	1 unit	1.000
- For 1250 A		**--**				X	**BD2-1250-EBAL**	**BVP:261982**	1 unit	2.660
• For use with center feeding units										
- Up to 400 A or 1000 A	X	**BD2-400-MBAL**	**BVP:045509**	1 unit	0.500	X	**BD2-1000-MBAL**	**BVP:261980**	1 unit	1.000
Cabling boxes, cable entry for multi-core cables from 2 sides, suitable for feeding units 										
• For 400 A or 1000 A	X	**BD2-400-KR**	**BVP:045511**	1 unit	3.100	X	**BD2-1000-KR**	**BVP:261978**	1 unit	5.000
• For 1250 A		**--**				X	**BD2-1250-KR**	**BVP:261984**	1 unit	5.000

Version	For tap-off units	SD	Type	Article No.	PS*/ P. unit	Weight per unit
	Type	d				kg
Additional components for degree of protection IP55						
Seals for tap-off units						
	BD2-AK1/...	X	**BD2-AK1-IP55**	**BVP:610373**	1 unit	0.030
	BD2-AK02X/...	X	**BD2-AK02X-IP55**	**BVP:610374**	1 unit	0.040
	BD2-AK03X/...	X	**BD2-AK03X-IP55**	**BVP:610375**	1 unit	0.040
	BD2-AK2X/...	X	**BD2-AK2X-IP55**	**BVP:611061**	1 unit	0.070
	BD2-AK3X/...	X	**BD2-AK3X-IP55**	**BVP:611062**	1 unit	0.070
	BD2-AK04/...	X	**BD2-AK04-IP55**	**BVP:611063**	1 unit	0.050
	BD2-AK05/...	X	**BD2-AK05-IP55**	**BVP:611064**	1 unit	0.070
	BD2-AK06/...	X	**BD2-AK06-IP55**	**BVP:611065**	1 unit	0.070
Flanges for tap-off points						
	Only required for trunking units of size 2 (630 ... 1250A)	X	**BD2-FAS**	**BVP:045519**	1 unit	0.220

Version	SD	**Rated current I_n 160 ... 1250 A**		PS*/ P. unit	Weight per unit
	d	Type	Article No.		kg
Fire barriers					
Fire barrier approval kits (required only for Germany[1])					
• EI 90	X	**BD2-S90-ZUL-D**	**BVP:611397**	1 unit	0.200
• EI 120	X	**BD2-S120-ZUL-D**	**BVP:611398**	1 unit	0.200

[1] Approval papers for Euro standard available soon

Additional equipment

Version	Socket outlets	SD	Type	Article No.	PS*/ P. unit	Weight per unit
		d				kg
Socket outlets for tap-off units and ancillary equipment units						
Socket outlets With adapter enclosure, with wiring, with fixing kit						
• SCHUKO socket outlet	16 A, 3-pole	X	**BD2-SD163**	**BVP:203253**	1 unit	0.280
						
• CEE socket outlet	16 A, 3-pole	X	**BD2-CEE163**	**BVP:203254**	1 unit	0.260
	16 A, 5-pole	X	**BD2-CEE165**	**BVP:203255**	1 unit	0.310
	32 A, 5-pole	X	**BD2-CEE325**	**BVP:203256**	1 unit	0.350
Adapter enclosures For socket outlets with fixing kit						
		X	**BD2-AG**	**BVP:203257**	5 units	0.150
						
Adapter plates Suitable for adapter enclosures						
• For customized socket outlet cut-outs		X	**BD2-APO**	**BVP:203258**	5 units	0.090
						
• With socket outlet cut-out, diameter 44 mm		X	**BD2-APM**	**BVP:203259**	1 unit	0.060
						

Overview

Specimen text for tenders

Item	Quantity	Description	Unit price		Amount	
	... m	Busbar trunking system (see Appendix for diagram) as a design verified low-voltage switchgear and controlgear assembly according to IEC/EN 61439-1 and -6 • Rated current, corresponds to thermal rated current at max. +40 °C and +35 °C in the 24-h mean for indoor installation • Rated insulation voltage U_i = 690 V AC, 800 V DC • Rated operational voltage ...V, ...Hz • Rated peak withstand current of busbar trunking system, ... kA tested according to IEC/EN 61439-1 or IEC/EN 61439-1 • Degree of protection IP55; tap-off units IP54, increase to IP55 with additional equipment • 5-conductor configuration: L1, L2, L3, N, PE • Busbars: nickel-plated and tinned aluminum, or nickel-plated and tinned copper; supported by insulated busbar supports • Tested for sprinkler systems (IP55 with additional equipment) • Halogen-free system • Trunking units sheet-steel galvanized and power-coated; color RAL 7035 (light gray) • Busbar connection via joint block with built-in expansion compensation • Tap-off points: on two sides every 0.5 m; offset 0.25 m • Supplied ready for connection with all assembly parts • Make Siemens SIVACON 8PS • Type BD2 ... system Comprising:				

Configuration information

Type code BD2

Trunking units BD2A-3, BD2C-3

BD2 . - . - ... - ... - ...

(Length details)

(Type length)

Current [A]

Aluminum	Copper
160	160
250	250
400	400
630	630
800	800
1000	1000
	1250

3: L1, L2, L3, 1/1 N, 1/1 PE; 12 tap-off points
(N conductor with 150 or 200 percent cross-section on request)

A: Aluminum
C: Copper

Junction units, feeding units BD2A-..., BD2C-...

BD2 . - ... - ... - .... in conductor edgewise mounting position (enclosure: flat position)

(Length details for junction units)

(Type of junction unit, feeding unit)

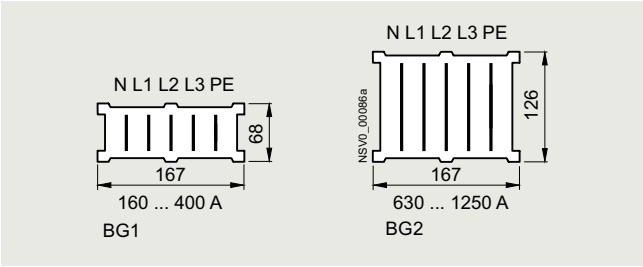
Current [A]

Aluminum	Copper
250	250
400	400
1000	1000
	1250

A: Aluminum
C: Copper

Sizes of the trunking units (cross-sections)

Size 1 Size 2



Tap-off units	
Can be plugged onto trunking units size 1	**Can be plugged onto trunking units size 2**
Molded-plastic enclosure up to 25 A	Molded-plastic enclosure up to 25 A
With circuit breaker up to 250 A	With circuit breaker up to 250 A
With fuse up to 250 A	With fuse up to 250 A
	With circuit breaker up to 530 A
	With fuse up to 530 A

4

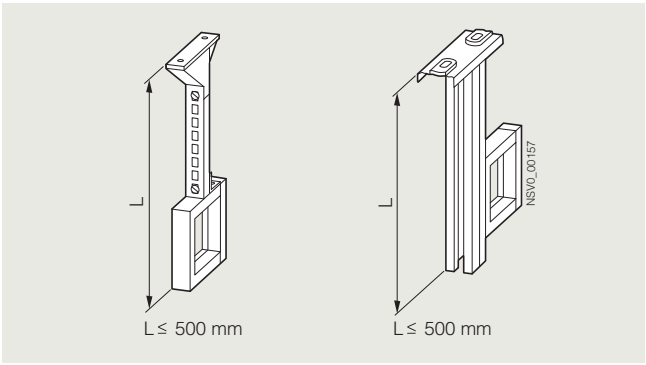
Design

Notes on supporting structures

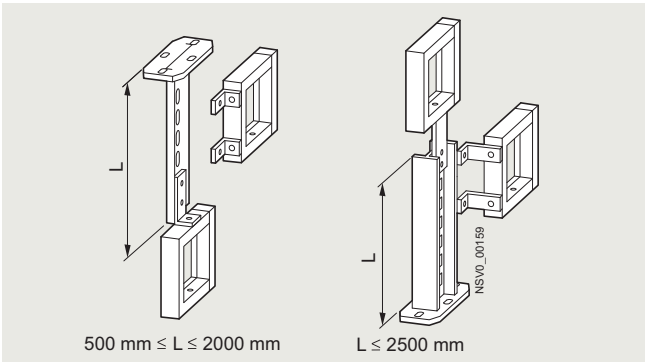
Structures made from standard materials.

All struts and beams are designed for mounting with BD2-...-BB fixing brackets.

Examples of fixing in conductor flat mounting position (enclosure: flat position)

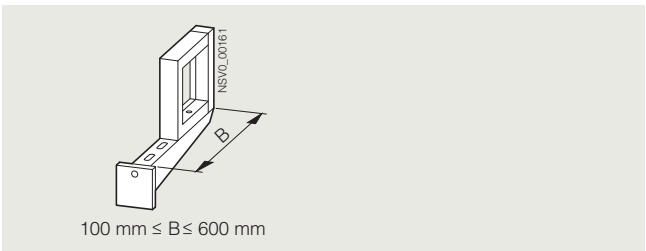


C strut with accessories (left) and double-C strut (right)



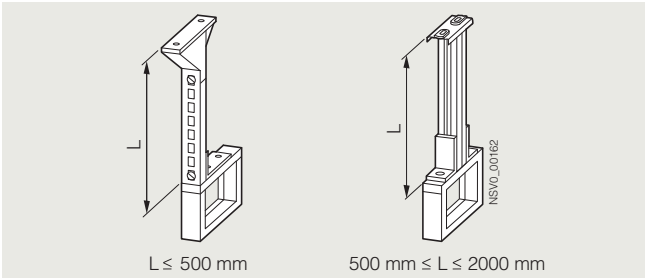
Z strut (left) and H strut (right)

Trunking units can be secured at the side and at the center of the strut

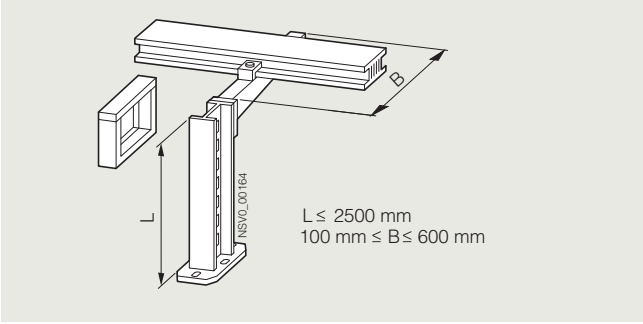


Wall beam

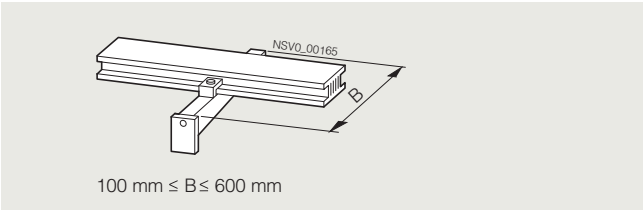
Examples of fixing in conductor edgewise mounting position (enclosure: flat position)



C strut with accessories (left) and double-C strut (right)

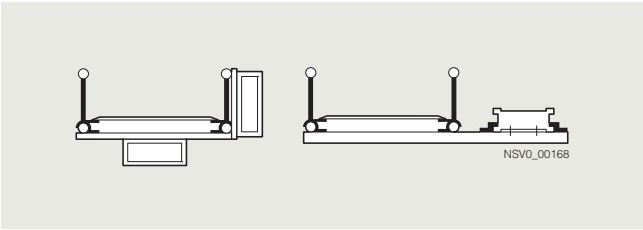


H strut with beam (with or without BD2-...-BB fixing bracket)



Wall beam (without BD2-...-BB fixing bracket)

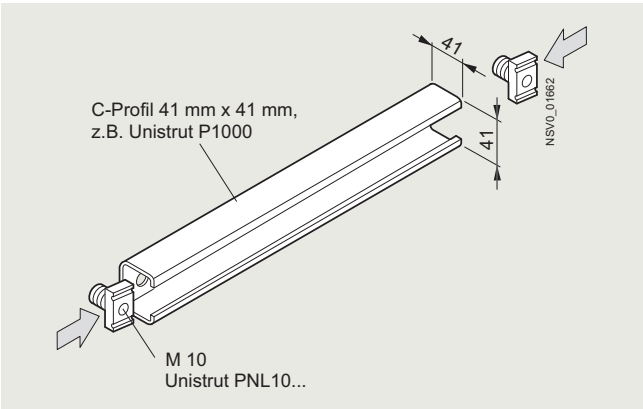
Securing trunking units on the cable trays



Can be fitted to standard cable trays using BD2-...-BB fixing brackets

Securing trunking units on mounting rails

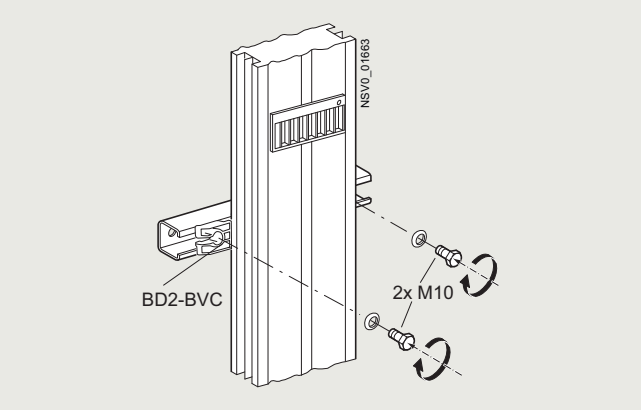
For vertical installation



Mounting rail, e.g. Unistrut P1000

4

Configuration information



Mounting BD2-BVC

The mounting rail, rail nuts, and screws are not included in the scope of supply

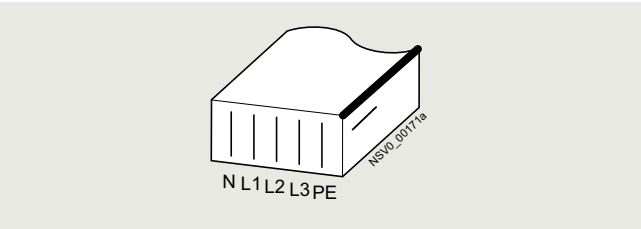
Basic configuration information

To simplify the configuration of BD2 systems, engineering symbols have been introduced. On the configuration drawings, these symbols clearly indicate the component mounting position, the phase sequence, the open busbar end, the end with the terminal, the position of the flange cover and the side from which the terminal can be accessed.

The following conventions apply to all components of the busbar run (feeding units, straight trunking units, and junction units):

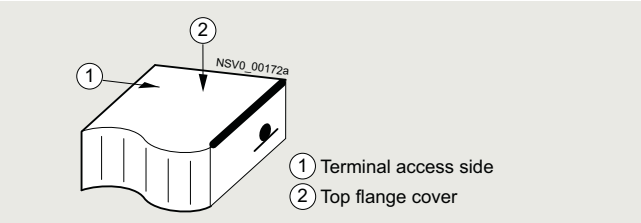
Open busbar end

The PE side is marked with a bold black line.

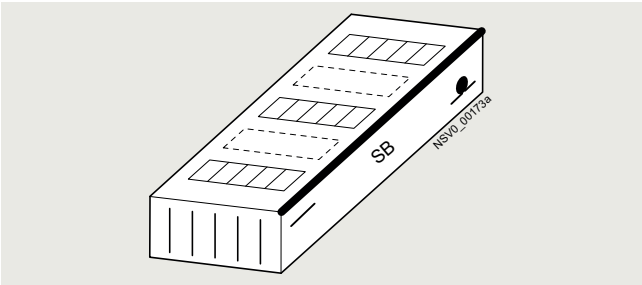


Phase sequence, PE on the right

Terminal end of the trunking unit



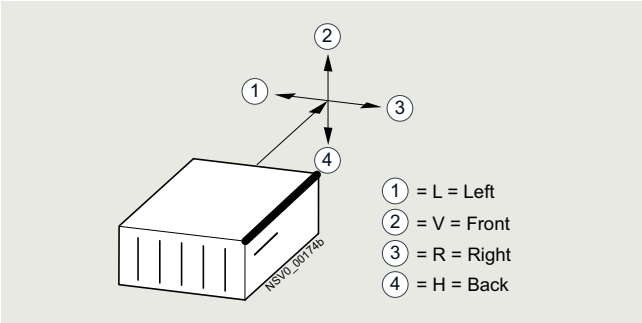
Example:



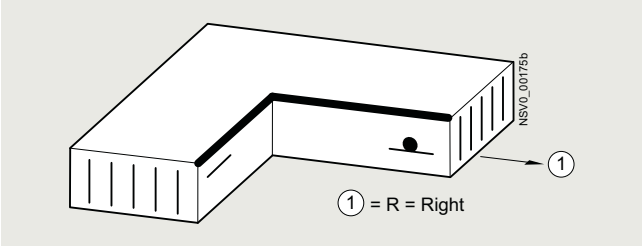
Straight trunking unit with tap-off points on both sides;
Type: BD2.-...-SB-.

The configuration symbols are used on the selection data pages.

Determining the orientation of L-units



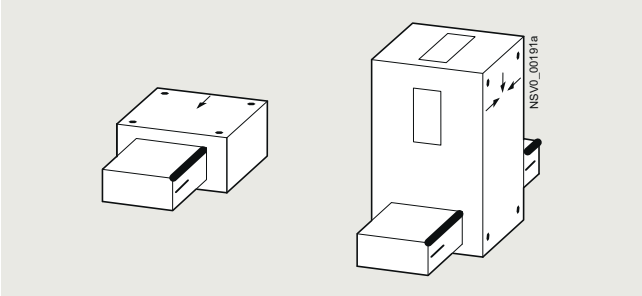
Example:



Elbow, right, Type: BD2.-...-LR

Determining the orientation of feeding units

On feeding units, the position of the cabling box relative to the trunking unit is not critical for type selection, since the busbar connection flange can be turned on site to provide the required phase sequence.



End feeding unit (left) and center feeding unit (right)

Route planning: horizontal installation

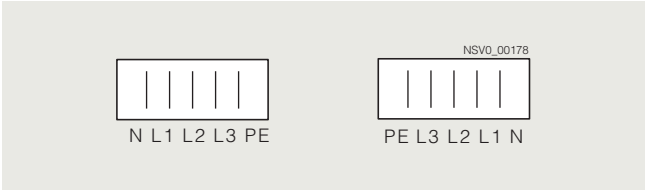
Mounting positions

With the BD2 system, the mounting position can be chosen as required, allowing a horizontal busbar run to be laid out in two ways:

New definition of the mounting position NEW

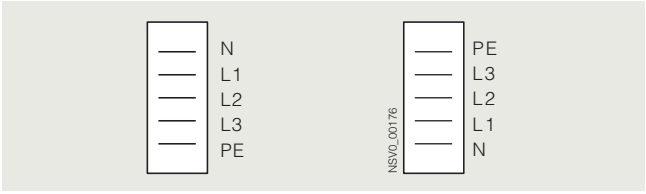
The new reference point is the conductor arrangement. This replaces the definition used until now for the mounting position, in which the enclosure was the reference point.

Conductor edgewise (enclosure: flat position) NEW



Horizontal, conductor edgewise (enclosure: flat position)

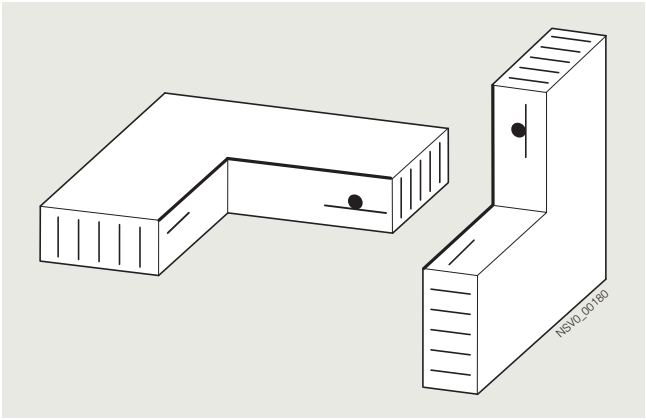
Conductor flat (enclosure: edgewise position) NEW



Horizontal, conductor flat (enclosure: edgewise position)

As can be seen from the illustration, any phase sequence is possible. This applies to both straight trunking units and junction units. The configuration symbol identifying the type shown on the selection page only needs to be turned to the desired mounting position in the configuration drawing.

Example:



Left: **conductor edgewise** (enclosure: flat position)
Right: **conductor flat** (enclosure: edgewise position)

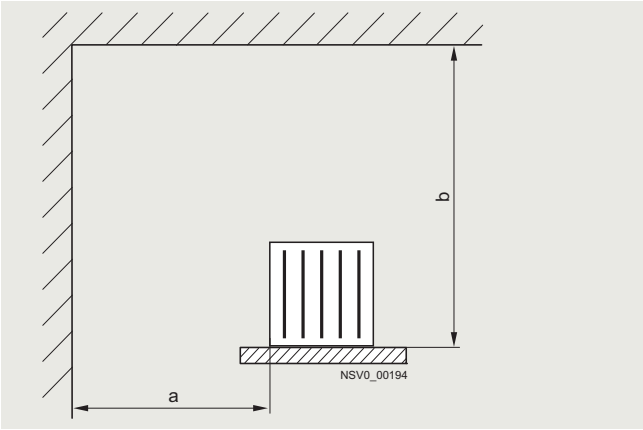
Installation in the mounting position "conductor flat" (enclosure: edgewise position) has many advantages due to the larger suspension span.

Space requirement

To ensure easier mounting of the trunking units and tap-off units, minimum clearances from the building elements must be observed when planning the route.

Busbar trunking system without tap-off units:

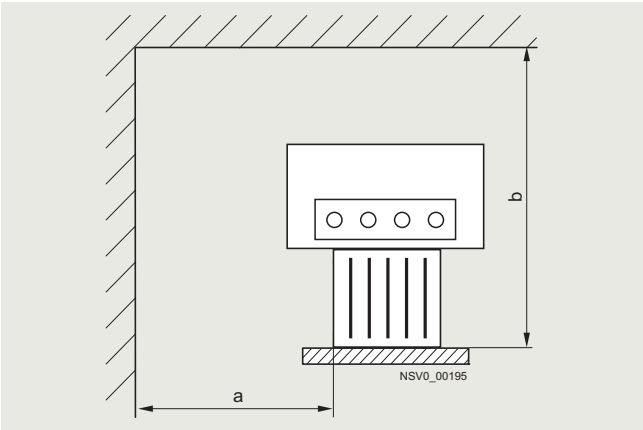
Minimum dimensions for busbar trunking system without tap-off units, including system-compatible fixing brackets mounted horizontally on rack or wall beam:



Busbar system	Dimension a mm	Dimension b mm
BD2A(C)-.-160(-400)	100	160
BD2A(C)-.-630(-1250)	100	280

Busbar trunking system with tap-off units:

Busbar trunking system with tap-off units, including system-compatible fixing brackets mounted horizontally on rack or wall beam. The minimum dimension a applies to the front cable entry.



Busbar system	Dimension a mm	Dimension b mm
BD2A(C)-.-160(-400)	300	620
BD2A(C)-.-630(-1250)	300	680

For a configuring example for horizontal installation, see page 4/77.

Configuration information

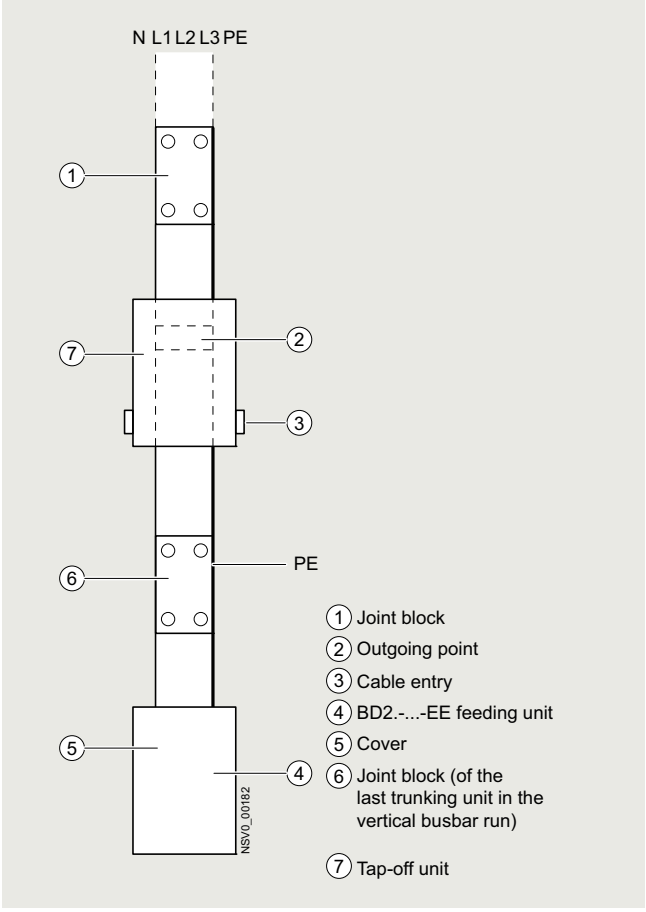
Route planning: vertical installation

Mounting position: conductor vertical

When configuring vertical busbar runs (see page 4/79), the height of the floor measured from the center of one ceiling to the center of the next determines the choice of busbar lengths. If no fire barriers are required, standard lengths with protective sleeves can be used.

For vertically mounted systems, only one mounting position is possible. The PE conductor must always be on the right-hand side, and the trunking unit end with the joint block must point towards the top. To achieve this, a separate joint block is used at the start of a vertical busbar run, see (6). This ensures that

- the flange cover can be push-fitted to the terminal from the front and the screws can be tightened
- the tap-off units are not mounted upside-down, i.e. they can only be fitted in the correct position.



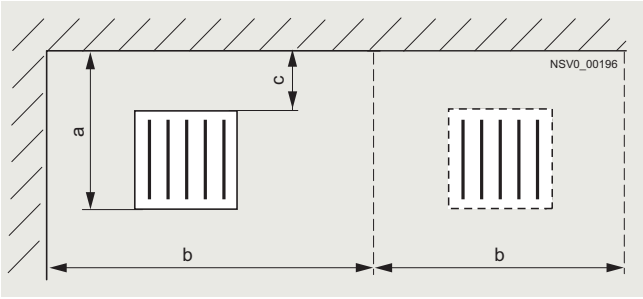
No derating is required for vertical busbar runs.

For more information about vertical installation, see page 4/79.

Space requirement

To ensure easier mounting of the trunking units and tap-off units, minimum clearances from the building elements must be observed when planning the route.

Busbar trunking system without tap-off units:



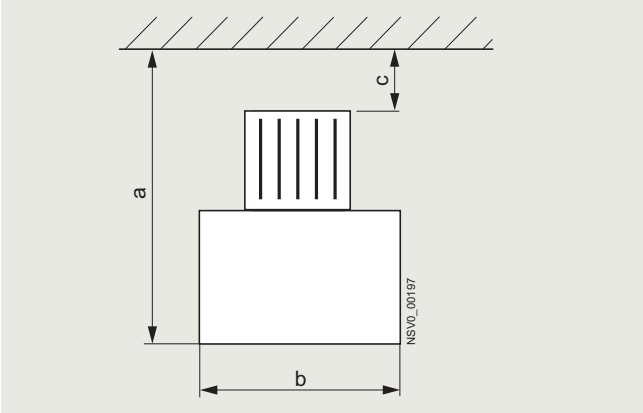
Busbar system	Dimension a	Dimension b[1]	Dimension c[2]
(including fixing bracket)	mm	mm	mm
BD2A(C)-.-160(-400)	130	640	30
BD2A(C)-.-630(-1250)	170	640	30

[1] Space requirement due to fixing bracket.

[2] Distance from wall due to fixing bracket.

Busbar trunking system with tap-off units:

A busbar system with connected tap-off unit is illustrated. Cable entry is from the bottom.

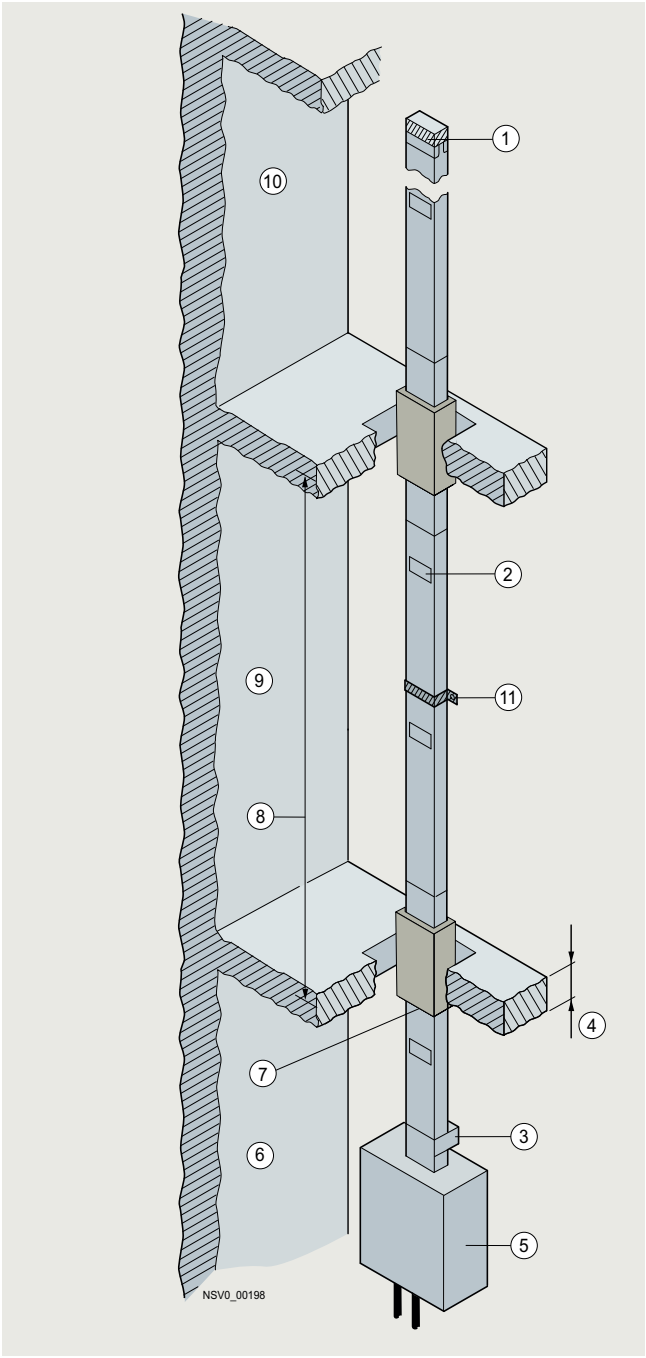


Busbar system	Dimension a	Dimension b	Dimension c[1]
(including fixing bracket)	mm	mm	mm
BD2A(C)-.-160(-400)	660	640	30
BD2A(C)-.-630(-1250)	700	640	30

[1] Distance from wall due to fixing bracket.

Fire barrier

The fire barrier must always be seated centrally in the fire ceiling. Both standard trunking units and trunking units with optional lengths can be equipped with fire barriers.



① End flange, termination
② Tap-off point
③ Fixing element for vertical fixing BD2-BWV
④ Ceiling thickness
⑤ End feeding unit
⑥ 1st floor
⑦ Center of fire barrier
⑧ Floor height from center of one ceiling to the center of the next
⑨ 2nd floor
⑩ 3rd floor
⑪ Fixing with BD2-...-BB and spacer bracket BD2-DSB

Tap-off units

For the tap-off units in the vertical run, the mounting position is stipulated. The outgoing cable must be connected from the bottom. This is the case, when the PE conductor is on the right-hand side viewed from the front.

Vertical fixing

Vertical fixing brackets in the stipulated maximum distance (see table) must be used. The vertical brackets are fitted at the flange of the joint block. Fixtures in between are realized with the spacer bracket combined with the BD2-...-BB fixing bracket.

The distance from the wall can be varied:

- Systems of size 1:
  - 30 mm minimum,
  - 82 mm maximum.
- Systems of size 2:
  - 50 mm minimum,
  - 82 mm maximum.

Maximum length or height of vertical BD2-... busbar runs, supported by one vertical fixing element BD2-BWV or BD2-BDV:

Rated operational current	**Max. length or height**	
	BD2A	BD2C
A	m	m
160	11.3	10.0
250	10.9	9.9
400	7.9	7.2
630	5.8	5.2
800	5.8	4.8
1000	5.3	4.1
1250	--	3.25

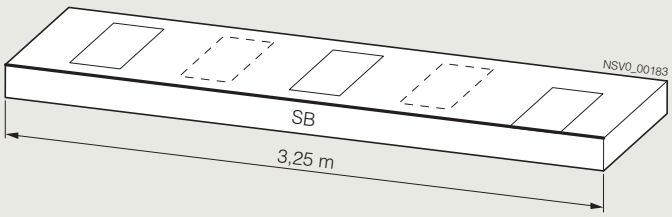
Configuration information

Defining the configuration reference dimensions

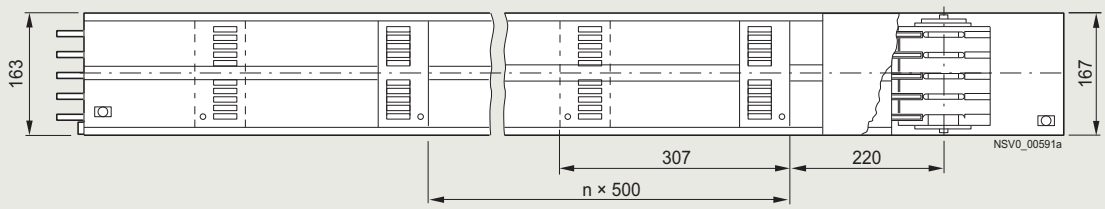
Straight trunking units, standard lengths, type BD2.-.-...-SB-.

Standard lengths from center of terminal to center of terminal

Example: standard length with tap-off points on both sides, type BD2.-...-SB-3



Dimensions in the configuration drawings BD2.-2, BD2.-3, tap-off point distance = 0.5 m

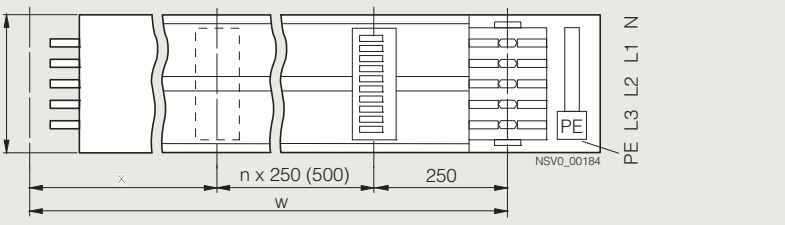


Dimensional drawing

Straight trunking units, optional lengths, type BD2.-.-...-WB-.

Example: BD2.-2, BD2.-3, tap-off point distance = 0.5 m

The open busbar end is used as the reference edge. The grid spacing between the tap-off points is shown in the diagram.

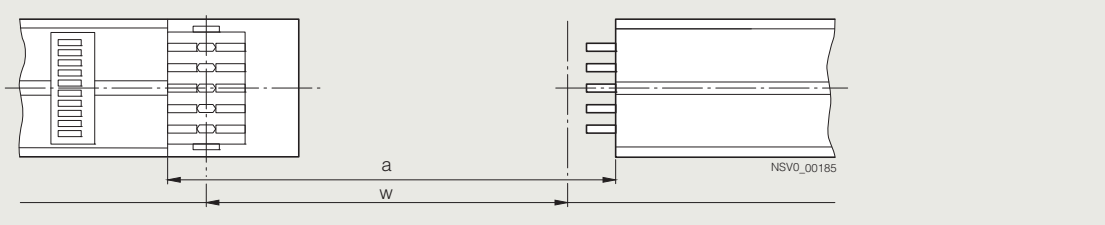


Length	Tap-off units on both sides
m	Number
0.5 ... 1.24	--
1.25 ... 2.25	4 ... 8
2.26 ... 3.25	8 ... 12

On optional lengths, it may not be possible to fit tap-off units to all tap-off points.

Distance x is the distance between the center of the terminal at the open end and the next tap-off point on the trunking unit. For the standard length, x = 250 mm. For optional lengths, 260 mm ≤ x ≤ 490 mm (varies according to optional length w).

Measuring and determining the optional lengths on site



On site, the dimension a between the enclosure edges of the two trunking units to be connected is measured. The optional length is then determined as follows:

$$w[m] = a[m] - 0.14\ m$$

Junction units

X-limb (side with open busbar end): from center of terminal to outside edge of enclosure
Y-limb (side with joint block): from center of terminal to outside edge of enclosure
Z-limb: from outside edge of enclosure to outside edge of enclosure.

For dimensioning data, see page 4/94.

Max. length/height of vertical BD2 busbar runs, supported by one BD2-BWV or BD2-BDV fixing element

BD2A-.-...								
Rated current	A	160	250	400	630	800	1000	1250
Max. supported length or height at max. load (see below)	m	11.3	10.9	7.9	5.8	5.8	5.3	–
Max. weight per 3.25 m trunking unit fitted with tap-off units	kg	50	53	74	106	108	108	–

BD2C-.-...								
Rated current	A	160	250	400	630	800	1000	1250
Max. supported length or height at max. load (see below)	m	10.0	9.9	7.2	5.2	4.8	4.1	3.25
Max. weight per 3.25 m trunking unit fitted with tap-off units	kg	50	53	74	106	108	108	108

Notes

For higher BD2 busbar runs, additional fixing elements must be used.

The maximum load applied to the BD2-BWV and BD2-BDV vertical fixing elements must not exceed 175 kg. They must be fitted in the area of the terminal.

Function

Overload and short-circuit protection

Busbar trunking systems must be protected against short circuits and overload. Fuses and circuit breakers are available for use as switching and protection devices. With the selection of these switching and protection device, the level of the expected short-circuit currents, selectivity requirements, or operating and signaling functions are also factors for consideration.

If circuit breakers are used, the thermally delayed overload release is set to the rated current value of the busbar trunking system. This means that the busbar trunking system can be 100% loaded.

When you decide on your short-circuit protection using fuses and circuit breakers, you must not exceed the specified short-circuit withstand strength of the busbar trunking systems.

It depends on the level of expected short-circuit current whether a current limiting protective device is required and what short-circuit breaking capacity the switching and protective device must have.

The SIMARIS design software enables simple calculation of, for example, short-circuit current and voltage drop according to acknowledged engineering practice and standards (VDE, IEC).

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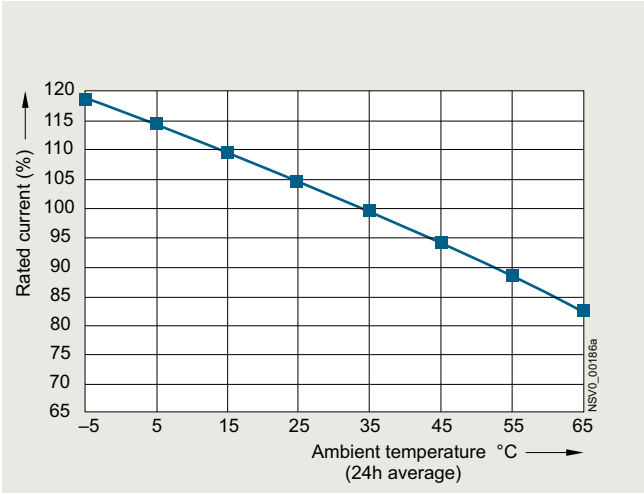
Configuration information

Temperature characteristic of BD2 systems

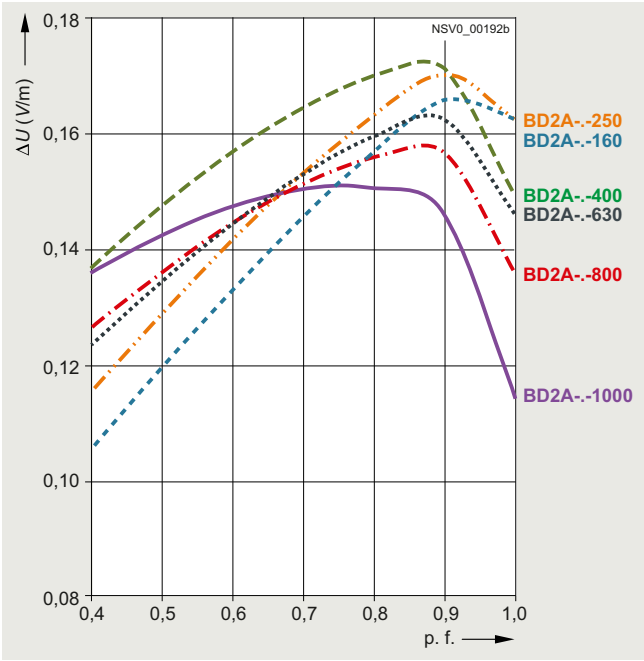


Voltage drop

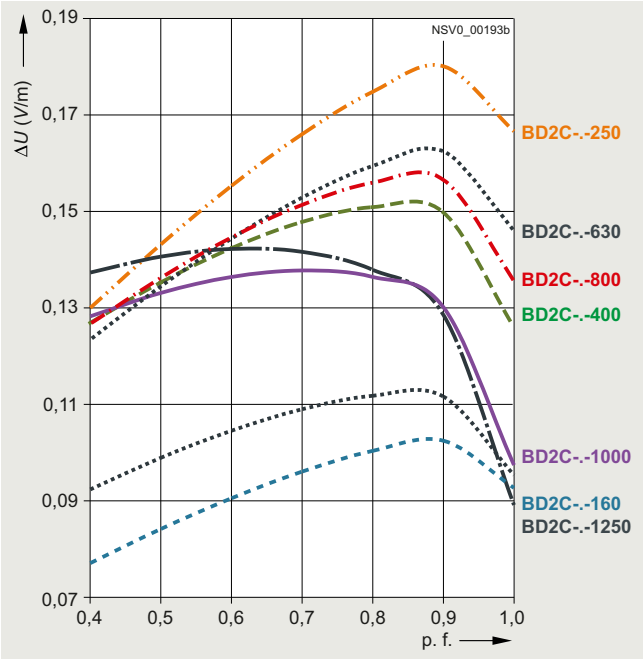
Voltage drop at rated current

The following diagrams show the voltage drop of the BD2A/BD2C systems

- taking into account the warm resistances (according to IEC/EN 61439-1/-6)
- with a load distribution factor a = 1
- under loading with the rated current. (With a different load distribution factor, the curve value must be multiplied by the corresponding distribution factor)



Voltage drop BD2A



Voltage drop BD2C

Calculation of the voltage drop

For long busbar runs, it may be necessary to calculate the voltage drop.

$$\Delta U = a \times \sqrt{3} \times I \times l \times (R \times \cos\varphi + X \times \sin\varphi) \times 10^{-3} \quad (V)$$

ΔU	=	Voltage drop	(V)
I	=	Load current	(A)
l	=	Length	(m)
a	=	Load distribution factor	
R	=	Ohmic resistance R_1	(mΩ/m)
X	=	Inductive resistance X_1	(mΩ/m)
cos φ	=	Power factor	

Factor a used in the equation for calculating the voltage drop is dependent on the load distribution.

Load distribution

Load distribution		Factor *a*
A → B	Infeed at A, 1 tap-off at B	1
A → B C D E	Infeed at A, tap-offs at B, C, D, E	0.5
B A C	Infeed at A, tap-offs at B, C	0.25
B D A E C	Infeed at A, tap-offs at B, C, D, E	0.125
A → ← B, C D E F	Infeed at A, B, tap-offs at C, D, E, F	0.25

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Configuration

Configuring example: horizontal mounting position

Required details

The following details are required for configuring BD2 busbar trunking systems (horizontal installation):

- Position, direction, number, type and approximate connected loads of the consumers, cos φ
- Rated diversity factor α
- Feeding transformers (short-circuit current)
- Nature of the installation site (dimensions, construction of the building, transport paths, cellar, etc.)
- Routing of supply lines from other power sources
- Coordination of lighting system with the BD busbar run
- Crane operation in installation area

Given:

1. Σ of the load power 600 kW, cos φ = 0.8; U_e = 400 V
2. Floor plan and machine layout
3. Rated diversity factor α = 0.6
4. Incoming cable connection 2 × 185 mm2 from the distribution board
5. Transformer 1 × 500 kVA
6. Single-tier design with steel beam construction
7. Suspension height of 3 m
8. Installed power on machine lines: 200, 182, 118, 100 kW
9. No crane operation
10. Edgewise mounting

Operational current

The operational current is calculated using the following formula:

$$I_B = \frac{P_{inst} \times \alpha \times b}{\sqrt{3} \times U_e \times \cos\varphi} \times 10^3$$

with:

I_B	=	Operational current	(A)
P_{inst}	=	Installed power	(kW)
U_e	=	Rated operational voltage	(V)
cos φ	=	Power factor	
α	=	Rated diversity factor	
b	=	Supply factor	
		b = 1 = One-sided infeed	
		b = ½ = Two-sided infeed, center infeed	

If no information is available about the actual currents occurring simultaneously (derating factor), the following values according to IEC/EN 61439-1 apply:

Number of main circuits	Rated diversity factor α
2 and 3	0.9
4 and 5	0.8
6 up to and including 9	0.7
10 and more	0.6

Determining the operational current

Main busbar run: $I_B = \frac{600 \times 0.6 \times 1}{\sqrt{3} \times 400 \times 0.8} \times 10^3 = 650$ A

Machine line 200 kW: $I_B = \frac{200 \times 0.6 \times 1}{\sqrt{3} \times 400 \times 0.8} \times 10^3 = 217$ A

Machine line 182 kW: $I_B = \frac{182 \times 0.6 \times 1}{\sqrt{3} \times 400 \times 0.8} \times 10^3 = 197$ A

Machine line 118 kW: $I_B = \frac{118 \times 0.6 \times 1}{\sqrt{3} \times 400 \times 0.8} \times 10^3 = 128$ A

Machine line 100 kW: $I_B = \frac{100 \times 0.6 \times 1}{\sqrt{3} \times 400 \times 0.8} \times 10^3 = 108$ A

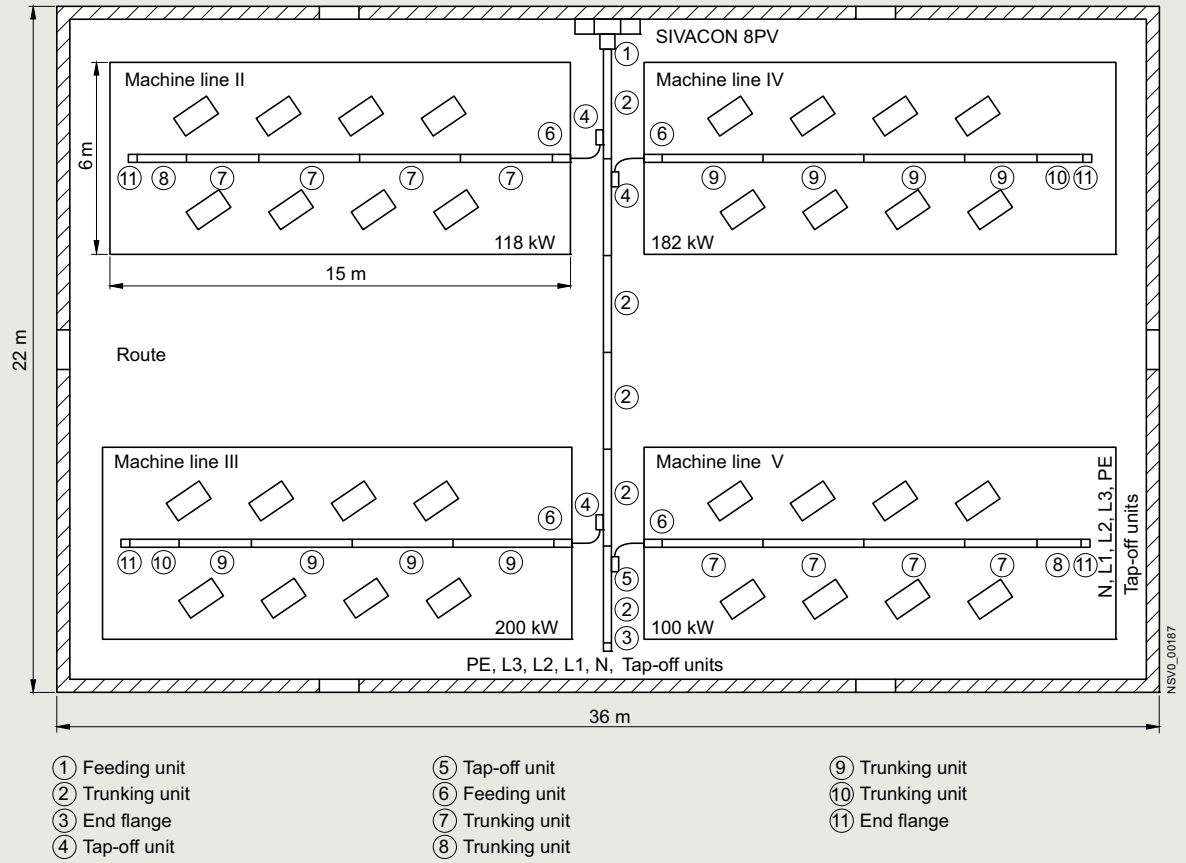
Installation plan

It contains:

- Position of the busbar trunking system in the building
- Position of the PE and the tap-off openings, and consequently the installation direction of the tap-off units
- Number of components with item numbers
- Method and height of suspension

This information assists the installer later.

Configuration information



Installation plan

Suspension: at a height of 3 m with ceiling mounted supporting structures. BD2 busbar run I, 800 A, supplies BD2 runs II, III, IV, and V via tap-off units and end feeding units, connected by short cable lengths.

Bill of material

The bill of material should contain all the items shown on the installation plan, with type reference, description, and quantity.

Item no. (mounting location)	F W L K	Type	Description	Quantity
1		BD2A-1000-EE	Feeding unit	1
2		BD2A-3-800-SB-3	Trunking unit	6
3		BD2-1250-FE	End flange	1
4		BD2-AK04/SNH1	Tap-off unit	3
5		BD2-AK3X/GS00	Tap-off unit	1
6		BD2A-400-EE	Feeding unit	4
7		BD2A-3-160-SB-3	Trunking unit	8
8		BD2A-3-160-SB-1	Trunking unit	2
9		BD2A-3-250-SB-3	Trunking unit	8
1 0		BD2A-3-250-SB-1	Trunking unit	2
1 1		BD2-400-FE	End flange	4
1 2		BD2-1250-BB	Fixing bracket	5
1 3		BD2-400-BB	Fixing bracket	14

Configuring example: vertical mounting position

Required details

- Number and height of floors
- Connected loads per floor and types of load
- Rated diversity factor α
- Feeding transformers (characteristics, position)
- Special requirements (degree of protection, fire barrier, etc.)

Given:

1. Six floors, with five apartments each
2. 38 kW connected load per apartment
3. U_e = 400 V, cos φ = 0.8
4. Rated diversity factor α = 0.8
5. Simultaneity factor β = 0.45
6. Incoming cable connection 2 × 240 mm^2
7. Details and site plans required for routing the system

Operational current

The operational current per floor, which also determines the required rated current of the tap-off units, is calculated using the following formula:

$$I_{NB} = \frac{P_{inst} \times \alpha}{\sqrt{3} \times U_e \times \cos \varphi} \times 10^3$$

with:

I_{NB}	=	Operational current per floor	(A)
P_{inst}	=	Sum of installed power per floor	(kW)
U_e	=	Rated operational voltage	(V)
cos φ	=	Power factor	
α	=	Rated diversity factor If α is not specified, the values from Table 1 can be used. If cos φ is not known, this can be set = 1 for a block of apartments.	

$$I_{NB} = \frac{5 \times 38 \times 0.8}{\sqrt{3} \times 400 \times 0.8} \times 10^3 = 274 \text{ A}$$

The operational current per busbar run is:

$$I_B = I_{NB} \times \beta$$

with:

β	=	Simultaneity factor for the total number of loads. Good empirical values for simultaneity factors can be obtained from your local power supply company. They vary from region to region. Average values are indicated in table 2.

Table 1 (according to IEC/EN 61439-1)

Number of main circuits	Rated diversity factor α
2 and 3	0.9
4 and 5	0.8
6 up to and including 9	0.7
10 and more	0.6

Table 2: Simultaneity factor

Item	Factor β
Schools, nursery schools	0.6 ... 0.9
Carpenters' and joiners' workshops	0.2 ... 0.7
Restaurants, hotels	0.4 ... 0.7
Butchers	0.5 ... 0.8
Bakeries	0.4 ... 0.8
Laundries	0.5 ... 0.9
Conference halls	0.6 ... 0.8
Small offices	0.5 ... 0.7
Large offices	0.4 ... 0.8
Department stores, supermarkets	0.7 ... 0.9
Metal processing works	0.2 ... 0.3
Car factories	0.2 ... 0.3
Lighting systems for road tunnels	1.0
Building sites	0.2 ... 0.4

Once the system has been selected, in this case BD2A-3-800, the following documents must be completed to place an order:

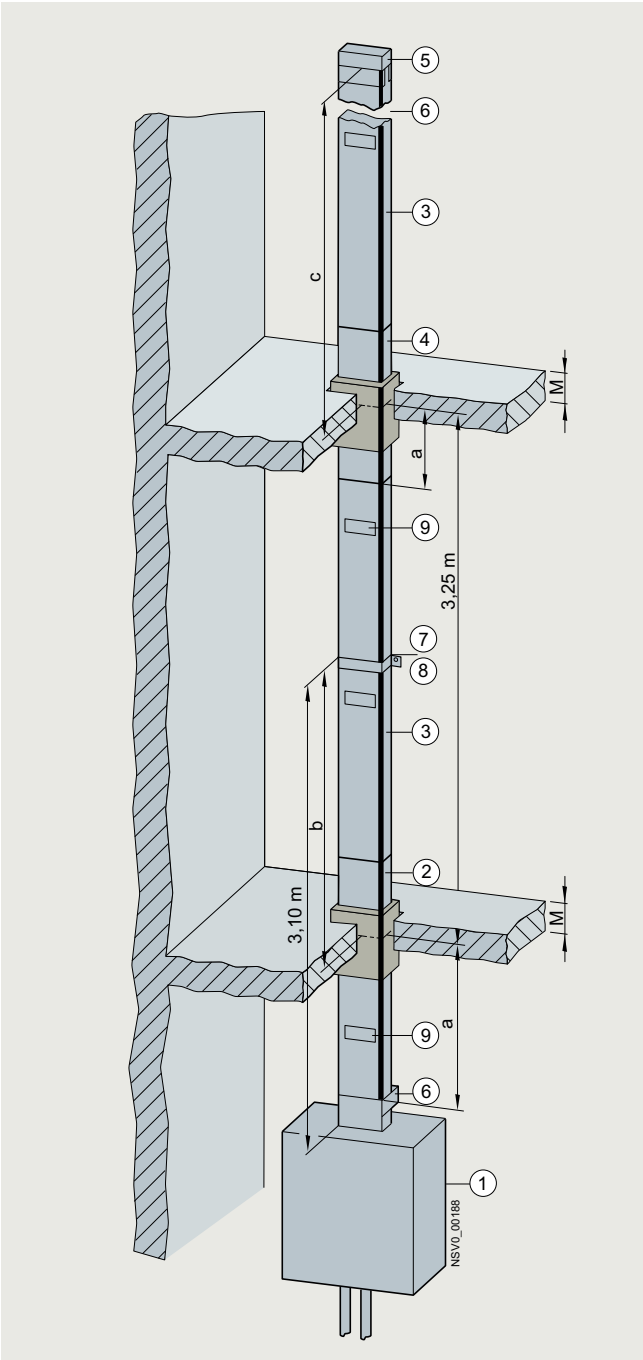
- Installation plan
- Bill of material
- Order form

Bill of material

Item no. (mounting location)	F W L K	Type	Description	Qty.
1		BD2A-1000-EE	End feeding unit	1
2		BD2A-3-800-WB-2W1,50 +BD2A1000-EI90-SLBX1,00	Trunking unit with optional length 1.5 m + fire barrier a = 1.0 m	1
3		BD2A-3-800-SB-2	Trunking unit 2.25 m	5
4		BD2A-3-800-WO-1W1,00 +BD2A1000-EI90-SLBX0,50	Trunking unit with optional length 1.0 m + fire barrier a = 0.5 m	4
5		BD2-1250-FE	End flange	1
6		BD2-BWV	Vertical fixing element	4
7		BD2-1250-BB	Fixing bracket	5
8		BD2-BD	Spacer bracket	5
9		BD2-AK05/SNH2	Tap-off unit with LV HRC fuse base	6
Alternatively:				
2 ... 4		BD2A-3-800-SB-3 +BD2A1000-EI90-SLBX1,00	Trunking unit 3.25 m + fire barrier a = 1.0 m,	5

Configuration information

Installation plan



Explanations for the installation plan

① End feeding unit
② Trunking unit, optional length 1.5 m, with fire barrier
③ Trunking unit, standard length 2.25 m
④ Trunking unit, optional length 1.0 m, with fire barrier
⑤ End flange
⑥ Vertical fixing element
⑦ Fixing bracket
⑧ Spacer bracket
⑨ Tap-off unit

a Position of fire barrier in m;
center of fire barrier is always at center of fire ceiling
b Dimension for spacer bracket in m
c Dimension for fixing element in m
M Ceiling thickness in m

The first fixing point is above the ceiling a distance of no more than 0.9 m for straight lengths and no more than 0.75 m for junction units.

Fixing elements:

- Second fixing element at approx. 5 m height (always near the terminal)
- Third fixing element at approx. 10 m height
- Fourth fixing element at approx. 15 m height

Note

The fixing points for all fixing brackets, fixing elements, and spacer brackets must be specified in the installation plan.

More information

Rated currents and short-circuit currents of standard transformers

Rated voltage U_N	400/230 V			690/400 V		
Relative impedance voltage u_k		4%	6%		4%	6%
Rated power	Rated current	Short-circuit current I''_k [1]		Rated current	Short-circuit current I''_k [1]	
kVA	A	A	A	A	A	A
50	72	1933	1306	42	1116	754
100	144	3871	2612	84	2235	1508
160	230	6209	4192	133	3585	2420
200	288	7749	5239	167	4474	3025
250	360	9716	6552	209	5609	3783
315	455	12247	8259	262	7071	4768
400	578	15506	10492	335	8953	6058
500	722	19438	12020	418	11223	6939
630	910	24503	16193	525	14147	9349
800	1154	--	20992	670	--	12120
1000	1444	--	26224	836	--	15140
1250	1805	--	32791	1046	--	18932

[1] I''_k = Transformer initial symmetrical short-circuit current when connecting to a network with unlimited short-circuit power.

Approximating formula		
Transformer rated current	Transformer symmetrical short-circuit current	with:
I_N [A] = $k \times S_{NT}$ [kVA]	$I''_k = I_N/u_k \times 100$	k = 1.45 at 400 V k = 0.84 at 690 V

Dimensioning and selection

Safe breaking of the smallest single-phase short-circuit-to-earth current

Since the level of the loop impedance is decisive in determining the level of the single-phase short-circuit current, DIN VDE 0100-600 prescribes that the loop impedance must be determined between the

- phase conductor and the protective conductor, or
- phase conductor and PEN conductor

This value may be determined by

- measuring with measuring devices, or
- calculation, or
- simulation of the network in a network model.

In the "Technical Specifications" section, the impedance values for the BD2A/BD2C busbar trunking systems are listed so that it is possible to calculate the loop impedances of a busbar system that represents a part of the total loop impedance.

With the aid of the loop impedance of the entire busbar trunking system, it is easy to calculate the smallest expected single-phase short-circuit current.

$$I_{kl\,min} = \frac{c \times U_n}{\sqrt{3} \times Z_k}$$

with:

c = Voltage factor 0.95

U_n = Voltage between the phase conductors

Z_k = Short-circuit impedance

The SIMARIS design software enables simple calculation of, for example, short-circuit current and voltage drop according to acknowledged engineering practice and standards (VDE, IEC).

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Configuration information

Degrees of protection for busbar trunking systems

Room types according to DIN VDE 0100 (IEC 60364)	Designation of the degree of protection according to IEC/EN 60529
Closed electrical operating areas	IP10
Electrical operating areas	IP20
Dry areas and rooms	IP20
Damp and wet areas and rooms	IP20

Degrees of protection of electrical equipment according to IEC/EN 60529

Degree of protection	1st characteristic numeral		2nd characteristic numeral
	Protection against access to hazardous parts	Protection against solid foreign objects	Protection against ingress of water
IP00	No particular protection	No particular protection	No particular protection
IP20	Keeping away fingers	Against solid foreign objects ≥ ∅ 12.5 mm	No particular protection
IP34	Keeping away tools	Against solid foreign objects ≥ ∅ 2.5 mm	No damaging effect from splashing water
IP41	Keeping away wires	Against solid foreign objects ≥ ∅ 1 mm	No damaging effect from vertically falling water drops
IP43	Keeping away wires	Against solid foreign objects ≥ ∅ 1 mm	No damaging effect from spraying water
IP54	Keeping away wires	Against damaging dust layers on the inside (dust-protected)	No damaging effect from splashing water
IP55	Keeping away wires	Against damaging dust layers on the inside (dust-protected)	No damaging effect from water jets
IP65	Keeping away wires	Against the ingress of dust (dust-tight)	No damaging effect from water jets
IP66	Keeping away wires	Against the ingress of dust (dust-tight)	Water projected in powerful jets against the enclosure from any direction shall have no harmful effects
IP67	Keeping away wires	Against the ingress of dust (dust-tight)	Ingress of water in quantities causing harmful effects shall not be possible when the enclosure is temporarily immersed in water under standardized conditions of pressure and time
IP68	Keeping away wires	Against the ingress of dust (dust-tight)	Ingress of water in quantities causing harmful effects shall not be possible when the enclosure is continuously immersed in water under conditions which shall be agreed between manufacturer and user but which are more severe than for numeral 7

Protection against electric shock according to EN 50274

These regulations apply for the design of electrical equipment and its arrangement in electrical installations with rated voltages up to 1000 V AC or 1500 V DC – regarding protection against direct contact, where there are actuators (pushbuttons, toggle levers, etc.) located in the direct vicinity of touch-critical parts.

"Finger-safe" relates only to the operating device (actuator) and only in the normal direction of actuation. A distance of at least r = 30 mm in radius from the center point of the actuator to any touch-critical parts must be ensured.

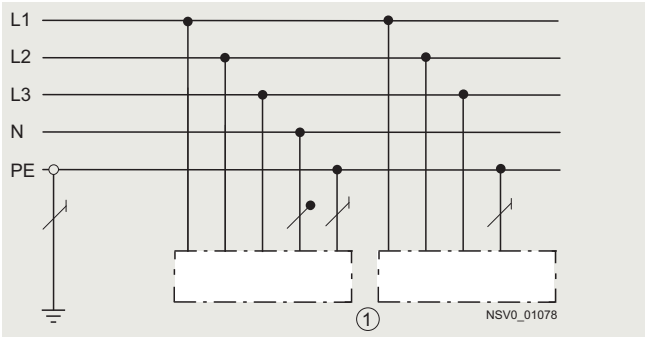
The degree of protection IP20 is a more enhanced protection against direct contact than "finger-safe". It constitutes touch protection with electrical equipment from all directions. Devices with "finger-safe" protection against direct contact and degree of protection IP00 can be assigned with additional protection against direct contact by shrouding if required.

Power distribution systems (network configurations) according to DIN VDE 0100-100

Determination of the protective measures and selection of the electrical equipment in accordance with the power distribution system used.

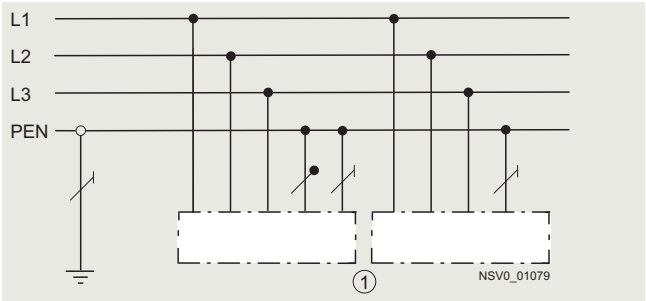
TN systems

TN-S system



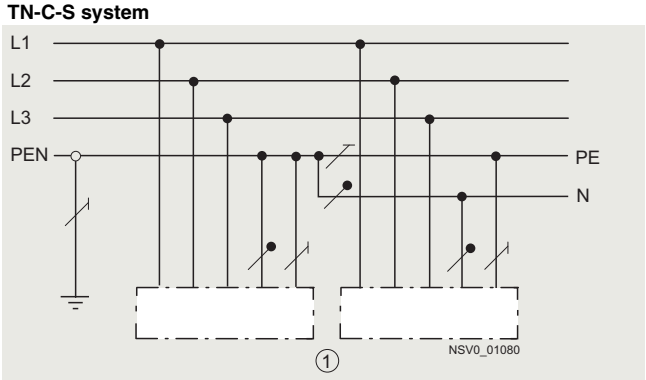
Neutral and protective conductor functions are separated throughout the system.

TN-C system



Combined neutral and PE conductor functions throughout the system

TN-C-S system



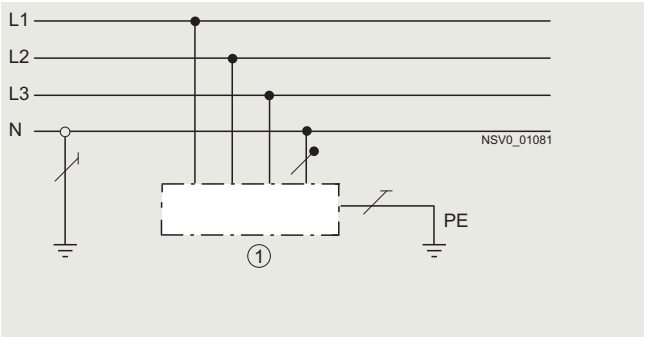
Combination of neutral conductor and PE conductor functions. They are combined in one part of the system to a single conductor and separated in another part.

① Chassis

② Impedance

Other systems

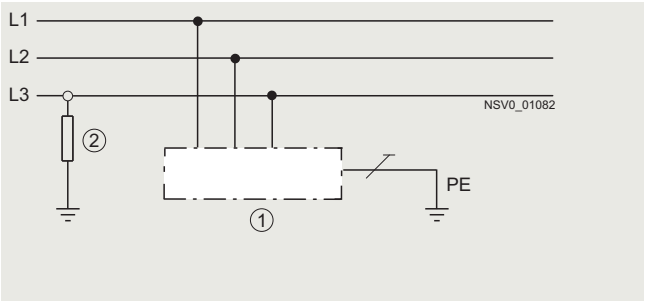
TT system



In a TT system, one point is directly earthed; the chassis of the electrical system is connected to earth which has no direct connection to the operational earthing.

In the modern TT system, protective measures include protective earthing as well as residual current operated circuit breaker systems and voltage operated circuit breaker systems.

IT system



In the IT system there is no direct connection between the live conductors and earthed components; the chassis of the electrical system is earthed.

The IT system corresponds with the system where a protective earth system for protective measures is applied.

Explanations

First character = Earthing condition of the power supply source

- T = Direct earthing of a point
- I = Either insulation of all live parts from earth or connection of one point to earth via impedance

Second character = Earthing condition of chassis of the electrical equipment

- T = Chassis directly earthed, independently of any earthing of a point in the power supply
- N = Chassis connected directly with the operational earth; in AC systems, the earthed point is normally the neutral point

Additional characters = Arrangement of the neutral conductor and PE conductor

- S = Neutral and PE functions in separate conductors
- C = Neutral and PE functions combined in a single conductor (PEN)

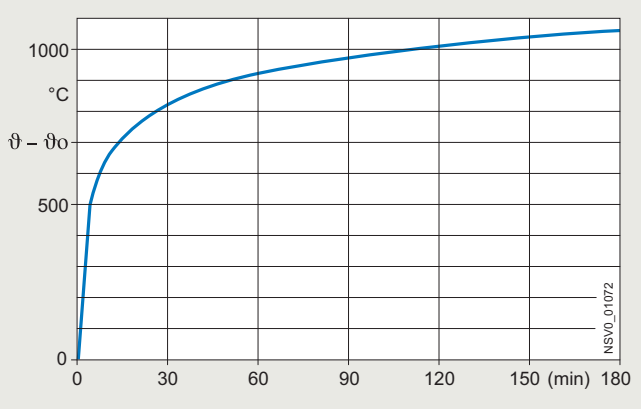
4

Configuration information

Functional endurance

Fire barrier equipment and fire barrier precautions for electrical installations are required especially with building structures of a particular type of utilization. Buildings of this nature include hospitals and places where people gather. Electrical systems according to DIN VDE 0100-710 "Medical locations" must remain operational for certain periods of time in the event of a fire. This applies in particular to:

- Fire alarm systems
- Systems for sounding alarms and conveying instructions to visitors and employees
- Emergency lighting
- Passenger elevators with evacuation circuit which must remain serviceable in the incoming feeder area for at least 30 minutes under post-flashover fire conditions
- Water-pressure boosting equipment for firefighting water supply
- Ventilation systems of enclosed stairwells, elevator shafts and drive equipment rooms for fire service elevators must remain operational for at least 90 minutes



Standard temperature curve (STC) for assessing functional endurance

In the fire tests, the busbar trunking systems concerned were tested with a horizontal 4-sided cladding of PROMATECT L500 plates in various thicknesses (40 mm) and with PROMATECT LS plates (45 mm or 50 mm) under an outside fire load based on the standard temperature curve (STC) in order to assess functional endurance according to DIN 4102-12.

Functional endurance class E90 was achieved. The following general test certificates from the German building authorities (abP) are available: P-3672/451/08-MPA BS and P-SAC-02/III-606.

The versions described only apply to power transmission systems. The general test certificates from the building authorities (abP) are used as a configuration guide for setting up functional endurance ducts.

The abP must only ever be copied in its entirety and must be available in full at the point of use.

Magnetic fields

General

The busbars intended for power distribution and power transmission generate – as do all other conductors – alternating electromagnetic fields with a fundamental frequency of 50 Hz. These magnetic fields can negatively influence the function of sensitive equipment such as computers or measurement devices.

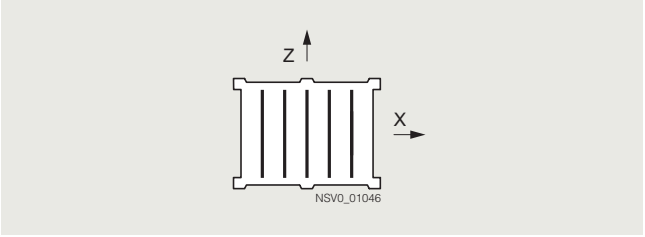
Limit values

The EMC directives and the standards derived from these do not contain any regulations or recommendations for engineering busbar trunking system installations. If busbar trunking systems are used in medical facilities, the DIN VDE 0100-710 standard can be consulted.

In DIN VDE 0100-710, guide values of line frequency induced magnetic fields in facilities used for medical purposes are defined. Stations where patients are treated may not be subject to magnetic induction at 50 Hz which exceeds the following values:

- $B = 2 \times 10^{-7}$ Tesla for EEG
- $B = 4 \times 10^{-7}$ Tesla for ECG

In order to make it possible to decide in the planning stage which busbars should be used, Siemens has carried out extensive magnetic field measurements. The magnetic radiated disturbance of the busbar trunking systems was measured using a 9.6 m long straight busbar arrangement. The busbars were loaded symmetrically with the rated current and the magnetic fields measured in their horizontal and vertical axes.



System of coordinates for magnetic field measurement

The limit value for inductive disturbances between multi-core cables and wires of the power installation, conductor cross-section > 185 mm^2, and the patient spaces to be protected is reliably undershot if the minimum distance of 9 m recommended by DIN VDE 0100-710 is observed.

When busbars are used, this distance will usually turn out to be less since the sheet-steel enclosure is effective in reducing magnetic disturbance fields in the environment.

Measured values on request.

Sprinkler test

General

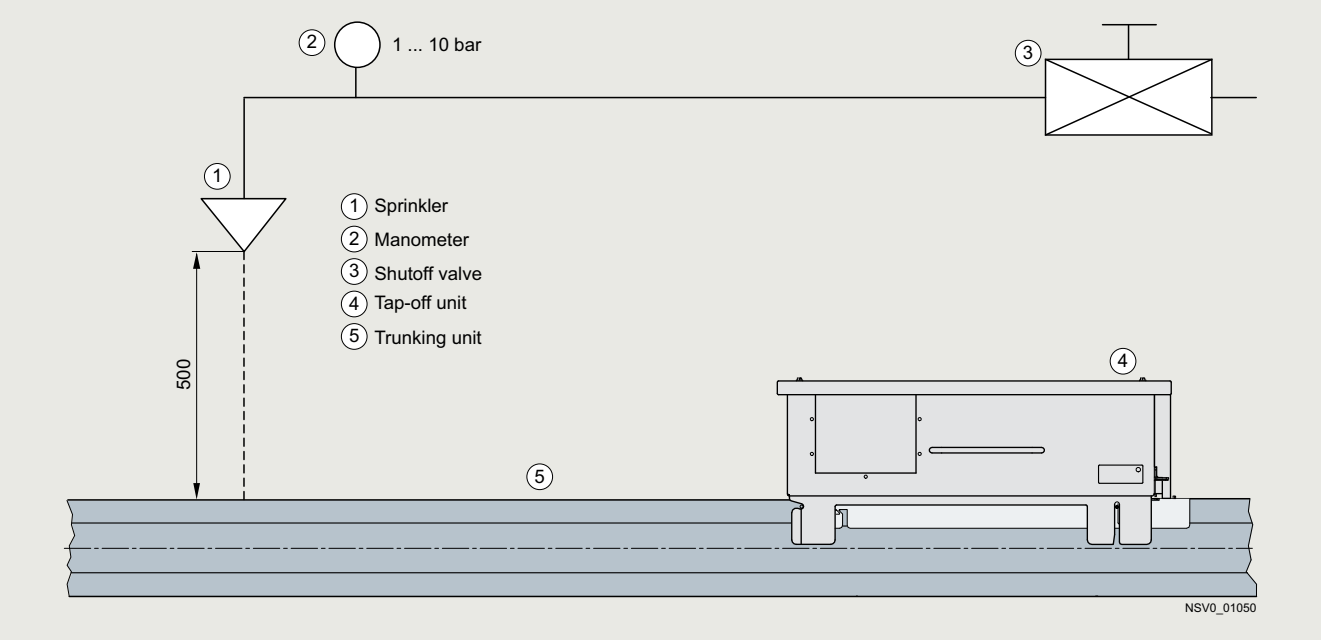
Sprinkler fire-extinguishing systems in particular are used for protecting cable conduits and cable ducts. Here it is predominantly the cooling effect of the water on the surface of the fire which is exploited. Operation of the sprinkler for at least 30 minutes should be assumed.

Siemens has subjected its BD2A/BD2C busbar trunking systems to an extensive range of tests with sprinkler systems. Due to the absence of a mandatory standard, the tests were performed using a test setup which mirrored a practical application (see the sketch).

Test results

With the BD2A/BD2C busbar trunking system, the system with degree of protection IP55 was sprinkled in all mounting positions paying close consideration to the "VdS" directives for sprinkler systems.

The insulation resistance was measured before and after sprinkling for 90 minutes, and a high voltage test according to EN 61439-6 was performed. This test was absolved successfully and indicated that the system could be operated immediately after sprinkling without any delays.



Sprinkler test setup

Configuration information

Comparison of characteristic features of busbar trunking systems and classical cable installation

Feature	Busbar trunking system	Cable installation
Security of operation	Design verification according to IEC 61439-6 (VDE 0660-600-6)	Depends on the respective execution quality
Mechanical safety	High	Low
Fire load	Low	High: PVC: up to 10 times higher PE: up to 30 times higher
Temperature characteristic	Ambient temperature max. +40 °C and +35 °C in the 24-hour mean according to IEC 61439-1 and -6	Cable loads are referred to +30 °C according to DIN VDE 0298-4
Network configuration	Clear due to linear- and/or surface-type network configuration with serially arranged load tap-offs via the tap-off units	Very high cable accumulation at the infeed point due to the radial supply to the loads from the central power distribution
Placement of switching and protection devices for loads	In the tap-off unit: thus immediate assignment to the load on site	Centrally in the distribution board: thus only indirect assignment to the load. The correctness of the cable and load labeling is crucial and must always be checked
Space requirements	Low, thanks to compact design due to high current-carrying capacity and standard angle and offset components	High, as routing criteria such as accumulation, type of routing, bending radii, current-carrying capacity, etc. must be observed
Retrofitting capability if load tap-offs are changed	Greater flexibility due to tap-off points in the trunking units and large number of different tap-off units	Only possible with high costs. Routing of additional cables from the central distribution to the load
Planning and configuration	Easy and fast using computer-aided planning tools	High configuration costs (distribution and cable designs, cable diagrams, etc.)
Dimensioning (operational and short-circuit currents, voltage drop, earthing conditions)	Low costs	High costs
Troubleshooting effort	Low	High
Fire barriers	Design verified, factory-assembled	Depending on the execution quality on site
Functional endurance	Tested functional endurance according to DIN 4102-12	Depending on the execution quality on site
Electromagnetic influence	Low	Relatively high for standard cables
Installation	Less installation material and auxiliary means, short installation times	Complex mounting materials and a comprehensive range of tools required, long mounting times
Weight	Weight reduction to half or even a third compared with cables	Up to 3 times the weight of a comparable busbar trunking system
Halogen-free and PVC-free	Trunking units are always halogen-free and PVC-free	Standard cables are not halogen-free and PVC-free. Halogen-free cables are more expensive than standard cables

Overview

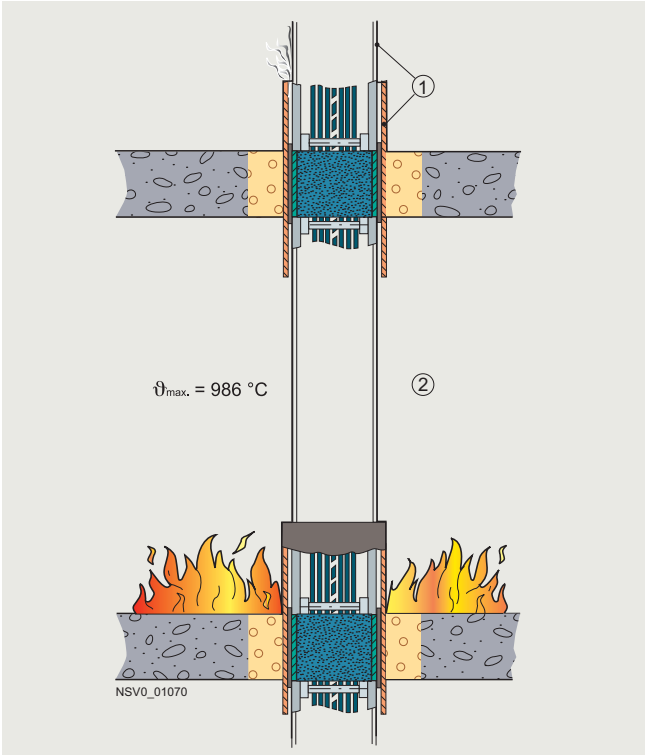
General requirements[1)]

The state building authorities (Germany) or regional/international requirements demand that buildings are designed so that "spreading of fire is prevented, and that effective fire fighting and rescue of persons is facilitated".

To this end, all BD2A-… and BD2C-… busbar trunking systems can be equipped with a fire barrier, and comply with classification EI 90 and EI 120 according to EN 13501-2. The trunking units are supplied from the factory with a fire barrier comprising an internal bulkhead and an external fire barrier block.

Specifically in Germany:

- A general type approval from the German Institute for Building Engineering (Deutsches Institut für Bautechnik in Berlin DIBt) in Berlin is available:
  aBG No. Z-19.53-2484.
- According to the aBG, the fire resistance abilities depend on the type of building elements (walls/ceilings) and space closure: fire-retardant (30 minutes), highly fire-retardant (60 minutes), fire-resistant (90 minutes), and fire resistance duration 120 minutes.
- The aBG must be available at the point of use and can be ordered as a fire barrier approval kit BD2-ZUL-D.



Basic structure of the fire barrier test

(1) Permissible temperature increase on building elements: max. 180 °C

(2) Fire testing room: application of fire in accordance with standard temperature curve EN 1363-1

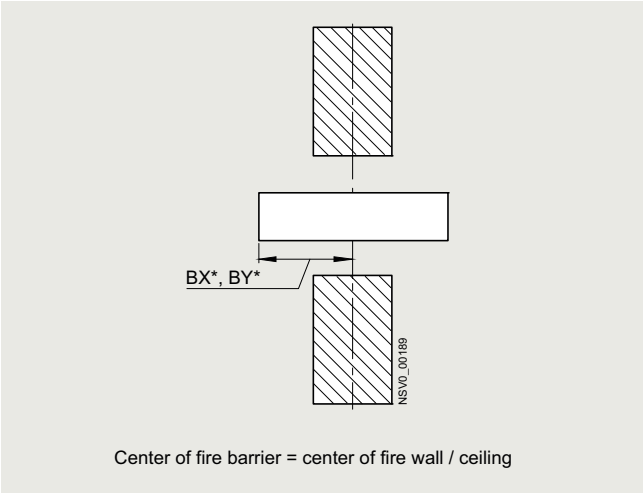
Configuration

To ensure the function EI 90 or EI 120 of the fire barrier, the fire barrier must already be considered during configuration and installation of the trunking units and junction units with fire barrier:

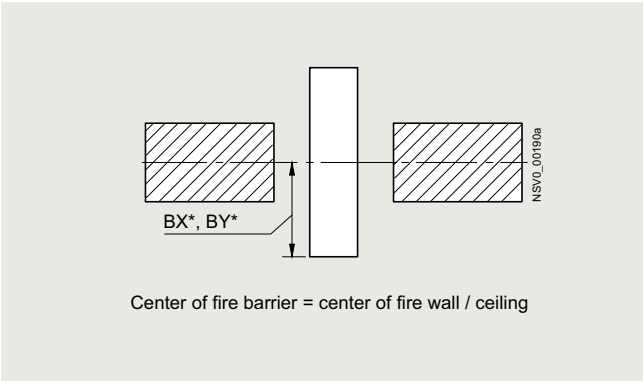
- Central positioning of the external fire barrier block in the fire wall or fire ceiling
- There are no tap-off points in the area covered by the fire barrier
- Detailed installation instructions, e.g. for fixing and closing the wall or ceiling openings, are provided in the installation instructions[2)]

Notes

For BX* or BY*, you must specify the required configuring dimension from the center of the joint block to the center of the fire wall or fire ceiling.



Positioning in the fire wall



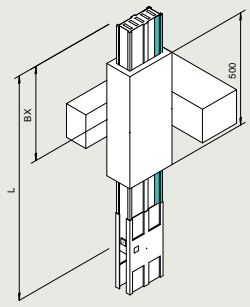
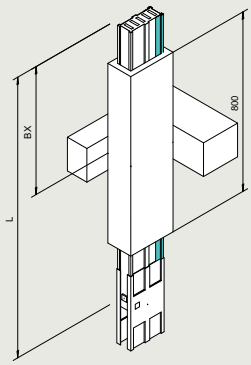
Positioning in the fire ceiling

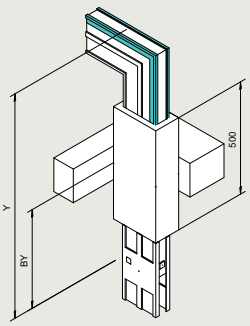
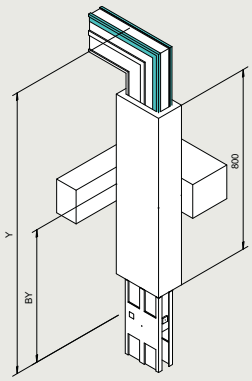
[1)] Fire barrier: fire resistance classes EI 90 and EI 120 according to EN 1366-3:2009-07.

[2)] To download the installation instructions, see https://support.industry.siemens.com/cs/ww/en/view/109805424

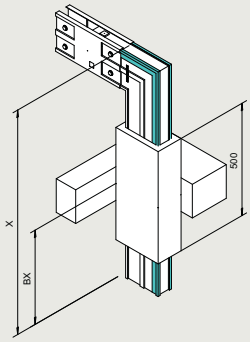
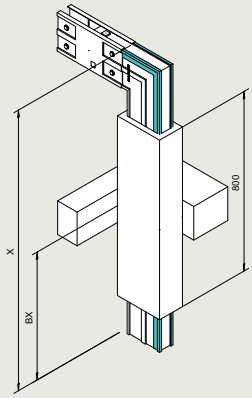
Fire barriers

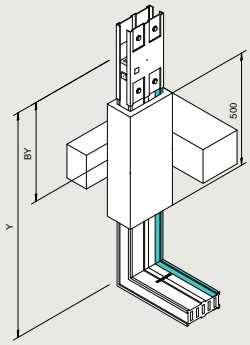
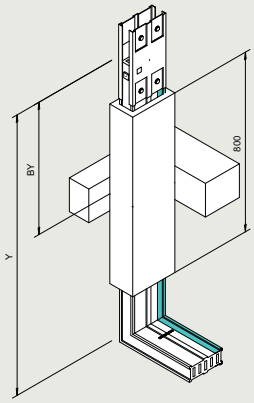
Positioning rules

Straight lengths BD2.-160 (-250, -400)-… (size 1) BD2.-630 (-800, -1000, -1250)-… (size 2)	BD2A Length of fire barrier block = 500 mm	BD2C Length of fire barrier block = 800 mm
		
L min.	860 mm	1160 mm
L max.	3250 mm	3250 mm
BX* min.[1)]	420 mm	570 mm
BX* max.[1)]	2810 mm	2660 mm

Elbow LL... / LR… BD2.-160 (-250, -400)-… (size 1) BD2.-630 (-800, -1000, -1250)-… (size 2)	BD2A Length of fire barrier block = 500 mm	BD2C Length of fire barrier block = 800 mm
		
Y min.	860 mm	1160 mm
Y max.	1250 mm	1250 mm
BY* min.[1)]	440 mm	590 mm
BY* max.[1)]	830 mm	680 mm

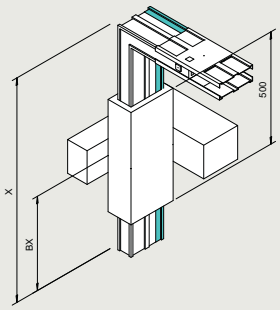
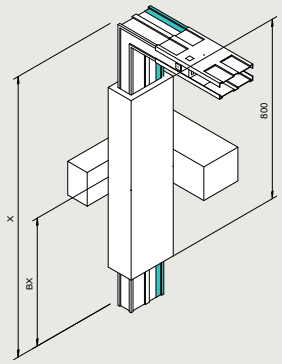
[1)] BX* and BY* are configuration dimensions (reference point is center of joint block)

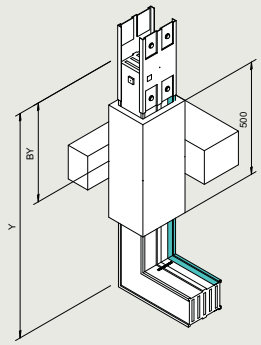
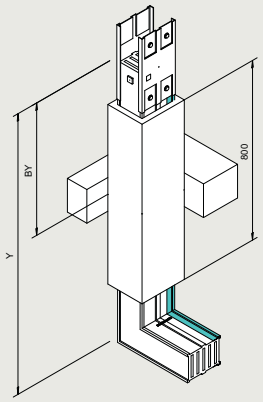
Elbow LL... / LR… BD2.-160 (-250, -400)-… (size 1) BD2.-630 (-800, -1000, -1250)-… (size 2)	BD2A Length of fire barrier block = 500 mm	BD2C Length of fire barrier block = 800 mm
		
X min.	860 mm	1160 mm
X max.	1250 mm	1250 mm
BX* min.[1)]	420 mm	570 mm
BX* max.[1)]	810 mm	660 mm

Elbow LV... / LH… BD2.-160 (-250, -400)-… (size 1)	BD2A Length of fire barrier block = 500 mm	BD2C Length of fire barrier block = 800 mm
		
Y min.	760 mm	1060 mm
Y max.	1250 mm	1250 mm
BY* min.[1)]	440 mm	590 mm
BY* max.[1)]	930 mm	780 mm

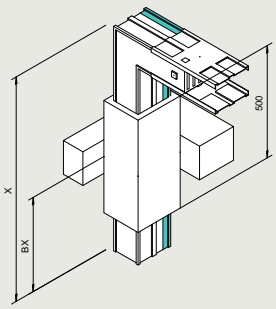
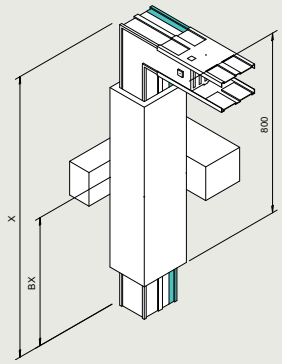
[1)] BX* and BY* are configuration dimensions (reference point is center of joint block)

Fire barriers

Elbow LV... / LH… BD2.-160 (-250, -400)-… (size 1)	BD2A Length of fire barrier block = 500 mm	BD2C Length of fire barrier block = 800 mm
		
X min.	760 mm	1060 mm
X max.	1250 mm	1250 mm
BX* min.[1)]	420 mm	570 mm
BX* max.[1)]	910 mm	760 mm

Elbow LV... / LH… BD2.-630 (-800, -1000, -1250)-… (size 2)	BD2A Length of fire barrier block = 500 mm	BD2C Length of fire barrier block = 800 mm
		
Y min.	810 mm	1110 mm
Y max.	1250 mm	1250 mm
BY* min.[1)]	440 mm	590 mm
BY* max.[1)]	870 mm	720 mm

[1)] BX* and BY* are configuration dimensions (reference point is center of joint block)

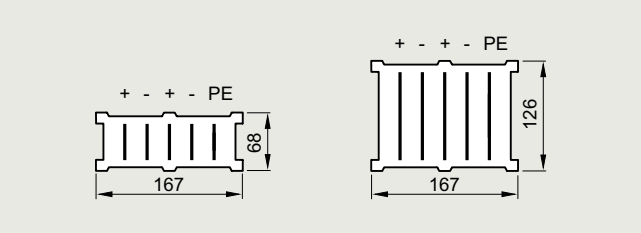
Elbow LV... / LH… BD2.-630 (-800, -1000, -1250)-… (size 2)	BD2A Length of fire barrier block = 500 mm	BD2C Length of fire barrier block = 800 mm
		
X min.	810 mm	1110 mm
X max.	1250 mm	1250 mm
BX* min.[1)]	420 mm	570 mm
BX* max.[1)]	880 mm	710 mm

[1)] BX* and BY* are configuration dimensions (reference point is center of joint block)

DC applications

Overview

Power transmission



Trunking units without tap-off points and junction units are suitable for use in both three-phase AC and DC applications. If used in DC applications, we recommend labeling the components. The adhesive "DC system" label, for example, can be ordered separately.

For use in DC applications, the appropriate "DC" feeding units must be used.

The rated currents for DC are stated in the technical specifications.

In case of short circuit, the power is limited either by the power supply unit, the thyristor, or the battery. These short-circuit currents are usually clearly below the three-phase short-circuit currents of the BD2 system.

It is to be observed that a possible arcing short circuit cannot extinguish by itself, because DC currents do not have a zero crossing. Depending on the length of the busbar run, it has to be verified if the selected switching and protection device trips correctly.

Power distribution (on request)

The standard BD2 tap-off units are provided for use in three-phase AC applications. They are not suitable for use in DC applications.

Selection and ordering data

Version	SD	Types	Article No.	PS*/ P. unit	Weight per unit
	d				kg
DC label					
Information label "DC system" (10 units)		**BD2-LABEL-DC**	**BVP:662524**	1 unit	0.002

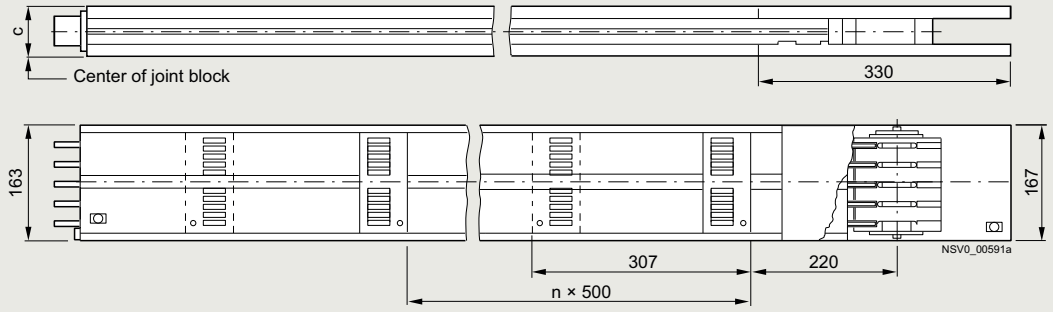
Version + - + - PE	SD	Rated current I_{nA} DC size 1 277 A ... 693 A		PS*/ P. unit	Weight per unit	SD	Rated current I_{nA} DC size 2 1091 A ... 1732 A		PS*/ P. unit	Weight per unit
	d	Type	Article No.		kg	d	Type	Article No.		kg
Feeding units										
With cable entry plate[1] Cable entry from the front										
• Aluminum		**BD2A-400-EE-EBAL-DC**	**BVP:662581**	1 unit	13.300		**BD2A-1000-EE-EBAL-DC**	**BVP:662586**	1 unit	14.900
• Copper		**On request**					**On request**			
With cabling box and cable entry plate[1] Cable entry from 2 sides										
• Aluminum		**BD2A-400-EE-KR-EBAL-DC**	**BVP:662583**	1 unit	16.500		**BD2A-1000-EE-KR-EBAL-DC**	**BVP:662588**	1 unit	19.900
• Copper		**On request**					**On request**			
Distribution board feeding unit without joint block Bolt terminal (bolt included in scope of supply); PE position can be changed										
• Aluminum		**BD2A-400-VE-DC**	**BVP:662579**	1 unit	3.300		**BD2A-1000-VE-DC**	**BVP:662584**	1 unit	7.200
• Copper		**On request**					**On request**			

[1] Single-core cable entry plate, undrilled.

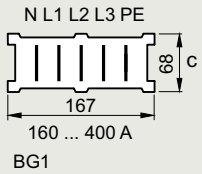
Dimensional drawings

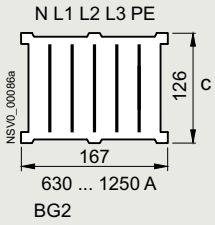
Straight trunking units

BD2.-.-...

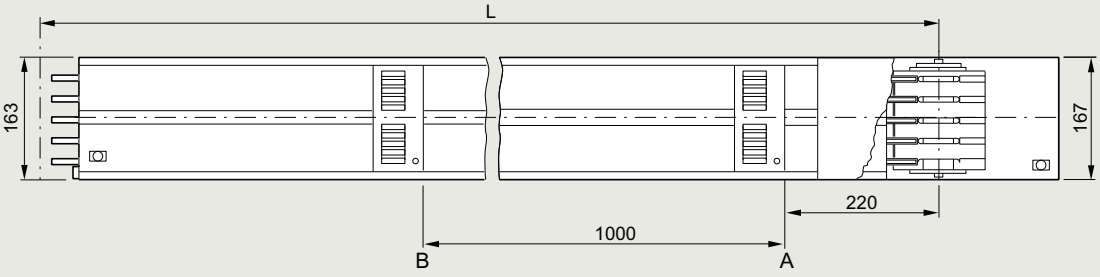


Length L m	Number of tap-off points on both sides n × 500
0.5 ... 1.25	–
1.26 ... 2.25	4 ... 8
2.26 ... 3.25	8 ... 12
	On optional lengths, it may not be possible to fit tap-off units to all tap-off points





BD2.-3-W... (eMobility length)



Type	Lenght L m	Qty Tap-off points	Position Tap-off points
BD2.-3-W1...	2,26 ... 3,24	1	A
BD2.-3-W2...	2,26 ... 3,24	2	A + B

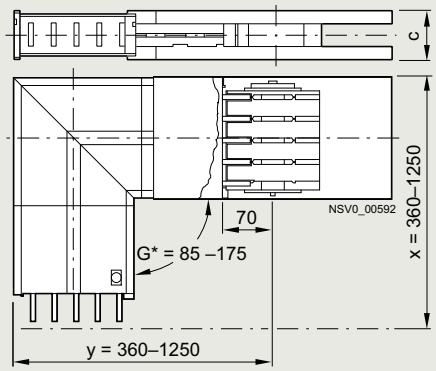
4

Configuration aids

Junction units

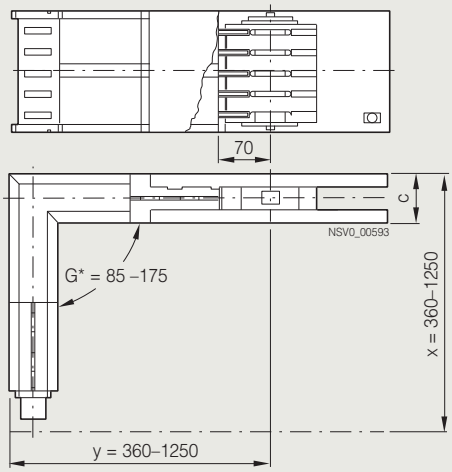
L-units

BD2.-...-LR-...(-G*)
BD2.-...-LL-...(-G*)



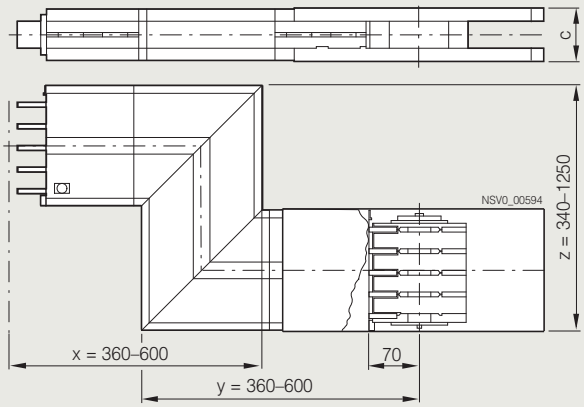
Rated current A	c mm
160 ... 400	68
630 ... 1250	126

BD2.-...-LV-...(-G*)
BD2.-...-LH-...(-G*

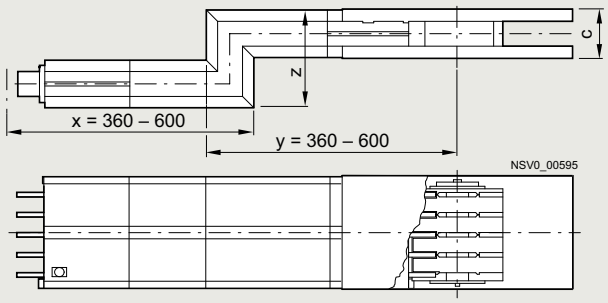


Z-units

BD2.-...-ZR-...
BD2.-...-ZL-...



BD2.-...-ZV-...
BD2.-...-ZH-...

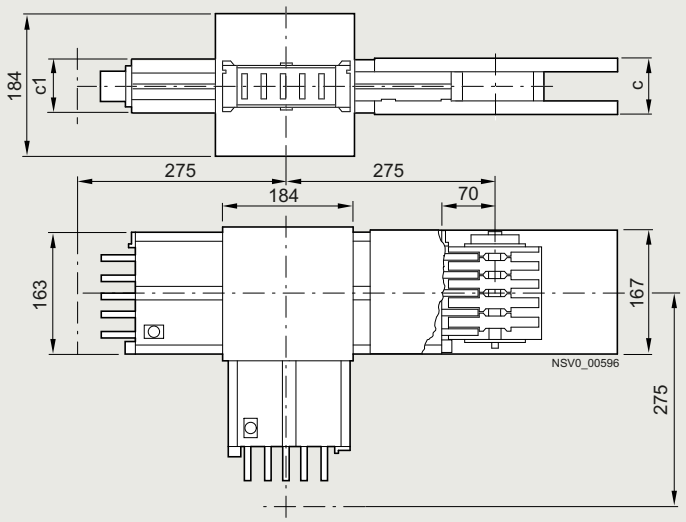


Rated current A	z mm
160 ... 400	140 ... 1250
630 ... 1250	260 ... 1250

Junction units

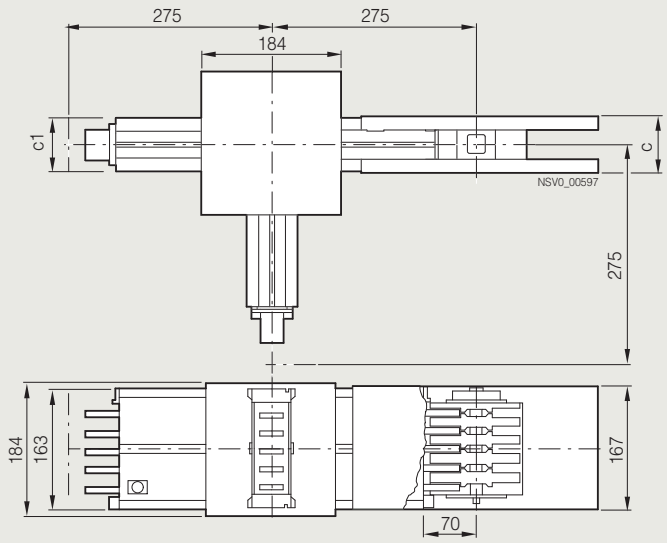
T-units

BD2.-...-TR
BD2.-...-TL



Rated current / A	c / mm	c1 / mm
160 ... 400	68	64
630 ... 1000	126	122

BD2.-...-TV
BD2.-...-TH



Rated current / A	c / mm	c1 / mm
160 ... 400	68	64
630 ... 1250	126	122

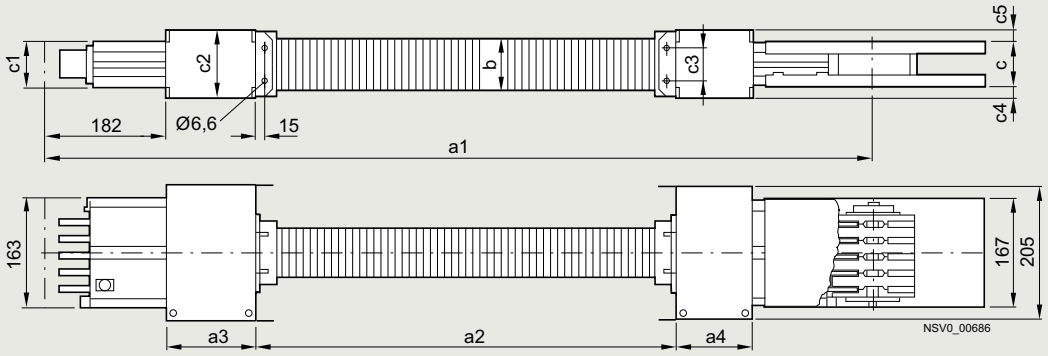
4

Configuration aids

Junction units

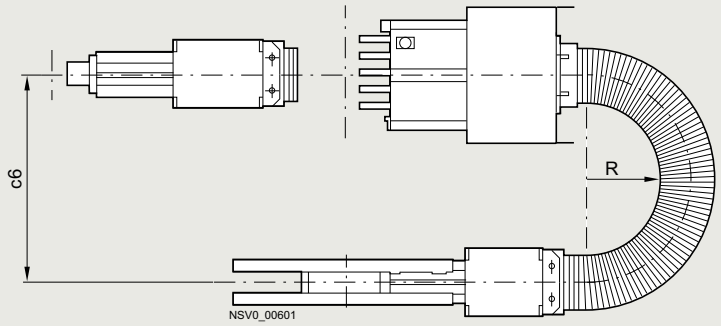
Flexible junction units

BD2-400-R, BD2-800-R



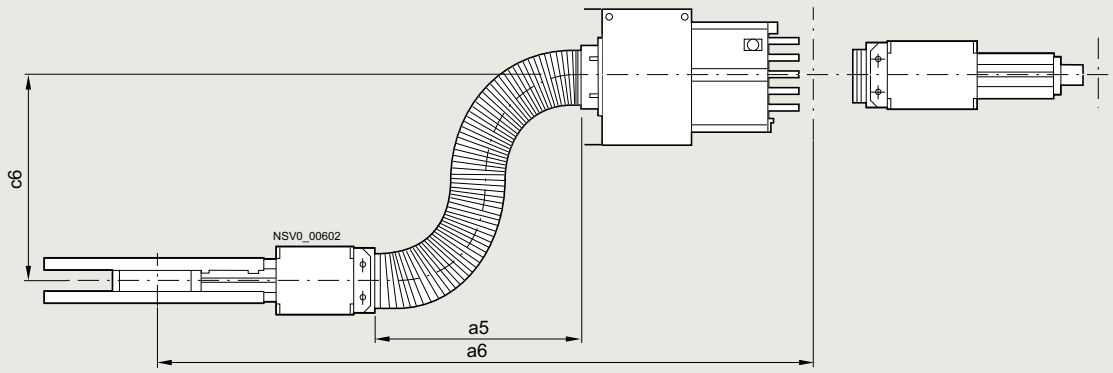
Typ	a1	a2	a3	a4	b	c	c1	c2	c3	c4	c5
BD2-400-R	1250	512	187	187	79	68	64	101	50	11,5	21,5
BD2-800-R	1750	786	350	250	146.5	126	122	195	145	11,5	57,5

U shape



Type	c6	R_{min}
BD2-400-R	220	110
BD2-800-R	340	170

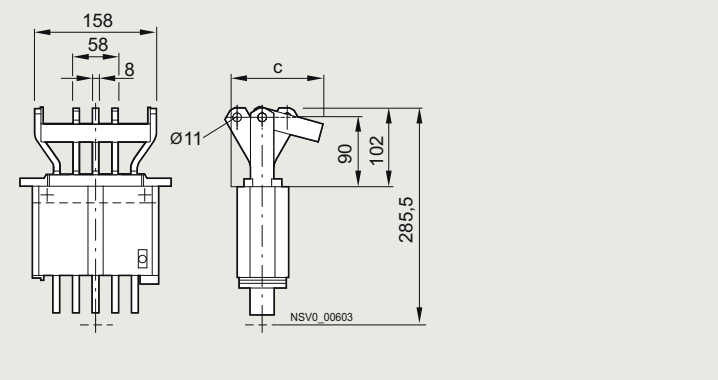
Z shape



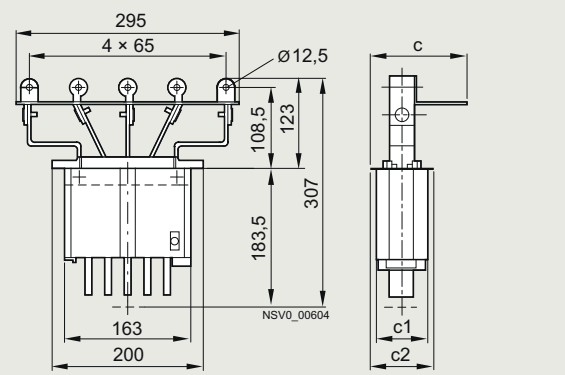
Type	a5	a6	c6	R_{min}
BD2-400-R	175	1000	355	110
BD2-800-R	530	1590	400	170

Distribution board feeding units

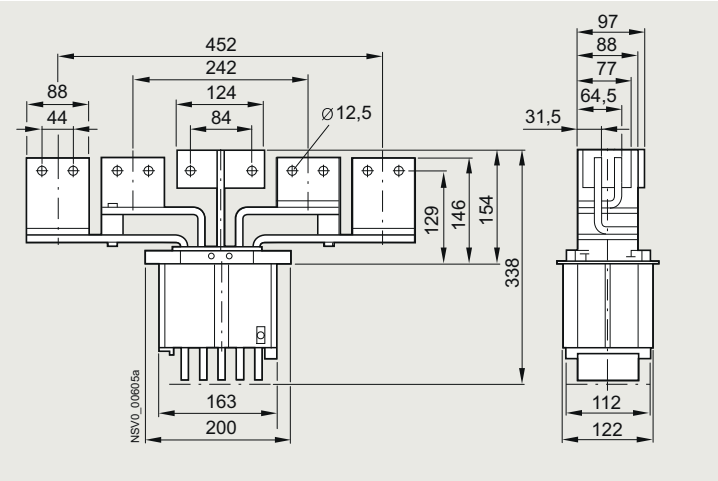
BD2.-250-VE



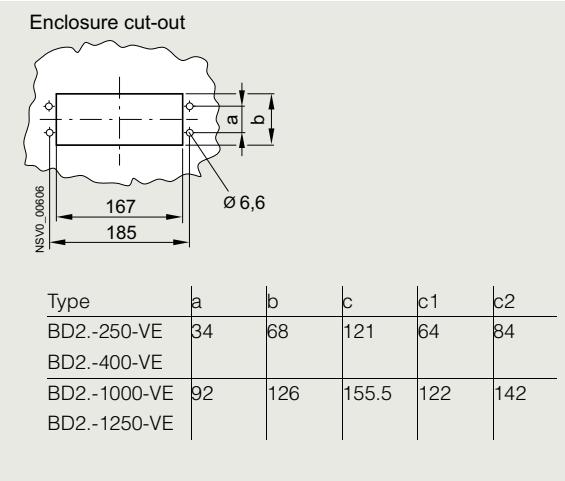
BD2.-400-VE, BD2.-1000-VE



BD2.-1250-VE



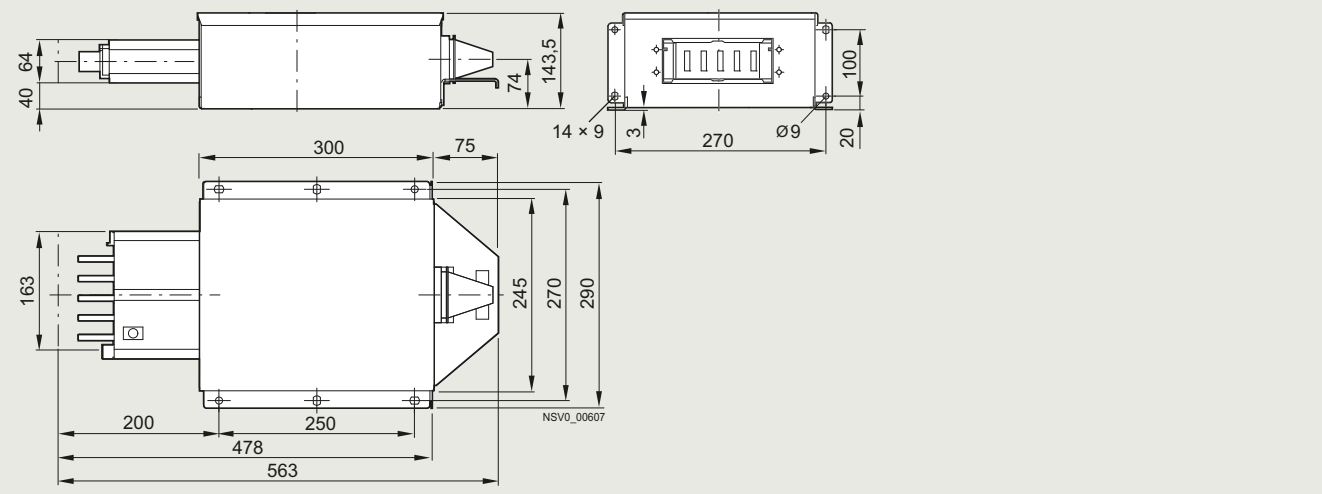
Enclosure cut-out



Type	a	b	c	c1	c2
BD2.-250-VE BD2.-400-VE	34	68	121	64	84
BD2.-1000-VE BD2.-1250-VE	92	126	155.5	122	142

End feeding units

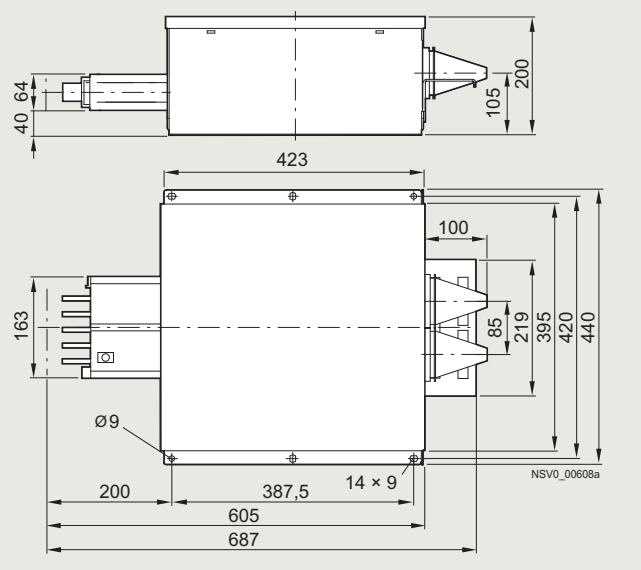
BD2.-250-EE



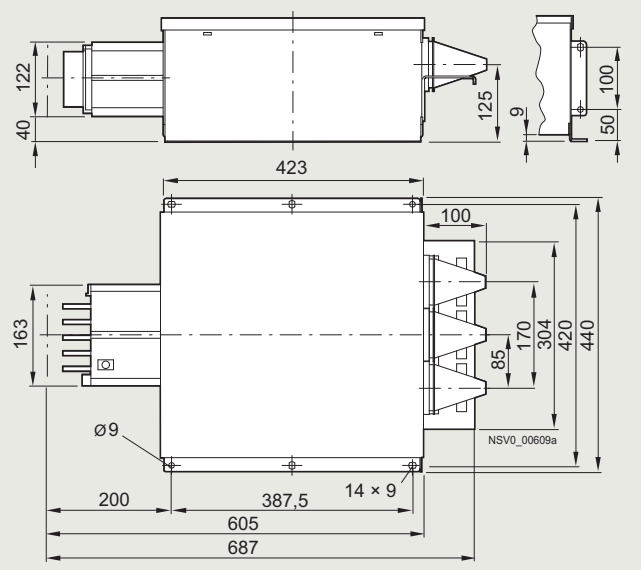
Configuration aids

End feeding units

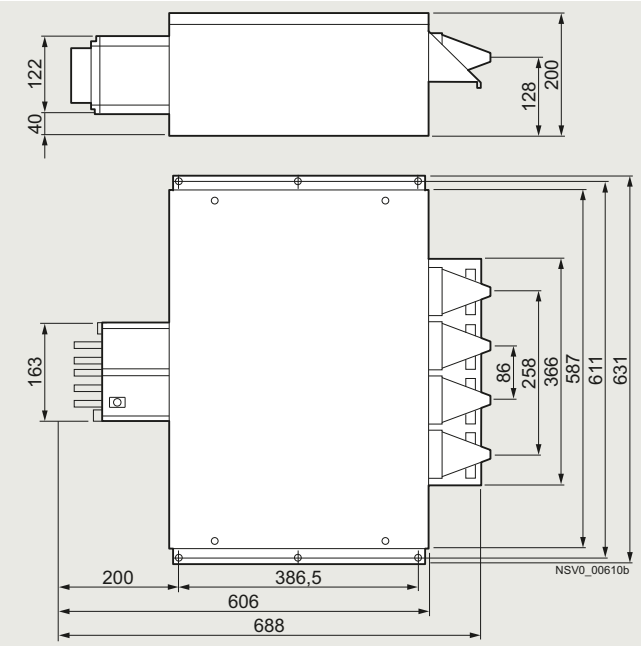
BD2.-400-EE



BD2.-1000-EE



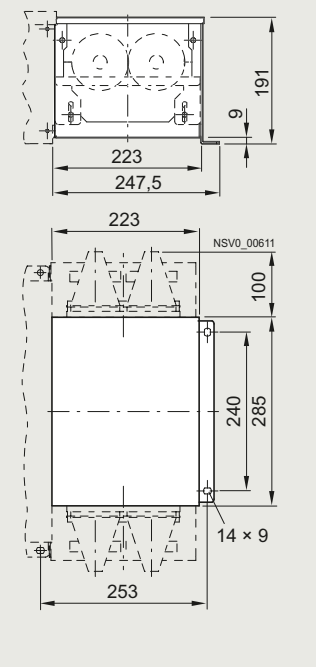
BD2.-1250-EE



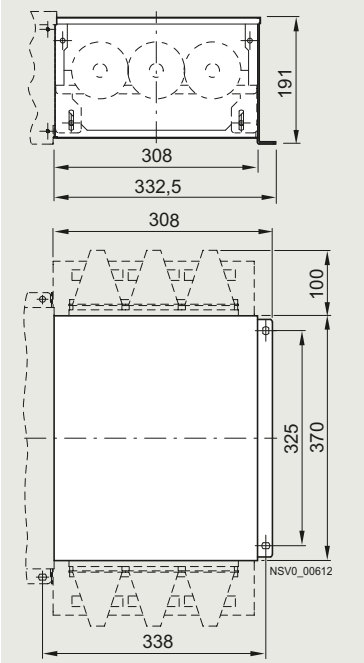
4

Cabling boxes

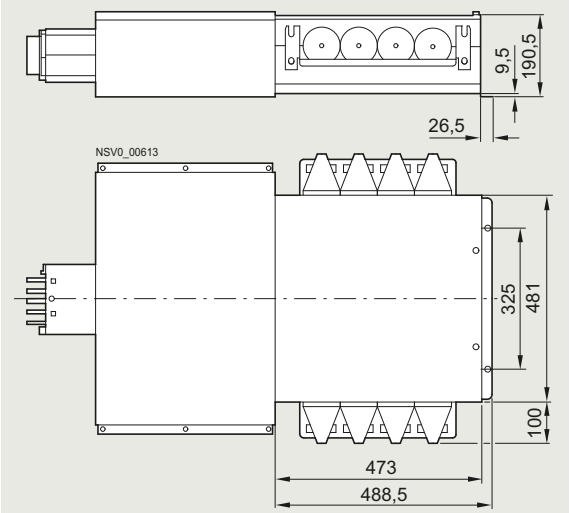
BD2-400-KR (BD2.-400-EE)



BD2-1000-KR (BD2.-1000-EE)

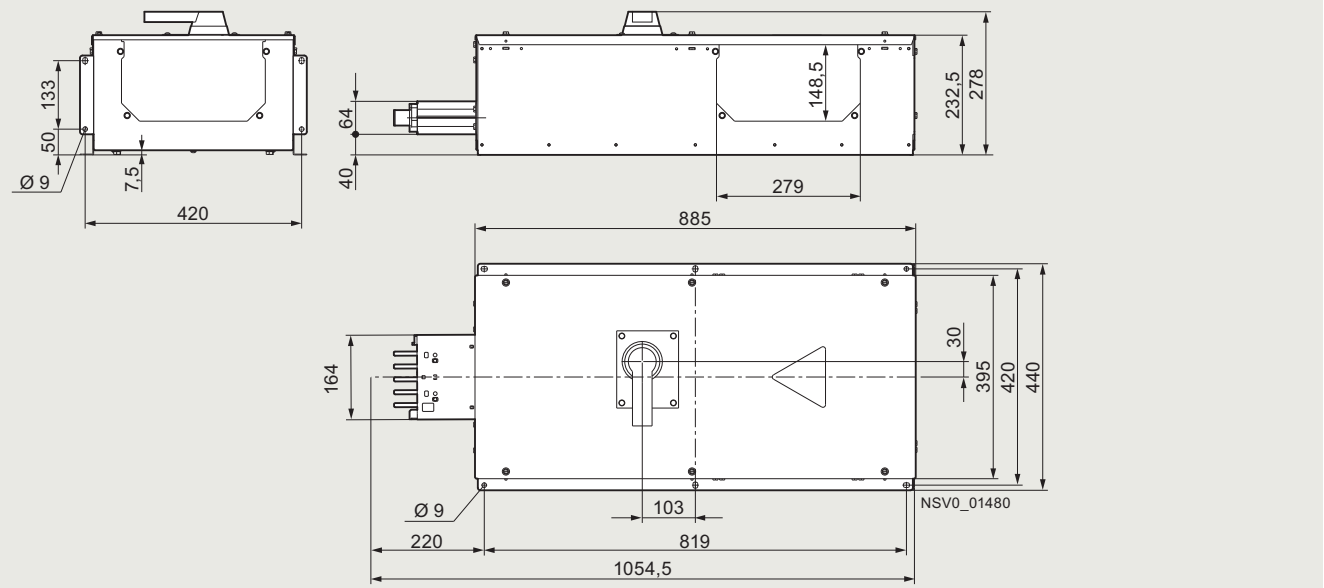


BD2-1250-KR (BD2.-1250-EE)



End feeding units with switch disconnector

BD2C-250-EESC, BD2C-315-EESC

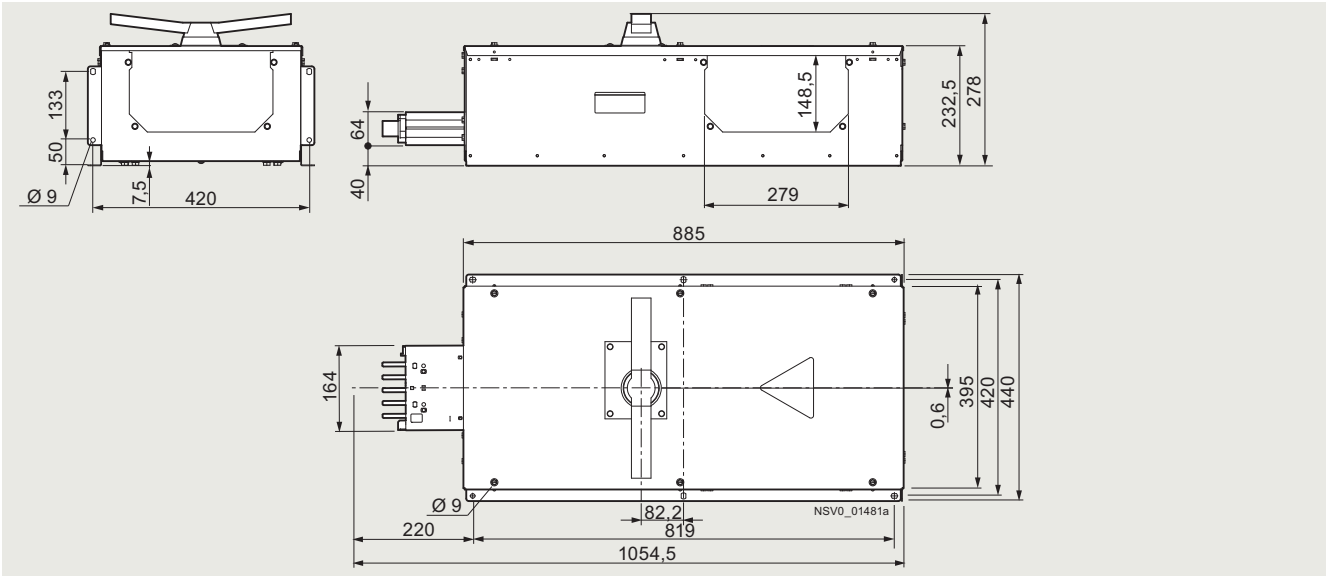


4

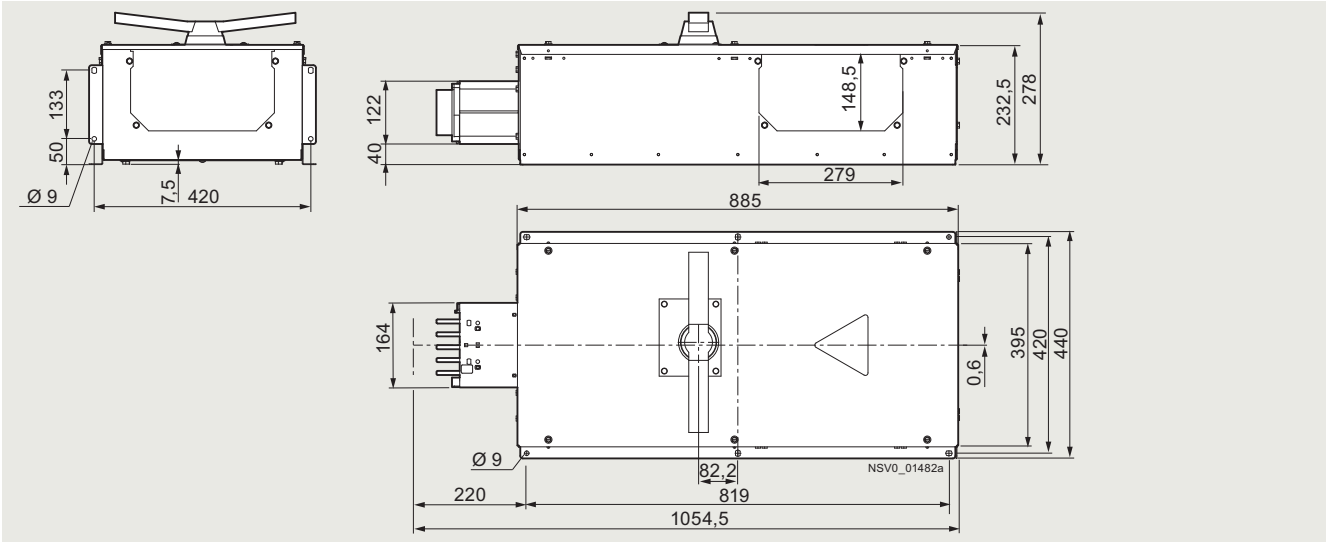
Configuration aids

End feeding units with switch disconnector

BD2C-400-EESC



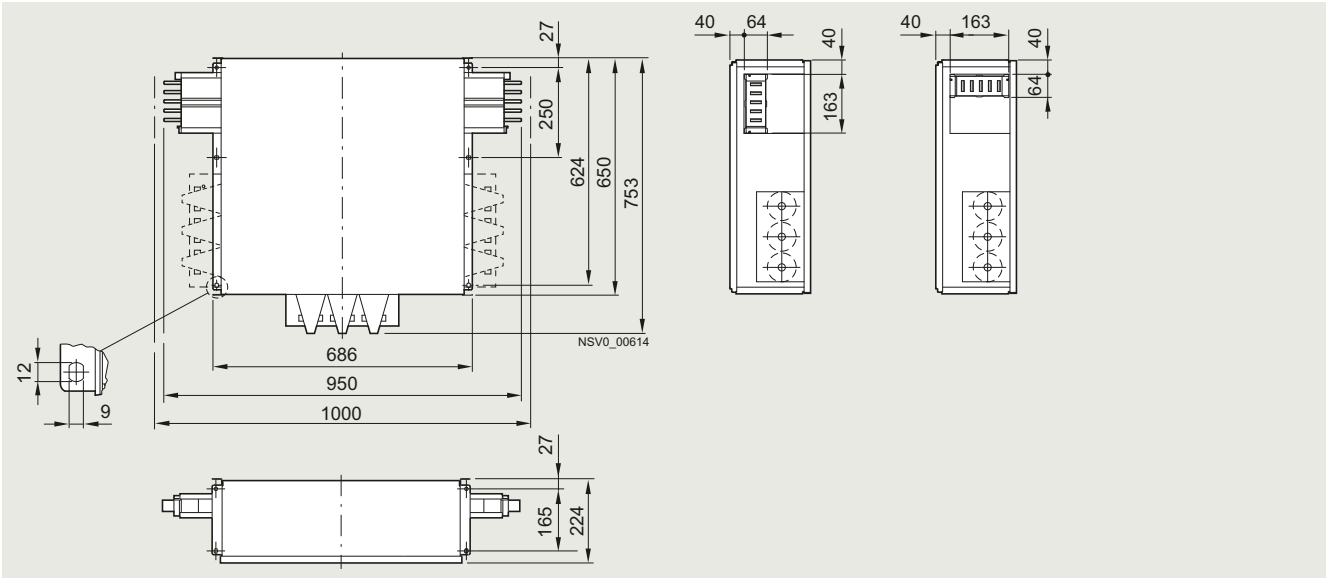
BD2C-630-EESC, BD2C-800-EESC



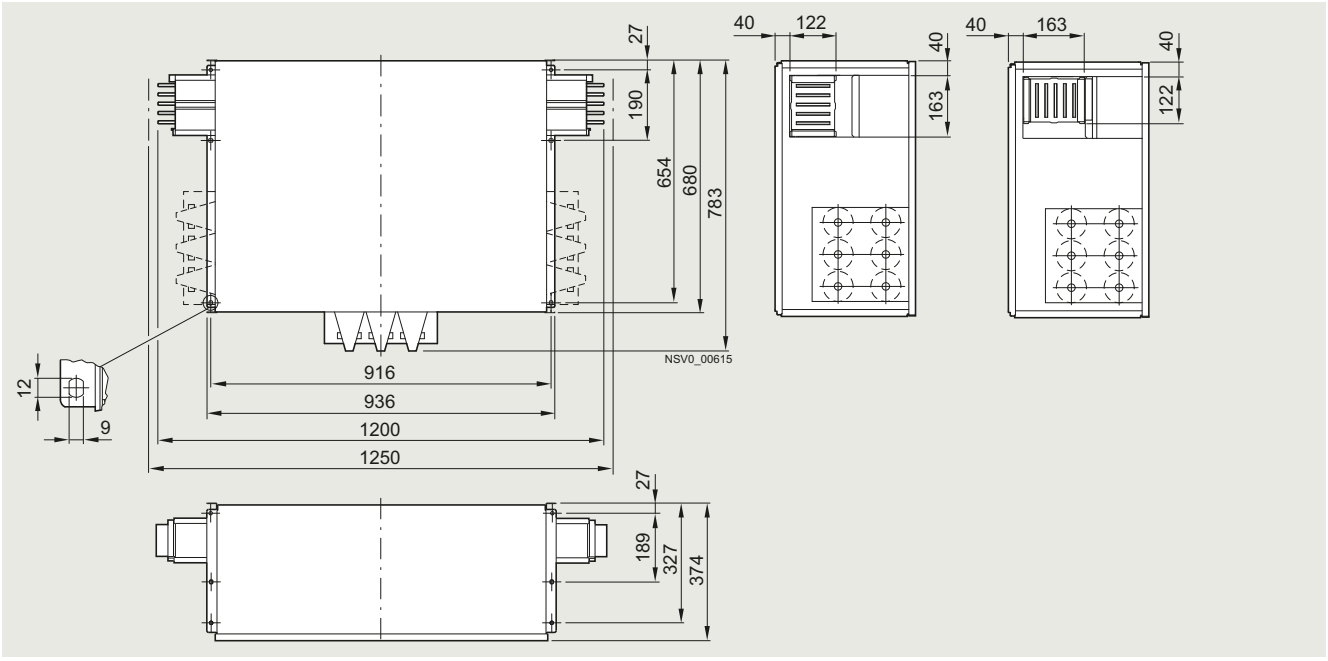
4

Center feeding units

BD2.-400-ME



BD2.-1000-ME



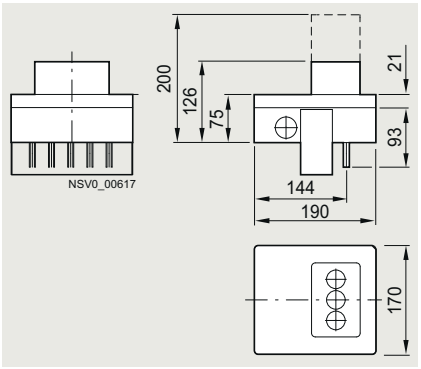
4

Configuration aids

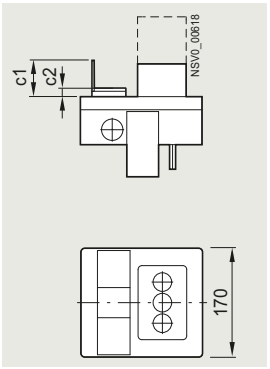
Tap-off units

Size 1 up to 25 A

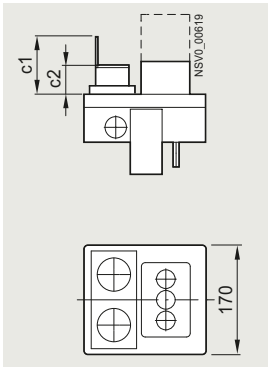
BD2-AK1/...



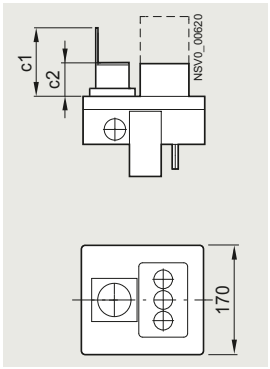
BD2-AK1/2SD163...,
BD2-AK1/3SD163...,



BD2-AK1/2CEE163...



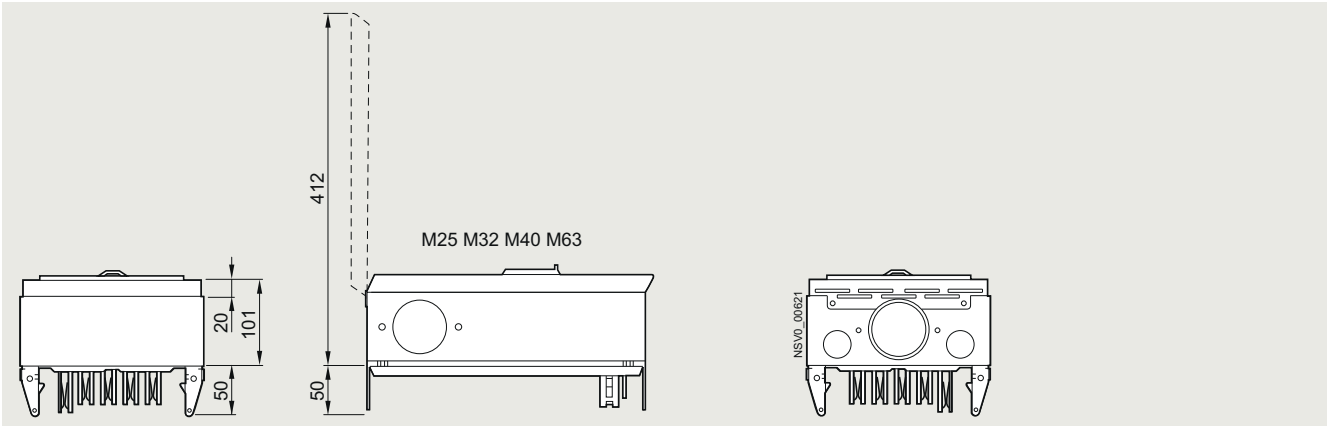
BD2-AK1/CEE163...,
BD2-AK1/CEE165...



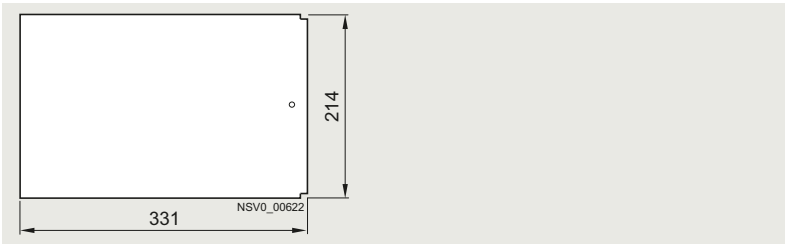
Type	c1	c2
BD2-AK1/2SD163..., BD2-AK1/3SD163...,	71	13
BD2-AK1/2CEE163..., BD2-AK1/CEE163...	88	44
BD2-AK1/CEE165...	106	52

Tap-off units

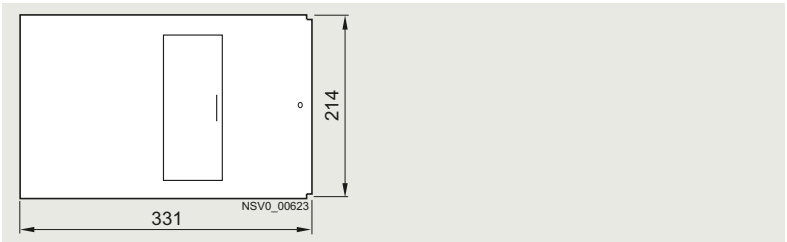
Size 02 up to 63 A



BD2-AK02X/F...
BD2-AK02X/S...



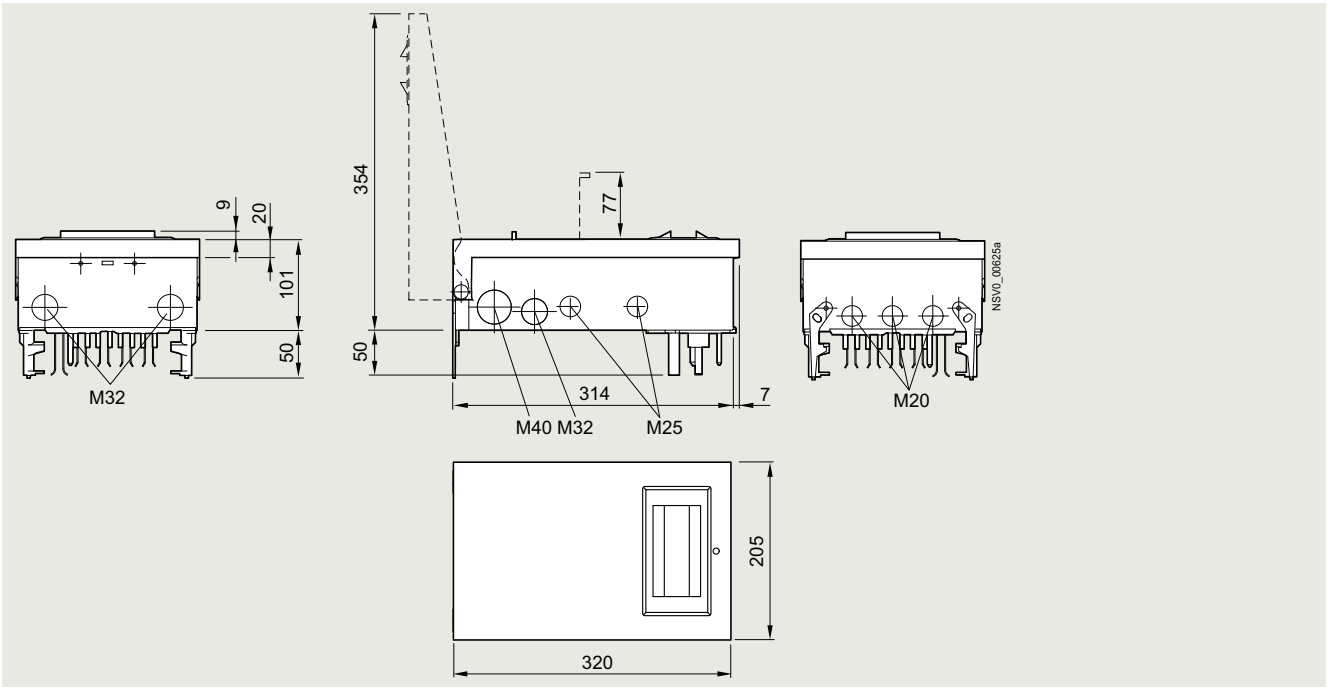
BD2-AK02M2/A...
BD2-AK02M2/F



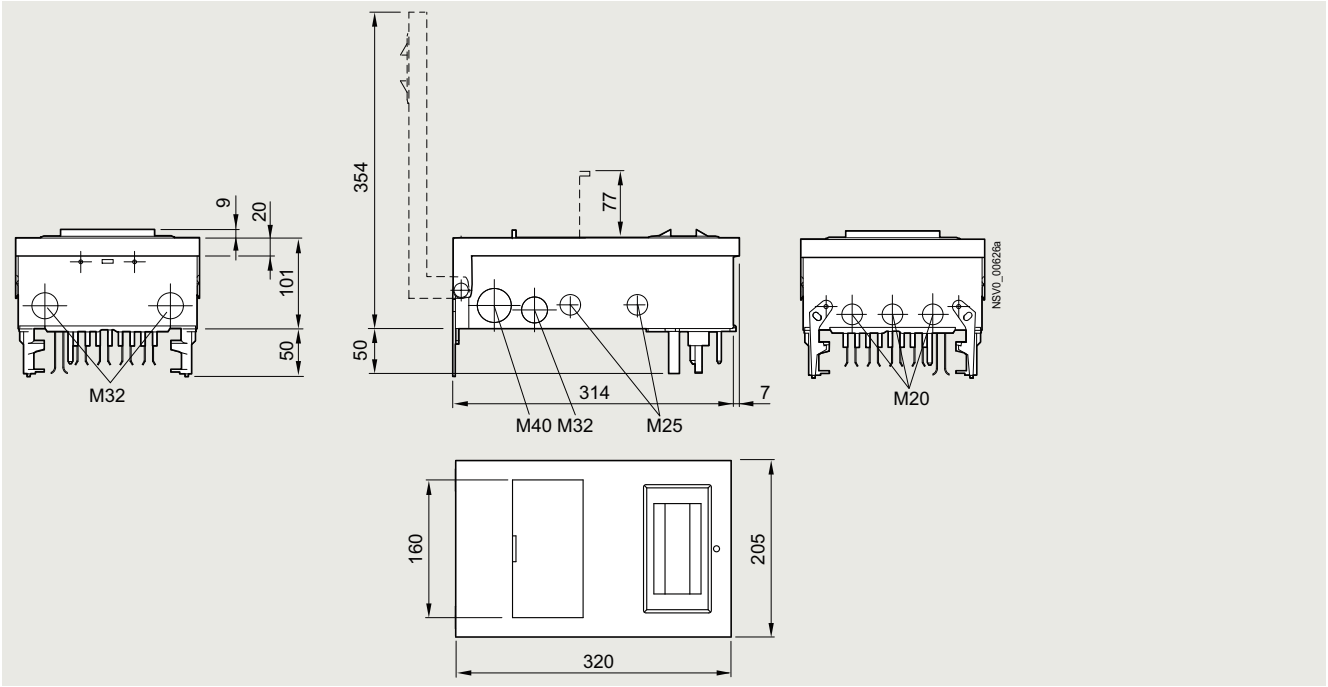
Tap-off units

Size 2 up to 63 A

BD2-AK2X/F...,
BD2-AK2X/S...



BD2-AK2M2/A...,
BD2-AK2M2/F



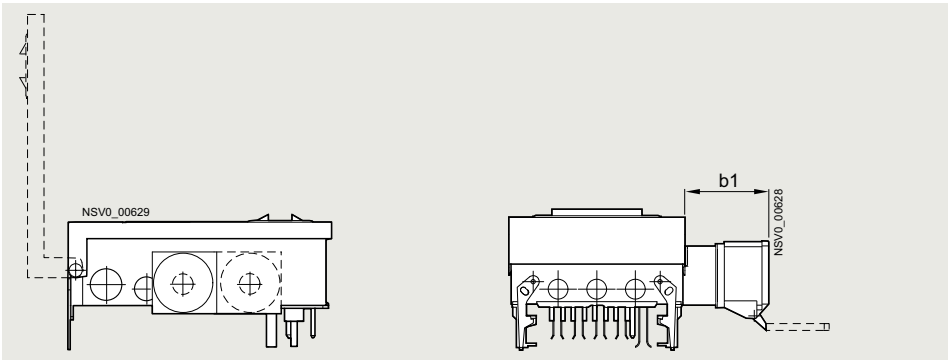
4

Configuration aids

Tap-off units

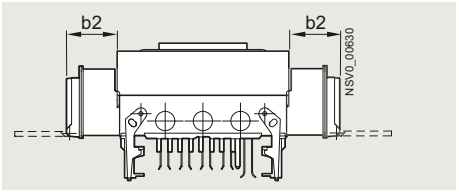
Size 2 up to 63 A, versions with CEE and Schuko socket outlets

BD2-AK2M2/CEE165FIA163
BD2-AK2X/CEE325S33
BD2-AK2M2/CEE325A323
BD2-AK2X/2CEE165S14
BD2-AK2M2/2CEE165A163
BD2-AK2X/2CEE165S27

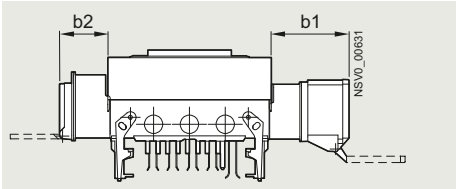


Type	b1	b2
BD2-AK2X/CEE325S33 BD2-AK2M2/CEE325A323	98	–
BD2-AK2X/2CEE165S27 BD2-AK2X/2CEE165S14 BD2-AK2M2/CEE165FIA163 BD2-AK2M2/2CEE165A163	86	–
BD2-AK2M2/2SD163CEE165A163	86	54

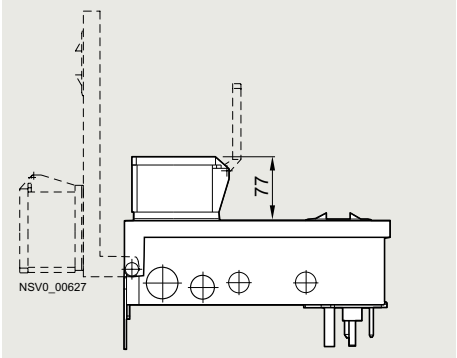
BD2-AK2X/3BS133...



BD2-AK2M2/2SD163CEE165A163



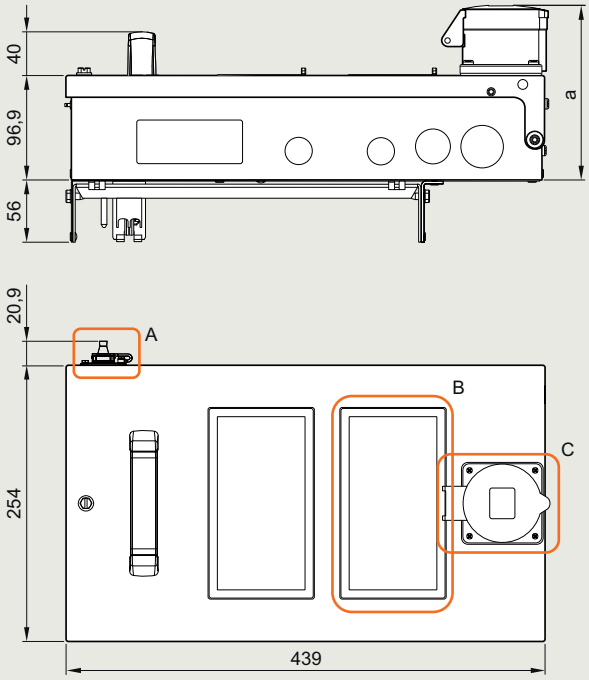
BD2-AK2X/CEE635S33



4

Tap-off units

BD2-AK023...

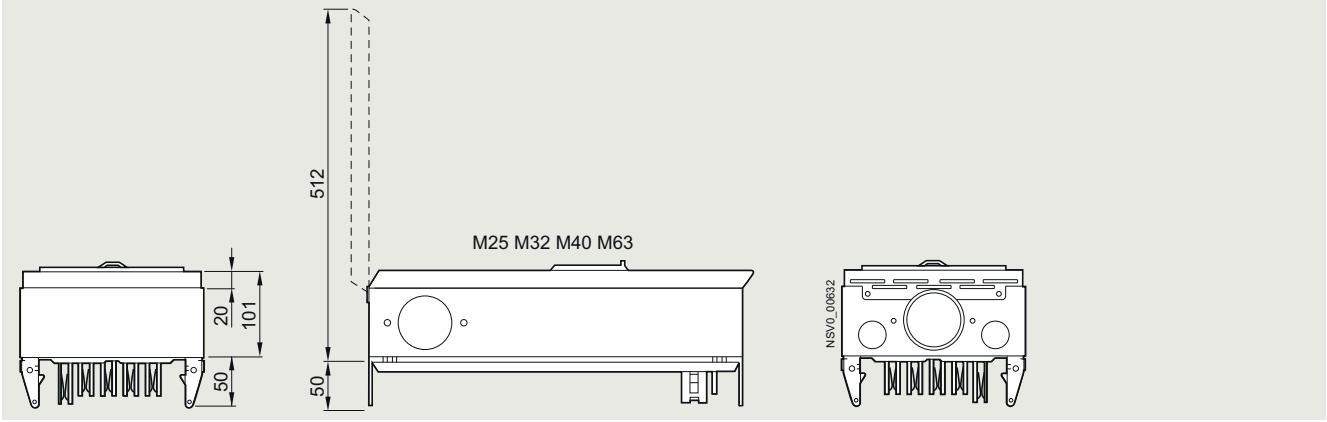


Type	a	A	B	C
BD2-AK023…-PAC- 3CEE163	148	✓	✓	3 x CEE, 3-pole, 16A
BD2-AK023…-PAC- 3CEE323	161	✓	✓	3 x CEE, 3-pole, 32A
BD2-AK023…-PAC- CEE165	152	✓	✓	1 x CEE, 5-pole, 16A
BD2-AK023…-PAC- CEE325	161	✓	✓	1 x CEE, 5-pole, 32A
BD2-AK023…- 3CEE163	148	--	--	3 x CEE, 3-pole, 16A
BD2-AK023…- 3CEE323	161	--	--	3 x CEE, 3-pole, 32A
BD2-AK023…- CEE165	152	--	--	1 x CEE, 5-pole, 16A
BD2-AK023…- CEE325	161	--	--	1 x CEE, 5-pole, 32A
BD2-AK023…-PAC	137	✓	✓	--

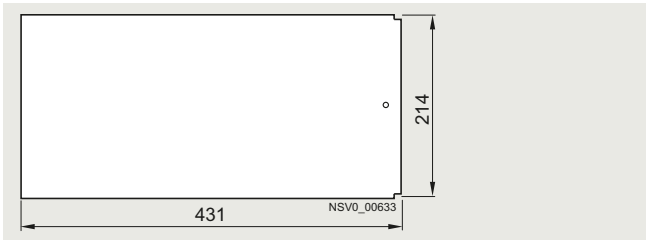
Configuration aids

Tap-off units

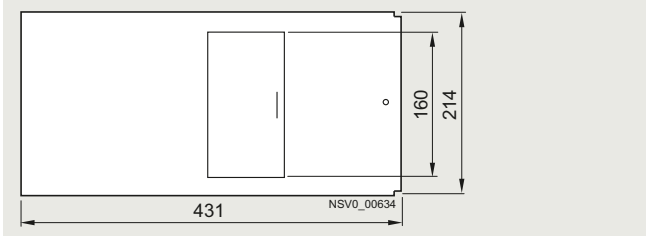
Size 03 up to 125 A



BD2-AK03X/F...

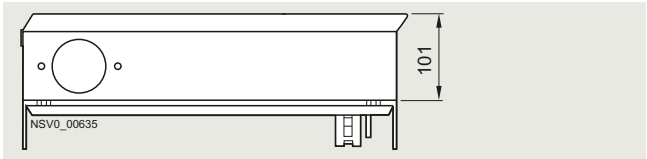


BD2-AK03M2/A...

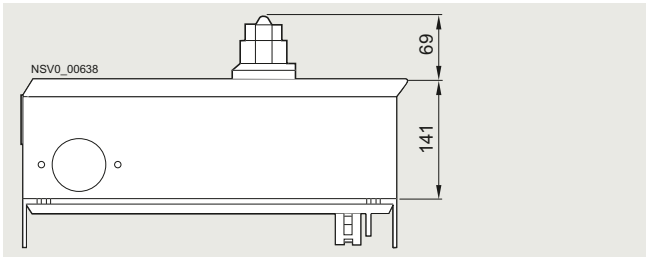


With fuse switch disconnector and circuit breaker

BD2-AK03X/GSTA00



BD2-AK03X/FS...

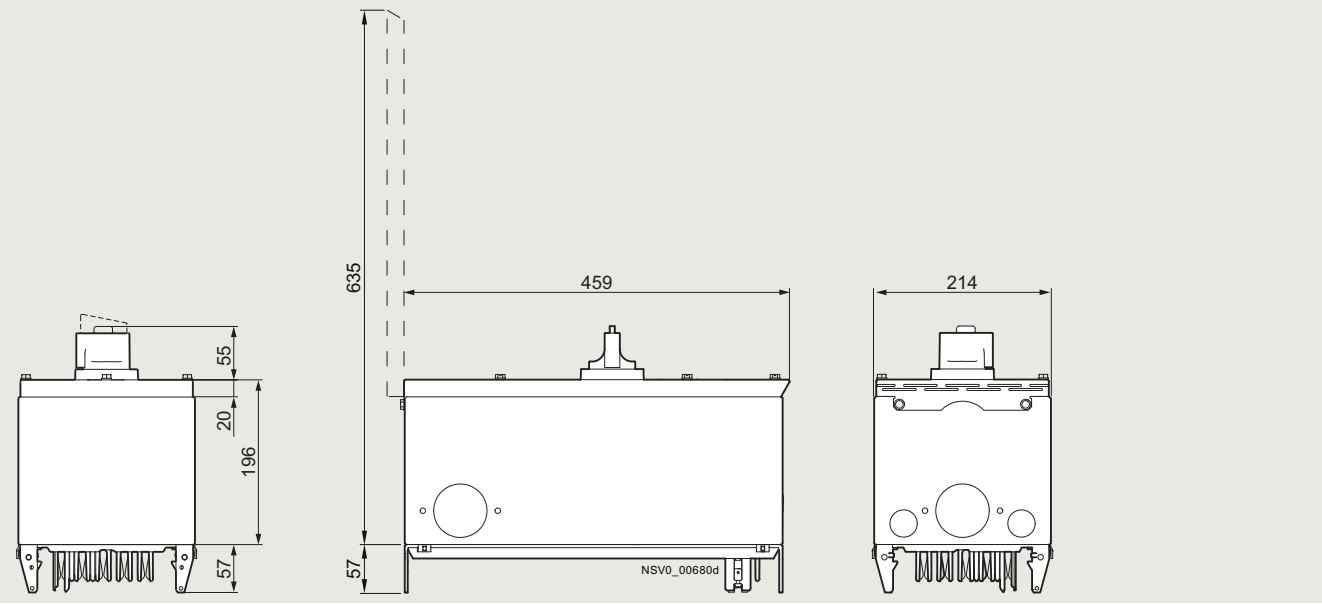


4

Tap-off units

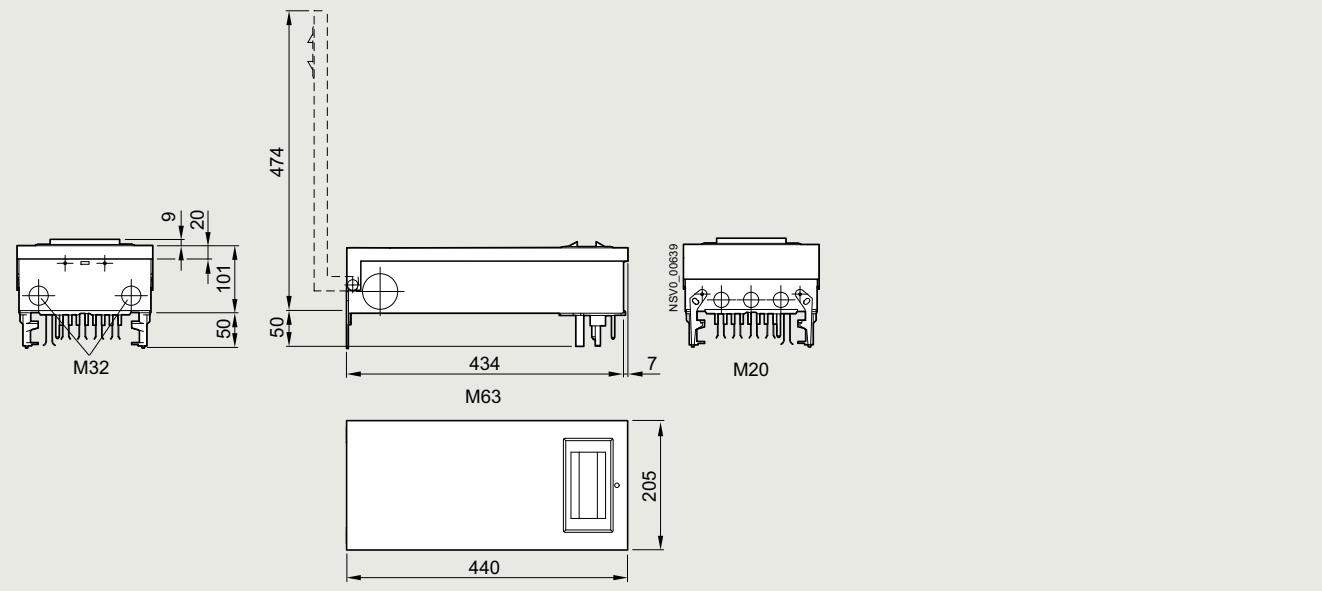
Size 03 up to 125 A

BD2-AK03X/LSD...



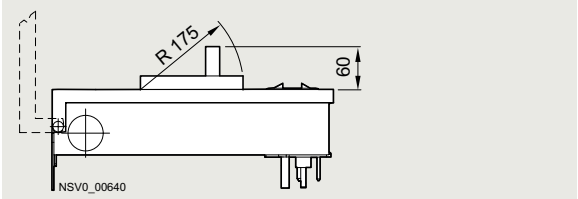
Size 3 up to 125 A

BD2-AK3X/GS00



With fuse switch disconnector

BD2-AK3X/GSTZ00

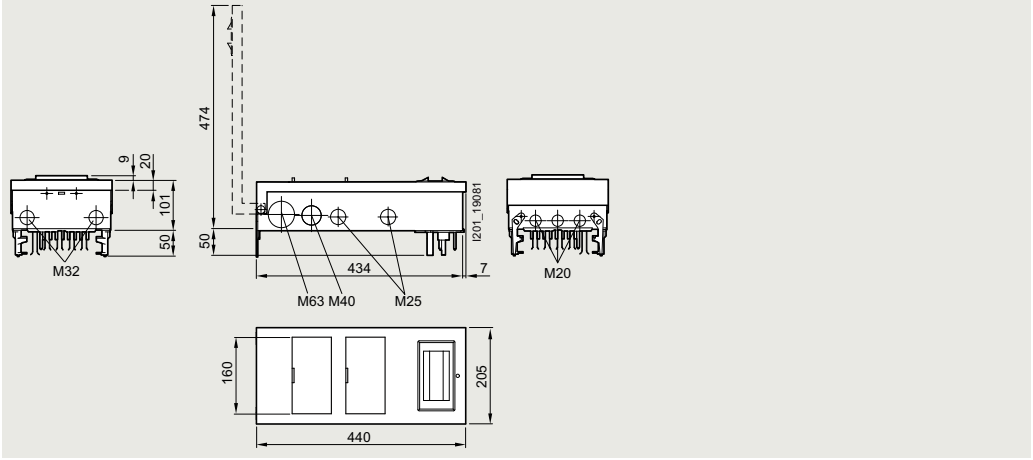


Configuration aids

Tap-off units

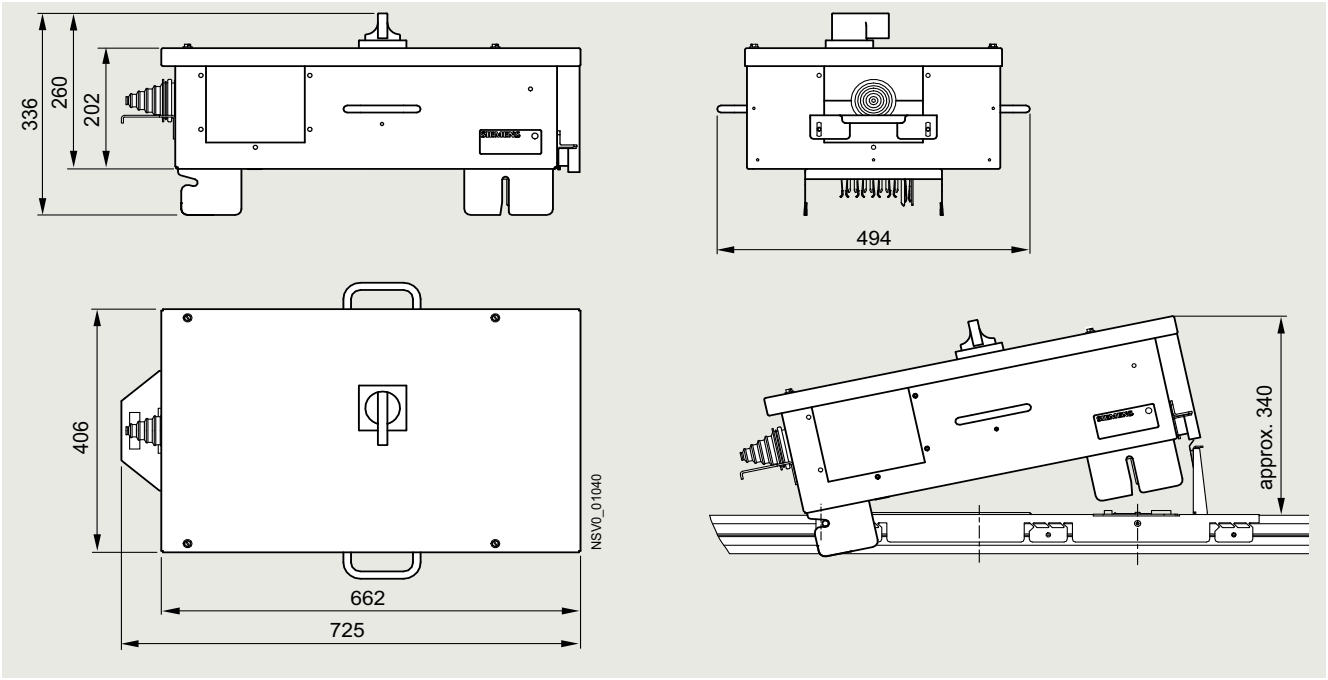
For free arrangement of components

BD2-AK3M2/F

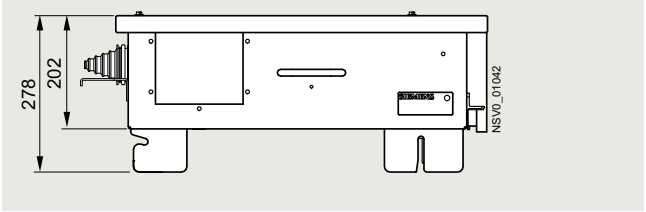


Size 04 up to 250 A

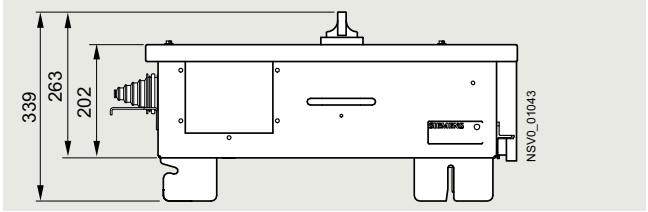
BD2-AK04/LSD..., BD2-AK04/LSM...



BD2-AK04/SNH1



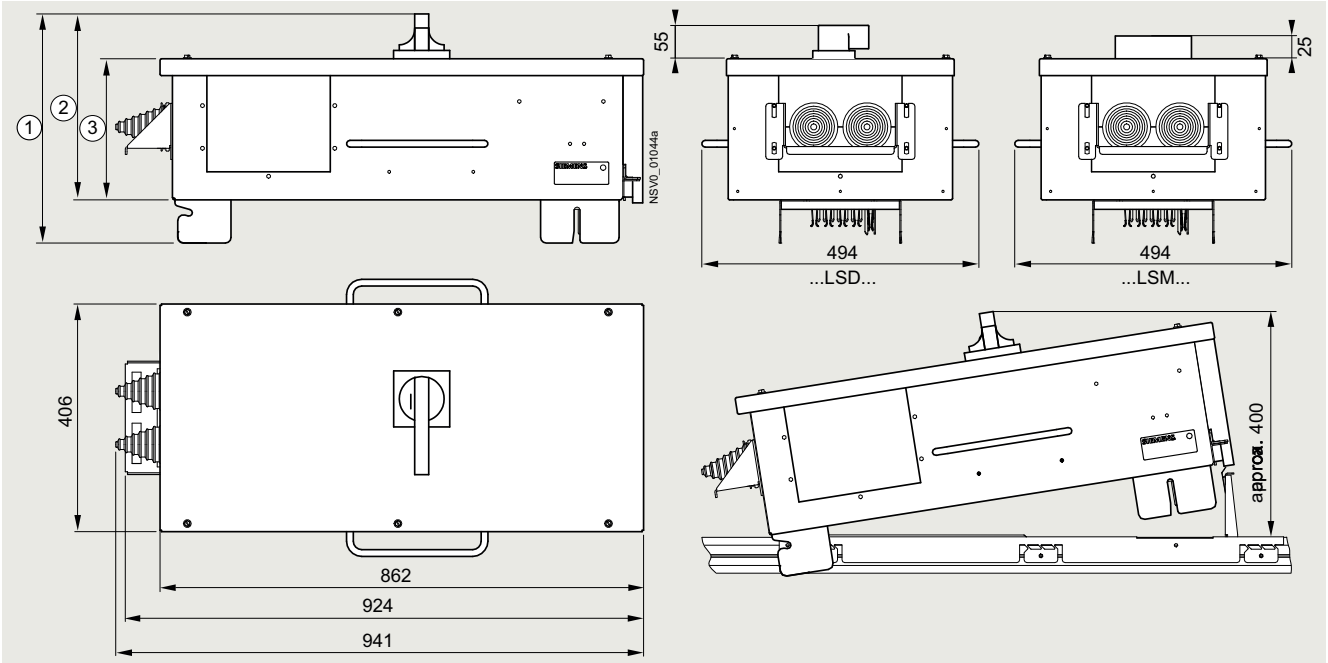
BD2-AK04/FS...



Tap-off units

Size 05, 06 up to 630 A

BD2-AK05/LSD..., BD2-AK06/LSD..., BD2-AK05/LSM..., BD2-AK06/LSM...

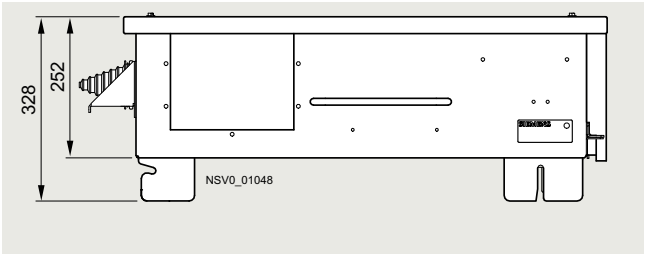


(1) ...-AK05: 392 mm
...-AK06: 512 mm

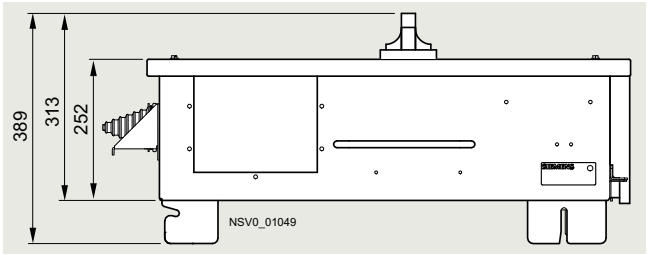
(2) ...-AK05: 307 mm
...-AK06: 427 mm

(3) ...-AK05: 252 mm
...-AK06: 372 mm

BD2-AK05/SNH2, BD2-AK06/SNH3



BD2-AK05/FS...

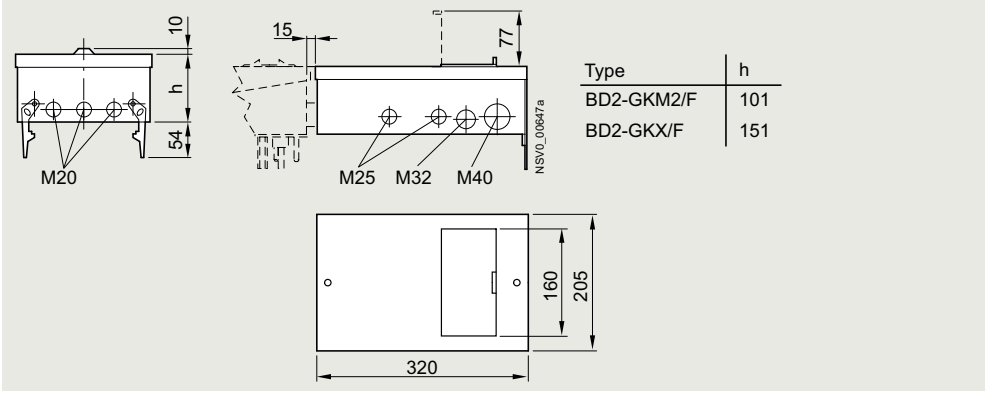


4

Configuration aids

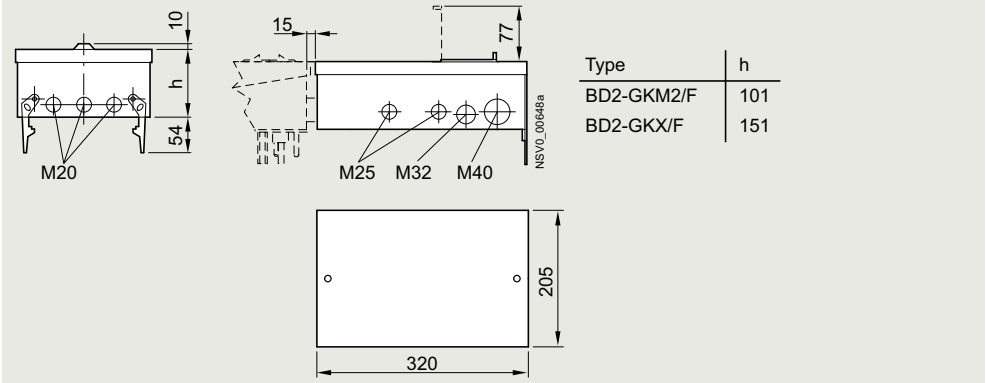
Ancillary equipment units

BD2-GKM2/F



Type	h
BD2-GKM2/F	101
BD2-GKX/F	151

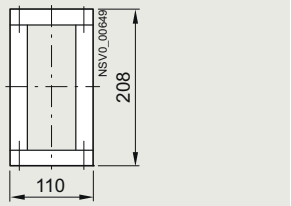
BD2-GKX/F



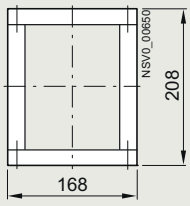
Type	h
BD2-GKM2/F	101
BD2-GKX/F	151

Protective sleeves

BD2-400-D

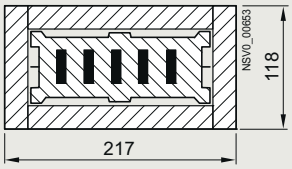


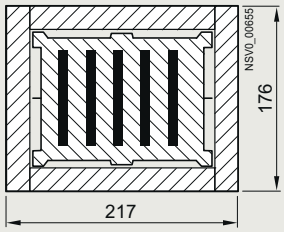
BD2-1250-D



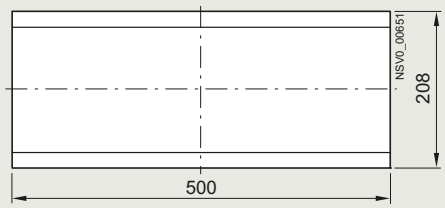
Fire barriers

+BD2 . - ...-EI... +BD2-S90 (S120)-...



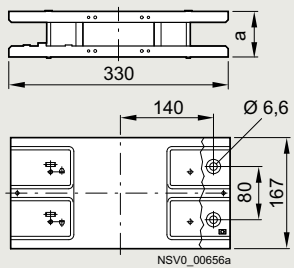


BD2-...-D



Joint blocks

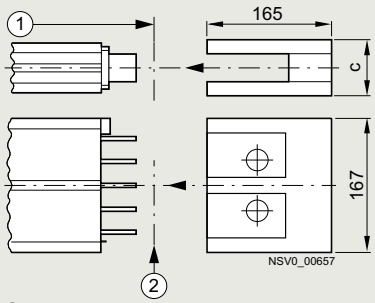
BD2-400-EK, BD2-1250-EK



Type	a mm
BD2-400-EK	68
BD2-1250-EK	126

End flanges

BD2-400-FE, BD2-1250-FE



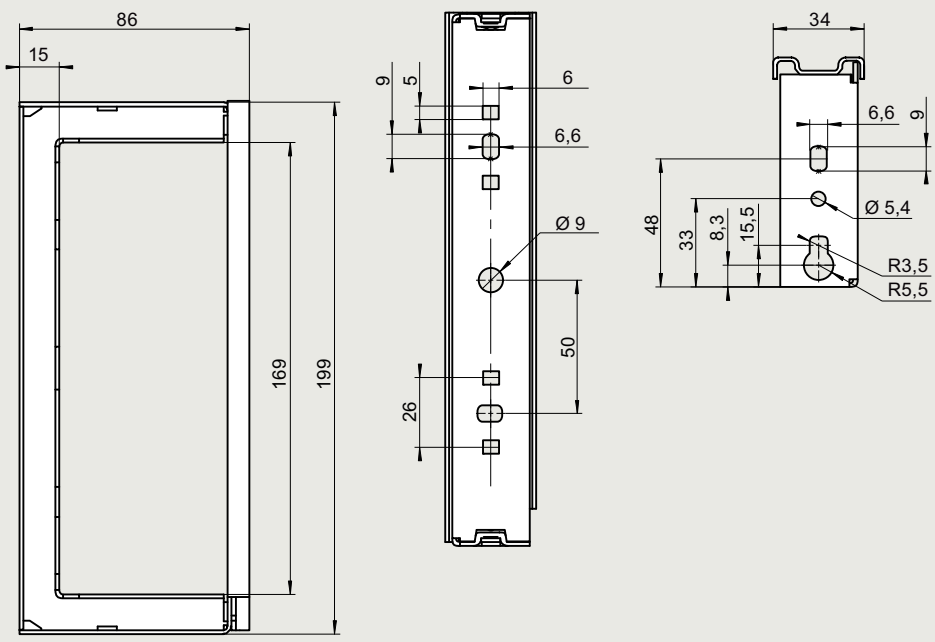
Type	c mm
BD2-400-FE	68
BD2-1250-FE	126

(1) Length of trunking unit
(2) End of end flange = center of joint block

Fixing

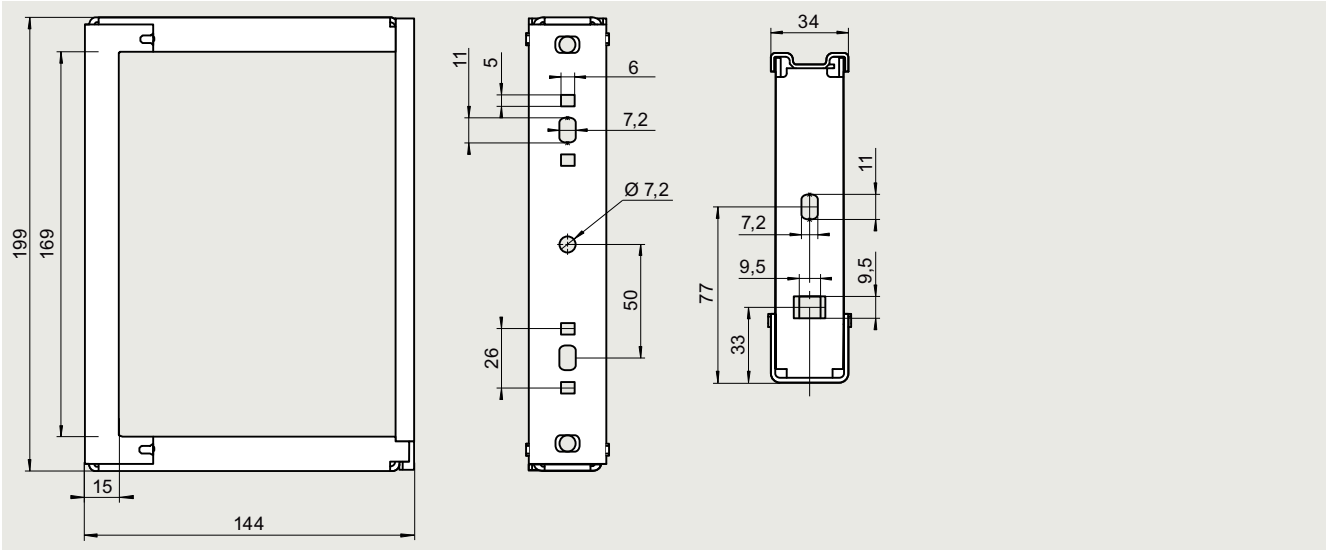
Fixing brackets, flat and edgewise

BD2-400-BB



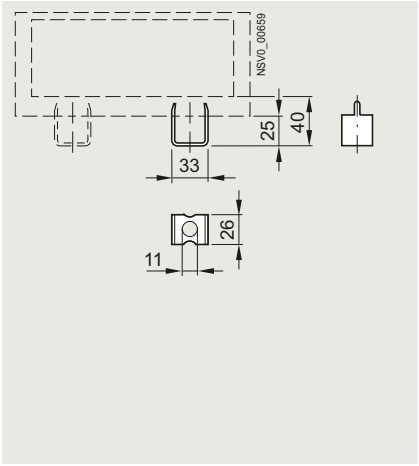
Configuration aids

BD2-1250-BB



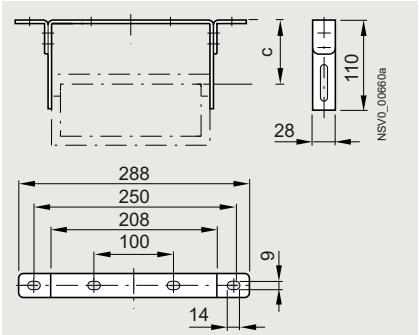
Spacers

BD2-DSB



Spacer brackets

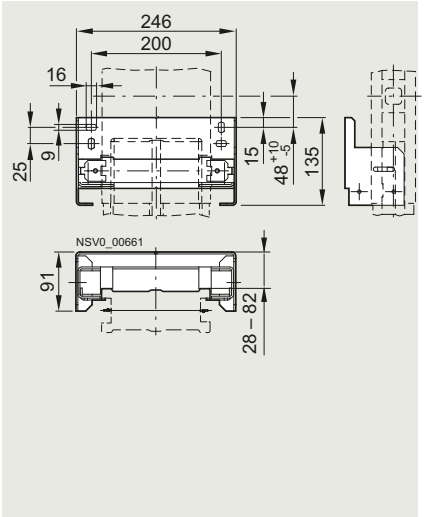
BD2-BD



Type	c mm
BD2-400-BD	30 ... 82
BD2-1250-BD	50 ... 82

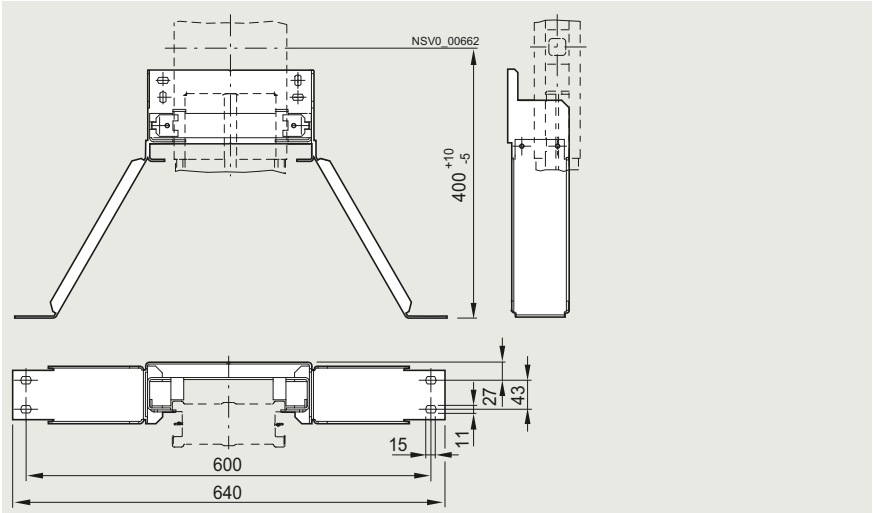
Vertical fixing elements

BD2-BWV



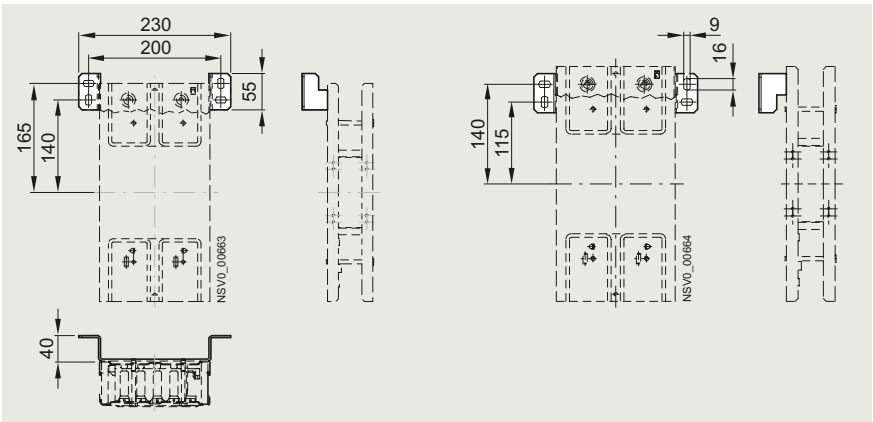
Vertical fixing elements

BD2-BDV



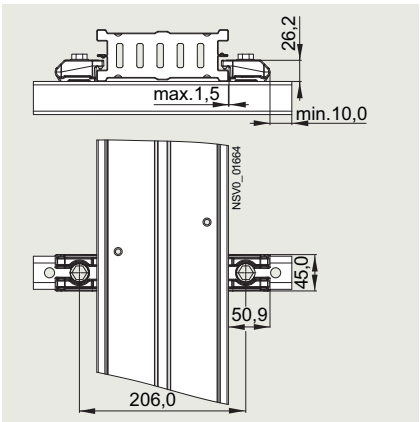
Vertical fixing brackets

BD2-BVF



Fixing for mounting rails

BD2-BVC



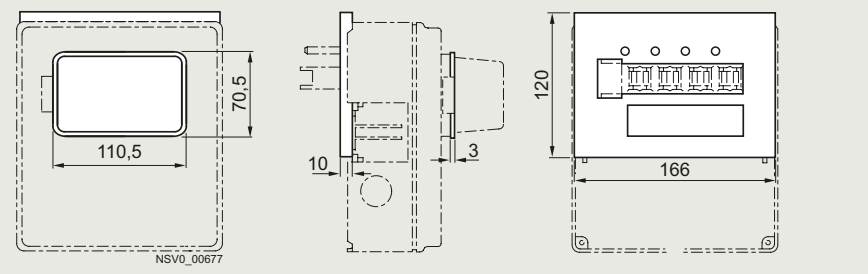
4

Configuration aids

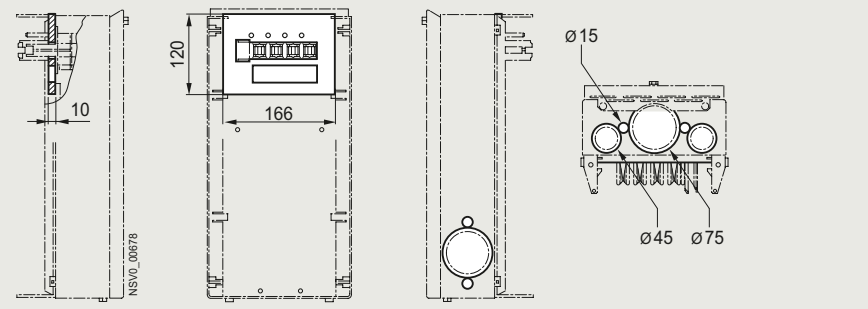
Protective covers according to IP55

For tap-off units

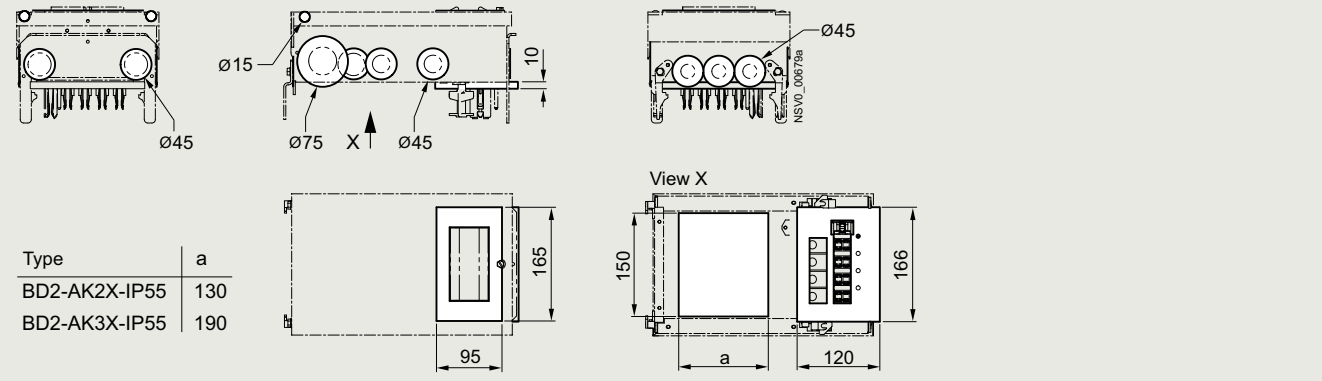
BD2-AK1-IP55



BD2-AK02-IP55, BD2-AK03-IP55



BD2-AK2X-IP55, BD2-AK3X-IP55



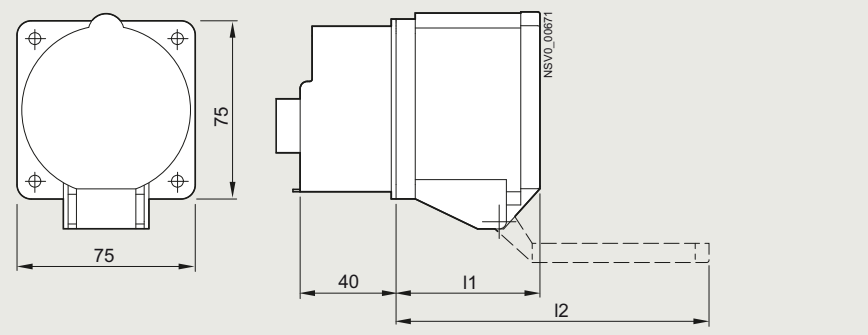
Type	a
BD2-AK2X-IP55	130
BD2-AK3X-IP55	190

4

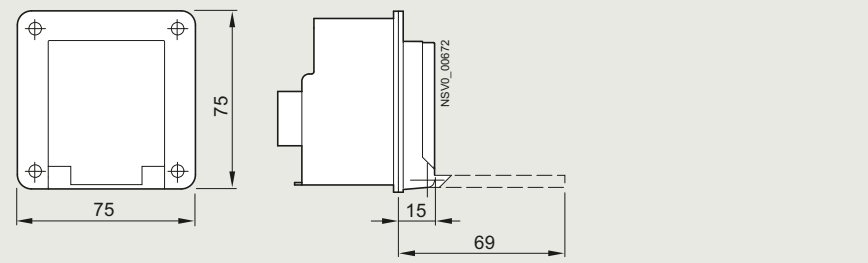
Socket outlets including accessories

Socket outlets with adapter enclosure

BD2-CEE

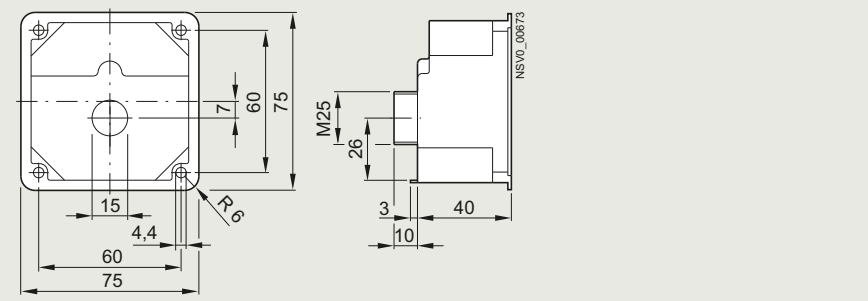


BD2-SD163



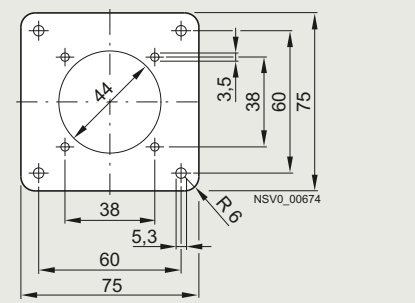
Adapter enclosures

BD2-AG

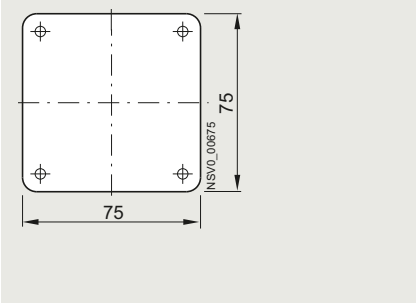


Adapter plates

BD2-APM



BD2-APO

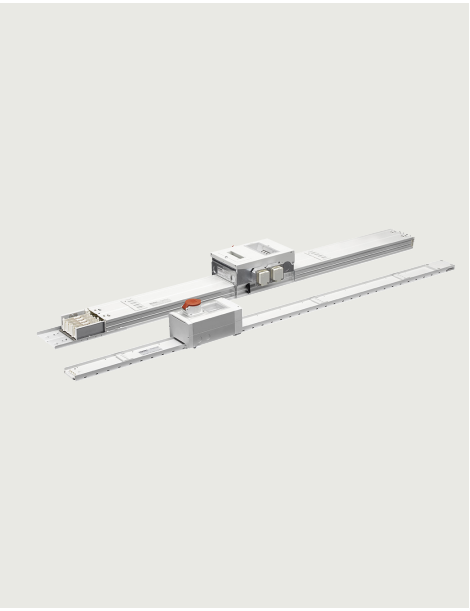


4

Notes

Appendix

5



5/2 **Glossary**

5/6 **Catalog notes**

5/7 **Logistics**

5/9 **Standards and approvals**

5/10 **Siemens contacts**

Industry Services
5/11 Industry Services – Portfolio
5/13 Online Support

5/14 **Conditions of sale and delivery**

Glossary

Overview

This glossary offers brief explanations of some of the terms used in this catalog. As there are different opinions concerning the new terms used in IEC/EN 60947, we recommend to look up the wording of the corresponding standard.

Reference is made underneath each term to the relevant standard, e.g. IEC/EN 60947-1. Additionally, IEV numbers are stated in order to enable you to find foreign language equivalents in the electrotechnical dictionary (IEC 50: International Electrotechnical Vocabulary), e.g. IEV 441-17-31.

Altitude

The density of air decreases with increasing altitude, and this reduces its insulating capacity as well as its heat transfer capability. The **rated operational voltage** and **rated operational current** of switching devices, conductors, and motors, as well as the tripping behavior of thermal overload relays, are affected by this.

Upon request, Siemens will supply information as to the suitability of switching devices for operation at altitudes above the 2000 m limit specified by the standard.
Or get in direct touch with Technical Support (see page 5/11).

Ambient temperature, enclosed
(see also IEV 441-11-13)

Temperature at which the switching device is capable of being operated within a closed enclosure. For this purpose, it must be taken into account that the **power losses** of the switching device will add to the internal temperature rise within the enclosure.

Ambient temperature, open
(see also IEV 441-11-13)

Room temperature (e.g. of the workshop or switchroom) in which the switching device is located.

Back-of-hand proof
(see also EN 50274; 3.9)

A switching device whose live parts cannot be touched by a sphere of 50 mm diameter is regarded as back-of-hand proof.

Clearance
(see also IEC/EN 60947-1; 2.5.46/IEV 441-17-31)

The distance between two conductive parts along a string stretched the shortest way between these conductive parts. The clearance is determined by the **rated impulse withstand voltage**, **overvoltage category**, and the **pollution degree**.

Creepage distance
(see also IEC/EN 60947-1; 2.5.51/IEV 151-03-37)

The shortest distance along the surface of an insulating material between two conductive parts. The creepage distance is determined by the **rated insulation voltage**, the **pollution degree**, and the creepage current resistance of the material used.

Damp heat, cyclic

This test subjects the equipment to cyclically changing climatic conditions. A cycle applies 40 °C ambient temperature at 93% relative humidity for 12 hours, followed by 12 hours of 25 °C at 95%. At set intervals during the test, the electrical and mechanical function of the switching device are examined.

Damp heat, steady state

This test subjects the switching device to an ambient temperature of 40 °C at a constant humidity of 93%. At set intervals during the test, the electrical and mechanical function of the switching device are examined.

(Electrically) protective separation
(see also IEC/EN 61140; 3.24)

Isolation of circuits with non-touch-critical voltages, e.g. protective extra-low voltage, from circuits with touch-critical voltages. Such isolation is achieved by means of reinforced or double insulation, which reliably prevents voltage transfer from one circuit to another, e.g. between main circuits and auxiliary circuits in switching devices, or between the primary and secondary side of safety transformers. Safe isolation is a priority requirement for safety circuits and functional low-voltage circuits.

Finger safety
(see also EN 50274; 3.8)

A switching device whose live parts cannot be touched by the operator during actuation is termed finger-safe. This also applies for operator activity on neighboring switching devices. The finger-safe area of a push-actuated electrical equipment is a circular area of at least 30 mm radius around the actuator, and vertical to the direction of actuation. Within this circular area, touch-critical parts must be located at not less than 80 mm below the actuating level.

Isolating function
(see also IEC/EN 60947-1; 2.1.19)

Equipment is deemed to possess this isolating function provided their switching contacts, when in the open position, achieve the separation distance prescribed for the isolation of electrical circuits, and their **clearance and creepage distances** are of the required size. The power supply to the entire installation or a section of the installation can thus be cut off for safety reasons, e.g. during maintenance.

Pollution degree
(see also IEC/EN 60947-1; 5.5.58)

Numeral characterizing the expected quantities of conductive dust and humidity, which can lead to a reduction in the dielectric strength of a switching device. The pollution degree is defined by the following factors:
- Pollution degree 1:
  No pollution or only dry, non-conductive pollution occurs. The pollution has no effect on the proof voltage.
- Pollution degree 2:
  Usually, only non-conductive pollution. However, transient conductivity through condensation is to be expected.
- Pollution degree 3: (switchgear for industrial use) Conductive pollution or dry, non-conductive pollution, which is rendered conductive through condensation.
- Pollution degree 4:
  The pollution leads to long-term conductivity, e.g. pollution through conductive dust, rain or snow.

Positive opening operation
(see also IEC/EN 60947-1; 2.4.10 / IEV 441-16-11)

An opening operation which, in accordance with specified requirements, ensures that all the main contacts are in the open position when the actuator is in the position corresponding to the open position of the device.

Positive or **enforced operation/actuation**

This describes an arrangement where a link between the actuator and the contact member ensures that the force exerted on the actuator is transferred directly (without the intervention of sprung parts) onto the contact member.

Protection against accidental direct contact
(see also EN 50274; 3.4)

Design measures incorporated into equipment in order to prevent direct contact (i.e. without tools) with live parts of a system (**finger-safe, back-of-hand proof**).

Shock resistance

The capacity of a switching device to withstand pulse-like motions without changing its operating state or sustaining damage. No contact lifting must take place on devices in the On position, the main contacts must not knock against one another in the Off position. A protective switch must not trip, and auxiliary switches must not change their switching state.

Utilization category
(see also IEC/EN 60947-1; 2.1.18/IEV 441-17-19)

A combination of specified requirements related to the conditions in which the switching device or the fuse fulfills its purpose, selected to represent a characteristic group of practical applications. The specified requirements may concern e.g. the values of making capacities, breaking capacities, and other characteristics, as well as the associated circuits and the relevant conditions of use and behavior.

(see also IEC/EN 60947-2; 4.4)

For circuit breakers, the utilization category denotes whether the switching device is designed for selectivity using time delay (category B) or not (category A).

Appendix

Glossary

Voltages, currents, powers, switching times

Break time
(see also IEC/EN 60947-1; 2.5.42/IEV 441-17-39)
Interval of time between the beginning of the opening time of a mechanical switching device (or the pre-arcing time of a fuse) and the end of the arcing time.

Closing time
(see also IEC/EN 60947-1; 2.5.44/IEV 441-17-41)
The time interval between the instant of initiation of the closing movement and the instant when the contacts touch in all poles.

Conventional thermal current I_{th}
(see also IEC/EN 60947-1; 4.3.2.1)
The maximum value of current that a switching device is capable of carrying for a minimum of 8 hours without thermal overloading. As a rule, it corresponds to the maximum rated operational current.

Losses
(see also IEV 151-03-18)
The difference between the input power and the output power of electrical equipment. The main type of loss in switching devices and electrical equipment in power distribution is current heat loss.

Make time
(see also IEC/EN 60947-1; 2.5.43/IEV 441-17-40)
The interval of time between the initiation of the closing operation and the instant when the current begins to flow in the main circuit.

Minimum command duration
Minimum period of time for which a trip-initiating factor (control pulse, short-circuit current) must be present in order to effect the corresponding reaction, e.g. the short-circuit duration necessary to initiate tripping.

Opening time
(see also IEC/EN 60947-1; 2.5.39/IEV 441-17-36)
The interval of time between the specified instant of initiation of the opening operation and the instant when the arcing contacts have separated in all poles.

Overvoltage category
(see also IEC/EN 60947-1; 2.5.60)
Conventional number for overvoltages that might be caused, for example, as a result of lightning or switching operations. The overvoltage category applicable to industrial switchgear is III. The applicability of switchgear according to the overvoltage categories is as follows:
- Overvoltage category IV:
  Use directly at the termination point of the installation (directly affected by any lightning), e.g. at an overhead-line connection point.
- Overvoltage category III:
  Electrical equipment with special requirements as to the serviceability for connection in fixed installations which are protected by surge arresting measures, e.g. switches in low-voltage distribution systems or in control systems for industrial use.
- Overvoltage category II:
  Power loads for connection to fixed installations, e.g. household appliances, electrical tools.
- Overvoltage category I:
  Electrical equipment for connection to circuits with overvoltage protective devices, e.g. electronic devices.

Rated actuating voltage U_c
(see also IEC/EN 60947-1; 4.5.1)
The voltage which is applied to the actuating make contact in a control circuit. Due to the presence in the control circuit of transformers or resistors, this voltage may differ from the **rated control supply voltage**.

Rated breaking capacity
(see also IEC/EN 60947-1; 4.3.5.3)
The rms value that a switching device is capable of breaking according to its **utilization category**. This value refers to the **rated operational voltage** and the **rated operational current**. A switching device must be capable of breaking any value of current up to and including its rated breaking capacity stated.

Rated conditional short-circuit current I_q
(see also IEC/EN 60947-1; 2.5.29/IEV 441-17-20)
The short-circuit current that a switching device, e.g. a power contactor, protected by a short-circuit protective device such as a motor starter protector, can carry for the duration of the tripping delay of the protective device.

Rated control supply voltage U_s
(see also IEC/EN 60947-1; 4.5.1)
The voltage applied to the input terminals of the control circuit of a switching device. Due to the presence in the control circuit of transformers or resistors, this voltage may differ from the **rated actuating voltage**.

Rated current I_n (of a circuit breaker)
(see also IEC/EN 60947-2; 4.3.2.3)
For circuit breakers, this current value is equal to the **rated uninterrupted current** and the **conventional free-air thermal current**.

Rated frequency
(see also IEC/EN 60947-1; 4.3.3)
The supply frequency for which an equipment is designed and to which the other characteristic values correspond.

Rated impulse withstand voltage U_{imp}
(see also IEC/EN 60947-1; 4.3.1.3)
Measures the stability of the internal clearances of a switching device against overvoltage peaks. The utilization of suitable switchgear can ensure that overvoltages are prevented from being transmitted from the mains to de-energized system components within it.

Rated insulation voltage U_i
(see also IEC/EN 60947-1; 4.3.1.2)
The value of voltage to which dielectric tests and **creepage distances** are referred. The maximum rated operational voltage must not be higher than the **rated insulation voltage**.

Rated making capacity
(see also IEC/EN 60947-1; 4.3.5.2)
The value of current that a switching device is capable of making in accordance with the **utilization category** and the **rated operational voltage**.

Rated operational current I_e
(see also IEC/EN 60947-1; 4.3.2.3)
The current that a switching device is capable of carrying, taking into account the rated operational voltage, duration of operation, utilization category, and ambient temperature.

Rated operational power
(see also IEC/EN 60947-1; 4.3.2.3)
The operational power that a switching device is capable of switching at the associated **rated operational voltage** in accordance with the utilization category, e.g. contactor utilization category AC-3: 37 kW at 400 V.

Rated operational voltage U_e
(see also IEC/EN 60947-1; 4.3.1.1)
The voltage to which the characteristics of a switching device are referred. The highest **rated operational voltage** must not be higher than the **rated insulation voltage**.

Rated power
(see also IEC/EN 60947-1; 4.3.2.3)
The power output of a motor at the associated **rated operational voltage**.

Rated service short-circuit breaking capacity I_{cs}
(see also IEC/EN 60947-2; 4.3.5.2.2)
The prospective short-circuit current which, depending on the **rated operational voltage**, a circuit breaker is capable of breaking repeatedly (test cycle O-CO-CO, previously P-2). After interrupting this short-circuit current value, the circuit breaker must be capable of continuing to carry and disconnect in the event of overloading, the **rated uninterrupted current**, despite its own thermal level having increased.

Rated short-circuit breaking capacity I_{cn}
(see also IEC/EN 60947-1; 4.3.6.3)
The maximum value of current that a switching device is capable of breaking at rated operational voltage and rated frequency, and without sustaining damage. It is specified as an rms value.

Rated short-circuit making capacity I_{cm}
(see also IEC/EN 60947-1; 4.3.6.2)
The maximum value of current that a switching device is capable of making at rated operational voltage and rated frequency, and without sustaining damage. Unlike other characteristic data, this is specified as a peak value.

Rated short-time withstand current I_{cw}
(see also IEC/EN 60947-1; 4.3.6.1)
The short-time withstand current value that the switching device is capable of carrying for a specified time without damage, e.g. due to excessive heating.

Rated ultimate short-circuit breaking capacity I_{cu}
(see also IEC/EN 60947-2; 4.3.5.2.1)
Maximum short-circuit current which a circuit breaker is capable of interrupting (test: O.-CO, previously P-1). Following short-circuit tripping, the circuit breaker is able, in the event of overload, to trip with increased tolerances.

Rated uninterrupted current I_u
(see also IEC/EN 60947-1; 4.3.2.4)
The value of current that a switching device can carry in uninterrupted duty (for weeks, months or years).

Symbols used in technical data and formulae

ED	ON period
$I_{\Delta n}$	Response value of earth-fault release
I_{cm}	Rated short-circuit making capacity
I_{cn}	Rated short-circuit breaking capacity
I_{cs}	Rated service short-circuit breaking capacity
I_{cu}	Rated ultimate short-circuit breaking capacity
I_{cw}	Rated short-time withstand current
I_e	Rated operational current
i	Transformer initial short-circuit current
I_L	Response value for load monitoring
I_n	Rated current
I_{NT}	Rated transformer current
I_{PK}	Rated peak withstand current
I_q	Rated conditional short-circuit current
I_r	Set value of overcurrent release
I_{rm}	Response value of instantaneous short-circuit release
I_T	Response value of earth-fault release
I_{th}	Conventional free-air thermal current
I_{the}	Conventional thermal current of enclosed devices
I_u	Rated uninterrupted current
S_{NT}	Transformer rating
t_r	Delay time of overload release response
t_T	Delay time of earth-fault release response
t_v	Delay time of short-circuit release response
I_{rmf}	Response value of fixed, instantaneous short-circuit release
I_{rmv}	Response value of short-time delay short-circuit release
U_c	Rated actuating voltage
U_e	Rated operational voltage
U_i	Rated insulation voltage
U_{im}	Rated impulse withstand voltage
u_k	Transformer short-circuit voltage
U_s	Rated control supply voltage

Catalog notes

Overview

Trademarks

All product designations may be registered trademarks or product names of Siemens AG or supplier companies whose use by third parties for their own purposes may violate the rights of the owner.

Amendments

All technical data, dimensions and weights are subject to change without notice unless otherwise specified on the pages of this catalog.

Dimensions

All dimensions are in mm.

Illustrations

The illustrations are not binding.

Technical specifications

The technical data in the catalog are for general information. The instruction manuals and the notices on the products must be observed during assembly, operation, and maintenance.

Further technical information is available at
www.siemens.com/lowvoltage/product-support

- under "Entry type":
  - Application example
  - Download
  - FAQ
  - Manual
  - Characteristic curve
  - Product note
  - Software archive
  - Technical specifications
  - Certificate

Configurators can be found at
www.siemens.com/lowvoltage/configurators

Assembly, operation, and maintenance

The instruction manuals and the notices on the products must be observed during assembly, operation, and maintenance.

Overview

General

With regard to delivery service, communications and environmental protection, our logistics service ensures "quality from the moment of ordering right through to delivery". By designing our infrastructure according to customer requirements and implementing electronic order processing, we have successfully optimized our logistics processes.

We are proud of our personal consulting service, on-time deliveries, and one-day transport within Germany.

To this end, we supply preferred types marked with ► ex works.

We regard the ISO 9001 certification and consistent quality checks as an integral part of our services.

Electronic order processing is fast, cost-efficient and error-free. Please contact us if you want to benefit from these advantages.

Packaging, packing units

The packaging in which our equipment is dispatched provides protection against dust and mechanical damage during transport, thus ensuring that all our products arrive in perfect condition.

We select our packaging for maximum environmental compatibility and reusability (e.g. crumpled paper for transport protection in packages up to 32 kg) and, in particular, with a view to reducing waste.

With our multi-unit and reusable packaging, we offer you specific types of packaging that are both kind to the environment and tailored to your requirements:

Your advantages at a glance:

- Lower ordering costs
- Cost savings through same-material type packaging: low/no disposal costs
- Reduced time and cost thanks to short unpacking times
- "Just-in-time" delivery directly to the production line helps reduce stock: cost savings through reduction of storage areas
- Fast assembly thanks to supply in sets
- Standard Euro boxes - corresponding to the Euro pallet modular system - suitable for most conveyor systems
- Active contribution to environmental protection

Unless stated otherwise in the "Selection and ordering data" of this catalog, our products are supplied individually packed.

For small parts/accessories, we offer you cost-effective packaging units as standard packs containing more than one item, e.g. 5, 10, 50 or 100 units. It is essential that whole number multiples of these quantities be ordered to ensure satisfactory quality of the products and problem-free order processing.

The products are delivered in a neutral carton. The label includes warning notices, the CE marking, and device descriptions in English and German.

In addition to the Article No. (MLFB) and the number of items in the packaging, the operating instructions article number (Instr.-Order-No.) is also specified. It can be obtained from your local Siemens representative (for a list of your Siemens contacts, see www.siemens.com/lowvoltage/contact).

Most device article numbers can be obtained by means of the EAN barcode to simplify ordering and storage logistics.

The associated master data, too, is available from your local Siemens representative.

Selection and ordering data

The article number and the type designation must be quoted in all orders.

Article number

When ordering the busbar trunking systems BD01 and BD2, the complete article number must be stated incl. the prefix *BVP:*, for example: BVP:034262.

Type

If a type designation contains an * character, it is not complete (e.g. in case of variable lengths) and must be supplemented according to specifications in the table. In this case, the article number is not unique.

Logistics

Overview

Ordering very small quantities

When very small orders are placed, the costs associated with order processing are greater than the order value. We therefore recommend that you combine several small orders. Where this is not possible, we regret that we are obliged to charge a processing supplement of € 80 to cover our costs for order processing and invoicing for all orders with a net goods value of less than € 400.

Explanations of selection and ordering data

Standard delivery time (SD)

SD in days (d)

The standard delivery times (SD) are valid ex works from Siemens AG (products ready for dispatch). Shipping times depend on the destination and the method of shipping. The standard shipping time for Germany is one day.

The specified standard delivery times are correct at the time of going to print and are subject to constant optimization. Up-to-date information can be found at www.siemens.com/industrymall.

X On request

In such cases, the delivery time can be queried.

Price

The specified price in € refers to the price unit (PU).

Price units (PU)

The price unit defines the number of units, sets or meters to which the specified price applies.

Packaging size (PS)

The packaging size defines the number of units, sets or meters, for example, for outer packaging.

Only the quantity defined by the packaging size or a multiple thereof can be ordered.

Price group (PG)

Each product is allocated to a price group.

Example

BVP:203532

SD: 11 working days
Price: 10 units (= PS) cost 99.— €
(1 unit costs 9.90 €)
PG: 13X
Ordering quantity 10 units or a multiple thereof

SD d	Type	Article No.	PS*/ P. unit	Weight
X	**BD2-DSB**	**BVP:203532**	10 units	0.030

Note:

The article numbers shown here and the specifications regarding selection and ordering data are examples only. When ordering, always use the selection and ordering data in the product chapters.

Metal surcharges/export markings

To compensate fluctuating prices of raw materials (for example silver, copper, aluminum, lead, gold, dysprosium, and neodymium), surcharges are calculated on a daily basis for products containing these raw materials using the metal factor. A surcharge for the particular raw material is added to the price of a product if the basic quotations for this raw material are exceeded.

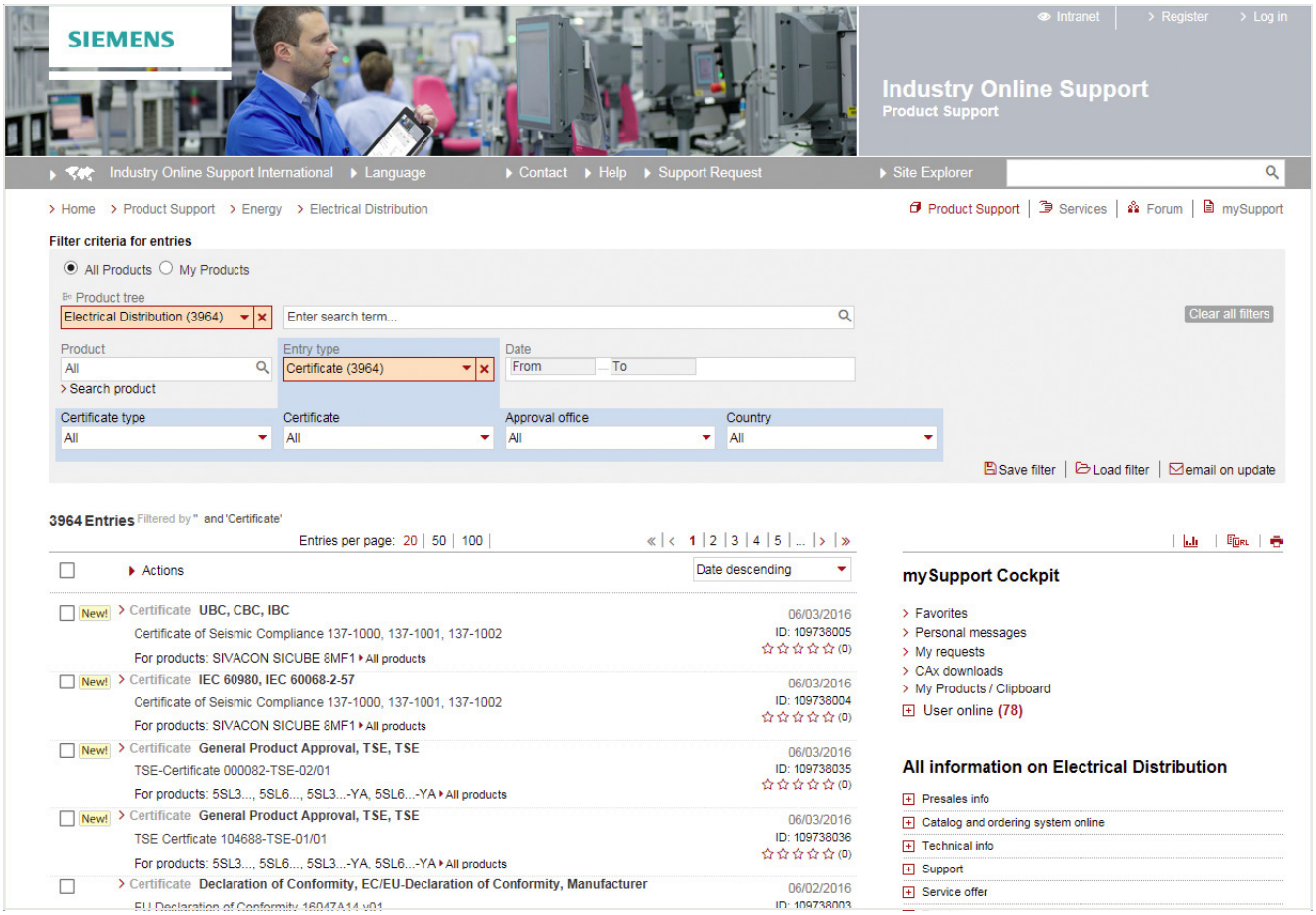
Each product's metal factor dictates for which raw materials the metal surcharges are calculated, from which quotation, and with which calculation method (weight or percentage method).

Overview

Certificates

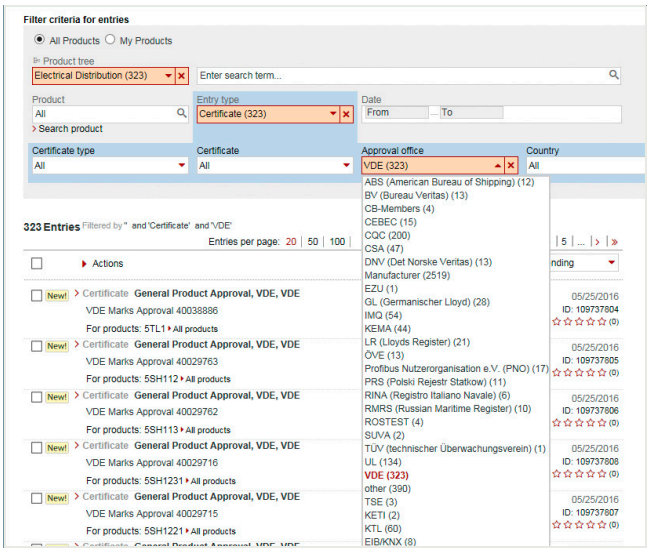
An overview, updated on a daily basis, of our products certified in accordance with CE, UL, CSA, FM, shipping authorizations etc. for low-voltage power distribution and electrical installation products can be found on the Internet at

www.siemens.com/lowvoltage/certificates



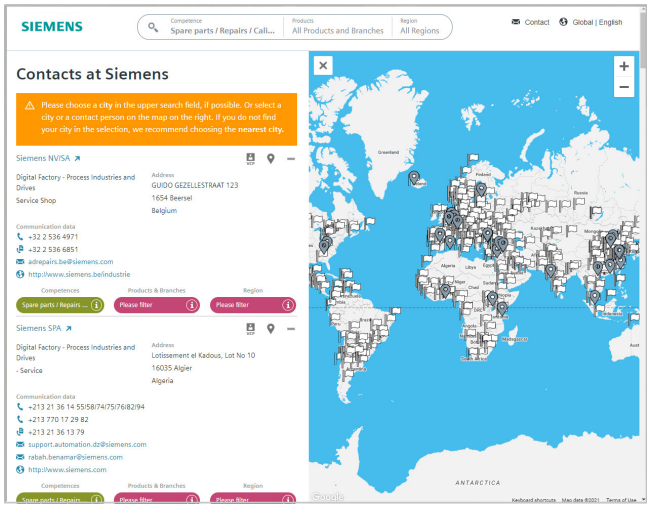
In the **Entry list**, you can **filter the view** in order to quickly find comprehensive information on the following subjects:

- Product or search term
- Date
- Type of certificate (general product approval, test certificates, shipping approval, ...)
- Certificate (confirmations, UL, VDE,...)
- Approval office (TÜV, VDE, UL, ...)
- Country



Siemens contacts

Overview



At your service locally, around the globe for consulting, sales, training, service, support, spare parts on the entire portfolio of Siemens.

Your partner can be found in our Personal Contacts Database at:
www.siemens.com/automation-contact

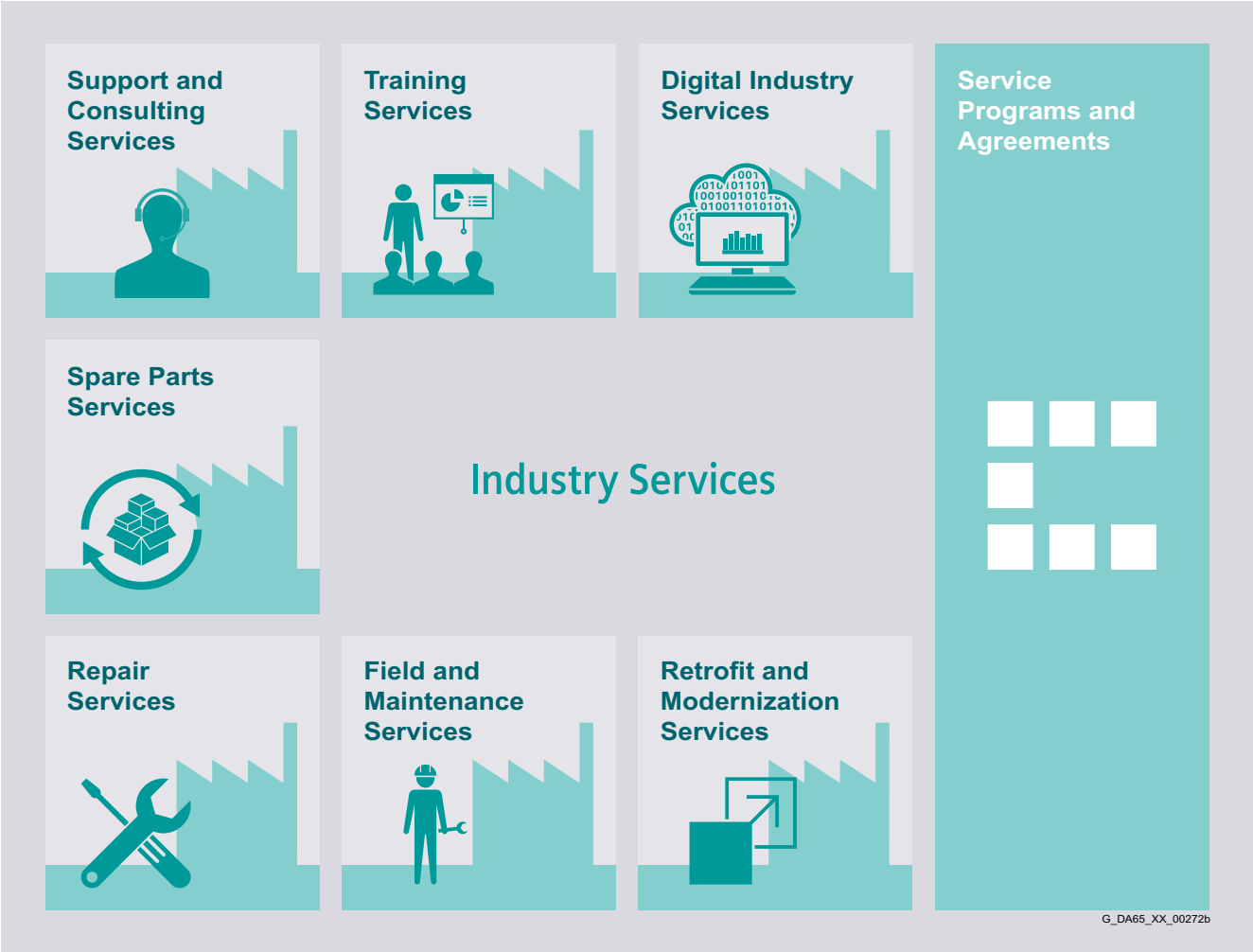
You start by selecting

- the required competence,
- products and branches,
- a country and a city

or by a

- location search or free text search.

Overview



Keep your business running and shaping your digital future – with Industry Services

Optimizing the productivity of your equipment and operations can be a challenge, especially with constantly changing market conditions. Working with our service experts makes it easier. We understand your industry's unique processes and provide the services needed so that you can better achieve your business goals.

You can count on us to maximize your uptime and minimize your downtime, increasing your operations' productivity and reliability. When your operations have to be changed quickly to meet a new demand or business opportunity, our services give you the flexibility to adapt. Of course, we take care that your production is protected against cyber threats. We assist in keeping your operations as energy and resource efficient as possible and reducing your total cost of ownership. As a trendsetter, we ensure that you can capitalize on the opportunities of digitalization and by applying data analytics to enhance decision making: You can be sure that your plant reaches its full potential and retains this over the longer lifespan.

You can rely on our highly dedicated team of engineers, technicians and specialists to deliver the services you need – safely, professionally and in compliance with all regulations. We are there for you, where you need us, when you need us.

www.siemens.com/industryservices

Industry Services – Portfolio overview

Overview

Digital Industry Services

Digital Industry Services make your industrial processes transparent to gain improvements in productivity, asset availability, and energy efficiency.

Production data is generated, filtered and translated with intelligent analytics to enhance decision-making.

This is done whilst taking data security into consideration and with continuous protection against cyber-attack threats.
www.siemens.com/global/en/products/services/industry/digital-industry-services.html

Training Services

From the basics and advanced to specialist skills, SITRAIN courses provide expertise right from the manufacturer – and encompass the entire spectrum of Siemens products and systems for the industry.

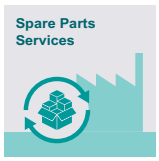
Worldwide, SITRAIN courses are available wherever you need a training course in more than 170 locations in over 60 countries.
https://support.industry.siemens.com/cs/ww/en/sc/2226

Support and Consulting Services

Industry Online Support site for comprehensive information, application examples, FAQs and support requests.

Technical and Engineering Support for advice and answers for all inquiries about functionality, handling, and fault clearance. The Service Card as prepaid support for value added services such as Priority Call Back or Extended Support offers the clear advantage of quick and easy purchasing.

Information & Consulting Services, e.g. SIMATIC System Audit; clarity about the state and service capability of your automation system or Lifecycle Information Services; transparency on the lifecycle of the products in your plants.
https://support.industry.siemens.com/cs/ww/en/sc/2235



Spare Parts

Spare Parts Services are available worldwide for smooth and fast supply of spare parts – and thus optimal plant availability. Genuine spare parts are available for up to ten years. Logistic experts take care of procurement, transport, custom clearance, storage and order management. Reliable logistics processes ensure that components reach their destination as needed.

Since not all spare parts can be kept in stock at all times, Siemens offers a preventive measure for spare parts provisioning on the customer's premises with optimized **Spare Parts Packages** for individual products, custom-assembled drive components and entire integrated drive trains – including risk consulting.

Asset Optimization Services help you design a strategy for parts supply where your investment and carrying costs are reduced and the risk of obsolescence is avoided.
https://support.industry.siemens.com/cs/ww/en/sc/2110

Repair Services

Repair Services are offered on-site and in regional repair centers for fast restoration of faulty devices' functionality.

Also available are extended repair services, which include additional diagnostic and repair measures, as well as emergency services.
https://support.industry.siemens.com/cs/ww/en/sc/2154

Field and Maintenance Services

Siemens specialists are available globally to provide expert field and maintenance services, including commissioning, functional testing, preventive maintenance and fault clearance.

All services can be included in customized service agreements with defined reaction times or fixed maintenance intervals.
https://support.industry.siemens.com/cs/ww/en/sc/2265

Retrofit and Modernization Services

Provide a cost-effective solution for the expansion of entire plants, optimization of systems or upgrading existing products to the latest technology and software, e.g. migration services for automation systems.

Service experts support projects from planning through commissioning and, if desired over the entire extended lifespan, e.g. Retrofit for Integrated Drive Systems for an extended lifetime of your machines and plants.
https://support.industry.siemens.com/cs/ww/en/sc/2286

Service Programs and Agreements

A technical Service Program or Agreement enables you to easily bundle a wide range of services into a single annual or multi-year agreement.

You pick the services you need to match your unique requirements or fill gaps in your organization's maintenance capabilities.

Programs and agreements can be customized as KPI-based and/or performance-based contracts.
https://support.industry.siemens.com/cs/ww/en/sc/2275

Overview

Siemens Industry and Online Support with some 1.7 million visitors per month is one of the most popular web services provided by Siemens. It is the central access point for comprehensive technical know-how about products, systems and services for automation and drives applications as well as for process industries.

In connection with the challenges and opportunities related to digitalization you can look forward to continued support with innovative offerings.

Conditions of sale and delivery

1. General Provisions

By using this catalog you can purchase products (hardware, software and services) described therein from Siemens Aktiengesellschaft subject to the following Terms and Conditions of Sale and Delivery (hereinafter referred to as "T&C"). Please note that the scope, the quality and the conditions for supplies and services, including software products, by any Siemens entity having a registered office outside Germany, shall be subject exclusively to the General Terms and Conditions of the respective Siemens entity. The following T&C apply exclusively for orders placed with Siemens Aktiengesellschaft, Germany.

1.1 For customers with a seat or registered office in European Union

For customers with a seat or registered office in European Union, the following terms and conditions apply subordinate to T&C:

- for products, which include specific terms and conditions in the description text, these specific terms and conditions shall apply and subordinate thereto,
- for stand-alone software products and software products forming a part of a product or project, the "General License Conditions for Software Products for Automation and Drives for Customers with a Seat or registered Office in Germany"[1)] and/or
- for consulting services the “Allgemeine Geschäftsbedingungen für Beratungsleistungen der Division DF – Deutschland” (available only in German) and/or
- for other services, the „Supplementary Terms and Conditions for Services (“BL”)[1)] and/or
- for other supplies the "General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry"[1)].
  In case such supplies should contain Open Source Software, the conditions of which shall prevail over the "General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry"[1)], a notice will be contained in the scope of delivery in which the applicable conditions for Open Source Software are specified. This shall apply mutatis mutandis for notices referring to other third party software components.

1.2 For customers with a seat or registered office outside European Union

For customers with a seat or registered office outside European Union, the following terms and conditions apply subordinate to T&C:

- for products, which include specific terms and conditions in the description text, these specific terms and conditions shall apply and subordinate thereto,
- for consulting services the "Standard Terms and Conditions for Consulting Services of the Division DF for Customers with a Seat or Registered Office Outside of Germany"[1)] and/or
- for other services the "International Terms & Conditions for Services"[1)] supplemented by "Software Licensing Conditions"[1)] and/or
- for other supplies of hard- and software the "International Terms & Conditions for Products"[1)] supplemented by "Software Licensing Conditions"[1)]

1.3 For customers with master or framework agreement

To the extent our supplies and/or services offered are covered by an existing master or framework agreement, the terms and conditions of that agreement shall apply instead of T&C.

2. Prices

The prices are in € (Euro) ex point of delivery, exclusive of packaging.

The sales tax (value added tax) is not included in the prices. It shall be charged separately at the respective rate according to the applicable statutory legal regulations.

Prices are subject to change without prior notice. We will charge the prices valid at the time of delivery.

To compensate for variations in the price of raw materials (e.g. silver, copper, aluminum, lead, gold, dysprosium and neodym), surcharges are calculated on a daily basis using the so-called metal factor for products containing these raw materials.
A surcharge for the respective raw material is calculated as a supplement to the price of a product if the basic official price of the raw material in question is exceeded.

The metal factor of a product indicates the basic official price (for those raw materials concerned) as of which the surcharges on the price of the product are applied, and with what method of calculation.

An exact explanation of the metal factor can be downloaded at:

https://mall.industry.siemens.com/legal/ww/en/terms_of_trade_en.pdf

To calculate the surcharge (except in the cases of dysprosium and neodym), the official price from the day prior to that on which the order was received or the release order was effected is used.

To calculate the surcharge applicable to dysprosium and neodym ("rare earths"), the corresponding three-month basic average price in the quarter prior to that in which the order was received or the release order was effected is used with a one-month buffer (details on the calculation can be found in the explanation of the metal factor).

3. Additional Terms and Conditions

The dimensions are in mm. In Germany, according to the German law on units in measuring technology, data in inches apply only to devices for export.

Illustrations are not binding.

Insofar as there are no remarks on the individual pages of this catalog – especially with regard to data, dimensions and weights given – these are subject to change without prior notice.

[1)] The text of the Terms and Conditions of Siemens AG can be downloaded at https://mall.industry.siemens.com/legal/ww/en/terms_of_trade_en.pdf

4. Export Regulations

We shall not be obligated to fulfill any agreement if such fulfillment is prevented by any impediments arising out of national or international foreign trade or customs requirements or any embargoes and/or other sanctions.

Export may be subject to license. We shall indicate in the delivery details whether licenses are required under German, European and US export lists.

Our products are controlled by the U.S. Government (when labeled with "ECCN" unequal "N") and authorized for export only to the country of ultimate destination for use by the ultimate consignee or end-user(s) herein identified. They may not be resold, transferred, or otherwise disposed of, to any other country or to any person other than the authorized ultimate consignee or end-user(s), either in their original form or after being incorporated into other items, without first obtaining approval from the U.S. Government or as otherwise authorized by U.S. law and regulations. Products labeled with "AL" unequal "N" are subject to European / national export authorization.

The export indications can be viewed in advance in the description of the respective goods on the Industry Mall, our online catalog system. Only the export labels "AL" and "ECCN" indicated on order confirmations, delivery notes and invoices are authoritative.

Products without label, with label "AL:N" / "ECCN:N", or label "AL:9X9999" / "ECCN: 9X9999" may require authorization from responsible authorities depending on the final end-use, or the destination.

If you transfer goods (hardware and/or software and/or technology as well as corresponding documentation, regardless of the mode of provision) delivered by us or works and services (including all kinds of technical support) performed by us to a third party worldwide, you shall comply with all applicable national and international (re-)export control regulations. In any event of such transfer of goods, works and services you shall comply with the (re-) export control regulations of the Federal Republic of Germany, of the European Union and of the United States of America.

Prior to any transfer of goods, works and services provided by us to a third party you shall in particular check and guarantee by appropriate measures that

- there will be no infringement of an embargo imposed by the European Union, by the United States of America and/ or by the United Nations by such transfer, by brokering of contracts concerning those goods, works and services or by provision of other economic resources in connection with those goods, works and services, also considering the limitations of domestic business and prohibitions of by-passing those embargos;
- such goods, works and services are not intended for use in connection with armaments, nuclear technology or weapons, if and to the extent such use is subject to prohibition or authorization, unless required authorization is provided;
- the regulations of all applicable Sanctioned Party Lists of the European Union and the United States of America concerning the trading with entities, persons and organizations listed therein are considered.

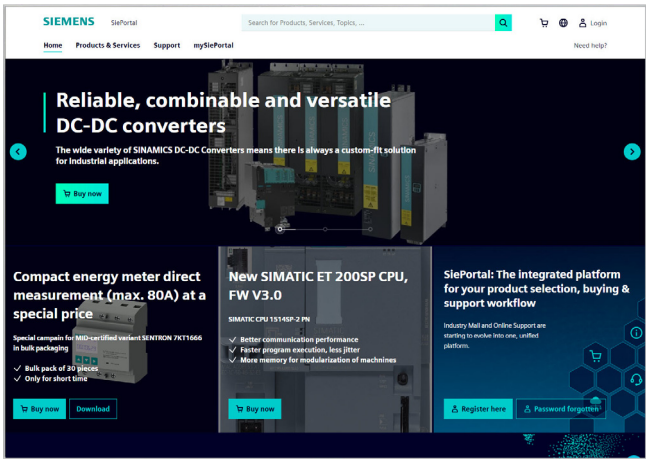
If required to enable authorities or us to conduct export control checks, you, upon request by us, shall promptly provide us with all information pertaining to the particular end customer, the particular destination and the particular intended use of goods, works and services provided by us, as well as any export control restrictions existing.

You acknowledge that under the EU embargo regulations against Iran, Syria and Russia respectively the sale of certain listed goods and related services is subject to authorization by the competent export control authorities of the European Union. If (i) the goods or services ordered by you are destined for Iran, Syria or Russia, and (ii) the contract for our supplies and/or services is subject to prior authorization of the competent export control authorities of the European Union, the contract between you and us shall come into force in this respect only upon granting of such authorization.

The products listed in this catalog may be subject to European/German and/or US export regulations. Any export requiring approval is therefore subject to authorization by the relevant authorities.

Errors excepted and subject to change without prior notice.

Notes



Easy product selection and ordering with SiePortal

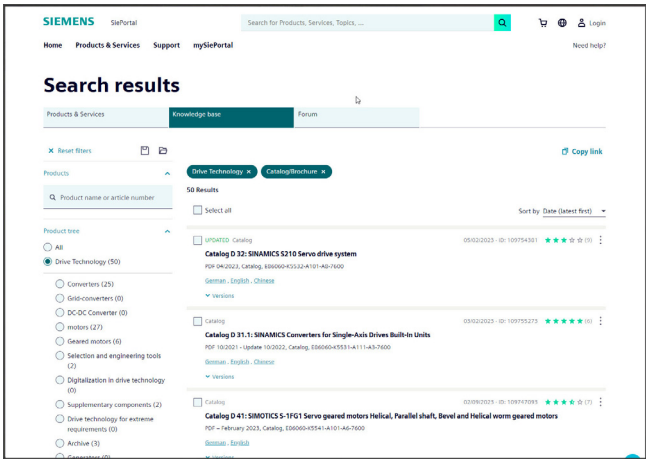
SiePortal > Products & Services

The internet ordering platform of Siemens AG is located in SiePortal. It provides you with online access to a comprehensive product spectrum that is presented in an informative, well-organized way.

Powerful search functions help you select the required products, while configurators enable you to configure complex product and system components quickly and easily. CAx data are also available for you to use.

Data transfer allows the entire procedure, from selection through ordering to tracking and tracing, to be carried out online. Availability checks, individual customer discounting, and quotation preparation are also possible.

https://sieportal.siemens.com



Downloading catalogs

SiePortal > Support > Knowledge base

You can download catalogs and brochures in PDF format from Siemens Industry Online Support without having to register.

The filter box makes it possible to perform targeted searches.

https://sieportal.siemens.com

Get more information

www.siemens.com/busbar

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Cybersecurity information

Siemens provides products and solutions with industrial cybersecurity functions that support the secure operation of plants, systems, machines and networks.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens' products and solutions constitute one element of such a concept.

Customers are responsible for preventing unauthorized access to their plants, systems, machines and networks. Such systems, machines and components should only be connected to an enterprise network or the internet if and to the extent such a connection is necessary and only when appropriate security measures (e.g. firewalls and/or network segmentation) are in place.

For additional information on industrial cybersecurity measures that may be implemented, please visit **www.siemens.com/cybersecurity-industry.**

Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends that product updates are applied as soon as they are available and that the latest product versions are used. Use of product versions that are no longer supported, and failure to apply the latest updates may increase customer's exposure to cyber threats.

To stay informed about product updates, subscribe to the Siemens Industrial Cybersecurity RSS Feed under **https://www.siemens.com/cert.**