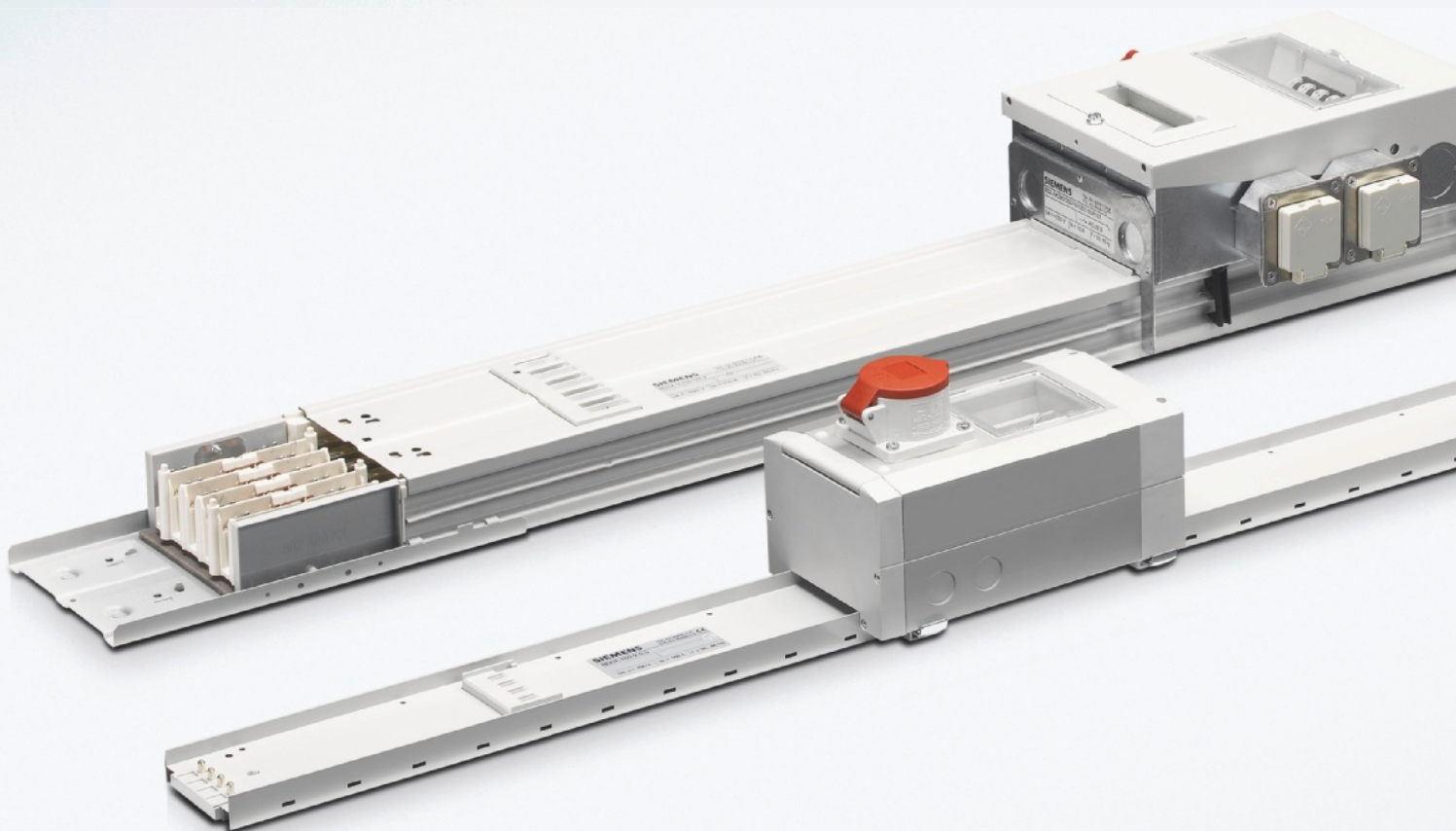


SIEMENS



SIVACON 8PS Busbar Trunking Systems

BD01, BD2 up to 1250 A

Totally Integrated Power – SIVACON 8PS

Catalog
LV 70

Edition
2015

siemens.com/busbar

Related catalogs

Low-Voltage Power Distribution and Electrical Installation Technology LV 10
 SENTRON • SIVACON • ALPHA
 Protection, Switching, Measuring and Monitoring Devices, Switchboards and Distribution Systems
 E86060-K8280-A101-A1-7600



SIVACON 8PS LV 70
 Busbar Trunking Systems
 BD01, BD2 up to 1250 A

E86060-K1870-A101-A8-7600



SIVACON LV 50
 System Cubicles, System Lighting and System Air-Conditioning

PDF (E86060-K1920-A101-A6-7600)



ALPHA FIX LV 52
 Terminal Blocks

E86060-K1852-A101-A2-7600



DVD

Products for Automation and Drives CA 01
 Interactive Catalog, DVD

E86060-D4001-A510-D4-7600



Contents

Air circuit breakers • Molded case circuit breakers • Miniature circuit breakers • Residual current protective devices / AFDDs • Fuse systems • Overvoltage protection devices • Switch disconnectors • Switching devices • Transformers, power supply units and socket outlets • Busbar systems • Measuring devices and power monitoring • Monitoring devices • Software • Switchboards • Busbar trunking systems • System cubicles, system lighting and system air-conditioning • Distribution boards • Molded-plastic distribution systems • Spring-loaded terminals

Busbar Trunking Systems, Overview •
 BD 01 System – 40 A ... 160 A • BD2 System – 160 A ... 1250 A

System overview • Frame • Enclosure • Expansion •
 Preconfigured cubicles • Special cubicles •
 SIVACON 8MF/8MR system lighting • SIVACON 8MR system
 air-conditioning

iPo plug-in terminals • iPo installation terminals •
 Spring-loaded terminals • Combination plug-in terminals •
 Insulation displacement terminals • Screw terminals •
 Accessories for terminal blocks

Online

Industry Mall

Information and Ordering Platform
 in the Internet:

www.siemens.com/industrymall



Catalog PDF

Internet:

www.siemens.com/lowvoltage/infomaterial



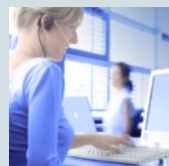
Trademarks

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Further information about low-voltage power distribution and electrical installation is available on the Internet at:

www.siemens.com/lowvoltage

Technical Support



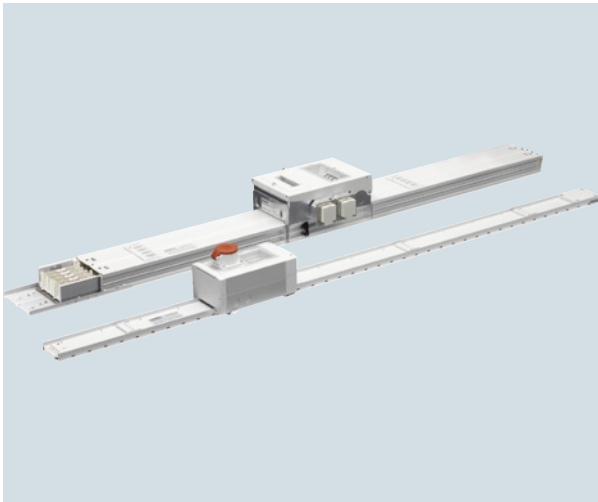
Expert advice on technical questions with a wide range of demand-optimized services for all our products and systems.

www.siemens.com/lowvoltage/contact

SIVACON 8PS Busbar Trunking Systems

BD01, BD2 up to 1250 A

Totally Integrated Power – SIVACON 8PS



Catalog LV 70 · 2015

Supersedes:
Catalog LV 70 · 2014

Refer to the Industry Mall for current updates of this catalog:

www.siemens.com/industrymall

The products in this catalog can also be found in the Interactive Catalog CA 01.

Article No.: E86060-D4001-A510-D4-7600

Contact your local Siemens sales office for further information.

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Introduction

1

Busbar Trunking Systems, Overview

2

BD01 System – 40 ... 160 A

3

BD2 System – 160 ... 1250 A

4

Appendix

5



Printed on paper from sustainably managed forests and controlled sources.

www.pefc.org

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).



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 LD

Overhead line applications

System examples:

- Fusesaver
- 3AD
- 3AF
- SDV6/7



Integrated solutions for cities and infrastructure

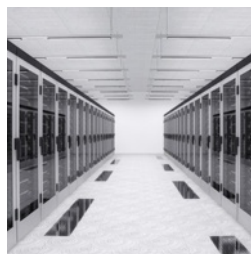
System examples:

- 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



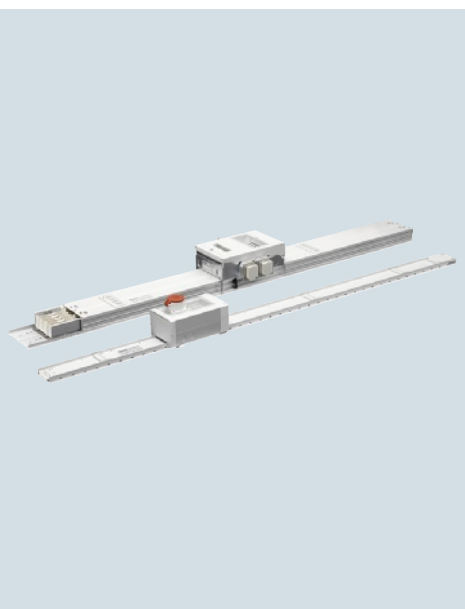
High-quality energy supply for the food and beverage industry

System examples:

- 8DJH
- NXAIR
- SIVACON S8
- SIVACON 8PS

Notes

Introduction



1/2

**SIVACON 8PS
busbar trunking systems in action**

1/4

Comprehensive support

More technical product information:

Service & Support Portal:
www.siemens.com/lowvoltage/product-support

→ Product list:
Technical specifications

→ Entry list:
Certificates / Characteristics /
Download / FAQ / Manuals /
Updates

Introduction

SIVACON 8PS busbar trunking systems in action

Overview

Busbar trunking systems in the low-voltage range guarantee the reliable transmission and distribution of 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 6150 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 control-gear assemblies (BD01, BD2, LD, LR type tested according to IEC/EN 60439-1 / -2 (BD01, BD2, LD, LR design verified according to IEC/EN 61439-1 / -6 as from 2015); LI design verified according to IEC 61439-1 / -6). Sheet-steel enclosures lend the systems high short-circuit rating and low fire load for greater safety for persons and buildings.

Other advantages:

- Well arranged network topology
- 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 businesses and the skilled trades. The busbars can be easily and quickly connected. An anti-rotation feature in the tap-off units prevents incorrect mounting and guarantees easy conversion. Other advantages: Minimum stock keeping and straightforward planning thanks to one standard size for five different current strengths.



The BD01 system is quickly mounted and ideally suited for use in craft businesses and the skilled trades.

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 levels of current, 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 conductor enables the assured response of the protective device over long conducting paths. The high short-circuit rating 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-story 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 insulated PE/ground conductor and double neutral conductor cross-section guarantee an interference-free power supply. Tap-off units up to 1250 A are available as standard.

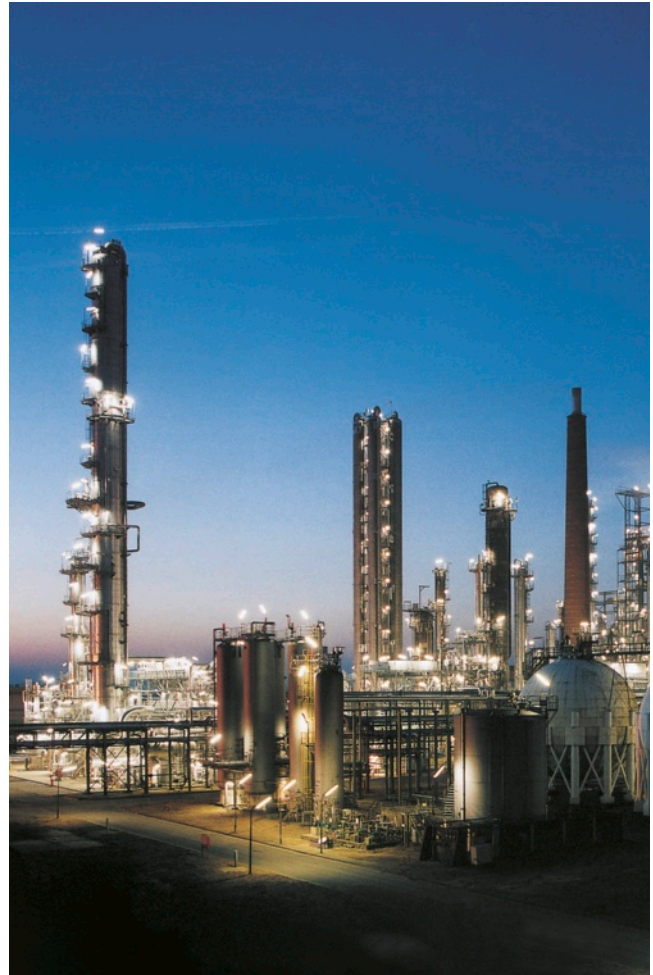


The LI busbar trunking system is the perfect equipment for multi-storey buildings where large quantities of power need to be transported, uninfluenced by the mounting position of the system.

Safe power transmission for petrochemicals

The encapsulated LR system (up to 6150 A) is extremely resistant to external interference thanks to its high degree of protection. It guarantees 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.

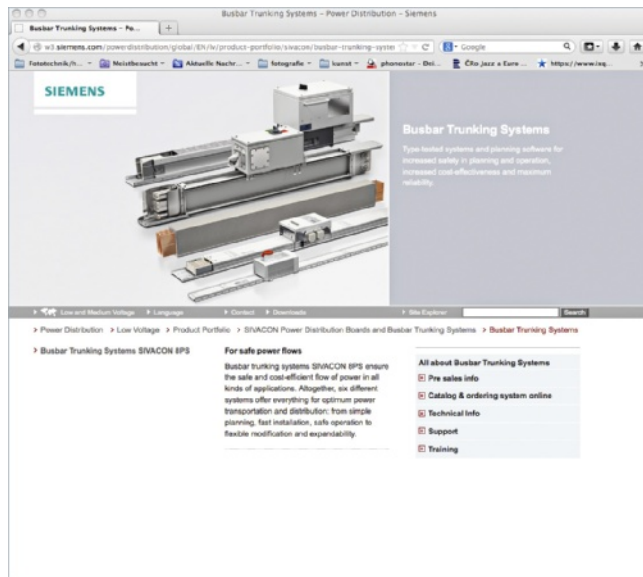
Introduction

Comprehensive support

1

Overview

SIVACON 8PS on the Internet



Visit us on the Internet. You can obtain additional information on our SIVACON 8PS busbar trunking systems, for example the SIVACON 8PS overview brochure, along with links to technical materials at

www.siemens.com/busbar

Tender specification texts

For your support, we offer you a comprehensive range of specification texts:

www.siemens.com/specifications

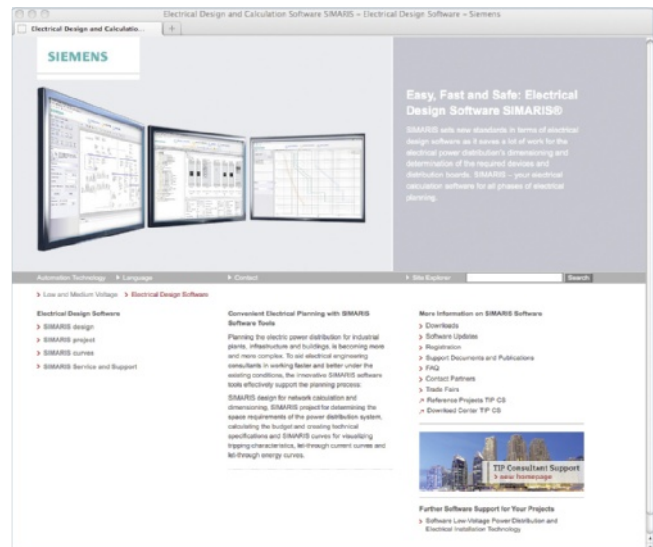
Reliable local support

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 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.

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 recognised 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

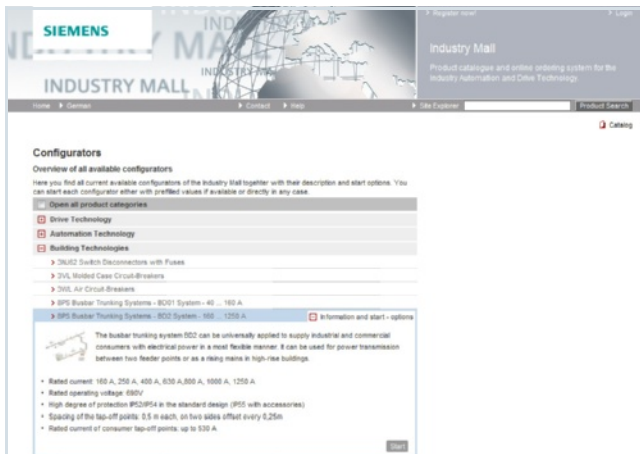
The software tool SIMARIS project enables you to create project documents quickly, easily and clearly to fit the space and budget requirements of your complete power distribution system. Based on the systems and devices determined, you can also create a list of specifications in GAEB D81 or RTF format – 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 sketch

With SIMARIS sketch, you can intuitively create the 3D routing of the busbar trunking systems BDO1, BD2, LD and LI for your particular project. These routings, including accessories, are directly represented in 3D, allowing an easy and helpful 3D visualisation of how the busbar routing will look in the project.

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

Configurators can be found at

www.siemens.com/lowvoltage/configurators

Should you have any queries concerning installation, functionality or application options – please mail us at support.ic@siemens.com

We will be pleased to assist you.

More information

- Industry Mall

Information and order platform on the Internet:

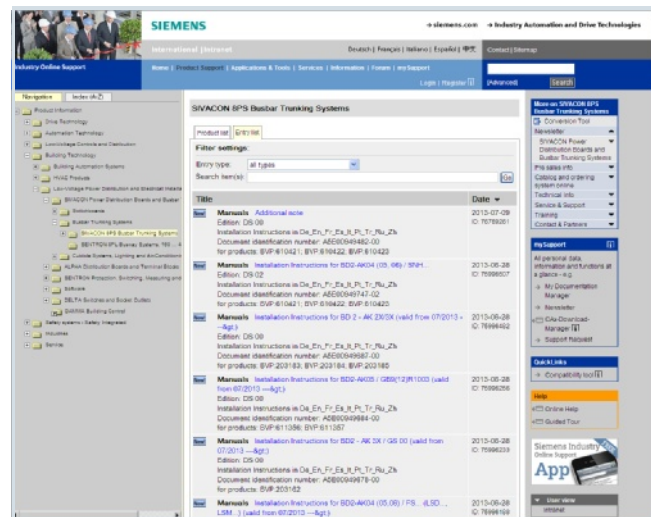
www.siemens.com/industrymall

- CA01

Interactive Catalog, DVD,

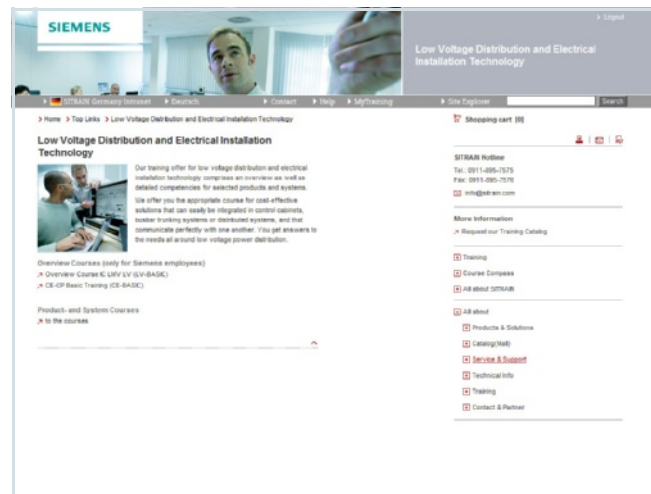
Article No.: E86060-D4001-A510-D4-7600

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 www.siemens.com/lowvoltage/product-support

Build on a sound basis



With our courses, you can lay the foundations for your business success. Expert lecturers provide you with the necessary theoretical and practical knowledge about our SIVACON 8PS busbar trunking systems. The courses are dynamic and easy to understand, with multimedia teaching equipment and many practical examples. They are provided in German and English. For details of our current range of courses, please visit our website: www.siemens.com/lowvoltage/training

Support

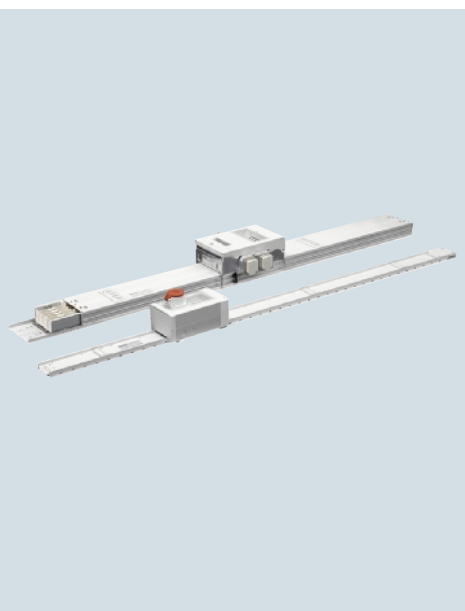
If you would like to obtain more information, please contact your Siemens Customer Support Center.
Tel.: +49 180 524 8437
Fax: +49 180 524 2471
(Charges depending on provider)
E-mail: support.ic@siemens.com

Introduction

Notes

1

Busbar Trunking Systems, Overview



2/2	Contents Overview
2/3	System overview Overview
2/4	Benefits
2/5	More information
2/6	Features overview Overview
2/8	Principles of busbar trunking planning Overview
2/9	Communication-capable busbar trunking for industry and buildings Overview
2/10	Busbars instead of cables Overview

More technical product information:

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→ Product list:
Technical specifications

→ Entry list:
Certificates / Characteristics /
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Busbar Trunking Systems, Overview

Contents

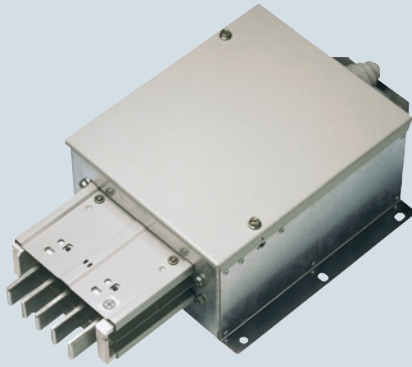
Overview

Busbar trunking systems

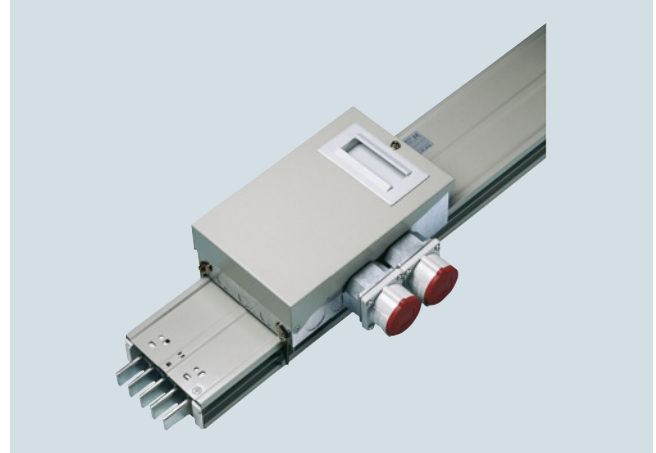
This catalog contains:

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

Systems up to 6300 A on request.



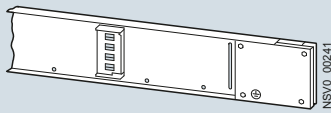
Feeding unit (end feeding unit)



Trunking unit with tap-off unit

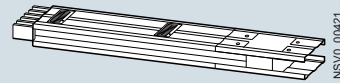
BD01 and BD2 busbar trunking systems

BD01 system - 40 A up to 160 A



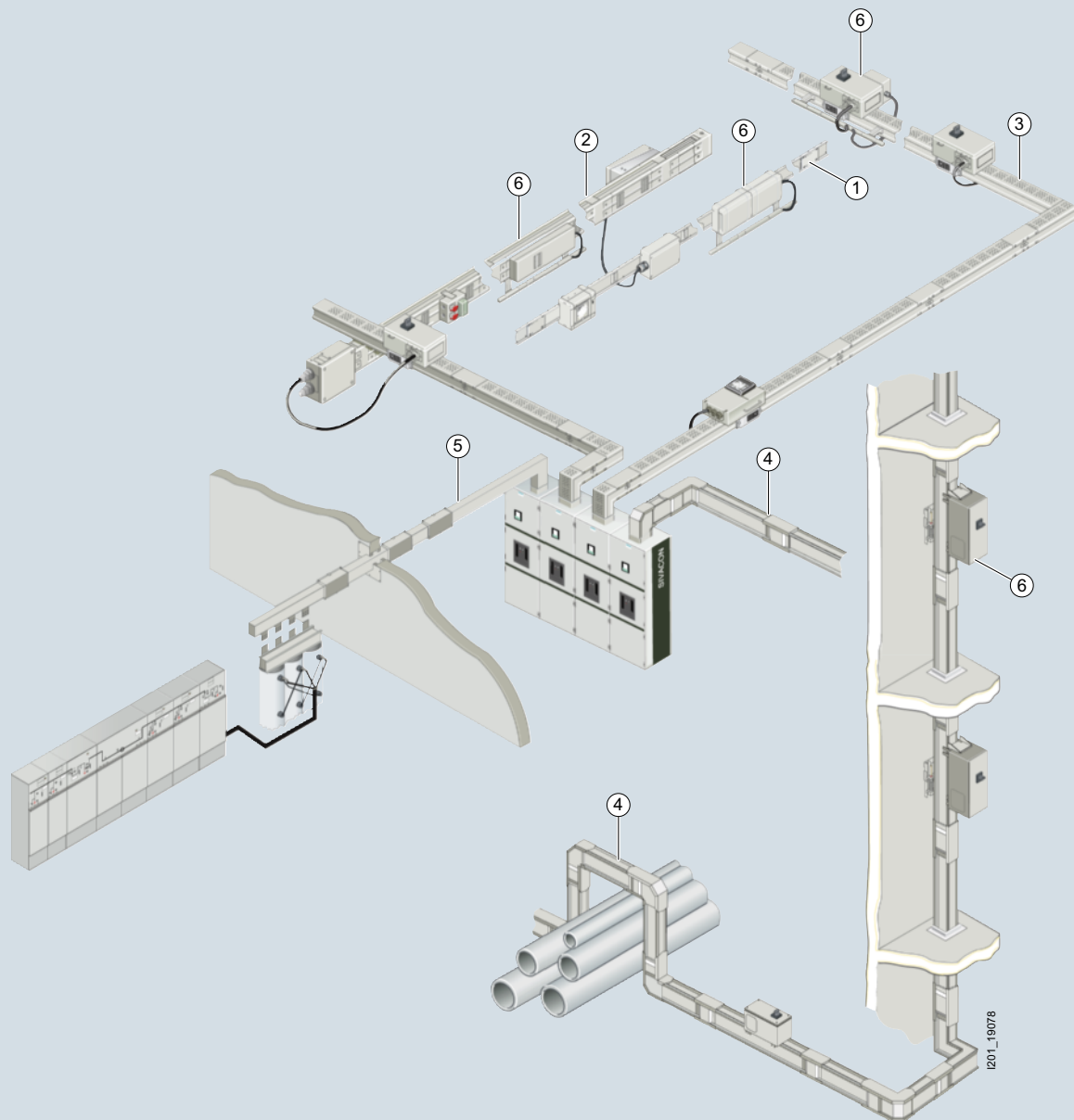
	Page
System overview of busbar trunking systems	2/3
Features overview of busbar trunking systems	2/6
Contents: BD01 system	3/1
Overview	3/2
Design	3/3
Technical specifications	3/9
Selection and ordering data	3/11
Configuration	3/23
Dimensional drawings	3/28

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	4/4
Technical specifications	4/14
Selection and ordering data	4/22
Configuration	4/65
Fire barrier	4/87
Dimensional drawings	4/94

Overview



- ① BD01 system
- ② BD2 system
- ③ LD system

- ④ LI system
- ⑤ LR system
- ⑥ Communication-capable busbar trunking systems for connection to the following bus systems:
 - KNX (EIB / Instabus)
 - AS-Interface
 - PROFIBUS
 - PROFINET
 - Modbus

Busbar Trunking Systems, Overview

System overview

Benefits

① **BD01 system up to 160A**

The busbar trunking system for power transmission in the skilled trades:

- 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 changes of direction
- 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 boxes to compensate elongation
- Codable tap-off units and tap-off points
- 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
- Type-tested 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-story 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 (type-tested 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.](#)

⑥ **Communication-capable busbar trunking systems**

Communication-capable function expansions for combination with known tap-off units:

- Can be used with the BD01, BD2, LD and LI systems
- Applications:
 - Building control
 - Switching, reporting and remote control
 - Consumption recording and remote monitoring of decentral power tap-off units
 - Interlinking of various trades
- Connection to the bus systems KNX (EIB/Instabus), AS-Interface, PROFIBUS, PROFINET and Modbus
- Integrated, efficient and future-proof solution thanks to the integration of measuring devices in power management solutions according to ISO 50001
- Flexible with plug-in tap-off units including measuring devices
- Cost-efficient with greater transparency of the energy consumption
- Reliable thanks to central control of the power distribution

More information**SIVACON 8PS busbar trunking systems configurator**

The product configurator (selection aid) enables you to order busbar trunking systems up to 1250 A.

The following configurators are available:

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

This selection aid can be accessed through the Industry Mall and is also included in interactive catalog CA 01 on a DVD, which is available free of charge.

Manual

Planning with SIVACON 8PS – busbar trunking systems up to 6300 A

German: Article No. A5E01541017-02

English: Article No. A5E01541101-02

Leaflet

For safe power flows –
SIVACON 8PS busbar trunking systems

- German: Article No. IC1000-G320-A158-V1
- English: Article No. IC1000-G320-A158-V1-7600

An integrated solution for safe and efficient power supply –
LI busbar trunking system

- German: Article No. IC1000-G320-A194-V1
- English: Article No. IC1000-G320-A194-V1-7600

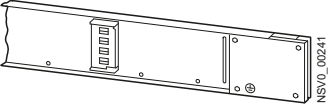
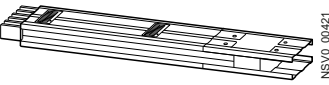



Internet

www.siemens.com/busbar

Busbar Trunking Systems, Overview

Features overview

Overview

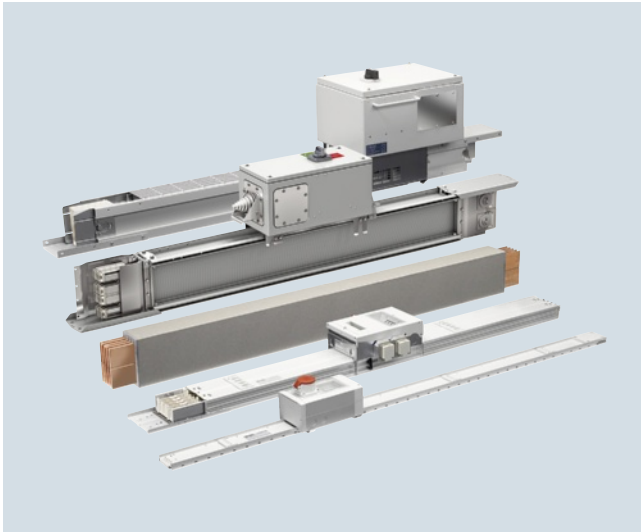
Busbar trunking systems	Rated current	Rated operational voltage	Frequency	Number of active conductors	Degree of protection	Ambient temperature, min./max. °C
	A	V AC	Hz			
BD01  <small>NSV0_00241</small>	40 63 100 125 160	400	50	4 (PE = enclosure)	Up to IP55	-5/+40
BD2A BD2C  <small>NSV0_00421</small>	160 ... 1000 160 ... 1250	690	50	5	Up to IP55	-5/+40
LDA1 ... LDA8 LDC2 ... LDC8  <small>NSV0_00681</small>	1 100 ... 4 000 2 000 ... 5 000	1 000	50	4 or 5	Up to IP54	-5/+40
LI-A0800 ... LI-A5000 LI-C1000 ... LI-C6300  <small>NSV0_00687</small>	800 ... 5 000 1 000 ... 6 300	1 000	50	3, 4, 5, 6 (PE = enclosure)	IP55	-5/+40
LRA01 ... LRA29 LRC01 ... LRC29  <small>NSV0_01451</small>	400 ... 4 600 630 ... 6 150	1 000	50	4, 5	IP68	-5/+40

Mounting position	Length m	Tap-off points	Tap-off units	Material	Fire load kWh/m	Can be combined with communication-capable tap-off units for
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	Lighting control
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)	Lighting control, remote switching, signaling and consumption recording
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)	Remote switching and signaling and consumption recording
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	Remote switching and signaling and consumption recording
Horizontal, edgewise and vertical	0.5 ... 3	None On one side selectable	Up to 630 A	Epoxy resin system, Cu busbars	--	--

Busbar Trunking Systems, Overview

Principles of busbar trunking planning

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 and functional maintenance.

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 in the event of a fault as well as during operation at rated values. 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 stories)
- 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 is 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 to high 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 6150 A for power transmission in extreme ambient conditions (IP68)

Overview

Busbar trunking systems

The strengths of busbar trunking lie in the transmission and distribution and the switching and contacting of electrical power.

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

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

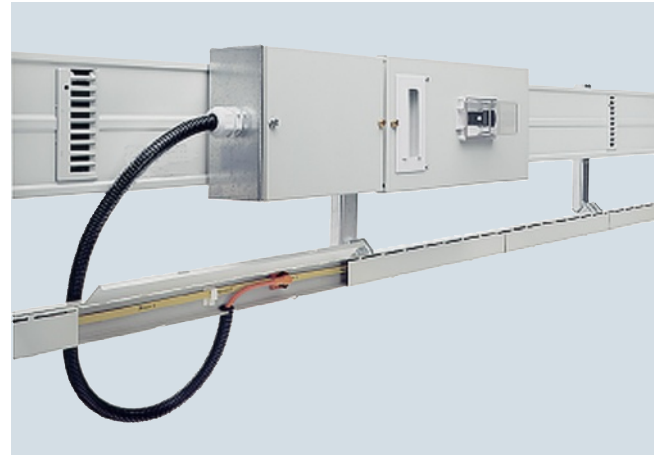
Advantages of the system solution during start-up:

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

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

System concept of communication-capable busbar trunking systems



Switching and reporting with the BD2 system

The standardized tap-off units of the busbar trunking systems can be combined with standard types of device unit to form a system solution of communication-capable busbar trunking.

The standard applications are assembled at the factory from a combination of tap-off unit and ancillary equipment unit. The bus cable for transmitting the data signals is laid in a cable duct which must be mounted on the trunking unit.

Busbar Trunking Systems, Overview

Busbars instead of cables

Overview

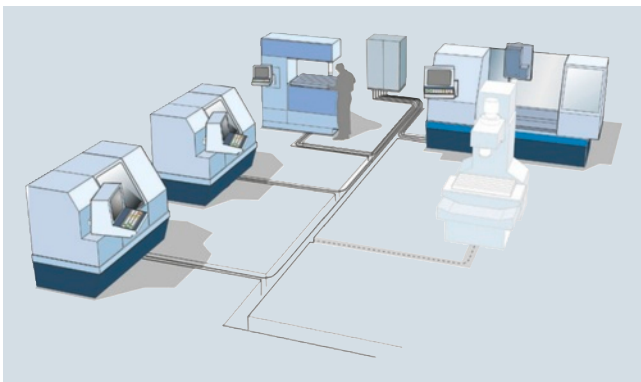
Easier when it comes to planning

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 load rating and the type and number of loads. Clarity is assured by the line-shaped network topology with regularly arranged load tap-offs. Using standardized sizes, all applications can be implemented quickly and in minimum space.

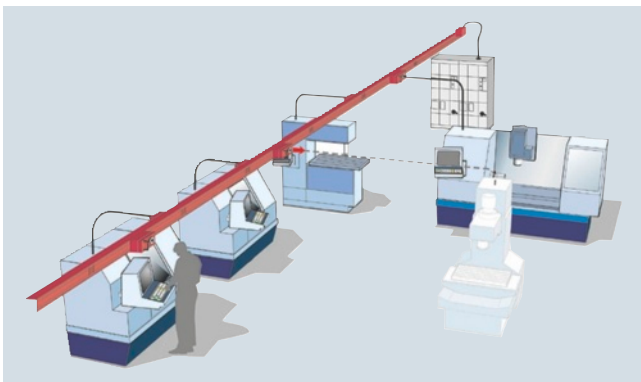
Quicker when it comes to installing

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 bars compared to every 1.5 m for cables).

Busbar trunking systems from Siemens are a cost-effective 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 rating and minimum fire load mean greater safety

A step-ahead in terms of safety – be it short-circuit rating or fire load. The BD2A-250 bus trunking systems have a fire load of just 1.32 kWh/m, for example, while the figure for comparable cables (NYY 4 × 95/50 mm²) is 5.19 kWh/m. Also, the bars are halogen-free. Busbar trunking systems from Siemens have a high short-circuit rating. And the near-load protection from short-circuiting also facilitates troubleshooting.



High fire load with cables



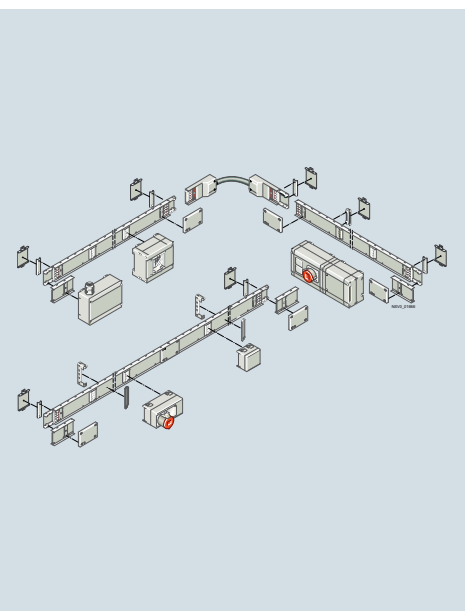
Low fire load with busbar trunking system

More flexible in case of expansions and modifications

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	
3/9	Technical specifications
Trunking units	
3/11	Selection and ordering data
Junction units	
3/12	Selection and ordering data
Feeding units	
3/12	Selection and ordering data
Tap-off units for international use	
3/13	Selection and ordering data
Ancillary equipment units for international use	
3/19	Selection and ordering data
Optional equipment	
3/21	Selection and ordering data
Configuration information	
3/23	Overview
3/24	Design
3/26	Function
Configuration aids	
3/28	Dimensional drawings

More technical product information:

Service & Support Portal:

www.siemens.com/lowvoltage/product-support

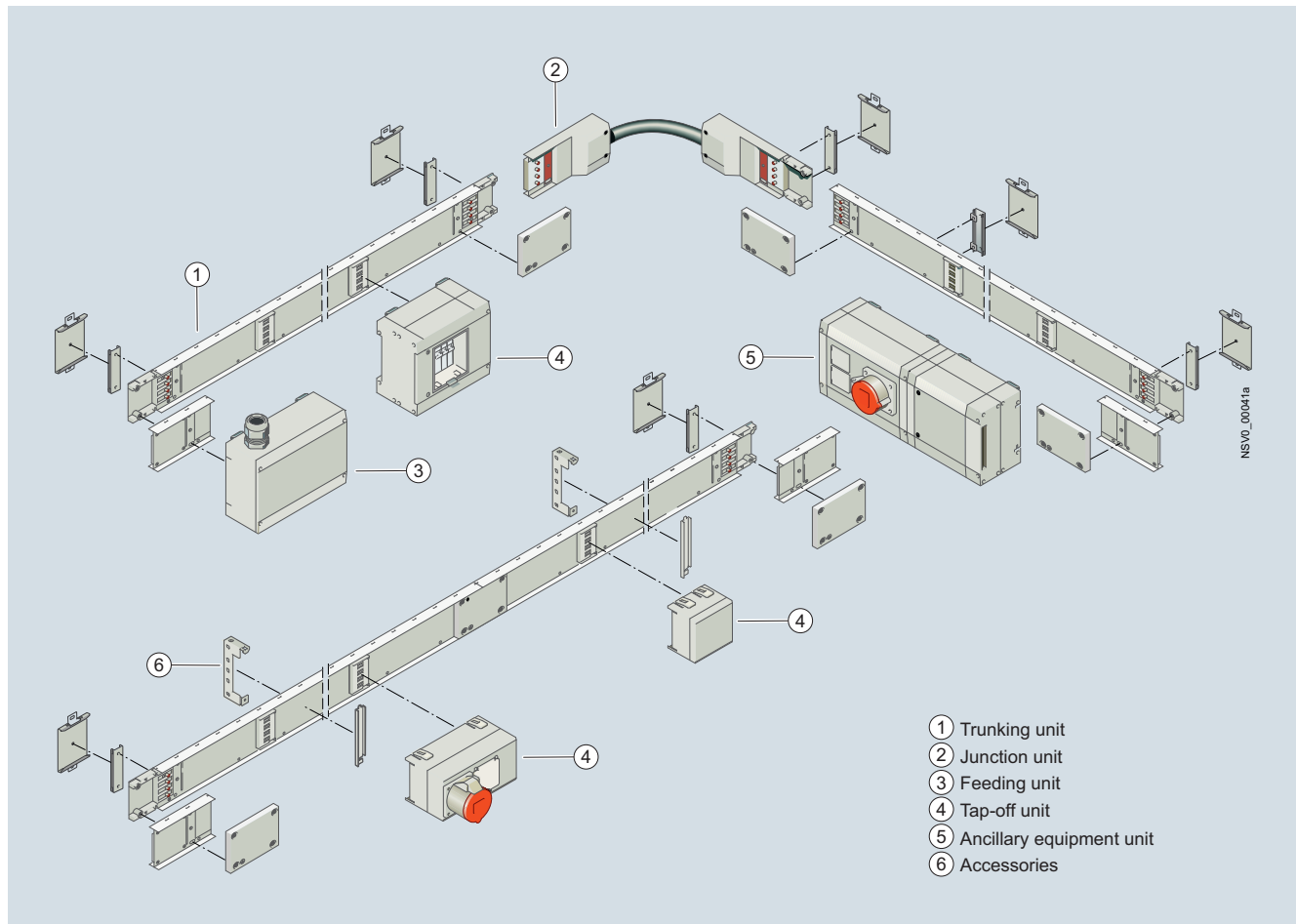
→ Product list:
Technical specifications

→ Entry list:
Certificates / Characteristics /
Download / FAQ / Manuals /
Updates

BD01 System – 40 ... 160 A

Introduction

Overview



Version

Type-tested low-voltage switchgear and controlgear assembly (TTA) according to

- IEC/EN 60439-1 (IEC 61439-1 as from 2015)
- IEC/EN 60439-2 (IEC 61439-6 as from 2015)

Degree of protection

- High degree of protection IP54 with tap-off points at sides and bottom
- Degree of protection IP50 with tap-off points at the top
- Degree of protection increase to IP55 with optional equipment

Components

Trunking units

- 5-wire system
- 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 units

- Flexible change of direction

Feeding units

- Universal infeed

Tap-off units

- Up to 63 A
- With built-in parts or for customized device installation
- For 3, 4 or 8 modular widths (MW)
- With or without device installation unit

Ancillary equipment units

- For 4 or 8 modular widths (MW)
- With or without device installation unit
- With or without socket assembly

Optional equipment

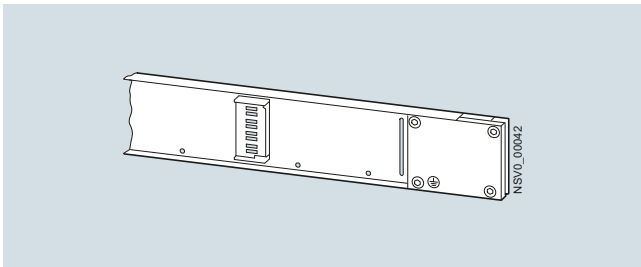
- Mounting sets for degree of protection IP55
- Fixing and suspending
- Coding sets
- Fire protection kit S90

Benefits

- 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 change of the direction of the busbar run
- Versatile tap-off units
- Positive opening and closing of tap-off points
- Accessories for increasing the degree of protection to IP55

Design

Trunking units

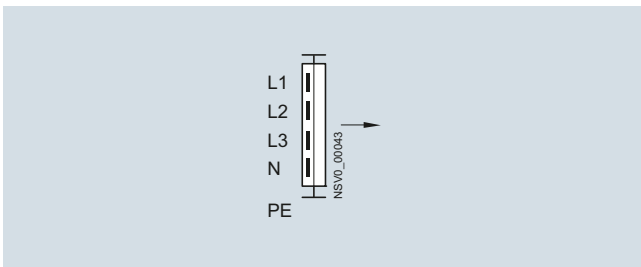


The trunking units are available in 2 and 3 meter lengths. They comprise a galvanized metal enclosure painted light gray (RAL 7035). They are equipped with 4 busbars for L1, L2, L3, N (aluminum conducting paths, copper for 160 A; silver-plated copper tap and link contacts).

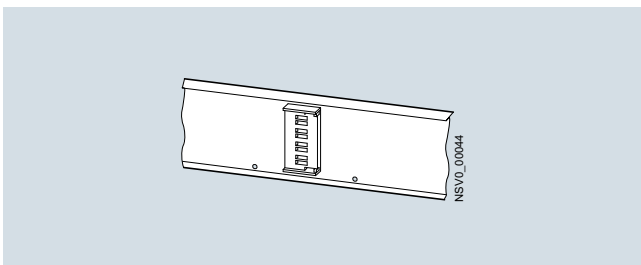
The enclosure of the trunking unit also serves as PE conductor.

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

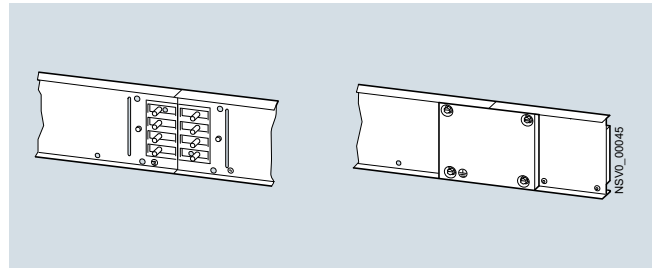
The tap-off points are arranged on one side at a distance of 0.5 or 1 m apart. The 2 m lengths have two or four tap-off points, the 3 m lengths have three or six.



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.



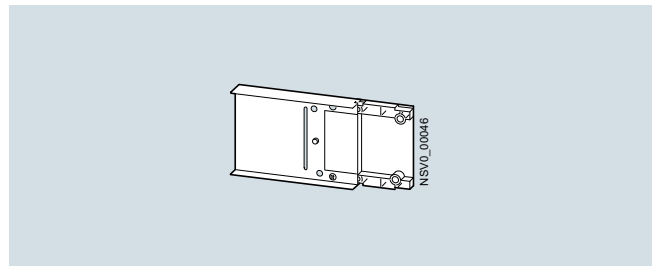
Connections



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. Then the joint block top or feeding unit is mounted, and finally a safe connection is produced by tightening four screws. The PE path is established automatically when the enclosures are connected.

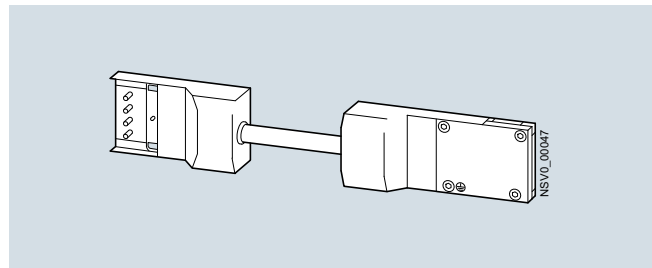
An expansion compensation mechanism is built into the joint block.

End flanges



These serve as touch protection at the ends of the busbar run. They are suitable for use with all systems. Two end flanges are supplied as standard with each feeding unit.

Junction units



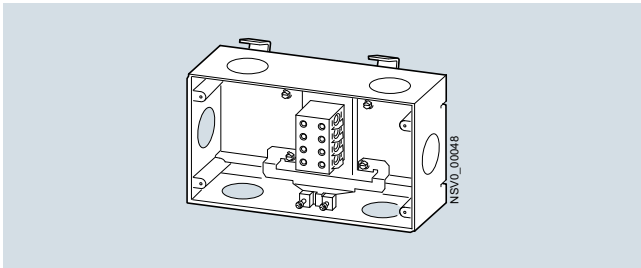
The changes of direction are available in 100 A and 160 A versions, each in lengths of 0.5 m and 1 m. They consist of flexible conducting paths.

Flexible junction units mean that the busbar layout 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 jumps in height.

BD01 System – 40 ... 160 A

Introduction

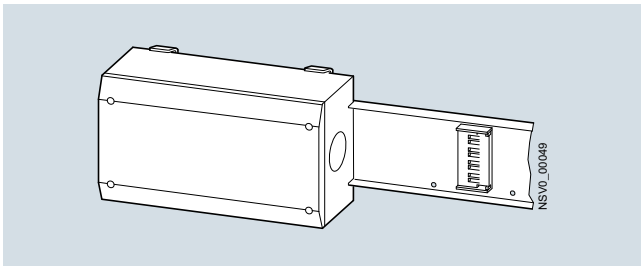
Feeding units



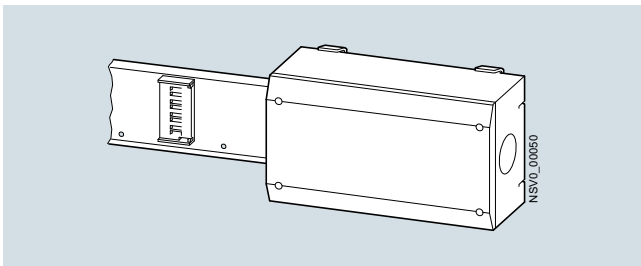
Two versions are available, one for 100 A and one for 160 A.

The feeding unit can be used as:

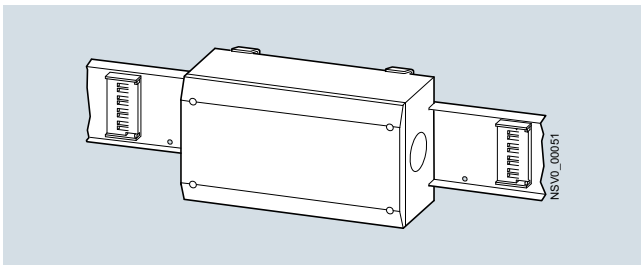
- Entry feeding units



- End feeding units



- 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).

In the case of the feeding units, the BD01-B fixing brackets on the bottom of the joint block must be used in accordance with [page 3/24](#).

Molded plastic-enclosed tap-off units

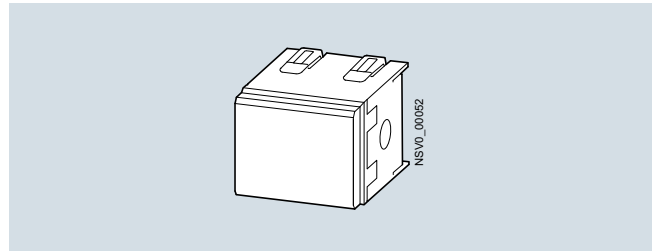
Common features

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

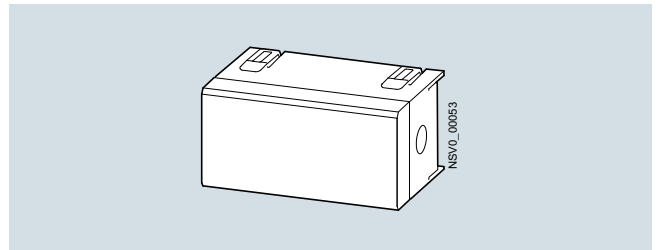
Tap-off units with components fitted

- 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)

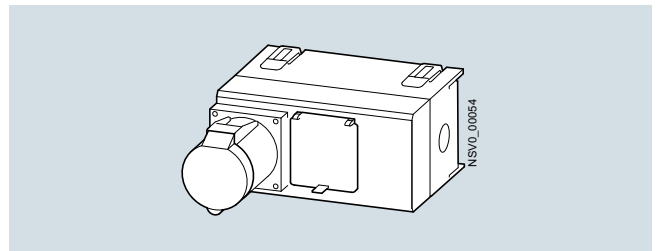
There are various versions with fuse bases, miniature circuit breakers, Schuko socket outlets and CEE socket outlets up to and including 32 A



BD01-AK01X/ZS



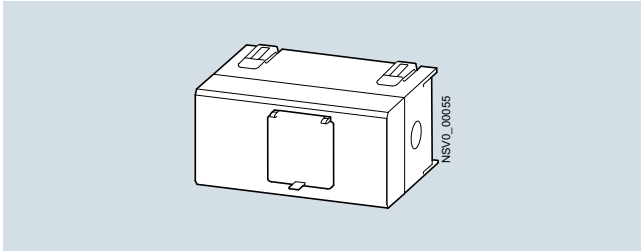
BD01-AK02X/ZS3



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 hinge switch 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

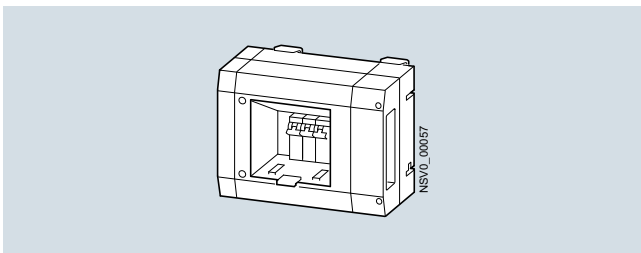
Tap-off units made of aluminumCommon features

Common features

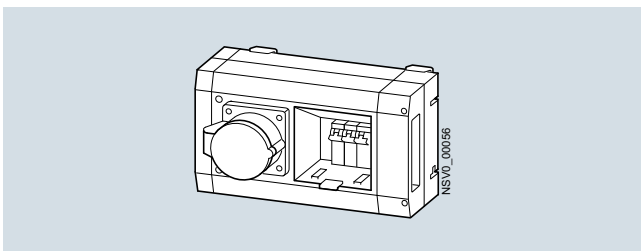
- The enclosure is made from aluminum and molded plastic at both ends
- A standard mounting rail is built-in for component mounting
- Power pick-up through silver-plated horseshoe contacts
- The isolator built into the tap-off unit ensures that the tap-off unit is voltage-free when the cover is open
- The tap-off unit can only be fitted to or removed from the tap-off point with its cover open (contacts retracted)
- Reliable prevention of incorrect mounting
- Cable entry is possible from three directions (use plastic cable glands with strain relief; not included in scope of supply)
- 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 8 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



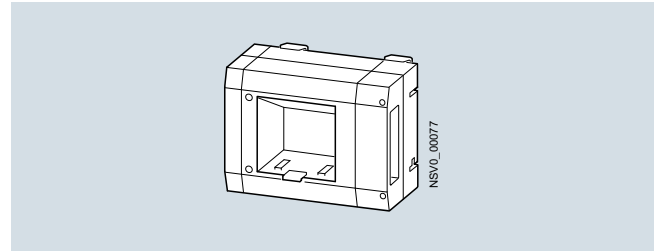
BD01-AK1M1/A163



BD01-AK2M1/ CEE165A163

Tap-off units for free arrangement of components

- Two sizes with 4 MW and 8 MW space requirement (1 MW = 18 mm)
- Without or with device installation unit for external actuation (two sizes with 4 MW and 8 MW)
- Installation of devices (e.g. miniature circuit breakers) according to DIN 43871 up to and including 63 A possible



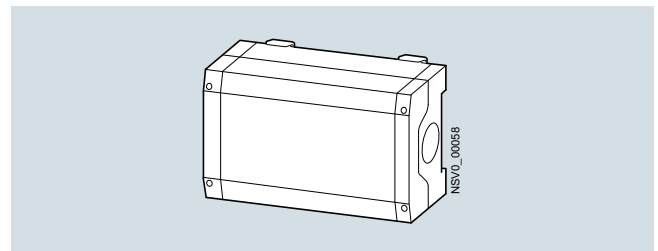
BD01-AK1M1/F

Ancillary equipment units

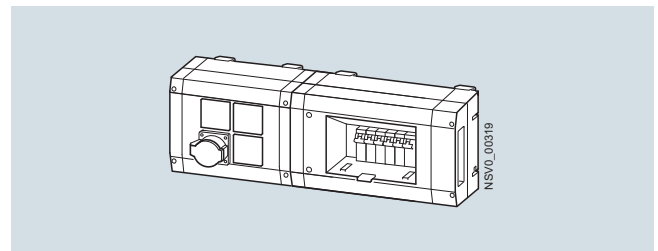
The ancillary equipment units are used for expanding the tap-off units or infeeds used. They can be mounted to the side of them.

Common features

- The enclosure is made from aluminum and molded plastic at both ends
- Cable entry is possible from four directions (use plastic cable glands with strain relief; not included in scope of supply)
- The connecting cable should be supported separately if necessary
- Can be combined with tap-off or feeding units
- A standard mounting rail is built-in for component mounting
- Two sizes with 4 MW and 8 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 8 MW)
- Installation of devices (e.g. fuse bases) according to DIN 43871 up to and including 35 A possible



BD01-GK2X/F



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

BD01 System – 40 ... 160 A

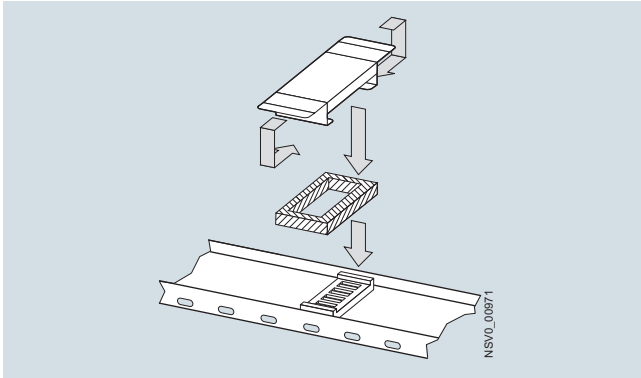
Introduction

Accessories

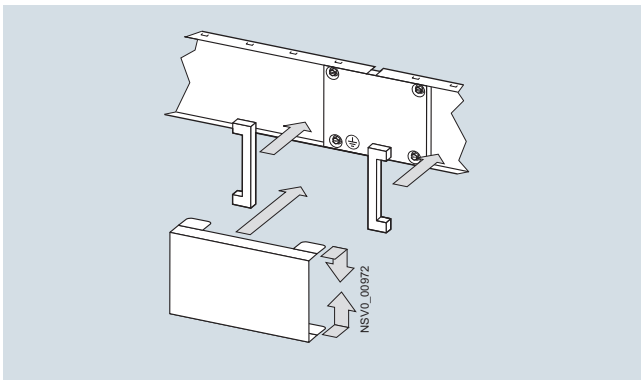
Accessories for IP55

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.



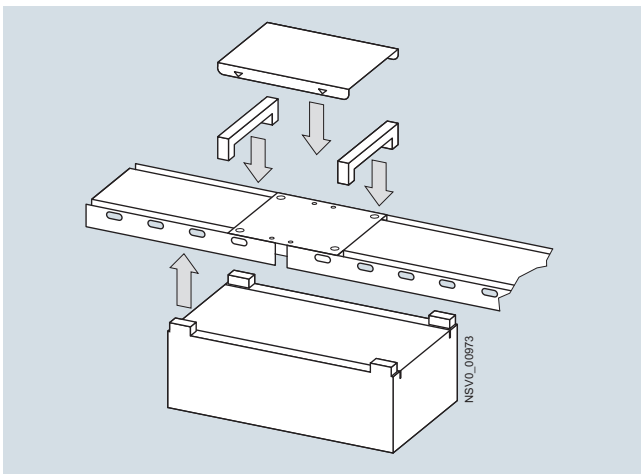
Tap-off point: BD01-FAS



Connection point: BD01-FS

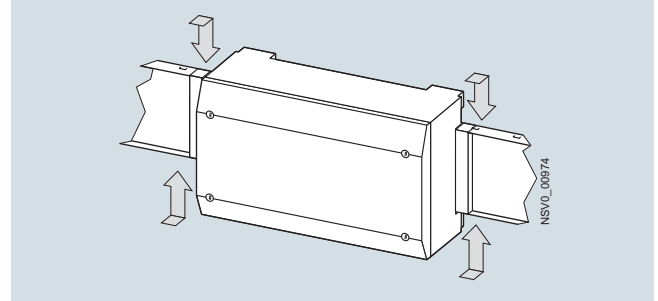
Feeding units

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.

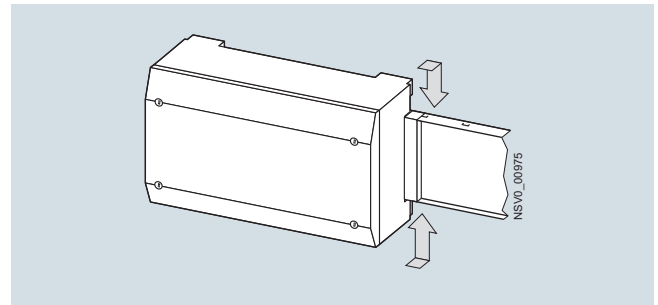


Mounting position at the bottom: BD01-FES

With mounting position at the side, the higher degree of protection is achieved by means of additional seals and an edge protector 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 protector are needed.



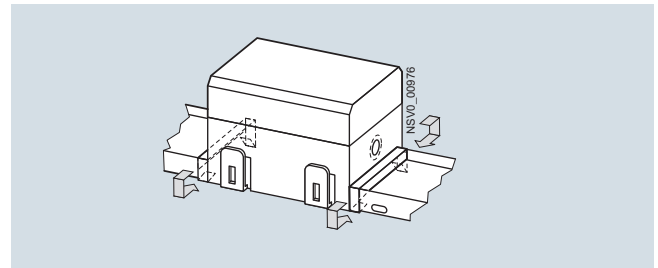
Mounting position at the side: 2 x BD01-KS



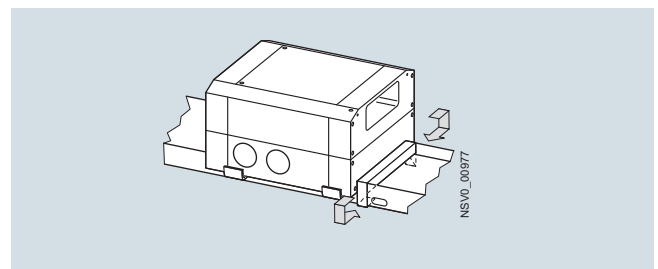
Mounting position at the side and end of a busbar run: BD01-KS

Tap-off units

The higher degree of protection is achieved by means of additional seals and an edge protector at the sides of the outgoing unit.



BD01-AK01X-IP55, BD01-AK02X-IP55



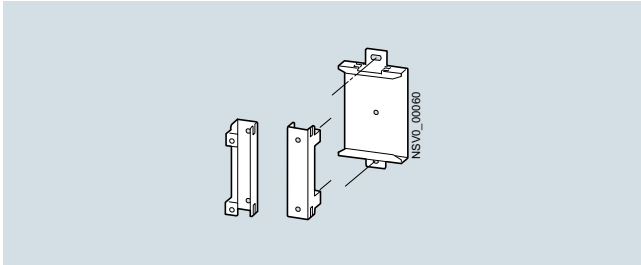
BD01-AK1X-IP55, BD01-AK2X-IP55

FixingUniversal fixing brackets

The universal fixing brackets can be used for wall and ceiling mounting. Under conditions of standard mechanical loading the maximum spacing between fixing points is 3 m for upright 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.

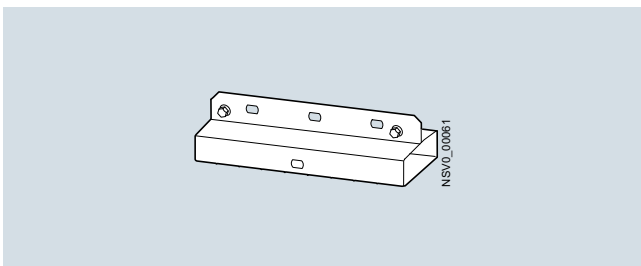
Once the fixing point is decided, the tabs on the fixing bracket are pushed in to fix the busbar run.



BD01-B

Hanger brackets

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

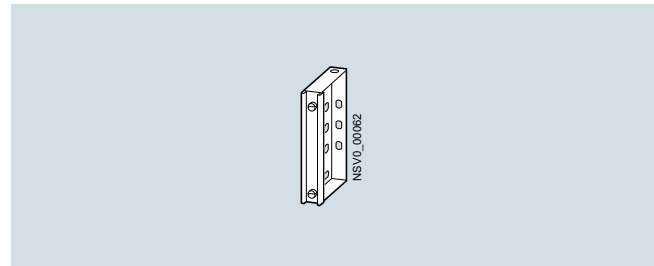


BD01-BAP

Suspension brackets

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. Under conditions of standard mechanical loading the maximum spacing between fixing points is 3 m for upright 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.



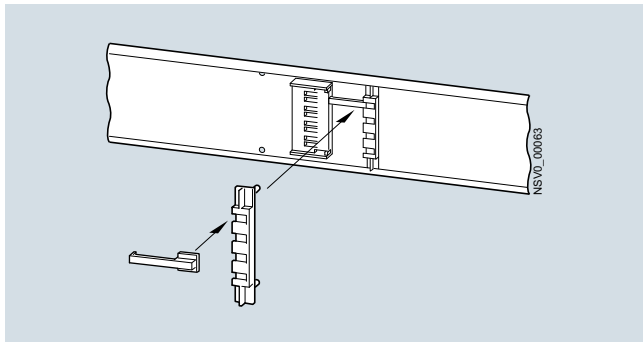
BD01-BA

BD01 System – 40 ... 160 A

Introduction

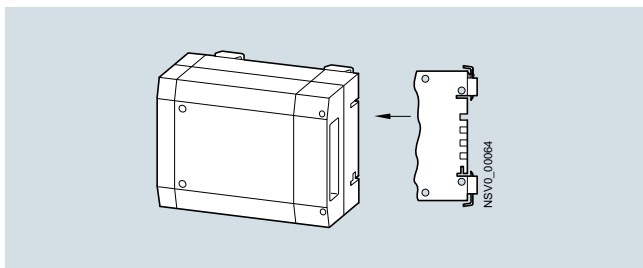
Coding

The systems can be coded for different frequencies or voltages. For this purpose, the BD01-K coding set can be fitted by the user 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 on site 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 (please inquire).

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"](#)).

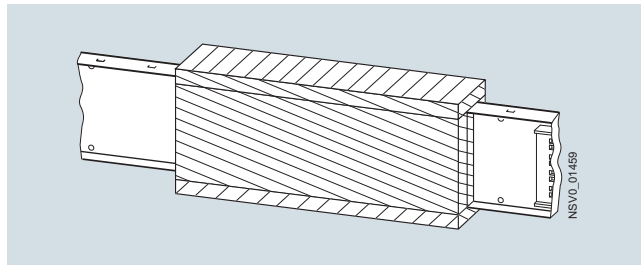
Fire barriers

If the busbar system is routed through a fire wall or ceiling, a fire barrier must be fitted. Depending on the customer's requirements, Siemens offers fire barriers with a fire resistance rating of S90 (in future EI90) (see [page 3/22](#)).

Factory-fitted equipment:

- External fire barrier as kit for mounting by the customer

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



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

The approval papers for Germany¹⁾ must be ordered separately:

- BD01-S90-ZUL-D approval kit (certificate of approval, wall-mounted signs and declaration of conformity)

¹⁾ Approval papers for Europe available soon

Technical specifications

General technical specifications

Type	BD01-...
Standards and specifications	IEC/EN 60439-1 and -2 (IEC/EN 61439-1 and -6 as from 2015)
Climatic proofing	Damp heat, constant, according to IEC 60068-2-78 Damp heat, cyclic, according to IEC 60068-2-30
Ambient temperature min./max./24h average	°C -5/+40/+35
Degree of protection acc. to IEC/EN 60529	
<ul style="list-style-type: none"> Edgewise; tap-off points at the side Flat, tap-off points at the bottom Flat, tap-off points at the top 	IP54, increase to IP55 with optional equipment IP54, increase to IP55 with optional equipment IP50, increase to IP55 with optional equipment
Material	
<ul style="list-style-type: none"> Trunking units Busbars Pick-up and connection contacts 	Galvanized, painted sheet steel Al or Cu Cu, silver-plated
Mounting position	Edgewise or flat
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 starter protectors 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 switch-disconnector according to IEC/EN 60947-3 at 400 V	
<ul style="list-style-type: none"> Utilization category 	AC-20B

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

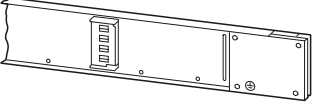
BD01 System – 40 ... 160 A

General data

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 of conducting paths at 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 of conducting paths in event of a fault						
• AC resistance R_F	mΩ/m	5.991	4.128	2.841	2.420	2.189
• Reactance per unit length X_F	mΩ/m	1.396	1.248	1.186	0.940	0.973
• Impedance per unit length Z_F	mΩ/m	6.151	4.312	3.078	2.600	2.395
Zero sequence impedance acc. 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 rating						
Rated peak withstand current I_{pk}	kA	2.55	6.30	15.30	15.30	15.30
Rated short-time withstand current $I_{cw}(t = 1 \text{ s})$	kA	0.58	1.15	2.50	2.50	2.50
Rated short-time withstand current $I_{cw}(t = 0.1 \text{ s})$	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 ² s × 10 ⁶	0.29	1.76	8.10	8.10	8.10
Max. fixing intervals at normal mechanical load						
• Edgewise	m	3	3	3	3	3
• Flat	m	1.5	1.5	1.5	1.5	1.5
• Flat with BD01-BAP	m	3	3	3	3	3

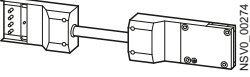
Selection and ordering data

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

BD01 System – 40 ... 160 A

Junction units, feeding units

Selection and ordering data

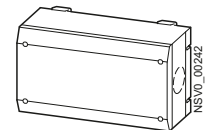
Version	Rated current I_n	Length	DT	Type	Article No.	PS*/ P. unit	Weight per unit approx. kg
	A	m					
Junction units							
Flexible junction unit with joint block  NSVU_00274	100	0.5		BD01-R1	BVP:034260	1 unit	1.200
		1		BD01-R2	BVP:034261	1 unit	2.050
	160	0.5		BD01-160-R1	BVP:090166	1 unit	1.750
		1		BD01-160-R2	BVP:090167	1 unit	3.050

Version	Rated current I_n	Conductor cross-section	DT	Type	Article No.	PS*/ P. unit	Weight per unit approx. kg
	A	mm ²					

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 equip-
ment units

- 6 cable entries from 4 sides



100 50¹⁾

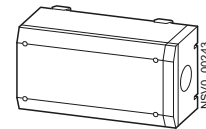
BD01-E

BVP:034259

1 unit

1.000

- Cable entry from 2 sides



160 95²⁾

BD01-160-E

BVP:090165

1 unit

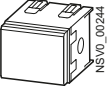
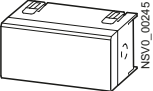
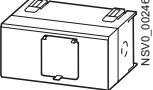
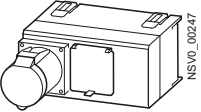
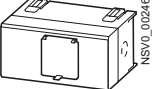
1.400

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

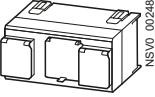
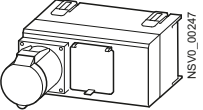
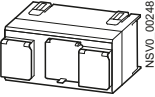
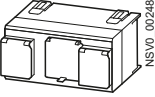
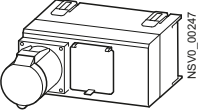
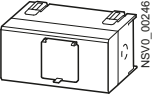
Version	Rated current I_n A	Rated operational voltage U_g V	DT	Type	Article No.	PS*/ P. unit	Weight per unit approx. kg
Tap-off units, molded plastic, size 01							
With protective lower section for 3 cylindrical fuses 10 mm × 38 mm 	16	400		BD01-AK01X/ZS	BVP:087483	1 unit	0.300
Tap-off units, molded plastic, size 02							
With protective lower section for 3 cylindrical fuses 10 mm × 38 mm 	32	400		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 16A, characteristic B • Without socket outlet 	16	400		BD01-AK02M0/A163	BVP:085089	1 unit	0.800
• With 1 CEE socket outlet 16 A, 5-pole 	16	400		BD01-AK02M0/ CEE165A163	BVP:085092	1 unit	0.980
With 3-pole miniature circuit breaker 32 A, characteristic C 	32	400		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).

BD01 System – 40 ... 160 A

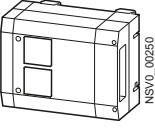
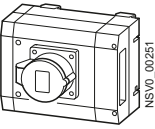
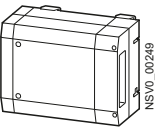
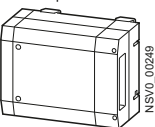
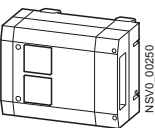
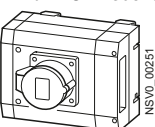

Tap-off units for international use

Version	Rated current I_n A	Rated operational voltage U_e V	DT	Type	Article No.	PS*/ P. unit	Weight per unit approx. kg
Tap-off units, molded plastic, size 02, with device installation unit							
With 1-pole miniature circuit breaker 16A, characteristic B							
<ul style="list-style-type: none"> With 2 SCHUKO socket outlets 16A 	16	230		BD01-AK02M0/ 2SD163A161	BVP:085096	1 unit	0.700
<ul style="list-style-type: none"> With 1 CEE socket outlet 16 A, 3-pole 	16	230		BD01-AK02M0/ CEE163A161	BVP:090170	1 unit	0.700
<ul style="list-style-type: none"> With 2-pole residual current operated circuit breaker 16 A/30 mA and with 2 SCHUKO socket outlets 16 A 	16	230		BD01-AK02M0/ 2SD163FIA161	BVP:090168	1 unit	0.950
With 1-pole fuse base D01							
<ul style="list-style-type: none"> With 2 SCHUKO socket outlets 16A 	16	230		BD01-AK02M0/ 2SD163S14	BVP:085095	1 unit	0.800
<ul style="list-style-type: none"> With 1 CEE socket outlet 16 A, 3-pole 	16	230		BD01-AK02M0/ CEE163S14	BVP:090169	1 unit	0.800
Freely assignable (P_s max. 13 W), 3 MW (MW = modular width), with integrated standard mounting rail	32	400		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 for international use

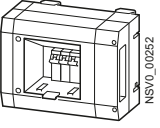
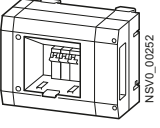
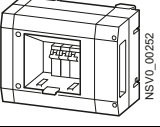
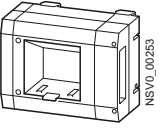
Version	Rated current I_n	Rated operational voltage U_e	DT	Type	Article No.	PS*/ P. unit	Weight per unit approx. kg
Tap-off units, aluminum, size 1							
With 1-pole fuse base D01							
• With 2 SCHUKO socket outlets 16A	16	230		BD01-AK1X/ 2SD163S14	BVP:034268	1 unit	1.400
							
• With 1 CEE socket outlet 16 A, 3-pole	16	230		BD01-AK1X/ CEE163S14	BVP:034270	1 unit	1.380
							
With 3-pole fuse base 3 × D01	16	400		BD01-AK1X/S14	BVP:034264	1 unit	1.400
							
With 3-pole fuse base 3 × D02	35	400		BD01-AK1X/S18	BVP:034265	1 unit	1.400
							
With 1-pole miniature circuit breaker 16A, characteristic B							
• With 2 SCHUKO socket outlets 16A	16	230		BD01-AK1X/ 2SD163A161	BVP:034269	1 unit	1.470
							
• With 1 CEE socket outlet 16 A, 3-pole	16	230		BD01-AK1X/ CEE163A161	BVP:034271	1 unit	1.435
							
Freely assignable (P_v max. 13 W), 4 MW (MW = modular width), with integrated standard mounting rail	35	400		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).

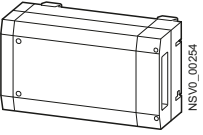
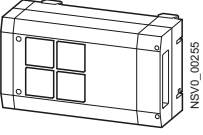
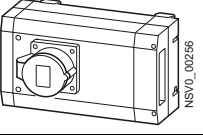
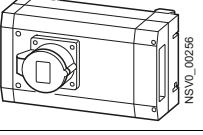
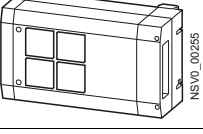
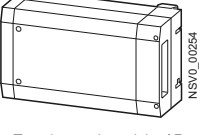
BD01 System – 40 ... 160 A

Tap-off units for international use

Version	Rated current I_n A	Rated opera- tional voltage U_e V	DT	Type	Article No.	PS*/ P. unit	Weight per unit approx. kg
Tap-off units, aluminum, size 1, with device installation unit							
With 3 x 1-pole miniature circuit breaker 10 A, characteristic B 	10	400		BD01-AK1M1/A101	BVP:203098	1 unit	1.600
With 3x 1-pole miniature circuit breaker 16 A, characteristic B 	16	400		BD01-AK1M1/A161	BVP:034266	1 unit	1.600
With 3-pole miniature circuit breaker 32 A, characteristic C 	32	400		BD01-AK1M1/A323	BVP:034267	1 unit	1.600
Freely assignable (P_V max. 13 W), 4 MW (MW = modular width), with integrated standard mounting rail 	35	400		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 for international use

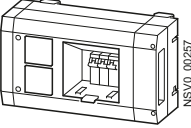
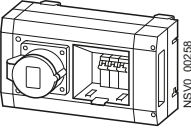
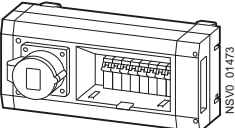
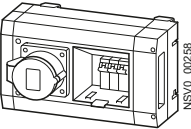
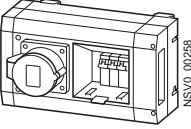
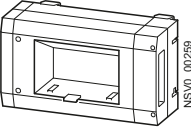
Version	Rated current I_n A	Rated operational voltage U_e V	DT	Type	Article No.	PS*/ P. unit	Weight per unit approx. kg
Tap-off units, aluminum, size 2							
With 3-pole fuse base S27/S33							
							
• With 3-pole fuse base S27, screw adapter system	25	400		BD01-AK2X/S27	BVP:034274	1 unit	1.700
• With 3-pole fuse base S33, screw adapter system	63	400		BD01-AK2HX/S33	BVP:233568	1 unit	1.700
With 2 × 1-pole fuse base D01 and with 4 SCHUKO socket outlets 16A							
							
	16	230		BD01-AK2X/ 4SD163S14	BVP:034277	1 unit	2.000
With 3 × 1-pole fuse base D01 and with 1 CEE socket outlet 16A, 5-pole							
							
	16	400		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		BD01-AK2X/ CEE325S18	BVP:034281	1 unit	2.000
With 2 × 1-pole miniature circuit breaker 16A, characteristic B, and with 4 SCHUKO socket outlets 16 A							
							
	16	230		BD01-AK2X/ 4SD163A161	BVP:034278	1 unit	2.100
Freely assignable, 8 MW (MW = modular width), with integrated standard mounting rail							
							
• Freely assignable (P_v max. 16 W)	35	400		BD01-AK2X/F	BVP:034283	1 unit	1.300
• Freely assignable (P_v max. 22.5 W)	63	400		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).

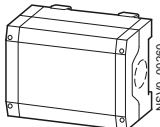
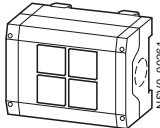
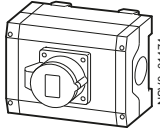
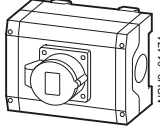
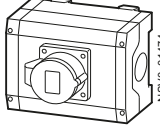
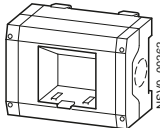
BD01 System – 40 ... 160 A

Tap-off units for international use

Version	Rated current I_n A	Rated opera- tional voltage U_e V	DT	Type	Article No.	PS*/ P. unit	Weight per unit approx. kg
Tap-off units, aluminum, size 2, with device installation unit							
With 1-pole miniature circuit breaker 16 A, characteristic B, 16 with 2-pole residual current operated circuit breaker 16 A/30 mA and with 2 SCHUKO socket outlets 16 A		230		BD01-AK2M1/ 2SD163FIA161	BVP:034276	1 unit	2.000
							
With 1-pole miniature circuit breaker 16 A, characteristic C, 16 with 2-pole residual current operated circuit breaker 25 A/30 mA and with 1 CEE socket outlet 16 A, 3-pole		400		BD01-AK2M1/ CEE163FIA161	BVP:660867	1 unit	2.000
							
With 3-pole miniature circuit breaker 16 A, characteristic C, 16 with 4-pole residual current operated circuit breaker 25 A/30 mA and with 1 CEE socket outlet 16 A, 5-pole		400		BD01-AK2M2/ CEE165FIA163	BVP:660866	1 unit	3.500
							
With 3-pole miniature circuit breaker 16 A, characteristic C, 16 and with 1 CEE socket outlet 16 A, 5-pole		400		BD01-AK2M1/ CEE165A163	BVP:034280	1 unit	2.000
							
With 3-pole miniature circuit breaker 32 A, characteristic C, 32 and with 1 CEE socket outlet 32 A, 5-pole		400		BD01-AK2M1/ CEE325A323	BVP:034282	1 unit	2.100
							
Freely assignable, 8 MW (MW = modular width), with integrated standard mounting rail							
							
• Freely assignable (P_V max. 16 W)	35	400		BD01-AK2M2/F	BVP:034284	1 unit	1.360
• Freely assignable (P_V max. 22.5 W)	63	400		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

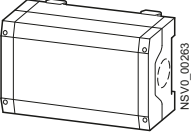
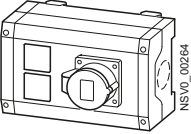
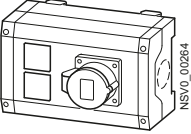
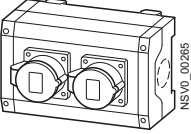
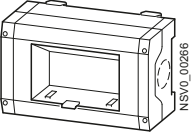
Version	Rated operational voltage U_e V	DT	Type	Article No.	PS*/ P. unit	Weight per unit approx. kg
Ancillary equipment units, aluminum, size 1						
Freely assignable (P_V max. 13 W), 4 MW (MW = modular width), with integrated standard mounting rail Can be used for • Overvoltage protection • Remote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

BD01 System – 40 ... 160 A

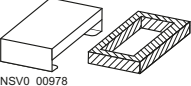
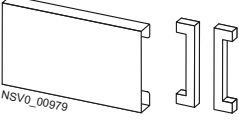
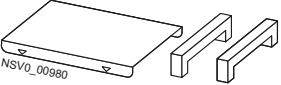
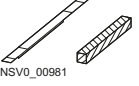
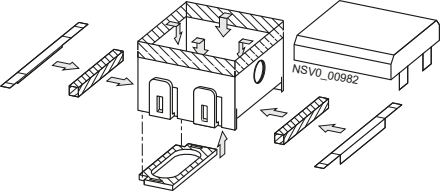
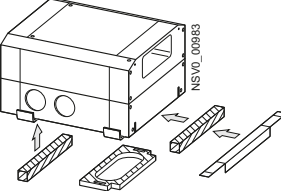
Ancillary equipment units for international use

Version	Rated operational voltage U_e V	DT	Type	Article No.	PS*/ P. unit	Weight per unit approx. kg
Ancillary equipment units, aluminum, size 2						
Freely assignable (P_V max. 16 W), 8 MW (MW = modular width), with integrated standard mounting rail Can be used for • Overvoltage protection • Remote control/remote switching • Intelligence 	400		BD01-GK2X/F	BVP:034288	1 unit	1.100
With 2 SCHUKO socket outlets 16 A and 1 CEE-socket 16 A, 5-pole 	400		BD01-GK2X/ 2SD163CEE165	BVP:034291	1 unit	1.600
With 2 SCHUKO socket outlets 16 A and 1 CEE-socket, 32 A, 5-pole 	400		BD01-GK2X/ 2SD163CEE325	BVP:660811	1 unit	1.800
With 1 CEE socket outlet 16A, 3-pole, and 1 CEE socket outlet 16 A, 5-pole 	400		BD01-GK2X/ CEE163CEE165	BVP:034290	1 unit	1.500
Ancillary equipment units, aluminum, size 2, with device installation unit						
Freely assignable (P_V max. 16 W), 8 MW (MW = modular width), with integrated standard mounting rail Can be used for • Remote control/remote switching • Intelligence • Device installation unit for installing devices, e.g. miniature circuit breakers 	400		BD01-GK2M2/F	BVP:034289	1 unit	1.100

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

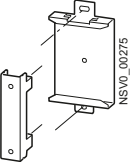

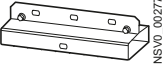
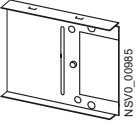
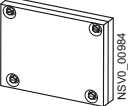
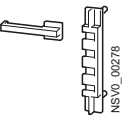
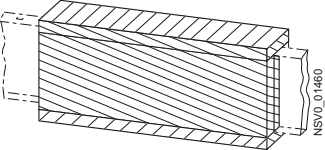
Use plastic cable glands with strain relief (not included in scope of supply).

Selection and ordering data

Version	DT	Type	Article No.	PS*/ P. unit	Weight per unit approx. kg	
Optional equipment for degree of protection IP55						
For tap-off points		BD01-FAS	BVP:610363	5 units	0.100	
 NSV0_00978						
For connection points		BD01-FS	BVP:610362	5 units	0.150	
 NSV0_00979						
For feeding units						
<ul style="list-style-type: none"> • Mounting position at the bottom  NSV0_00980		BD01-FES	BVP:610364	1 unit	0.150	
<ul style="list-style-type: none"> • Mounting position at the side or top  NSV0_00981		BD01-KS	BVP:611057	1 unit	0.030	
For tap-off units						
<ul style="list-style-type: none"> • Size 01X, 02X  NSV0_00982		Size 01 Size 02	BD01-AK01X-IP55 BD01-AK02X-IP55	BVP:610365 BVP:610366	1 unit 1 unit	0.050 0.050
<ul style="list-style-type: none"> • Size 1X, 2X  NSV0_00983		Size 1 Size 2	BD01-AK1X-IP55 BD01-AK2X-IP55	BVP:610367 BVP:610368	1 unit 1 unit	0.050 0.050

BD01 System – 40 ... 160 A

Optional equipment

Version	Rated current I_n	DT	Type	Article No.	PS*/ P. unit	Weight per unit approx. kg
Fixing						
Universal fixing brackets	--		BD01-B	BVP:034262	1 unit	0.167
						
Suspension brackets	--		BD01-BA	BVP:081945	1 unit	0.167
						
Hanger brackets	--		BD01-BAP	BVP:203522	1 unit	0.576
<ul style="list-style-type: none"> • For suspension by cable or pendant chain • At the connection point 						
Mounting parts						
End flanges	--		BD01-EF	BVP:611071	1 unit	0.300
						
Joint blocks	100 160		BD01-100-KB BD01-160-KB	BVP:201966 BVP:201967	1 unit 1 unit	0.350 0.350
						
Coding						
Coding sets	--		BD01-K	BVP:034263	10 units	0.010
<ul style="list-style-type: none"> • 4 coding positions 						
Fire barrier						
Fire barrier kits	--		BD01-S90	BVP:611354	1 unit	1.500
For mounting by the customer with fire barrier plates and fixing screws 						
Fire barrier approval kits (required only for Germany) ¹⁾	--		BD01-S90-ZUL-D	BVP:611373	1 unit	0.200

¹⁾ Approval papers for Europe available soon

Overview

Specimen text for tenders

Item	Quantity	Description	Unit price	Amount
	... m	<p>Busbar trunking system (see Appendix for diagram)</p> <ul style="list-style-type: none"> • As type-tested low-voltage switchgear and controlgear assembly TTA according to IEC/EN 60439-1 and -2, or IEC/EN 61439-1 and -6 • Rated current, corresponds to thermal rated current at max. +40 °C and +35 °C in 24-hour average for indoor installation • Rated insulation voltage $U_i = 400 \text{ V AC}, 400 \text{ V DC}$ • Rated operational voltage ...V, ...Hz • Rated peak withstand current of busbar trunking system, ... kA tested according to IEC/EN 60439-1, or IEC/EN 61439-1 • Degree of protection IP54 with tap-off points at sides and bottom, otherwise IP50; increase to IP55 with optional equipment • 5-conductor system: L1, L2, L3, N, PE • Busbars: silver-plated Cu connection and pick-up contacts; Al or Cu conductors; supported by insulated busbar supports • Trunking units 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-... <p>Comprising:</p>		

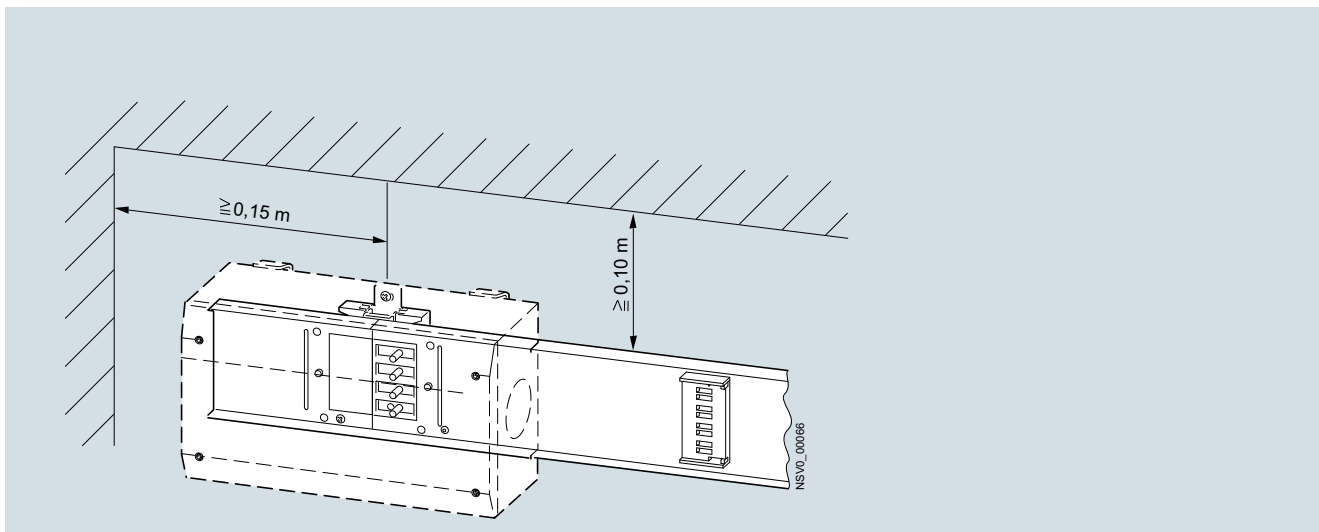
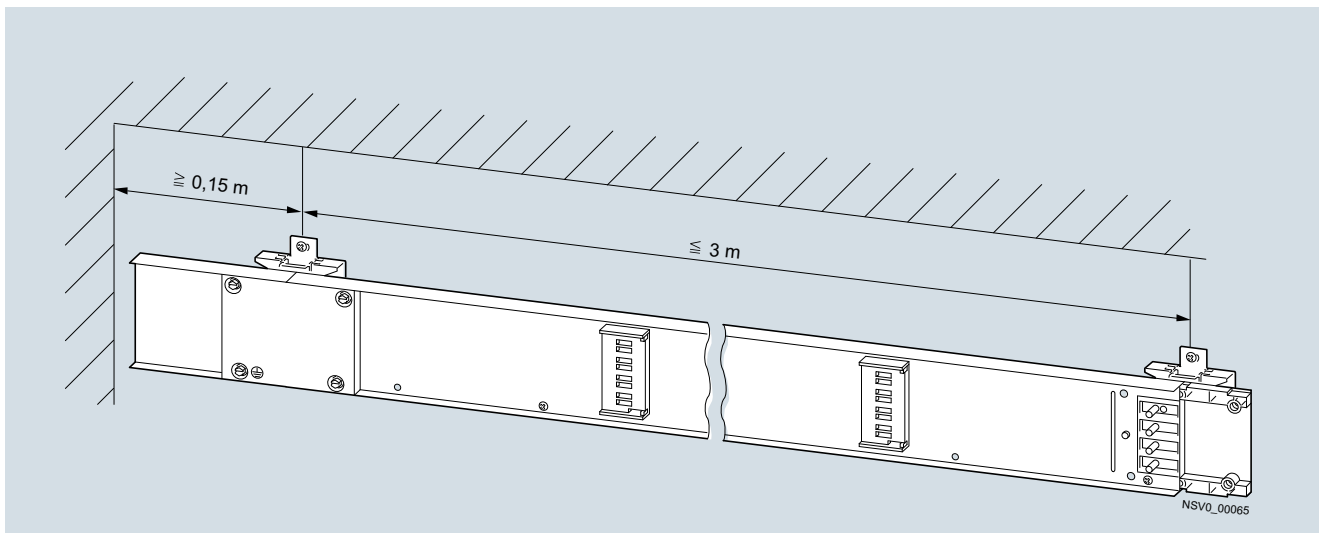
BD01 System – 40 ... 160 A

Configuration information

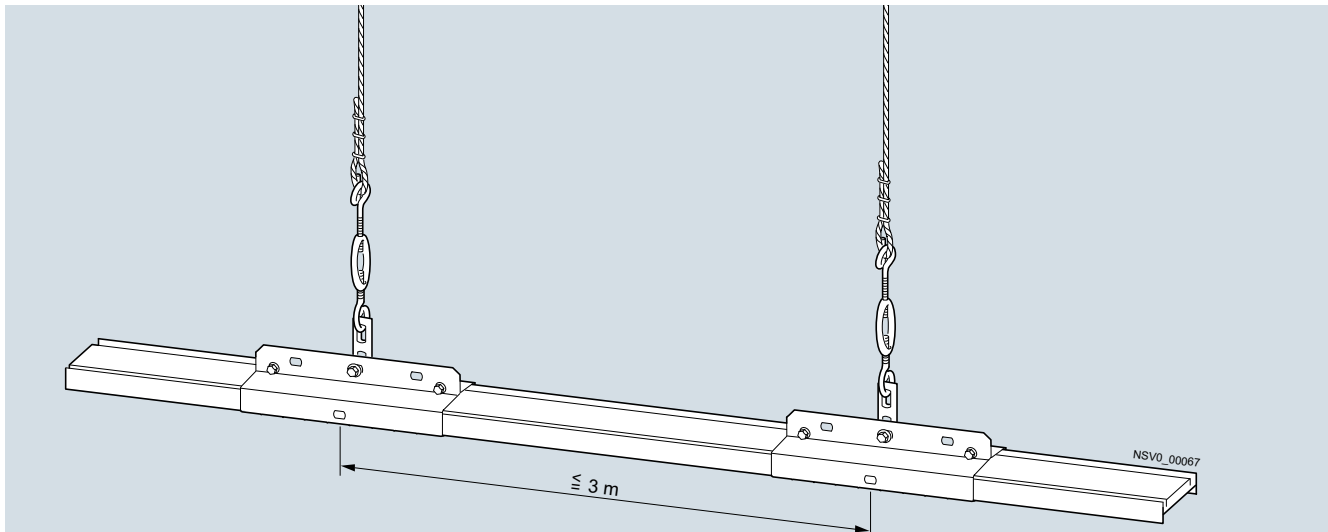
Design

Fixing

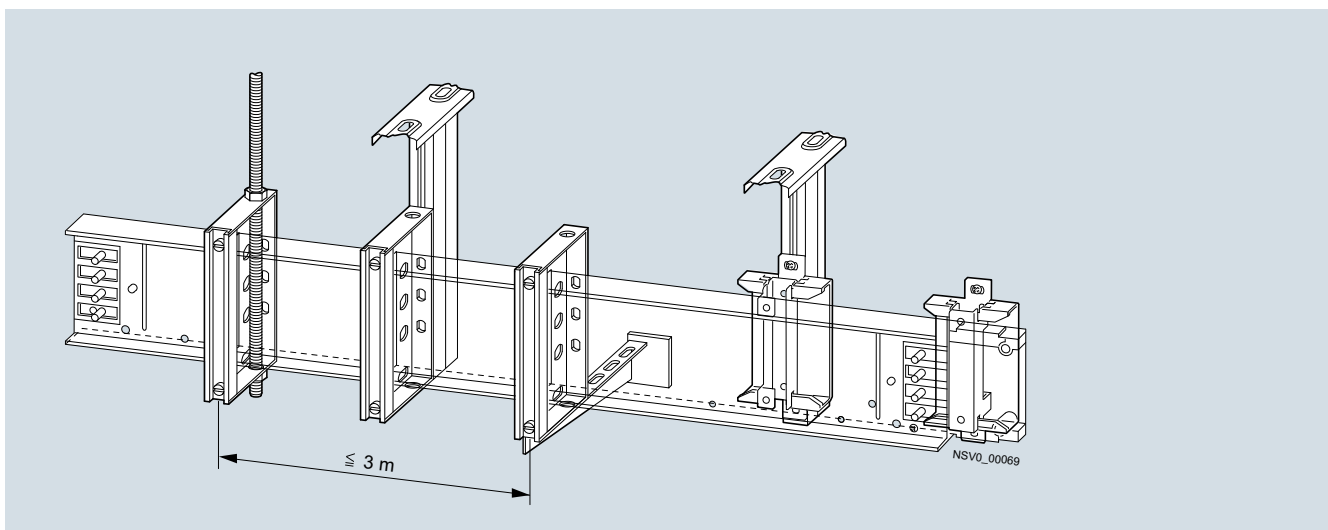
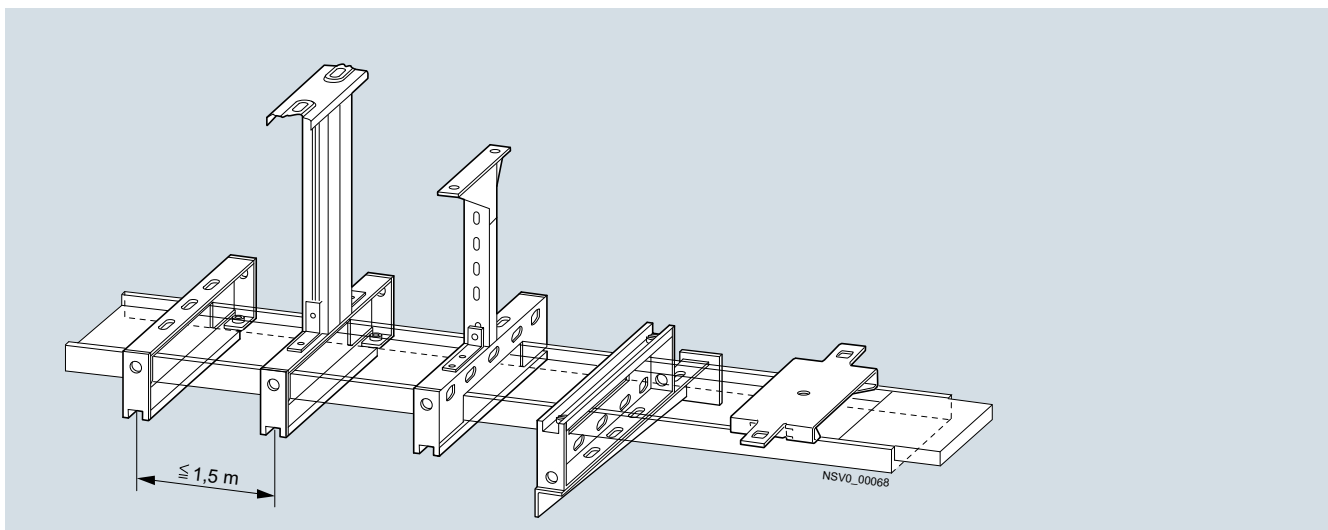
Wall or ceiling mounting with BD01-B



Pendent suspension using BD01-BAP (at connection point)



Mounting examples with BD01-B and BD01-BA



BD01 System – 40 ... 160 A

Configuration information

Function

Required details

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

- Installation flat or upright, horizontal or vertical, quantity, type and approximate ratings of prospective loads, p.f.
- Rated diversity factor α
- If data are 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:

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

with:

- I_B = Operational current (A)
 P_{inst} = Installed power (kW)
 α = Rated diversity factor
 b = Supply factor
 $b = 1$ = Single feeding unit
 $b = 1/2$ = Double end feeding unit
 U_e = Rated operational voltage (V)
 $\cos \varphi$ = Power factor (p.f.)

If no data are 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 to 9 inclusive	0.7
10 and more	0.6

Short-circuit protection

A system can be protected against short-circuit alone by fitting low-voltage 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 motor starter protectors or circuit breakers.

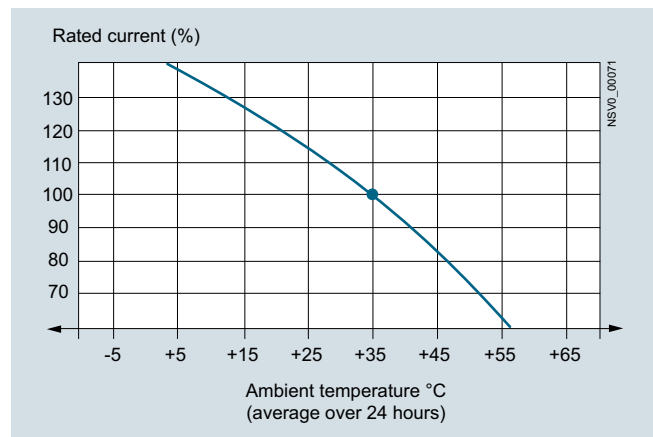
The following can be used:

System	Overcurrent protective devices	
	$I_{\text{CC}} = 15 \text{ kA}^{1)}$	$I_{\text{CC}} = 25 \text{ kA}$
BD01-40	5SY4 340-6	3VL27 05
BD01-63	5SY4 363-6	3VL27 06
BD01-100	–	3VL27 10
BD01-125	–	3VL27 12
BD01-160	–	3VL27 16

¹⁾ I_{CC} = rated conditional short-circuit current of the busbar trunking system and its tap-off units when protected by circuit breakers

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

Temperature characteristic of BD01 systems

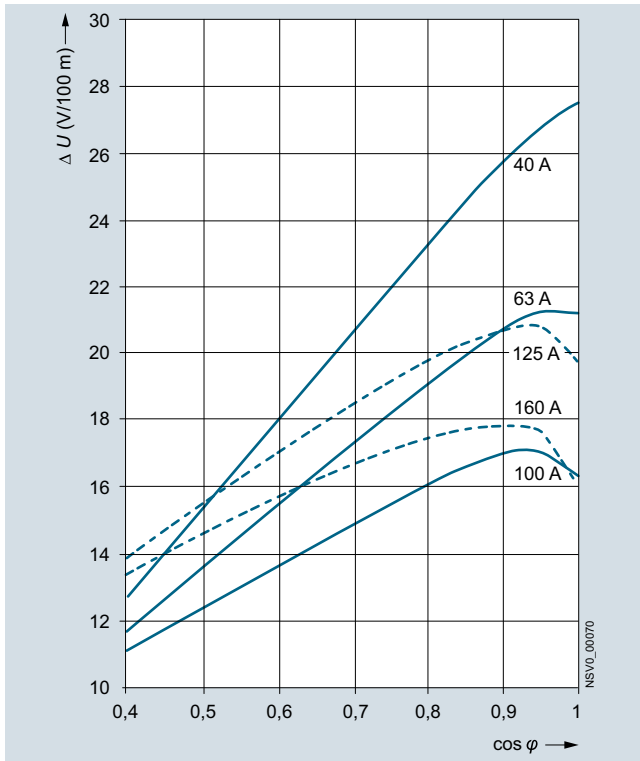


NSW0_00071

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)
$\cos \varphi$	= 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
	1
	0.5
	0.25
	0.125
	0.25

Fire barrier

General requirements

The German state building authorities demand that buildings are designed so that "spreading of fire and smoke is prevented, and that effective fire fighting and rescue of persons and domestic animals is facilitated". Fire or flue gas may not spread from one story or fire area to another.

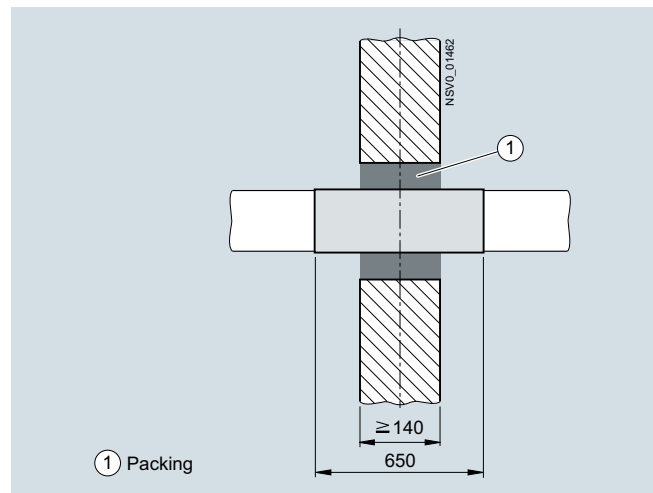
All BD01 busbar trunking systems can be equipped with a fire barrier and generally comply with the standards for buildings including high-rise buildings.

The fire resistance rating corresponds to S 90 according to DIN 4102 Part 9 (in future EI90 according to EN 1366-3). The demands for verification of the fire resistance duration of 90 minutes according to ISO 834 as required by IEC/EN 60439-2 are fulfilled.

Configuration

To ensure the fire barrier function according to S90 or EI90, 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
- Fire barriers for installation in lightweight walls are available on request



Positioning in the fire wall

Observe the following when installing the trunking units:

- Mounting of the fire barrier part on the busbar trunking unit (see pages 3/22 and 3/39)
- The space ① surrounding the busbar trunking unit within the component it passes through must be packed with mineral-based mortar or fire barrier sealant
- The mortar or fire barrier sealant must conform to the applicable regulations for establishing fire resistance rating 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.

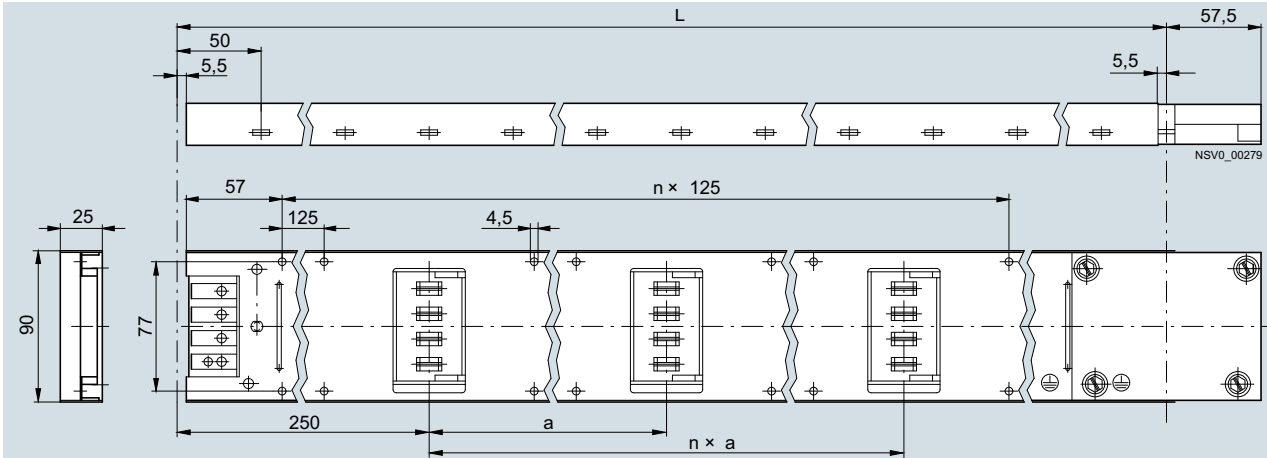
BD01 System – 40 ... 160 A

Configuration aids

Dimensional drawings

Trunking units

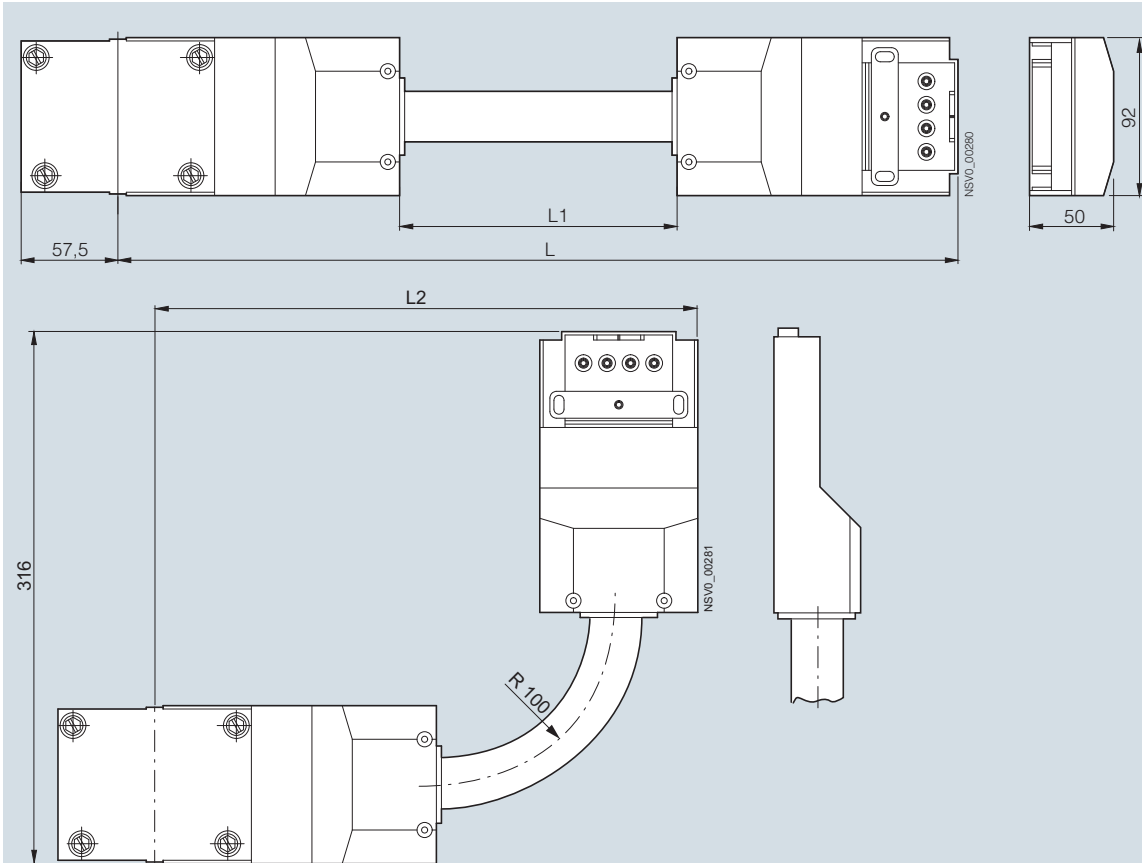
BD01-...



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

Junction units

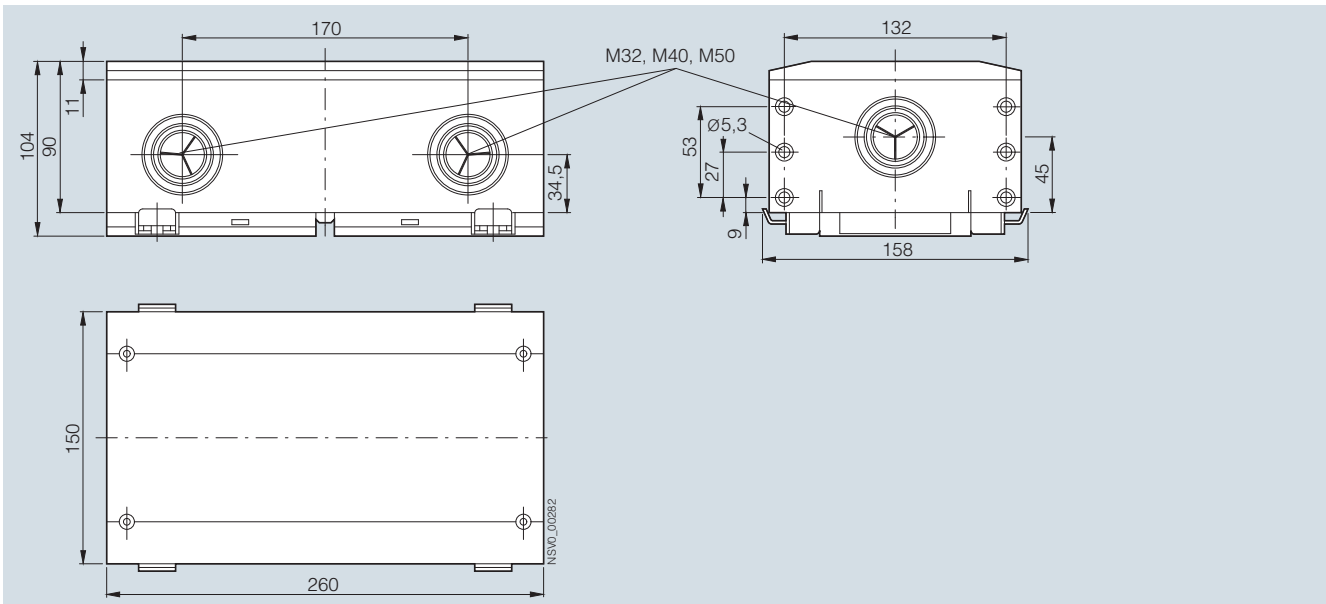
BD01(-160)-R1, BD01(-160)-R2



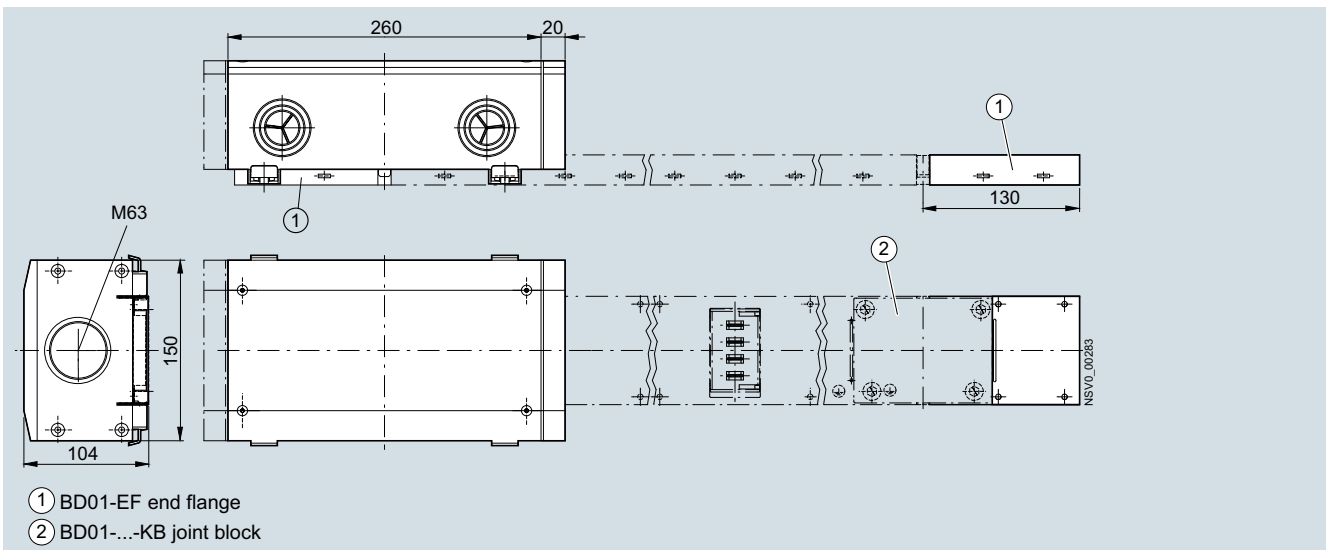
Type	L	L1	L2
BD01-...-R1	500	165	316
BD01-...-R2	1000	665	-

Feeding units

BD01-E



BD01-160-E



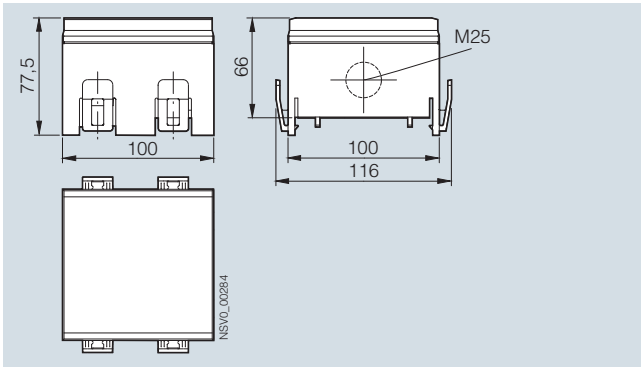
BD01 System – 40 ... 160 A

Configuration aids

Tap-off units

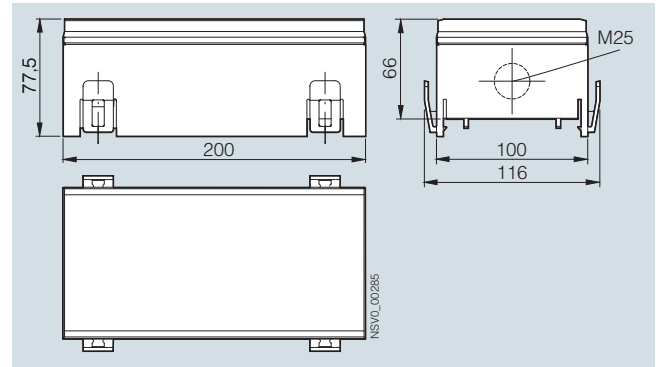
Tap-off units size 01

BD01-AK01X/ZS



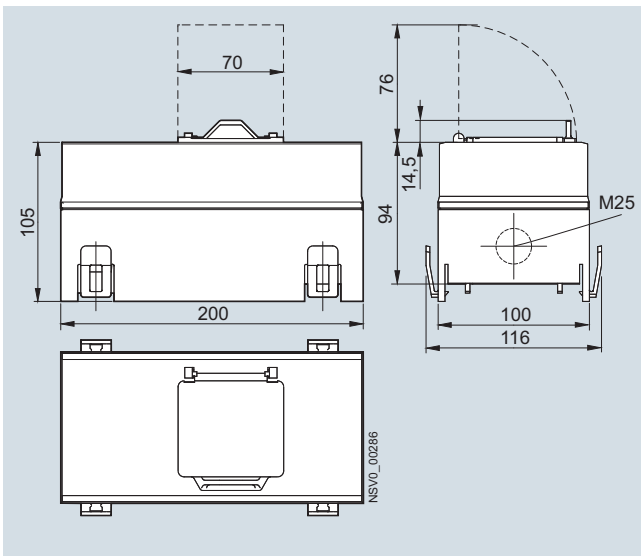
Tap-off units size 02

BD01-AK02X/ZS3

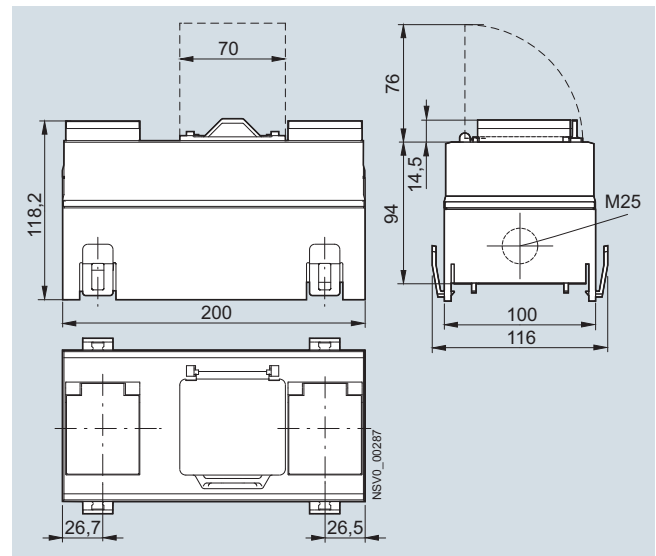


Tap-off units size 02, with device installation unit

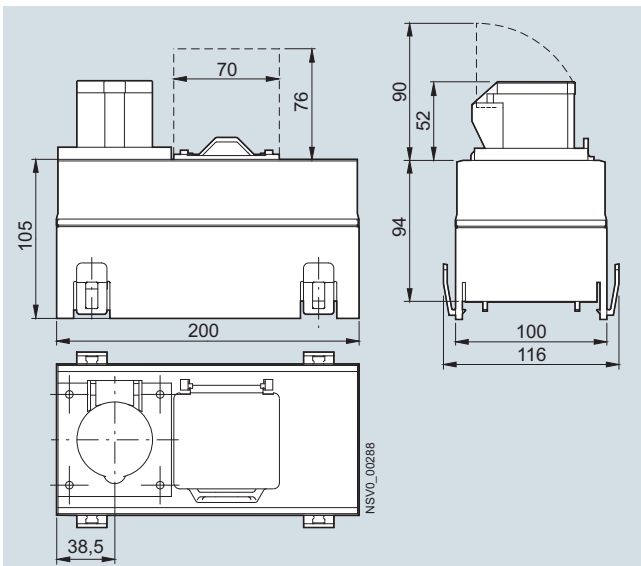
BD01-AK02M0/A163
BD01-AK02M0/A323
BD01-AK02M0/F



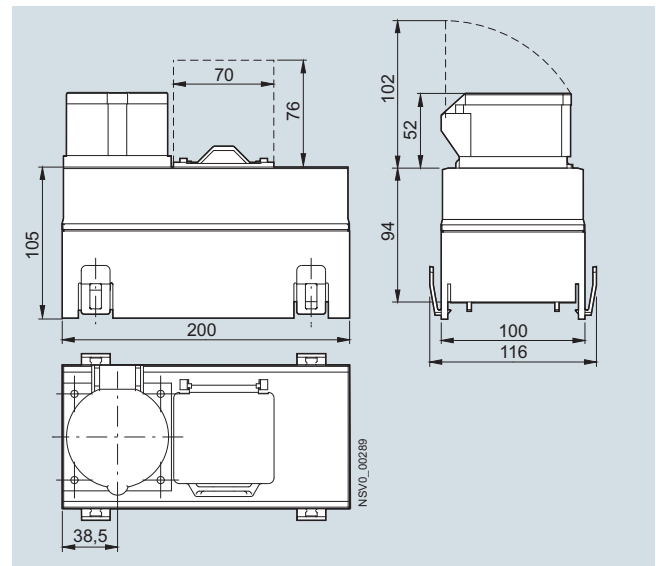
BD01-AK02M0/2SD163S14
BD01-AK02M0/2SD163A161
BD01-AK02M0/2SD163FIA161



BD01-AK02M0/ CEE163S14
BD01-AK02M0/ CEE163A161



BD01-AK02M0/ CEE165A163

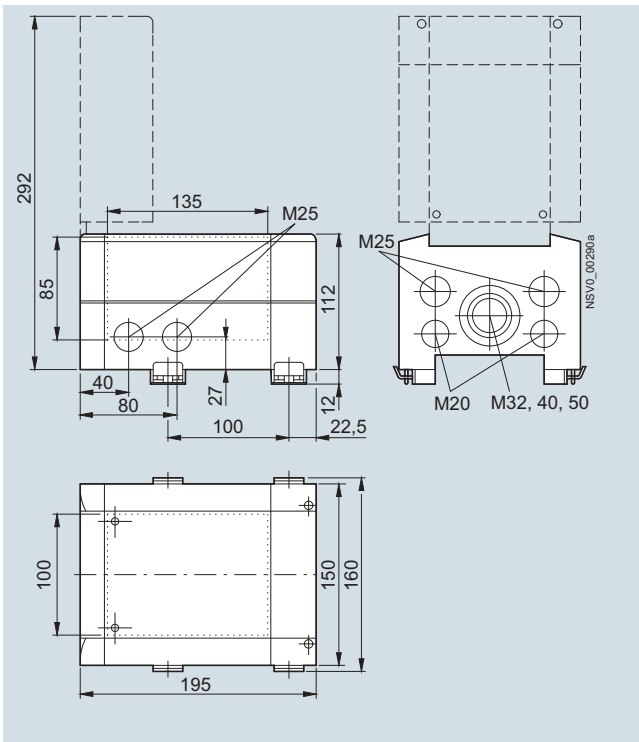


Dashed lines: free space for opening the flap

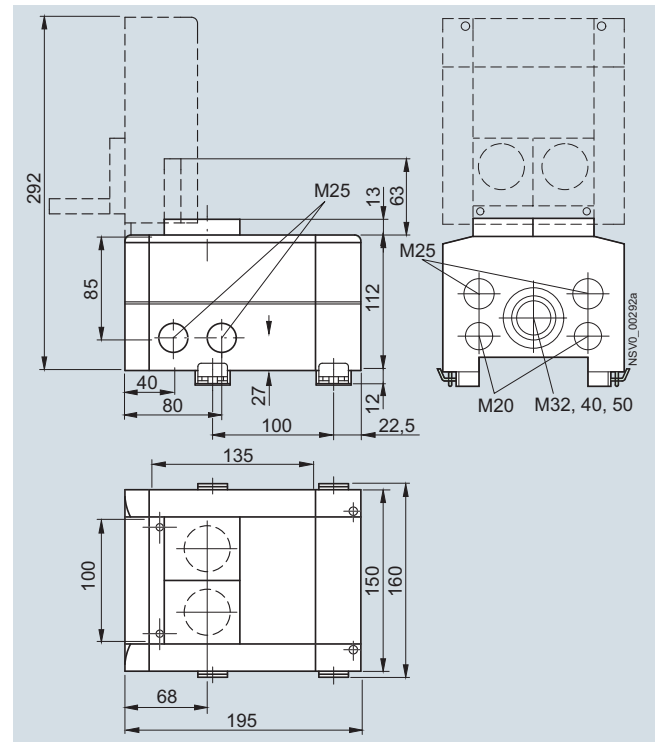
3

Tap-off units size 1

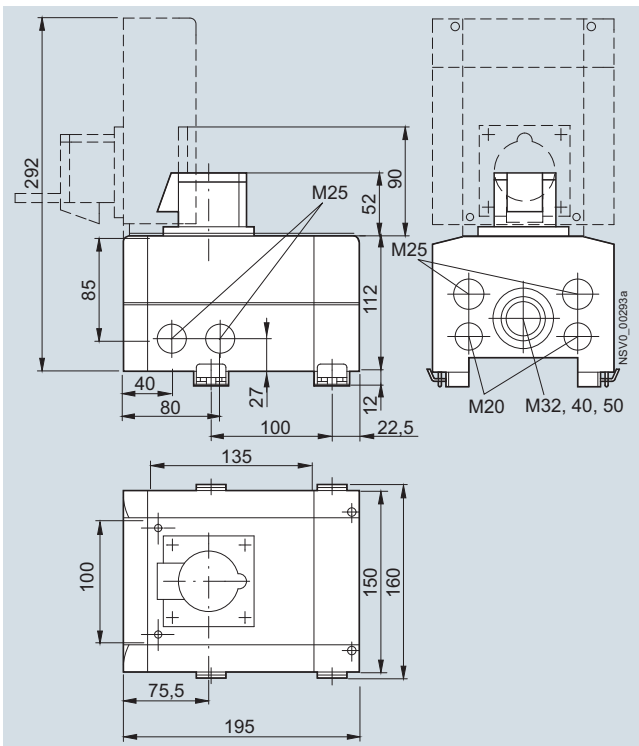
BD01-AK1X/S...
BD01-AK1X/F



BD01-AK1X/2SD...

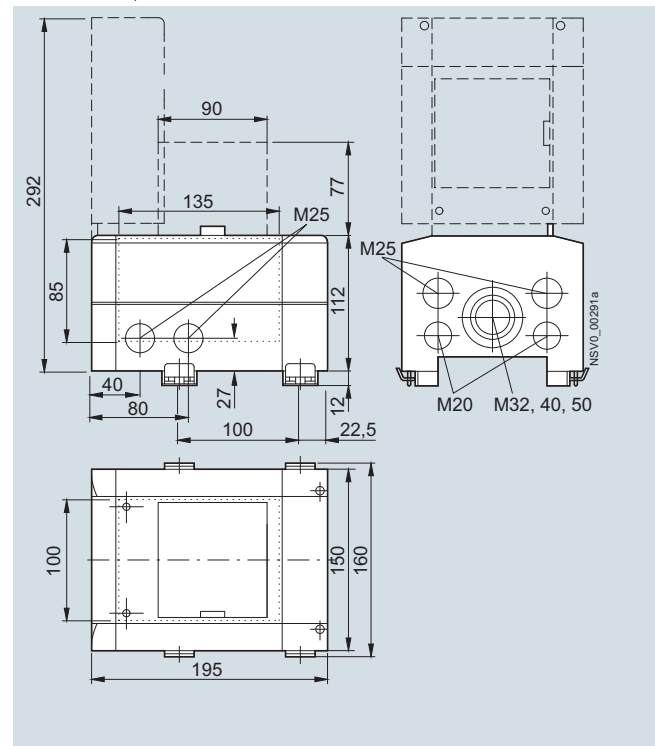


BD01-AK1X/CEE163...



Tap-off units size 1, with device installation unit

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



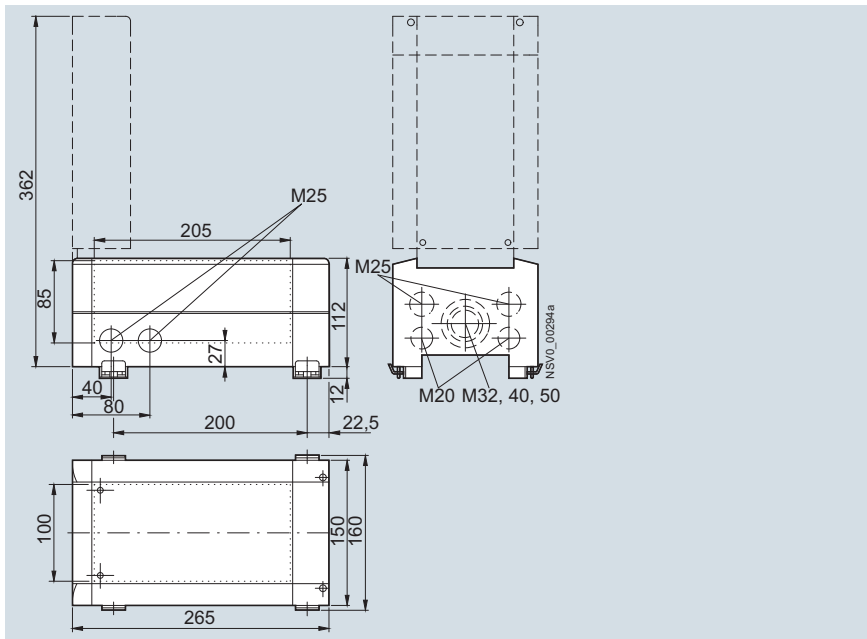
Dotted lines: usable component fitting space
Dashed lines: free space for opening the flap

BD01 System – 40 ... 160 A

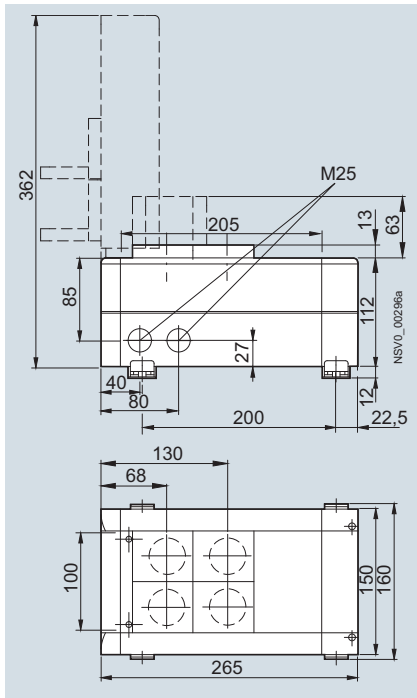
Configuration aids

Tap-off units size 2

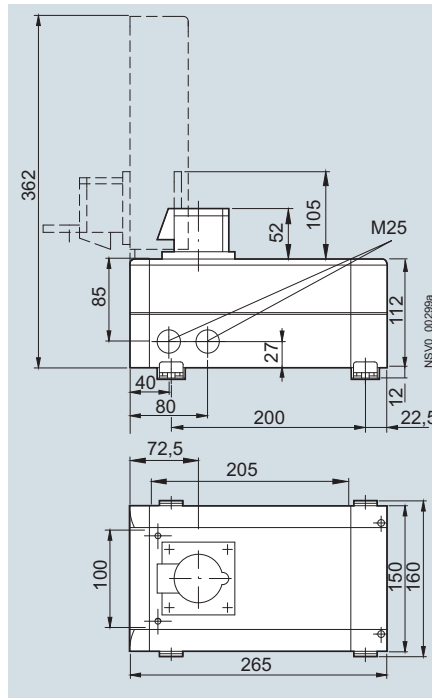
BD01-AK2X/F..., BD01-AK2HX/F...
 BD01-AK2X/S..., BD01-AK2HX/S...



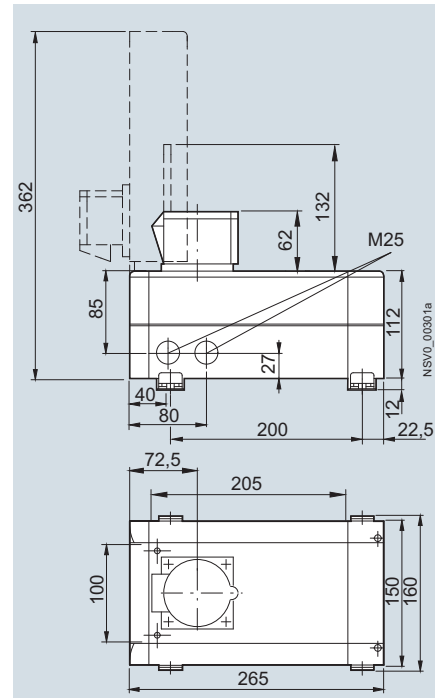
BD01-AK2X/4SD...



BD01-AK2X/CEE165...



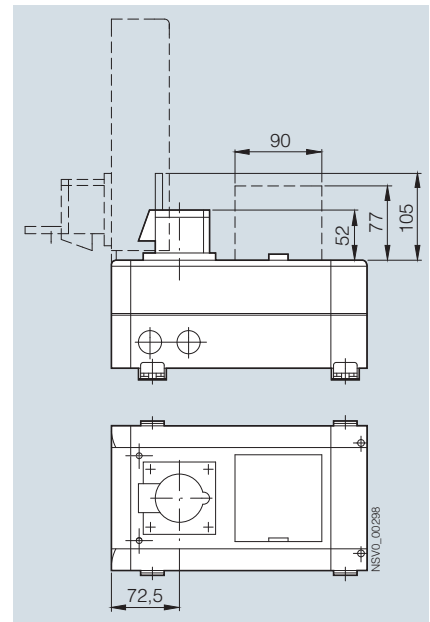
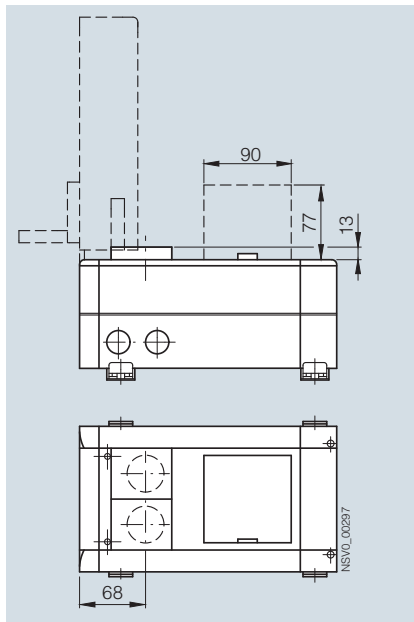
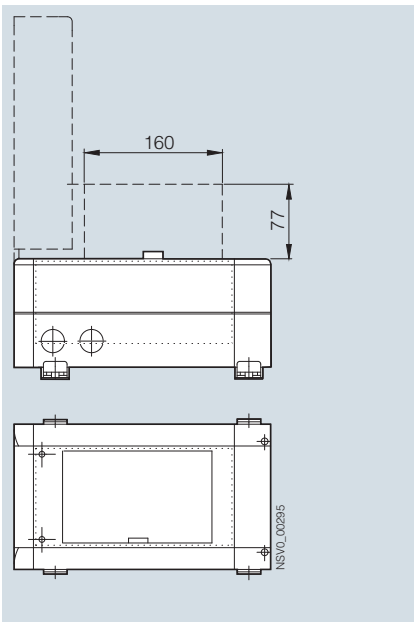
BD01-AK2X/CEE325...



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

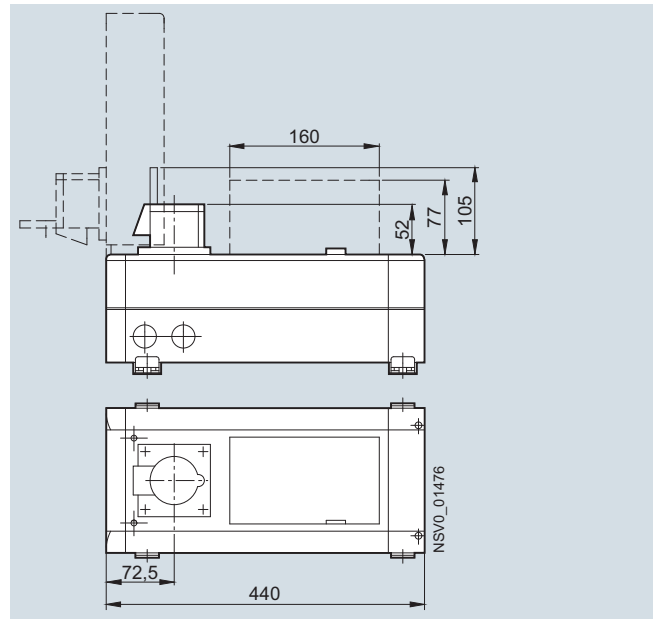
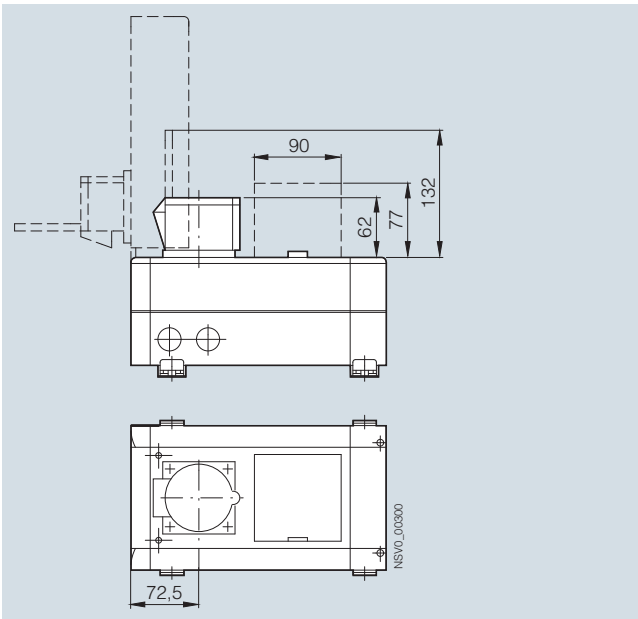
Tap-off units size 2, with device installation unitBD01-AK2M2/F, BD01-AK2HM2/F
BD01-AK2HM2/A...

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

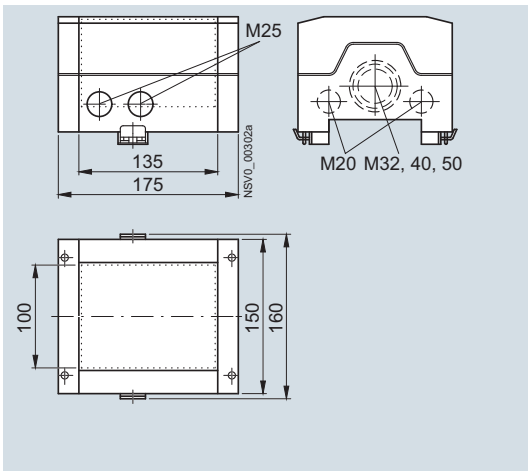
BD01 System – 40 ... 160 A

Configuration aids

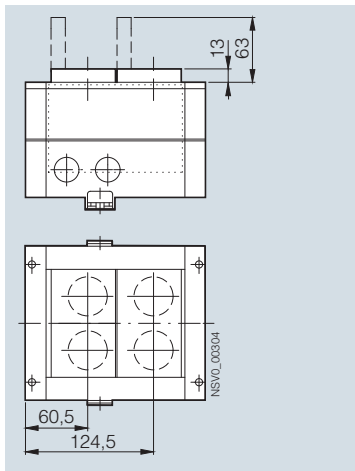
Ancillary equipment units

Ancillary equipment units size 1

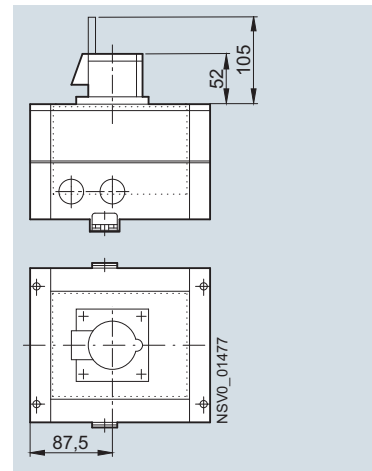
BD01-GK1X/F



BD01-GK1X/4SD163



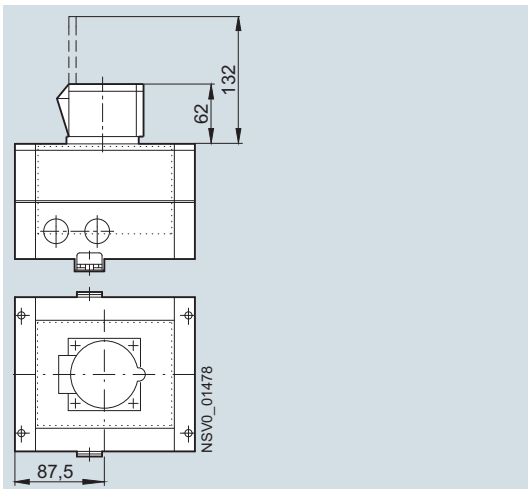
BD01-GK1X/CEE163
BD01-GK1X/CEE165



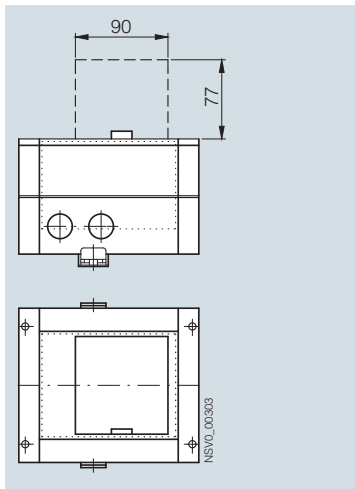
3

Ancillary equipment units size 1, with device installation unit

BD01-GK1X/CEE325



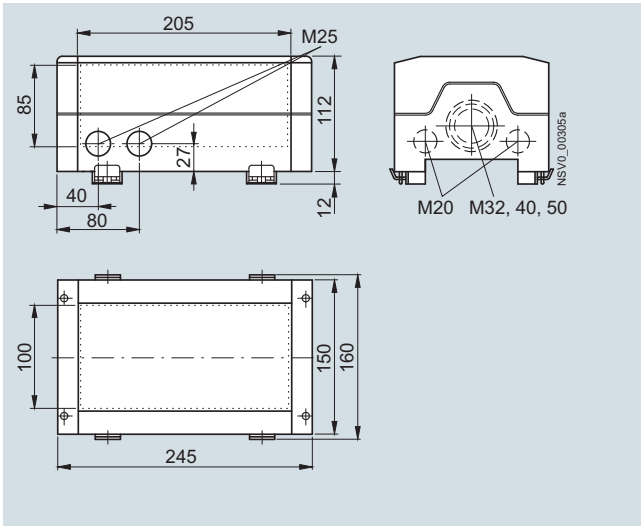
BD01-GK1M1/F



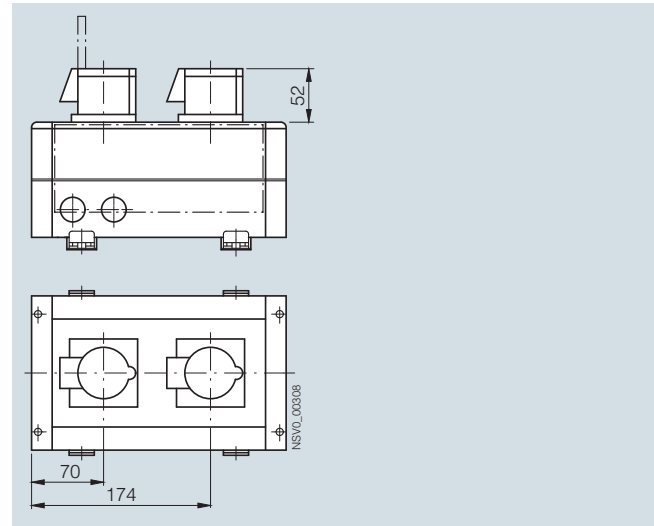
Dotted lines: usable component fitting space
Dashed lines: free space for opening the flap

Ancillary equipment units size 2

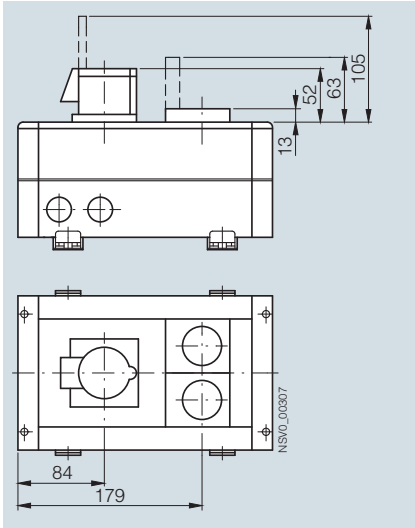
BD01-GK2X/F



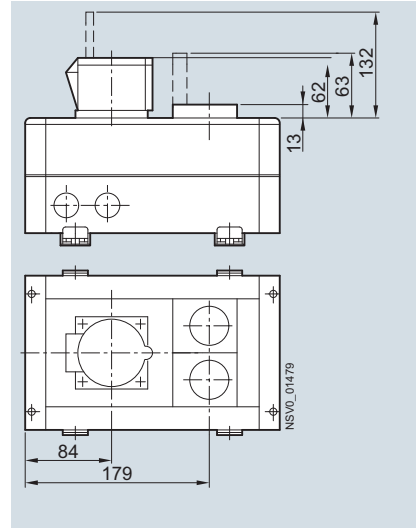
BD01-GK2X/ CEE163CEE165



BD01-GK2X/ 2SD163CEE165

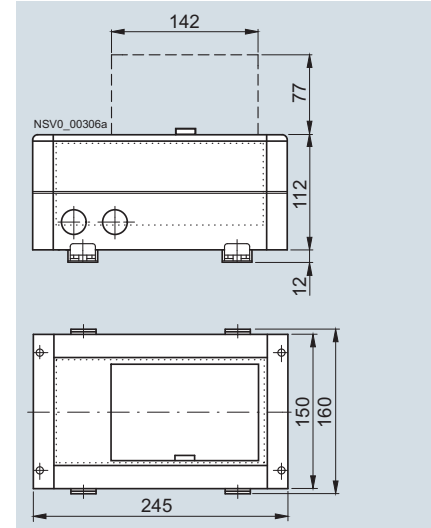


BD01-GK2X/2SD163CEE325



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

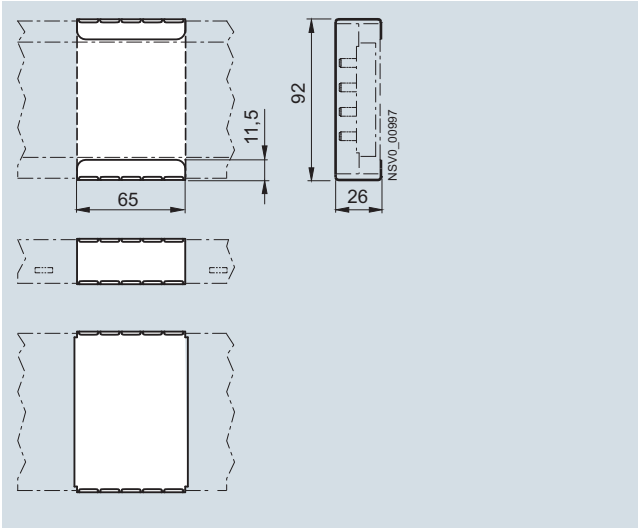
BD01 System – 40 ... 160 A

Configuration aids

Protective covers according to IP55

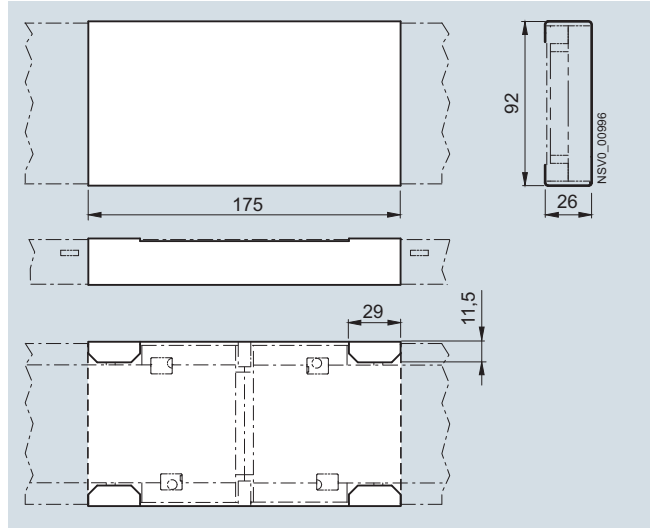
For tap-off point

BD01-FAS



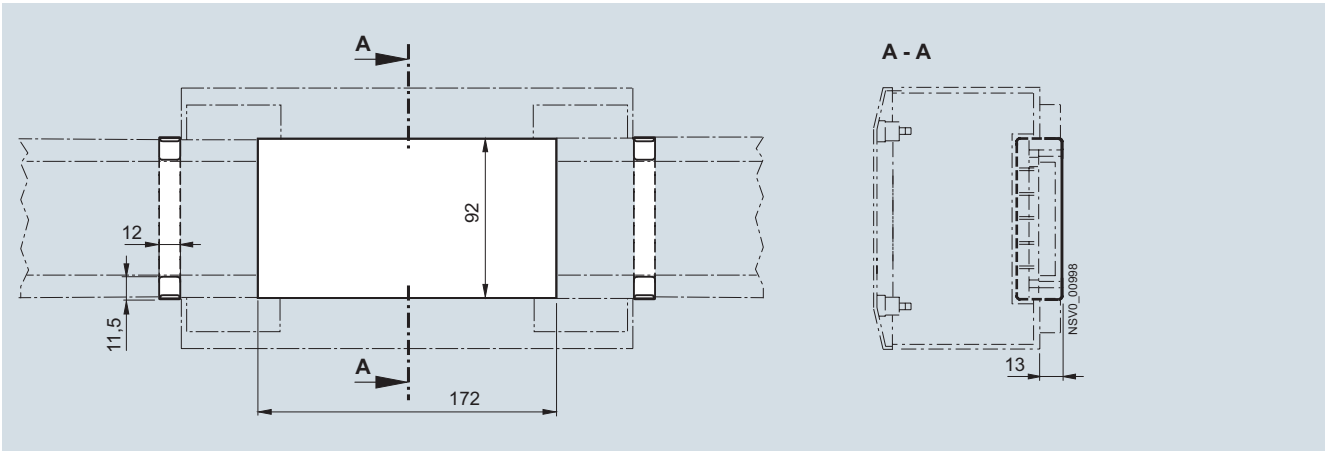
For connection point

BD01-FS



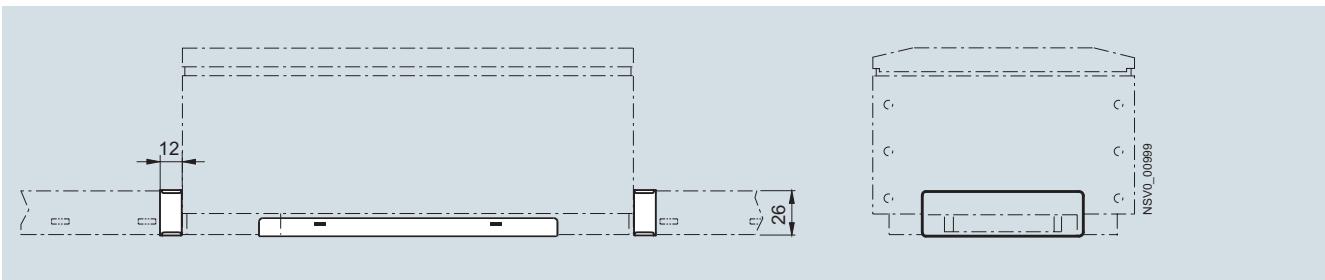
For feeding unit at bottom

BD01-FES



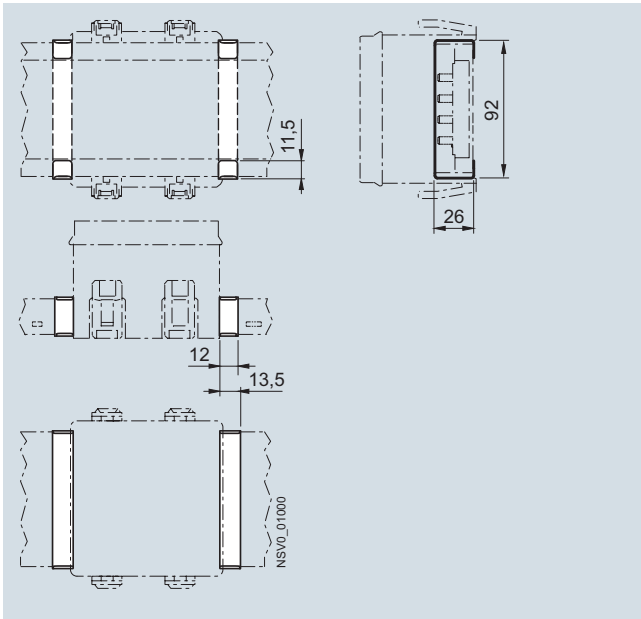
For feeding unit at side, top

BD01-KS



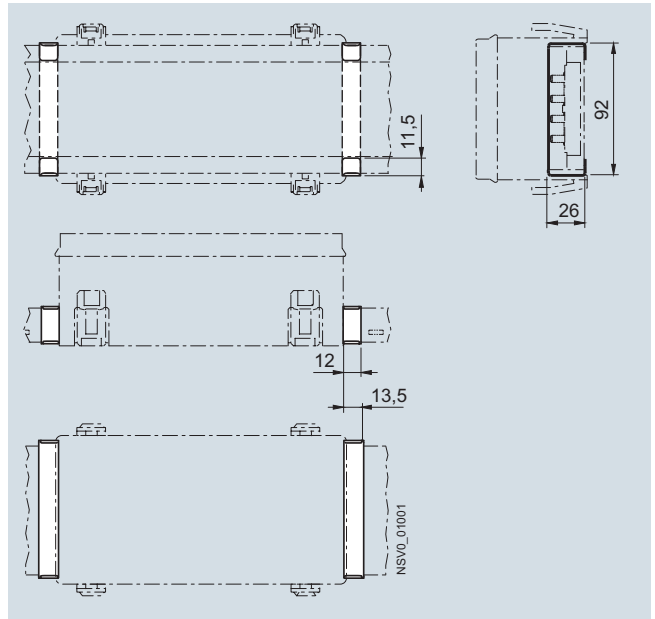
For tap-off unit

BD01-AK01X-IP55



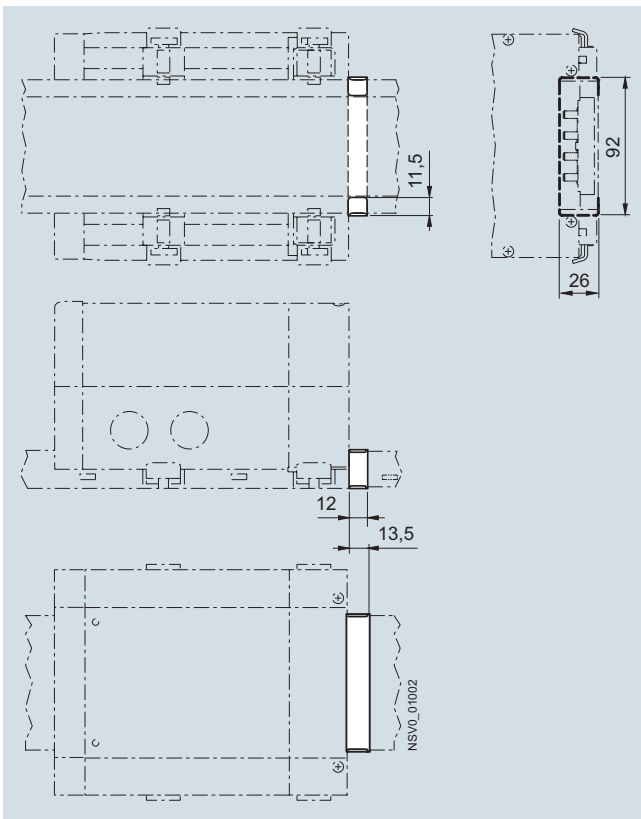
For tap-off unit

BD01-AK02X-IP55



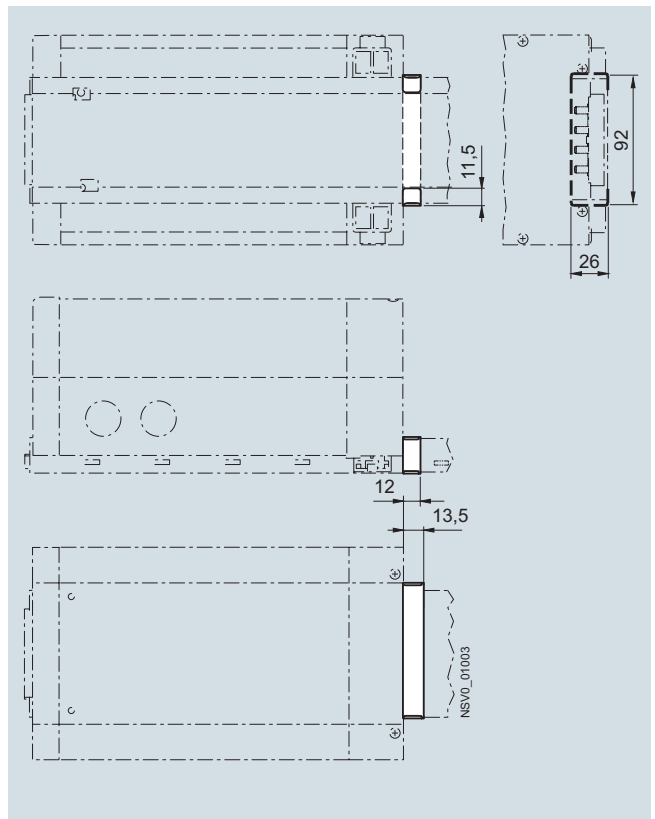
For tap-off unit

BD01-AK1X-IP55



For tap-off unit

BD01-AK2X-IP55



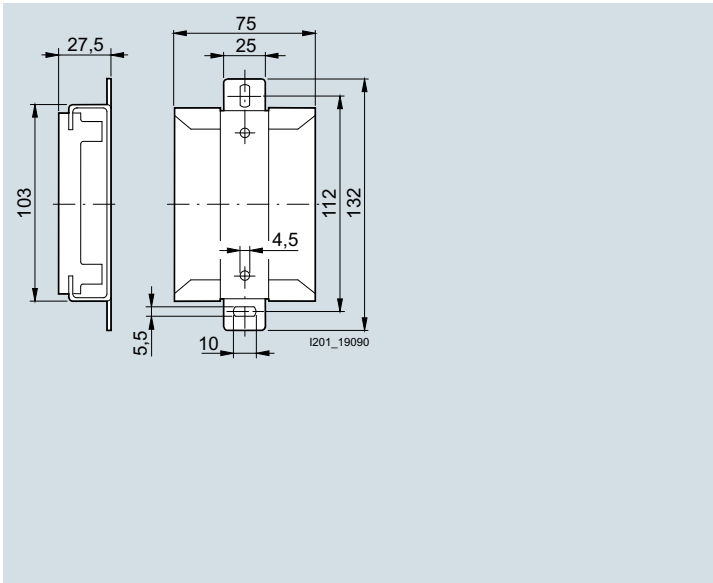
BD01 System – 40 ... 160 A

Configuration aids

Fixing

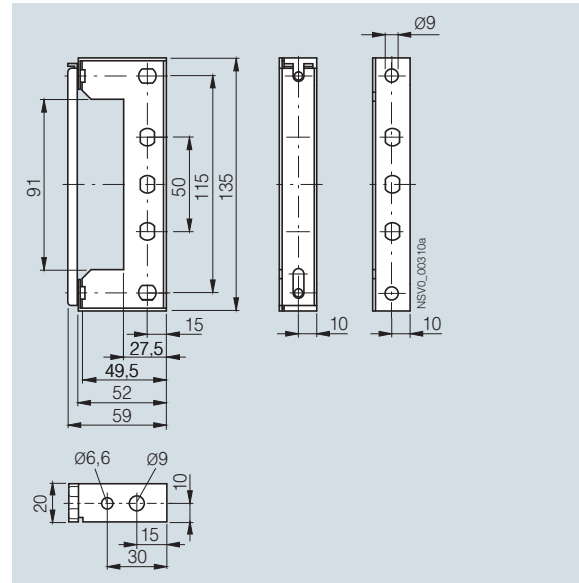
Universal fixing brackets

BD01-B



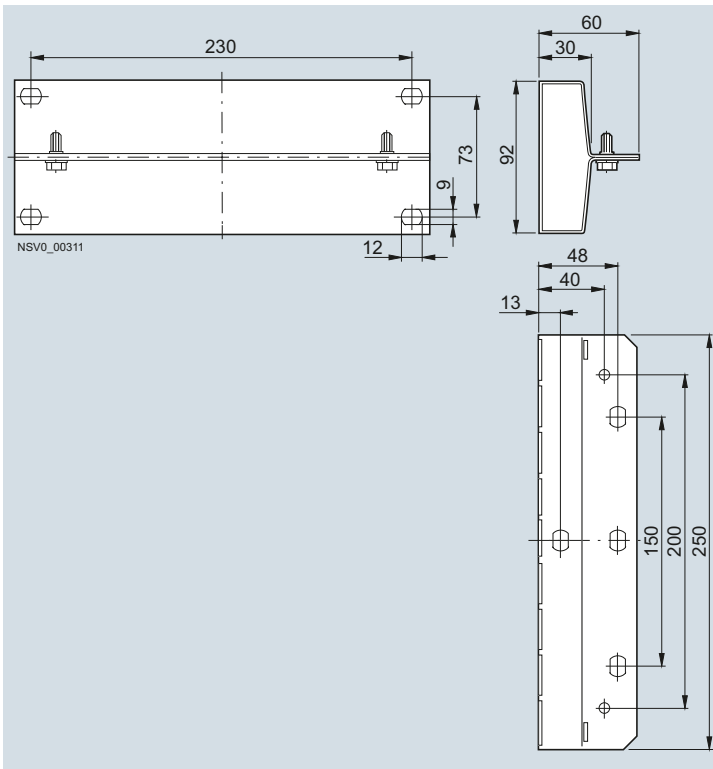
Suspension brackets

BD01-BA



Hanger brackets

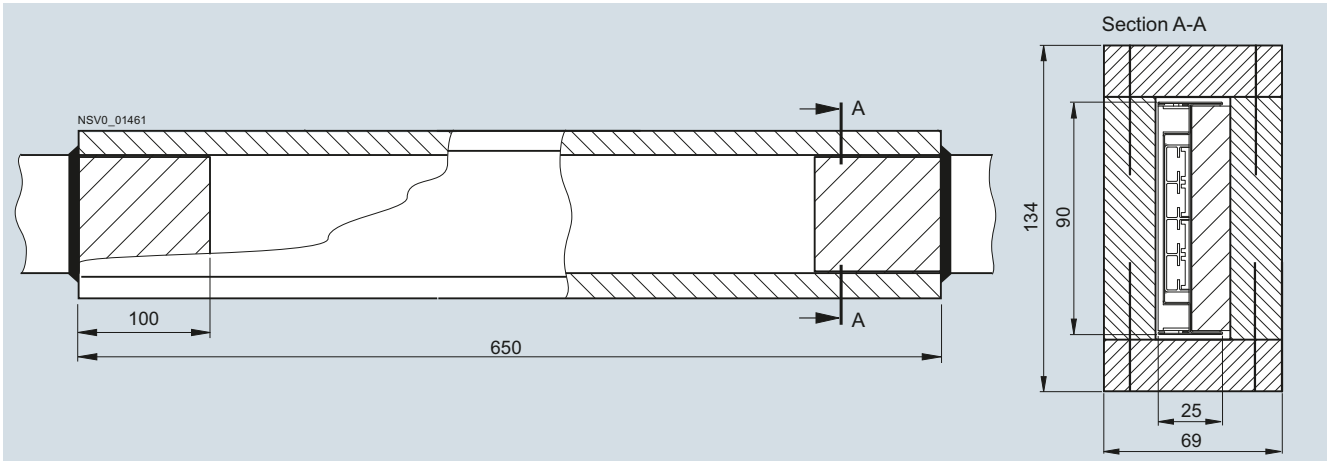
BD01-BAP



3

Fire barrier

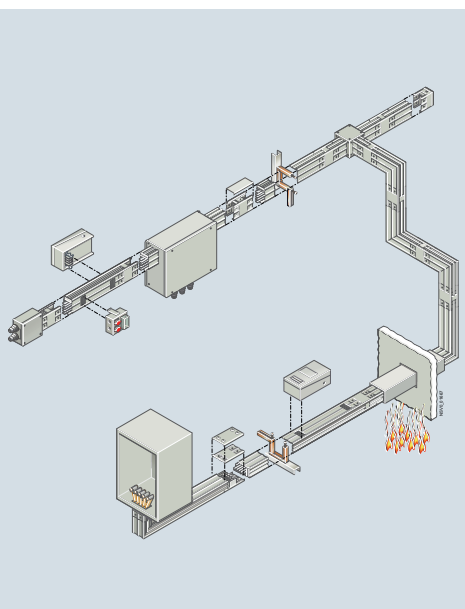
BD01-S90



BD01 System – 40 ... 160 A

Notes

BD2 System – 160 ... 1250 A



Introduction	
4/2	Overview
4/3	Benefits
4/4	Design
4/11	Accessories
General data	
4/14	Technical specifications
Trunking units	
4/22	Selection and ordering data
Junction units	
4/30	Selection and ordering data
Feeding units	
4/46	Selection and ordering data
Tap-off units for international use	
4/50	Selection and ordering data
Ancillary equipment units for international use	
4/59	Selection and ordering data
Optional equipment	
4/60	Selection and ordering data
Configuration information	
4/65	Overview
4/67	Design
4/74	Function
4/77	Configuration
4/81	More information
Fire barrier	
4/87	Overview
4/88	Design
Configuration aids	
4/94	Dimensional drawings

More technical product information:

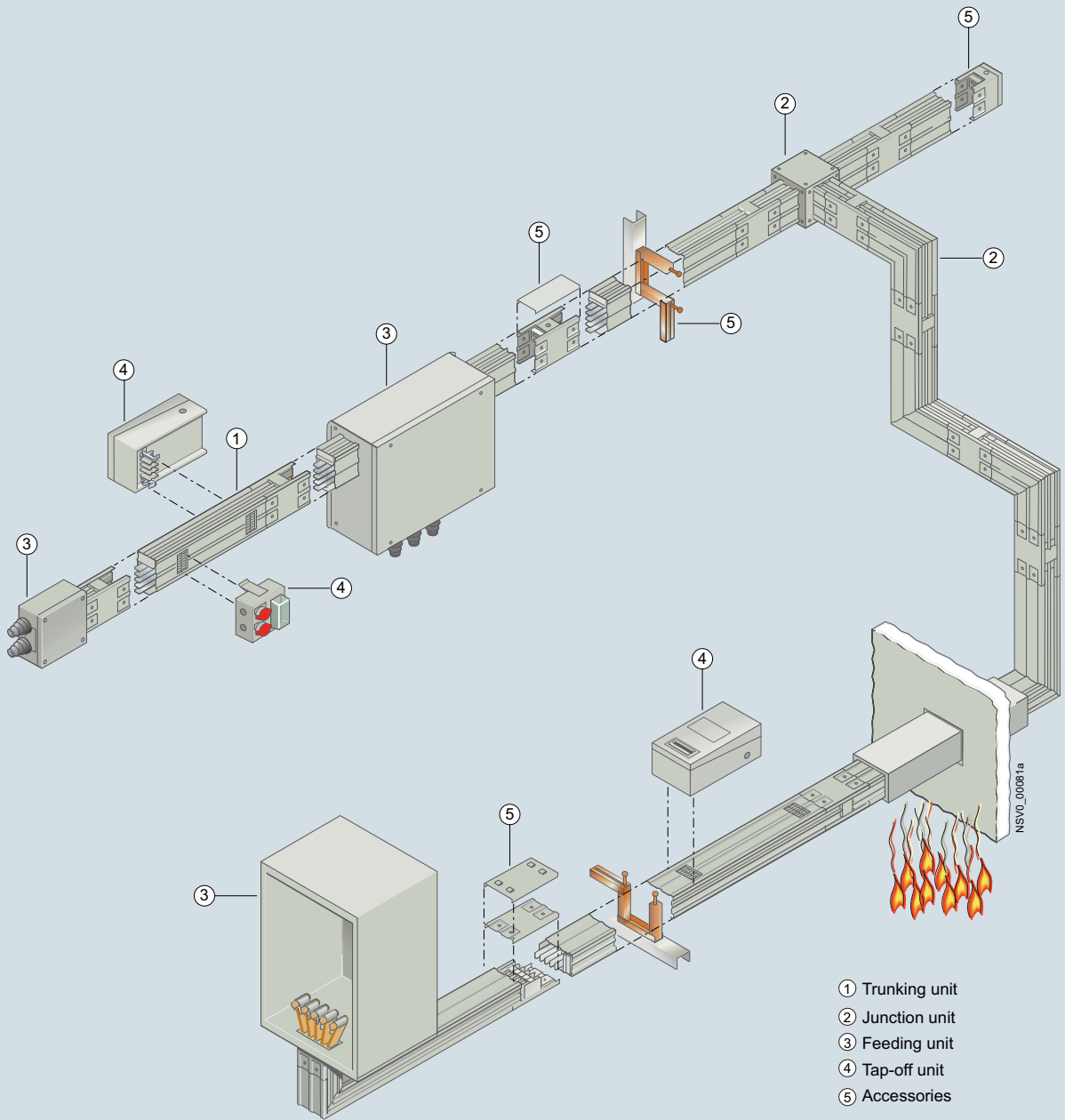
Service & Support Portal:

www.siemens.com/lowvoltage/product-support→ Product list:
Technical specifications→ Entry list:
Certificates / Characteristics /
Download / FAQ / Manuals /
Updates

BD2 System – 160 ... 1250 A

Introduction

Overview



4

Version

Type-tested low-voltage switchgear and controlgear assembly (TTA) according to

- IEC/EN 60439-1 (IEC 61439-1 as from 2015)
- IEC/EN 60439-2 (IEC 61439-6 as from 2015)

Degree of protection

- Trunking units IP52 (standard), feeding units and tap-off units IP54
- Increased degree of protection to IP54 or IP55 with optional equipment for operation in harsh industrial environments

ComponentsStraight trunking units

- With or without fire barrier
- 5-wire system
- Busbars made of copper or aluminum
- Standard lengths of 3.25 m, 2.25 m and 1.25 m
- Selectable lengths from 0.5 m to 3.24 m
- Tap-off points
 - None
 - On two sides offset every 0.25 m or 0.5 m
- Fire barrier¹⁾: fire resistance class S90 and S120 according to DIN 4102, Sheet 2 to 4

Junction units

- Edgewise or flat
- With or without fire barrier
- L-unit with or without configurable angle
- Z-unit
- T-unit
- K-unit
- Flexible junction units

Feeding units

- Entry/end feeding unit
- Feeding unit with switch disconnecter
- Center feeding units
- Bolt terminal
- Cable entry from 1, 2 or 3 sides
- Distribution board feeding units

Tap-off units

- Up to 25 A
 - Molded-plastic enclosure
 - Double anti-rotation feature
- Up to 63 A
 - Sheet-steel enclosure, hot-galvanized, cover with powder-spray paint finish
 - Double anti-rotation feature
- Up to 125 A
 - Sheet-steel enclosure, hot-galvanized, cover with powder-spray paint finish
 - Compulsory order of operation
 - Double anti-rotation feature
- Up to 530 A
 - Sheet-steel enclosure, hot-galvanized, cover with powder-spray paint finish
 - Tap-off unit partitioned according to function
 - Enclosure for protective devices
 - Enclosure for power pick-up
 - Double anti-rotation feature

Ancillary equipment units

- For 8 modular widths (MW)
- With or without device installation unit, cover powder-coated

Optional equipment

- End flanges
- For degree of protection IP54 or IP55
 - Flange for edgewise mounting position
 - Flange for flat mounting position
 - Flange for vertical mounting position
 - Additional components for tap-off units
- For fixing
 - Universal fixing bracket for edgewise or flat mounting position
 - Fastening elements for vertical bars, for wall or ceiling mounting
- Joint blocks

Benefits

- 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 boxes to compensate elongation.
- Codable tap-off units and tap-off points
- Sealable throughout
- Optional equipment for increasing the degree of protection to IP55 for extreme ambient conditions

¹⁾ Fire barrier: fire resistance class EI90 and EI120 according to EN 1366-3 available soon

BD2 System – 160 ... 1250 A

Introduction

Design

Trunking units

Power is transferred through nickel-plated and tinned aluminum busbars as well as tinned copper busbars.

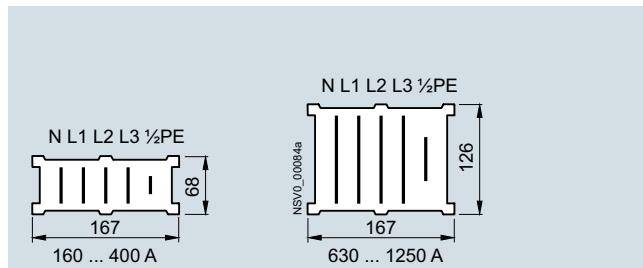
The low inherent impedance and large surface area of the busbars limit the heat build-up.

The result is a low transmission loss and a low voltage drop.

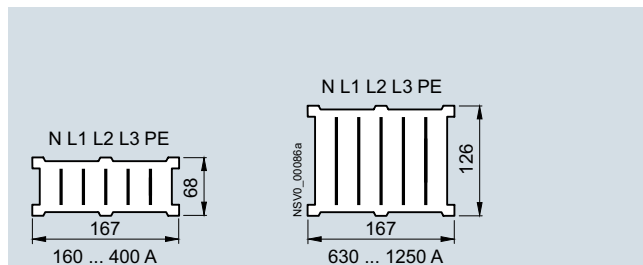
Enclosures

The enclosure is made of hot galvanized steel with a paint finish. Color: RAL 7035 (light gray).

Protected to IP52 degree of protection as standard. This can be increased to IP54 or IP55 with additional parts.



BD2A-2, BD2C-2 trunking units



BD2A-3, BD2C-3 trunking units, junction units, BD2A-..., BD2C-... feeding units

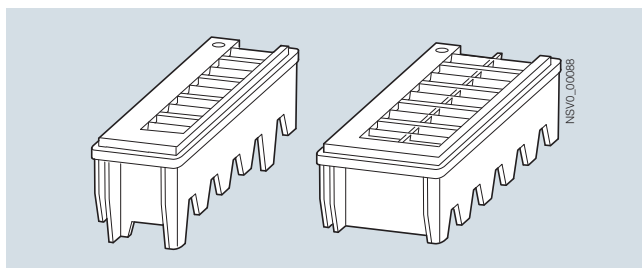
Tap-off points

The busbar support and tap-off point form a unit.

The leading/delayed PE contact at the tap-off unit provides positive opening or closing of the tap-off point.

The tap-off point can be coded at the factory on request, together with the tap-off unit. The tap-off point is sealable.

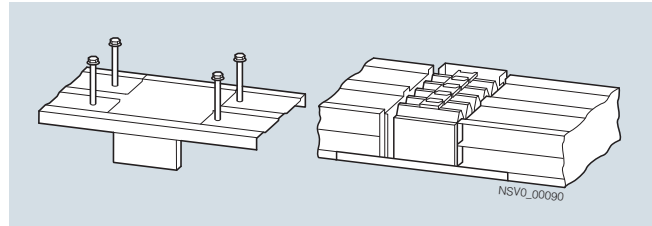
BD2-AK1, BD2-AK2(3), BD2-AK02(03) and BD2-AK04 tap-off units are plug-in types for all systems, BD2-AK05(06) tap-off units are only for systems from 630 A.



Left: Tap-off point for BD2.-160 to BD2.-400
Right: Tap-off point for BD2.-630 to BD2.-1250

Connections

Trunking units are connected quickly and securely via the joint block.

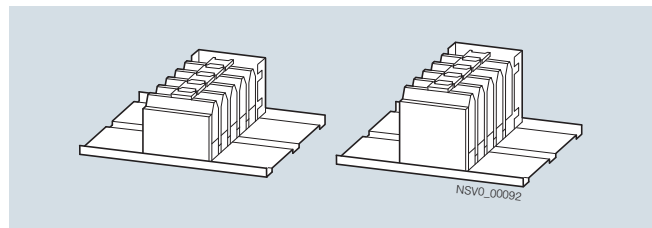


Left: Flange cover
Right: Joint blocks

Joint blocks

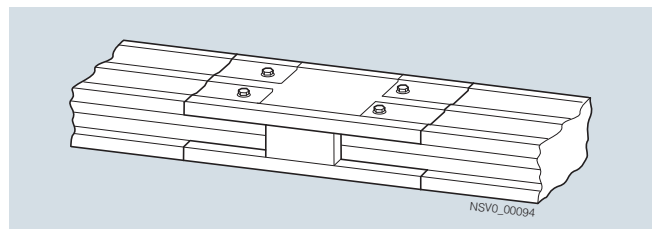
Features:

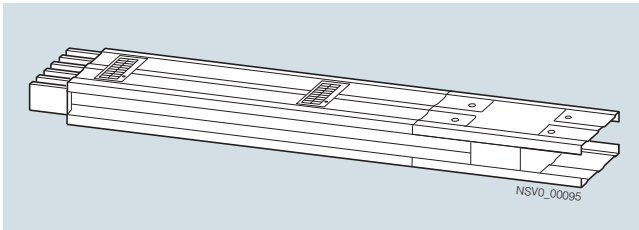
- Even holding pressure ensures completely secure connection of all five busbars. Fast mounting up to 1250 A with single-stud terminal.
- The built-in expansion compensation absorbs the heat expansion of the busbars
- The terminal can be tightened using conventional tools
- Two sizes are available for the whole system
- The joint block is supplied as an integral part of the trunking units and junction units



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.



Straight trunking units**Equipment**

The trunking units are available in the following versions:

- Without tap-off points
- With tap-off points on two sides at intervals of 0.5 m, offset by 0.25 m (BD2.-2, BD2.-3)

One joint block is included in scope of supply.

Fire barriers can be fitted (see "Fire barrier", page 4/6).

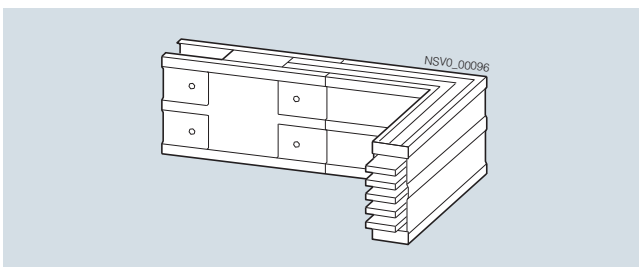
The following lengths are available:

- 3.25 m
- 2.25 m
- 1.25 m
- Selectable lengths from 0.5 to 3.24 m
- Lengths of 1.25 m adaptable on-site, can be shortened to as much as 0.5 m (full cross-section for N and PE, without tap-off points)

Number of tap-off points

Length m	Tap-off units on both sides
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.

Junction units**Equipment**

Protected to IP52 degree of protection as standard. This can be increased to IP54 or IP55 with additional parts.

Flexible copper conductors for the flexible junction units.

The L-units with configurable angle are available with a fixed angle of 90° or any angle in 5° increments from 85° to 175°.

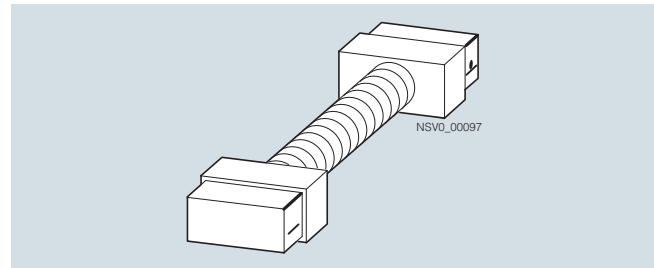
All L- and Z-units are available

- With standard limb lengths of 0.36 m
- With one or two optional limb lengths of 0.36 m to 1.25 m

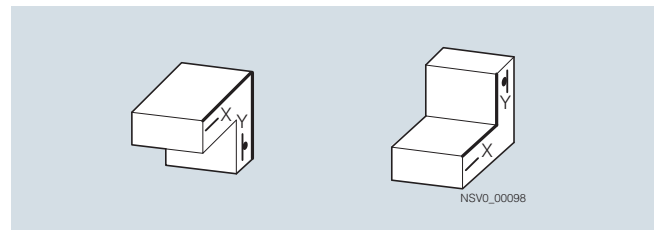
The junction units are supplied with one joint block.

Flexible junction units

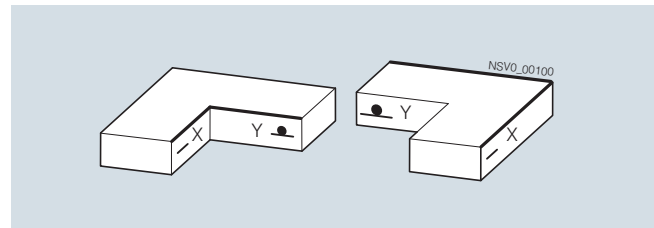
No mounting possible on the infeed; not upgradable to IP55.



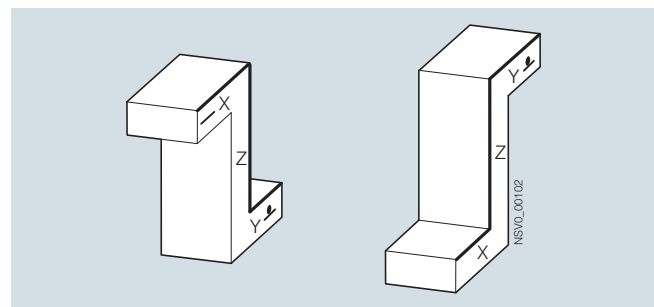
BD2.-...-R

L-units

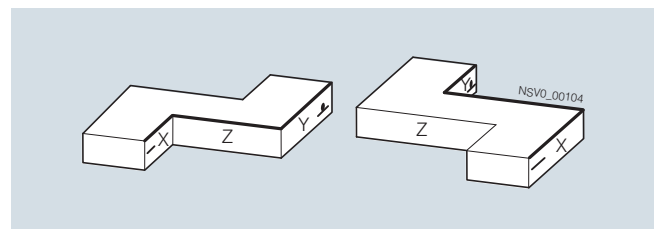
Left: Knee, rear;
BD2.-...-LH, BD2.-...-LH-X*, BD2.-...-LH-Y*, BD2.-...-LH-X*/Y*
Right: Knee, front;
BD2.-...-LV, BD2.-...-LV-X*, BD2.-...-LV-Y*, BD2.-...-LV-X*/Y*



Left: Elbow, right;
BD2.-...-LR, BD2.-...-LR-X*, BD2.-...-LR-Y*, BD2.-...-LR-X*/Y*
Right: Elbow, left;
BD2.-...-LL, BD2.-...-LL-X*, BD2.-...-LL-Y*, BD2.-...-LL-X*/Y*

Z-units

Left: BD2.-...-ZH-Z*, BD2.-...-ZH-X*/Y*/Z* (rear)
Right: BD2.-...-ZV-Z*, BD2.-...-ZV-X*/Y*/Z* (front)

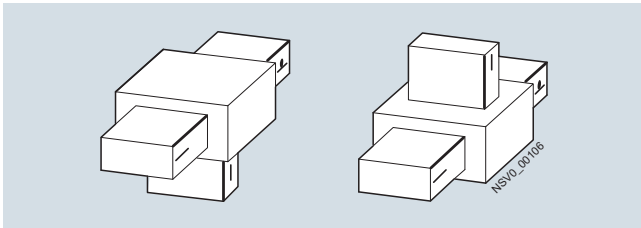


Left: BD2.-...-ZR-Z*, BD2.-...-ZR-X*/Y*/Z* (right)
Right: BD2.-...-ZL-Z*, BD2.-...-ZL-X*/Y*/Z* (left)

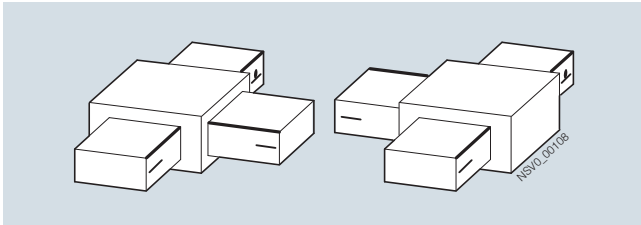
BD2 System – 160 ... 1250 A

Introduction

T-units

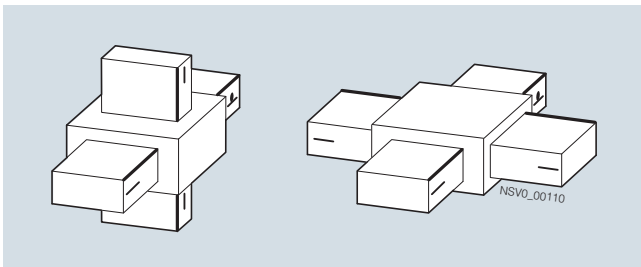


Left: BD2-...-TH (rear)
Right: BD2-...-TV (front)



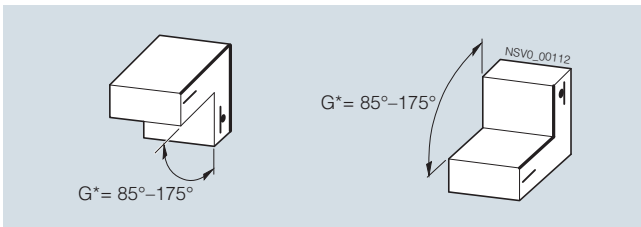
Left: BD2-...-TR (right)
Right: BD2-...-TL (left)

K-units

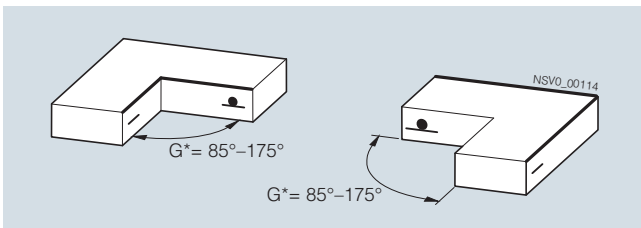


Left: BD2-...-KVH (front + rear)
Right: BD2-...-KRL (right + left)

L-units with configurable angle from 85° to 175°



Left: Knee, rear; BD2-...-LH-G*, BD2-...-LH-X*-G*,
BD2-...-LH-Y*-G*, BD2-...-LH-X*/Y*-G*
Right: Knee, front; BD2-...-LV-G*, BD2-...-LV-X*-G*,
BD2-...-LV-Y*-G*, BD2-...-LV-X*/Y*-G*



Left: Elbow, right; BD2-...-LR-G*, BD2-...-LR-X*-G*,
BD2-...-LR-Y*-G*, BD2-...-LR-X*/Y*-G*
Right: Elbow, left; BD2-...-LL-G*, BD2-...-LL-X*-G*,
BD2-...-LL-Y*-G*, BD2-...-LL-X*/Y*-G*

Fire barrier

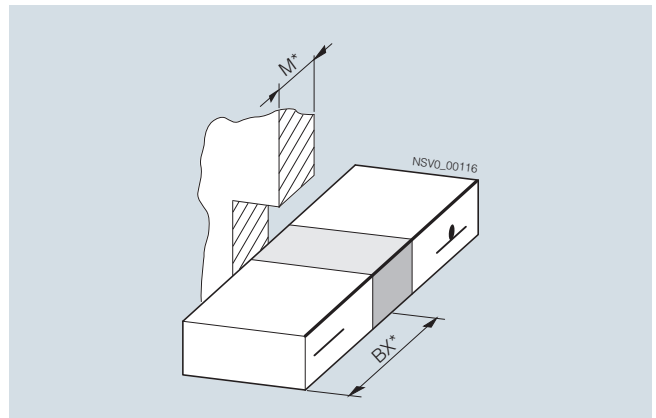
If the busbar trunking system is routed through a fire wall or ceiling, a fire barrier must be fitted. Depending on the customers requirements, Siemens offers fire barriers with a fire resistance rating of S90 and S120.

Standard lengths, optional lengths and junction units are supplied with fire protective equipment as specified in the ordering data (see "Fire barrier", page 4/87).

Factory-fitted equipment:

- Internal fire barriers
- External fire barriers, if required
- Documentation (certificate of approval, wall-mounted signs and declaration of conformity), for Germany as separate kit BD2-S90-ZUL-D or BD2-S120-ZUL-D

Mineral based mortar or fire barrier sealant (see "Fire barrier", page 4/93) for sealing joints between the busbar trunking unit and component must be supplied by the customer.



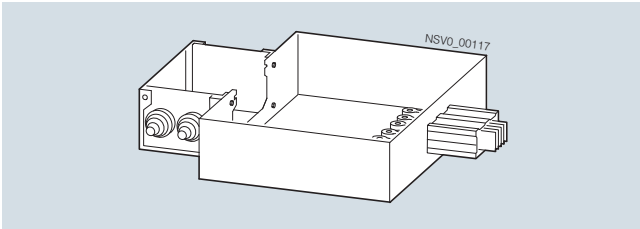
Fire barrier for trunking units and junction units

For S90:	For S120:
BD2A-...	BD2A-... or BD2C-...
+BD2-S90-BX*-M*	+ BD2-S120-BX*-M*
+BD2-S90-BY*-M*	+BD2-S120-BY*-M*
+BD2-S90-BZ*-M*	+BD2-S120-BZ*-M*

Fire barrier: Fire resistance rating EI90 and EI120 according to EN 1366-3 and approval papers for Euro standard available soon.

Feeding units

For the incoming supply to BD2 runs, various feeding unit versions are available to meet different requirements.

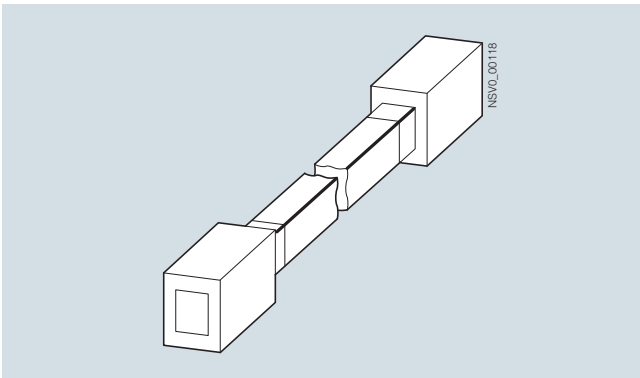


Example: End feeding unit with connected cabling box

Features:

- Cables are introduced from the front face
- Cable entry plate (aluminum) for single-core cable entry
- Cable connection is via bolts. The bolts are included in scope of supply.
- The factory-fitted jumper between PE and N can be removed for connection of five-core cables
- Feeding units are supplied without joint block
- They are not directly mountable on junction units

For double-end infeed, an additional joint block is required.



BD2-...-EE double-end feeding unit

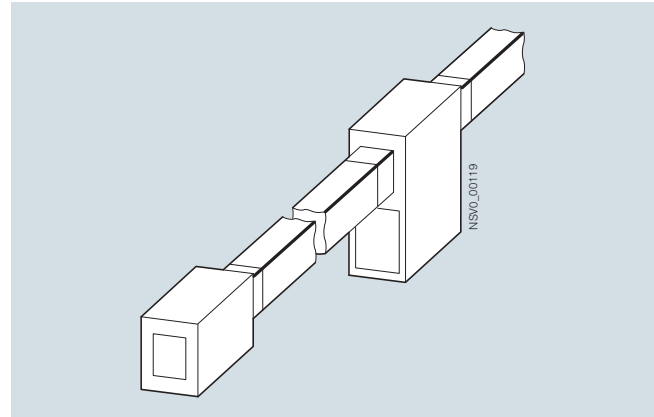
To distribute large amounts of power with small busbar cross-sections, it is sensible to use a center feeding unit in some cases. It is mounted in the middle of a busbar run between two trunking units. The left run and the right run are supplied simultaneously with one supply cable. If using a 1000 A center feeding unit, it is therefore possible to infeed 2000 A. In this case, special consideration must be given to the overload and short-circuit protection of the busbar system.

If the short-circuit protection is not assured by the upstream protective device and/or the overload is not due to the type and number of loads, additional protective measures are required.

Two options are possible:

- Use of a center feeding unit with one coupling unit on the right and left respectively next to the feeding unit. The coupling unit must be equipped with a protective device (fuse or circuit breaker) that ensures the short-circuit and overload function.
- Use of two end feeding units that are arranged centrally in the busbar run. The two supply cables are separately fused in the distribution system.

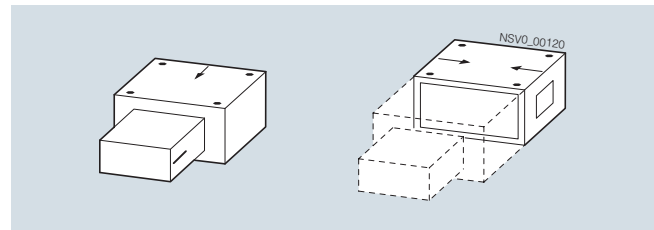
If using end feeding units in addition to a center feeding unit, an additional joint block is required for each end feeding unit.



BD2-...-EE end feeding unit and BD2-...-ME center feeding unit

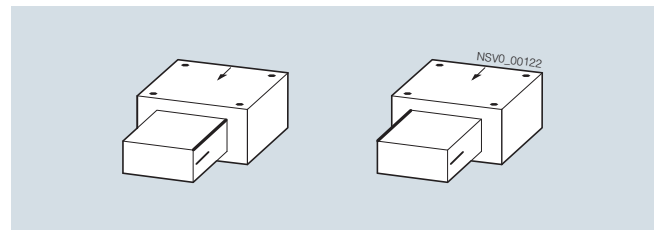
End feeding units

Cable entry is from the front; cable entry from the side is possible for the version with a BD2-...-EE-KR cabling box.

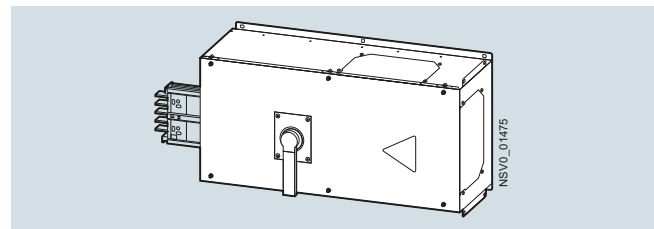


BD2-...-EE and BD2-...-EE-KR end feeding units

The phase sequence can be changed on site by rotating the busbar pack.



End feeding units with switch disconnector



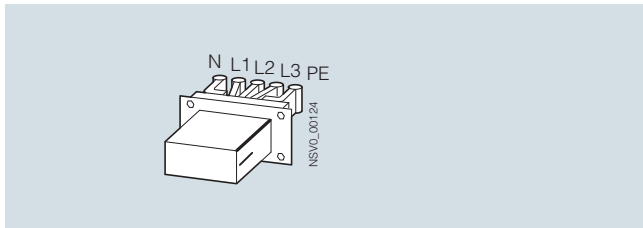
End feeding units with switch disconnector

BD2 System – 160 ... 1250 A

Introduction

Distribution board feeding units

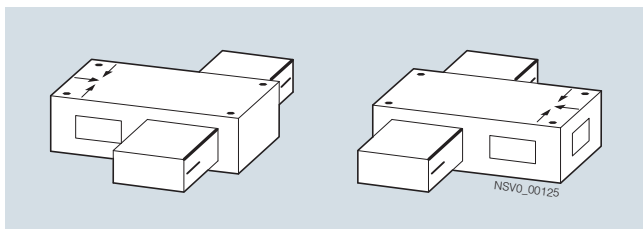
For BD2 connection to a distribution board.



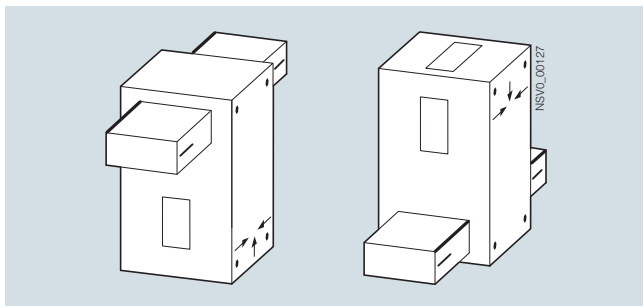
BD2-...-VE distribution board feeding unit

Center feeding units

Cable entry is possible from 3 sides. The phase sequence can be changed on site by rotating the busbar pack.



BD2-...-ME center feeding units (PE left and PE right)



BD2-...-ME center feeding units (PE rear and PE front)

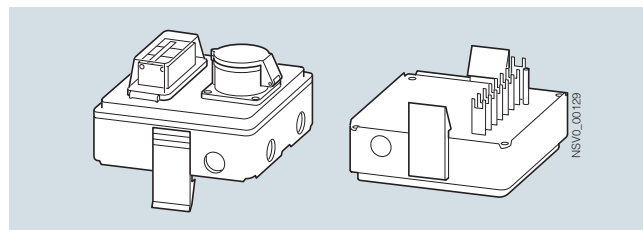
Tap-off units

Tap-off units are available in a number of versions for different applications.

BD2-AK1 molded plastic-enclosed tap-off units up to 25 A, freely assignable, with fuses, miniature circuit breakers and socket outlets

Features:

- Molded-plastic enclosure, light gray, similar to RAL 7035
- Transparent cover for the protective devices
- When mounting and disassembling the tap-off units, a load switching ability of AC-22B up to 400 V is achieved
- An anti-rotation feature prevents incorrect mounting
- Power pick-up through silver-plated horseshoe contacts
- Cables can be introduced from three sides
- The tap-off unit must be removed from the trunking before the unit can be opened and the cables connected
- Built-in strain relief
- The connecting cables should be supported separately if required



BD2-AK1/CEE165A163

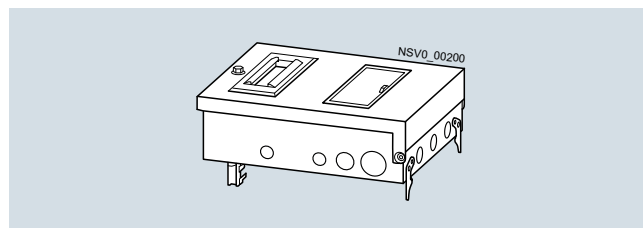
Sheet steel enclosed tap-off units BD2-AK2 up to 63 A and BD2-AK3 up to 125 A with cover-integrated load disconnecter

Features:

- Sheet-steel enclosure, hot-galvanized and powder coated cover, light gray, RAL 7035
- The tap-off units can be mounted and removed only with their cover open
- Switch-disconnector integrated into the cover, switching capacity at 63 A AC-22B up to 400 V or at 125 A AC-21B, which ensures that the unit is not live when the cover is open
- Unintentional closing of the cover can be prevented by fitting a padlock
- An anti-rotation feature prevents incorrect mounting
- Cables can be introduced from three sides; use plastic cable glands with strain relief (not in scope of supply)
- Power pick-up via silver-plated horseshoe contacts
- If the PE conductor is used as a PEN conductor, note that the PE contact of the BD2-AK3... tap-off units have only half the cross-section and therefore cannot carry the full rated current
- The connecting cable should be supported separately if necessary

Device installation unit:

For the installation of devices (e.g. miniature circuit breakers) based on DIN 43871, with 8 MW. 1 MW corresponds to a space requirement of 18 mm. Hinged covers on all tap-off units allow device operation from outside.

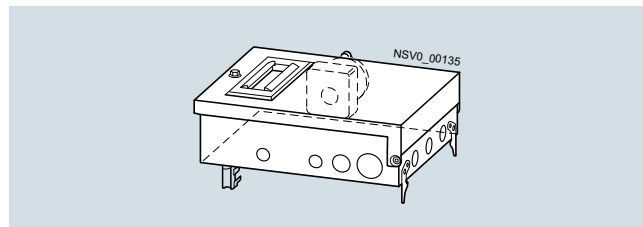


BD2-AK2M2/A323

Tap-off units BD2-AK02 up to 63 A, freely assignable, with fuses, miniature circuit breaker and socket outlets

Features:

- Miniature circuit breakers can be externally operated if required (device installation unit with 8 MW; 1 MW = 18 mm)

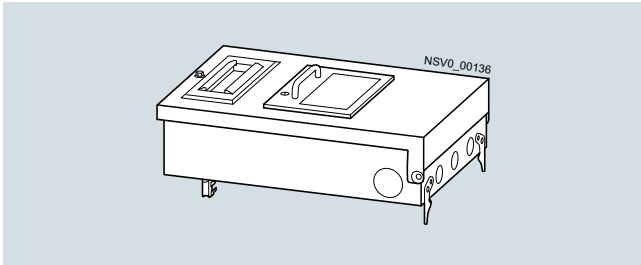


BD2-AK2X/CEE325S33

BD2-AK3 tap-off units up to 125 A
with fuse switch-disconnectors and fuse bases

Features:

- On versions with fuse switch-disconnectors or circuit breakers, the cover is interlocked with these switches and can therefore be opened only when they are switched off
- On versions with fuse bases, the isolator built into the cover does not disconnect the load. It only removes the voltage from the installed fuse bases when the cover is opened
- Terminal bolts for cables

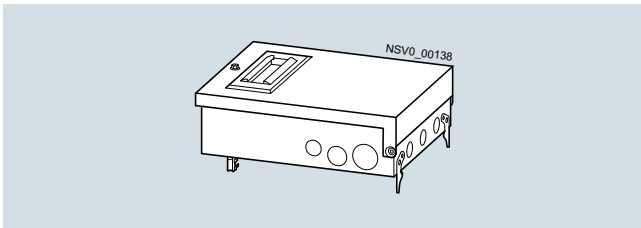


BD2-AK3X/GSTZ00

Tap-off units BD2-AK2 up to 63 A and BD2-AK3 up to 125 A
equipped to customer specifications

Features:

- Device installation to customer specification in compliance with the requirements for type-tested low-voltage switchgear and controlgear assemblies (TTA). Configuration, quotations and delivery through your Siemens contacts in our branches.
- Device fixing on plates with holes, module strip or mounting rail according to EN 60715



BD2-AK2...

BD2-AK02 (AK03) sheet-steel enclosed tap-off units
without cover-integrated load disconnecter

Features:

- Sheet-steel enclosure, hot-galvanized and powder coated cover, light gray, RAL 7035
- The tap-off units can be mounted and removed with their cover open and closed
- With the cover open the voltage is still applied to the installed devices (test facility). Degree of protection IP20 (finger-safe) is assured.
- Do not mount or remove tap-off units under load
- An anti-rotation feature prevents incorrect mounting
- Cables can be inserted from 3 directions, use plastic screwed cable glands with strain relief (not included in the scope of supply)
- Power pick-up via silver-plated horseshoe contacts
- If the PE conductor is used as a PEN conductor, note that the PE contact of the BD2-AK03 tap-off units have only half the cross-section and therefore cannot carry the full rated current
- The connecting cable should be supported separately if necessary

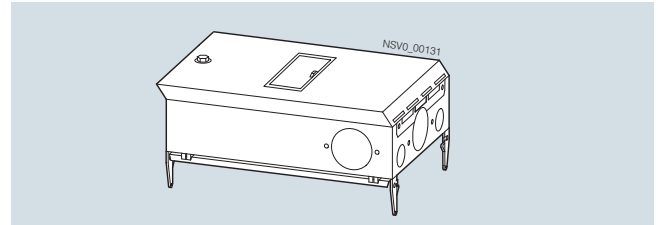
Device installation unit:

For the installation of devices (e.g. miniature circuit breakers) based on DIN 43871, with 8 MW. 1 MW corresponds to a space requirement of 18 mm. Hinged covers on all tap-off units allow device operation from outside.

Tap-off units BD2-AK02 up to 63 A, freely assignable,
with fuses, miniature circuit breaker

Features:

- Miniature circuit breakers can be externally operated if required (device installation unit with 8 MW; 1 MW = 18 mm)

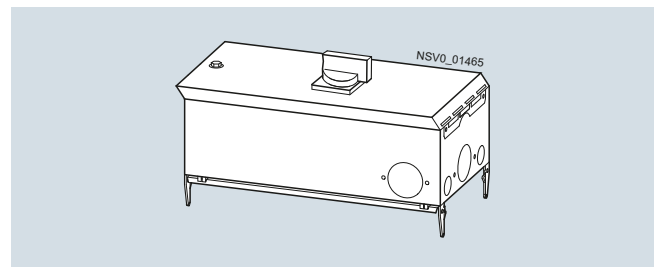


BD2-AK02M2/A323

Tap-off units BD2-AK03 up to 125 A
with circuit breakers, fuse switch-disconnectors, fuse bases,
miniature circuit breakers and fuse switches

Features:

- On versions with fuse switch-disconnectors or circuit breakers, the cover is interlocked with these switches and can therefore be opened only when they are switched off
- Terminal bolts for cables
- Miniature circuit breakers can be externally operated if required (device installation unit with 8 MW; 1 MW = 18 mm)



BD2-AK03X/L...

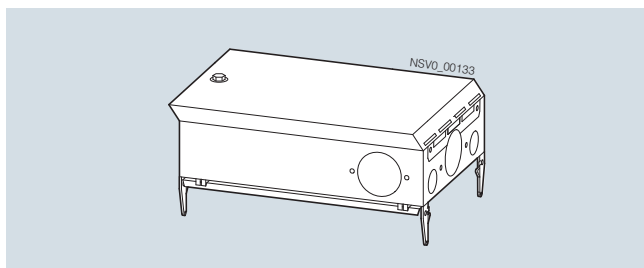
BD2 System – 160 ... 1250 A

Introduction

Tap-off units BD2-AK02 up to 63 A and BD2-AK03 up to 125 A equipped according to customer requirements

Features:

- Device installation to customer specification in compliance with the requirements for type-tested low-voltage switchgear and controlgear assemblies (TTA). Configuration, quotations and delivery through your Siemens contacts in our branches.
- Device fixing on plates with holes, module strip or mounting rail according to EN 60715



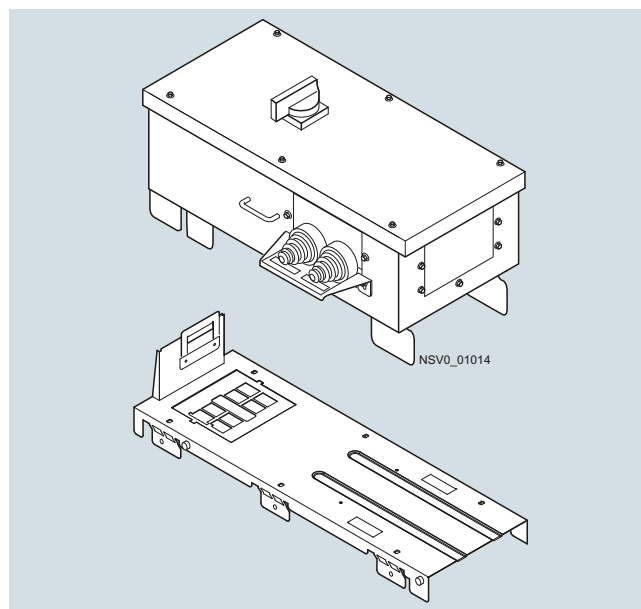
BD2-AK03...

Sheet steel enclosed tap-off units BD2-AK04 up to 250 A and BD2-AK05 up to 400 A and BD2-AK06 up to 630 A without cover-integrated load disconnecter

Tap-off units BD2-AK04 up to 250 A, BD2-AK05 up to 400 A and AK06 up to 630 A with circuit breakers, fuse switch-disconnectors and fuse bases

Features:

- Tap-off units > 250 A, type BD2-AK05 and BD2-AK06 can only be mounted on trunking units from 630 A to 1250 A
- Sheet-steel enclosure, hot-galvanized and powder coated, light gray, RAL 7035
- The tap-off units can be mounted and removed only with their cover open
- An anti-rotation feature prevents incorrect mounting
- Cables can be inserted from 3 directions, use plastic screwed cable glands with strain relief (not included in the scope of supply)
- Power pick-up through silver-plated horseshoe contacts
- If the PE conductor is used as a PEN conductor, note that the PE contact of the BD2-AK04, BD2-AK05 and BD2-AK06 tap-off units have only half the cross-section and therefore cannot carry the full rated current
- The connecting cable should be supported separately if necessary
- On versions with fuse switch-disconnectors or circuit breakers, the cover is interlocked with these switches and can therefore be opened only when they are switched off
- On versions with fuse bases, the load must be disconnected before the enclosure cover is removed
- Connections for multi-core or single-core cables are possible



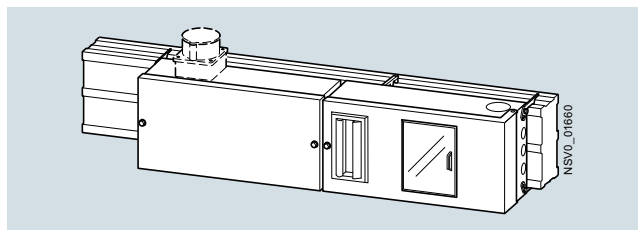
BD2-AK05/LS...

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.

Features:

- The enclosure is made from hot-galvanized sheet steel
- Cables can be inserted from 4 directions, use plastic screwed cable glands with strain relief (not included in the scope of supply)
- Can be combined with tap-off units (BD2-AK02, AK2, AK03, AK3)
- A standard mounting rail is built-in for component mounting
- 1 size with 8 MW (1 MW = 18 mm space requirement)
- With or without device installation unit for external actuation (1 size with modular width 8 MW)
- Installation of devices (e.g. miniature circuit breakers) based on DIN 43871 up to and including 63 A possible

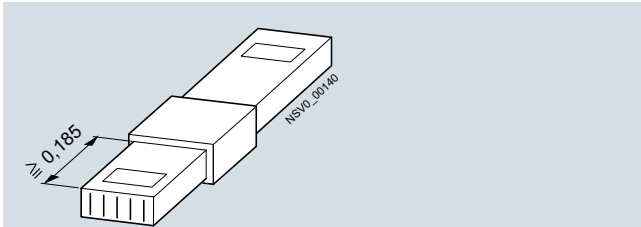


BD2-GKM2/F

Accessories

Protective sleeves

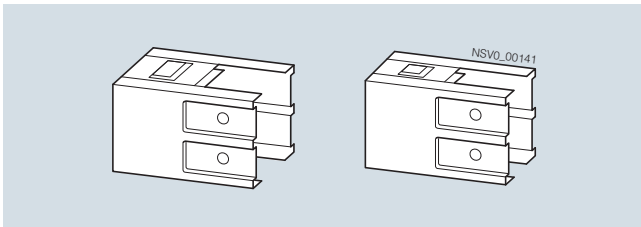
Provides purely mechanical protection for the busbar system when it is routed through walls and ceilings. The protective sleeve can be retrofitted.



Protective sleeve BD2-400-D and BD2-1250-D for currents up to 400 A or from 630 to 1250 A

End flanges

An end flange is required for terminating the busbar run. Two sizes are available.

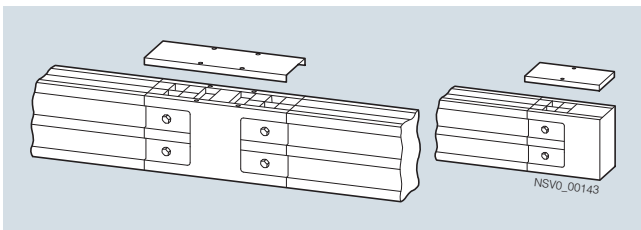


Left: BD2-400-FE end flanges for currents up to 400 A
Right: BD2-1250-FE end flanges for currents from 630 to 1250 A

Optional equipment for degree of protection IP54

Edgewise mounting position

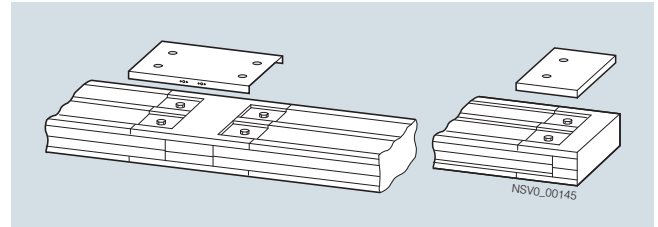
The higher degree of protection is achieved by fitting an additional flange at the connection points and at the end flange.



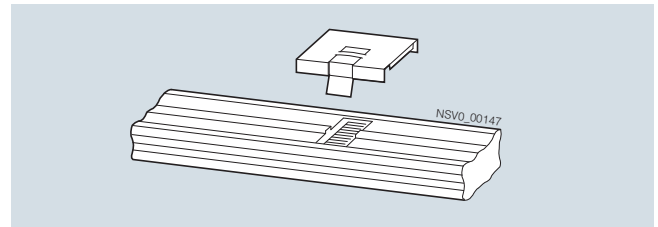
Left: Connection point between trunking units with BD2-...-HF
Right: Connection point between trunking unit and end flange with BD2-...-HFE

Flat mounting position

The higher degree of protection is achieved by fitting an additional flange at the connection points, at the end flange and at the tap-off points.



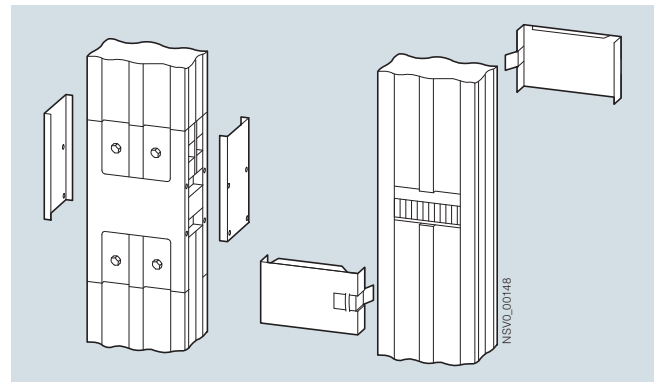
Left: Connection point between trunking units with BD2-FF
Right: Connection point between trunking unit and end flange with BD2-FFE



Tap-off openings with BD2-FAS

Vertical mounting position

The higher degree of protection is achieved by fitting additional flanges at all the connection points and at all tap-off points (front and rear).



Left: Connection point between trunking units with BD2-...-VF
Right: Tap-off openings with BD2-FAS

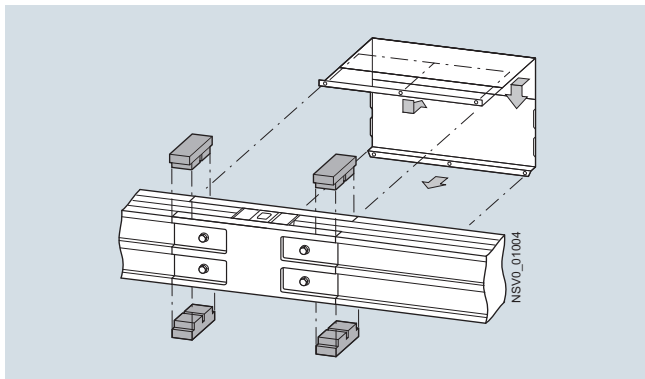
BD2 System – 160 ... 1250 A

Introduction

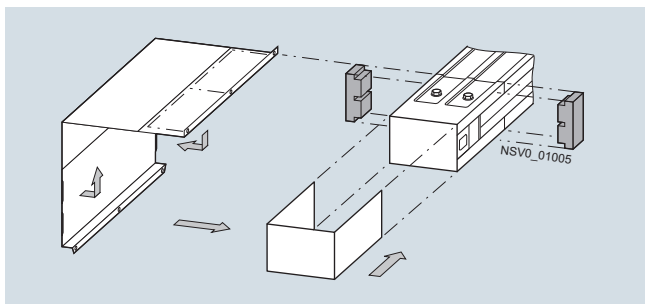
Optional equipment for degree of protection IP55

Trunking units

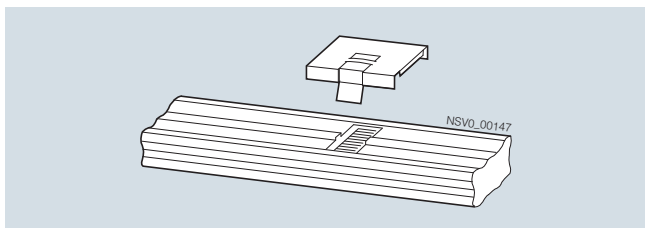
The higher degree of protection IP55 is achieved by fitting additional seals and a flange at the connection points and at the tap-off points.¹⁾



Connection point between trunking units with BD2-...-FS



Connection point between trunking unit and end flange with BD2-...-FSE

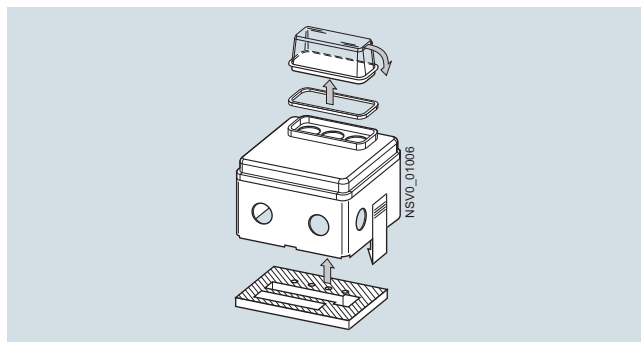


Tap-off openings with BD2- ... -FAS, top and bottom

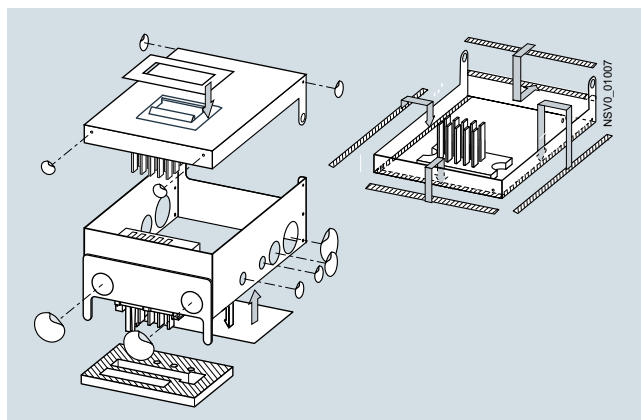
¹⁾ Not suitable for connection to feeding units and flexible junction units.

Tap-off units

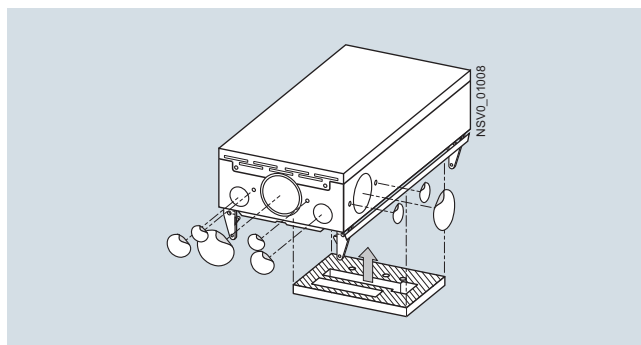
The higher degree of protection IP55 is achieved by fitting additional seals at the tap-off unit.



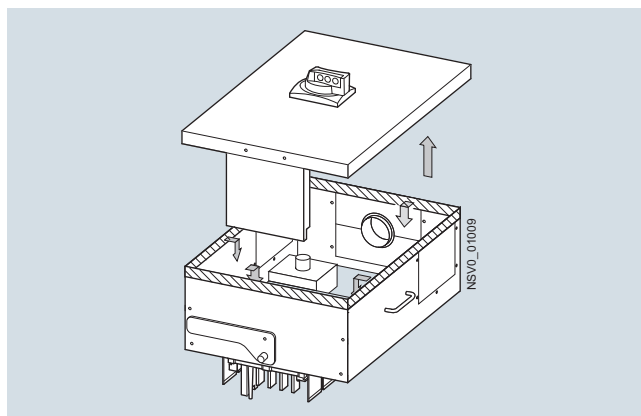
BD2-AK1-IP55



BD2-AK2X(3X)-IP55



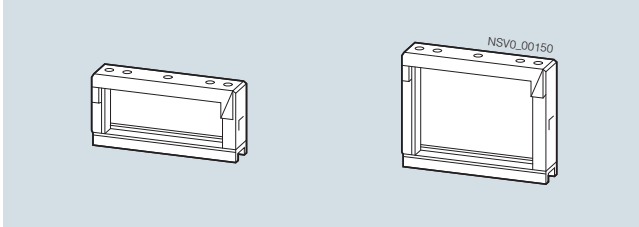
BD2-AK02X(03X)-IP55



BD2-AK04(05, 06)-IP55

Optional equipment for mountingFixing bracket

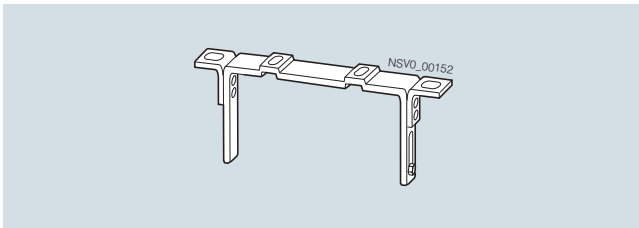
The universal fixing bracket can be used for edgewise and flat mounting of all trunking versions.



BD2-400-BB and BD2-1250-BB fixing bracket for currents up to 400 A or from 630 to 1250 A

Spacer bracket

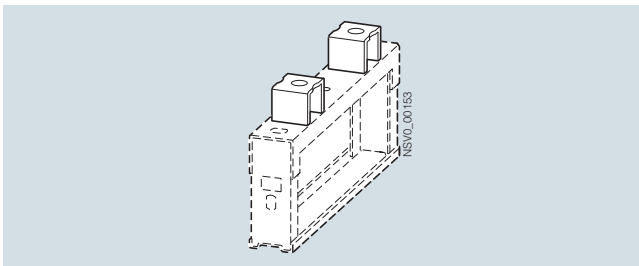
Spacer bracket for compensating building tolerances between trunking unit and wall or ceiling. The spacer bracket slides onto the BD2-...-BB fixing bracket and is secured with screws. For vertically mounted BD2 runs, it can also be used as an intermediate mounting.



BD2-BD spacer brackets

Spacers

Spacers for compensating wall and ceiling discrepancies between feeding units and trunking units. The spacers clip onto the fixing bracket.



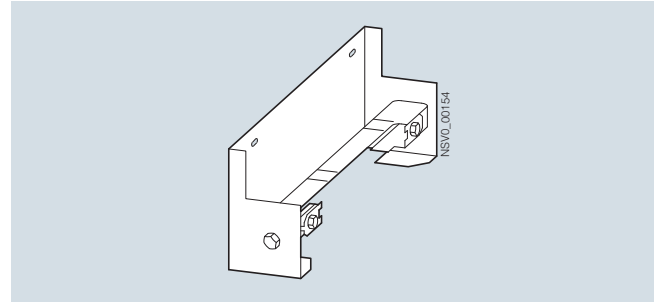
BD2-DSB spacers

Retaining elements for vertical busbar runs

These consist of a wall mounting element and accessories for fixing to the ceiling.

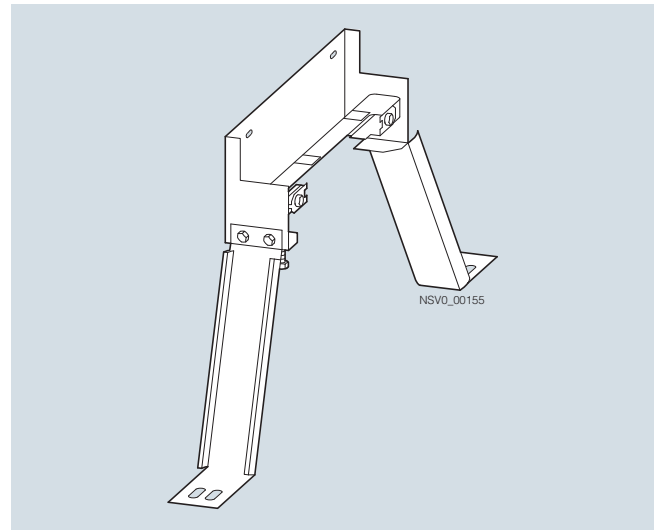
The retaining elements are adjustable to compensate for uneven walls.

For maximum load carrying capacity of retaining element see "Configuration information" on page 4/74.

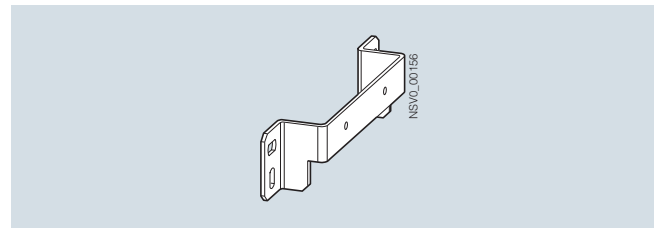


BD2-BWV wall mounting element for busbar run and end feeding unit

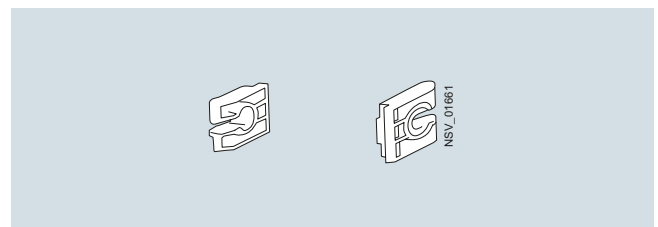
At the transition from the horizontal to the vertical busbar run, the ceiling mounting must be used as a support element.



BD2-BDV ceiling mounting element for busbar run



BD2-BVF wall mounting element for busbar run at each joint block



BD2-BVC wall mounting element, at a distance of 1.6 m on the busbar run in conjunction with mounting rail

BD2 System – 160 ... 1250 A

General data

Technical specifications

General system data

Type	BD2-...	
Standards and specifications	IEC/EN 60439-1 and -2 (IEC/EN 61439-1 and -6 as from 2015)	
Rated insulation voltage U_i	V AC/DC	690/800
Rated operational voltage U_e	V AC	690
Frequency	Hz	50
Rated current I_n		
• Aluminum busbars	A	160 ... 1000
• Copper busbars	A	160 ... 1250
Climatic proofing		
• Damp heat, constant, 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 60068-2-52	Composite test of damp heat, cyclic [56x (25-40 °C/3 h; 40 °C/9 h; 40-25 °C/3-6 h; 25 °C/6 h)/95 %RH] + cold [-45 °C, 16 h]	
Ambient temperature min./max./24h average	°C	-5/+40/+35
Environment classes were derived from climatic proofing 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	IP52	
• Trunking units with optional equipment on the busbar run	IP54, IP55	
• Feeding units, tap-off units	IP54	
• Feeding units and tap-off units with accessories	IP55	
Material		
• Trunking units, feeding units, tap-off units	Hot-galvanized, painted sheet steel, light gray (RAL 7035)	
• Exception: BD2-AK1/... tap-off units	Molded-plastic enclosure, light gray (RAL 7035)	
• Busbars		
- Aluminum	Nickel-plated and tinned aluminum busbars	
- Copper	Tinned copper busbars	
Mounting position	Edgewise, flat, tap-off points on side	
Weights	See "Selection and Ordering Data"	

Tap-off units

Type	BD2-AK...					
Rated current I_n	25 A	63 A	125 A	250 A	400 A	630 A
Switching capacity of contact system	AC-22B	--	--	--	--	--
Switching capacity of the built-in switch-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 kAeff: For higher prospective short-circuit currents the "back-up protection" ¹⁾ for the miniature circuit breakers must be noted. 25 kAeff: For higher rated prospective short-circuit currents the upstream protective device must limit to: – max. let-through energy $I^2t = 12 \times 10^4 \text{ A}^2\text{s}$; – max. let-through current $I_D = 9.5 \text{ kA}$					

¹⁾ Back-up protection, see page 4/75.

Important configuring notes

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

The short-circuit rating 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 protective devices (e.g. circuit breakers).

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		690	690	690
Frequency	Hz		50 ... 60	50 ... 60	50 ... 60
Rated current I_n	A		160	250	400
Impedance per unit length of conducting paths with 50 Hz and 20 °C ambient temperature (cold bars)					
• Equivalent resistance	R_{20}	mΩ/m	0.484	0.302	0.167
• Positive reactance	X_{20}	mΩ/m	0.162	0.131	0.123
• Impedance	Z_{20}	mΩ/m	0.511	0.330	0.207
Impedance per unit length of conducting paths with 50 Hz and 20 °C ambient temperature (bar under operating conditions warm)					
• Equivalent resistance	R_1	mΩ/m	0.588	0.375	0.215
• Positive reactance	X_1	mΩ/m	0.160	0.128	0.122
• Impedance	Z_1	mΩ/m	0.610	0.397	0.247
Impedance of conducting paths in event of a fault					
• AC resistance per unit length	R_F	mΩ/m	0.959	0.673	0.548
• Positive reactance per unit length	X_F	mΩ/m	0.681	0.487	0.456
• Impedance per unit length	Z_F	mΩ/m	1.159	0.831	0.713
Zero sequence impedance acc. to IEC/EN 60909 (VDE 0102)					
Phase to N	R_0	mΩ/m	2.050	1.340	1.217
	X_0	mΩ/m	0.884	0.750	0.640
	Z_0	mΩ/m	2.232	1.535	1.375
Phase to PE	R_0	mΩ/m	2.018	1.071	1.059
	X_0	mΩ/m	0.416	0.567	0.518
	Z_0	mΩ/m	2.061	1.212	1.179
Short-circuit rating					
• 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	10	16	20
Number of conductors			5	5	5
Conductor cross-section					
	L1, L2, L3	mm ²	63	108	205
	N	mm ²	63	108	205
	PE	mm ²	63	108	205
	1/2 PE	mm ²	63	108	205
Conductor material			Al	Al	Al
Max. interval between trunking unit at normal mechanical loading					
• Edgewise		m	4	4	4
• Edgewise with BD2-BD ¹⁾		m	4	4	4
• Flat		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 4/21.

The equivalent copper cross-section of the exterior profile of the enclosure is:

- 64 mm² for size 1 up to 400 A
- 77 mm² for size 2 from 630 A to 1250 A

The following must be noted in this connection:

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.

BD2 System – 160 ... 1250 A

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		690	690	690
Frequency	Hz		50 ... 60	50 ... 60	50 ... 60
Rated current I_n	A		630	800	1000
Impedance per unit length of conducting paths with 50 Hz and 20 °C ambient temperature (cold bars)					
• Equivalent resistance	R_{20}	mΩ/m	0.093	0.073	0.051
• Positive reactance	X_{20}	mΩ/m	0.065	0.058	0.058
• Impedance	Z_{20}	mΩ/m	0.113	0.094	0.077
Impedance per unit length of conducting paths with 50 Hz and 20 °C ambient temperature (bar under operating conditions warm)					
• Equivalent resistance	R_1	mΩ/m	0.134	0.098	0.066
• Positive reactance	X_1	mΩ/m	0.065	0.057	0.057
• Impedance	Z_1	mΩ/m	0.149	0.114	0.088
Impedance of conducting paths in event of a fault					
• AC resistance per unit length	R_F	mΩ/m	0.199	0.225	0.157
• Positive reactance per unit length	X_F	mΩ/m	0.179	0.239	0.240
• Impedance per unit length	Z_F	mΩ/m	0.268	0.328	0.287
Zero sequence impedance acc. to IEC/EN 60909 (VDE 0102)					
Phase to N	R_0	mΩ/m	0.432	0.494	0.340
	X_0	mΩ/m	0.329	0.312	0.301
	Z_0	mΩ/m	0.543	0.584	0.454
Phase to PE	R_0	mΩ/m	0.429	0.438	0.408
	X_0	mΩ/m	0.377	0.280	0.273
	Z_0	mΩ/m	0.571	0.520	0.491
Short-circuit rating					
• 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	32	40	43
Number of conductors			5	5	5
Conductor cross-section					
	L1, L2, L3	mm ²	381	446	699
	N	mm ²	381	446	699
	PE	mm ²	381	446	699
	1/2 PE	mm ²	381	381	446
Conductor material			Al	Al	Al
Max. interval between trunking unit at normal mechanical loading					
• Edgewise		m	3.5	3.5	3
• Edgewise with BD2-BD ¹⁾		m	1.75	1.75	1.5
• Flat		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 4/21.

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		690	690	690
Frequency	Hz		50 ... 60	50 ... 60	50 ... 60
Rated current I_n	A		160	250	400
Impedance per unit length of conducting paths with 50 Hz and 20 °C ambient temperature (cold bars)					
• Equivalent resistance	R_{20}	mΩ/m	0.303	0.295	0.144
• Positive reactance	X_{20}	mΩ/m	0.157	0.158	0.119
• Impedance	Z_{20}	mΩ/m	0.341	0.335	0.187
Impedance per unit length of conducting paths with 50 Hz and 20 °C ambient temperature (bar under operating conditions warm)					
• Equivalent resistance	R_1	mΩ/m	0.333	0.383	0.181
• Positive reactance	X_1	mΩ/m	0.157	0.159	0.120
• Impedance	Z_1	mΩ/m	0.368	0.419	0.217
Impedance of conducting paths in event of a fault					
• AC resistance per unit length	R_F	mΩ/m	0.666	0.674	0.364
• Positive reactance per unit length	X_F	mΩ/m	0.511	0.530	0.461
• Impedance per unit length	Z_F	mΩ/m	0.839	0.858	0.587
Zero sequence impedance acc. to IEC/EN 60909 (VDE 0102)					
Phase to N	R_0	mΩ/m	1.419	1.429	0.718
	X_0	mΩ/m	0.691	0.703	0.658
	Z_0	mΩ/m	1.579	1.593	0.974
Phase to PE	R_0	mΩ/m	1.027	1.139	0.672
	X_0	mΩ/m	0.641	0.530	0.503
	Z_0	mΩ/m	1.211	1.256	0.839
Short-circuit rating					
• 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	10	16	20
Number of conductors			5	5	5
Conductor cross-section					
	L1, L2, L3	mm ²	63	63	234
	N	mm ²	63	63	234
	PE	mm ²	63	63	234
	1/2 PE	mm ²	63	63	234
Conductor material			Cu	Cu	Cu
Max. interval between trunking unit at normal mechanical loading					
• Edgewise		m	4	4	4
• Edgewise with BD2-BD ¹⁾		m	4	4	4
• Flat		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 4/21.

BD2 System – 160 ... 1250 A

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		690	690	690	690
Frequency	Hz		50 ... 60	50 ... 60	50 ... 60	50 ... 60
Rated current I_n	A		630	800	1000	1250
Impedance per unit length of conducting paths with 50 Hz and 20 °C ambient temperature (cold bars)						
• Equivalent resistance	R_{20}	mΩ/m	0.053	0.053	0.043	0.032
• Positive reactance	X_{20}	mΩ/m	0.064	0.064	0.056	0.054
• Impedance	Z_{20}	mΩ/m	0.083	0.083	0.071	0.063
Impedance per unit length of conducting paths with 50 Hz and 20 °C ambient temperature (bar under operating conditions warm)						
• Equivalent resistance	R_1	mΩ/m	0.076	0.076	0.056	0.041
• Positive reactance	X_1	mΩ/m	0.064	0.064	0.056	0.054
• Impedance	Z_1	mΩ/m	0.100	0.100	0.079	0.068
Impedance of conducting paths in event of a fault						
• AC resistance per unit length	R_F	mΩ/m	0.102	0.102	0.118	0.094
• Positive reactance per unit length	X_F	mΩ/m	0.146	0.146	0.234	0.229
• Impedance per unit length	Z_F	mΩ/m	0.178	0.178	0.262	0.248
Zero sequence impedance acc. to IEC/EN 60909 (VDE 0102)						
Phase to N	R_0	mΩ/m	0.280	0.280	0.234	0.186
	X_0	mΩ/m	0.377	0.377	0.286	0.275
	Z_0	mΩ/m	0.470	0.470	0.370	0.332
Phase to PE	R_0	mΩ/m	0.289	0.289	0.230	0.174
	X_0	mΩ/m	0.321	0.321	0.278	0.265
	Z_0	mΩ/m	0.431	0.431	0.361	0.317
Short-circuit rating						
• 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	32	40	43	43
Number of conductors						
Conductor cross-section			5	5	5	5
	L1, L2, L3	mm ²	415	415	468	699
	N	mm ²	415	415	468	699
	PE	mm ²	415	415	468	699
	1/2 PE	mm ²	415	415	415	468
Conductor material						
			Cu	Cu	Cu	Cu
Max. interval between trunking unit at normal mechanical loading						
• Edgewise		m	4	3.5	3	2
• Edgewise with BD2-BD ¹⁾		m	2	1.75	1.5	1
• Flat		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 4/21.

Feeding unitsConductor 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⁾	2 × 240, 3 × 185	(1-3) × 10 ²⁾	2 × 240, 3 × 185	(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 disconnecter	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 core cable (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 core cable 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).

BD2 System – 160 ... 1250 A

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
		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)	--
	BD2-AK.2X/GB32...	0.75 (so, st)	16 (so, st)	0.75 (so, st)	16 (so, st)	Armoring		--
BD2-AK.2X/GB63...	0.75 (so, st)	50 (st)	0.75 (so, st)	50 (st)	Armoring		--	
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	70	10	70	M8
	BD2-AK.3X/GSTZ(A)00	16	70	16	70	10	70	M8
	BD2-AK.3X/GB100...	6 (so, st)	70 (st)	6 (so, st)	70 (st)	Armoring		--
BD2-AK03X/T(S)PNR100...	6 (so, st)	50 (st)	6 (so, st)	50 (st)	Armoring		--	
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	M8
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	M10

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

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

Cable and wiring entries

Type	BD2-AK1/...	BD2-AK.2...	BD2-AK.3...	BD2-AK04	BD2-AK05	BD2-AK06
Cable grommets	M25 ¹⁾	–	–	KT 3 ²⁾	2 × KT 4 ²⁾	2 × KT 4 ²⁾
Cable glands ³⁾	–	M25, M32, M40	M25, M40, 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 × 70	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 single-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.

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.-1000-Z..	1.88
BD2.-1250-L..	1.27
BD2.-1250-Z..	1.88
BD2.-400-T..	2.00
BD2.-400-K..	2.67
BD2.-1000-T..	2.00
BD2.-1000-K..	2.67
BD2.-1250-T..	2.00
BD2.-1250-K..	2.67
Feeding units	
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.3X/LS.-DC (AE)	9.79
BD2-AK.2X/F1451-3(N)	5.9
BD2-AK.3X/LS.-EM	12.8
BD2-AK.3X/GS00	8.07
BD2-AK.3X/GST.00	9.07
BD2-AK03X/FS125...-3	10.0
BD2-AK03X/FS125...-4	13.0
BD2-AK03X/F2258...-3(N)	6.1
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/LS.-DC	17.0
BD2-AK04/LS.-EC	20.0
BD2-AK05/LS.-DC	19.0
BD2-AK05/LS.-EC	23.0
BD2-AK06/LS.-DC	22.0
BD2-AK06/LS.-EC	26.0
Optional equipment	
BD2-400-EK	1.64
BD2-400-FE	-
BD2-400-BB	-

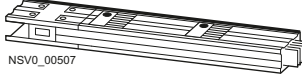

Type	Fire load kWh
BD2-400-HF	-
BD2-400-HFE	-
BD2-400-VF	-
BD2-1250-EK	2.46
BD2-1250-FE	-
BD2-1250-BB	-
BD2-1250-HF	-
BD2-1250-HFE	-
BD2-1250-VF	-
BD2-FFE	-
BD2-FF	-
BD2-FAS	-
BD2-AK...-IP55	-
BD2-400-FS.	-
BD2-1250-FS.	-
BD2-SD163	0.1
BD2-CEE163	0.2
BD2-CEE165	0.2
BD2-CEE325	0.3
BD2-AG	-
BD2-APO	-
BD2-APM	-

BD2 System – 160 ... 1250 A

Trunking units

Selection and ordering data

With aluminum busbars

Version	Rated current I_n	Length	Tap-off points		DT	Tap-off point distance 0.5 m L1, L2, L3, N, 1/2 PE		PS*/ P. unit	Weight per unit approx. kg
			Number	Spacing		Type	Article No.		
	A	m		m					
Standard lengths, with tap-off points on both sides									
With joint block  NSV0_00507	160	3.25	12	0.5		BD2A-2-160-SB-3	BVP:261410	1 unit	20.000
		2.25	8	0.5		BD2A-2-160-SB-2	BVP:260958	1 unit	14.000
		1.25	4	0.5		BD2A-2-160-SB-1	BVP:260957	1 unit	8.400
	250	3.25	12	0.5		BD2A-2-250-SB-3	BVP:261413	1 unit	22.200
		2.25	8	0.5		BD2A-2-250-SB-2	BVP:261412	1 unit	16.500
		1.25	4	0.5		BD2A-2-250-SB-1	BVP:261411	1 unit	8.600
	400	3.25	12	0.5		BD2A-2-400-SB-3	BVP:261419	1 unit	26.800
		2.25	8	0.5		BD2A-2-400-SB-2	BVP:261418	1 unit	19.600
		1.25	4	0.5		BD2A-2-400-SB-1	BVP:261417	1 unit	12.300
	630	3.25	12	0.5		BD2A-2-630-SB-3	BVP:261431	1 unit	38.400
		2.25	8	0.5		BD2A-2-630-SB-2	BVP:261430	1 unit	26.500
		1.25	4	0.5		BD2A-2-630-SB-1	BVP:261429	1 unit	18.500
	800	3.25	12	0.5		BD2A-2-800-SB-3	BVP:261437	1 unit	38.400
		2.25	8	0.5		BD2A-2-800-SB-2	BVP:261436	1 unit	26.500
		1.25	4	0.5		BD2A-2-800-SB-1	BVP:261435	1 unit	18.500
	1000	3.25	12	0.5		BD2A-2-1000-SB-3	BVP:261443	1 unit	48.800
		2.25	8	0.5		BD2A-2-1000-SB-2	BVP:261442	1 unit	33.500
		1.25	4	0.5		BD2A-2-1000-SB-1	BVP:261441	1 unit	22.400
Standard lengths, without tap-off points									
With joint block  NSV0_00508	400	3.25	--	--		BD2A-2-400-SO-3	BVP:261422	1 unit	26.100
		2.25	--	--		BD2A-2-400-SO-2	BVP:261421	1 unit	19.600
		1.25	--	--		BD2A-2-400-SO-1	BVP:261420	1 unit	12.300
	630	3.25	--	--		BD2A-2-630-SO-3	BVP:261434	1 unit	39.400
		2.25	--	--		BD2A-2-630-SO-2	BVP:261433	1 unit	27.500
		1.25	--	--		BD2A-2-630-SO-1	BVP:261432	1 unit	19.000
	800	3.25	--	--		BD2A-2-800-SO-3	BVP:261440	1 unit	39.400
		2.25	--	--		BD2A-2-800-SO-2	BVP:261439	1 unit	27.500
		1.25	--	--		BD2A-2-800-SO-1	BVP:261438	1 unit	19.000
	1000	3.25	--	--		BD2A-2-1000-SO-3	BVP:261446	1 unit	49.800
		2.25	--	--		BD2A-2-1000-SO-2	BVP:261445	1 unit	34.500
		1.25	--	--		BD2A-2-1000-SO-1	BVP:261444	1 unit	22.900

Special colors available on request.

Version	DT	Type suffix	Article No.	PS*/ P. unit	Weight per unit approx. kg
Fire barriers (optional)					
Fire barriers S90		+BD2-S90-BX*-M*	BVP:931956	1 unit	1.000
Fire barriers S120		+BD2-S120-BX*-M*	BVP:931959	1 unit	1.500

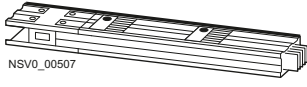


For BX* specify the required dimension in meters from the center of the joint block (end without joint block) to the center of the fire wall or fire ceiling, for -M* specify the wall or ceiling thickness.

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

For approval in Germany:
BD2-S90(S120)-ZUL-D fire barrier kit
see page 4/61.

Fire barrier: Fire resistance rating EI90 and EI120 according to EN 1366-3 and approval papers for Euro standard available soon.

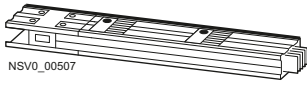

Trunking units

Version	Rated current I_n	Length m	Tap-off points		DT	Tap-off point distance 0.5 m L1, L2, L3, N, PE		PS*/ P. unit	Weight per unit approx. kg
			Number	Spacing m		Type	Article No.		
Standard lengths, with tap-off points on both sides									
With joint block  NSV0_00507	160	3.25	12	0.5		BD2A-3-160-SB-3	BVP:261480	1 unit	20.000
		2.25	8	0.5		BD2A-3-160-SB-2	BVP:261479	1 unit	14.000
		1.25	4	0.5		BD2A-3-160-SB-1	BVP:261478	1 unit	8.400
	250	3.25	12	0.5		BD2A-3-250-SB-3	BVP:261483	1 unit	22.200
		2.25	8	0.5		BD2A-3-250-SB-2	BVP:261482	1 unit	16.500
		1.25	4	0.5		BD2A-3-250-SB-1	BVP:261481	1 unit	8.600
	400	3.25	12	0.5		BD2A-3-400-SB-3	BVP:261489	1 unit	26.000
		2.25	8	0.5		BD2A-3-400-SB-2	BVP:261488	1 unit	19.000
		1.25	4	0.5		BD2A-3-400-SB-1	BVP:261487	1 unit	12.000
	630	3.25	12	0.5		BD2A-3-630-SB-3	BVP:261501	1 unit	39.900
		2.25	8	0.5		BD2A-3-630-SB-2	BVP:261500	1 unit	27.500
		1.25	4	0.5		BD2A-3-630-SB-1	BVP:261499	1 unit	19.100
800	3.25	12	0.5		BD2A-3-800-SB-3	BVP:261507	1 unit	39.900	
	2.25	8	0.5		BD2A-3-800-SB-2	BVP:261506	1 unit	27.500	
	1.25	4	0.5		BD2A-3-800-SB-1	BVP:261505	1 unit	19.100	
1000	3.25	12	0.5		BD2A-3-1000-SB-3	BVP:261513	1 unit	51.000	
	2.25	8	0.5		BD2A-3-1000-SB-2	BVP:261512	1 unit	35.000	
	1.25	4	0.5		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	--	--		BD2A-3-400-SO-3	BVP:261492	1 unit	25.300
		2.25	--	--		BD2A-3-400-SO-2	BVP:261491	1 unit	19.000
		1.25	--	--		BD2A-3-400-SO-1	BVP:261490	1 unit	12.000
	630	3.25	--	--		BD2A-3-630-SO-3	BVP:261504	1 unit	40.900
		2.25	--	--		BD2A-3-630-SO-2	BVP:261503	1 unit	28.500
		1.25	--	--		BD2A-3-630-SO-1	BVP:261502	1 unit	19.600
	800	3.25	--	--		BD2A-3-800-SO-3	BVP:261510	1 unit	40.900
		2.25	--	--		BD2A-3-800-SO-2	BVP:261509	1 unit	28.500
		1.25	--	--		BD2A-3-800-SO-1	BVP:261508	1 unit	19.600
1000	3.25	--	--		BD2A-3-1000-SO-3	BVP:261516	1 unit	52.000	
	2.25	--	--		BD2A-3-1000-SO-2	BVP:261515	1 unit	36.000	
	1.25	--	--		BD2A-3-1000-SO-1	BVP:261514	1 unit	23.700	
Standard length, adaptable on-site, without tap-off points <i>NEW</i>									
With joint block  NSV0_00508	400	1.25	--	--		BD2A-400-WO-AL	BVP:611350	1 unit	12.000
	1000	1.25	--	--		BD2A-1250-WO-AL	BVP:611351	1 unit	23.700

BD2 System – 160 ... 1250 A

Trunking units

With aluminum busbars

Version	Rated current I_n	Length m	Tap-off points		DT	Tap-off point distance 0.5 m L1, L2, L3, N, 1/2 PE		PS*/ P. unit	Weight per unit approx. kg
			Number	Spacing m		Type	Article No.		
Optional lengths, with tap-off points on both sides									
With joint block  NSV0_00507	160	2.26 ... 3.24	8 ... 12	0.5		BD2A-2-160-WB-3W*	BVP:261447	1 unit	20.000
		1.26 ... 2.24	4 ... 8	0.5		BD2A-2-160-WB-2W*	BVP:261448	1 unit	15.000
	250	2.26 ... 3.24	8 ... 12	0.5		BD2A-2-250-WB-3W*	BVP:261449	1 unit	21.900
		1.26 ... 2.24	4 ... 8	0.5		BD2A-2-250-WB-2W*	BVP:261450	1 unit	16.300
	400	2.26 ... 3.24	8 ... 12	0.5		BD2A-2-400-WB-3W*	BVP:261453	1 unit	26.100
		1.26 ... 2.24	4 ... 8	0.5		BD2A-2-400-WB-2W*	BVP:261454	1 unit	19.100
	630	2.26 ... 3.24	8 ... 12	0.5		BD2A-2-630-WB-3W*	BVP:261457	1 unit	44.400
		1.26 ... 2.24	4 ... 8	0.5		BD2A-2-630-WB-2W*	BVP:261458	1 unit	30.500
	800	2.26 ... 3.24	8 ... 12	0.5		BD2A-2-800-WB-3W*	BVP:261459	1 unit	44.400
		1.26 ... 2.24	4 ... 8	0.5		BD2A-2-800-WB-2W*	BVP:261460	1 unit	30.500
	1000	2.26 ... 3.24	8 ... 12	0.5		BD2A-2-1000-WB-3W*	BVP:261461	1 unit	54.800
		1.26 ... 2.24	4 ... 8	0.5		BD2A-2-1000-WB-2W*	BVP:261462	1 unit	37.500
Optional lengths, without tap-off points									
With joint block  NSV0_00508	400	2.26 ... 3.24	--	--		BD2A-2-400-WO-3W*	BVP:261463	1 unit	26.100
		1.26 ... 2.24	--	--		BD2A-2-400-WO-2W*	BVP:261464	1 unit	19.100
		0.50 ... 1.24	--	--		BD2A-2-400-WO-1W*	BVP:261465	1 unit	11.900
	630	2.26 ... 3.24	--	--		BD2A-2-630-WO-3W*	BVP:261469	1 unit	44.400
		1.26 ... 2.24	--	--		BD2A-2-630-WO-2W*	BVP:261470	1 unit	30.500
		0.50 ... 1.24	--	--		BD2A-2-630-WO-1W*	BVP:261471	1 unit	19.300
	800	2.26 ... 3.24	--	--		BD2A-2-800-WO-3W*	BVP:261472	1 unit	44.400
		1.26 ... 2.24	--	--		BD2A-2-800-WO-2W*	BVP:261473	1 unit	30.500
		0.50 ... 1.24	--	--		BD2A-2-800-WO-1W*	BVP:261474	1 unit	19.300
	1000	2.26 ... 3.24	--	--		BD2A-2-1000-WO-3W*	BVP:261475	1 unit	54.800
		1.26 ... 2.24	--	--		BD2A-2-1000-WO-2W*	BVP:261476	1 unit	37.500
		0.50 ... 1.24	--	--		BD2A-2-1000-WO-1W*	BVP:261477	1 unit	23.200

For W*, you must specify the required dimension in meters between the center of one joint block to the center of the next, e.g. -3W2.50.

For optional lengths see page 4/73.

Special colors available on request.

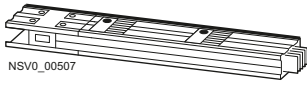

Version	DT	Type suffix	Article No.	PS*/ P. unit	Weight per unit approx. kg
Fire barriers (optional)					
Fire barriers S90		+BD2-S90-BX*-M*	BVP:931956	1 unit	1.000
Fire barriers S120		+BD2-S120-BX*-M*	BVP:931959	1 unit	1.500

For BX* specify the required dimension in meters from the center of the joint block (end without joint block) to the center of the fire wall or fire ceiling, for -M* specify the wall or ceiling thickness.

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

For approval in Germany:
BD2-S90(S120)-ZUL-D fire barrier kit
see page 4/61.

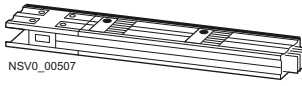
Fire barrier: Fire resistance rating EI90 and EI120 according to EN 1366-3 and approval papers for Euro standard available soon.

Version	Rated current I_n	Length m	Tap-off points		DT	Tap-off point distance 0.5 m L1, L2, L3, N, PE		PS*/ P. unit	Weight per unit approx. kg			
			Number	Spacing m		Type	Article No.					
Optional lengths, with tap-off points on both sides												
With joint block  NSV0_00507	160	2.26 ... 3.24	8 ... 12	0.5	BD2A-3-160-WB-3W*	BVP:261517	1 unit	20.000				
		1.26 ... 2.24	4 ... 8	0.5					BD2A-3-160-WB-2W*	BVP:261518	1 unit	15.000
	250	2.26 ... 3.24	8 ... 12	0.5	BD2A-3-250-WB-3W*	BVP:261519	1 unit	21.900				
		1.26 ... 2.24	4 ... 8	0.5					BD2A-3-250-WB-2W*	BVP:261520	1 unit	16.300
	400	2.26 ... 3.24	8 ... 12	0.5	BD2A-3-400-WB-3W*	BVP:261523	1 unit	25.300				
		1.26 ... 2.24	4 ... 8	0.5					BD2A-3-400-WB-2W*	BVP:261524	1 unit	18.500
	630	2.26 ... 3.24	8 ... 12	0.5	BD2A-3-630-WB-3W*	BVP:261527	1 unit	45.900				
		1.26 ... 2.24	4 ... 8	0.5					BD2A-3-630-WB-2W*	BVP:261528	1 unit	31.500
	800	2.26 ... 3.24	8 ... 12	0.5	BD2A-3-800-WB-3W*	BVP:261529	1 unit	45.900				
		1.26 ... 2.24	4 ... 8	0.5					BD2A-3-800-WB-2W*	BVP:261530	1 unit	31.500
	1000	2.26 ... 3.24	8 ... 12	0.5	BD2A-3-1000-WB-3W*	BVP:261531	1 unit	57.000				
		1.26 ... 2.24	4 ... 8	0.5					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	--	--	BD2A-3-400-WO-3W*	BVP:261533	1 unit	25.300				
		1.26 ... 2.24	--	--					BD2A-3-400-WO-2W*	BVP:261534	1 unit	18.500
		0.50 ... 1.24	--	--					BD2A-3-400-WO-1W*	BVP:261535	1 unit	11.600
	630	2.26 ... 3.24	--	--	BD2A-3-630-WO-3W*	BVP:261539	1 unit	45.900				
		1.26 ... 2.24	--	--					BD2A-3-630-WO-2W*	BVP:261540	1 unit	31.500
		0.50 ... 1.24	--	--					BD2A-3-630-WO-1W*	BVP:261541	1 unit	19.900
	800	2.26 ... 3.24	--	--	BD2A-3-800-WO-3W*	BVP:261542	1 unit	45.900				
		1.26 ... 2.24	--	--					BD2A-3-800-WO-2W*	BVP:261543	1 unit	31.500
		0.50 ... 1.24	--	--					BD2A-3-800-WO-1W*	BVP:261544	1 unit	19.900
	1000	2.26 ... 3.24	--	--	BD2A-3-1000-WO-3W*	BVP:261545	1 unit	57.000				
		1.26 ... 2.24	--	--					BD2A-3-1000-WO-2W*	BVP:261546	1 unit	39.000
		0.50 ... 1.24	--	--					BD2A-3-1000-WO-1W*	BVP:261547	1 unit	24.000


BD2 System – 160 ... 1250 A

Trunking units

With copper busbars

Version	Rated current I_n	Length	Tap-off points		DT	Tap-off point distance 0.5 m L1, L2, L3, N, 1/2 PE		PS*/ P. unit	Weight per unit approx.
			Number	Spacing		Type	Article No.		
	A	m		m				kg	
Standard lengths, with tap-off points on both sides									
With joint block  NSV0_00507	160	3.25	12	0.5		BD2C-2-160-SB-3	BVP:261631	1 unit	27.500
		2.25	8	0.5		BD2C-2-160-SB-2	BVP:261630	1 unit	20.100
		1.25	4	0.5		BD2C-2-160-SB-1	BVP:261629	1 unit	10.600
	250	3.25	12	0.5		BD2C-2-250-SB-3	BVP:261634	1 unit	27.500
		2.25	8	0.5		BD2C-2-250-SB-2	BVP:261633	1 unit	20.100
		1.25	4	0.5		BD2C-2-250-SB-1	BVP:261632	1 unit	10.600
	400	3.25	12	0.5		BD2C-2-400-SB-3	BVP:261640	1 unit	33.200
		2.25	8	0.5		BD2C-2-400-SB-2	BVP:261639	1 unit	23.900
		1.25	4	0.5		BD2C-2-400-SB-1	BVP:261638	1 unit	14.700
	630	3.25	12	0.5		BD2C-2-630-SB-3	BVP:261652	1 unit	57.400
		2.25	8	0.5		BD2C-2-630-SB-2	BVP:261651	1 unit	39.500
		1.25	4	0.5		BD2C-2-630-SB-1	BVP:261650	1 unit	25.600
	800	3.25	12	0.5		BD2C-2-800-SB-3	BVP:261658	1 unit	57.400
		2.25	8	0.5		BD2C-2-800-SB-2	BVP:261657	1 unit	39.500
		1.25	4	0.5		BD2C-2-800-SB-1	BVP:261656	1 unit	25.600
	1000	3.25	12	0.5		BD2C-2-1000-SB-3	BVP:261664	1 unit	76.800
		2.25	8	0.5		BD2C-2-1000-SB-2	BVP:261663	1 unit	52.800
		1.25	4	0.5		BD2C-2-1000-SB-1	BVP:261662	1 unit	32.900
	1250	3.25	12	0.5		BD2C-2-1250-SB-3	BVP:261670	1 unit	112.900
		2.25	8	0.5		BD2C-2-1250-SB-2	BVP:261669	1 unit	77.600
		1.25	4	0.5		BD2C-2-1250-SB-1	BVP:261668	1 unit	46.400

Standard lengths, without tap-off points

With joint block  NSV0_00508	400	3.25	--	--		BD2C-2-400-SO-3	BVP:261643	1 unit	32.500
		2.25	--	--		BD2C-2-400-SO-2	BVP:261642	1 unit	23.900
		1.25	--	--		BD2C-2-400-SO-1	BVP:261641	1 unit	14.700
	630	3.25	--	--		BD2C-2-630-SO-3	BVP:261655	1 unit	58.400
		2.25	--	--		BD2C-2-630-SO-2	BVP:261654	1 unit	40.500
		1.25	--	--		BD2C-2-630-SO-1	BVP:261653	1 unit	26.100
	800	3.25	--	--		BD2C-2-800-SO-3	BVP:261661	1 unit	58.400
		2.25	--	--		BD2C-2-800-SO-2	BVP:261660	1 unit	40.500
		1.25	--	--		BD2C-2-800-SO-1	BVP:261659	1 unit	26.100
	1000	3.25	--	--		BD2C-2-1000-SO-3	BVP:261667	1 unit	77.800
		2.25	--	--		BD2C-2-1000-SO-2	BVP:261666	1 unit	53.800
		1.25	--	--		BD2C-2-1000-SO-1	BVP:261665	1 unit	33.400
	1250	3.25	--	--		BD2C-2-1250-SO-3	BVP:261673	1 unit	113.900
		2.25	--	--		BD2C-2-1250-SO-2	BVP:261672	1 unit	78.600
		1.25	--	--		BD2C-2-1250-SO-1	BVP:261671	1 unit	46.900

Special colors available on request.

Version	DT	Type suffix	Article No.	PS*/ P. unit	Weight per unit approx.
					kg

Fire barriers (optional)

Fire barriers S120		+BD2-S120-BX*-M*	BVP:931959	1 unit	1.500
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For BX* specify the required dimension in meters from the center of the joint block (end without joint block) to the center of the fire wall or fire ceiling, for -M* specify the wall or ceiling thickness.

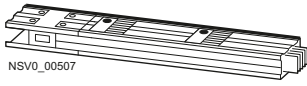


For the configuration of the fire barrier, see page 4/87.

For approval in Germany:

BD2-S90(S120)-ZUL-D fire barrier kit
see page 4/61.

Fire barrier: Fire resistance rating EI90 and EI120 according to EN 1366-3 and approval papers for Euro standard available soon.

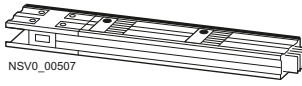

With copper busbars

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

BD2 System – 160 ... 1250 A

Trunking units

With copper busbars

Version	Rated current I_n	Length m	Tap-off points		DT	Tap-off point distance 0.5 m L1, L2, L3, N, 1/2 PE		PS*/ P. unit	Weight per unit approx. kg
			Number	Spacing m		Type	Article No.		
Optional lengths, with tap-off points on both sides									
With joint block  NSV0_00507	160	2.26 ... 3.24	8 ... 12	0.5		BD2C-2-160-WB-3W*	BVP:261674	1 unit	27.200
		1.26 ... 2.24	4 ... 8	0.5		BD2C-2-160-WB-2W*	BVP:261675	1 unit	19.900
	250	2.26 ... 3.24	8 ... 12	0.5		BD2C-2-250-WB-3W*	BVP:261676	1 unit	27.200
		1.26 ... 2.24	4 ... 8	0.5		BD2C-2-250-WB-2W*	BVP:261677	1 unit	19.900
	400	2.26 ... 3.24	8 ... 12	0.5		BD2C-2-400-WB-3W*	BVP:261680	1 unit	32.500
		1.26 ... 2.24	4 ... 8	0.5		BD2C-2-400-WB-2W*	BVP:261681	1 unit	23.400
	630	2.26 ... 3.24	8 ... 12	0.5		BD2C-2-630-WB-3W*	BVP:261684	1 unit	63.400
		1.26 ... 2.24	4 ... 8	0.5		BD2C-2-630-WB-2W*	BVP:261685	1 unit	43.500
	800	2.26 ... 3.24	8 ... 12	0.5		BD2C-2-800-WB-3W*	BVP:261686	1 unit	63.400
		1.26 ... 2.24	4 ... 8	0.5		BD2C-2-800-WB-2W*	BVP:261687	1 unit	43.500
	1000	2.26 ... 3.24	8 ... 12	0.5		BD2C-2-1000-WB-3W*	BVP:261688	1 unit	82.800
		1.26 ... 2.24	4 ... 8	0.5		BD2C-2-1000-WB-2W*	BVP:261689	1 unit	56.800
	1250	2.26 ... 3.24	8 ... 12	0.5		BD2C-2-1250-WB-3W*	BVP:261690	1 unit	118.900
		1.26 ... 2.24	4 ... 8	0.5		BD2C-2-1250-WB-2W*	BVP:261691	1 unit	81.600
Optional lengths, without tap-off points									
With joint block  NSV0_00508	400	2.26 ... 3.24	--	--		BD2C-2-400-WO-3W*	BVP:261692	1 unit	32.500
		1.26 ... 2.24	--	--		BD2C-2-400-WO-2W*	BVP:261693	1 unit	23.400
		0.50 ... 1.24	--	--		BD2C-2-400-WO-1W*	BVP:261694	1 unit	14.300
	630	2.26 ... 3.24	--	--		BD2C-2-630-WO-3W*	BVP:261698	1 unit	63.400
		1.26 ... 2.24	--	--		BD2C-2-630-WO-2W*	BVP:261699	1 unit	43.500
		0.50 ... 1.24	--	--		BD2C-2-630-WO-1W*	BVP:261700	1 unit	26.400
	800	2.26 ... 3.24	--	--		BD2C-2-800-WO-3W*	BVP:261701	1 unit	63.400
		1.26 ... 2.24	--	--		BD2C-2-800-WO-2W*	BVP:261702	1 unit	43.500
		0.50 ... 1.24	--	--		BD2C-2-800-WO-1W*	BVP:261703	1 unit	26.400
	1000	2.26 ... 3.24	--	--		BD2C-2-1000-WO-3W*	BVP:261704	1 unit	82.800
		1.26 ... 2.24	--	--		BD2C-2-1000-WO-2W*	BVP:261705	1 unit	56.800
		0.50 ... 1.24	--	--		BD2C-2-1000-WO-1W*	BVP:261706	1 unit	33.700
	1250	2.26 ... 3.24	--	--		BD2C-2-1250-WO-3W*	BVP:261707	1 unit	118.900
		1.26 ... 2.24	--	--		BD2C-2-1250-WO-2W*	BVP:261708	1 unit	81.600
		0.50 ... 1.24	--	--		BD2C-2-1250-WO-1W*	BVP:261709	1 unit	47.200

For W*, you must specify the required dimension in meters between the center of one joint block to the center of the next, e.g. -3W2.50.

For optional lengths see page 4/73.

Special colors available on request.

Version	DT	Type suffix	Article No.	PS*/ P. unit	Weight per unit approx. kg
Fire barriers (optional)					
Fire barriers S120		+BD2-S120-BX*-M*	BVP:931959	1 unit	1.500

For BX* specify the required dimension in meters from the center of the joint block (end without joint block) to the center of the fire wall or fire ceiling, for -M* specify the wall or ceiling thickness.

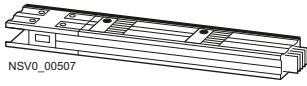

For the configuration of the fire barrier, see page 4/87.

For approval in Germany:

BD2-S90(S120)-ZUL-D fire barrier kit
see page 4/61.

Fire barrier: Fire resistance rating EI90 and EI120 according to EN 1366-3 and approval papers for Euro standard available soon.

With copper busbars

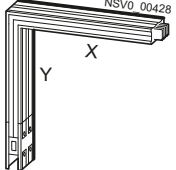
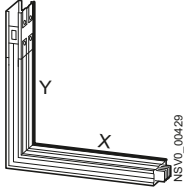
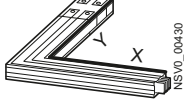
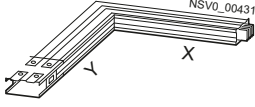
Version	Rated current I_n	Length	Tap-off points		DT	Tap-off point distance 0.5 m L1, L2, L3, N, PE		PS*/ P. unit	Weight per unit approx.
			Number	Spacing		Type	Article No.		
	A	m		m				kg	
Optional lengths, with tap-off points on both sides									
With joint block  NSV0_00507	160	2.26 ... 3.24	8 ... 12	0.5		BD2C-3-160-WB-3W*	BVP:261755	1 unit	27.200
		1.26 ... 2.24	4 ... 8	0.5		BD2C-3-160-WB-2W*	BVP:261756	1 unit	19.900
	250	2.26 ... 3.24	8 ... 12	0.5		BD2C-3-250-WB-3W*	BVP:261757	1 unit	27.200
		1.26 ... 2.24	4 ... 8	0.5		BD2C-3-250-WB-2W*	BVP:261758	1 unit	19.900
	400	2.26 ... 3.24	8 ... 12	0.5		BD2C-3-400-WB-3W*	BVP:261761	1 unit	33.700
		1.26 ... 2.24	4 ... 8	0.5		BD2C-3-400-WB-2W*	BVP:261762	1 unit	24.200
	630	2.26 ... 3.24	8 ... 12	0.5		BD2C-3-630-WB-3W*	BVP:261765	1 unit	66.800
		1.26 ... 2.24	4 ... 8	0.5		BD2C-3-630-WB-2W*	BVP:261766	1 unit	45.900
	800	2.26 ... 3.24	8 ... 12	0.5		BD2C-3-800-WB-3W*	BVP:261767	1 unit	66.800
		1.26 ... 2.24	4 ... 8	0.5		BD2C-3-800-WB-2W*	BVP:261768	1 unit	45.900
	1000	2.26 ... 3.24	8 ... 12	0.5		BD2C-3-1000-WB-3W*	BVP:261769	1 unit	86.700
		1.26 ... 2.24	4 ... 8	0.5		BD2C-3-1000-WB-2W*	BVP:261770	1 unit	59.500
	1250	2.26 ... 3.24	8 ... 12	0.5		BD2C-3-1250-WB-3W*	BVP:261771	1 unit	126.900
		1.26 ... 2.24	4 ... 8	0.5		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	--	--		BD2C-3-400-WO-3W*	BVP:261773	1 unit	33.700
		1.26 ... 2.24	--	--		BD2C-3-400-WO-2W*	BVP:261774	1 unit	24.200
		0.50 ... 1.24	--	--		BD2C-3-400-WO-1W*	BVP:261775	1 unit	14.700
	630	2.26 ... 3.24	--	--		BD2C-3-630-WO-3W*	BVP:261779	1 unit	66.800
		1.26 ... 2.24	--	--		BD2C-3-630-WO-2W*	BVP:261780	1 unit	45.900
		0.50 ... 1.24	--	--		BD2C-3-630-WO-1W*	BVP:261781	1 unit	27.700
	800	2.26 ... 3.24	--	--		BD2C-3-800-WO-3W*	BVP:261782	1 unit	66.800
		1.26 ... 2.24	--	--		BD2C-3-800-WO-2W*	BVP:261783	1 unit	45.900
		0.50 ... 1.24	--	--		BD2C-3-800-WO-1W*	BVP:261784	1 unit	27.700
	1000	2.26 ... 3.24	--	--		BD2C-3-1000-WO-3W*	BVP:261785	1 unit	86.700
		1.26 ... 2.24	--	--		BD2C-3-1000-WO-2W*	BVP:261786	1 unit	59.500
		0.50 ... 1.24	--	--		BD2C-3-1000-WO-1W*	BVP:261787	1 unit	34.900
	1250	2.26 ... 3.24	--	--		BD2C-3-1250-WO-3W*	BVP:261788	1 unit	126.900
		1.26 ... 2.24	--	--		BD2C-3-1250-WO-2W*	BVP:261789	1 unit	87.100
		0.50 ... 1.24	--	--		BD2C-3-1250-WO-1W*	BVP:261790	1 unit	50.200

BD2 System – 160 ... 1250 A

Junction units

Selection and ordering data

With aluminum busbars

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

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 (see also page 4/73).

Special colors available on request.

Version	DT	Type suffix	Article No.	PS*/ P. unit	Weight per unit approx. kg
Fire barrier for L-units (optional)					
Fire barrier S90 in X dimension		+BD2-S90-BX*-M*	BVP:931956	1 unit	1.000
Fire barrier S90 in Y dimension		+BD2-S90-BY*-M*	BVP:931957	1 unit	1.000
Fire barrier S120 in X dimension		+BD2-S120-BX*-M*	BVP:931959	1 unit	1.500
Fire barrier S120 in Y dimension		+BD2-S120-BY*-M*	BVP:931960	1 unit	1.500

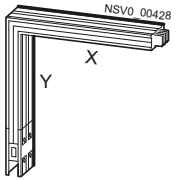
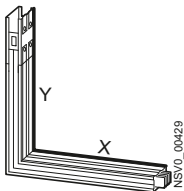
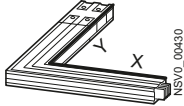
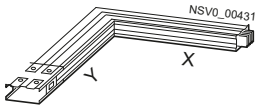
For BX* or BY you must specify the required dimension in meters from the center of the joint block (for BX*: end without joint block) to the center of the fire wall or fire ceiling, for -M* specify the wall or ceiling thickness.

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

For approval in Germany:
BD2-S90(S120)-ZUL-D fire barrier kit
see page 4/61.

Fire barrier: Fire resistance rating EI90 and EI120 according to EN 1366-3 and approval papers for Euro standard available soon.

With aluminum busbars

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

Optional lengths:

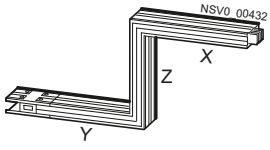
For X* and Y* you must specify the required dimension in meters from the center of the joint block to the outside edge of the trunking unit (see also page 4/73).

Special colors available on request.

BD2 System – 160 ... 1250 A

Junction units

With aluminum busbars

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

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 outer edge to the outer edge of the trunking unit (see also page 4/73).

Special colors available on request.

Fire barrier on the Z dimension as standard on request.

With aluminum busbars

Version	Length/ Optional length	DT	Rated current I_n 630 A, 800 A, 1000 A	Type	Article No.	PS/ P. unit	Weight per unit approx. kg
Z-units (with joint block) (fitted to Y as standard)							
Rear	 X0.36/ Y0.36/ Z0.26 ... 1.25 X0.36 ... 0.60/ Y0.36 ... 0.60/ Z0.26 ... 1.25			BD2A-1000-ZH-Z*	BVP:261818	1 unit	26.000
				BD2A-1000-ZH-X*/Y*/Z*	BVP:261826	1 unit	32.000
Front	 X0.36/ Y0.36/ Z0.26 ... 1.25 X0.36 ... 0.60/ Y0.36 ... 0.60/ Z0.26 ... 1.25			BD2A-1000-ZV-Z*	BVP:261817	1 unit	26.000
				BD2A-1000-ZV-X*/Y*/Z*	BVP:261825	1 unit	32.000
Right	 X0.36/ Y0.36/ Z0.34 ... 1.25 X0.36 ... 0.60/ Y0.36 ... 0.60/ Z0.34 ... 1.25			BD2A-1000-ZR-Z*	BVP:261815	1 unit	26.000
				BD2A-1000-ZR-X*/Y*/Z*	BVP:261823	1 unit	32.000
Left	 X0.36/ Y0.36/ Z0.34 ... 1.25 X0.36 ... 0.60/ Y0.36 ... 0.60/ Z0.34 ... 1.25			BD2A-1000-ZL-Z*	BVP:261816	1 unit	26.000
				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 outer edge to the outer edge of the trunking unit (see also page 4/73).

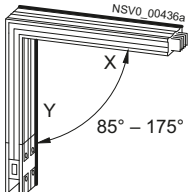
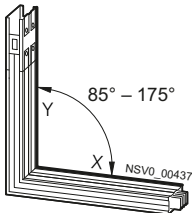
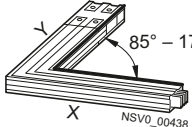
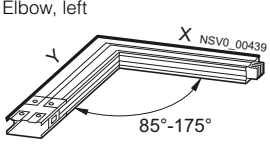
Special colors available on request.

Fire barrier on the Z dimension as standard on request.

BD2 System – 160 ... 1250 A

Junction units

With aluminum busbars

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

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 (see also page 4/73).

Special colors available on request.

Version	Type suffix	Article No.	PS*/ P. unit	Weight per unit approx. kg
Fire barrier for L-units (optional)				
Fire barrier S90 in X dimension	+BD2-S90-BX*-M*	BVP:931956	1 unit	1.000
Fire barrier S90 in Y dimension	+BD2-S90-BY*-M*	BVP:931957	1 unit	1.000
Fire barrier S120 in X dimension	+BD2-S120-BX*-M*	BVP:931959	1 unit	1.500
Fire barrier S120 in Y dimension	+BD2-S120-BY*-M*	BVP:931960	1 unit	1.500

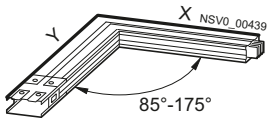
For BX* or BY you must specify the required dimension in meters from the center of the joint block (for BX*: end without joint block) to the center of the fire wall or fire ceiling, for -M* specify the wall or ceiling thickness.

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

For approval in Germany:
BD2-S90(S120)-ZUL-D fire barrier kit
see page 4/61.

Fire barrier: Fire resistance rating EI90 and EI120 according to EN 1366-3 and approval papers for Euro standard available soon.

With aluminum busbars

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

Elbow: For G* you must specify the required number of degrees in 5° increments.

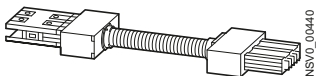
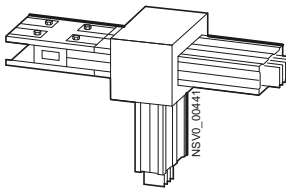
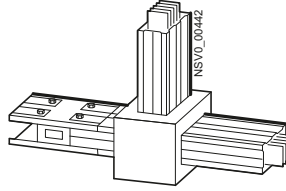
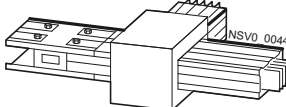
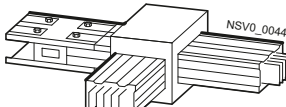
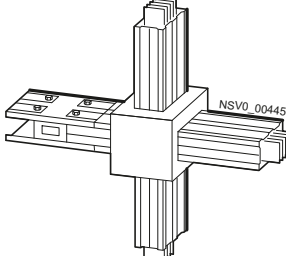
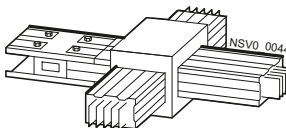
Optional lengths: For X* and Y* you must specify the required dimension in meters from the center of the joint block to the outside edge of the trunking unit (see also page 4/73).

Special colors available on request.

BD2 System – 160 ... 1250 A

Junction units

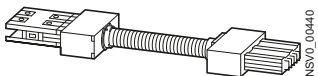
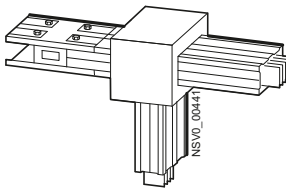
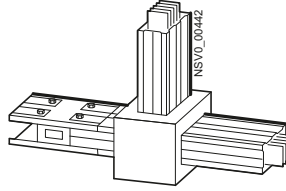
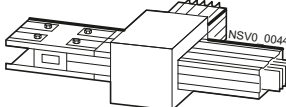
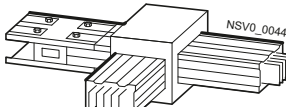
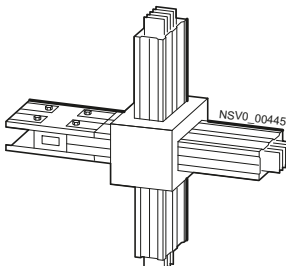
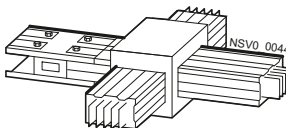
With aluminum busbars

Version	Length	DT	Rated current I_n 160 A, 250 A, 400 A	Type	Article No.	PS*/ P. unit	Weight per unit approx. kg
Flexible junction units (with joint block)¹⁾ (fitted to Y as standard)							
 NSV0_00440	1.25		BD2-400-R		BVP:045889	1 unit	11.000
T-units (with joint block)							
Rear  NSV0_00443	0.36		BD2A-400-TH		BVP:261797	1 unit	12.800
Front  NSV0_00442	0.36		BD2A-400-TV		BVP:261800	1 unit	12.800
Right  NSV0_00443	0.36		BD2A-400-TR		BVP:261799	1 unit	12.800
Left  NSV0_00444	0.36		BD2A-400-TL		BVP:261798	1 unit	12.800
K-units (with joint block)							
Front/rear  NSV0_00445	0.36		BD2A-400-KVH		BVP:261792	1 unit	15.300
Right/left  NSV0_00446	0.36		BD2A-400-KRL		BVP:261791	1 unit	15.300

Special colors available on request.

¹⁾ Upgradable to max. IP54.

With aluminum busbars

Version	Length	DT	Rated current I_n 630 A, 800 A, 1000 A ¹⁾	PS*/ P. unit	Weight per unit approx.
			Type	Article No.	kg
Flexible junction units (with joint block)²⁾					
(fitted to Y as standard)					
 NSV0_00440	1.75 ¹⁾		BD2-800-R	BVP:045890	1 unit 22.000
T-units (with joint block)					
Rear	0.36		BD2A-1000-TH	BVP:261807	1 unit 25.000
 NSV0_00443					
Front	0.36		BD2A-1000-TV	BVP:261810	1 unit 25.000
 NSV0_00442					
Right	0.36		BD2A-1000-TR	BVP:261809	1 unit 25.000
 NSV0_00443					
Left	0.36		BD2A-1000-TL	BVP:261808	1 unit 25.000
 NSV0_00444					
K-units (with joint block)					
Front/rear	0.36		BD2A-1000-KVH	BVP:261802	1 unit 32.000
 NSV0_00445					
Right/left	0.36		BD2A-1000-KRL	BVP:261801	1 unit 32.000
 NSV0_00446					

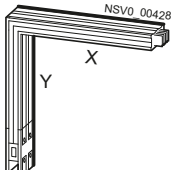
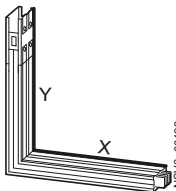
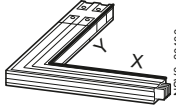
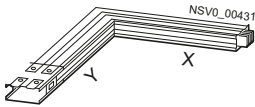
Special colors available on request.

¹⁾ BD2-800-R for use up to 800 A.²⁾ Upgradable to max. IP54.

BD2 System – 160 ... 1250 A

Junction units

With copper busbars

Version	Length/ Optional length	DT	Rated current I_n 160 A, 250 A, 400 A	PS*/ P. unit	Weight per unit approx. kg
			Type	Article No.	
L-units (with joint block) (fitted to Y as standard)					
Knee, rear 	X0.36/ Y0.36		BD2C-400-LH	BVP:261885	1 unit 15.200
	X0.36 ... 1.25/ Y0.36		BD2C-400-LH-X*	BVP:261938	1 unit 31.500
	X0.36/ Y0.36 ... 1.25		BD2C-400-LH-Y*	BVP:261939	1 unit 31.500
	X0.36 ... 1.25/ Y0.36 ... 1.25		BD2C-400-LH-X*/Y*	BVP:261940	1 unit 48.200
Knee, front 	X0.36/ Y0.36		BD2C-400-LV	BVP:261888	1 unit 15.200
	X0.36 ... 1.25/ Y0.36		BD2C-400-LV-X*	BVP:261941	1 unit 31.500
	X0.36/ Y0.36 ... 1.25		BD2C-400-LV-Y*	BVP:261942	1 unit 31.500
	X0.36 ... 1.25/ Y0.36 ... 1.25		BD2C-400-LV-X*/Y*	BVP:261943	1 unit 48.200
Elbow, right 	X0.36/ Y0.36		BD2C-400-LR	BVP:261887	1 unit 13.300
	X0.36 ... 1.25/ Y0.36		BD2C-400-LR-X*	BVP:261944	1 unit 30.100
	X0.36/ Y0.36 ... 1.25		BD2C-400-LR-Y*	BVP:261945	1 unit 30.100
	X0.36 ... 1.25/ Y0.36 ... 1.25		BD2C-400-LR-X*/Y*	BVP:261946	1 unit 46.600
Elbow, left 	X0.36/ Y0.36		BD2C-400-LL	BVP:261886	1 unit 13.300
	X0.36 ... 1.25/ Y0.36		BD2C-400-LL-X*	BVP:261947	1 unit 30.100
	X0.36/ Y0.36 ... 1.25		BD2C-400-LL-Y*	BVP:261948	1 unit 30.100
	X0.36 ... 1.25/ Y0.36 ... 1.25		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 4/73).

Special colors available on request.

Version	DT	Type suffix	Article No.	PS*/ P. unit	Weight per unit approx. kg
Fire barrier for L-units (optional)					
Fire barrier S120 in X dimension		+BD2-S120-BX*-M*	BVP:931959	1 unit	1.500
Fire barrier S120 in Y dimension		+BD2-S120-BY*-M*	BVP:931960	1 unit	1.500

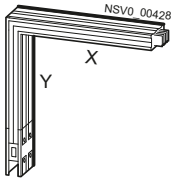
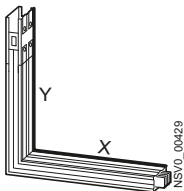
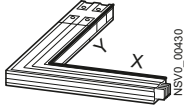
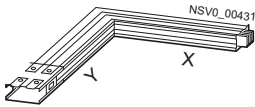
For BX* or BY you must specify the required dimension in meters from the center of the joint block (for BX*: end without joint block) to the center of the fire wall or fire ceiling, for -M* specify the wall or ceiling thickness.

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

For approval in Germany:
BD2-S90(S120)-ZUL-D fire barrier kit
see page 4/61.

Fire barrier: Fire resistance rating EI90 and EI120 according to EN 1366-3 and approval papers for Euro standard available soon.

With copper busbars

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

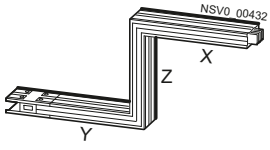
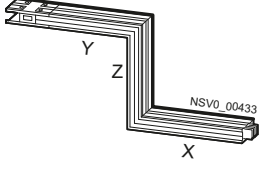
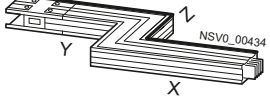
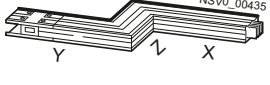
Optional lengths: For X* and Y* you must specify the required dimension in meters from the center of the joint block to the outside edge of the trunking unit (see also page 4/73).

Special colors available on request.

BD2 System – 160 ... 1250 A

Junction units

With copper busbars

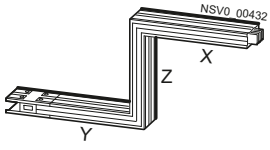
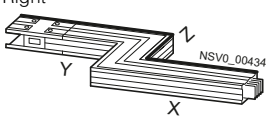
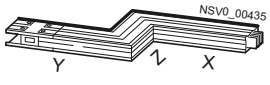
Version	Length/ Optional length	DT	Rated current I_n 160 A, 250 A, 400 A	Type	Article No.	PS*/ P. unit	Weight per unit approx. kg
Z-units (with joint block) (fitted to Y as standard)							
Rear	 X0.36/ Y0.36/ Z0.14 ... 1.25 X0.36 ... 0.60/ Y0.36 ... 0.60/ Z0.14 ... 1.25		BD2C-400-ZH-Z*	BVP:261906	1 unit	29.700	
				BD2C-400-ZH-X*/Y*/Z*	BVP:261914	1 unit	37.100
Front	 X0.36/ Y0.36/ Z0.14 ... 1.25 X0.36 ... 0.60/ Y0.36 ... 0.60/ Z0.14 ... 1.25		BD2C-400-ZV-Z*	BVP:261905	1 unit	29.700	
				BD2C-400-ZV-X*/Y*/Z*	BVP:261913	1 unit	37.100
Right	 X0.36/ Y0.36/ Z0.34 ... 1.25 X0.36 ... 0.60/ Y0.36 ... 0.60/ Z0.34 ... 1.25		BD2C-400-ZR-Z*	BVP:261903	1 unit	27.600	
				BD2C-400-ZR-X*/Y*/Z*	BVP:261911	1 unit	34.100
Left	 X0.36/ Y0.36/ Z0.34 ... 1.25 X0.36 ... 0.60/ Y0.36 ... 0.60/ Z0.34 ... 1.25		BD2C-400-ZL-Z*	BVP:261904	1 unit	27.600	
				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 outer edge to the outer edge of the trunking unit (see also page 4/73).

Special colors available on request.

Fire barrier on the Z dimension as standard on request.

With copper busbars

Version	Length/ Optional length	DT	Rated current I_n 630 A, 800 A, 1000 A, 1250 A	PS*/ P. unit	Weight per unit approx. kg
			Type	Article No.	
Z-units (with joint block) (fitted to Y as standard)					
Rear	 X0.36/ Y0.36/ Z0.26 ... 1.25 X0.36 ... 0.60/ Y0.36 ... 0.60/ Z0.26 ... 1.25		BD2C-1250-ZH-Z*	BVP:261910	1 unit 67.800
			BD2C-1250-ZH-X*/Y*/Z*	BVP:261918	1 unit 83.500
Front	 X0.36/ Y0.36/ Z0.26 ... 1.25 X0.36 ... 0.60/ Y0.36 ... 0.60/ Z0.26 ... 1.25		BD2C-1250-ZV-Z*	BVP:261909	1 unit 67.800
			BD2C-1250-ZV-X*/Y*/Z*	BVP:261917	1 unit 83.500
Right	 X0.36/ Y0.36/ Z0.34 ... 1.25 X0.36 ... 0.60/ Y0.36 ... 0.60/ Z0.34 ... 1.25		BD2C-1250-ZR-Z*	BVP:261907	1 unit 64.300
			BD2C-1250-ZR-X*/Y*/Z*	BVP:261915	1 unit 78.600
Left	 X0.36/ Y0.36/ Z0.34 ... 1.25 X0.36 ... 0.60/ Y0.36 ... 0.60/ Z0.34 ... 1.25		BD2C-1250-ZL-Z*	BVP:261908	1 unit 64.300
			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 outer edge to the outer edge of the trunking unit (see also page 4/73).

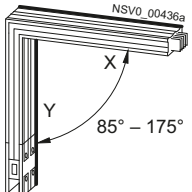
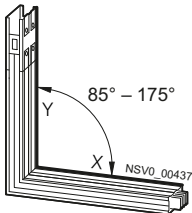
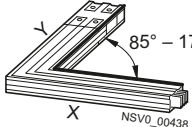
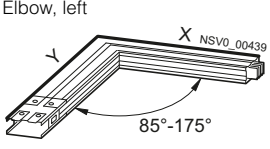
Special colors available on request.

Fire barrier on the Z dimension as standard on request.

BD2 System – 160 ... 1250 A

Junction units

With copper busbars

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

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 (see also page 4/73).

Special colors available on request.

Version	DT	Type suffix	Article No.	PS*/ P. unit	Weight per unit approx. kg
Fire barrier for L-units (optional)					
Fire barrier S120 in X dimension		+BD2-S120-BX*-M*	BVP:931959	1 unit	1.500
Fire barrier S120 in Y dimension		+BD2-S120-BY*-M*	BVP:931960	1 unit	1.500

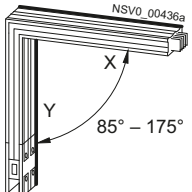
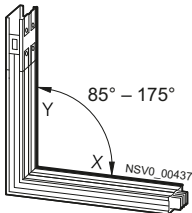
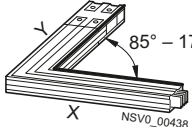
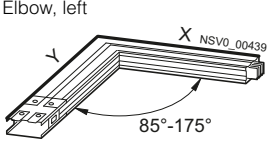
For BX* or BY you must specify the required dimension in meters from the center of the joint block (for BX*: end without joint block) to the center of the fire wall or fire ceiling, for -M* specify the wall or ceiling thickness.

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

For approval in Germany:
BD2-S90(S120)-ZUL-D fire barrier kit
see page 4/61.

Fire barrier: Fire resistance rating EI90 and EI120 according to EN 1366-3 and approval papers for Euro standard available soon.

With copper busbars

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

Elbow: For G* you must specify the required number of degrees in 5° increments.

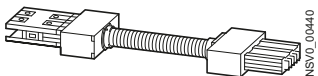
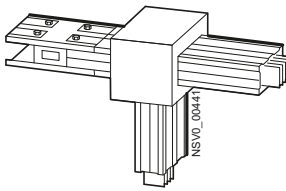
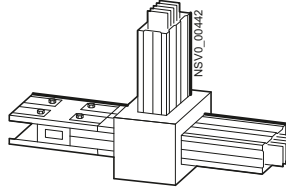
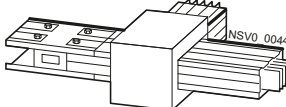
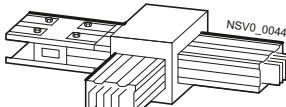
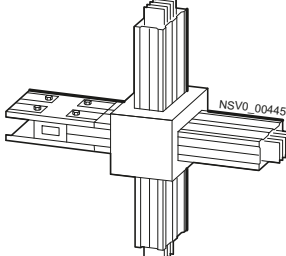
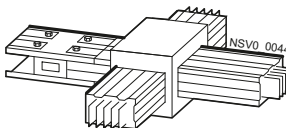
Optional lengths: For X* and Y* you must specify the required dimension in meters from the center of the joint block to the outside edge of the trunking unit (see also page 4/73).

Special colors available on request.

BD2 System – 160 ... 1250 A

Junction units

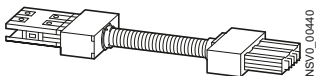
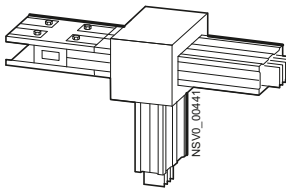
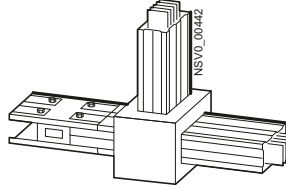
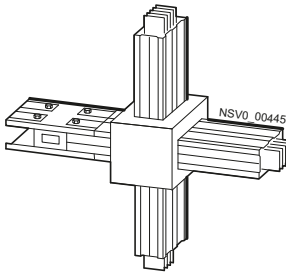
With copper busbars

Version	Length	DT	Rated current I_n 160 A, 250 A, 400 A	Type	Article No.	PS*/ P. unit	Weight per unit approx. kg
Flexible junction units (with joint block)¹⁾ (fitted to Y as standard)							
 NSV0_00440	1.25		BD2-400-R		BVP:045889	1 unit	11.000
T-units (with joint block)							
Rear  NSV0_00443	0.36		BD2C-400-TH		BVP:261889	1 unit	21.900
Front  NSV0_00442	0.36		BD2C-400-TV		BVP:261892	1 unit	21.900
Right  NSV0_00443	0.36		BD2C-400-TR		BVP:261891	1 unit	16.700
Left  NSV0_00444	0.36		BD2C-400-TL		BVP:261890	1 unit	16.700
K-units (with joint block)							
Front/rear  NSV0_00445	0.36		BD2C-400-KVH		BVP:261884	1 unit	27.100
Right/left  NSV0_00446	0.36		BD2C-400-KRL		BVP:261883	1 unit	20.300

Special colors available on request.

¹⁾ Upgradable to max. IP54.

With copper busbars

Version	Length	DT	Rated current I_n 630 A, 800 A, 1000 A, 1250 A ¹⁾	PS*/ P. unit	Weight per unit approx. kg
			Type	Article No.	
Flexible junction units (with joint block)²⁾ (fitted to Y as standard)					
 NSVD_00440	1.75 ¹⁾		BD2-800-R	BVP:045890	1 unit 22.000
T-units (with joint block)					
Rear  NSVD_00443	0.36		BD2C-1250-TH	BVP:261899	1 unit 49.300
Front  NSVD_00442	0.36		BD2C-1250-TV	BVP:261902	1 unit 49.300
K-units (with joint block)					
Front/rear  NSVD_00445	0.36		BD2C-1250-KVH	BVP:261894	1 unit 63.100

Special colors available on request.

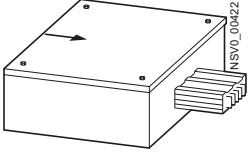
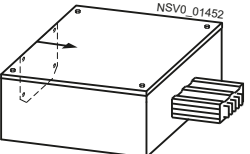
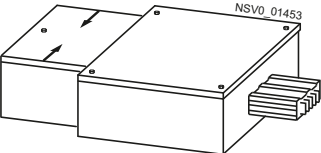
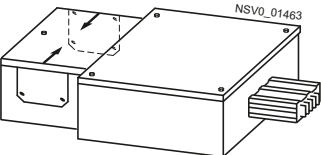
1) BD2-800-R for use up to 800 A.

2) Upgradable to max. IP54.

BD2 System – 160 ... 1250 A

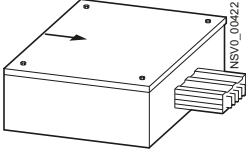
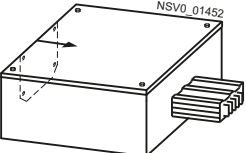
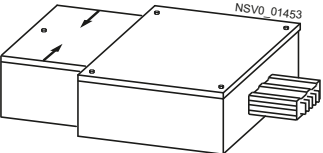
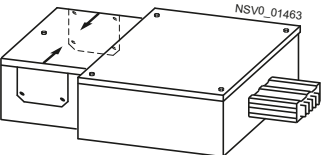
Feeding units

Selection and ordering data

Version	DT	Rated current I_n 160 A, 250 A		PS*/ P. unit	Weight per unit approx. kg	DT	Rated current I_n 160 A, 250 A, 400 A		PS*/ P. unit	Weight per unit approx. kg
		Type	Article No.				Type	Article No.		
Feeding units										
End feeding units without joint block										
Bolt terminal (bolt included as standard); PE position can be changed Cable entry for multi-core cables from the front										
										
<ul style="list-style-type: none"> Aluminum Copper 										
		BD2A-250-EE	BVP:261993	1 unit	6.600		BD2A-400-EE	BVP:261995	1 unit	13.300
		BD2C-250-EE	BVP:262001	1 unit	8.900		BD2C-400-EE	BVP:262003	1 unit	16.300
With cable entry plate¹⁾										
Cable entry for single-core cables from the front										
										
<ul style="list-style-type: none"> Aluminum Copper 										
		BD2A-250-EE-EBAL	BVP:611093	1 unit	6.600		BD2A-400-EE-EBAL	BVP:611097	1 unit	13.300
		BD2C-250-EE-EBAL	BVP:611094	1 unit	8.900		BD2C-400-EE-EBAL	BVP:611098	1 unit	16.300
With cabling box										
Cable entry for multi-core cables from 2 sides										
										
<ul style="list-style-type: none"> Aluminum Copper 										
		--	--				BD2A-400-EE-KR	BVP:611095	1 unit	16.500
		--	--				BD2C-400-EE-KR	BVP:611096	1 unit	19.500
With cabling box and cable entry plate¹⁾										
Cable entry for single-core cables from 2 sides										
										
<ul style="list-style-type: none"> Aluminum Copper 										
		--	--				BD2A-400-EE-KR-EBAL	BVP:611099	1 unit	16.500
		--	--				BD2C-400-EE-KR-EBAL	BVP:611100	1 unit	19.500

Accessories for cable entry, see page 4/61.

¹⁾ Single-core cable entry plate, undrilled.

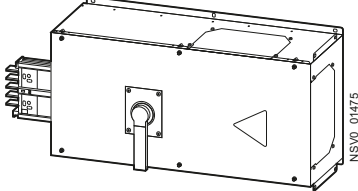
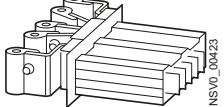
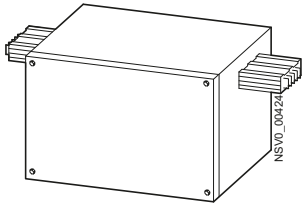
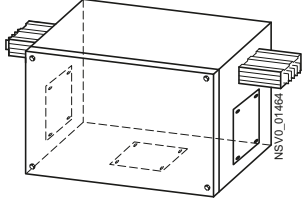
Version	DT	Rated current I_n 630 A, 800 A, 1000 A		PS*/ P. unit	Weight per unit approx.	DT	Rated current I_n 1250 A		PS*/ P. unit	Weight per unit approx.
		Type	Article No.		kg		Type	Article No.		kg
Feeding units										
End feeding units without joint block										
Bolt terminal (bolt included as standard); PE position can be changed Cable entry for multi-core cables from the front										
										
<ul style="list-style-type: none"> Aluminum Copper 										
		BD2A-1000-EE	BVP:261998	1 unit	14.900		–			
		BD2C-1000-EE	BVP:262006	1 unit	22.100		BD2C-1250-EE	BVP:262009	1 unit	27.100
With cable entry plate¹⁾										
Cable entry for single-core cables from the front										
										
<ul style="list-style-type: none"> Aluminum Copper 										
		BD2A-1000-EE- EBAL	BVP:611103	1 unit	14.900		–			
		BD2C-1000-EE- EBAL	BVP:611104	1 unit	22.100		BD2C-1250-EE- EBAL	BVP:611108	1 unit	27.100
With cabling box										
Cable entry for multi-core cables from 2 sides										
										
<ul style="list-style-type: none"> Aluminum Copper 										
		BD2A-1000-EE- KR	BVP:611101	1 unit	19.900		–			
		BD2C-1000-EE- KR	BVP:611102	1 unit	27.100		BD2C-1250-EE- KR	BVP:611107	1 unit	32.100
With cabling box and cable entry plate¹⁾										
Cable entry for single-core cables from 2 sides										
										
<ul style="list-style-type: none"> Aluminum Copper 										
		BD2A-1000-EE- KR-EBAL	BVP:611105	1 unit	19.900		–			
		BD2C-1000-EE- KR-EBAL	BVP:611106	1 unit	27.100		BD2C-1250-EE- KR-EBAL	BVP:611109	1 unit	32.100

Accessories for cable entry, see page 4/61.

¹⁾ Single-core cable entry plate, undrilled.

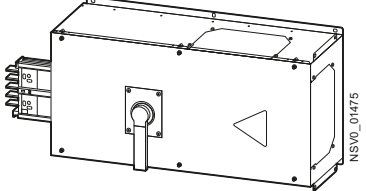
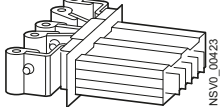
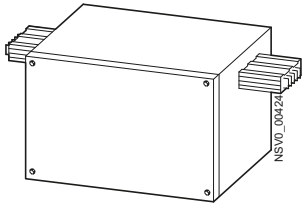
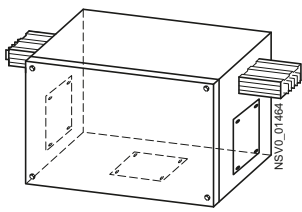
BD2 System – 160 ... 1250 A

Feeding units

Version	DT	Rated current I_n 160 A, 250 A		PS*/ P. unit	Weight per unit approx. kg	DT	Rated current I_n 160 A, 250 A, 400 A		PS*/ P. unit	Weight per unit approx. kg
	Type	Article No.				Type	Article No.			
Feeding units										
End feeding units with 3-pole switch disconnecter and with cable entry plate¹⁾										
Cable entry for single-core cables from 3 sides										
										
<ul style="list-style-type: none"> • Copper 										
		BD2C-250-EESC	BVP:611343	1 unit	16.300		BD2C-315-EESC	BVP:611344	1 unit	28.000
							BD2C-400-EESC	BVP:611345	1 unit	33.000
Distribution board feeding units without joint block										
Bolt terminal (bolt included as standard); PE position can be changed										
										
<ul style="list-style-type: none"> • Aluminum • Copper 										
		BD2A-250-VE	BVP:261994	1 unit	2.100		BD2A-400-VE	BVP:261996	1 unit	3.500
		BD2C-250-VE	BVP:262002	1 unit	4.400		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										
										
<ul style="list-style-type: none"> • Aluminum • Copper 										
		–					BD2A-400-ME	BVP:261997	1 unit	28.000
		–					BD2C-400-ME	BVP:262005	1 unit	36.600
With cable entry plate¹⁾										
Cable entry for single-core cables from 3 sides										
										
<ul style="list-style-type: none"> • Aluminum • Copper 										
		–					BD2A-400-ME-MBAL	BVP:611110	1 unit	28.000
		–					BD2C-400-ME-MBAL	BVP:611111	1 unit	36.600

Accessories for cable entry, see page 4/61.

¹⁾ Single-core cable entry plate, undrilled.

Version	DT	Rated current I_n 630 A, 800 A, 1000 A		PS*/ P. unit	Weight per unit approx. kg	DT	Rated current I_n 1250 A		PS*/ P. unit	Weight per unit approx. kg
	Type	Article No.				Type	Article No.			
Feeding units										
End feeding units with 3-pole switch disconnecter and with cable entry plate¹⁾										
Cable entry for single-core cables from 3 sides										
										
<ul style="list-style-type: none"> • Copper 										
		BD2C-630-EESC	BVP:611346	1 unit	39.000	–				
		BD2C-800-EESC	BVP:611347	1 unit	39.000	–				
Distribution board feeding units without joint block										
Bolt terminal (bolt included as standard); PE position can be changed										
										
<ul style="list-style-type: none"> • Aluminum • Copper 										
		BD2A-1000-VE	BVP:261999	1 unit	4.700	–				
		BD2C-1000-VE	BVP:262007	1 unit	11.800	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										
										
<ul style="list-style-type: none"> • Aluminum • Copper 										
		BD2A-1000-ME	BVP:262000	1 unit	47.000	–				
		BD2C-1000-ME	BVP:262008	1 unit	75.500	–				
With cable entry plate¹⁾										
Cable entry for single-core cables from 3 sides										
										
<ul style="list-style-type: none"> • Aluminum • Copper 										
		BD2A-1000-ME-MBAL	BVP:611112	1 unit	47.000	–				
		BD2C-1000-ME-MBAL	BVP:611113	1 unit	75.500	–				

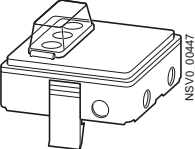
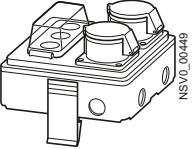
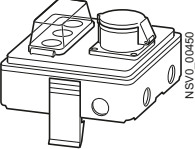
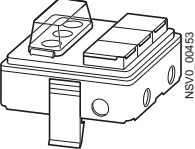
Accessories for cable entry, see page 4/61.

¹⁾ Single-core cable entry plate, undrilled.

BD2 System – 160 ... 1250 A

Tap-off units for international use

Selection and ordering data

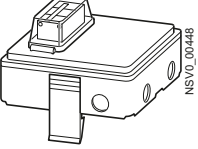
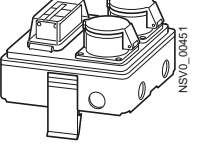
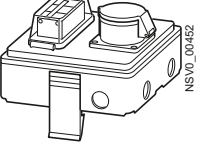
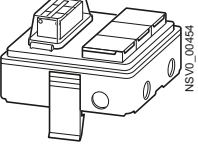
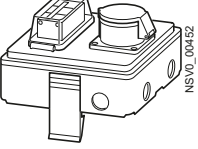
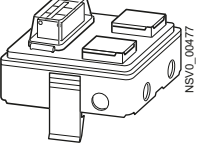
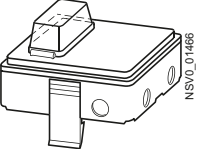
Version	Fuse bases	Rated current I_n A	Rated operational voltage U_e V	DT	Type	Article No.	PS*/ P. unit	Weight per unit approx. kg
Molded-plastic enclosures, size 1, up to 25 A								
With fuse base								
• Without socket outlet	3 × D02 3 × D01	25 16	400 400		BD2-AK1/S18 BD2-AK1/S14	BVP:047112 BVP:047113	1 unit 1 unit	1.150 1.100
								
• With 2 CEE socket outlets, 3-pole, 16 A	2 × D01	16	230		BD2-AK1/ 2CEE163S14	BVP:047167	1 unit	1.200
								
• With 1 CEE socket outlet, 5-pole, 16 A	3 × D01	16	400		BD2-AK1/ CEE165S14	BVP:047230	1 unit	1.200
								
• With 3 SCHUKO socket outlets 16A	3 × D01	16	230		BD2-AK1/ 3SD163S14	BVP:047284	1 unit	1.400
								

M25 cable grommet included in scope of supply.

Screw adapters, fuse links and screw caps are not included in scope of supply.

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

Tap-off units for international use

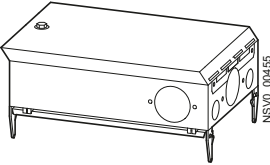
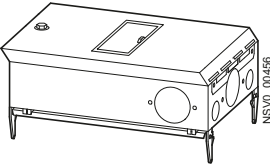
Version	Miniature circuit breakers (MCBs)	Rated current I_n	Rated operational voltage U_e	DT	Type	Article No.	PS*/P. unit	Weight per unit approx. kg
		A	V					
Molded-plastic enclosures, size 1, up to 25 A								
With miniature circuit breaker								
• Without socket outlet	3-pole, 16 A, characteristic C	16	400		BD2-AK1/A163	BVP:047146	1 unit	1.400
								
• With 2 CEE socket outlets, 3-pole, 16 A	2 × 1-pole, 16 A, characteristic B	16	230		BD2-AK1/2CEE163A161	BVP:047231	1 unit	1.400
								
• With 1 CEE socket outlet, 5-pole, 16 A	3-pole, 16 A, characteristic C	16	400		BD2-AK1/CEE165A163	BVP:047283	1 unit	1.500
								
• With 3 SCHUKO socket outlets 16A	3 × 1-pole, 16 A, characteristic B	16	230		BD2-AK1/3SD163A161	BVP:047335	1 unit	1.300
								
• With 1 CEE socket outlet, 3-pole, 16 A	1-pole, 16 A, characteristic C Residual current-operated circuit-breaker 2-pole, 25 A/ 30 mA	16	230		BD2-AK1/CEE163FIA161	BVP:660869	1 unit	1.500
								
• With 2 SCHUKO socket outlets 16A	1-pole, 16 A, characteristic B Residual current-operated circuit-breaker 2-pole, 25 A/ 30 mA	16	230		BD2-AK1/2SD163FIA161	BVP:660870	1 unit	1.300
								
Freely assignable (P_V max 13 W)								
• Without socket outlet, with integrated standard mounting rail	Mounting space for 4 modular widths (MW)	25	400		BD2-AK1/F	BVP:203247	1 unit	0.700
								

M25 cable grommet included in scope of supply.

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

BD2 System – 160 ... 1250 A

Tap-off units for international use

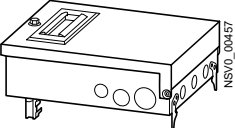
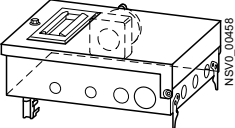
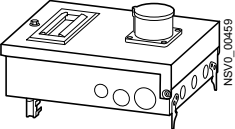
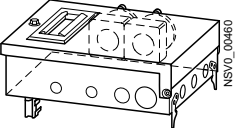
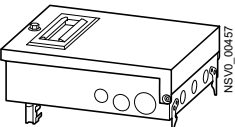
Version	Fuse base/miniature circuit-breaker	Rated current I_n	Rated operational voltage U_e	DT	Type	Article No.	PS*/P. unit	Weight per unit approx. kg
		A	V					
Sheet-steel enclosures, size 02, up to 63 A								
With fuse base								
	3-pole fuse base D02	63	400		BD2-AK02X/S18	BVP:262438	1 unit	4.140
	3-pole fuse base S27, with gauge screw system	25	500		BD2-AK02X/S27	BVP:262439	1 unit	3.940
	3-pole fuse base S33, with gauge screw system	63	500		BD2-AK02X/S33	BVP:262450	1 unit	4.200
	3-pole fuse base SP38 for cylinder fuses 10 mm x 38 mm	25	400		BD2-AK02X/F1038-3	BVP:262469	1 unit	5.500
	4-pole fuse base SP38 for cylinder fuses 10 mm x 38 mm	25	400		BD2-AK02X/F1038-3N	BVP:262470	1 unit	5.500
	3-pole fuse base SP51 for cylinder fuses 14 mm x 51 mm	32	400		BD2-AK02X/F1451-3	BVP:262471	1 unit	5.500
	4-pole fuse base SP51 for cylinder fuses 14 mm x 51 mm	32	400		BD2-AK02X/F1451-3N	BVP:262472	1 unit	5.500
	3-pole fuse base SP58 for cylinder fuses 22 mm x 58 mm	63	400		BD2-AK02X/F2258-3	BVP:262473	1 unit	5.700
	4-pole fuse base SP58 for cylinder fuses 22 mm x 58 mm	63	400		BD2-AK02X/F2258-3N	BVP:262474	1 unit	5.700
With miniature circuit breaker								
	3-pole, 32 A, characteristic C	32	400		BD2-AK02M2/A323	BVP:262451	1 unit	4.380
	3-pole + N, 32 A, characteristic C	32	400		BD2-AK02M2/A323N	BVP:262452	1 unit	4.800
	3-pole, 63 A, characteristic C	63	400		BD2-AK02M2/A633	BVP:262453	1 unit	5.100
	3-pole + N, 63 A, characteristic C	63	400		BD2-AK02M2/A633N	BVP:262454	1 unit	5.200
Freely assignable (P_V max 22.5 W)								
• With integrated standard mounting rail	Mounting space for 8 modular widths (MW)	63	690		BD2-AK02X/F	BVP:262457	1 unit	3.800
• With component mounting unit, 8 MW	Mounting space for 8 modular widths (MW)	63	690		BD2-AK02M2/F	BVP:262458	1 unit	3.900

Special colors available on request.

Screw adapters, fuse links and screw caps are not included in scope of supply.

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

Tap-off units for international use

Version	Fuse bases	Rated current I_n	Rated operational voltage U_e	DT	Type	Article No.	PS*/ P. unit	Weight per unit approx. kg
Sheet-steel enclosures, size 2, up to 63 A, with cover-integrated switch-disconnector								
With fuse base								
<ul style="list-style-type: none"> Without socket outlet 	3-pole fuse base D02	63	400		BD2-AK2X/S18	BVP:203135	1 unit	4.140
	3-pole fuse base S27, with gauge screw system	25	500		BD2-AK2X/S27	BVP:203136	1 unit	3.940
	3-pole fuse base S33, with gauge screw system	63	500		BD2-AK2X/S33	BVP:203138	1 unit	4.200
<ul style="list-style-type: none"> With 1 CEE socket outlet, 5-pole, 32 A 	3-pole fuse base S33, with gauge screw system	32	400		BD2-AK2X/CEE325S33	BVP:203142	1 unit	5.100
<ul style="list-style-type: none"> With 1 CEE socket outlet, 5-pole, 63 A 	3-pole fuse base S33, with gauge screw system	63	400		BD2-AK2X/CEE635S33	BVP:203146	1 unit	5.680
<ul style="list-style-type: none"> With 2 CEE socket outlets, 5-pole, 16 A 	2 × 3-pole fuse base D01	16	400		BD2-AK2X/2CEE165S14	BVP:203148	1 unit	4.800
	2 × 3-pole fuse base S27, with gauge screw system	16	400		BD2-AK2X/2CEE165S27/FORMP	BVP:203149	1 unit	4.900
<ul style="list-style-type: none"> Freely assignable (P_v max 22.5 W) Without socket outlet, with integrated standard mounting rail 	Mounting space for 8 modular widths (MW)	63	690		BD2-AK2X/F	BVP:203251	1 unit	3.800

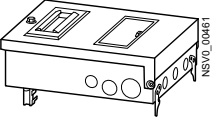
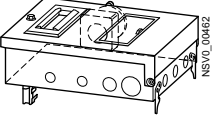
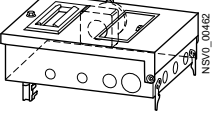
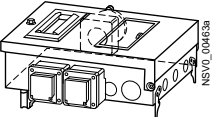
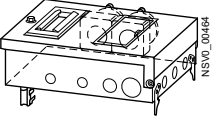
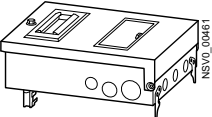
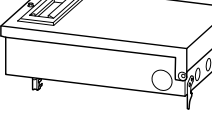
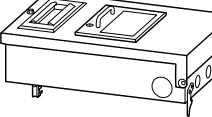
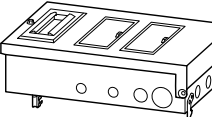
Special colors available on request.

Screw adapters, fuse links and screw caps are not included in scope of supply.

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

BD2 System – 160 ... 1250 A

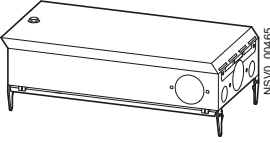
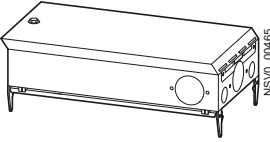
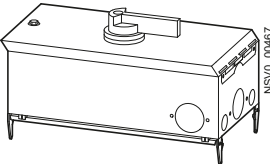
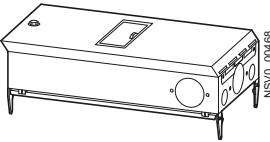
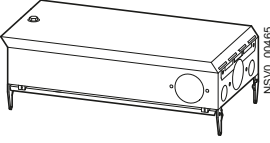
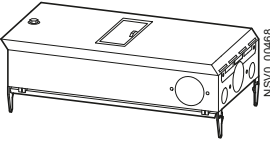
Tap-off units for international use

Version	Miniature circuit breaker / fuse base / switch-disconnector	Rated current I_n A	Rated operational voltage U_e V	DT	Type	Article No.	PS*/ P. unit	Weight per unit approx. kg
Sheet-steel enclosures, size 2, up to 63 A, with cover-integrated switch-disconnector								
With miniature circuit breaker								
<ul style="list-style-type: none"> Without socket outlet 	3-pole, 32 A, characteristic C	32	400		BD2-AK2M2/A323	BVP:203144	1 unit	4.380
<ul style="list-style-type: none"> With 1 CEE socket outlet, 5-pole, 16 A 	3-pole, 16 A, characteristic C Residual current-operated circuit-breaker 4-pole, 25 A/ 30 mA	16	400		BD2-AK2M2/CEE165FIA163	BVP:660868	1 unit	6.100
<ul style="list-style-type: none"> With 1 CEE socket outlet, 5-pole, 32 A 	3-pole, 32 A, characteristic C	32	400		BD2-AK2M2/CEE325A323	BVP:207986	1 unit	4.900
<ul style="list-style-type: none"> With 1 CEE socket outlet, 5-pole, 16 A and 2 Schuko socket outlets 16 A 	3-pole, 16 A, characteristic B and 2 × 1-pole, 16 A, characteristic B	16	230		BD2-AK2M2/2SD163CEE165A163	BVP:203150	1 unit	5.600
<ul style="list-style-type: none"> With 2 CEE socket outlets, 5-pole, 16 A 	2 × 3-pole, 16 A, characteristic C	16	400		BD2-AK2M2/2CEE165A163	BVP:203151	1 unit	5.400
Freely assignable (P_V max 22.5 W)								
<ul style="list-style-type: none"> Without socket outlet, with device installation unit 	Mounting space for 8 modular widths (MW)	63	690		BD2-AK2M2/F	BVP:203252	1 unit	3.900
Sheet-steel enclosures, size 3, up to 125 A, with cover-integrated switch-disconnector								
With fuse base								
	Low-voltage LV HRC fuse base, size 00; bolt terminal	125	690		BD2-AK3X/GS00	BVP:203162	1 unit	5.400
With fuse switch-disconnector								
	LV HRC fuse switch-disconnector, size 00; bolt terminal	125	690		BD2-AK3X/GSTZ00	BVP:203163	1 unit	6.960
Freely assignable (P_V max 40 W)								
<ul style="list-style-type: none"> Without socket outlet, with 2 device installation units 	Mounting space for 2 × 8 modular widths (MW) NEW	125	690		BD2-AK3M2/F	BVP:660926	1 unit	5.140

Special colors available on request.

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

Tap-off units for international use

Version	Protection equipment	Rated current I_n	Rated operational voltage U_e	DT	Type	Article No.	PS*/ P. unit	Weight per unit approx. kg
		A	V					
Sheet-steel enclosures, size 03, up to 125 A								
With fuse base								
	Bolt terminal							
	3-pole fuse base SP58 for cylinder fuses 22 mm × 58 mm	100	690		BD2-AK03X/ F2258-3	BVP:262497	1 unit	7.500
	4-pole fuse base SP58 for cylinder fuses 22 mm × 58 mm	100	690		BD2-AK03X/ F2258-3N	BVP:262498	1 unit	7.500
With fuse switch-disconnector								
	LV HRC fuse switch- disconnecter, size 00; bolt terminal	125	690		BD2-AK03X/ GSTA00	BVP:262496	1 unit	6.960
With fuse switch-disconnector								
	Bolt terminal							
	3-pole, IEC	125	400		BD2-AK03X/ FS125IEC-3	BVP:262499	1 unit	7.940
	3-pole, BS	125	400		BD2-AK03X/ FS125BS-3	BVP:262500	1 unit	7.940
	4-pole, IEC	125	400		BD2-AK03X/ FS125IEC-4	BVP:262501	1 unit	8.280
	4-pole, BS	125	400		BD2-AK03X/ FS125BS-4	BVP:262502	1 unit	8.280
With miniature circuit breaker								
	3-pole, 125 A, characteristic C	125	400		BD2-AK03M2/ A1253	BVP:262485	1 unit	5.800
	3-pole + N, 125 A, characteristic C	125	400		BD2-AK03M2/ A1253N	BVP:262486	1 unit	6.000
Freely assignable (P_V max 40 W)								
• With mounting plate								
	Mounting space for 8 modular widths (MW) NEW	125	690		BD2-AK03X/F	BVP:262487	1 unit	5.200
• With device installation unit								
	Mounting space for 8 modular widths (MW) NEW	125	690		BD2-AK03M2/F	BVP:262488	1 unit	5.300

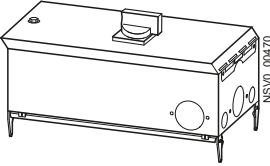
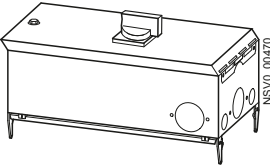
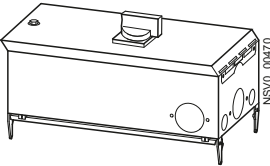
Special colors available on request.

Fuse links are not included in scope of supply.

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

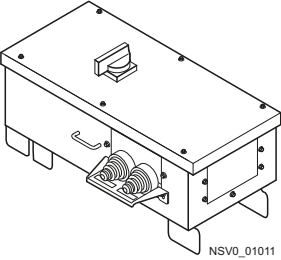
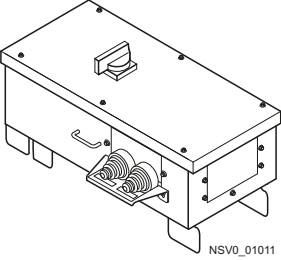
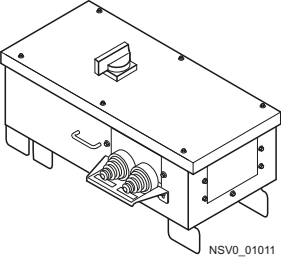
BD2 System – 160 ... 1250 A

Tap-off units for international use

Version	Circuit breaker/ setting range	Rated current I_n	Rated opera- tional voltage U_e	DT	Type	Article No.	PS*/ P. unit	Weight per unit approx. kg
Sheet-steel enclosures, size 03, up to 125 A								
With circuit breaker, normal switching capacity, with rotary operating mechanism, terminal connection								
• With thermal-magnetic trip unit								
	3-pole							
	3VL27 05	40	400		BD2-AK03X/ LSD-DC40-N	BVP:610402	1 unit	8.500
	40 ... 50							
	3VL27 06	63	400		BD2-AK03X/ LSD-DC63-N	BVP:610403	1 unit	8.500
	50 ... 63							
	3VL27 08	80	400		BD2-AK03X/ LSD-DC80-N	BVP:610404	1 unit	8.500
	63 ... 80							
3VL27 10	100	400		BD2-AK03X/ LSD-DC100-N	BVP:610405	1 unit	8.500	
80 ... 100								
3VL27 12	125	400		BD2-AK03X/ LSD-DC125-N	BVP:610406	1 unit	8.500	
100 ... 125								
• With electronic trip unit, selective								
	3-pole							
	3VL27 06	63	400		BD2-AK03X/ LSD-AE63-N	BVP:610407	1 unit	8.500
	25 ... 63							
	3VL27 10	100	400		BD2-AK03X/ LSD-AE100-N	BVP:610408	1 unit	8.500
40 ... 100								
• With thermal-magnetic trip unit, selective (N release 100 %)								
	4-pole							
	3VL27 05	40	400		BD2-AK03X/ LSD-EM40-N	BVP:610397	1 unit	9.000
	40 ... 50							
	3VL27 06	63	400		BD2-AK03X/ LSD-EM63-N	BVP:610398	1 unit	9.000
	50 ... 63							
	3VL27 08	80	400		BD2-AK03X/ LSD-EM80-N	BVP:610399	1 unit	9.000
	63 ... 80							
	3VL27 10	100	400		BD2-AK03X/ LSD-EM100-N	BVP:610400	1 unit	9.000
80 ... 100								
3VL27 12	125	400		BD2-AK03X/ LSD-EM125-N	BVP:610401	1 unit	9.000	
100 ... 125								

Special colors available on request.

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

Version	Circuit breaker/ setting range	Rated current I_n	Rated opera- tional voltage U_e	DT	Type	Article No.	PS*/ P. unit	Weight per unit approx. kg
	A	A	V					
Sheet-steel enclosures, size 04, 05 and 06, up to 530 A								
With circuit breaker, normal switching capacity, with rotary operating mechanism, bolt terminals								
<ul style="list-style-type: none"> • With thermal-magnetic trip unit 	3-pole							
	3VL27 16	160	400		BD2-AK04/ LSD-DC160-N	BVP:610424	1 unit	30.000
	125 ... 160							
	3VL37 20	200	400		BD2-AK04/ LSD-DC200-N	BVP:610430	1 unit	30.000
	160 ... 200							
	3VL37 25	250	400		BD2-AK04/ LSD-DC250-N	BVP:610436	1 unit	30.000
	200 ... 250							
3VL47 40	400	400		BD2-AK05/ LSD-DC400-N	BVP:610442	1 unit	35.000	
320 ... 400								
3VL57 63	530	400		BD2-AK06/ LSD-DC630-N	BVP:610448	1 unit	40.000	
500 ... 530								
<ul style="list-style-type: none"> • With electronic trip unit, selective 	3-pole							
	3VL27 16	160	400		BD2-AK04/ LSD-AE160-N	BVP:610428	1 unit	30.000
	64 ... 160							
	3VL37 20	200	400		BD2-AK04/ LSD-AE200-N	BVP:610434	1 unit	30.000
	80 ... 200							
	3VL37 25	250	400		BD2-AK04/ LSD-AE250-N	BVP:610440	1 unit	30.000
	100 ... 250							
3VL47 40	400	400		BD2-AK05/ LSD-AE400-N	BVP:610446	1 unit	35.000	
160 ... 400								
3VL57 63	530	400		BD2-AK06/ LSD-AE630-N	BVP:610452	1 unit	40.000	
252 ... 530								
<ul style="list-style-type: none"> • With thermal-magnetic trip unit, selective (N release 60 %) 	4-pole							
	3VL27 16	160	400		BD2-AK04/ LSD-EC160-N	BVP:610426	1 unit	30.000
	125 ... 160							
	3VL37 20	200	400		BD2-AK04/ LSD-EC200-N	BVP:610432	1 unit	30.000
	160 ... 200							
	3VL37 25	250	400		BD2-AK04/ LSD-EC250-N	BVP:610438	1 unit	30.000
	200 ... 250							
3VL47 40	400	400		BD2-AK05/ LSD-EC400-N	BVP:610444	1 unit	35.000	
320 ... 400								
3VL57 63	530	400		BD2-AK06/ LSD-EC630-N	BVP:610450	1 unit	40.000	
500 ... 530								

Special colors available on request.

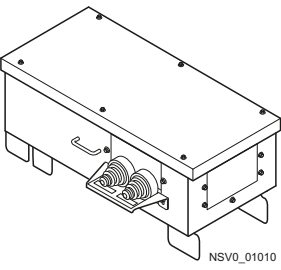
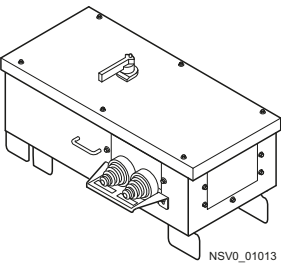
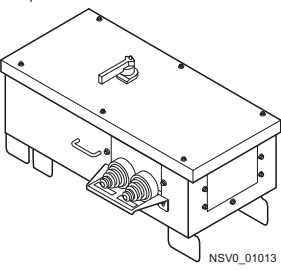
Use plastic cable glands with strain relief (not included in scope of supply).

For BD2-AK04, -AK05 and -AK06, the KT3 or KT4 cable grommet is included in scope of supply.

The tap-off units, size 05 and 06, are suitable only for systems 630 A to 1250 A.

BD2 System – 160 ... 1250 A

Tap-off units for international use

Version	Fuse base/ fuse switch-disconnector	Rated current I_n	Rated operational voltage U_e	DT	Type	Article No.	PS*/ P. unit	Weight per unit approx. kg
		A	V					
Sheet-steel enclosures, size 04, 05 and 06, up to 530 A								
With fuse base, 3-pole, bolt terminal 	NH1	250	690		BD2-AK04/SNH1	BVP:610421	1 unit	30.000
	NH2	400	690		BD2-AK05/SNH2	BVP:610422	1 unit	35.000
	NH3	530	690		BD2-AK06/SNH3	BVP:610423	1 unit	40.000
Sheet-steel enclosures, size 04 and 05, up to 320 A								
With fuse switch-disconnector, bolt terminal • 3-pole 	NH1, IEC	225	400		BD2-AK04/FS250IEC-3	BVP:610409	1 unit	30.000
	NH1, BS	225	400		BD2-AK04/FS250BS-3	BVP:610411	1 unit	30.000
	NH2, IEC	320	400		BD2-AK05/FS400IEC-3	BVP:610413	1 unit	35.000
	NH2, BS	320	400		BD2-AK05/FS400BS-3	BVP:610415	1 unit	35.000
• 4-pole 	NH1, IEC	225	400		BD2-AK04/FS250IEC-4	BVP:610410	1 unit	30.000
	NH1, BS	225	400		BD2-AK04/FS250BS-4	BVP:610412	1 unit	30.000
	NH2, IEC	320	400		BD2-AK05/FS400IEC-4	BVP:610414	1 unit	35.000
	NH2, BS	320	400		BD2-AK05/FS400BS-4	BVP:610416	1 unit	35.000

Special colors available on request.

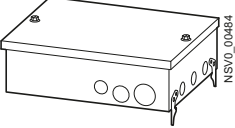
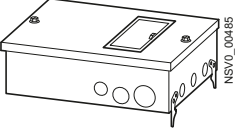
Fuse links are not included in scope of supply.

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

For BD2-AK04, -AK05 and -AK06, the KT3 or KT4 cable grommet is included in scope of supply.

The tap-off units, size 05 and 06, are suitable only for systems 630 A to 1250 A.

Selection and ordering data

Version	Can be used for	Max. power loss P_V W	Rated operational voltage U_e V	DT	Type	Article No.	PS*/ P. unit	Weight per unit approx. kg
Sheet-steel enclosures								
Ancillary equipment units, freely assignable								
Built-in standard mounting rail for 8 MW (MW = modular width)	<ul style="list-style-type: none"> • Overvoltage protection • Remote control/remote switching • Intelligence • Fuse bases • Miniature circuit breakers (MCBs) 	30	400		BD2-GKX/F	BVP:203165	1 unit	2.800
								
Sheet-steel enclosures with device installation unit								
Ancillary equipment units, freely assignable								
Built-in standard mounting rail for 8 MW (MW = modular width)	<ul style="list-style-type: none"> • Remote control/remote switching • Intelligence • Miniature circuit breakers (MCBs) • Energy counters 	30	400		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.

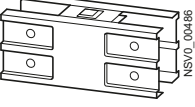
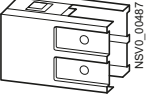
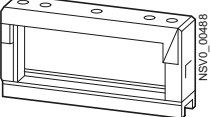

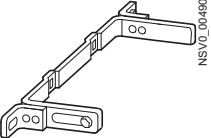
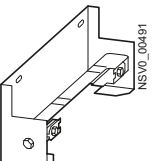
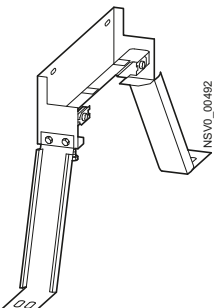

Including screw set for connecting the enclosures.

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

BD2 System – 160 ... 1250 A

Optional equipment

Selection and ordering data

Version	DT	Rated current I_n 160 A, 250 A, 400 A		PS*/ P. unit	Weight per unit approx. kg	DT	Rated current I_n 630 A, 800 A, 1000 A, 1250 A		PS*/ P. unit	Weight per unit approx. kg	
		Type	Article No.				Type	Article No.			
Fixing											
Joint blocks											
		BD2-400-EK	BVP:661391	1 unit	3.500		BD2-1250-EK	BVP:261989	1 unit	6.480	
End flanges											
		BD2-400-FE	BVP:043977	1 unit	0.980		BD2-1250-FE	BVP:261990	1 unit	1.280	
Fixing brackets For flat and edgewise installation											
		BD2-400-BB	BVP:045154	1 unit	0.440		BD2-1250-BB	BVP:261987	1 unit	0.540	
Spacers For 40 mm spacing, suitable for use with fixing bracket											
		BD2-DSB	BVP:203532	10 units	0.030		BD2-DSB	BVP:203532	10 units	0.030	
Spacer brackets For wall and ceiling mounting, for use with fixing bracket											
		BD2-BD	BVP:034228	1 unit	0.440		BD2-BD	BVP:034228	1 unit	0.440	
Retaining elements for vertical busbar runs											
• Wall mounting, distance from wall adjustable											
		BD2-BWV	BVP:045503	1 unit	1.560		BD2-BWV	BVP:045503	1 unit	1.560	
• Ceiling mounting											
		BD2-BDV	BVP:045504	1 unit	4.500		BD2-BDV	BVP:045504	1 unit	4.500	
Fixing for mounting rail E.g. Unistrut P1000											
		BD2-BVC	BVP:611348	1 unit	0.500		BD2-BVC	BVP:611348	1 unit	0.500	

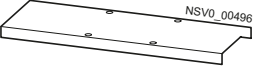
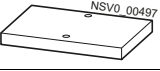
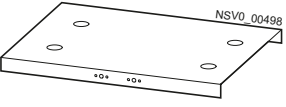
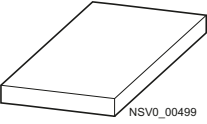
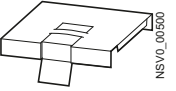
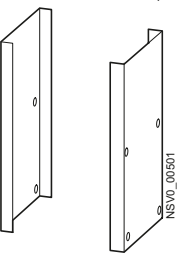
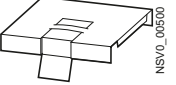
Version	DT	Rated current I_n 160 A, 250 A, 400 A	PS*/ P. unit	Weight per unit approx. kg	DT	Rated current I_n 630 A, 800 A, 1000 A, 1250 A	PS*/ P. unit	Weight per unit approx. kg	
		Type	Article No.			Type	Article No.		
Fixing									
Fixing bracket For vertical wall mounting on a connecting flange		BD2-BVF	BVP:203531	1 unit	0.500	BD2-BVF	BVP:203531	1 unit	0.500
Protective sleeves		BD2-400-D	BVP:045505	1 unit	4.000	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)									
<ul style="list-style-type: none"> • Suitable for end feeding unit 250 A 		BD2-250-EBAL	BVP:203530	1 unit	0.300	--			
<ul style="list-style-type: none"> • For use with end feeding units or cabling boxes <ul style="list-style-type: none"> - Up to 400 A or 1000 A - For 1250 A 		BD2-400-EBAL	BVP:045507	1 unit	0.500	BD2-1000-EBAL	BVP:261976	1 unit	1.000
		--				BD2-1250-EBAL	BVP:261982	1 unit	2.660
<ul style="list-style-type: none"> • For use with center feeding units <ul style="list-style-type: none"> - Up to 400 A or 1000 A 		BD2-400-MBAL	BVP:045509	1 unit	0.500	BD2-1000-MBAL	BVP:261980	1 unit	1.000
Cabling boxes Cable entry for multi-core cables from 2 sides, for use with feeding units									
<ul style="list-style-type: none"> • For 400 A or 1000 A • For 1250 A 		BD2-400-KR	BVP:045511	1 unit	3.100	BD2-1000-KR	BVP:261978	1 unit	5.000
		--				BD2-1250-KR	BVP:261984	1 unit	5.000

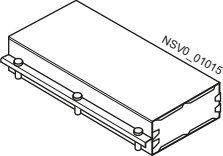
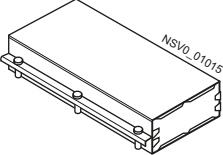

Version	DT	Rated current I_n 160 ... 1250 A	PS*/ P. unit	Weight per unit approx. kg	
		Type	Article No.		
Fire barrier					
Fire barrier approval kits (required only for Germany) ¹⁾					
<ul style="list-style-type: none"> • S90 		BD2-S90-ZUL-D	BVP:611397	1 unit	0.200
<ul style="list-style-type: none"> • S120 		BD2-S120-ZUL-D	BVP:611398	1 unit	0.200

¹⁾ Approval papers for Euro standard available soon

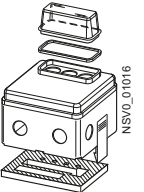
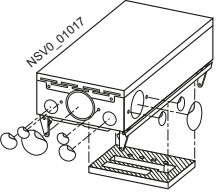
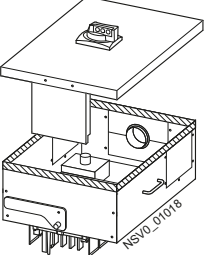
BD2 System – 160 ... 1250 A

Optional equipment

Version	DT	Rated current I_n 160 A, 250 A, 400 A	PS*/ P. unit	Weight per unit approx. kg	DT	Rated current I_n 630 A, 800 A, 1000 A, 1250 A	PS*/ P. unit	Weight per unit approx. kg
	Type	Article No.			Type	Article No.		
Flanges for degree of protection IP54								
Edgewise mounting position								
<ul style="list-style-type: none"> At all connection points 	BD2-400-HF	BVP:045513	1 unit	0.300	BD2-1250-HF	BVP:261991	1 unit	0.520
<ul style="list-style-type: none"> At end flanges 	BD2-400-HFE	BVP:045515	1 unit	0.180	BD2-1250-HFE	BVP:261992	1 unit	0.260
Flat mounting position								
<ul style="list-style-type: none"> At all connection points 	BD2-FF	BVP:045517	1 unit	0.600	BD2-FF	BVP:045517	1 unit	0.600
<ul style="list-style-type: none"> At end flanges 	BD2-FFE	BVP:045518	1 unit	0.320	BD2-FFE	BVP:045518	1 unit	0.320
<ul style="list-style-type: none"> At top tap-off points 	BD2-FAS	BVP:045519	1 unit	0.220	BD2-FAS	BVP:045519	1 unit	0.220
Vertical mounting position								
<ul style="list-style-type: none"> At all connection points 	BD2-400-VF	BVP:045520	1 unit	0.200	BD2-1250-VF	BVP:262125	1 unit	0.500
<ul style="list-style-type: none"> At all tap-off points 	BD2-FAS	BVP:045519	1 unit	0.220	BD2-FAS	BVP:045519	1 unit	0.220

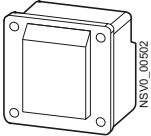
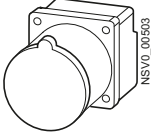
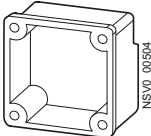
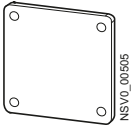
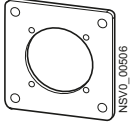
Version	DT	Rated current I_n 160 A, 250 A, 400 A	PS*/ P. unit	Weight per unit approx. kg	DT	Rated current I_n 630 A, 800 A, 1000 A, 1250 A	PS*/ P. unit	Weight per unit approx. kg	
		Type	Article No.				Type	Article No.	
Flanges for degree of protection IP55									
Flanges for IP55¹⁾									
• At all connection points									
		BD2-400-FS	BVP:610369	1 unit	1.700	BD2-1250-FS	BVP:610370	1 unit	2.100
• At end flanges									
		BD2-400-FSE	BVP:610371	1 unit	1.900	BD2-1250-FSE	BVP:610372	1 unit	2.600
• At tap-off points									
		BD2-FAS	BVP:045519	1 unit	0.220	BD2-FAS	BVP:045519	1 unit	0.220

1) Not for use with BD2- ... -R.

Version	For tap-off unit	DT	Type	Article No.	PS*/ P. unit	Weight per unit approx. kg
		Type				
Accessories for degree of protection IP55						
Seals for tap-off units						
		BD2-AK1/...	BD2-AK1-IP55	BVP:610373	1 unit	0.030
		BD2-AK02X/... BD2-AK03X/... BD2-AK2X/... BD2-AK3X/...	BD2-AK02X-IP55 BD2-AK03X-IP55 BD2-AK2X-IP55 BD2-AK3X-IP55	BVP:610374 BVP:610375 BVP:611061 BVP:611062	1 unit 1 unit 1 unit 1 unit	0.040 0.040 0.070 0.070
		BD2-AK04/... BD2-AK05/... BD2-AK06/...	BD2-AK04-IP55 BD2-AK05-IP55 BD2-AK06-IP55	BVP:611063 BVP:611064 BVP:611065	1 unit 1 unit 1 unit	0.050 0.070 0.070

BD2 System – 160 ... 1250 A

Optional equipment

Version	Socket outlets	DT	Type	Article No.	PS*/ P. unit	Weight per unit approx. kg
Socket outlets for tap-off units and ancillary equipment units						
Socket outlets With adapter enclosure, with wiring, with fixing kit						
<ul style="list-style-type: none"> Schuko socket outlet 	16 A, 3-pole		BD2-SD163	BVP:203253	1 unit	0.280
<ul style="list-style-type: none"> CEE socket outlet 	16 A, 3-pole 16 A, 5-pole 32 A, 5-pole		BD2-CEE163 BD2-CEE165 BD2-CEE325	BVP:203254 BVP:203255 BVP:203256	1 unit 1 unit 1 unit	0.260 0.310 0.350
Adapter enclosures For socket outlets with fixing kit						
			BD2-AG	BVP:203257	1 unit	0.150
Adapter plates For use with adapter enclosure						
<ul style="list-style-type: none"> For customized socket outlet cut-outs 			BD2-APO	BVP:203258	1 unit	0.090
<ul style="list-style-type: none"> With socket outlet cut-out, diameter 44 mm 			BD2-APM	BVP:203259	1 unit	0.060

Overview

Specimen text for tenders

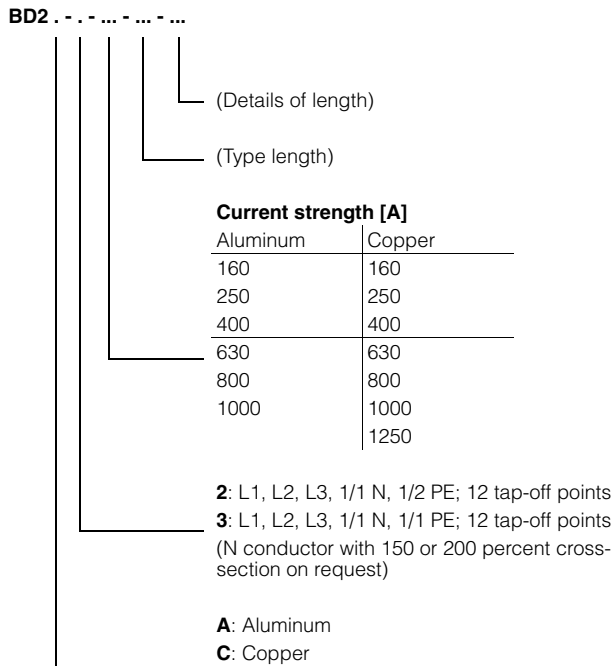
Item	Quantity	Description	Unit price	Amount
	... m	<p>Busbar trunking system (see Appendix for diagram)</p> <p>¹⁾ As type-tested low-voltage switchgear and controlgear assembly TTA according to IEC/EN 60439-1 and -2, or IEC/EN 61439-1 and -6¹⁾</p> <ul style="list-style-type: none"> • Rated current, corresponds to thermal rated current at max. +40 °C and +35 °C in 24-hour average 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 60439-1, or IEC/EN 61439-1 • Degree of protection IP52, increase to IP54 or IP55 with optional equipment • 5-conductor system: L1, L2, L3, N, PE • Busbars: Nickel-plated and tinned aluminum or tinned copper; supported by insulated busbar supports • Tested for sprinkler systems (with optional equipment) • Halogen free system • Trunking units steel-enclosed, galvanized and with paint finish; light gray RAL 7035 • Busbar connection via joint block with built-in expansion compensation • Tap-off points: On two sides every 0.5 m; mutually offset 0.25 m • Supplied ready for connection with all assembly parts • Made by Siemens • Type BD2-... <p>Comprising:</p>		

1) BD01, BD2, LD, LR type-tested according to IEC 61439-1 / -6 available soon.

BD2 System – 160 ... 1250 A

Configuration information

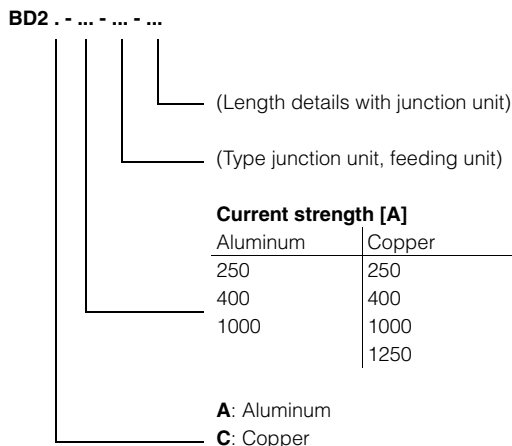
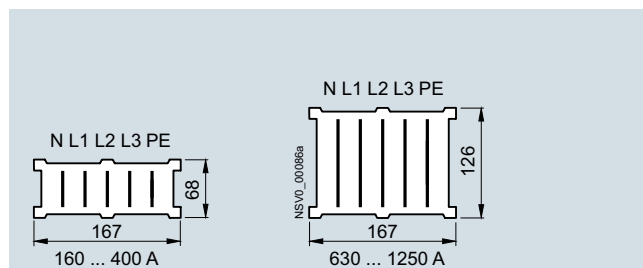
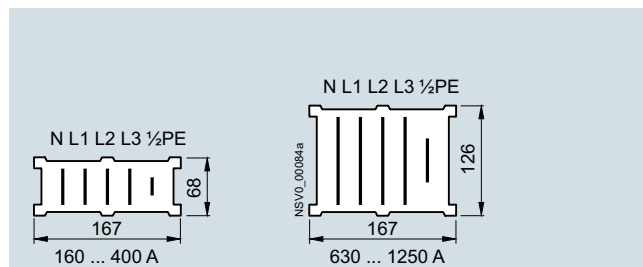
Key to type references for BD2 for various conductor versions



Sizes of the trunking units (cross-sections)

System size 1

System size 2



4

Busbars	System size 1	System size 2
System accessories	Junction units Feeding units Coupling units (on request) Optional equipment	Junction units Feeding units Coupling units (on request) Optional equipment
Tap-off units	Molded-plastic enclosure up to 25 A With circuit breaker up to 250 A With fuse up to 250 A	Molded-plastic enclosure up to 25 A With circuit breaker up to 250 A With fuse up to 250 A With circuit breaker up to 530 A With fuse up to 530 A

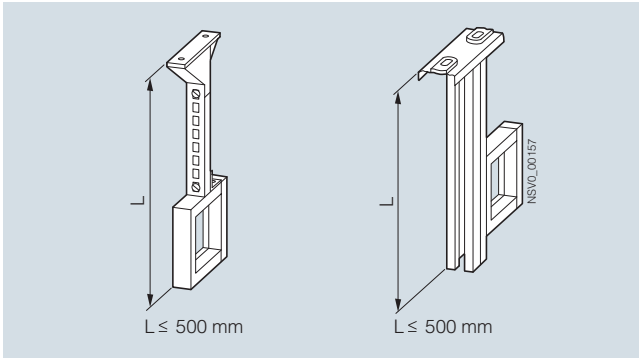
Design

Notes on supporting structures

Structures made from standard materials.

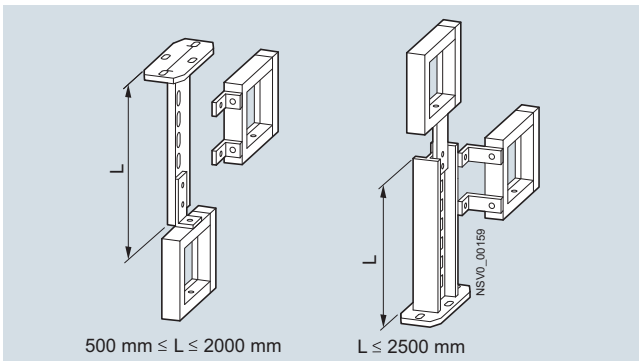
All struts and beams are designed for mounting without a BD2-...-BB fixing bracket.

Examples for mounting edgewise runs



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

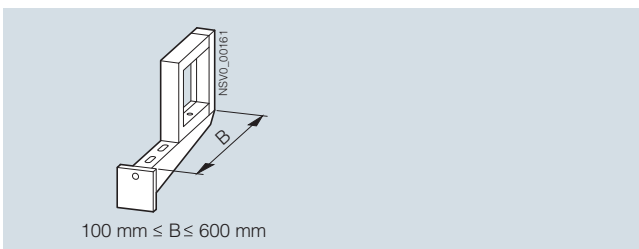
Length L in increments of 100 mm



Z strut (left) and H strut (right)

Length L in increments of 100 mm

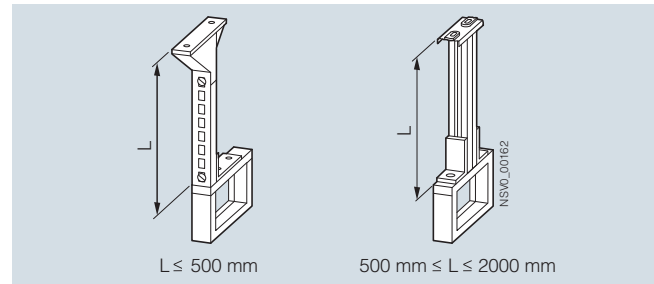
Trunking units can be secured at the side and at the center of the strut



Wall beam

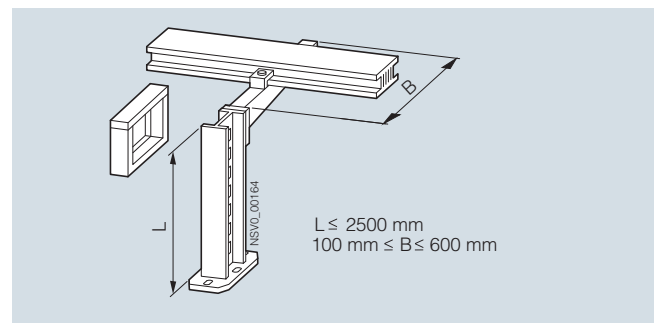
Width B in 50 mm increments

Examples for mounting flat runs



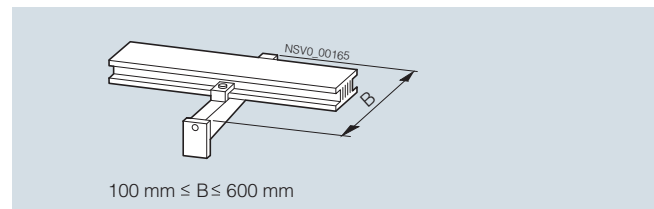
C strut with accessories (left) and double-C strut (right)

Length L in increments of 100 mm



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

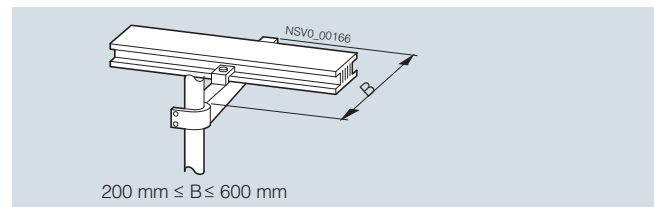
Length L in increments of 100 mm,
width B in increments of 50 mm.



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

Width B in 50 mm increments

Example for securing busbar runs between floors



Tubular beam

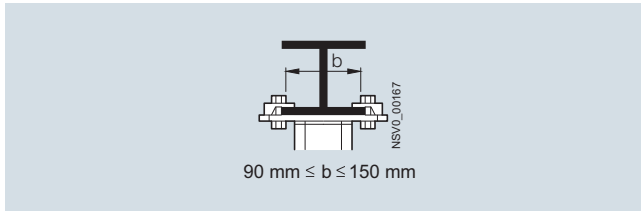
Width B in 50 mm increments

For securing runs without BD2-...-BB bracket

BD2 System – 160 ... 1250 A

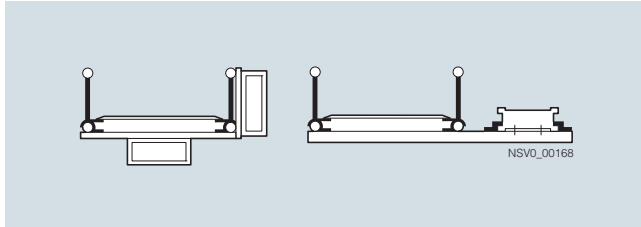
Configuration information

Suspension support on flange mount with terminal



For Z and H struts only

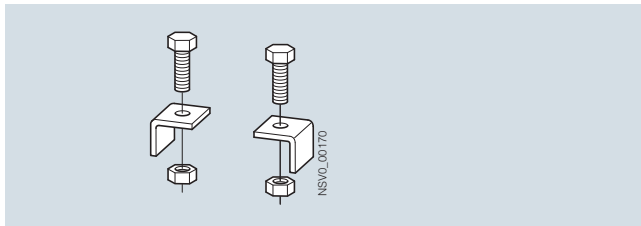
Securing trunk units on the cable trays



Can be fitted to standard cable trays using BD2-...-BB fixing bracket or angle clamp. Sundries required

Clamp terminals

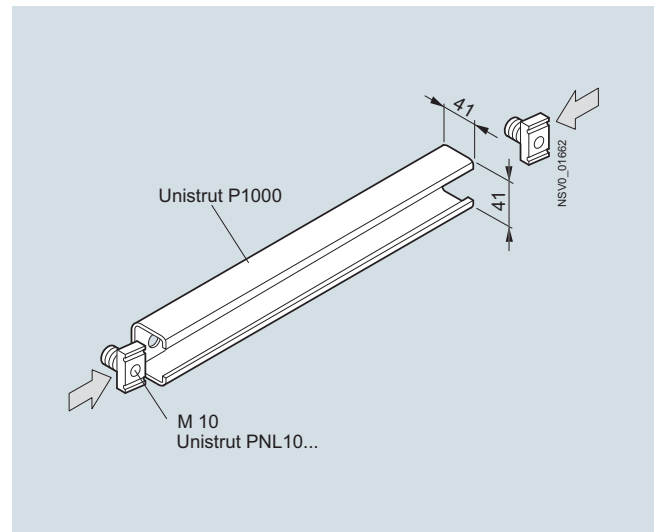
For securing trunking units to the illustrated supporting structures.



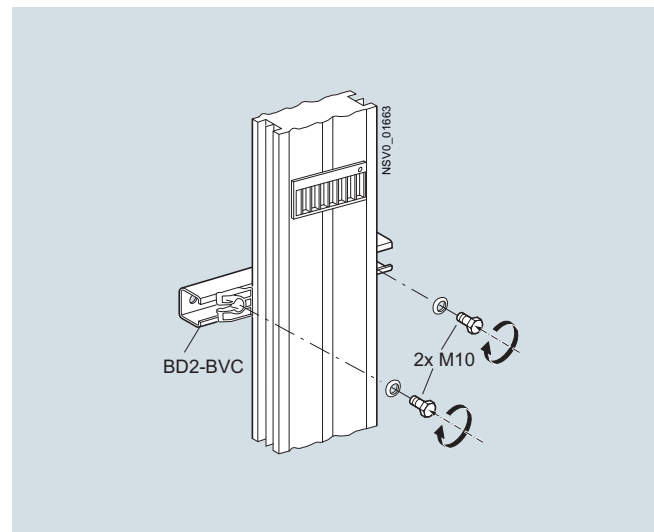
Clamp terminals

Mounting on mounting rails Unistrut P1000

For vertical installation



Mounting rail Unistrut P1000



Mounting BD2-BVC

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

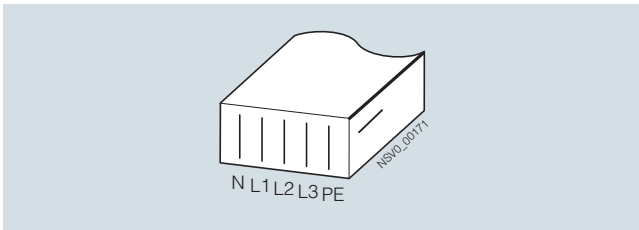
Basic configuration information

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, branch units and junction units):

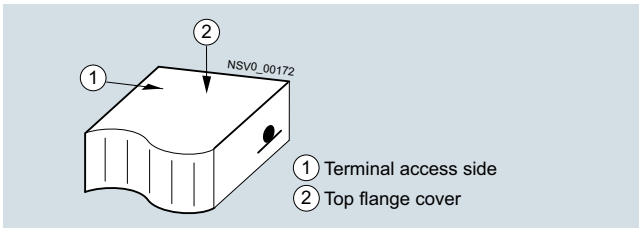
Open busbar end

The PE side is marked with a bold black line.

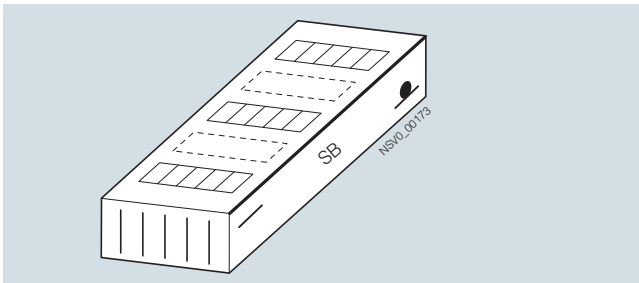


Phase sequence, PE on the right

Terminal end of the trunking unit



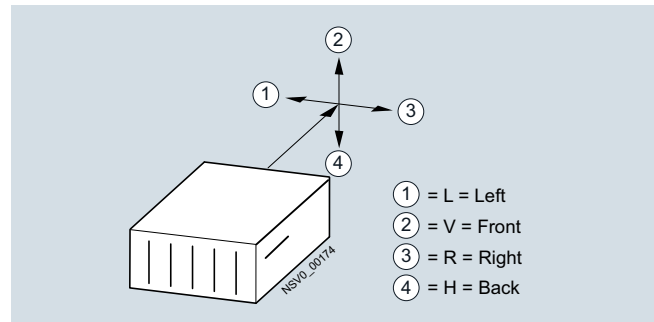
Example:



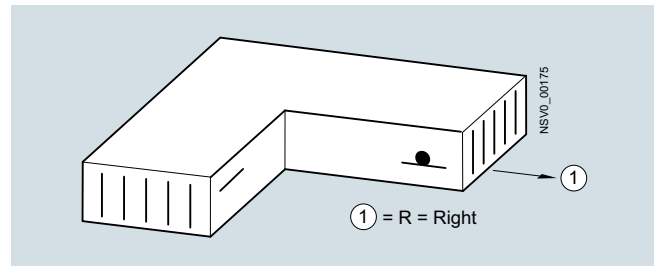
Straight trunking unit with tap-off points on both sides; Type: BD2-...-SB-

The configuration symbols are used on the selection data pages.

Determining the orientation of L-units



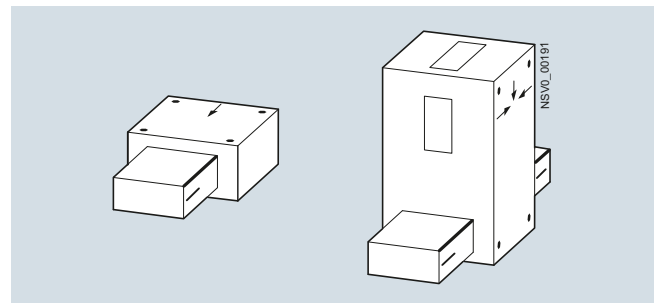
Example:



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)

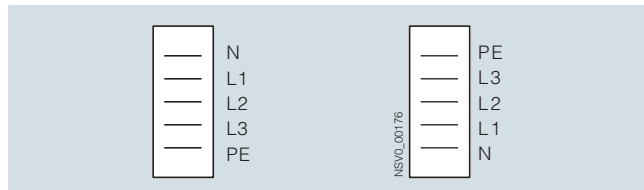
BD2 System – 160 ... 1250 A

Configuration information

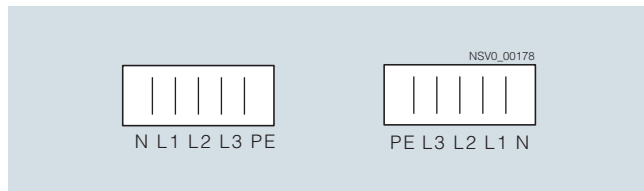
Route planning: Horizontal installation

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:



Horizontal, edgewise

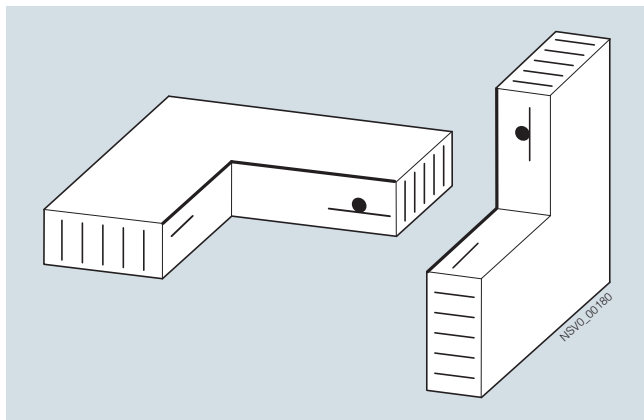


Horizontal, flat

As can be seen from the illustration, any phase sequence is possible. A derating factor in horizontal edgewise mounting position ($\times 0.9$) is necessary for power transmission.

This applies for straight trunking units and branch/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 engineering drawing.

Example:



Elbow, right, Type: BD2-...-LR-, flat and edgewise mounting

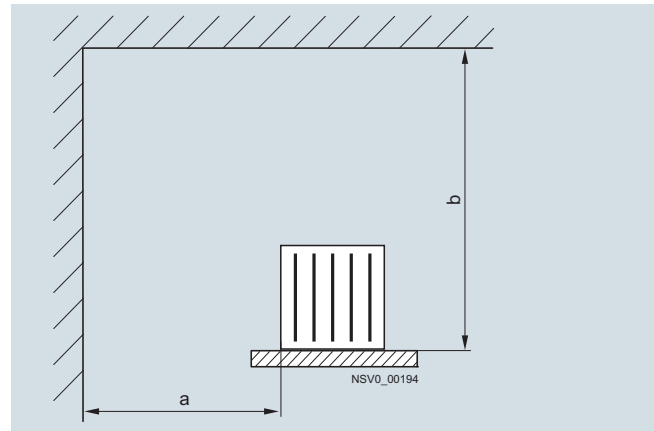
Horizontal edgewise mounting has the advantage of a larger suspension span and the need for fewer accessories (flanges) to achieve the increased degree of protection IP54 (see page 4/11).

Space requirement

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

Busbar trunking system without tap-off units:

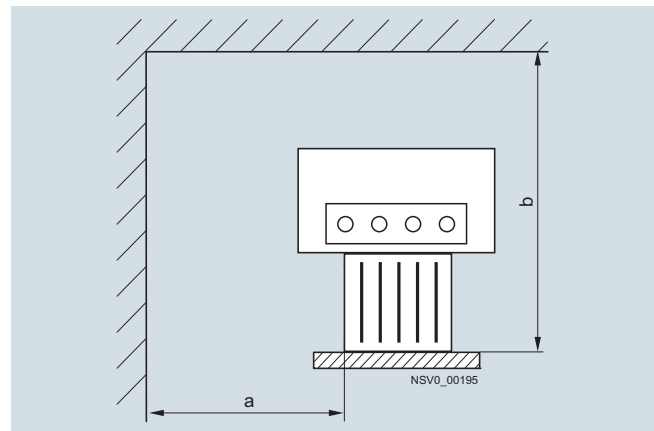
Minimum dimensions for busbar trunking system without tap-off units, including system-compatible fixing brackets mounted horizontally on rack or wall beam:



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 for the front cable entry.



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

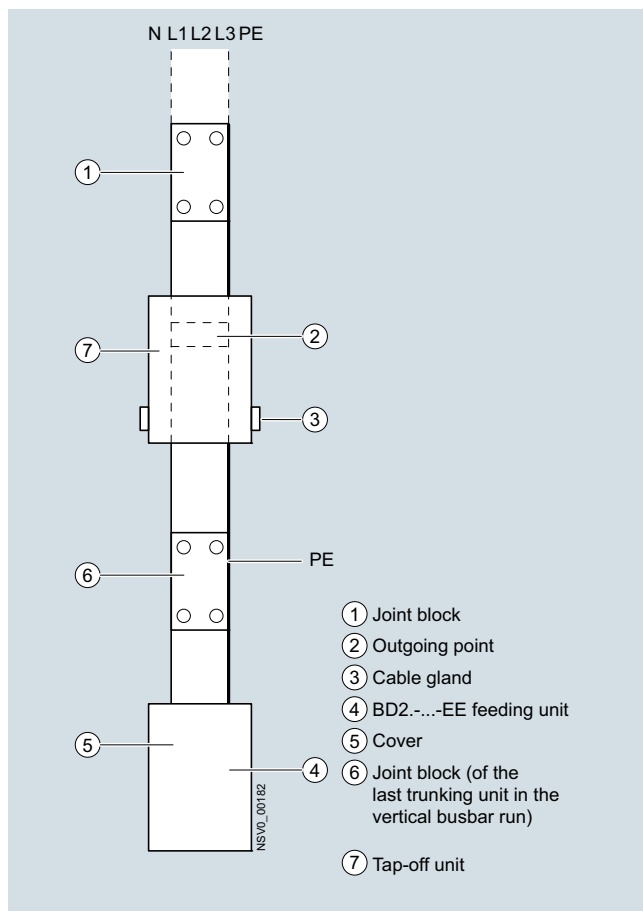
For a configuring example for horizontal installation, see page 4/77.

Route planning: Vertical installationMounting positions

When engineering vertical busbar runs (see page 4/79), the height of the story 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. In this case a distance of at least 0.185 m must be maintained between the end of the trunking unit enclosure and the upper edge of the protective sleeve.

For vertically mounted systems, only one mounting position is possible. The PE bar must always be on the right-hand side, and the trunking unit end with the joint block must point towards the top. 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.



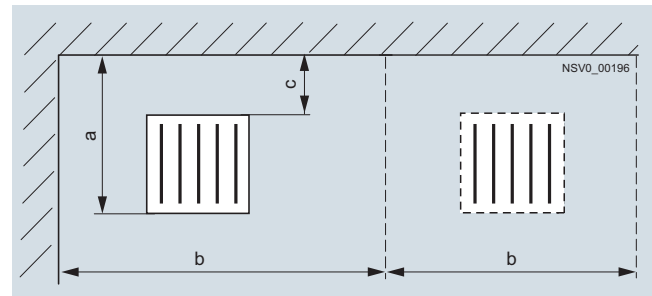
No current reduction is required for vertical busbar runs.

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's elements must be observed when planning the route.

Busbar trunking system without tap-off units:



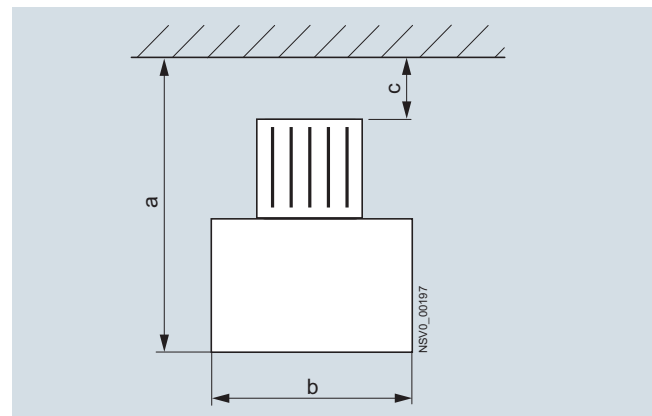
Busbar system (including fixing bracket)	Dimension a mm	Dimension b ¹⁾ mm	Dimension c ²⁾ mm
BD2A(C)-.-160(-400)	130	640	30
BD2A(C)-.-630(-1250)	170	640	30

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

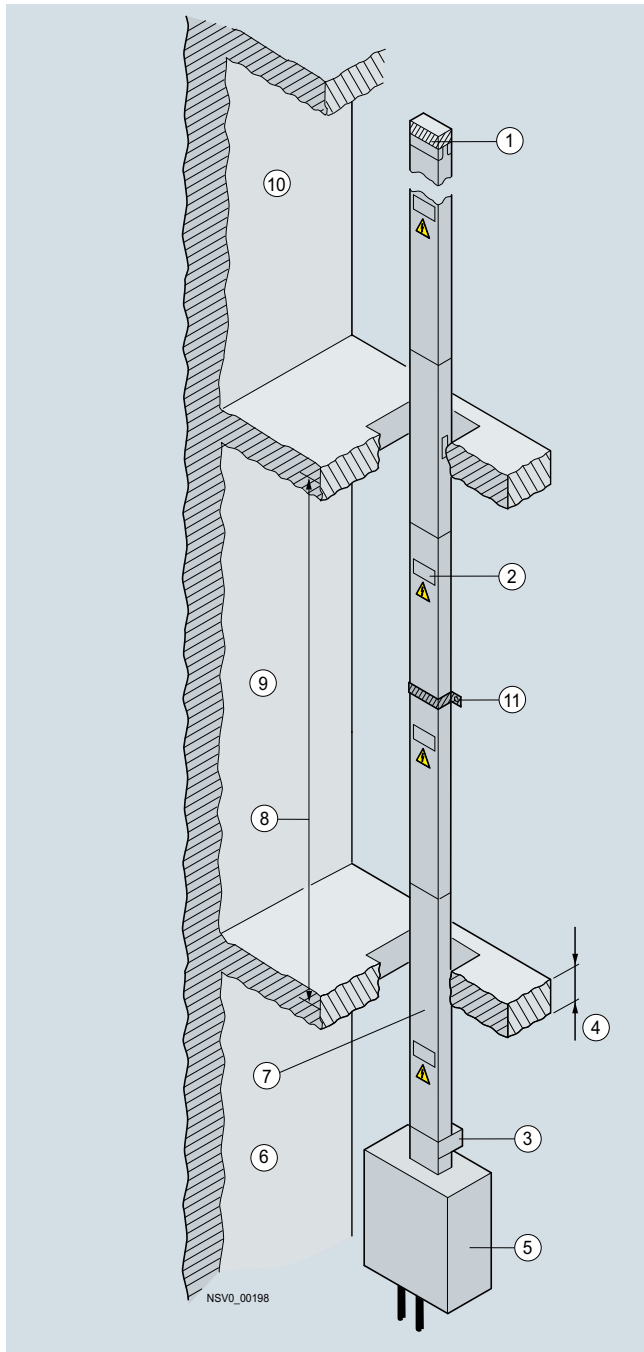
¹⁾ Distance from wall due to fixing bracket.

BD2 System – 160 ... 1250 A

Configuration information

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 a fire barrier through compartmentalization.



- ① End flange, termination
- ② Tap-off point
- ③ Retaining element for vertical fixing BD2-BWV
- ④ Ceiling thickness
- ⑤ End feeding unit
- ⑥ 1st story
- ⑦ Center of fire barrier
- ⑧ Story height from center of one ceiling to the center of the next
- ⑨ 2nd story
- ⑩ 3rd story
- 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 intervals (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 up to 400 A:
 - 30 mm minimum
 - 82 mm minimum
- Systems of 630 A and higher:
 - 50 mm minimum
 - 82 mm minimum

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

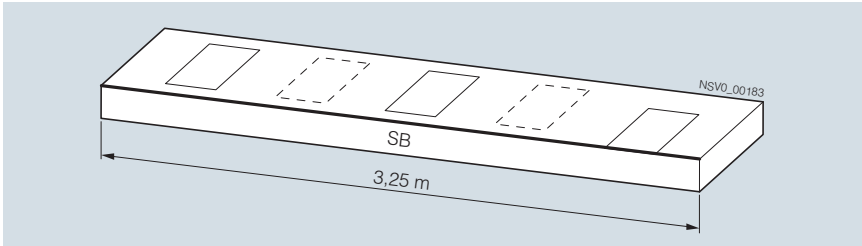
Rated operational current A	Max. length or height	
	BD2A m	BD2C m
160	11.3	10.0
250	10.9	9.9
400	7.9	7.2
630	5.8	5.2
800	5.8	4.8
1000	5.3	4.1
1250	–	3.25

Defining the configuration reference dimensions

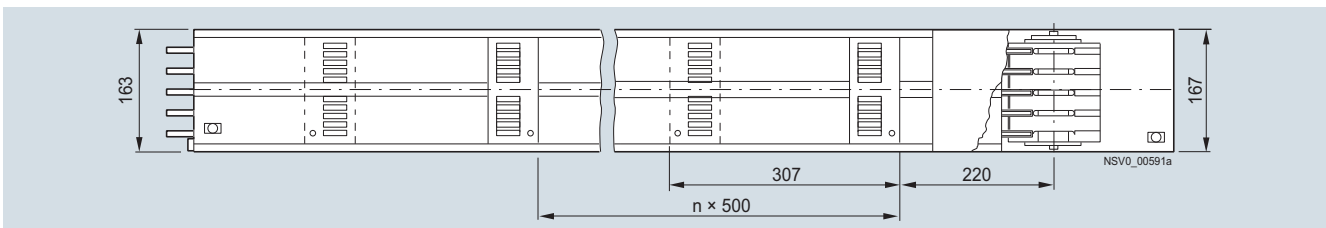
Straight trunking units, standard lengths, type BD2.-.-.-SB-.

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

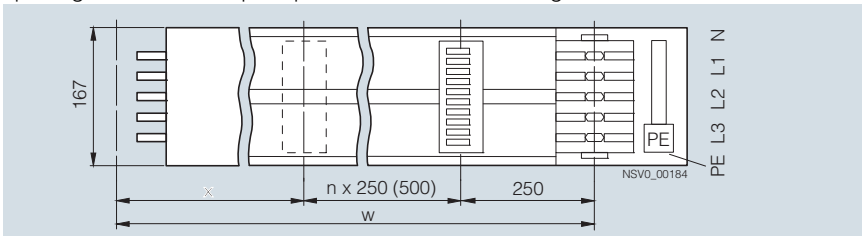


Dimensional drawing

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.

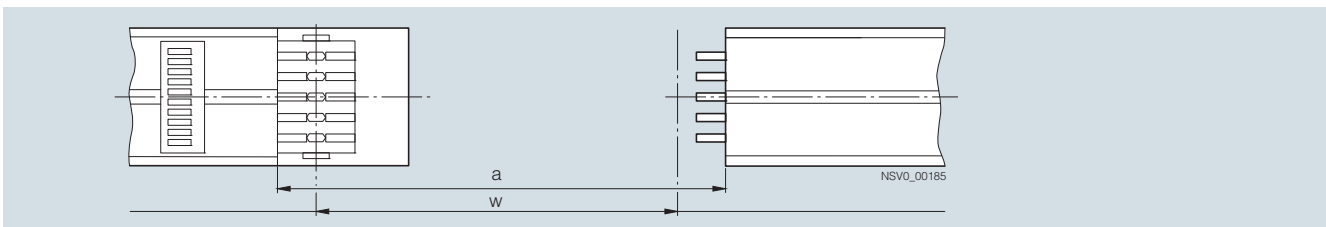


Length m	Tap-off units on both sides
	Number
0.5 ... 1.24	–
1.25 ... 2.25	4 ... 8
2.26 ... 3.25	8 ... 12

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, $260 \text{ mm} \leq x \leq 490 \text{ mm}$ (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:

$$w[\text{m}] = a[\text{m}] - 0.14 \text{ m}$$

Junction units

X dimension (side with open busbar end): from center of terminal to outside edge of enclosure

Y dimension (side with joint block): from center of terminal to outside edge of enclosure

Z dimension: from outside edge of enclosure to outside edge of enclosure

For dimensioning data see page 4/94.

BD2 System – 160 ... 1250 A

Configuration information

Max. length/height of vertical BD2 busbar runs, supported by one BD2-BWV or BD2-BDV retaining 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 retaining elements must be used.

The maximum load applied to the BD2-BWV and BD2-BDV vertical retaining 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 need to be protected against short-circuits and overloads. Fuses and circuit breakers are available for use as protective devices. With the selection of this protection equipment 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 for 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 ratings 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 protective device must have.

The table below contains an overview of the circuit breakers which are suitable for short-circuit and overload protection (400 V and 50 Hz) of the corresponding busbar system.

The following applies: $I'_k \leq I_{cc} \leq I_{cu}$

with

I'_k = The expected short-circuit current at the site of installation

I_{cc} = Rated conditional short-circuit current of the busbar trunking system

I_{cu} = Rated short-circuit breaking capacity of the circuit breaker

Type	Rated current I_n A	Circuit breaker with normal switching capacity	Rated conditional short-circuit current		Circuit breaker with medium switching capacity		Rated conditional short-circuit current		Circuit breaker with high switching capacity	Rated conditional short-circuit current	
			I_{cu} kA	I_{cc} kA	I_{cu} kA	I_{cc} kA	I_{cu} kA	I_{cc} kA			
BD2A(C)-160	160	3VL27 16-1...	40	20	3VL27 16-2...	70	20	3VL27 16-3...	100	20	
BD2A(C)-250	250	3VL37 25-1...	40	40	3VL37 25-2...	70	50	3VL37 25-3...	100	50	
BD2A(C)-400	400	3VL47 40-1...	45	45	3VL47 40-2...	70	45	3VL47 40-3...	100	45	
BD2A(C)-630	630	3VL57 63-1DC36	45	45	3VL57 63-2DC36	70	70	3VL57 63-3DC36	100	100	
BD2A(C)-800	800	3VL57 80-1SE36	50	50	3VL57 80-2SE36	70	70	3VL57 80-3SE36	100	100	
BD2A(C)-1000	1000	3VL77 10-1SE36	50	50	3VL77 10-2SE36	70	60	3VL77 10-3SE36	100	60	
BD2C-1250	1250	3VL77 12-1SE36	50	50	3VL77 12-2SE36	70	60	3VL77 12-3SE36	100	60	

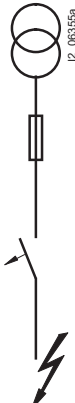
The values for the rated conditional short-circuit current I_{cc} apply to the busbar trunking systems without consideration of any tap-off units.

Back-up protection of miniature circuit breakers/fuses

If the maximum short-circuit current of the miniature circuit breaker at the installation location is unknown, or if the specified rated switching capacity is exceeded, an additional protective device must be connected upstream as back-up protection to prevent overloading of the miniature circuit breaker. This is usually a fuse.

The following table shows the short-circuit currents in kA up to which back-up protection is guaranteed when using fuses according to DIN VDE 0636-21.

Back-up protection limit values of miniature circuit breakers/fuses in kA

Downstream miniature circuit breakers	I_n [A]	Upstream fuses							
		50 A	63 A	80 A	100 A	125 A	160 A	>160 A	
 5SY6 (without 5SY60)	0.3 ... 4	No back-up protection required ¹⁾							
	6	50	50	50	50	50	35	30	
	8	50	50	50	50	50	35	15	
	10	50	50	50	50	50	35	15	
	13	50	50	50	35	35	30	15	
	16	50	50	50	35	30	30	15	
	20	50	50	50	35	25	25	15	
	25	50	50	50	35	30	25	15	
	32	50	50	50	35	30	25	15	
	40	50	50	50	50	25	15	10	
	50	50	50	50	50	25	15	10	
	63	50	50	35	25	25	15	10	
	5SY4, 5SY7, 5SY8, 5SJ4...-HG..²⁾	0.3 ... 6	No back-up protection required ¹⁾						
		8	50	50	50	50	45	45	40
10		50	50	50	50	45	45	40	
13		50	50	50	45	40	35	30	
16		50	50	50	45	40	35	30	
20		50	50	50	40	35	30	30	
25		50	50	50	40	35	30	30	
32		50	50	50	45	40	30	30	
40		50	50	50	45	40	30	20	
50		50	50	50	40	35	25	20	
63		50	50	45	40	35	25	20	

Test circuit data:

$U_p = 250$ V
p.f. = 0.3 ... 0.5

Test cycle:

Acc. to EN 60947-2 (0 - C0)

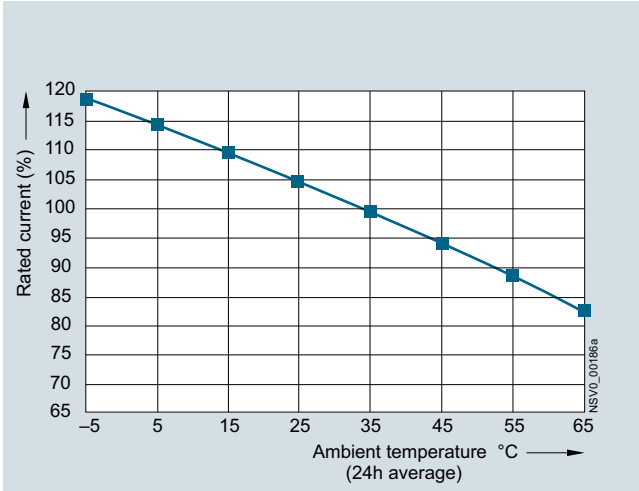
¹⁾ Up to the respective I_{CU} according to the table "Rated switching capacity", see Configuration Manual "Miniature Circuit Breakers".

²⁾ The values specified for 5SJ4...-HG.. are not according to UL but are the manufacturer's specifications according to EN 60947-2 and apply for voltage $U_e = 230$ V ~. For available rated currents, see Catalog LV 10.

BD2 System – 160 ... 1250 A

Configuration information

Temperature characteristic of BD2 systems

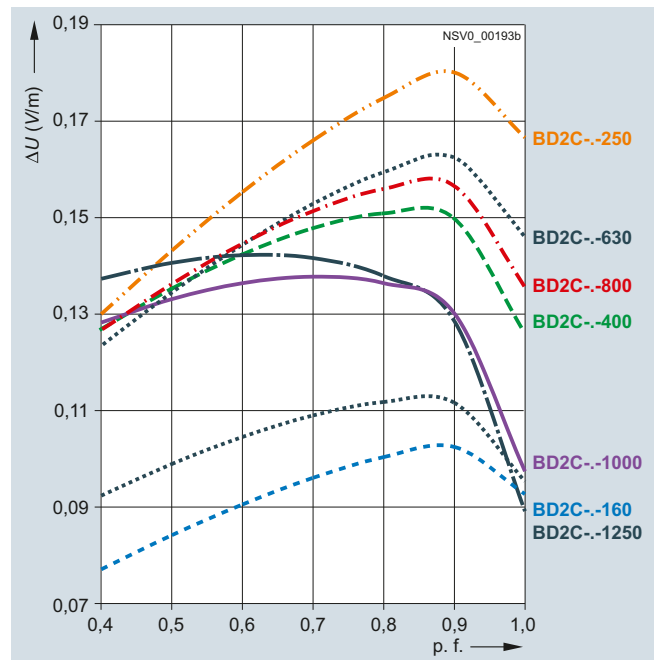


Voltage drop

Voltage drop at rated current

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

- Taking into account the heat resistors (according to IEC/EN 60439-2)
- 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 BD2C

Calculation of the voltage drop

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

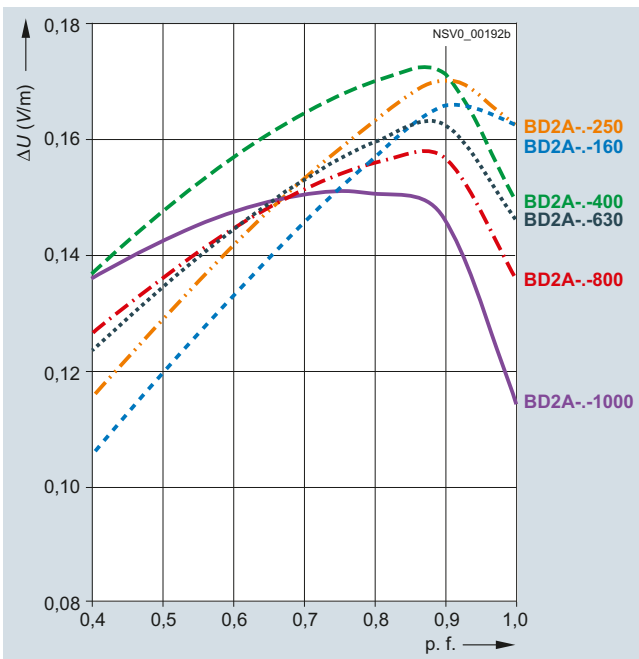
$$\Delta U = a \times \sqrt{3} \times I \times l \times (R \times \cos \varphi + X \times \sin \varphi) \times 10^{-3} \quad (\text{V})$$

- ΔU = Voltage drop (V)
- I = Load current (A)
- l = Length (m)
- a = Load distribution factor
- R = Ohmic resistance R_1 (mΩ/m)
- X = Inductive resistor X_1 (mΩ/m)
- $\cos \varphi$ = Power factor (p.f.)

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

Load distribution

Load distribution		Factor a
	Infeed at A, one outgoing unit at B	1
	Infeed at A, outgoing units at B, C, D, E	0.5
	Infeed at A, outgoing units at B, C	0.25
	Infeed at A, outgoing units at B, C, D, E	0.125
	Infeed at A, B, outgoing units at C, D, E, F	0.25



Voltage drop BD2A

Configuration

Configuring example: Horizontal mounting position

Required details

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

- Installation flat or edgewise, horizontal or vertical, quantity, type and approximate ratings of prospective loads, p.f.
- 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, p.f. = 0.8; $U_e = 400$ V
2. Floor plan and machine layout
3. Rated diversity factor $\alpha = 0.6$
4. Infeed cables 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:

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

with:

I_B	=	Operational current	(A)
P_{inst}	=	Installed power	(kW)
U_e	=	Rated operational voltage	(V)
$\cos \varphi$	=	Power factor (p.f.)	
α	=	Rated diversity factor	
b	=	Supply factor	
		$b = 1$	= Single feeding unit
		$b = 1/2$	= Double end feeding unit, center feeding unit

If no data are available about the actual currents (reduction factor) 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 to 9 inclusive	0.7
10 and more	0.6

Determining the operational current

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

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

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

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

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

Installation plan

It contains:

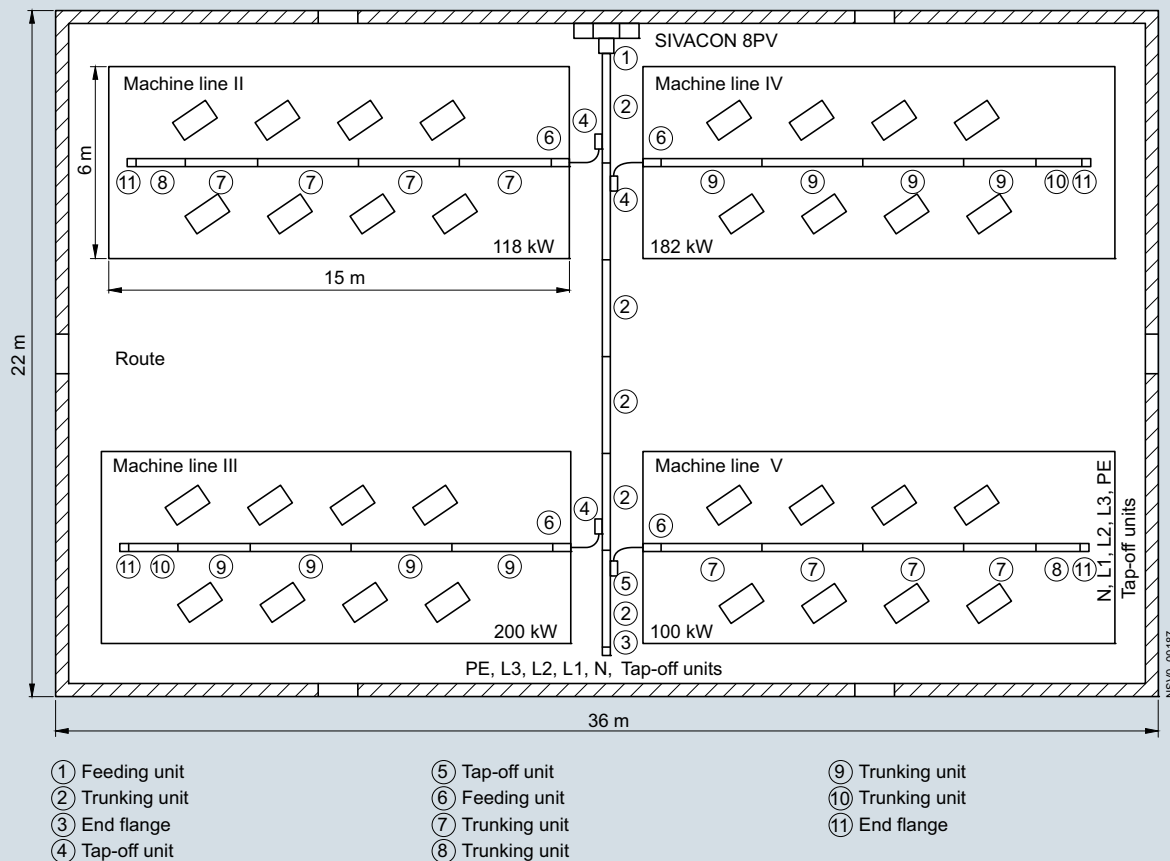
- Position of the busbar trunking system in the building
- Position of the PE and the tap-off openings and consequently the installation direction of the tap-off units
- Number of components with item numbers
- And the method and height of suspension

The information assists the installer later.

If the system is correctly assembled, the entire system will have the same sense of rotation as the three-phase motors throughout the entire system. As a result, it will not be necessary to check the direction of rotation of the motors when relocating a machine.

BD2 System – 160 ... 1250 A

Configuration information



4

Installation plan

Suspension: at a height of 3 m with ceiling mounted supporting structures. BD2 busbar run 1, 800 A, supplies BD2 runs II, III, IV and V via tap-off units and end feeding units, connected by short cable lengths.

Parts list

The parts list should contain all the items shown on the installation plan, with type reference, description and quantity.

Item no. (installation site)	F W L K	Type	Benennung, Zuordnung Description Dénomination	Anzahl Quant.	Listenpreis List price Prix brut	
					einzel each unitaire	Zusammen Total
1		BD2A-1000-EE	Feeding unit	1		
2		BD2A-2-800-SB-3	Trunking units	6		
3		BD2-1250-FE	End flanges	1		
4		BD2-AK04/SNH1	Tap-off units	3		
5		BD2-AK3X/GS00	Tap-off units	1		
6		BD2A-400-EE	Feeding unit	4		
7		BD2A-2-160-SB-3	Trunking units	8		
8		BD2A-2-160-SB-1	Trunking units	2		
9		BD2A-2-250-SB-3	Trunking units	8		
1 0		BD2A-2-250-SB-1	Trunking units	2		
1 1		BD2-400-FE	End flanges	4		
1 2		BD2-1250-BB	Fixing brackets	5		
1 3		BD2-400-BB	Fixing brackets	14		

Configuring example: Vertical mounting positionRequired details

- Number and height of storys
- Ratings and types of load per story
- Rated diversity factor α
- Feeding transformers (characteristics, position)
- Special requirements (degree of protection, fire barrier, etc.)

Given:

1. Six storys with five apartments each
2. 38 kW connected load per apartment
3. $U_e = 400$ V, p.f. = 0.8
4. Rated diversity factor $\alpha = 0.45$
5. Derating factor $\beta = 0.45$
6. Infeed cables 2×240 mm²
7. Protection with 3VL57 80 circuit breaker
8. Details and site plans required for routing the trunking

Operational current

The operational current per story, 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 story (A)
 P_{inst} = Sum of installed power per story (kW)
 U_e = Rated operational voltage (V)
 $\cos \varphi$ = Power factor (p.f.)
 α = Rated diversity factor

If α is not specified, the values from Table 1 can be used. If p.f. is not known, this can be set for a block of apartments = 1.

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

The operational current per busbar run is:

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

with

- β = Derating factor for the total number of loads.
 Good empirical values for derating 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 60439-1 or IEC/EN 61439-1)

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

Table 2: Derating 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-2-800, the following documents must be completed to place an order:

- Installation plan
- Parts list
- Order form

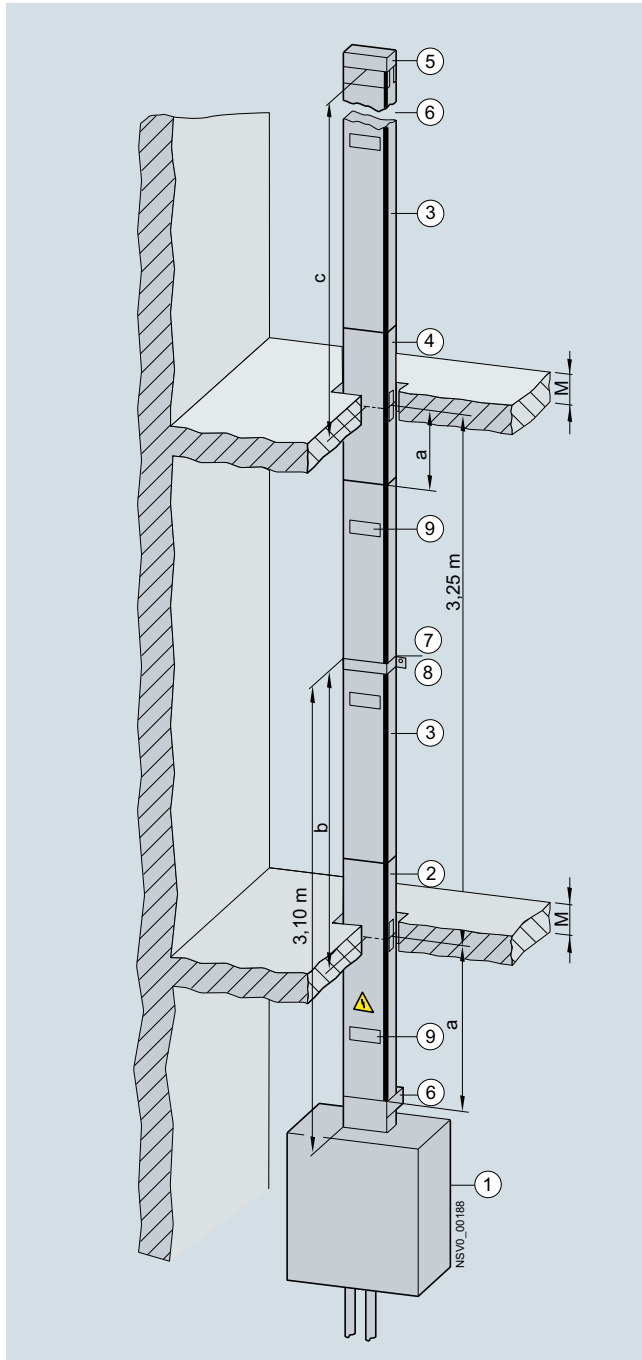
Parts list

Item no. (installation site)	F W L K	Type	Benennung, Zuordnung Description Dénomination	Anz. Qty. Qté
1		BD2A-1000-EE	End feeding units	1
2		BD2A-2-800-WB-2W1.50 +BD2-S120-BX1.00-M0.25	Trunking unit with optional length 1.5 m + fire barrier a = 1.0 m, ceiling thickness M = 0.25 m	1
3		BD2A-2-800-SB-2	Trunking unit 2.25 m	5
4		BD2A-2-800-WO-1W1.00 +BD2-S120-BX0.50-M0.25	Trunking unit with optional length 1.0 m + fire barrier a = 0.5 m, ceiling thickness M = 0.25 m	4
5		BD2-1250-FE	End flanges	1
6		BD2-BWV	Vertical retaining elements	4
7		BD2-1250-BB	Fixing brackets	5
8		BD2-BD	Spacer brackets	5
9		BD2-AK05/SNH2	Tap-off unit with LV HRC fuse switch-disconnector	6
Alternatively: 2 ... 4		BD2A-2-800-SB-3 +BD2-S120-BX1.00-M0.25	Trunking unit 3.25 m + fire barrier a = 1.0 m, ceiling thickness M = 0.25 m	5

BD2 System – 160 ... 1250 A

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 retaining elements
- 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 retaining element in m
- M Ceiling thickness in m

Fixing elements:

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

Note

The fixing points for all fixing brackets, retaining 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 Relative short-circuit voltage u_k Rated power kVA	400/230 V			690/400 V		
	Rated current A	4 % ¹⁾ Short-circuit current I_k'' ³⁾ A	6 % ²⁾ Short-circuit current I_k'' ³⁾ A	Rated current A	4 % ¹⁾ Short-circuit current I_k'' ³⁾ A	6 % ²⁾ Short-circuit current I_k'' ³⁾ A
50	72	1805	–	42	1042	–
100	144	3610	2406	84	2084	1392
160	230	5776	3850	133	3325	2230
200	288	7220	4812	168	4168	2784
250	360	9025	6015	210	5220	3560
315	455	11375	7583	263	6650	4380
400	578	14450	9630	336	8336	5568
500	722	18050	12030	420	10440	7120
630	909	22750	15166	526	13300	8760
800	1156	28900	19260	672	16672	11136
1000	1444	36100	24060	840	20840	13920
1250	1805	45125	30080	1050	26060	17480

1) $u_k = 4\%$, standardized according to DIN 42500 for $S_{NT} = 50 \dots 630$ kVA.

2) $u_k = 6\%$, standardized according to DIN 42500 for $S_{NT} = 100 \dots 1600$ kVA.

3) I_k'' = Transformer initial short-circuit alternating current when connecting to a network with unlimited short-circuit power.

Approximating formula	Transformer short-circuit alternating current	with
Transformer rated current 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 shutoff of the smallest single-pole ground short-circuit current

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

- 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, which contributes to 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-pole 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

BD2 System – 160 ... 1250 A

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

Usage in operating areas exposed to a fire hazard

In operating areas exposed to a fire hazard, IEC 60364-7-72 and DIN VDE 0100-720 places enhanced demands on the degree of protection of electrical equipment. The demands for busbar trunking systems are:

- For a fire hazard from dust and/or fibers: degree of protection IP5X
- For a fire hazard from readily flammable materials apart from dust and/or fibers: Degree of protection IP4X

The BD2A/BD2C busbar trunking systems meet these demands. They are therefore suitable for applications in this area.

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

Degree of protection	1st figure Touch protection	Protection against solid foreign bodies and dust	2nd figure Protection against ingress of liquid
IP00	No special protection	No special protection	No special protection
IP20	Against finger contact	Against solid particles $\geq \varnothing$ 12.5 mm	No special protection
IP34	Against tools	Against solid particles $\geq \varnothing$ 2.5 mm	No damage caused by splashwater
IP41	Against wire	Against solid particles $\geq \varnothing$ 1 mm	No damage caused by vertically dripping water (vertical drops)
IP43	Against wire	Against solid particles $\geq \varnothing$ 1 mm	No damaged caused by spraywater
IP54	Against wire	Against hazardous dust deposits inside (dust-tight)	No damage caused by splashwater
IP55	Against wire	Against hazardous dust deposits inside (dust-tight)	No damage caused by hose-water
IP65	Against wire	Against penetration of dust (dust-tight)	No damage caused by hose-water
IP66	Against wire	Against penetration of dust (dust-tight)	In the event of temporary immersion, ingress of water will have no harmful effects (water jet)
IP67	Against wire	Against penetration of dust (dust-tight)	Water may not ingress in harmful quantities during immersion (temporary immersion)
IP68	Against wire	Against penetration of dust (dust-tight)	Water may not ingress in harmful quantities during immersion for indefinite periods (continuous immersion)

Touch protection according to EN 50274

These regulations apply for the design of electrical equipment and its installation 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 parts which are live or dangerous to touch.

"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 device to any live parts must be ensured.

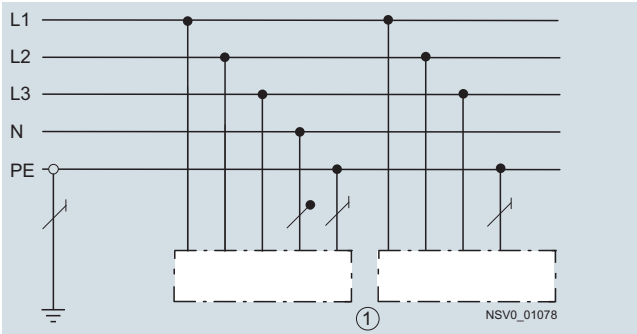
The degree of protection IP20 is a more enhanced protection against direct contact than "finger-safe". It constitutes touch protection with electrical equipment from all directions. Devices with "finger-safe" protection against direct contact and degree of protection IP00 can be assigned with additional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

Power distribution systems (grid types) according to IEC 60364-3 or DIN VDE 0100-300

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

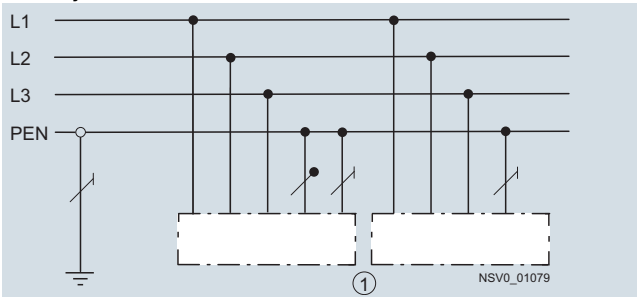
TN systems

TN-S system



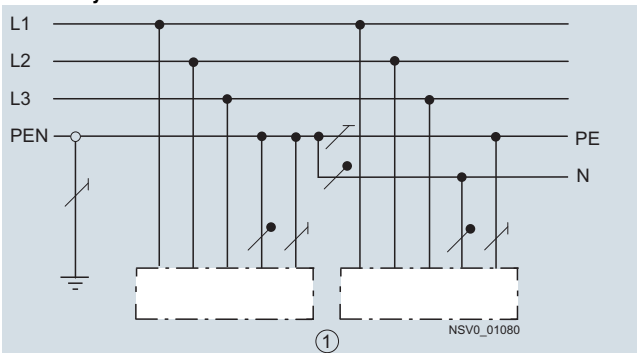
Separated neutral and protective conductors throughout the system.

TN-C system



Neutral and protective functions are combined throughout the system in a single conductor.

TN-C-S system



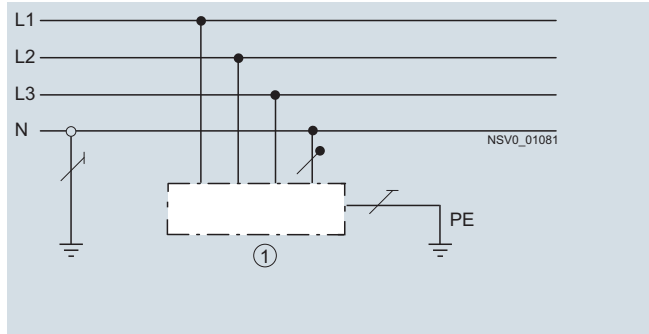
Combination between neutral conductor and PE functions. They are combined in one part of the system to a single conductor and separated in another part.

① Chassis

② Impedance

Other systems

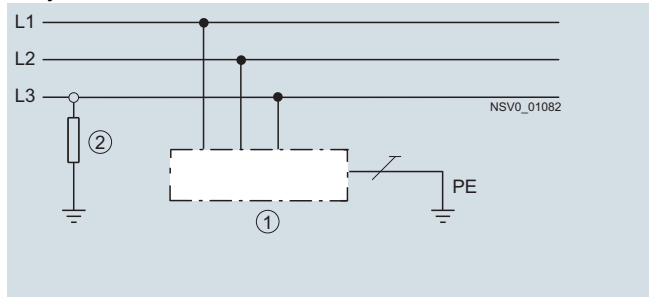
TT system



In a TT system, one point is directly grounded; the chassis of the electrical system is connected to ground which has no direct connection to the operational grounding.

In the modern TT system, protective measures include protective grounding as well as current-operated e.l.c.b. systems and voltage-operated e.l.c.b. systems.

IT system



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

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

Explanations

First character = Grounding condition of the power supply source

- T = Direct grounding of a point
- I = Either insulation of all live parts from ground or connection of one point with ground via impedance

Second character = Grounding condition of chassis of the electrical equipment

- T = Chassis directly grounded, independently of any grounding of a point in the power supply
- N = Chassis connected directly with the operational ground in AC systems, the grounded point is normally the neutral point

Additional letters = Arrangement of the neutral conductor and PE conductor

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

BD2 System – 160 ... 1250 A

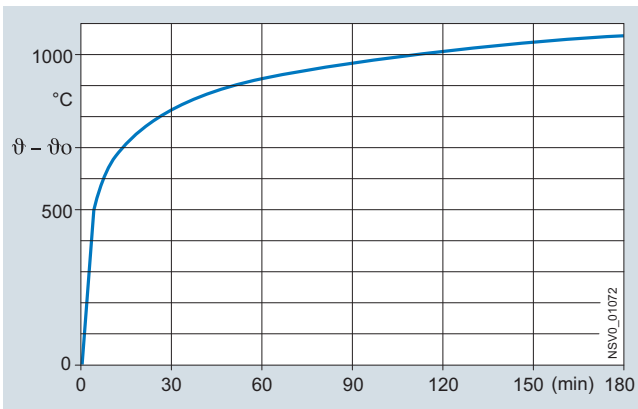
Configuration information

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.

The German standards DIN VDE 0108-1 "Buildings where people meet" and DIN VDE 0100-710 "Medically used areas" state that electrical systems 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 (ETK) for assessing functional endurance

In order to provide the functional endurance of the busbar trunking system stipulated by the regulations, Siemens successfully carried out and completed tests in cooperation with Promat for the BD2A/BD2C busbar system at the materials testing laboratory in Braunschweig in Germany.

In the fire test, the busbar trunking systems concerned were tested with a cladding of Promatect L500 plates in various thicknesses (thickness $d = 20$ mm, 40 mm, 60 mm) under an outside fire load based on the standard temperature curve in order to assess functional maintenance according to DIN 4102 Part 12.

More information on request.

Magnetic fields

General information

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

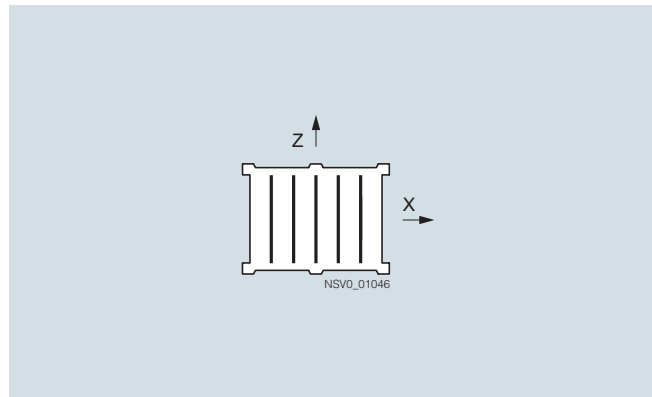
Limit values

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 mains 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 noise of the busbar 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 interference between multi-core cables and wires of the heavy current installation, conductor cross-section > 185 mm², and the patient stations 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 interference fields in the environment.

Measured values on request.

Sprinkler test

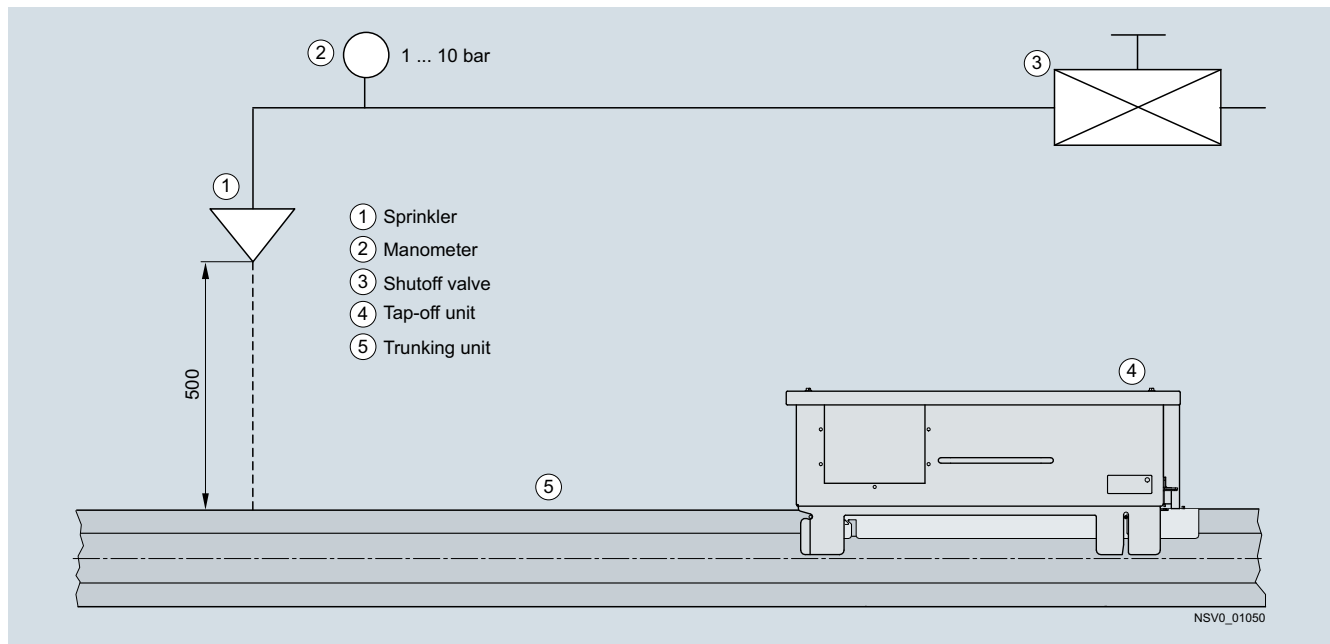
General information

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 or directive, the test was 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 IP54 degree of protection was sprinkled in all fitted 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 60439-2 or 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

BD2 System – 160 ... 1250 A

Configuration information

Comparison of busbar trunking and cable installation systems

Feature	Busbar trunking installation	Cable installation
TTA assembly	Yes	No
Mechanical safety	High	Low
Fire load	Low	High
Temperature characteristic	Ambient temperature according to IEC/EN 60439-1 and -2 or IEC/EN 61439-1/-6 max. +40 °C and +35 °C on a 24-hour average	Cable loads are related to +30 °C in accordance with DIN 57298 Part 4/VDE 0298 Part 4/2.88
System structure	Clearly structured thanks to a linear system configuration with serially arranged load tap-offs via tap-off units	Very large accumulation of cables at feed point due to point-to-point supply of loads from central power distribution unit
Protective devices for loads	In the tap-off unit: Means direct and immediate on-the-spot identification of assignment to load	Centrally in the distribution board: Makes the assignment to the load not directly verifiable. It is necessary to rely on correct inscription of the cables and loads.
Space requirement	Low	High, because correspondingly large distribution boards are required. Routing criteria (cable accumulation, type of routing, current carrying capacity, etc.) must be complied with.
Retrofitting capability if load tap-offs are changed	Great flexibility due to tap-off points in the trunking units and a great number of different tap-off units	Only possible at great expense; laying additional cables from the central distribution board to the load
Planning and configuration	Simple and fast with EDP-aided planning tools being used	Highly intensive engineering (distribution and cable layouts, cable plans, etc.)
Dimensioning (current, voltage drop, protective earth conditions)	Not complex	Very complex
Troubleshooting	Low	High
Fire barrier	Type-tested, ex-works	Dependent on the work standard applied on the building site
Functional endurance	Tested functional endurance according to DIN 4102-12	Dependent on the work standard applied on the building site
Electromagnetic interference	Low, due to sheet-steel enclosure and conductor configuration	Relatively high with a standard cable
Mounting	Very little fitting materials and tools required, short mounting times	Complex mounting materials and a comprehensive range of tools required, long mounting times
Weight	Up to 1/3 of the comparable cable weight	Up to 3-times the busbar trunking system weight
Halogen and PVC free	Trunking units are always halogen and PVC free	Standard cables are not always halogen and PVC free

Overview

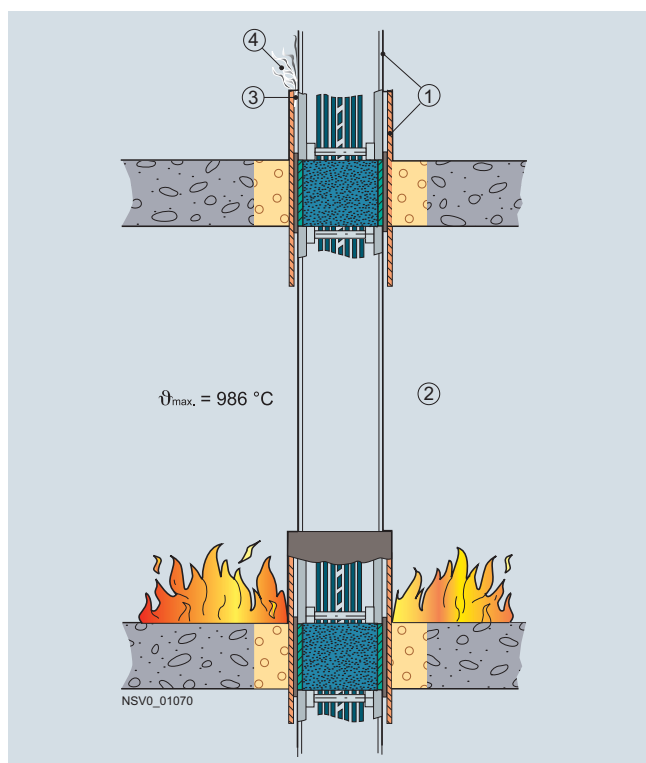
General requirements¹⁾

The German state building authorities demand that buildings are designed so that "spreading of fire and smoke is prevented, and that effective fire fighting and rescue of persons and domestic animals is facilitated". Fire or flue gas may not spread from one story or fire area to another.

All BD2A/BD2C busbar trunking systems can be equipped with fire barriers and generally comply with the standards for buildings including high-rise buildings. The busbar trunking system is supplied ex-works with fire barriers. Retrofitting is not possible. A general approval from the German Institute for Building Engineering (Deutsches Institut für Bautechnik in Berlin DiBt) in Berlin is available:

- BD2-S120: No. Z-19.15-1046
- BD2-S90: No. Z-19.15-1048

Depending on the version the fire resistance rating corresponds to S 90 or S 120 according to DIN 4102 Part 9. The demands for verification of the fire resistance duration of 120 min according to ISO 834 as required by IEC/EN 60439-2 are fulfilled. The requirements for a busbar trunking system based on DIN 4102 are shown in the illustration.



- (1) Permissible temperature increase on components: max. 180 °C
- (2) Scene of fire: Application of fire according to the standard temperature curve DIN 4102, sheet 2
- (3) Permitted temperature increase of escaping air: max. 140 °C
- (4) No flammable gases are permitted to escape. No rescue work may be hindered by emerging smoke.

Configuration

To ensure fire barrier to S90 or S120, the following points must be observed when engineering and installing trunking and junction units with fire barriers:

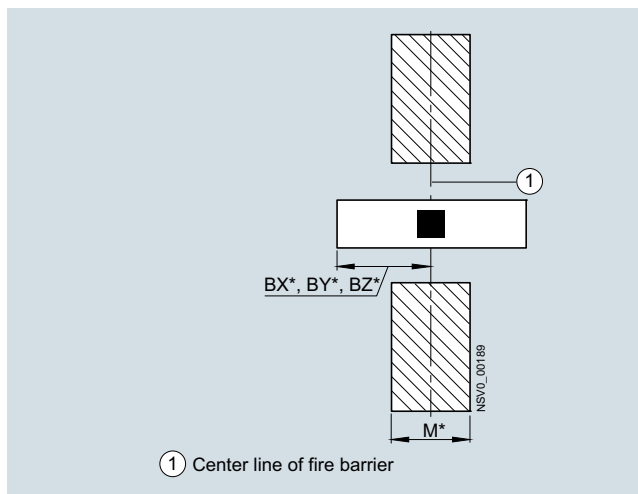
- ¹⁾ Fire barrier: Fire resistance rating EI90 and EI120 according to EN 1366-3 and approval papers for Euro standard available soon

- The center of the fire barrier in the trunking unit must be positioned in the center of the fire wall or ceiling.
Exception: With branch/junction units, this may not be possible due to insufficient distance from the wall or ceiling, i.e. the center of the fire barrier may not coincide with the center of the fire wall or ceiling. In such cases, PROMATECT-H(L) panels are added to achieve the actually required wall or ceiling thickness.
- The following information must be provided: For BX*, BY* or BZ* trunking units, position of the center of the fire barrier in the trunking unit (or the center of the fire wall or ceiling for branch/junction units with insufficient distance from the wall or ceiling); the desired fire resistance rating S90 or S120; and the thickness M* of the wall or ceiling.
- 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
- In Germany, the BD2-S90-ZUL-D or BD2-S120-ZUL-D fire barrier kit is required (see page 4/61)

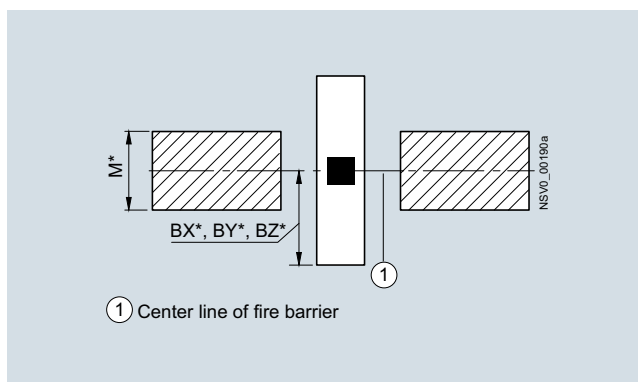
Notes

For BX* and BY*, replace the asterisk in the type reference by the required dimension in meters from the center of the joint block to the center of the fire wall or ceiling.

For BZ*, replace the asterisk in the type reference by the required dimension in meters from the outside edge of limb X (end without joint block) to the center of the fire wall or ceiling; for -M* specify the wall or ceiling thickness.



Positioning in the fire wall



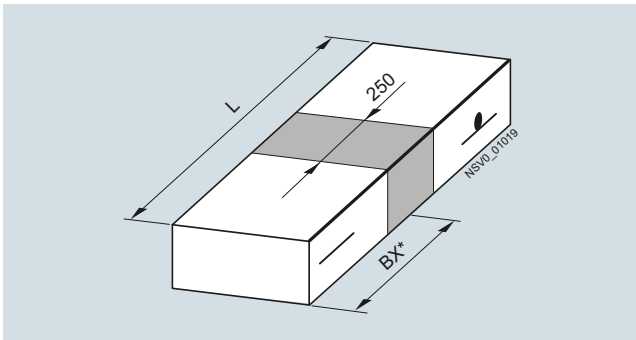
Positioning in the fire ceiling

BD2 System – 160 ... 1250 A

Fire barrier

Design

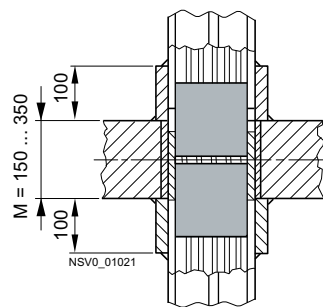
Position of fire barrier on the trunking unit



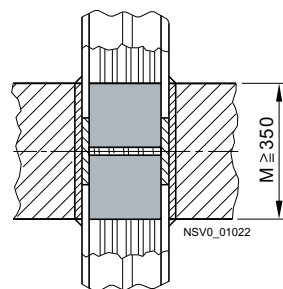
Type: BD2A-...-S(W).-. + BD2-S90(S120)-BX*-M*
BD2C-...-S(W).-. + BD2-S120-BX*-M*

Fire resistance rating S90/S120

- Wall thickness $150 \text{ mm} \leq M < 350 \text{ mm}$



- Wall thickness $M \geq 350 \text{ mm}$



¹⁾ Replace the asterisk * according to the table.

BD2A-...-S(W). + BD2-S90 (S120)-BX*-M* ¹⁾

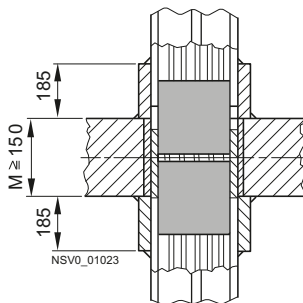
L (L min. = 570+M)	BX* min. = 285+M/2	BX* max. = L-BX* min.
720 (min.)	360	360
–	–	–
–	–	–
3250 (max.)	360	2890

BD2A-...-S(W). + BD2-S90 (S120)-BX*-M* ¹⁾

L (L min. = 370+M)	BX* min. = 185+M/2	BX* max. = L-BX* min.
720 (min.)	360	360
–	–	–
–	–	–
3250 (max.)	360	2890

Fire resistance rating S120

- Wall thickness $M \geq 150$ mm



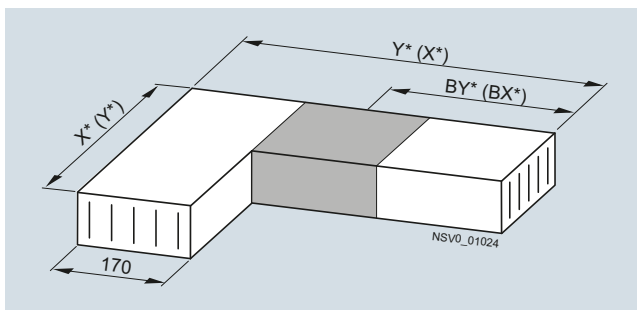
1) Replace the asterisk * according to the table.

BD2C-...-S(W). + BD2-S120-BX*-M* 1)

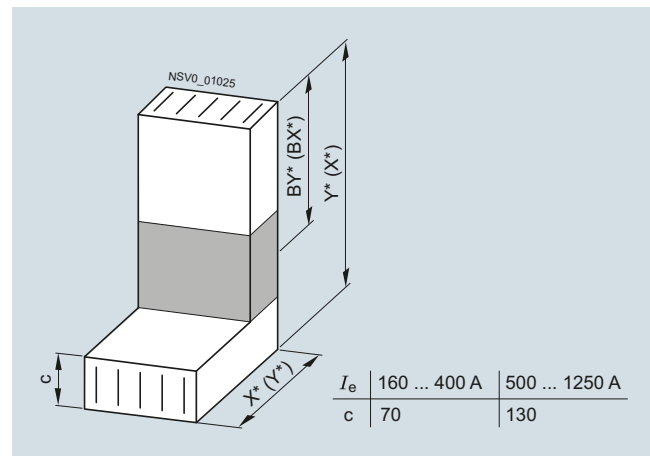
L (L min. = 740+M)	BX* min. = 370+M/2	BX* max. = L-BX* min.
900 (min.)	450	450
—	—	—
3250 (max.)	450	2800

Position of the fire barrier on junction units

The minimum dimensions applicable for positioning fire barriers on the limbs of branch/junction units differ, depending on the routing of the trunking and the distance from the fire wall to the inside edge of the trunking unit.



Elbow, type: BD2A-...-LR(L)-X* (Y*), +BD2-S90(S120)-BX*(BY*)-M*
BD2C-...-LR(L)-X* (Y*), +BD2-S120-BX*(BY*)-M*



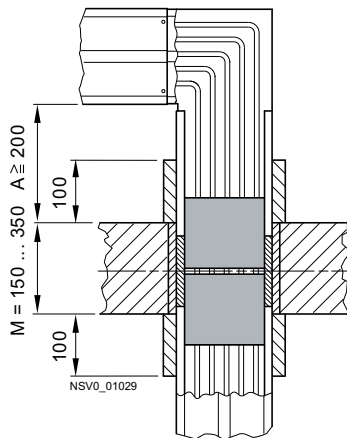
Knee, type: BD2A-...-LV(H)-X* (Y*), +BD2-S90(S120)-BX*(BY*)-M*
BD2C-...-LV(H)-X* (Y*), +BD2-S120-BX*(BY*)-M*

BD2 System – 160 ... 1250 A

Fire barrier

Fire resistance rating S90/S120

- Wall thickness $150 \text{ mm} \leq M < 350 \text{ mm}$
(distance from wall/inside corner $A \geq 200 \text{ mm}$)



BD2A-...-L... + BD2-S90 (S120)-BX*(BY*)-M*¹⁾

- Junction units LL, LR

$X^*(Y^*)(X^*(Y^*) \text{ min.} = 285+M+A+170)$	$BX^*(BY^*) \text{ min.} = 285+M/2$	$BX^*(BY^*) \text{ max.} = X^*(Y^*)-170-A-M/2$
810 (min.)	360	360
–	–	–
1250 (max.)	360	800

- Junction units LV, LH; 400 A

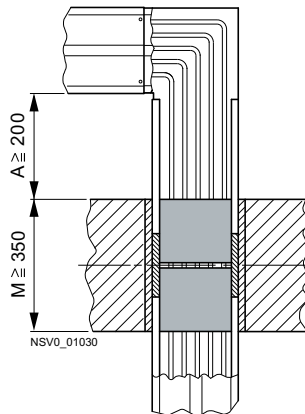
$X^*(Y^*)(X^*(Y^*) \text{ min.} = 285+M+A+70)$	$BX^*(BY^*) \text{ min.} = 285+M/2$	$BX^*(BY^*) \text{ max.} = X^*(Y^*)-70-A-M/2$
710 (min.)	360	360
–	–	–
1250 (max.)	360	900

- Junction units LV, LH; 1000 A

$X^*(Y^*)(X^*(Y^*) \text{ min.} = 285+M+A+130)$	$BX^*(BY^*) \text{ min.} = 285+M/2$	$BX^*(BY^*) \text{ max.} = X^*(Y^*)-130-A-M/2$
770 (min.)	360	360
–	–	–
1250 (max.)	360	840

Fire resistance rating S90/S120

- Wall thickness $M \geq 350 \text{ mm}$
(distance from wall/inside corner $A \geq 200 \text{ mm}$)



BD2A-...-L... + BD2-S90 (S120)-BX*(BY*)-M*¹⁾

- Junction units LL, LR

$X^*(Y^*)(X^*(Y^*) \text{ min.} = 185+M+A+170)$	$BX^*(BY^*) \text{ min.} = 185+M/2$	$BX^*(BY^*) \text{ max.} = X^*(Y^*)-170-A-M/2$
910 (min.)	360	360
–	–	–
1250 (max.)	360	700

- Junction units LV, LH; 400 A

$X^*(Y^*)(X^*(Y^*) \text{ min.} = 185+M+A+70)$	$BX^*(BY^*) \text{ min.} = 185+M/2$	$BX^*(BY^*) \text{ max.} = X^*(Y^*)-70-A-M/2$
810 (min.)	360	360
–	–	–
1250 (max.)	360	800

- Junction units LV, LH; 1000 A

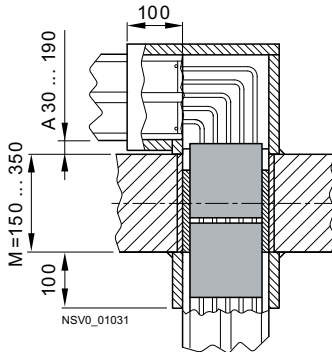
$X^*(Y^*)(X^*(Y^*) \text{ min.} = 185+M+A+130)$	$BX^*(BY^*) \text{ min.} = 185+M/2$	$BX^*(BY^*) \text{ max.} = X^*(Y^*)-130-A-M/2$
870 (min.)	360	360
–	–	–
1250 (max.)	360	740

¹⁾ Replace the asterisk * according to the table.

Note: With other fire barrier configurations, please contact your local Siemens sales office.

Fire resistance rating S90/S120

- Wall thickness $150 \text{ mm} \leq M < 350 \text{ mm}$
(distance from wall/inside corner $30 \text{ mm} \leq A < 200 \text{ mm}$)

**BD2A-...-L... + BD2-S90 (S120)-BX*(BY*)-M*¹⁾**

- Junction units LL, LR

$X^*(Y^*)(X^*(Y^*) \text{ min.} = 285+M+A+170)$	$BX^*(BY^*) \text{ min.} = 285+M/2$	$BX^*(BY^*) \text{ max.} = X^*(Y^*)-170-A-M/2$
640 (min.)	360	360
–	–	–
1250 (max.)	360	970

- Junction units LV, LH; 400 A

$X^*(Y^*)(X^*(Y^*) \text{ min.} = 285+M+A+70)$	$BX^*(BY^*) \text{ min.} = 285+M/2$	$BX^*(BY^*) \text{ max.} = X^*(Y^*)-70-A-M/2$
540 (min.)	360	360
–	–	–
1250 (max.)	360	1070

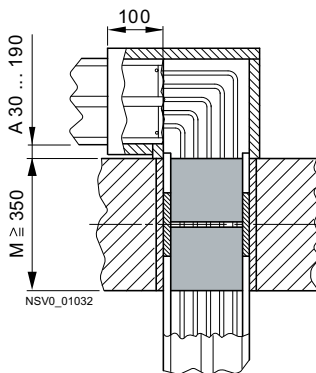
- Junction units LV, LH; 1000 A

$X^*(Y^*)(X^*(Y^*) \text{ min.} = 285+M+A+130)$	$BX^*(BY^*) \text{ min.} = 285+M/2$	$BX^*(BY^*) \text{ max.} = X^*(Y^*)-130-A-M/2$
600 (min.)	360	360
–	–	–
1250 (max.)	360	1010

The dimension X^*_{min} or Y^*_{min} on the side with corner covering is 460 mm.

Fire resistance rating S90/S120

- Wall thickness $M \geq 350 \text{ mm}$
(distance from wall/inside corner $30 \text{ mm} \leq A < 200 \text{ mm}$)

**BD2A-...-L... + BD2-S90 (S120)-BX*(BY*)-M*¹⁾**

- Junction units LL, LR

$X^*(Y^*)(X^*(Y^*) \text{ min.} = 185+M+A+170)$	$BX^*(BY^*) \text{ min.} = 185+M/2$	$BX^*(BY^*) \text{ max.} = X^*(Y^*)-170-A-M/2$
740 (min.)	360	360
–	–	–
1250 (max.)	360	870

- Junction units LV, LH; 400 A

$X^*(Y^*)(X^*(Y^*) \text{ min.} = 185+M+A+70)$	$BX^*(BY^*) \text{ min.} = 185+M/2$	$BX^*(BY^*) \text{ max.} = X^*(Y^*)-70-A-M/2$
640 (min.)	360	360
–	–	–
1250 (max.)	360	970

- Junction units LV, LH; 1000 A

$X^*(Y^*)(X^*(Y^*) \text{ min.} = 185+M+A+130)$	$BX^*(BY^*) \text{ min.} = 185+M/2$	$BX^*(BY^*) \text{ max.} = X^*(Y^*)-130-A-M/2$
700 (min.)	360	360
–	–	–
1250 (max.)	360	910

The dimension X^*_{min} or Y^*_{min} on the side with corner covering is 460 mm.

¹⁾ Replace the asterisk * according to the table.

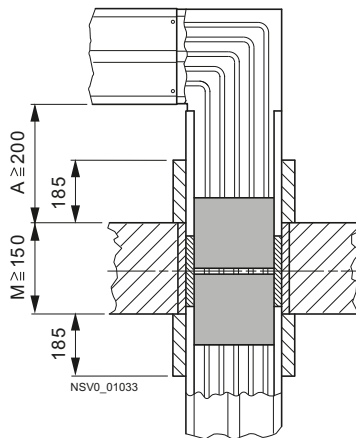
Note: With other fire barrier configurations, please contact your local Siemens sales office.

BD2 System – 160 ... 1250 A

Fire barrier

Fire resistance rating S120

- Wall thickness $M \geq 150$ mm
(distance from wall/inside corner $A \geq 200$ mm)



BD2C-...-L... + BD2-S120-BX*(BY*)-M*¹⁾

- Junction units LL, LR

$X^*(Y^*)(X^*(Y^*) \text{ min.} = 370+M+A+170)$	$BX^*(BY^*) \text{ min.} = 370+M/2$	$BX^*(BY^*) \text{ max.} = X^*(Y^*)-170-A-M/2$
890 (min.)	450	450
–	–	–
1250 (max.)	450	800

- Junction units LV, LH; 400 A

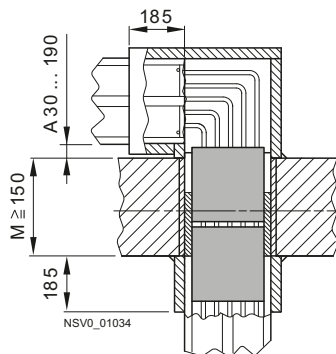
$X^*(Y^*)(X^*(Y^*) \text{ min.} = 370+M+A+70)$	$BX^*(BY^*) \text{ min.} = 370+M/2$	$BX^*(BY^*) \text{ max.} = X^*(Y^*)-70-A-M/2$
790 (min.)	450	450
–	–	–
1250 (max.)	450	900

- Junction units LV, LH; 1250 A

$X^*(Y^*)(X^*(Y^*) \text{ min.} = 370+M+A+130)$	$BX^*(BY^*) \text{ min.} = 370+M/2$	$BX^*(BY^*) \text{ max.} = X^*(Y^*)-130-A-M/2$
850 (min.)	450	450
–	–	–
1250 (max.)	450	840

Fire resistance rating S120

- Wall thickness $M \geq 150$ mm
(distance from wall/inside corner $30 \text{ mm} \leq A < 200$ mm)



BD2C-...-L... + BD2-S120-BX*(BY*)-M*¹⁾

- Junction units LL, LR

$X^*(Y^*)(X^*(Y^*) \text{ min.} = 370+M+A+170)$	$BX^*(BY^*) \text{ min.} = 370+M/2$	$BX^*(BY^*) \text{ max.} = X^*(Y^*)-170-A-M/2$
720 (min.)	450	450
–	–	–
1250 (max.)	450	970

- Junction units LV, LH; 400 A

$X^*(Y^*)(X^*(Y^*) \text{ min.} = 370+M+A+70)$	$BX^*(BY^*) \text{ min.} = 370+M/2$	$BX^*(BY^*) \text{ max.} = X^*(Y^*)-70-A-M/2$
620 (min.)	450	450
–	–	–
1250 (max.)	450	1070

- Junction units LV, LH; 1250 A

$X^*(Y^*)(X^*(Y^*) \text{ min.} = 370+M+A+130)$	$BX^*(BY^*) \text{ min.} = 370+M/2$	$BX^*(BY^*) \text{ max.} = X^*(Y^*)-130-A-M/2$
680 (min.)	450	450
–	–	–
1250 (max.)	450	1010

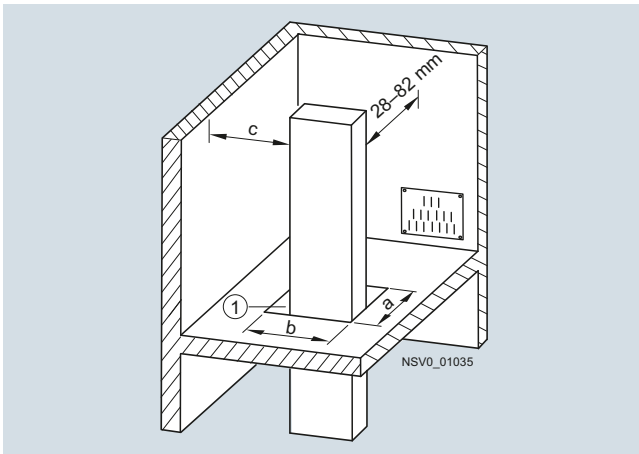
The dimension X^*_{min} or Y^*_{min} on the side with corner covering is 550 mm.

¹⁾ Replace the asterisk * according to the table.

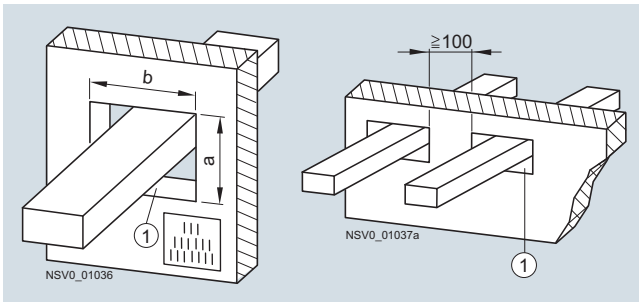
Note: With other fire barrier configurations, please contact your local Siemens sales office.

Installing trunking units with fire barrier

Recommended minimum dimensions of ceiling or wall cut-out

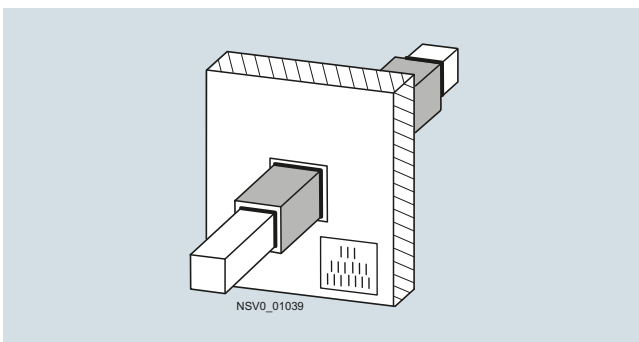
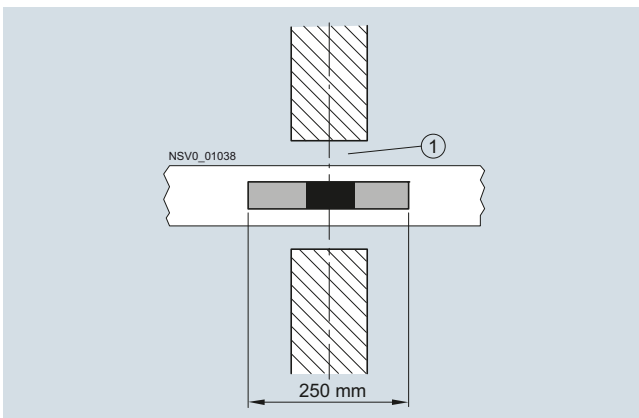


Positioning in the fire ceiling



Positioning in the fire wall

Mounting position



System current strength up to	a ¹⁾ mm	b mm
400 A	90	200
1250 A	150	200

Trunking units with	c mm
Tap-off unit BD2-AK1..., BD2-AK02..., BD2-AK2..., BD2-AK03..., BD2-AK3...	125
Tap-off unit BD2-AK04..., BD2-AK05..., BD2-AK06...	200
BD2-BWV or BD2-BDV (with or without tap-off unit)	200
BD2-...-EE (with or without tap-off unit)	200

¹⁾ For Z units depending on the lengths X*, Y*.

When installing trunking units with fire barrier, the following points must be observed:

- Only one trunking element may be passed through per component opening
- The distance from the component opening to be closed to other openings or fittings must be at least 20 cm. As an exception to this, the distance between adjacent component openings for partitions can be reduced to up to 10 cm
- Horizontally mounted busbar runs must be supported by a fixing bracket fitted approx. 500 mm before and after the component they pass through
- When installing in a ceiling, the lower fire barrier shroud must be secured
- When changing the direction through a ceiling, the fire barrier shroud must be secured to the bottom of the ceiling by an additional suspension arrangement
- The space ① surrounding the busbar trunking unit within the component it passes through must be packed with mineral-based mortar or fire barrier sealant
- The gaps between PROMATECT-H(L) panels, the busbar trunking unit and the component must be sealed with fire barrier sealant (included in scope of supply if panels are required)
- The mortar or fire barrier sealant must conform to the applicable regulations for establishing fire resistance rating or the construction of the wall or ceiling (e.g. DIN 1045 and DIN 1053 Part 1)
- The mortar or fire barrier sealant must be provided by the customer. It must be installed in compliance with the locally applicable standards and regulations
- The installation work must be carried out according to pertinent building regulations (included in the scope of supply)

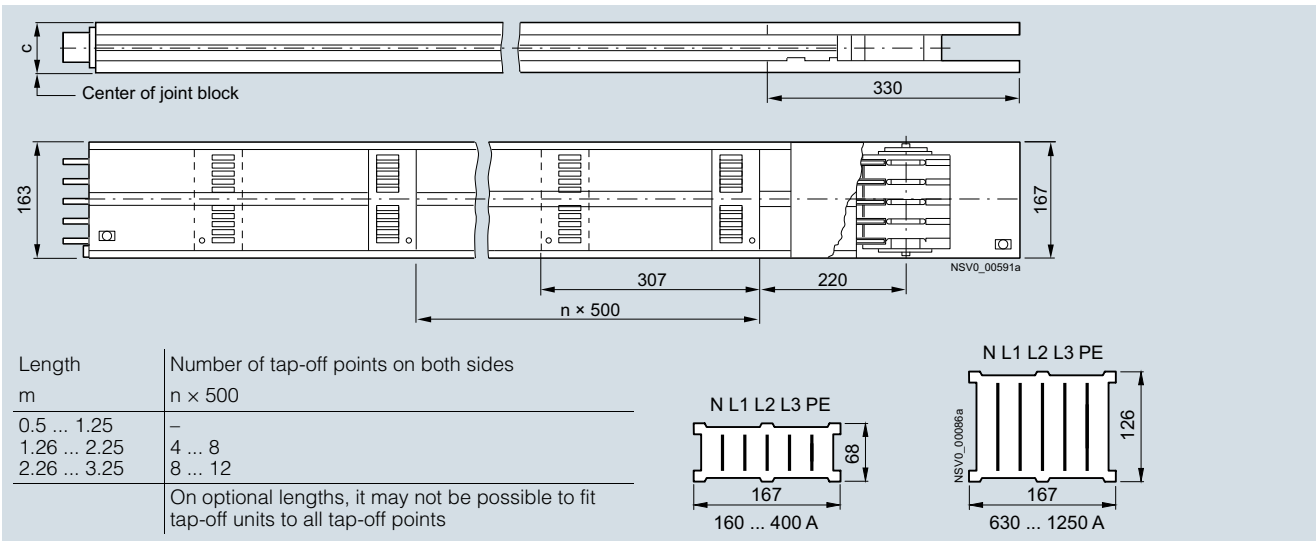
BD2 System – 160 ... 1250 A

Configuration aids

Dimensional drawings

Straight trunking units

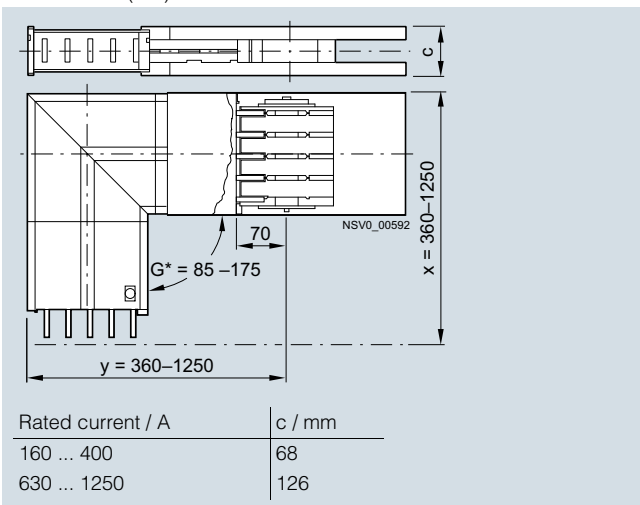
BD2-.-...



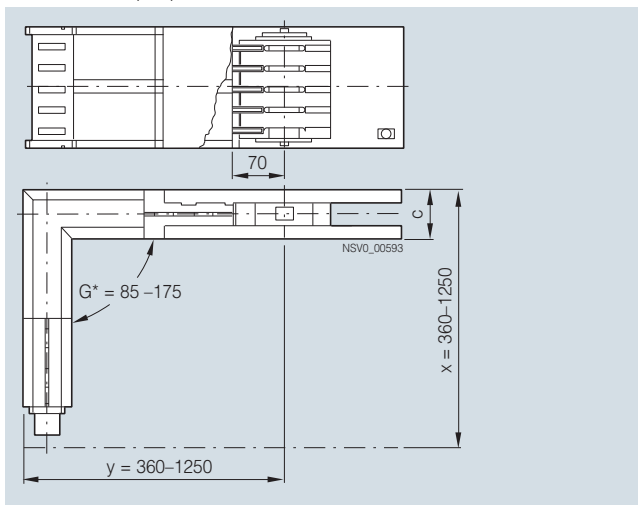
Junction units

L-units

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

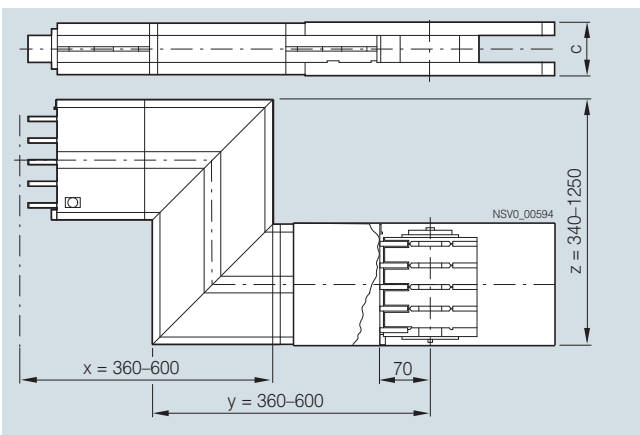


BD2-.-LV-.-(-G*)
BD2-.-LH-.-(-G*)

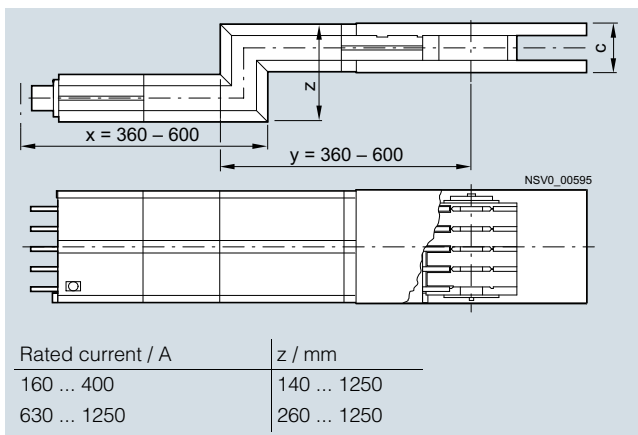


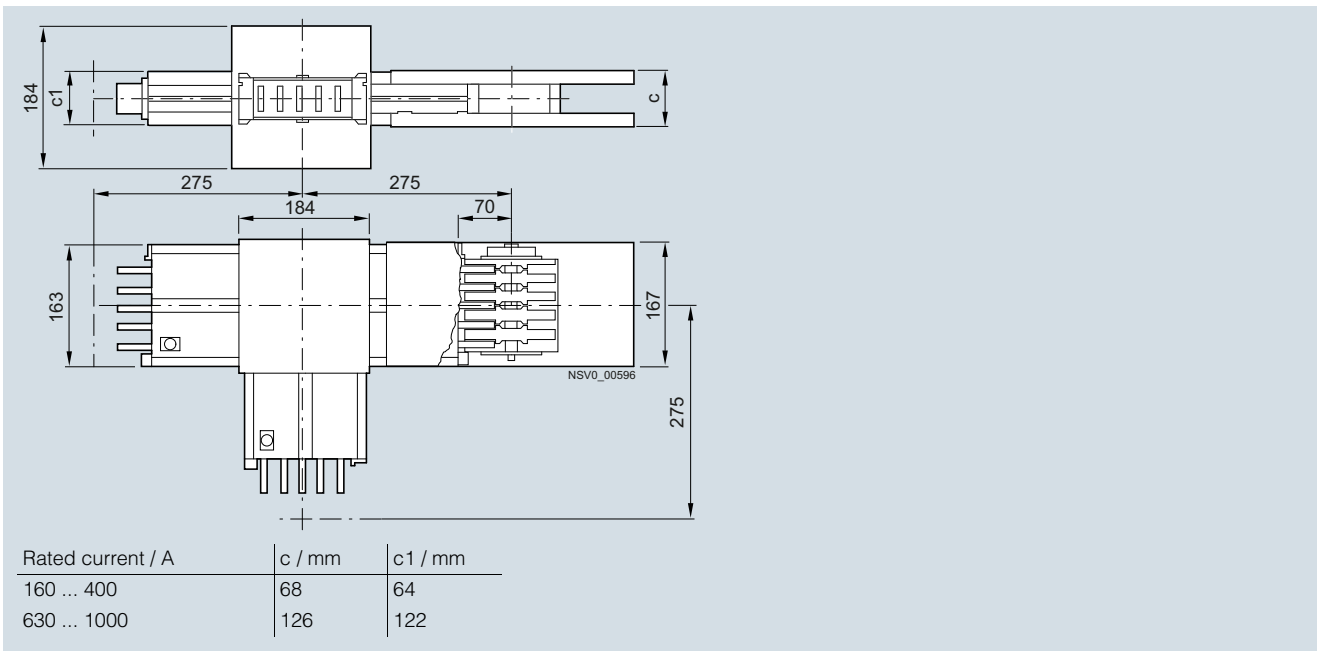
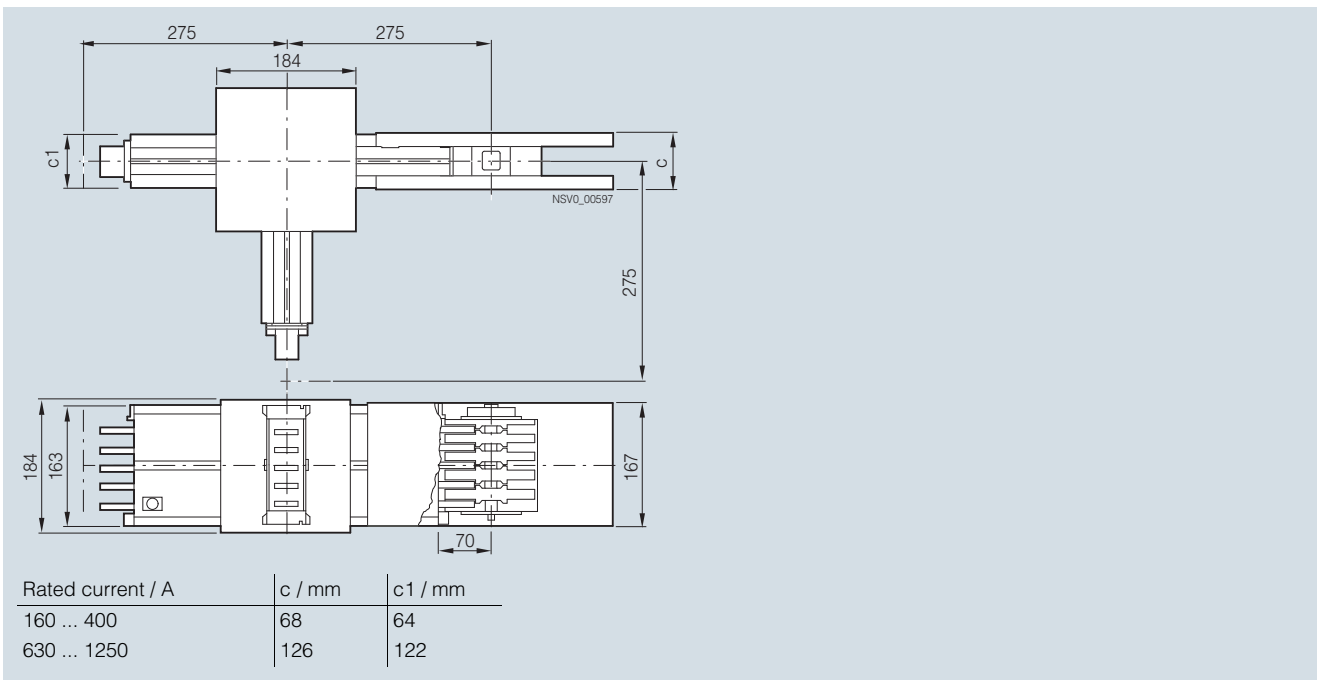
Z-units

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



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



Junction units**T-units**BD2-...-TR
BD2-...-TLBD2-...-TV
BD2-...-TH

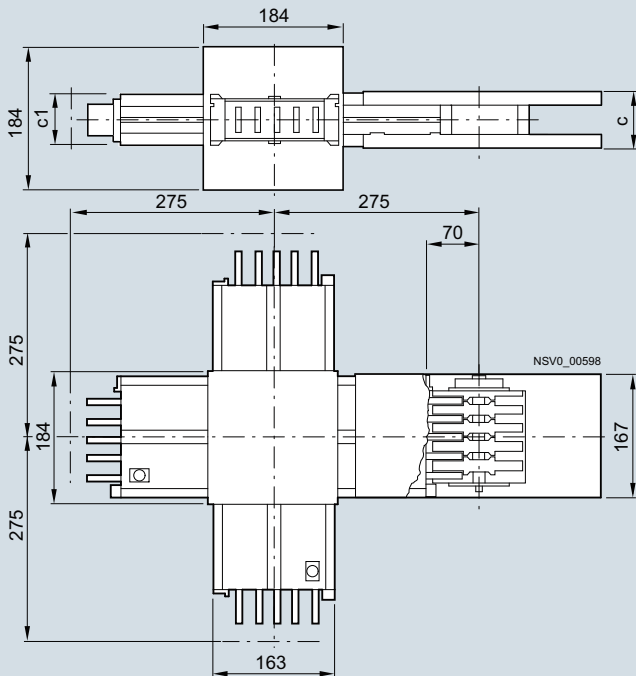
BD2 System – 160 ... 1250 A

Configuration aids

Junction units

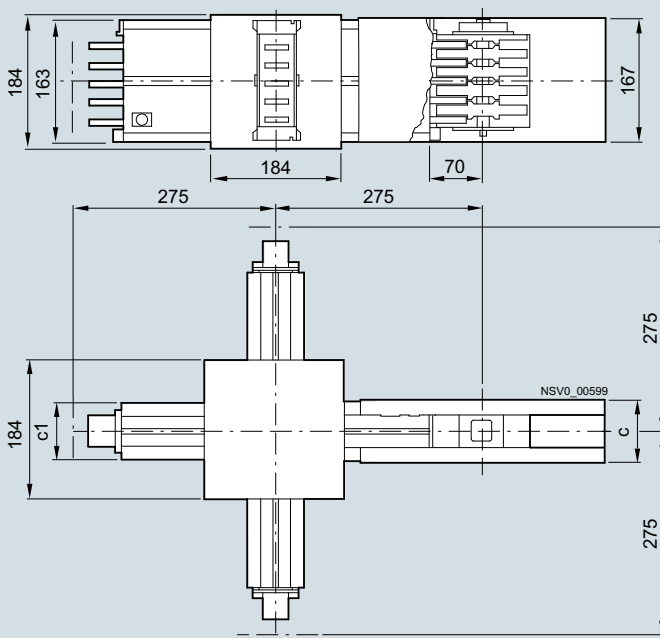
K-units

BD2-...-KRL



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

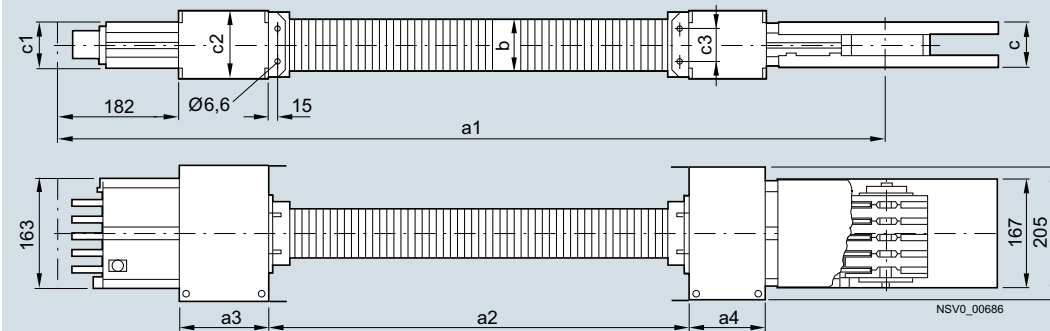
BD2-...-KVH



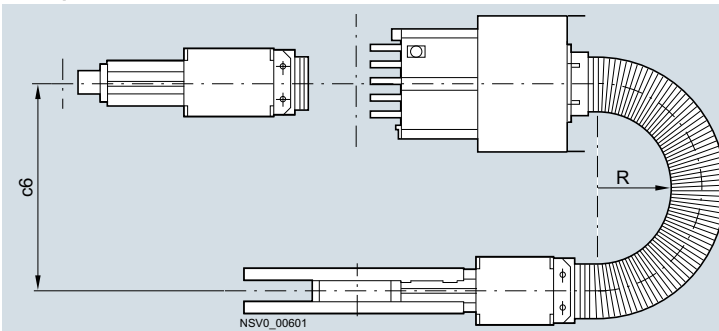
Rated current / A	c / mm	c1 / mm
160 ... 400	68	64
630 ... 1250	126	122

Junction units**Flexible junction units**

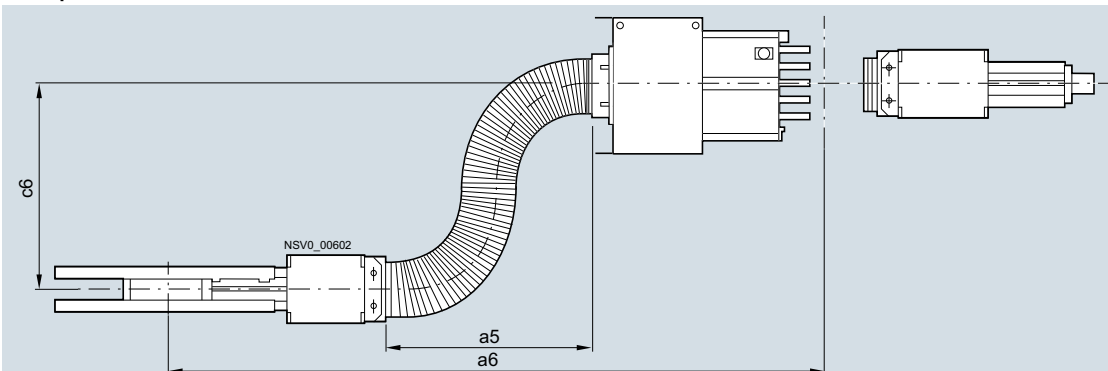
BD2-400-R, BD2-800-R



Type	a1	a2	a3	a4	b	c	c1	c2	c3
BD2-400-R	1250	512	187	187	79	68	64	101	50
BD2-800-R	1750	786	350	250	146.5	126	122	195	145

U shape

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

Z shape

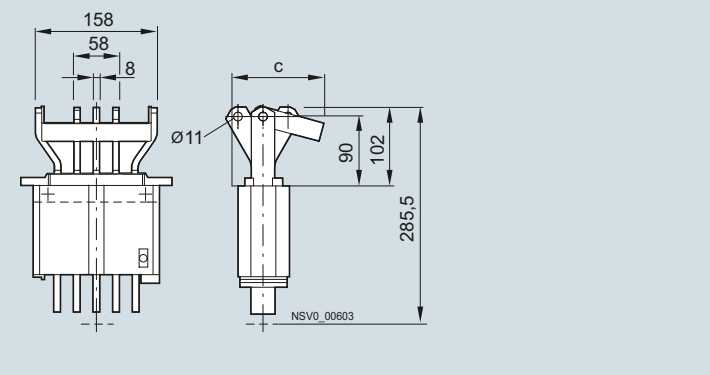
Type	a5	a6	c6	R _{min}
BD2-400-R	175	1000	355	110
BD2-800-R	530	1590	400	170

BD2 System – 160 ... 1250 A

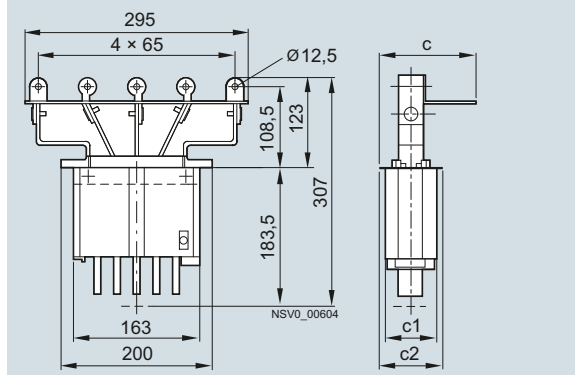
Configuration aids

Distribution board feeding units

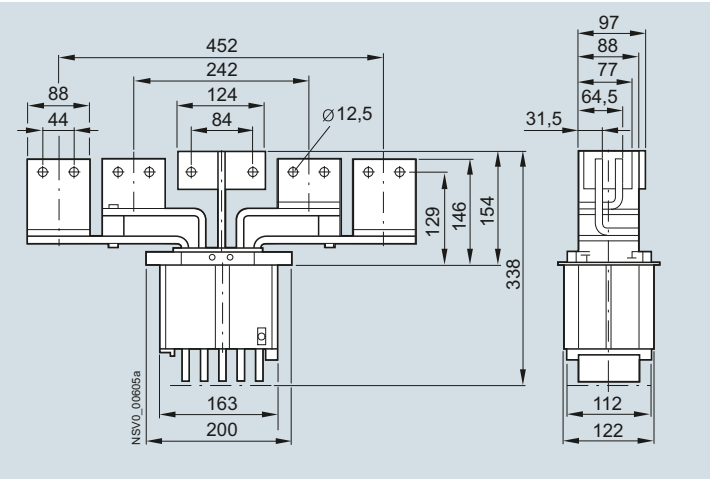
BD2.-250-VE



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



BD2.-1250-VE



Enclosure cut-out

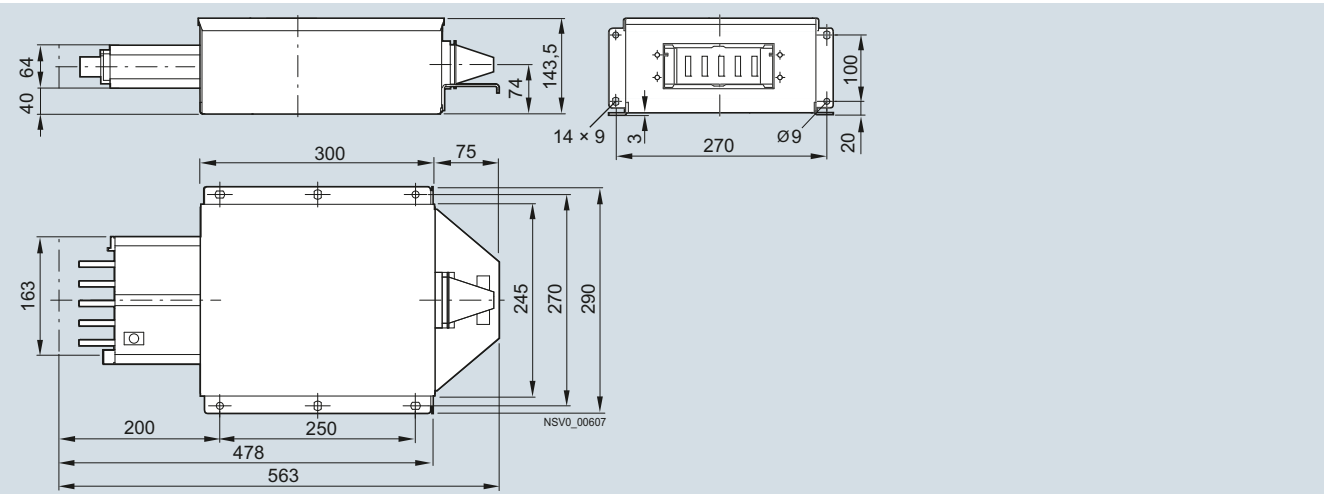
Enclosure cut-out

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

4

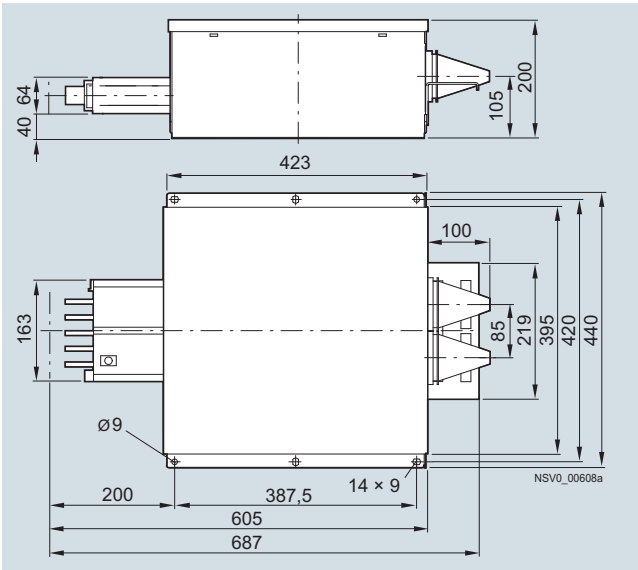
End feeding units

BD2.-250-EE

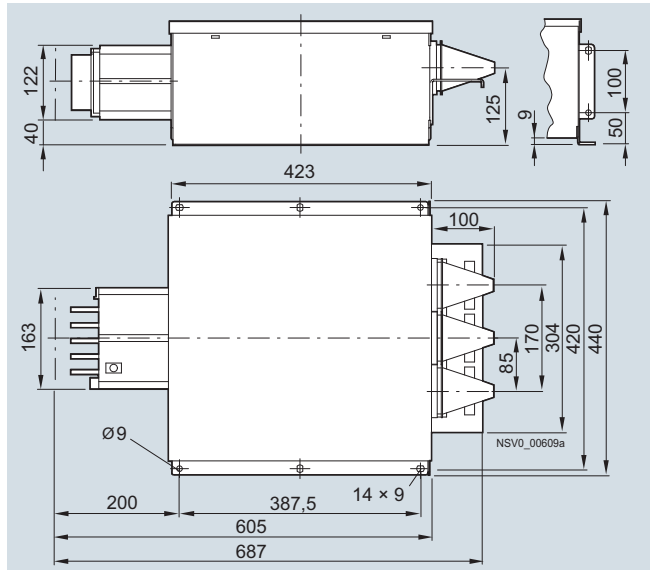


End feeding units

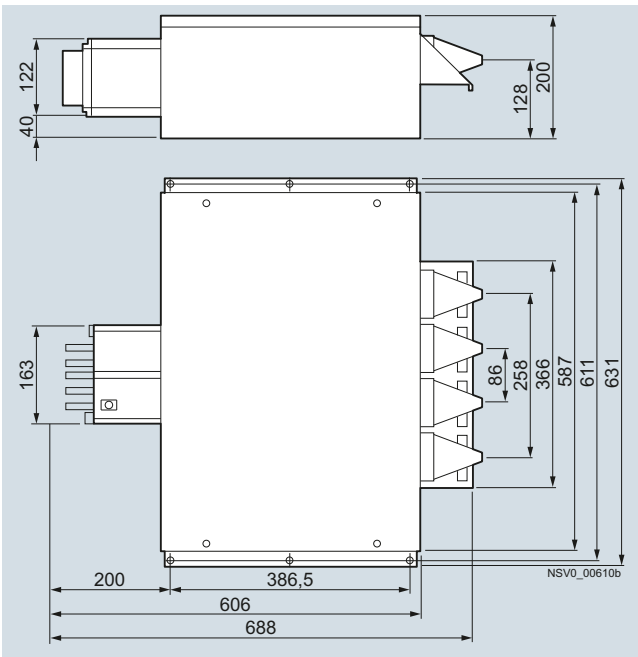
BD2.-400-EE



BD2.-1000-EE



BD2.-1250-EE

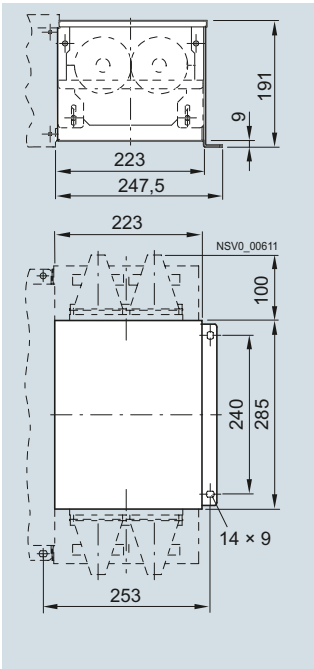


BD2 System – 160 ... 1250 A

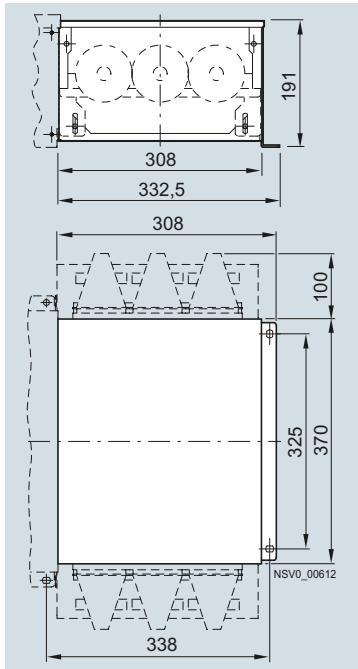
Configuration aids

Cabling boxes

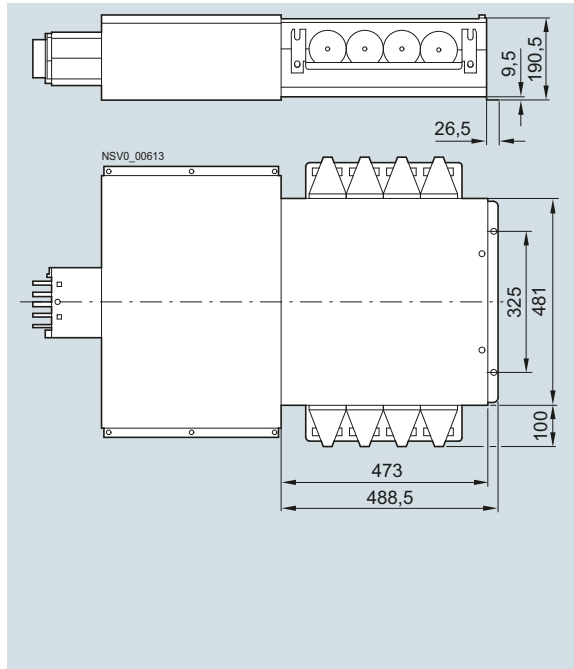
BD2-400-KR (BD2.-400-EE)



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

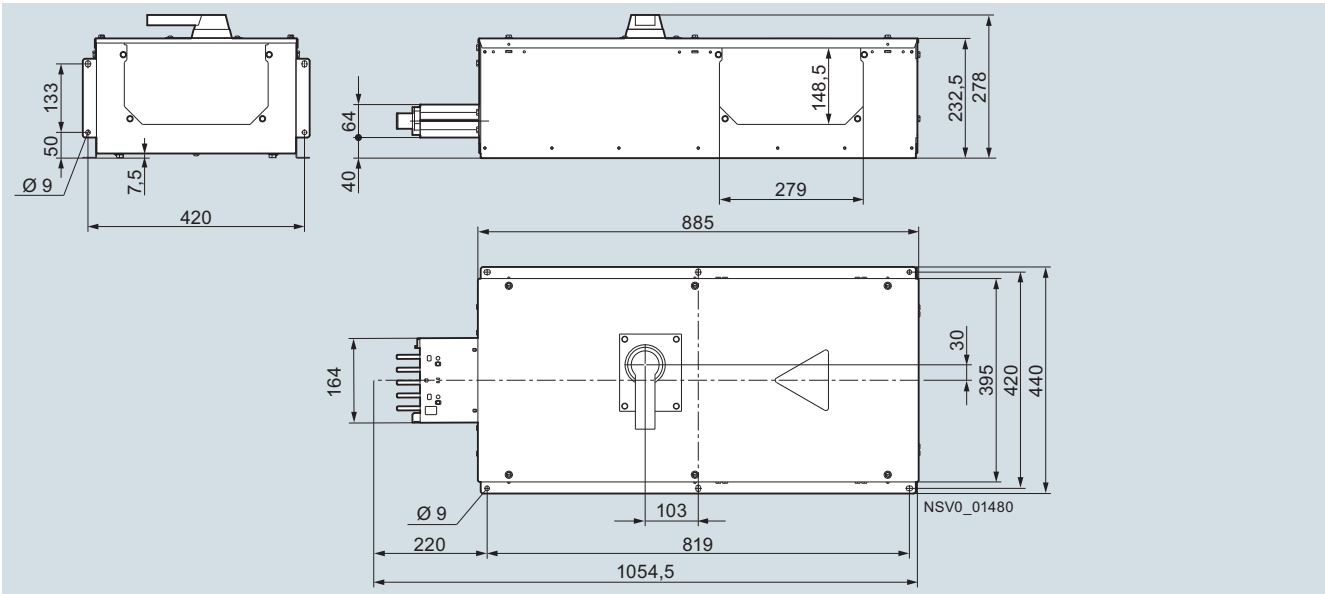


BD2-1250-KR (BD2.-1250-EE)



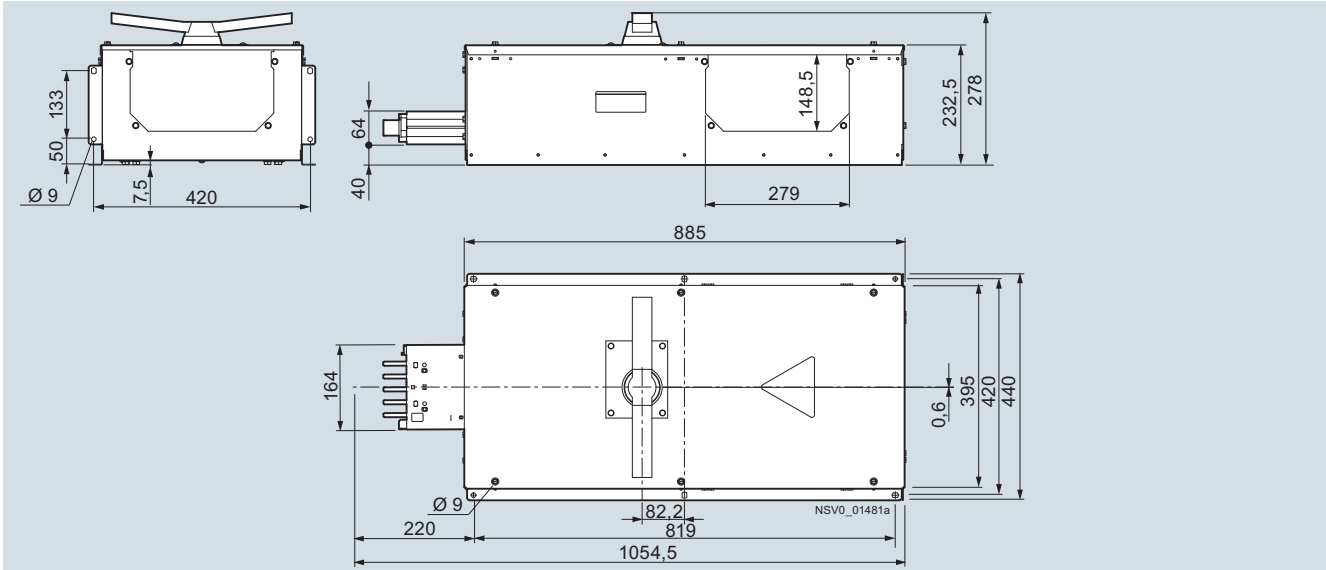
End feeding unit with switch disconnecter

BD2C-250-EESC, BD2C-315-EESC

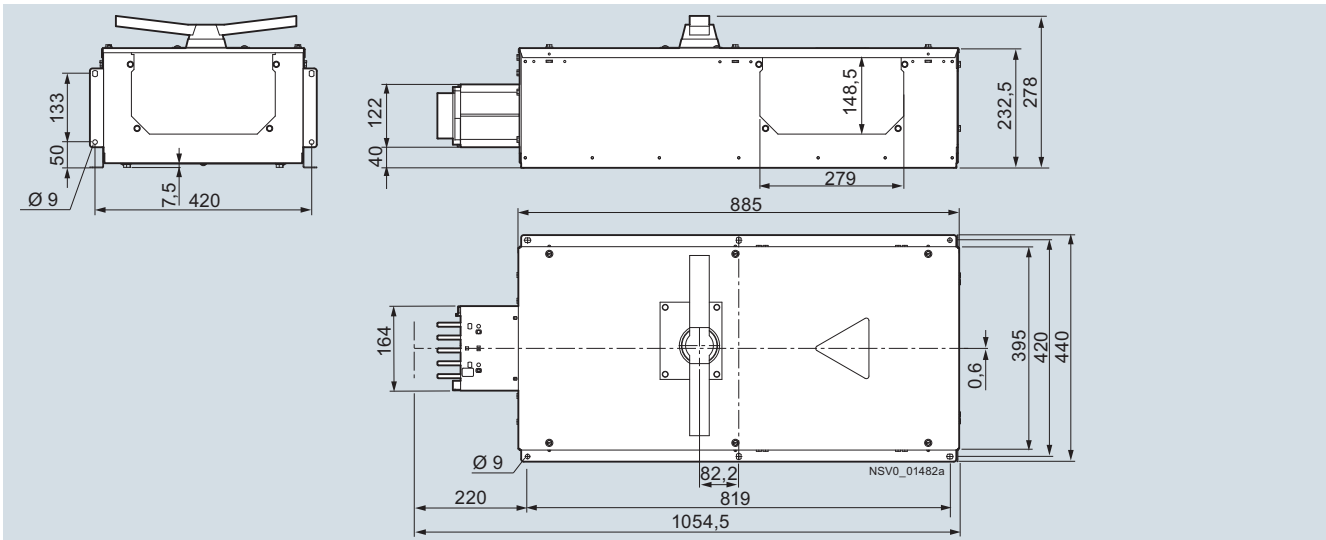


End feeding unit with switch disconnecter

BD2C-400-EESC



BD2C-630-EESC, BD2C-800-EESC

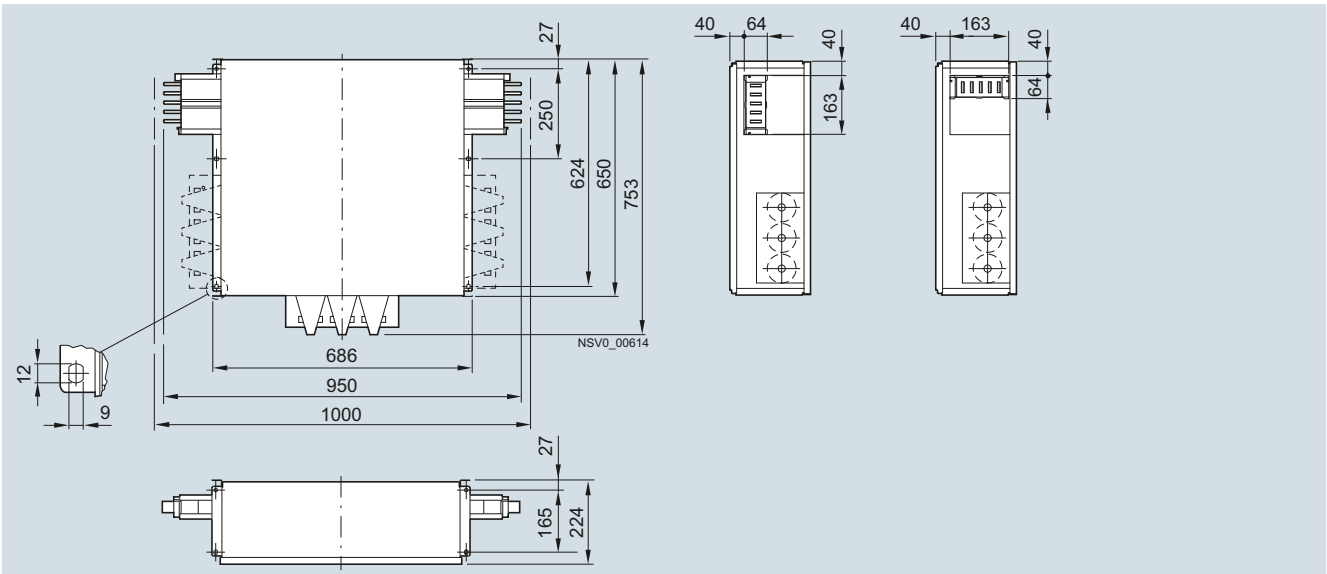


BD2 System – 160 ... 1250 A

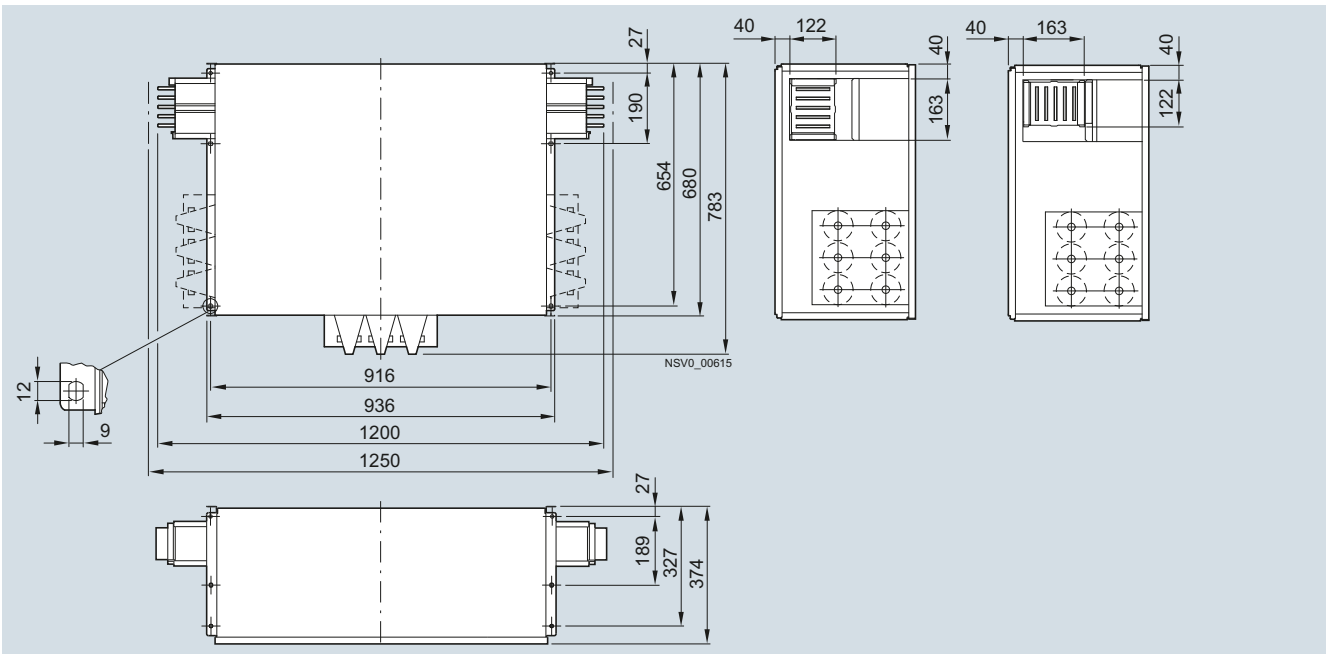
Configuration aids

Center feeding units

BD2.-400-ME

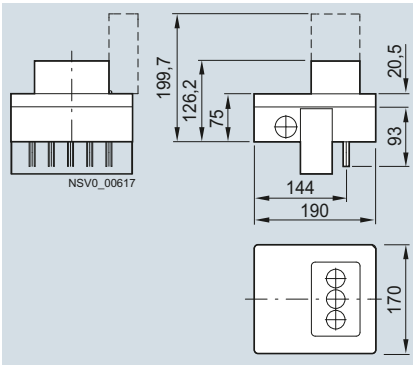
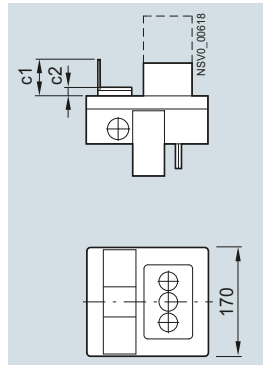


BD2.-1000-ME

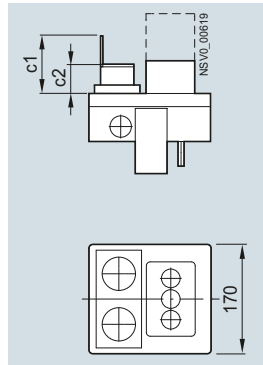
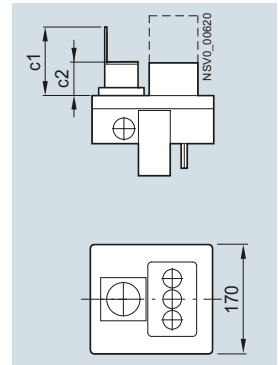


Tap-off units**Size 1 up to 25 A**

BD2-AK1/...

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

BD2-AK1/2CEE163...

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

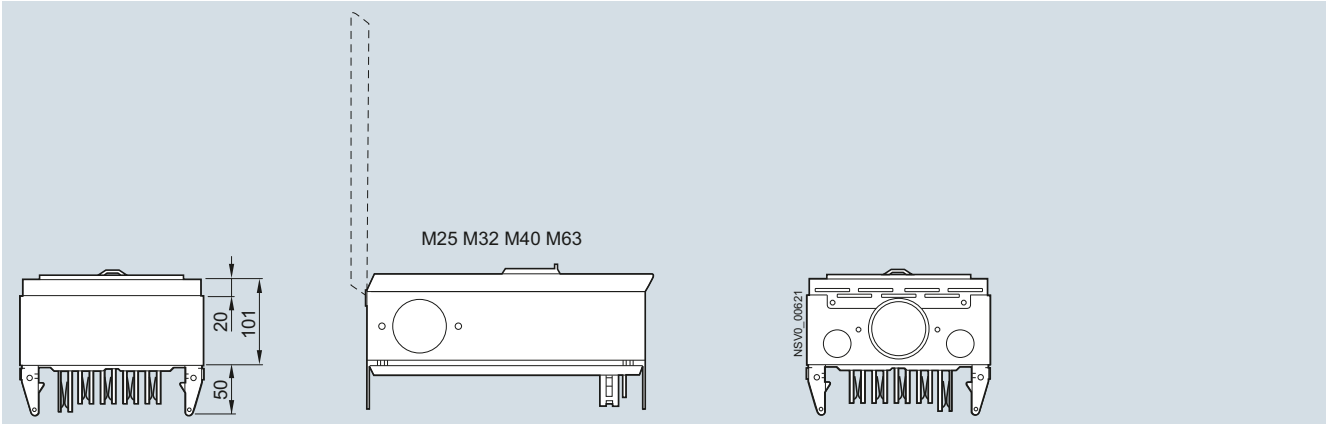
Type	c1	c2
BD2-AK1/2SD163..., BD2-AK1/3SD163...	71	13
BD2-AK1/2CEE163..., BD2-AK1/CEE163...	88	44
BD2-AK1/CEE165...	106	52

BD2 System – 160 ... 1250 A

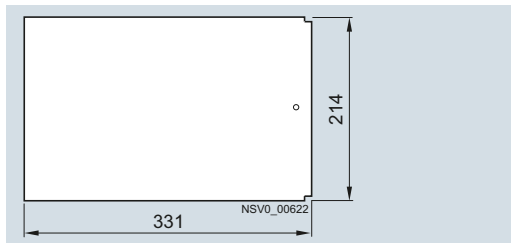
Configuration aids

Tap-off units

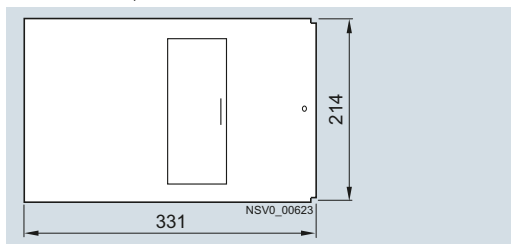
Size 02 up to 63 A



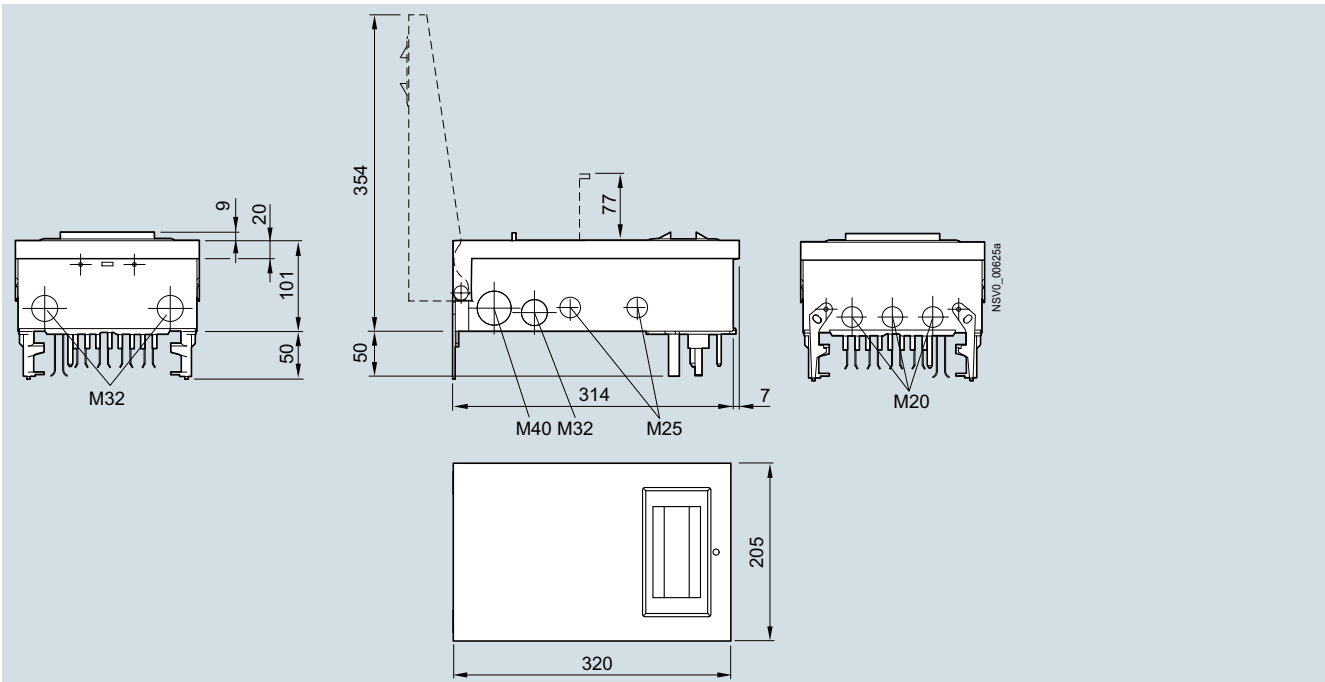
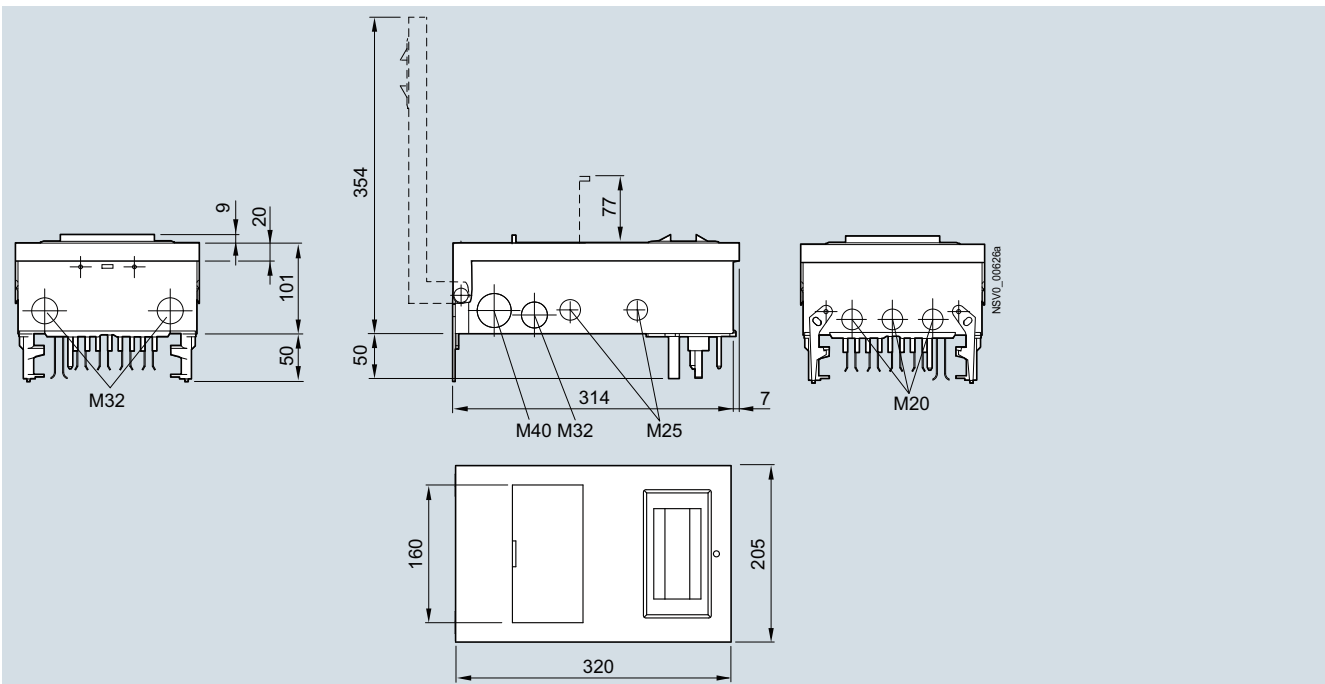
BD2-AK02X/F..
 BD2-AK02X/GB..
 BD2-AK02X/S..



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



4

Tap-off units**Size 2 up to 63 A**BD2-AK2X/F...,
BD2-AK2X/S...BD2-AK2M2/A...,
BD2-AK2M2/F

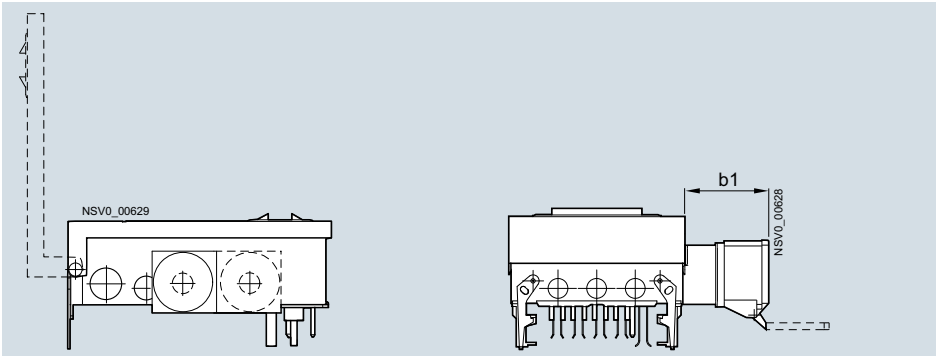
BD2 System – 160 ... 1250 A

Configuration aids

Tap-off units

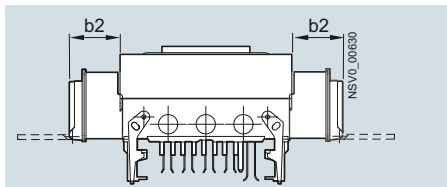
Size 2 up to 63 A, versions with CEE and Schuko socket outlets

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

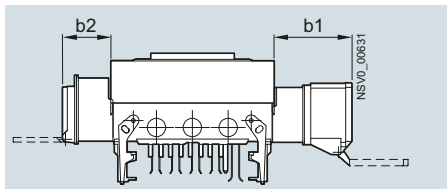


Type	b1	b2
BD2-AK2X/CEE325S33	98	--
BD2-AK2M2/CEE325A323		
BD2-AK2X/2CEE165S27	86	--
BD2-AK2X/2CEE165S14		
BD2-AK2M2/ CEE165FIA163		
BD2-AK2M2/2CEE165A163		
BD2-AK2M2/2SD163CEE165A163	86	54

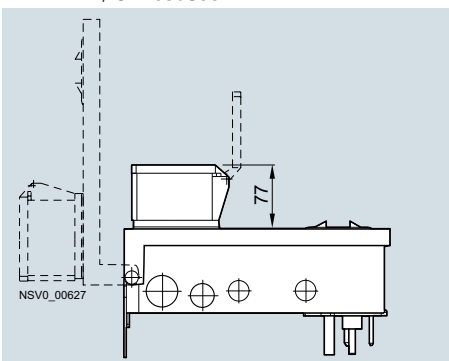
BD2-AK2X/3BS133...



BD2-AK2M2/2SD163CEE165A163

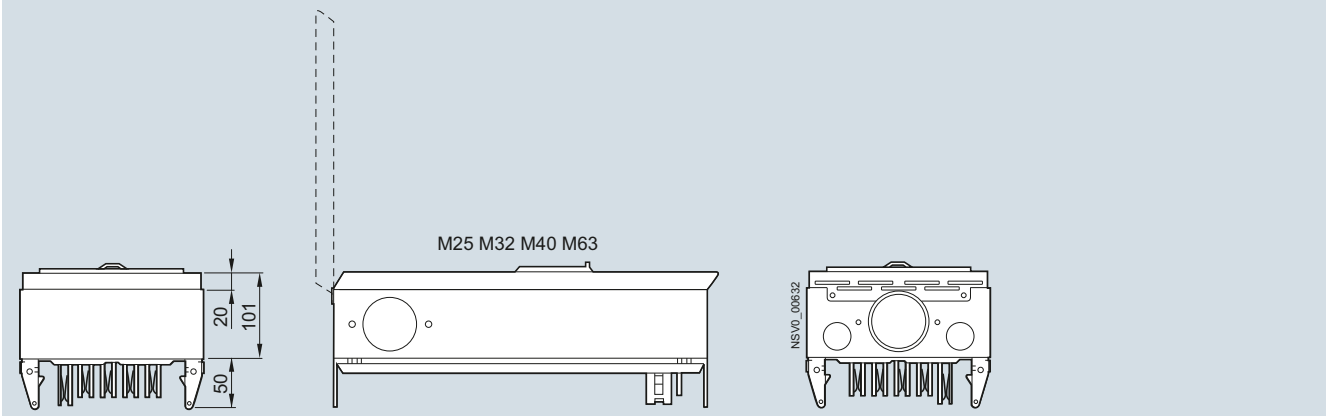


BD2-AK2X/ CEE635S33

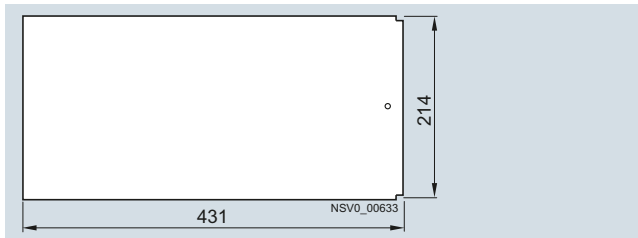


Tap-off units

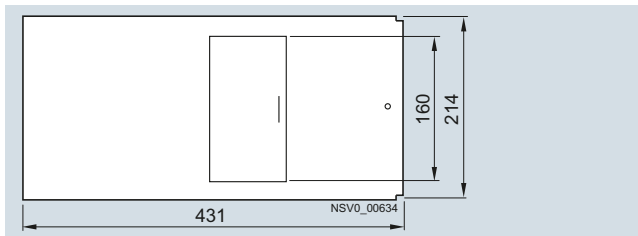
Size 03 up to 125 A



BD2-AK03X/F...

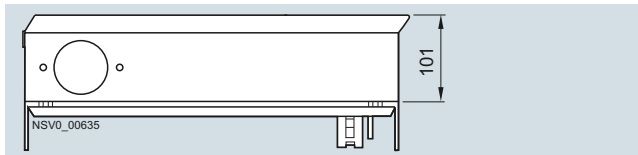


BD2-AK03M2/A...

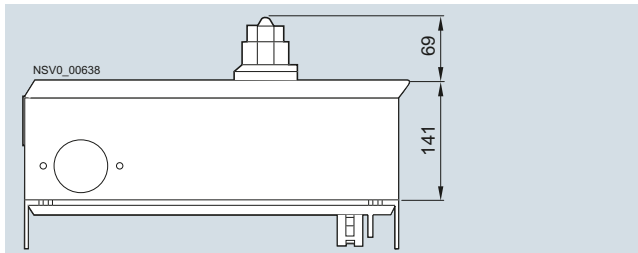


With fuse switch disconnecter and circuit breaker

BD2-AK03X/GSTA00



BD2-AK03X/FS...



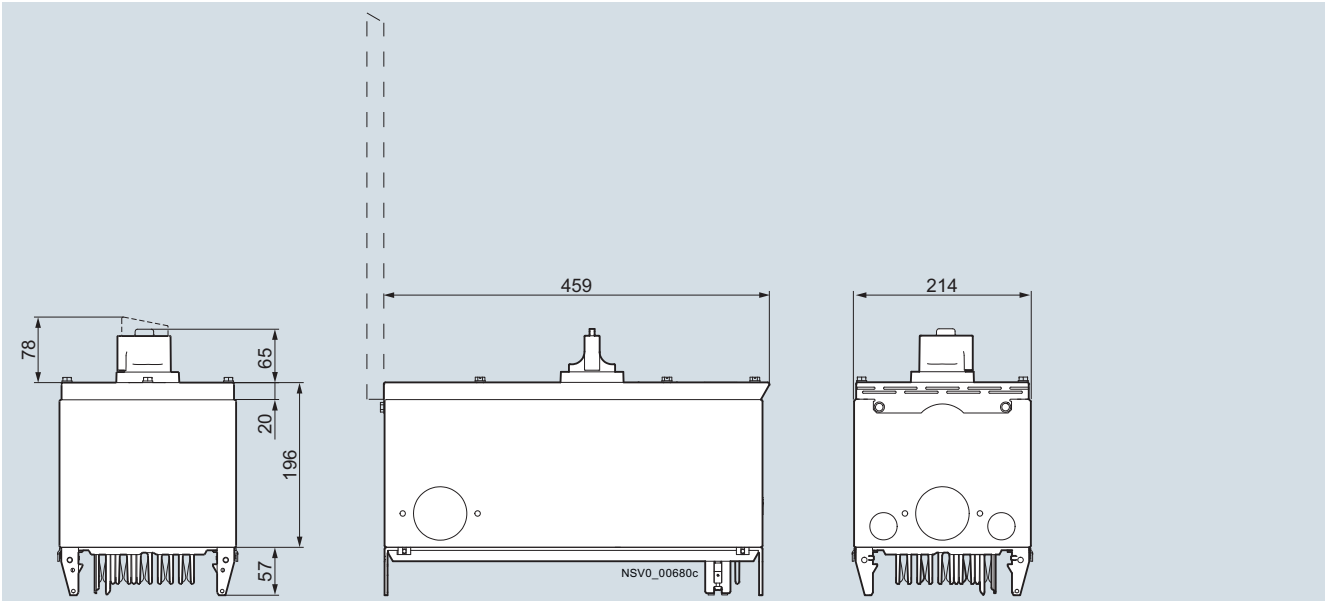
BD2 System – 160 ... 1250 A

Configuration aids

Tap-off units

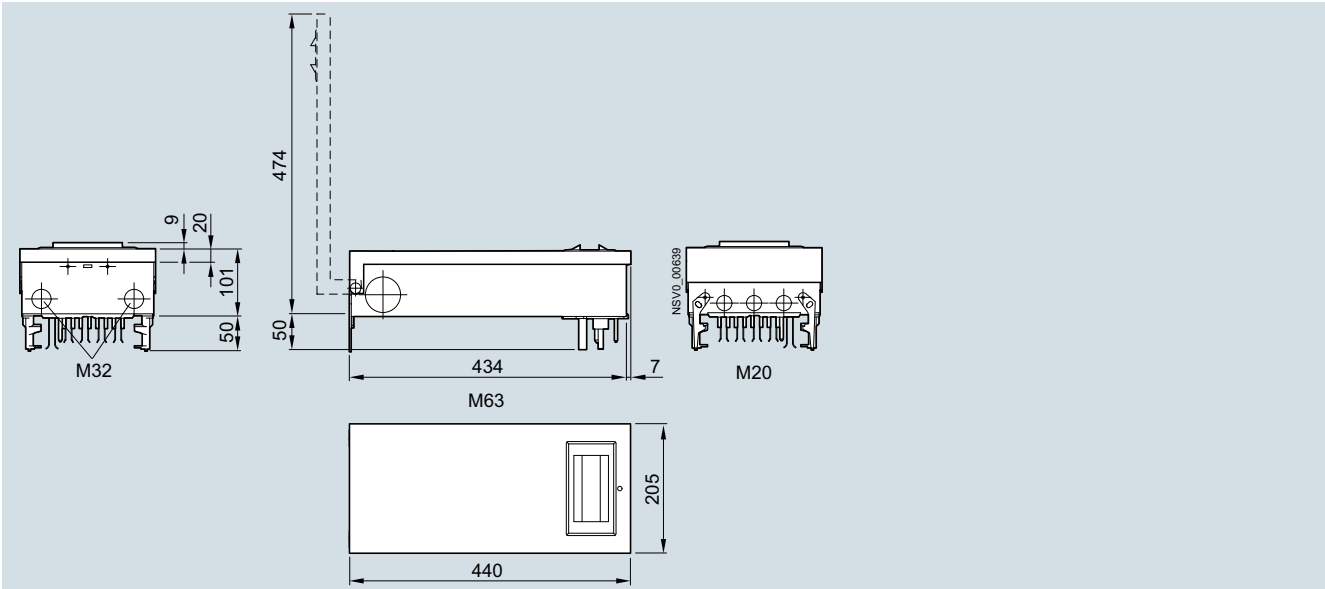
Size 03 up to 125 A

BD2-AK03X/LSD...



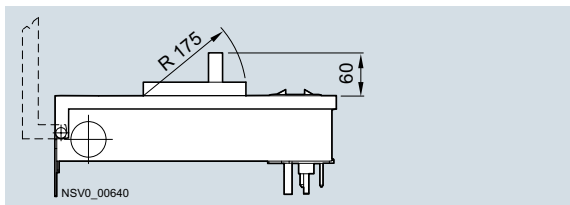
Size 3 up to 125 A

BD2-AK3X/GS00



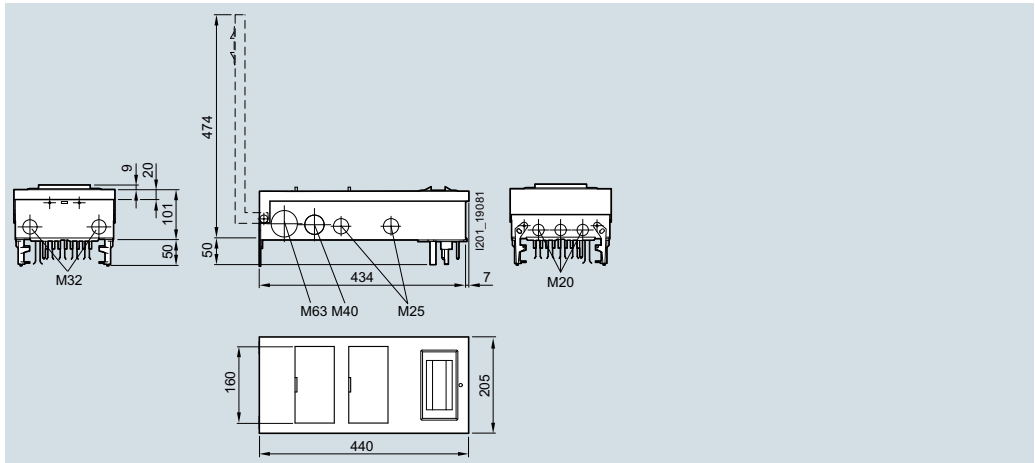
With fuse switch disconnecter

BD2-AK3X/GSTZ00



Freely assignable

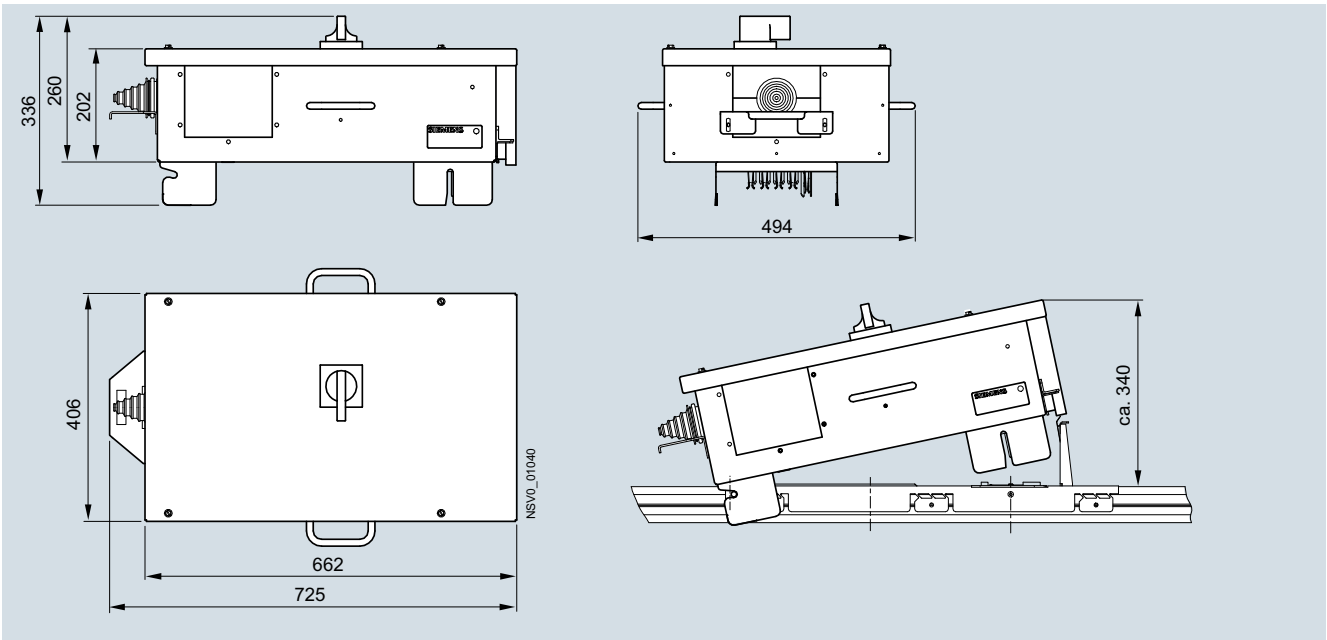
BD2-AK3M2/F



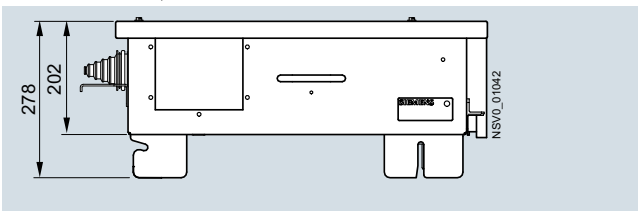
Tap-off units

Size 04 up to 250 A

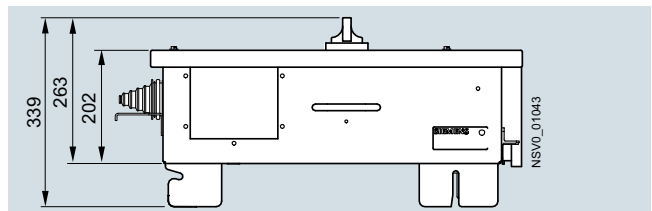
BD2-AK04/LSD...



BD2-AK04/SNH1, BD2-AK04/GB250J-...



BD2-AK04/FS...



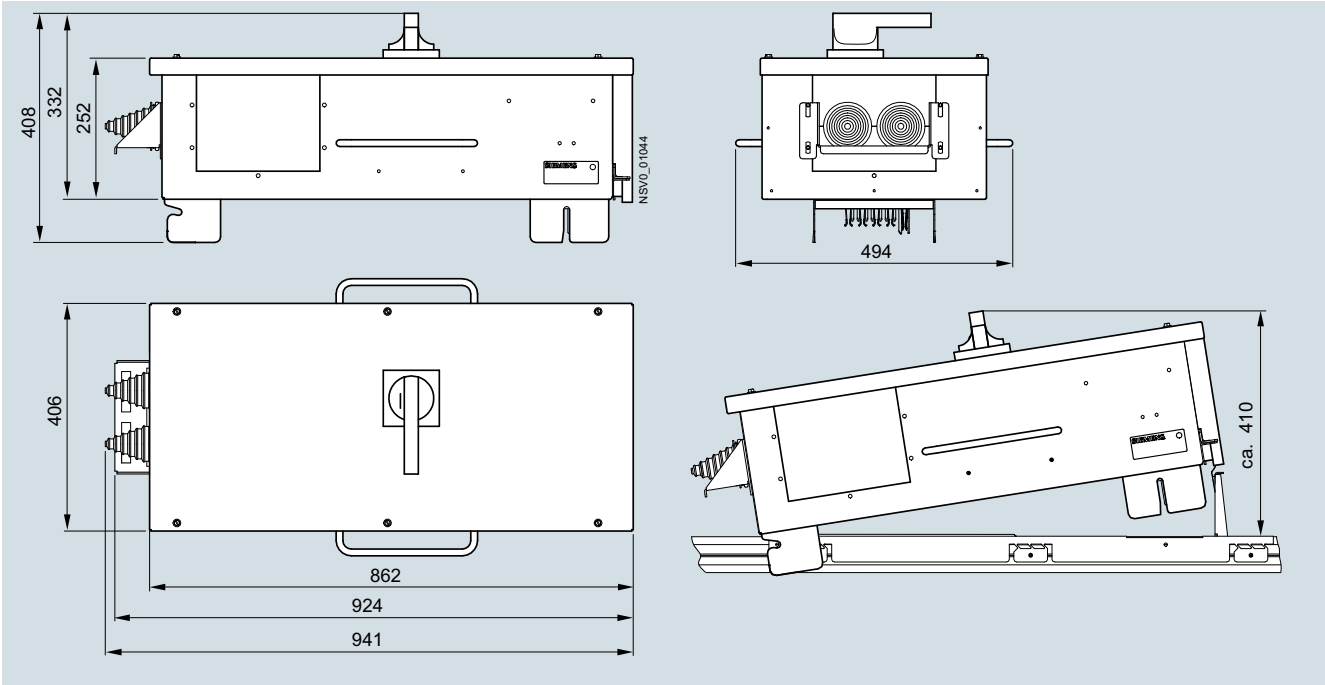
BD2 System – 160 ... 1250 A

Configuration aids

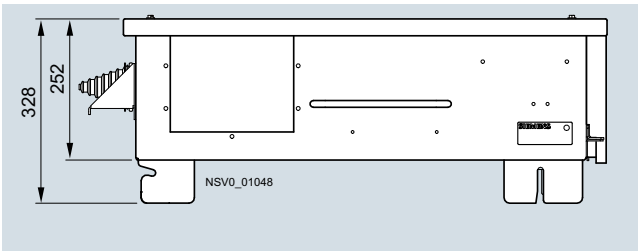
Tap-off units

Size 05, 06 up to 630 A

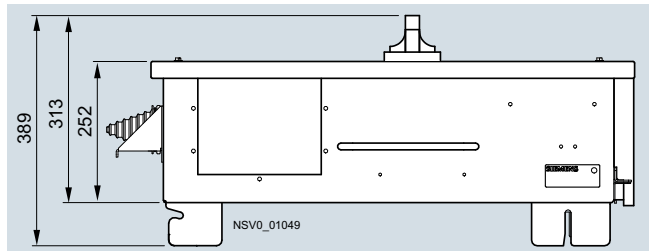
BD2-AK05/LSD..., BD2-AK06/LSD...



BD2-AK05/SNH2, BD2-AK06/SNH3

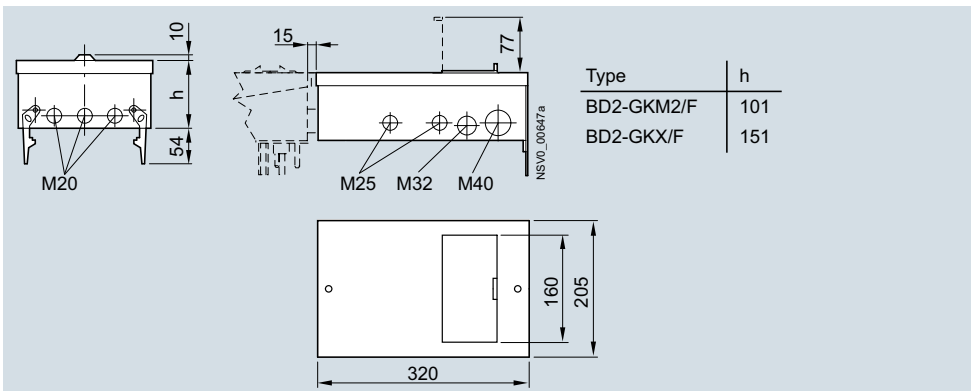


BD2-AK05/FS...

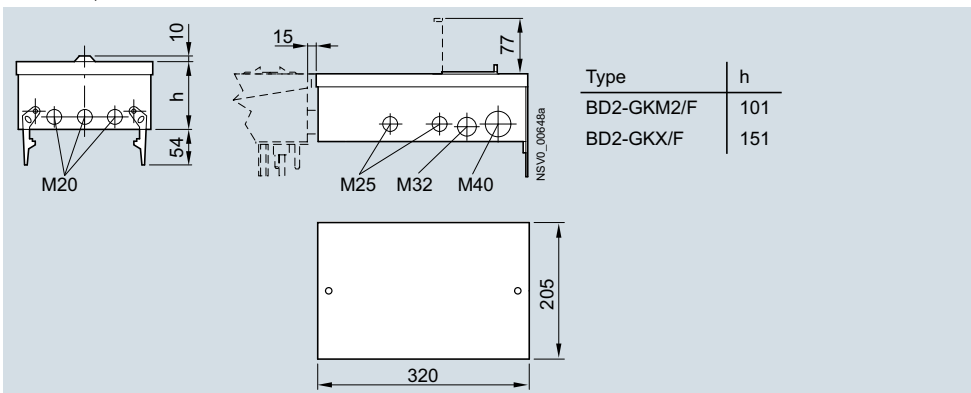


Ancillary equipment units

BD2-GKM2/F



BD2-GKX/F

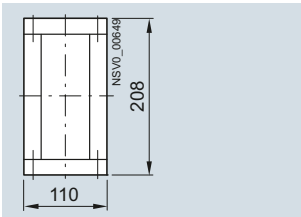


BD2 System – 160 ... 1250 A

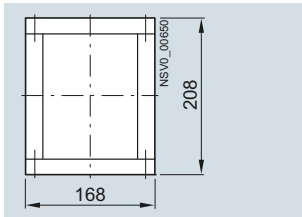
Configuration aids

Protective sleeves

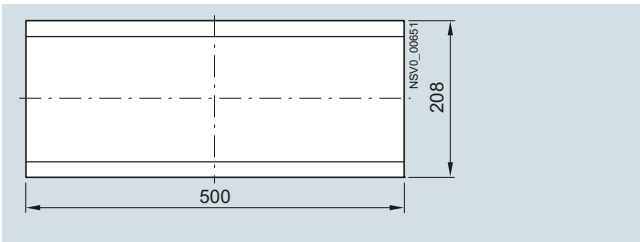
BD2-400-D



BD2-1250-D

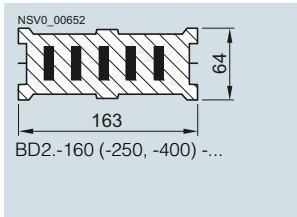


BD2-...-D

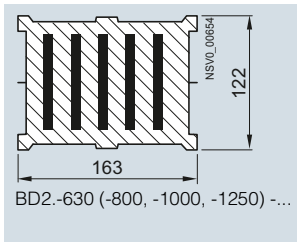
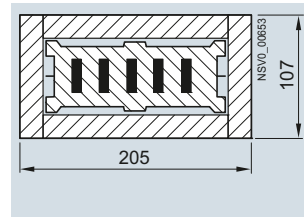


Fire barrier

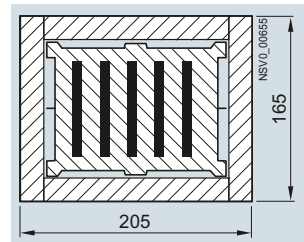
+BD2-S90 (S120)-...



BD2.-160 (-250, -400) -...

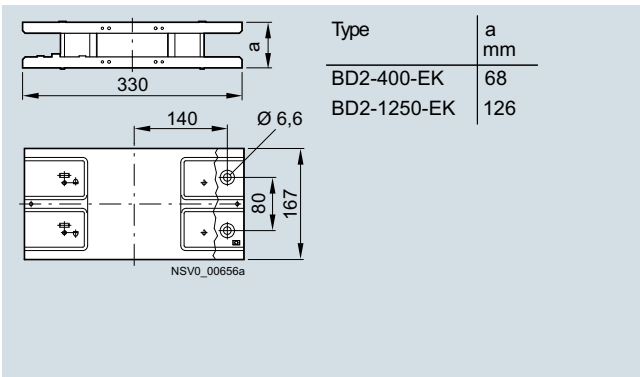


BD2.-630 (-800, -1000, -1250) -...



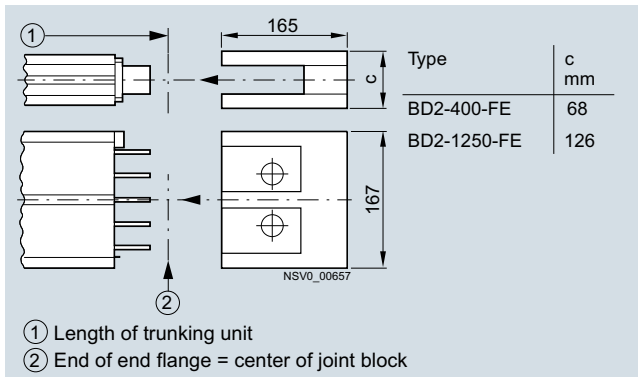
Joint blocks

BD2-400-EK, BD2-1250-EK



End flanges

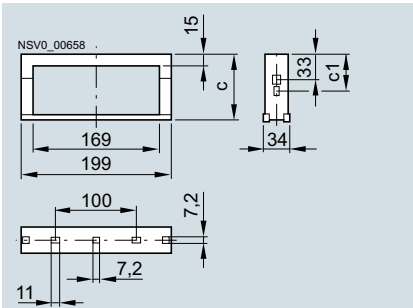
BD2-400-FE, BD2-1250-FE



Fixing

Fixing brackets, flat and edgewise

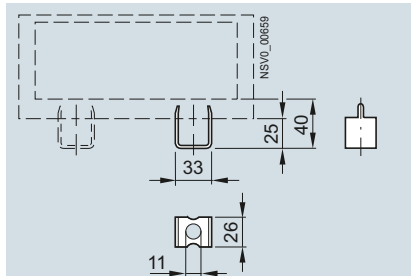
BD2-400-BB, BD2-1250-BB



Type	c mm	c1 mm
BD2-400-BB	86,5	48
BD2-1250-BB	144,5	77

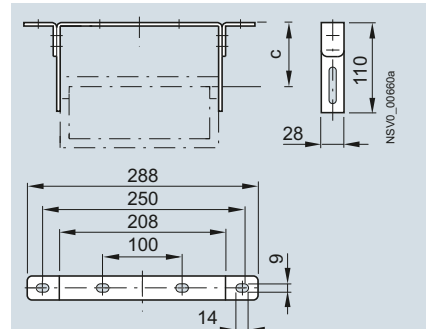
Spacer

BD2-DSB



Spacer bracket

BD2-BD



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

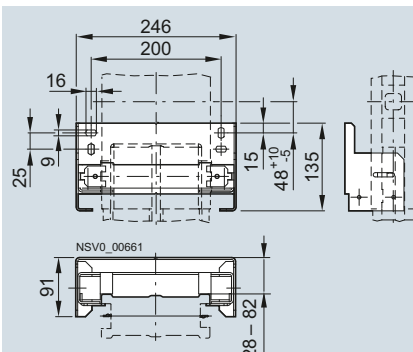
To secure systems directly to concrete walls, always use steel expansion bolts approved by the local building inspectorate!

For example:

- RICO, Article No. 15J1-A08/40
- Fischerwerke, type SLM8N, Article No. 50521

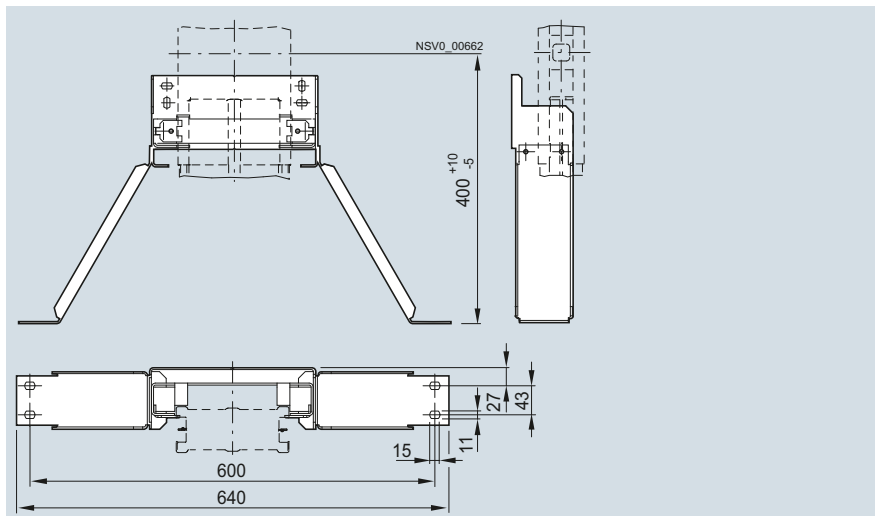
Vertical retaining element

BD2-BWV



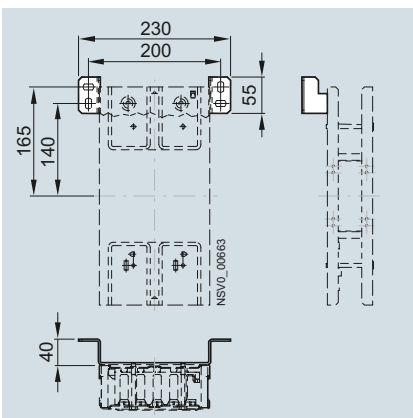
Vertical retaining element

BD2-BDV



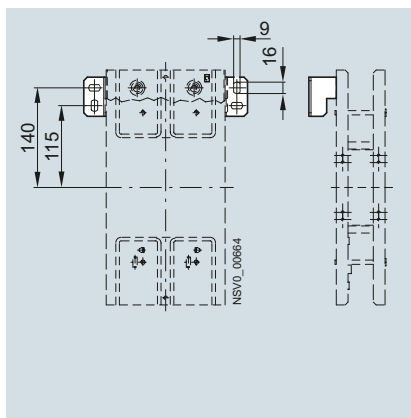
Vertical fixing bracket

BD2-BVF



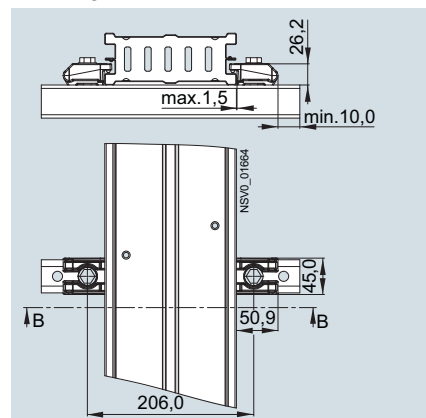
Vertical retaining element

BD2-BDV



Fixing for mounting rails

BD2-BVC



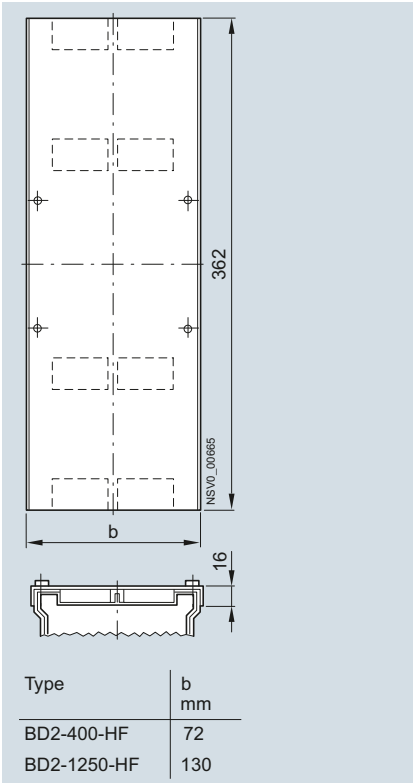
BD2 System – 160 ... 1250 A

Configuration aids

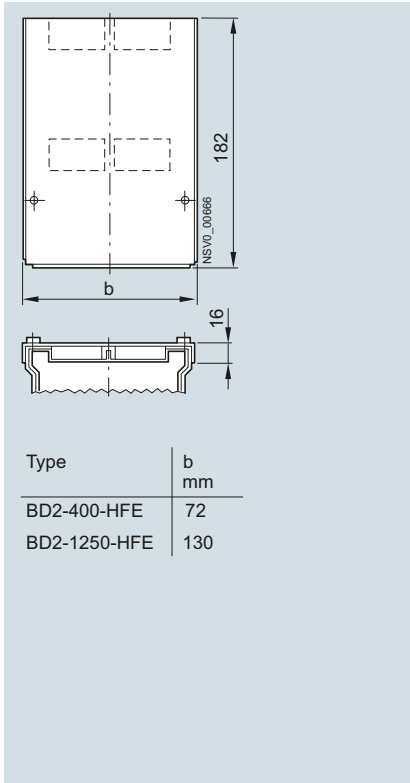
Protective covers according to IP54

Edgewise mounting position

BD2-400-HF, BD2-1250-HF

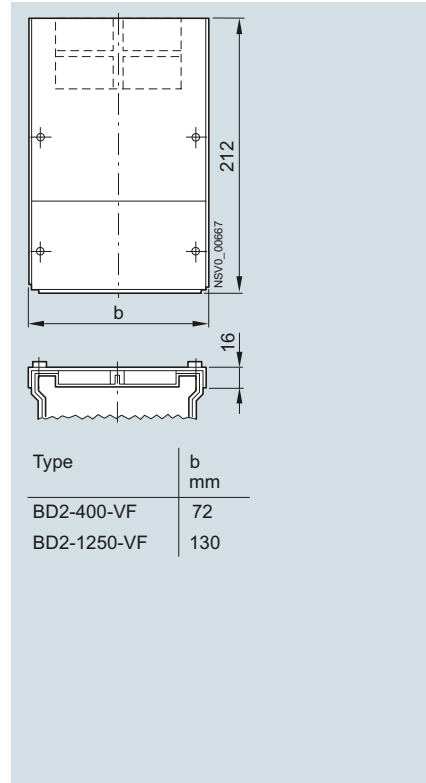


BD2-400-HFE, BD2-1250-HFE



Vertical mounting position

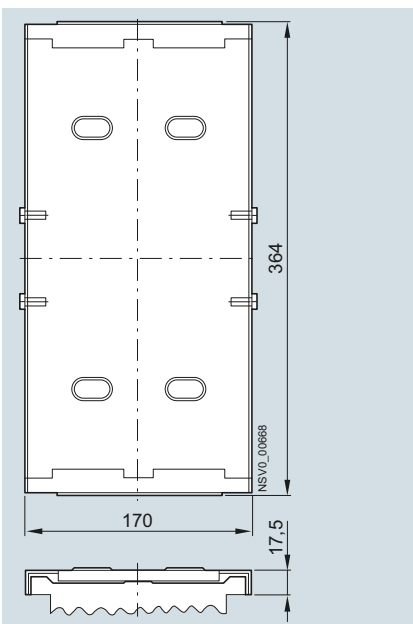
BD2-400-VF, BD2-1250-VF



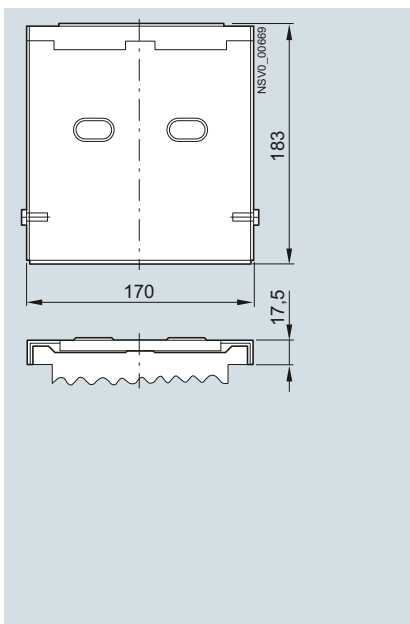
4

Flat mounting position

BD2-FF

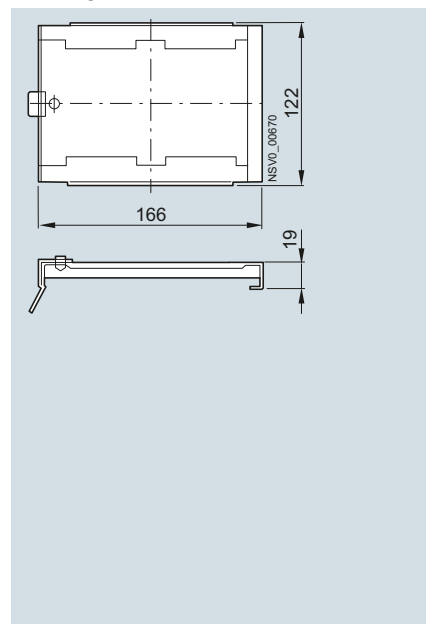


BD2-FFE



Flat and vertical mounting position

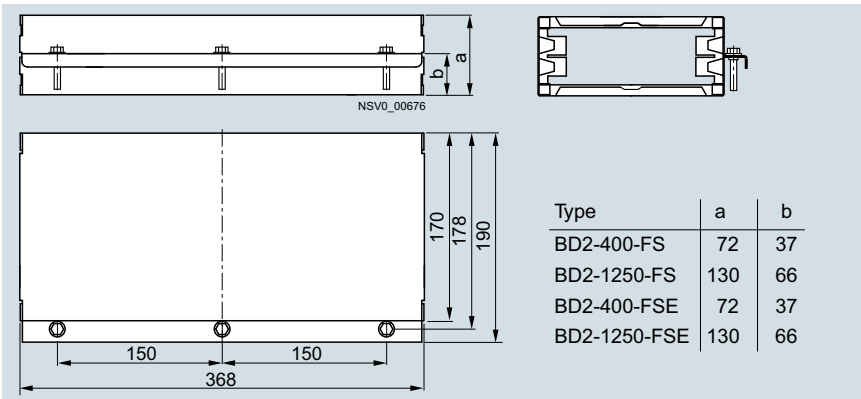
BD2-FAS



Protective covers according to IP55

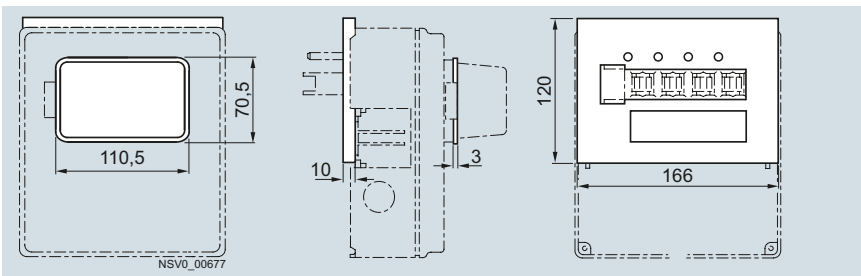
For connection point or end flange

BD2-400-FS, BD2-1250-FS, BD2-400-FSE, BD2-1250-FSE

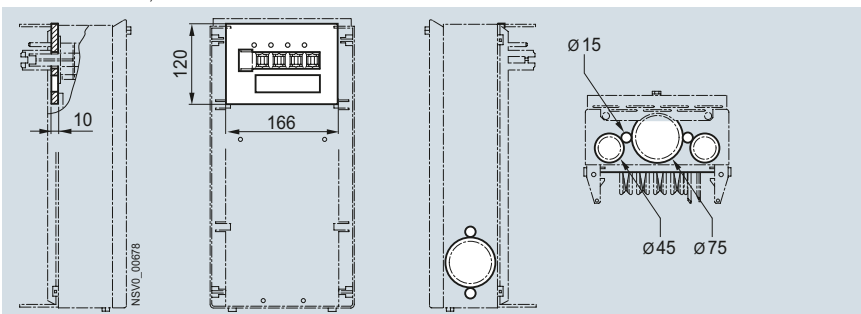


For tap-off units

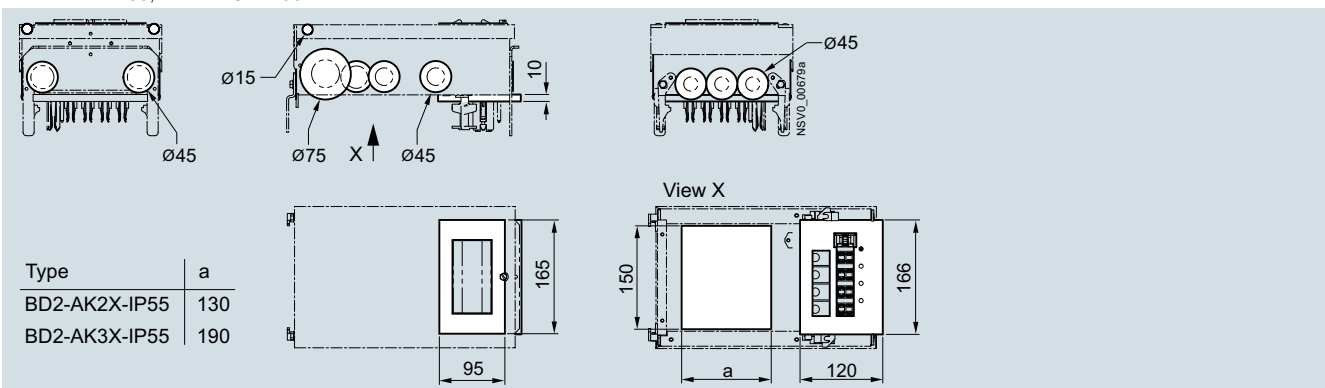
BD2-AK1-IP55



BD2-AK02-IP55, BD2-AK03-IP55



BD2-AK2X-IP55, BD2-AK3X-IP55



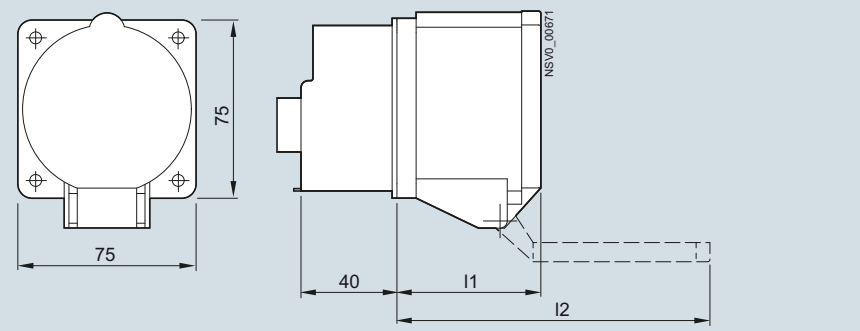
BD2 System – 160 ... 1250 A

Configuration aids

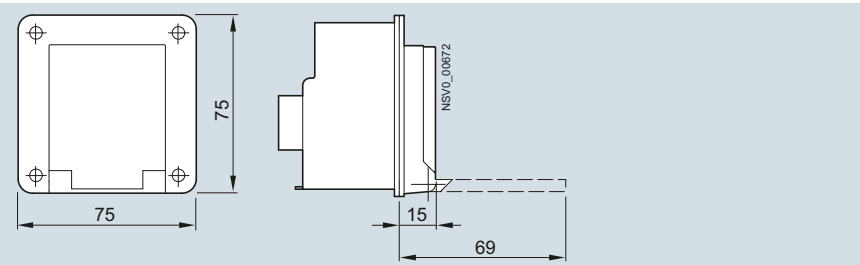
Socket outlets including accessories

Socket outlets with adapter enclosure

BD2-CEE

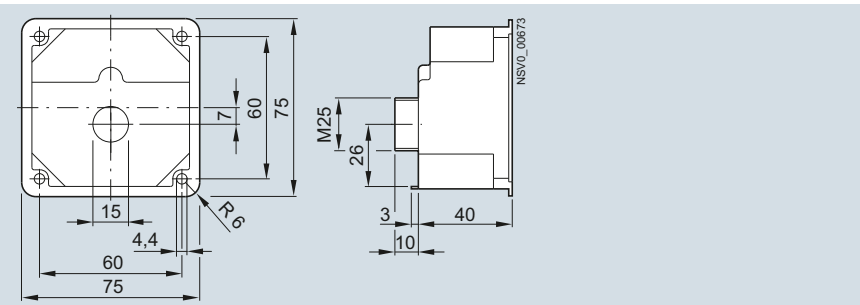


BD2-SD163



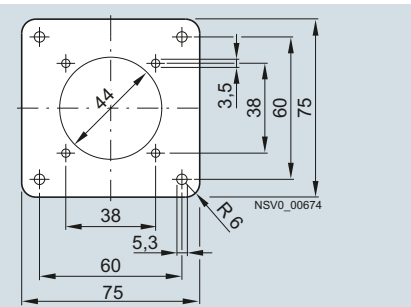
Adapter enclosure

BD2-AG

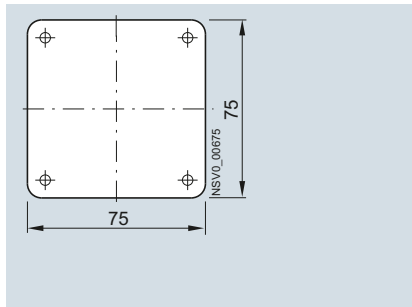


Adapter plate

BD2-APM

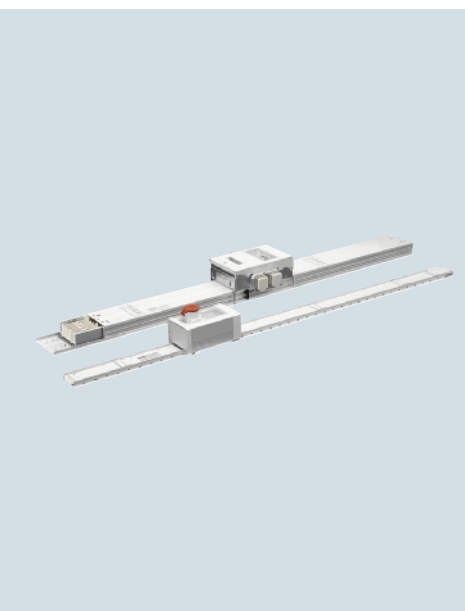


BD2-APO



4

Appendix



5/2	Glossary
5/6	Catalog notes
5/7	Ordering notes
5/9	Further documentation
5/13	Quality management
5/14	Standards and approvals
5/19	Siemens contacts
5/20	Service & Support
5/21	Comprehensive support from A to Z
5/22	Subject index
5/24	Type reference list
5/25	Article number index
5/26	Conditions of sale and delivery

Appendix

Glossary

Overview

This glossary offers brief explanations of some of the terms used in this catalog. However it must not be regarded as a substitute for the actual text of the standard, especially where the new terms used in IEC/EN 60947 are concerned.

Reference is made underneath each term to the relevant section in the 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.

<p>Altitude</p>	<p>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.</p> <p>Upon request, Siemens will supply information as to the suitability or otherwise of switchgear for operation at altitudes above the 2000 m limit specified by the standard.</p> <p>Or get in direct touch with Technical Support (see page 5/20).</p>
<p>Ambient temperature, enclosed (see also IEV 441-11-13)</p>	<p>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 device will add to the internal temperature rise within the enclosure.</p>
<p>Ambient temperature, open (see also IEV 441-11-13)</p>	<p>Room temperature (e.g. of the workshop or switchroom) in which the switching device is located.</p>
<p>Back-of-hand proof (see also EN 50274; 3.9)</p>	<p>A switching device whose live parts cannot be touched by a sphere of 50 mm diameter is regarded as back-of-hand proof.</p>
<p>Clearance in air (see also IEC/EN 60947-1; 2.5.46/IEV 441-17-31)</p>	<p>The spacing between two conductive parts along a string stretched the shortest way between these conductive parts. The clearance in air is determined by the rated impulse withstand voltage, overvoltage category and the pollution degree.</p>
<p>Control circuit reliability</p>	<p>Measures the probability of switching states arising during the endurance of a switching contact that would be interpreted as faults by downstream electronic controllers (PLCs). Control circuit reliability is expressed in values based on tests using standard limit values for signals according to IEC/EN 61131-2.</p>
<p>Creepage distance (see also IEC/EN 60947-1; 2.5.51/IEV 151-03-37)</p>	<p>The shortest distance along the surface of the insulating material between two conductive parts. The creepage path/distance is determined by the rated insulation voltage, the pollution degree and the creepage current resistance of the material used.</p>
<p>Damp heat, constant</p>	<p>This test subjects the equipment 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 equipment are examined.</p>
<p>Damp heat, cyclic</p>	<p>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 equipment are examined.</p>
<p>Degree of pollution (see also IEC/EN 60947-1; 5.5.58)</p>	<p>Identification code for the expected quantities of conductive dust and humidity, which can lead to a reduction in the proof voltage of a switching device. The degree of pollution is defined by the following factors:</p> <ul style="list-style-type: none"> • Degree of pollution 1: No pollution or only dry, non-conductive pollution occurs. The pollution has no effect on the proof voltage. • Degree of pollution 2: Usually, only non-conductive pollution. However, transient conductivity through condensation is to be expected. • Degree of pollution 3: (switchgear for industrial use) Conductive pollution or dry, non-conductive pollution, which is rendered conductive through condensation. • Degree of pollution 4: The pollution leads to long-term conductivity, e.g. pollution through conductive dust, rain or snow.
<p>EMERGENCY-STOP switching device</p>	<p>Switching device with an EMERGENCY-STOP device that is intended to prevent danger to persons, damage to machinery or work materials.</p>
<p>Finger-safety (see also EN 50274; 3.8)</p>	<p>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 operating medium 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.</p>

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.

Positively driven operation

(see also IEC/EN 60947-1; 2.4.11 / IEV 441-16-12)

This ensures that the auxiliary contacts of a switching device are always in the switch position corresponding to the open or closed position of the main contacts. The contacts of contactors are positively driven contacts, provided they are mechanically linked in such a way as to ensure that normally closed contacts and normally open contacts can never be closed simultaneously. This arrangement must also ensure that minimum contact separation of 0.5 mm is maintained over the entire endurance of the device, even during a fault (e.g. welding of one contact). The pertinent German Trade Association requires the use of contactors with positively driven contacts for control systems on power presses in the metal processing industry.

Positive opening

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

An opening operation which ensures that the main contacts of a switching device have attained the open position when the actuator is in the Off position.

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**).

Safe isolation

(see also IEC/EN 61140; 3.24)

Isolation of circuits not carrying hazardous voltages, e.g. protective extra-low voltage, from circuits in which hazardous voltages flow. Such isolation is achieved by means of reinforced or double insulation, which reliably prevents voltage transfer from one circuit to another. This might otherwise take place between main circuits and auxiliary circuits in switching devices or between primary and secondary in safety transformers. Safe isolation is a priority requirement for safety circuits and functional low-voltage circuits.

Shock resistance

The capacity of an equipment 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.

Tamper proof

An **EMERGENCY-STOP switching device** is regarded as tamper proof provided it cannot be reset without tools or via prescribed procedure, after tripping has taken place. The device latches in the tripped position. Accidental or deliberate manipulation (inching) is ruled out.

Type of coordination

Status of a switchgear/controlgear assembly (motor starter) during and after testing at rated conditional short-circuit current:

- Type of coordination 1:
 - No risk to persons or installations
 - No requirement for immediate readiness for renewed operation
 - Damage to the starter is admissible
- Type of coordination 2:
 - No risk to persons or installations
 - Starter is capable of renewed operation
 - No damage to the starter with the exception of a slight welding of the switching contacts, provided they can be separated without significant deformation

Utilization category

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

A combination of specified requirements relating to the operating condition in which the switching device or fuse fulfills its purpose, selected to represent a characteristic group of practical applications. The specified requirements may concern, for example, the values of making capacity, breaking capacity and other characteristic values, data concerning associated circuits, and the relevant conditions of use and operation characteristic.

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

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

Appendix

Glossary

Voltages, currents, powers, switching times

<p>Break time (see also IEC/EN 60947-1; 2.5.42/IEV 441-17-39)</p>	Time interval between the start of the opening time of a mechanical switching device (or the melting time of a fuse) and the end of the arcing time.
<p>Closing time (see also IEC/EN 60947-1; 2.5.44/IEV 441-17-41)</p>	The time interval between the instant of initiation of the closing movement and the instant when the contacts touch in all poles.
<p>Conventional thermal current I_{th} (see also IEC/EN 60947-1; 4.3.2.1)</p>	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.
<p>Losses (see also IEC 151-03-18)</p>	The difference between the input power and the output power of a device. The main type of loss in electrical equipment and operating media in power distribution is current heat loss.
<p>Make time (see also IEC/EN 60947-1; 2.5.43/IEV 441-17-40)</p>	The time interval between the instant of initiation of the closing motion and the instant that the current in the main circuits begins to flow.
<p>Minimum command duration</p>	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.
<p>Opening time (see also IEC/EN 60947-1; 2.5.39/IEV 441-17-36)</p>	The interval of time between the instant of initiation of the opening operation and the instant in which the arcing contacts have separated in all poles.
<p>Overvoltage category (see also IEC/EN 60947-1; 2.5.60)</p>	<p>Identification code 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:</p> <ul style="list-style-type: none"> • 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: Operating media 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 consumers for connection to fixed installations, e.g. household appliances, electrical tools. • Overvoltage category I: Operating media for connection to circuits with overvoltage protective devices, e.g. electronic devices.
<p>Rated actuating voltage U_c (see also IEC/EN 60947-1; 4.5.1)</p>	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 .
<p>Rated breaking capacity (see also IEC/EN 60947-1; 4.3.5.3)</p>	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.
<p>Rated conditional short-circuit current I_q (see also IEC/EN 60947-1; 2.5.29/IEV 441-17-20)</p>	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.
<p>Rated control supply voltage U_s (see also IEC/EN 60947-1; 4.5.1)</p>	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 .
<p>Rated current I_n (of a circuit breaker) (see also IEC/EN 60947-2; 4.3.2.3)</p>	For circuit breakers, this current value is equal to the rated uninterrupted current and the conventional free-air thermal current .
<p>Rated frequency (see also IEC/EN 60947-1; 4.3.3)</p>	Design frequency for a switching device and reference value for other characteristics of the device.
<p>Rated impulse withstand voltage U_{imp} (see also IEC/EN 60947-1; 4.3.1.3)</p>	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.
<p>Rated insulation voltage U_i (see also IEC/EN 60947-1; 4.3.1.2)</p>	The voltage to which insulation tests and creepage distances of a switching device are referred. The maximum rated operational voltage must not be higher than the rated insulation voltage .
<p>Rated making capacity (see also IEC/EN 60947-1; 4.3.5.2)</p>	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)

Rated operational voltage U_e
(see also IEC/EN 60947-1; 4.3.1.1)

Rated power
(see also IEC/EN 60947-1; 4.3.2.3)

Rated power
(see also IEC/EN 60947-1; 4.3.2.3)

Rated service short-circuit breaking capacity I_{cs}
(see also IEC/EN 60947-2; 4.3.5.2.2)

Rated short-circuit breaking capacity I_{cn}
(see also IEC/EN 60947-1; 4.3.6.3)

Rated short-circuit making capacity I_{cm}
(see also IEC/EN 60947-1; 4.3.6.2)

Rated short-time withstand current I_{cw}
(see also IEC/EN 60947-1; 4.3.6.1)

Rated ultimate short-circuit breaking capacity I_{cu}
(see also IEC/EN 60947-2; 4.3.5.2.1)

Rated uninterrupted current I_u
(see also IEC/EN 60947-1; 4.3.2.4)

Symbols used in technical data and formulae

ED ON period
 $I_{\Delta n}$ Response value of ground-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

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.

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**.

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.

The power output of a motor at the associated **rated operational voltage**.

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.

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.

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.

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.

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.

The value of current that a switching device can carry in uninterrupted duty (for weeks, months or years).

I_T Response value of ground-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 ground-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

Appendix

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

Unless stated otherwise on the individual pages of this catalog, we reserve the right to make changes, in particular to the specified values, measurements and weights.

Dimensions

All dimensions are in mm.

Illustrations

The illustrations are not binding.

Technical data

The technical specifications are for general information purposes only. Always heed the operating instructions and notices on individual products during assembly, operation and maintenance.

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

- under Product list:
 - Technical specifications
- under "Entry list":
 - Certificates
 - Characteristics
 - Download
 - FAQs
 - Manuals
 - Updates

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

Assembly, operation and maintenance

Always heed the operating instructions and notices on individual products during assembly, operation and maintenance.

Logistics

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 1-day transport within Germany.

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

We regard the DIN 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 instead of polystyrene chips for protection during transport 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, the open arrow recycling symbol, and device descriptions in English and German. In addition to the Article No. (MLFB) and the number of items in the packaging, the order number for operating instructions (Instr.-Order-No.) is also specified. They can be obtained from your local Siemens representative (you will find a list at www.siemens.com/automation/partner).

The device Article No. of most devices can also be acquired through the EAN barcode to simplify ordering and storage logistics.

The Article Nos. and EAN codes are assigned electronically in the master data of the products for low-voltage power distribution and electrical installation.

Aluminum (Al) and copper (Cu) surcharges

Surcharges for aluminum (Al) and copper (Cu) will be added to the prices of certain products. Calculation of the surcharges will be governed by the official Al quotation for aluminum and by the Cu-DEL quotation applying on the date of receipt of order or of call-off.

The prices for products in this catalog include the price of aluminum and copper calculated on the basis of a list price of €150/100 kg. If the aluminum and copper rates exceed this price, a surcharge will be made on the basis of the DEL quotation in force on the day of delivery.

Equation for calculating Al and Cu surcharges:

$$\frac{\text{Cu-DEL quotation or Al quotation } \text{€} - 150 \text{ €}}{100 \text{ kg}} \times \text{Cu/Al weight (kg)}$$

The quotations for copper and aluminum can be consulted daily on the Internet:

www.kabelverband.org

See "Aktuelle Metall-Notierungen" there, then:

- "KUPFER DEL-Notiz / hoch" (copper)
- "ALU in Kabeln" (aluminum)

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 prefix *BVP*: must be placed before the article number listed in the catalog, for example: BVP:034262.

Type

If a type designation contains * characters, 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.

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 make a small processing charge: for orders with a net goods value of less than € 250 we charge an € 20 supplement to cover our order processing and invoicing costs.

Appendix

Ordering notes

Overview

Explanations on the Selection and Ordering Data

Delivery time class (DT)

DT	Meaning	
▶	Preferred type	Preferred types are device types that can be delivered immediately ex works, i.e. they are dispatched within 24 hours.
A	Two working days	If ordered in normal quantities, the products are usually delivered within the specified delivery times, calculated from the date we receive your order.
B	One week	In exceptional cases, delivery times may vary from those specified.
C	Three weeks	The delivery times are valid ex works from Siemens AG (products ready for dispatch).
D	Six weeks	Shipping times depend on the destination and the method of shipping. The standard shipping time for Germany is one day.
X	On request	The specified 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 .

Price units (PU)

The price unit defines the number of units, sets or meters to which the specified price and weight apply.

PS/P. unit (packaging size/packaging unit)

The packaging size/packaging unit defines the number, e.g. of units, sets or meters, contained within outer packaging:

- The **first digit** in the PS/P. unit column (packaging size/packaging unit) indicates the minimum order quantity. You can only order this specified quantity or a multiple thereof.
- The **second digit** in the PS/P. unit column (packaging size/packaging unit) specifies the number of units contained within the outer packaging (e.g. in a carton). You must order this quantity or a multiple thereof if you want the items to be delivered in discrete packaging quantities.

Examples:

PS/P. unit	Meaning
1 unit	You can order one item or a multiple thereof.
5 units	Five units are packed in a bag, for example. Because the bags cannot be opened, you can only order a multiple of the quantity contained in the bag: 5, 10, 15, 20 etc.
5/100 units	One carton contains (for example) 20 bags, each containing 5 units, i.e. a total of 100 units. If only cartons are available for delivery, you need to order a multiple of the carton quantity: 100, 200, 300, etc. Ordering a quantity of 220 units would result in the following delivery: two cartons, each containing 100 units (= 200 units) and 4 bags, each containing 5 units (= 20 units).
1 set	A set comprises a defined number of different parts.

Price group (PG)

Each product is allocated to a price group.

Weight

The defined weight is the net weight in kg and refers to the price unit (PU).

Examples

DT	Type	Article No.	PS/ P. unit	Weight per unit approx.	DT	Type	Article No.	PS/ P. unit	Weight per unit approx.	
		BD01-40-3-0.5	BVP:034253	1 unit	4.350		BD2-DSB	BVP:203532	10 units	0.030

Article No. **BVP:034253**

PS/P. unit: 1 unit = minimum order quantity

Weight: 4.350 kg per unit

Article No. **BVP:203532**

PS/P. unit: 10 units = minimum order quantity

Weight: 0.030 kg per unit

Low-voltage power distribution and electrical installation technology on the WWW



Siemens low-voltage power distribution and electrical installation technology offers switchboards, distribution boards, protection, switching, measuring and monitoring devices, switches and socket outlets. All over the world, the universality, modularity and intelligence of our components and systems give you innumerable benefits – for the entire duration of their service life. Developed according to the respective international standards, we offer forward-looking designs with innovative functions and ensure the highest quality standards around the globe.

We regard product support to be just as important as the products and systems themselves.

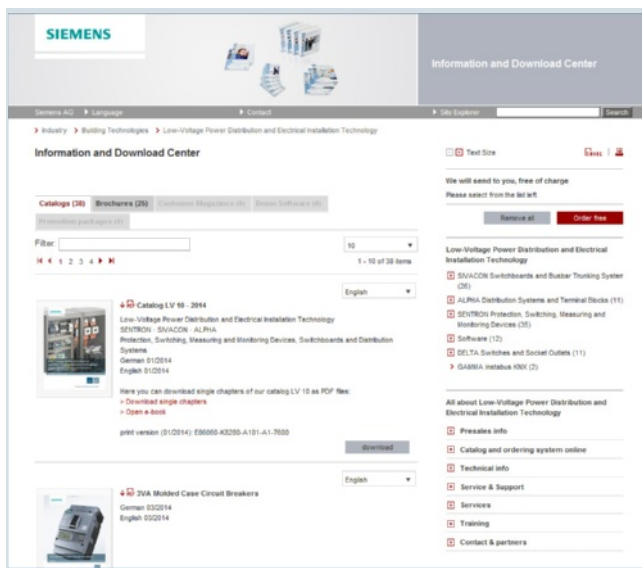
Visit our site on the Internet for a comprehensive offering of support for low-voltage power distribution and electrical installation products, such as

- Operating instructions and manuals for direct download
- Online registration for seminars and events
- Up-to-date answers to your queries and problems
- Software upgrades and updates for fast download
- Telephone assistance in more than 190 countries
- Photos and graphics for external use

and much more – all conveniently and easily accessible:

www.siemens.com/lowvoltage

Information and Download Center



You will find regularly updated information material such as catalogs, customer magazines, brochures and trial versions of software for low-voltage power distribution and electrical installations on the Internet at

www.siemens.com/lowvoltage/infomaterial

Here you can order your copy of the available documentation or download it in common file formats (PDF, ZIP).

Appendix

Further documentation

Product selection using the interactive catalog CA 01



Detailed information together with user-friendly interactive functions:

The interactive catalog CA 01 with more than 80,000 products provides a comprehensive overview of the product range from Siemens Industry.

You can find everything you need here for solving automation, switching, installation and drive technology tasks. All information is provided over a user interface that is both user-friendly and intuitive.

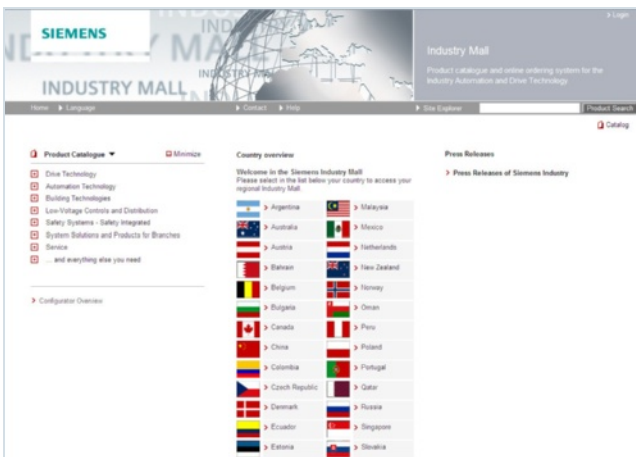
After selecting the product of your choice you can order at the press of a button, by fax or by online link.

Information about the interactive catalog CA 01 can be found on the Internet at:

www.siemens.com/automation/ca01

or on DVD.

Industry Mall



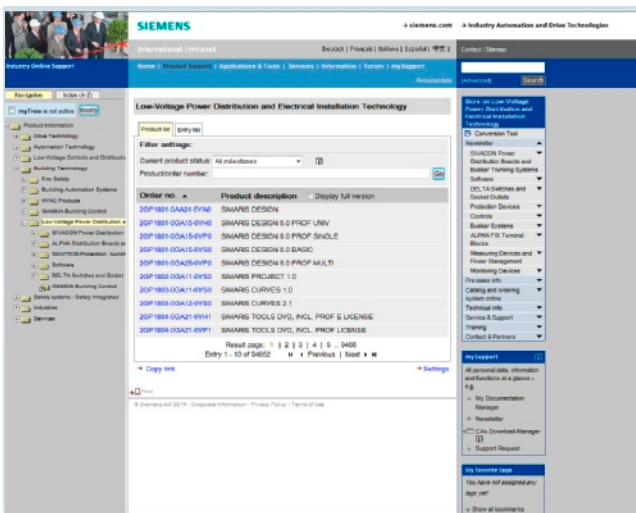
The Industry Mall – for online information, product selection and ordering:

- Detailed information including product data, illustrations, certificates and CAX data
- Simple configuring of systems
- Possible to request individualized quotations
- Availability check
- Online ordering facility
- Order tracking/order overview
- Fast access to relevant training offers and services

You can find the Industry Mall on the Internet at

www.siemens.com/industrymall

Industry Online Support



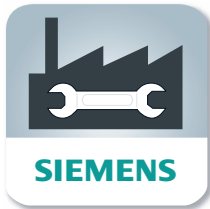
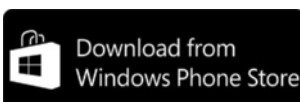
Comprehensive support – at any time, whatever your location

- FAQs, sample applications, information about successor products and product news
- Prompt assistance with technical queries
- Discussions and best practice sharing with other users in the forum
- Provision of high-quality product data for your planning programs
- Faster access to information – with helpful filter and folder functions in mySupport
- Automatic notification service to keep you up to date with the latest information about topics of interest to you

To find the link to the Service & Support portal, go to

www.siemens.com/lowvoltage/product-support

Industry Online Support App

**Android:****Apple iOS:****Windows:****Main functions at a glance**

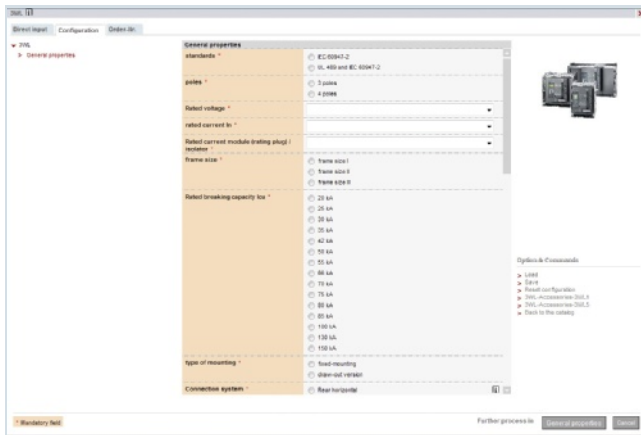
- Scanning of product codes (EAN/QR and data matrix codes) with direct display of all technical information on the product, including graphic data (CAx data).
- Delivery of product information or entries by e-mail, so that the information can immediately be processed at the workplace.
- Submission of queries to Technical Support (Support Requests). With photo function for transmitting detailed information.
- Contents and interfaces available in six languages (German, English, French, Italian, Spanish and Chinese) – including option of temporary switchover to English.
- Offline cache function for all favorites stored in "mySupport". These entries can also be retrieved without network reception.
- Import of PDF documents into a library (e.g. iBooks or similar).
- An overview of the main functions can be found at

www.siemens.com/lowvoltage/support-app

Appendix

Further documentation

Product configurator



To help you find the right product for your application, Siemens displays an overview of key product highlights on its web pages. You can also call up detailed sample applications in the Siemens Industry Online Support. Another important tool to help you select the right components are the configurators for products and systems.

By clicking a few options with the mouse, you will find yourself guided by the configurator to a suitable product or system. Simply enter the relevant parameters and select your solution.

You will be supplied with useful product data, such as 3D models, circuit diagrams, certificates and operating instructions, to help you plan the mechanical and electrical systems of the configured solution. You can then export the generated product list to Excel or place it in the shopping cart of the Siemens Industry Mall ready for ordering.

The configurators are available online in the Siemens Industry Mall and offline in catalog CA01. A product selection process could hardly be made any faster or easier.

Find the right product faster using intuitive product selection

- Complete selection of products and systems based on technical characteristics or application requirements
- Simple, intuitive operation
- Option to save the configuration and order lists in a file format of your choice (txt, pdf, xls, csv)
- Direct transfer of the order list into the shopping cart of the Siemens Industry Mall
- Fast access to product data for the selected product and system configuration
- Available in multiple languages for use by customers anywhere in the world

You can find our configurators at the following website:

www.siemens.com/lowvoltage/configurators

Overview

The management system of our IC LMV MS Business Unit complies with the international standards ISO 9001, ISO 14001 and BS OHSAS 18001.

The products and systems listed in this catalog are marketed using a DNV-approved management system (according to ISO 9001, ISO 14001 and BS OHSAS 18001).

DNV certificate

Siemens AG
Infrastructure & Cities Sector
Low and Medium Voltage Division
Medium Voltage & Systems IC LMV MS
Certificate No.: 134373-2013-AHSO-GER-DAKKS

Certificates

Information on the certificates available (CE, UL, CSA, FM, shipping authorizations) for low-voltage power distribution and electrical installation products can be found on the Internet at www.siemens.com/lowvoltage/product-support.

In the Entry List you can use the certificate type (general product approval, explosion protection, test certificates, shipbuilding,...) as a filter criterion.

Title	Date
Certificates Test Certificates, Special Test Certificate, Manufacturer for products: 3FA2 more>	2010-10-22 IC: 4890986
Certificates Declaration of Conformity, Manufacturer for products: 7UM8200-S4000-GA03 more>	2010-10-19 IC: 4890917
Certificates General Product Approval, CB-Testreport, CB-Members for products: 3SL93M more>	2010-10-08 IC: 4892114
Certificates Test Certificates, Type Test Certificate/Test Report, Manufacturer for products: 3PV2 more>	2010-10-06 IC: 4890905
Certificates Test Certificates, Type Test Certificate/Test Report, Manufacturer for products: 3PV2 more>	2010-10-06 IC: 4890908

Appendix

Standards and approvals

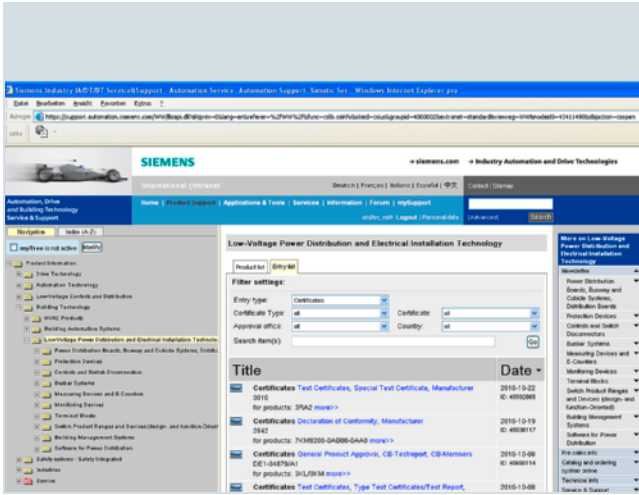
Overview

Approvals, test certificates, characteristic curves

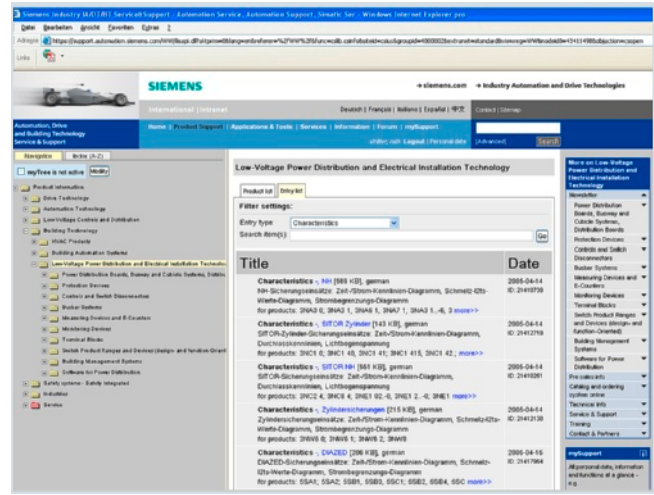
An overview of the certificates available for low-voltage power distribution and electrical installation products along with more

technical documentation can be consulted daily on the Internet at

www.siemens.com/lowvoltage/product-support



Product support: Approvals / Certificates



Product support: Characteristic curves

Product standards (excerpt)

IEC	EN	DIN VDE	Title
60044-1	60044-1	--	Instrument transformers – Part 1: Current transformers
60050-441	--	--	International Electrotechnical Vocabulary. Switchgear, controlgear and fuses
60076-11	60076-11	--	Power transformers – Part 11: Dry-type transformers
60079-14	60079-14	--	Electrical installations for potentially explosive gas atmospheres
60079-2	60079-2	--	Installing electrical systems in potentially explosive gas atmospheres (except mining)
60204-1	60204-1	--	Electrical equipment of machines: General requirements
60269-1	60269-1	0636-1	Low-voltage fuses: General requirements
60269-2	60269-2	0636-2	Low-voltage fuses: Supplementary requirements for fuses for use by qualified electrical technicians or electrically trained persons
60269-3	60269-3	0636-3	Low-voltage fuses: Supplementary requirements for fuses for use by untrained persons (fuses largely used in domestic environments, or similar applications)
60269-4	60269-4	0636-4	Low-voltage fuses: Supplementary requirements for fuse links for protecting semiconductor components
60269-6	60269-6	0636-6	Low-voltage fuses: Supplementary requirements for fuse links for protecting solar, photovoltaic power generation systems.
60439-1	60439-1	--	Low-voltage switchgear and controlgear assemblies: Type-tested and partially type-tested assemblies
60439-3	60439-3	--	Low-voltage switchgear assemblies – distribution boards
60664-1	60664-1	--	Insulation coordination for equipment within low-voltage systems; Principles, requirements and tests
60947-1	60947-1	--	Low-voltage switchgear and controlgear: General rules
60947-2	60947-2	--	• Circuit-breakers
60947-3	60947-3	--	• Switches, disconnectors, switch-disconnectors and fuse-combination units
60947-4-1	60947-4-1	--	• Contactors and motor starters: Electromechanical contactors and motor starters
60947-4-2	60947-4-2	--	• Contactors and motor starters: AC semiconductor motor controllers and starters, soft starters
60947-4-3	60947-4-3	--	• AC semiconductor controllers and contactors for non-motor loads
60947-5-1	60947-5-1	--	• Control circuit devices and switching elements: Electromechanical control circuit devices
60947-5-2	60947-5-2	--	• Control circuit devices and switching elements: Proximity switches
60947-5-3	60947-5-3	--	• Proximity switches with defined behaviour under fault conditions
60947-5-5	60947-5-5	--	• Electrical emergency stop devices with mechanical latching function
60947-5-6	60947-5-6	--	• Control devices and switching elements – DC interface for proximity switches and switching amplifiers (NAMUR)
60947-5-7	60947-5-7	--	• Requirements for proximity switches with analog output
60947-5-8	60947-5-8	--	• Enabling switches
60947-5-9	60947-5-9	--	• Flow sensors
60947-6-1	60947-6-1	--	• Multiple function equipment – Transfer switching equipment
60947-6-2	60947-6-2	--	• Multiple function equipment – Control and protective switching devices (CPS)
60947-7-1	60947-7-1	--	• Ancillary equipment: Terminal blocks for copper conductors
60947-7-2	60947-7-2	--	• Ancillary equipment: PE conductor terminal blocks for copper conductors
60947-7-3	60947-7-3	--	• Ancillary equipment: Safety requirements for fuse terminal blocks
60947-8	60947-8	--	• Control units for built-in thermal protection (PTC) for rotating electrical machines
60999-1	60999-1	--	Connecting materials – Safety requirements for screw terminals and screwless terminal points for electrical copper conductors – Part 1: General requirements and special requirements for terminal points for conductors from 0.2 mm ² to 35 mm ²

5

IEC	EN	DIN VDE	Title
61000-4-1	61000-4-1	--	Electromagnetic compatibility (EMC) – Part 4: Testing and measurement techniques; Main Section 1: Overview of measuring techniques for interference immunity; Basic EMC standard
61000-6-3	61000-6-3	--	Electromagnetic compatibility (EMC); Generic standards – Emission standard for residential, commercial and light-industrial environments
61000-6-4	61000-6-4	--	Electromagnetic compatibility (EMC); Generic standards – Emission standard for industrial environments
61140	61140	--	Protection from electric shock - General requirements for plants and equipment
61439-1	61439-1	0660-600-1	Low-voltage switchgear and controlgear assemblies – General rules
61439-2	61439-2	0660-600-2	Low-voltage switchgear and controlgear assemblies – Power switchgear and controlgear assemblies
61439-6	61439-	0660-600-6	Low-voltage switchgear and controlgear assemblies – Busbar trunking systems (busways)
61558-1	61558-1	0570-1 ¹⁾	Safety of power transformers, power supplies, reactors and similar products • Part 1: General requirements and tests
61558-2-1	61558-2-1	0570-2-1 ¹⁾	• Part 2-1: Particular requirements for separating transformers and power supplies incorporating separating transformers for general applications
61558-2-2	61558-2-2	0570-2-2 ¹⁾	• Part 2-2: Particular requirements for control transformers
61558-2-4	61558-2-4	0570-2-4 ¹⁾	• Part 2-4: Particular requirements for isolating transformers for general applications
61558-2-6	61558-2-6	0570-2-6 ¹⁾	• Part 2-6: Particular requirements for safety transformers for general applications
61558-2-9	61558-2-9	0570-2-9 ¹⁾	• Part 2-9: Particular requirements for transformers for class III handlamps for tungsten filament lamps
61558-2-12	61558-2-12	0570-2-12 ¹⁾	• Part 2-12: Particular requirements for constant voltage transformers
61558-2-13	61558-2-13	0570-2-13 ¹⁾	• Part 2-13: Particular requirements for auto transformers
61558-2-15	61558-2-15	0570-2-15 ¹⁾	• Part 2-15: Special requirements for isolating transformers for the supply of medical locations
61558-2-20	61558-2-20	0570-2-20 ¹⁾	• Part 2-20: Particular requirements for small reactors
61641	--	--	Arcing fault safety
61810-1	61810-1	--	Electromechanical elementary relays (electromechanical switching relays without a fixed time response); General and safety-related requirements
61812-1	61812-1	--	Time relays for industrial and residential use – Part 1: Requirements and tests
62026-2	50295	--	Low-voltage switchgear and controlgear: Actuator-Sensor Interface (AS-i)
62041	62041	0570-10 ¹⁾	Safety of transformers, reactors, power supply units and combinations thereof – EMC requirements
--	50178	--	Electronic equipment for use in power installations
--	50274	--	Low-voltage switchgear combinations – Protection from electric shock – Protection from accidental touching of dangerous active parts
--	--	0552	Specifications for variable-ratio transformers having current collectors which are moved transversely in the direction of the windings

¹⁾ VDE classification.

UL	CSA C22.2	ASME	JIS	Title
506	--	--	--	Specialty transformers
508	--	--	--	Industrial control equipment
489	--	--	--	Molded case circuit breakers, molded case switches and circuit breaker enclosures
1012	--	--	--	Power units other than CLASS 2
1561	--	--	--	Dry-type general purpose and power transformers
5085	--	--	--	Low-voltage transformers
60601-1	--	--	--	Medical electrical equipment, Part 1: General requirements for safety (IEC 60601, EN 60601, VDE 0750-1)
1604	--	--	--	Electrical equipment for use in CLASS I and II, Division 2 and CLASS III hazardous (Classified) locations
1059	--	--	--	Terminal blocks
486A-486B	--	--	--	Wire connectors
486E	--	--	--	Equipment wiring terminals for use with aluminum and/or copper conductors
50	--	--	--	Enclosures for electrical equipment. Non-environmental considerations
--	No. 66	--	--	Specialty transformers
--	No. 14	--	--	Industrial control equipment
--	No. 5	--	--	Molded case circuit breakers, molded case switches and circuit breaker enclosures
--	No. 107-1	--	--	General use power supplies
--	--	A17.5 / B 44.1	--	Elevator and escalator electrical equipment
--	--	--	C 8201-4-1	Low-voltage switchgear and controlgear; contactors and motor-starters

Approval requirements valid in different countries

Siemens low-voltage switchgear and controlgear are designed, manufactured and tested according to the relevant German standards (DIN and VDE), IEC publications and European standards (EN) as well as CSA and UL standards. The standards assigned to the single devices are stated in the relevant parts of this catalog.

As far as is economically viable, in addition to the pertinent VDE, EN and IEC standards, the requirements of the various regulations valid in other countries are also taken into account in the design of the devices.

In some countries (see table below), an approval is required for certain low-voltage switchgear and controlgear components. Depending on the market requirements, these devices have been submitted for approval to the authorized testing institutes.

In some cases, CSA for Canada and UL for the USA only approve special switchgear versions. Such special versions are listed separately from the standard versions in the individual parts of this catalog.

For this equipment, partial limitations of the maximum permissible voltages, currents and rated outputs can be imposed, or special approval and, in some cases, special identification is required.

For use on board ship, the specifications of the marine classification societies must be observed (see table below). In some cases, they require type tests of the components to be approved.

The present state of approval is shown in the "Type overview of approved devices" in Catalog LV 10.

Appendix

Standards and approvals

Testing bodies, approval identification and approval requirements

	Canada ¹⁾	USA ¹⁾	China
Government-appointed or private, officially recognized testing bodies	CSA UL (USA)	UL	CQC
Approval symbol			
Approval requirements	+	+	+
Remarks	UL and CSA are authorized to grant approvals according to Canadian or US regulations. Please note: These approvals are frequently not recognized and additional approval often has to be obtained from the national testing authority.		CCC

For more information about UL and CSA see page 5/16 below.

¹⁾ For guide numbers and file numbers for the approvals, visit our website at www.siemens.com/lowvoltage/product-support

Marine classification societies

	Germany	United Kingdom	France	Norway	CIS	Italy	Poland	USA
Name	Germanischer Lloyd	Lloyds Register of Shipping	Bureau Veritas	Det Norske Veritas	Russian Maritime Register of Shipping	Registro Italiano Navale	Polski Rejestr Statków	American Bureau of Shipping
Abbreviation	GL	LRS	BV	DNV	RMRS	RINA	PRS	ABS

CE marking

Manufacturers of products which fall within the scope of EC directives must identify their products, operating instructions or packaging with a CE mark.

The CE mark confirms that a product fulfills the appropriate basic requirements of all pertinent directives. The mark is a mandatory requirement for putting products into circulation throughout the EC.

All the products in this catalog are in conformance with the EC directives and bear the CE mark.

- Low-voltage directive
- EMC directive
- Machinery directive
- Ex protection directive

The CE mark of conformity:

Accident prevention

Test certificates and approvals from the BIA (German statutory industrial accident insurance institution in Bonn) and from SUVA (Swiss institute for accident prevention) are available for some devices in safety control systems. For details, see the respective product descriptions.

Special standards: USA and Canada

In the USA and Canada, for machine tools and processing machines in particular, supply lines are laid using rubber insulated cable enclosed in heavy-duty steel piping similar to that used for gas or water pipe systems.











The tubing system must be completely watertight and electrically conductive (especially sleeving and elbows). Since the tubing system can also be grounded, the cable entries of enclosed units equipped with heavy-gauge or metric threads must be fitted with metal adapters between these threads and the tube thread. The necessary adapters are specified for the switchgear as accessories; they should be ordered separately unless otherwise specified.

Low-voltage switchgear and controlgear for auxiliary circuits (e.g. contactor relays, commanding and signaling devices and auxiliary switches/auxiliary contacts in general) are generally only approved by CSA and UL for "**Heavy Duty**" or "**Standard Duty**" and are identified either with these specifications in addition to the maximum permissible voltage or by using an abbreviation.

The abbreviations are harmonized with IEC 60947-5-1 Appendix 1 Table A.1 and correspond to the stated utilization categories.

For various switching devices detailed in the catalog, a note has been included to the effect that, above a certain voltage, the auxiliary switches/auxiliary contacts can only be used if they have the same polarity. This means that the input terminals can only be connected to the same pole of the control voltage, e.g. "600 V AC above 300 V AC same polarity".

Different features of UL approvals (for USA and Canada)

Recognized Component	Listed Product
Devices are identified on the rating plate using the "UL recognition mark": USA:  , c  _{us} Canada: c  , c  _{us}	Devices are identified using the "UL listing mark" on the rating plate e.g. USA:  LISTED 165 C Canada: c  LISTED 165 C IND. CONT. EQ. IND. CONT. EQ. (165 C stands for: Siemens, I IA CD Division, Amberg plant)
Devices are approved as modules for "factory wiring", i.e.: As devices for installation in control systems, which are selected, installed, wired and tested entirely by trained personnel in factories, workshops or elsewhere, according to the operating conditions.	Devices are approved for "field wiring", i.e.: <ul style="list-style-type: none"> As devices for installation in control systems, which are completely wired by trained personnel in factories, workshops or elsewhere. As single devices for sale in retail outlets in the USA/Canada.
If devices are  or c  approved as "listed products", they are also approved as  or c  "recognized components".	

For more information about UL and CSA see bottom of 5/15.

Special standards in different countries**Argentina**

In Argentina, the approval requirements are based on Resolution 92/98. Since April 1st, 2001, circuit breakers and RCCBs require approval.

Since April 1st, 2002, protective switches up to $I_n = 63$ A and $U_{max} = 440$ V require approval and must bear a mark of conformity.

CCC approval for China**A003617**

Since August 1, 2003, CCC approval is required for many products that are marketed in China.

**Romania**

In Romania, components which are used in public buildings must be approved by the Romanian testing authority ICECON.

C-Tick approval for Australia

The C-Tick approval is required for marketing Siemens devices in Australia. Electronic devices must provide proof of EMC clearance in Australia, similar to the CE mark of conformity laid down by the EMC directive applicable in the EC and bear the "C-Tick" mark. These requirements have been in force since October 1st, 1999.

EAC approval for Russia

An EAC approval is required for all products that are to be sold in Russia.

All devices delivered to any part of the Russian Federation must have this customs certification.

South Africa

In South Africa there are approval requirements for circuit breakers and busbar trunking systems. Such equipment must bear a conformity mark.

Country-specific approvals

	Canada	USA	Romania	Russia ¹⁾ , CIS	Turkey	Ukraine	China	South Africa
	CSA	UL	ICECON	EAC-R	TSE	Ukraine-GOST	CCC	SABS
Busbar trunking systems								
BD01 system	--	--	--	+	--	--	--	--
BD2 system	--	--	--	+	--	--	On request	--
LD system	--	--	--	+	--	--	+	--
LI system	--	--	--	+	--	--	--	--
LR system	--	--	--	+	--	--	--	--

+ = Certified or licensed

¹⁾ In Russia, all systems also passed the fire barrier test.

Appendix

Standards and approvals

Approvals issued by marine classification societies

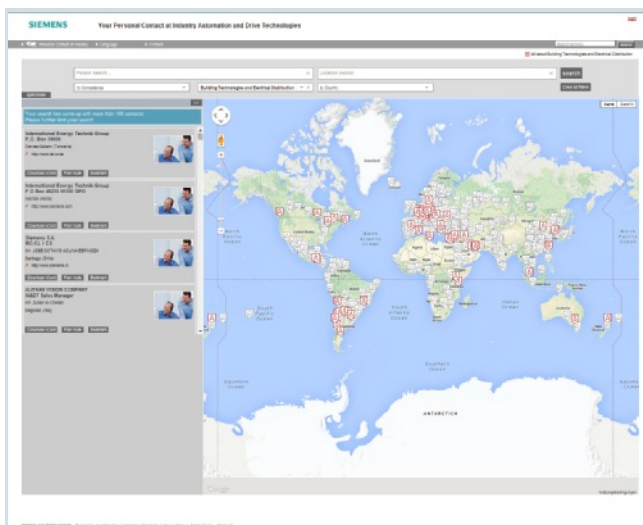
	Germany	France	United Kingdom	Italy	Norway	Poland	Russia, CIS	USA
	Germanischer Lloyd	Bureau Veritas	Lloyds Register of Shipping	Registro Italiano Navale	Det Norske Veritas	Polski Rejestr Statków	Russian Maritime Register of Shipping	American Bureau of Shipping
	GL	BV	LRS	RINA	DNV	PRS	RMRS	ABS
Busbar trunking systems								
BD01 system	--	--	--	--	+	--	--	--
BD2 system	--	--	--	--	+	--	--	--
LD system	--	--	--	--	+	--	--	--
LI system	--	--	--	--	--	--	--	--
LR system	--	--	--	--	--	--	--	--

+ = Certified or licensed

More information

You can find more information about standards and approvals at www.siemens.com/lowvoltage/product-support

Contact partners at Siemens Low-Voltage Power Distribution and Electrical Installation Technology



At Siemens Low-Voltage Power Distribution and Electrical Installation Technology, more than 85 000 people are resolutely pursuing the same goal:

Long-term improvement of your competitive ability.

We are committed to this goal. Thanks to our dedication, we are continually setting new standards. In all industries – worldwide.

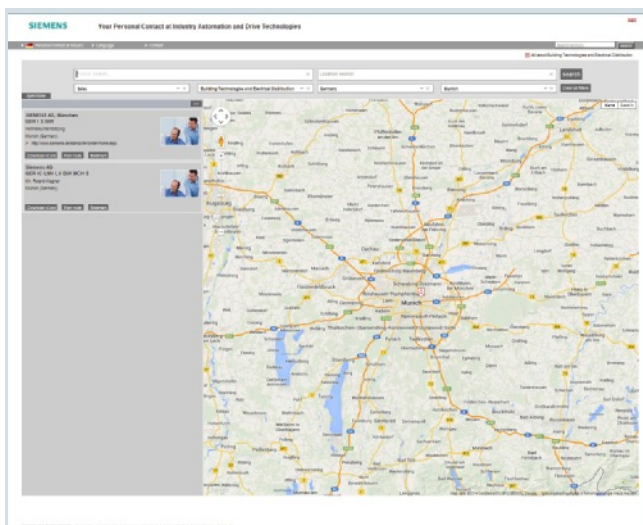
At your service, locally, around the globe: Partners for consulting, sales, training, service, support, spare parts ... on the entire Siemens range of Low-Voltage Power Distribution and Electrical Installation Technology.

Your personal contact can be found in our Contact Database at

www.siemens.com/lowvoltage/contact

You start by selecting a

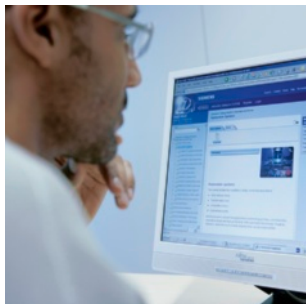
- competence,
- product or branch,
- country,
- city.



Appendix Service & Support

Unrivalled complete range of services

Online Support



Our comprehensive online information platform covers every aspect of our Service & Support and is available whenever, wherever.

More detailed information is available at www.siemens.com/lowvoltage/product-support

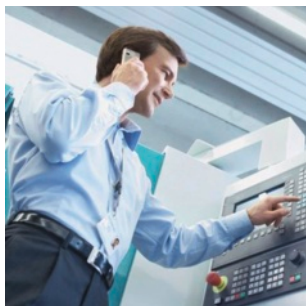
Field Service



Siemens Field Service offers support with all aspects of maintenance – so that the availability of your machines and plants is assured whatever the case.

More detailed information is available at www.siemens.com/lowvoltage/contact

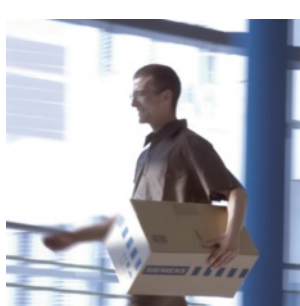
Technical Support



The competent consulting service for technical issues with a broad range of customer-oriented services for all our products and systems.

More detailed information is available at www.siemens.com/lowvoltage/contact

Spare Parts



Plants and systems in all industries worldwide are expected to meet ever higher levels of availability.

We can help you rule out unexpected stoppages: with a global network and optimum logistics chains.

More detailed information is available at www.siemens.com/lowvoltage/contact

Training



Extend your lead – with practice-related know-how straight from the manufacturer.

More detailed information is available at www.siemens.com/lowvoltage/training

Specification texts

You can obtain qualified, free support to help you produce specifications for technically equipping non-residential and industrial buildings at www.siemens.com/specifications

Overview

Product information	
Website	Fast and targeted information on low-voltage power distribution: www.siemens.com/lowvoltage
Newsletter	Always up to date about our trend-setting products and systems: www.siemens.com/lowvoltage/newsletter
Product information/product & system selection	
Information and Download Center	Current catalogs, customer magazines, brochures, demo software and promotion packages: www.siemens.com/lowvoltage/infomaterial
Industry Mall	Comprehensive information and order platform for the Siemens Industry Basket: www.siemens.com/lowvoltage/mall
CA 01	The interactive catalog on DVD for automation and drive technology and low-voltage power distribution and electrical installation products.
Product and system engineering	
SIMARIS software tools	Support in planning and configuring the electrical power distribution: www.siemens.com/simaris
SIMARIS ConFiguration Basic planning and configuration tool	Assists in generating offers and configuring products ranging from ALPHA distribution boards to the SIVACON S4 power distribution boards www.siemens.com/scfb
Product documentation	
Service & Support portal	Comprehensive technical information - from planning to configuration and operation: www.siemens.com/lowvoltage/product-support
Product configurator	Complete selection of products and systems based on technical characteristics or application requirements: www.siemens.com/lowvoltage/configurators
Image database	Collection of product photographs and graphics, such as dimensional drawings and internal circuit diagrams: www.siemens.com/lowvoltage/picturedb
Product training	
SITRAIN Portal	Comprehensive training program for our products, systems and engineering tools: www.siemens.com/lowvoltage/training
Product hotline	
Technical Support	Support in all technical queries about our products: www.siemens.com/lowvoltage/contact

Appendix

Subject index

A		H	
Adapter enclosures	4/64	Hanger brackets	
Adapter plates	4/64	• BD01 system	3/22
Ancillary equipment units		Horizontal installation	4/70, 4/77
• BD01 system	3/5, 3/19 ... 3/20		
• BD2 system	4/10, 4/59		
App			
• Siemens Industry Online Support App	5/11		
Approvals	5/14 ... 5/18		
B		I	
Busbar trunking planning	2/8	Industry Mall	5/10
		Industry Online Support	5/10
		Information and Download Center	5/9
		Installation plan	4/77, 4/78
C		J	
Cable entry	4/61	Joint blocks	
Cabling boxes	4/61	• BD01 system	3/3, 3/22
Ceiling mounting	3/24, 4/13, 4/60	• BD2 system	4/4, 4/60
Center feeding units	4/48, 4/49	Junction units	4/73
Coding		• BD01 system	3/3, 3/12
• BD01 system	3/8, 3/22	• BD2 system	4/5, 4/30 ... 4/45
Communication-capable busbar trunking	2/9	• Flexible	3/3, 3/12, 4/36, 4/37, 4/44, 4/45
Configuration	3/23 ... 3/27, 4/65 ... 4/87	• K-units	4/36, 4/37, 4/44, 4/45
Connection points		• L-units	4/30, 4/31, 4/34, 4/35, 4/38, 4/39, 4/42, 4/43
• BD01 system	3/3, 3/6, 3/21	• Position of fire barrier	4/89 ... 4/92
• BD2 system	4/4, 4/62, 4/63	• T-units	4/36, 4/37, 4/44, 4/45
Connections	3/3, 4/4	• Z-units	4/32, 4/33, 4/40, 4/41
D		K	
Degree of protection IP54	4/11, 4/62	Key to type references, BD2 system	4/66
Degree of protection IP55	3/6, 3/21, 4/12, 4/63		
Degrees of protection	4/82		
Determining the orientation of BD2 system	4/69		
Distribution board feeding units	4/48, 4/49		
E		L	
End feeding units	4/46, 4/47	Low-voltage power distribution and electrical installation technology on the WWW	5/9
End flanges			
• BD01 system	3/3, 3/22		
• BD2 system	4/60		
F		M	
Feeding units		Magnetic fields	4/84
• BD01 system	3/4, 3/6, 3/9, 3/12		
• BD2 system	4/7, 4/19, 4/46 ... 4/49		
Fire barrier	3/22, 3/27, 4/6, 4/72, 4/87 ... 4/93		
Fire barrier kits			
• BD01 system	3/22		
Fire load	2/10, 4/21		
Fixing			
• BD01 system	3/7, 3/22, 3/24, 3/25		
• BD2 system	4/13, 4/60, 4/61, 4/67		
Fixing bracket			
• BD01 system	3/7, 3/22		
• BD2 system	4/13		
Fixing brackets			
• BD2 system	4/60, 4/61		
Fixing for mounting rail	4/60		
Fixing intervals	3/24, 3/25, 4/74		
Flanges IP54	4/62		
Flanges IP55	4/63		
Functional endurance	4/84		
G		O	
Grid types	4/83	Operational current	3/26
		Overload protection	3/9, 3/26, 4/74
		P	
		Pendant fixing	3/25
		Power distribution systems (grid types)	4/83
		Product configurator	5/12
		Protective sleeves	4/11, 4/61
		R	
		Retaining elements, vertical busbar runs	4/13, 4/60
		Route planning	4/70 ... 4/72
		S	
		Seals IP55	4/63
		Short-circuit protection	3/9, 3/26, 4/74, 4/81
		Siemens Industry Online Support App	5/11
		Sizes of the trunking units (cross-sections)	4/66
		Socket outlets	4/64
		Spacer bracket	4/13, 4/60
		Spacers	4/13, 4/60
		Sprinkler test	4/85
		Standard transformers	4/81
		Standards	5/14 ... 5/18
		Supporting structures	4/67
		Suspension	3/7, 3/22, 3/24, 3/25
		Suspension brackets	
		• BD01 system	3/7, 3/22

T

Tap-off points	
• BD01 system	3/6, 3/21
• BD2 system	4/62, 4/63
Tap-off units	
• BD01 system	3/4, 3/5, 3/6, 3/9, 3/13 ... 3/18
• BD2 system	4/8 ... 4/10, 4/14, 4/20, 4/50 ... 4/58, 4/72
Temperature characteristic	3/26, 4/76
Touch protection	4/82
Trunking units	
• BD01 system	3/3, 3/10, 3/11
• BD2 system	4/4, 4/5, 4/15 ... 4/18, 4/22 ... 4/29
• Optional lengths	4/73
• Position of fire barrier	4/88, 4/89
• Standard lengths	4/73

V

Vertical installation	4/71, 4/79
Voltage drop	3/27, 4/76

W

Wall mounting	3/24, 4/13, 4/60
---------------------	------------------

Appendix

Type reference list

Type	Device	Page	Type	Device	Page
BD01 system			BD2 system		
BD01-...	Trunking units.....	3/11	BD2-...-S...	Trunking units.....	4/22 ... 4/29
BD01-...-E	Feeding units	3/12	BD2-...-EE	End feeding units	4/46 ... 4/49
BD01-...-KB	Joint blocks	3/22	BD2-...-K...	Junction units (K-units).....	4/36, 4/37, 4/44, 4/45
BD01-...-R...	Junction units, flexible.....	3/12	BD2-...-L...	Junction units (L-units)	4/30, 4/31, 4/34, 4/35, 4/38, 4/39, 4/42, 4/43
BD01-AK...	Tap-off units	3/13 ... 3/18	BD2-...-ME	Center feeding units	4/48, 4/49
BD01-AK...-IP55	Accessories IP55 for tap-off units	3/21	BD2-...-R	Junction units, flexible	4/36, 4/37, 4/44, 4/45
BD01-B	Fixing brackets for trunking units	3/22	BD2-...-T...	Junction units (T-units)	4/36, 4/37, 4/44, 4/45
BD01-BA, -BAP	Suspension brackets for trunking units.....	3/22	BD2-...-VE	Distribution feeding units	4/48, 4/49
BD01-EF	End flange.....	3/22	BD2-...-Z...	Junction units (Z-units).....	4/32, 4/33, 4/40, 4/41
BD01-FAS	Accessories IP55 for tap-off points.....	3/21	BD2-...-BB	Fixing brackets	4/60
BD01-FES	Accessories IP55 for feeding units	3/21	BD2-...-D	Protective sleeve	4/61
BD01-FS	Accessories IP55 for connections	3/21	BD2-...-EBAL	Cable entry plates	4/61
BD01-GK...	Ancillary equipment units.....	3/19 ... 3/20	BD2-...-FE	End flanges	4/60
BD01-K	Coding sets for tap-off points	3/22	BD2-...-FS	Flanges for IP55	4/63
BD01-KS	Accessories IP55 for feeding units	3/21	BD2-...-HF	Flanges for IP54, upright.....	4/62
BD01-R...	Junction units, flexible.....	3/12	BD2-...-KR	Cabling boxes	4/61
BD01-S90	Fire barrier.....	3/22	BD2-...-MBAL	Cable entry plates	4/61
			BD2-...-SK	Joint blocks	4/60
			BD2-...-VF	Flanges for IP54, vertical.....	4/62
			BD2-AG	Adapter enclosure for socket outlets	4/64
			BD2-AK...	Tap-off units	4/50 ... 4/58
			BD2-AK...-IP55	Seals IP55 for tap-off units	4/63
			BD2-AP...	Adapter plates for socket outlets	4/64
			BD2-B...	Mountings.....	4/60, 4/61
			BD2-CEE...	CEE socket outlets	4/64
			BD2-FF, -FAS	Flanges for IP54, IP55	4/62, 4/63
			BD2-GK...	Ancillary equipment units.....	4/59
			BD2-SD...	SCHUKO socket outlets	4/64

Article No.	Device	Page
BD01 system		
BVP:.....	Parts for busbar trunking systems	3/11 ... 3/22
BD2 system		
BVP:.....	Parts for busbar trunking systems	4/22 ... 4/64

Appendix

Conditions of sale and delivery

Overview

By using this catalog you can acquire hardware and software products described therein from Siemens AG subject to the following terms. Please note! The scope, the quality and the conditions for supplies and services, including software products, by any Siemens entity having a registered office outside of Germany, shall be subject exclusively to the General Terms and Conditions of the respective Siemens entity. The following terms apply exclusively for orders placed with Siemens AG.

For customers with a seat or registered office in Germany

The "General Terms of Payment" as well as the "General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry" shall apply.

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General

The dimensions are in mm. In Germany, according to the German law on units in measuring technology, data in inches only apply to devices for export.

Illustrations are not binding.

Insofar as there are no remarks on the corresponding pages, - especially with regard to data, dimensions and weights given - these are subject to change without prior notice.

The prices are in € (Euro) ex works, exclusive packaging.

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The surcharge will be calculated on the basis of the official price on the day prior to receipt of the order or prior to the release order.

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You will find

- an exact explanation of the metal factor
- the text of the Comprehensive Terms and Conditions of Sale and Delivery of Siemens AG

in the Internet under
www.siemens.com/automation/salesmaterial-as/catalog/en/terms_of_trade_en.pdf

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Siemens shall not be obligated to fulfill this agreement if such fulfillment is prevented by any impediments arising out of national or international foreign trade or customs requirements or any embargoes or other sanctions.

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Therefore, any export requiring a license is subject to approval by the competent authorities.

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AL	<p>Number of the <u>German Export List</u></p> <p>Products marked other than "N" require an export license. In the case of software products, the export designations of the relevant data medium must also be generally adhered to.</p> <p>Goods labeled with an "AL" not equal to "N" are subject to European or German export authorization when being exported out of the EU.</p>
ECCN	<p><u>Export Control Classification Number</u></p> <p>Products marked other than "N" are subject to a reexport license to specific countries.</p> <p>In the case of software products, the export designations of the relevant data medium must also be generally adhered to.</p> <p>Goods labeled with "ECCN" not equal to "N" are subject to US re-export authorization.</p>

Even without a label, or with label "AL:N" or "ECCN:N", authorization may be required due to the final end-use and destination for which the goods are to be used.

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Errors excepted and subject to change without prior notice.

Further information can be obtained from our branch offices listed at www.siemens.com/automation/partner**System Solutions for Industry
Interactive Catalog on DVD**

Catalog

Products for Automation and Drives, Low-Voltage Power Distribution and Electrical Installation Technology **CA 01****Building Control**

GAMMA Building Control ET G1

Drive Systems

SINAMICS G130 Drive Converter Chassis Units	D 11
SINAMICS G150 Drive Converter Cabinet Units	
SINAMICS GM150, SINAMICS SM150 Medium-Voltage Converters	D 12
SINAMICS PERFECT HARMONY GH180 Medium-Voltage Air-Cooled Drives Germany Edition	D 15.1
SINAMICS G180 Converters – Compact Units, Cabinet Systems, Cabinet Units Air-Cooled and Liquid-Cooled	D 18.1
SINAMICS S120 Chassis Format Units and Cabinet Modules	D 21.3
SINAMICS S150 Converter Cabinet Units	
SINAMICS DCM DC Converter, Control Module	D 23.1
SINAMICS DCM Cabinet	D 23.2
SINAMICS and Motors for Single-Axis Drives	D 31
SINAMICS G120P and SINAMICS G120P Cabinet pump, fan, compressor converters	D 35
Three-Phase Induction Motors SIMOTICS HV, SIMOTICS TN	D 84.1
• Series H-compact	
• Series H-compact PLUS	
Asynchronous Motors Standardline	D 86.1
Synchronous Motors with Permanent-Magnet Technology, HT-direct	D 86.2
DC Motors	DA 12
SIMOREG DC MASTER 6RA70 Digital Chassis Converters	DA 21.1
SIMOREG K 6RA22 Analog Chassis Converters	DA 21.2
<i>Digital: SIMOREG DC MASTER 6RM70 Digital Converter Cabinet Units</i>	DA 22
SIMOVERT PM Modular Converter Systems	DA 45
SIEMOSYN Motors	DA 48
MICROMASTER 420/430/440 Inverters	DA 51.2
MICROMASTER 411/COMBIMASTER 411	DA 51.3
SIMODRIVE 611 universal and POSMO	DA 65.4

Note: Additional catalogs on SIMODRIVE or SINAMICS drive systems and SIMOTICS motors with SINUMERIK and SIMOTION can be found under Motion Control

Low-Voltage Three-Phase-Motors

SIMOTICS Low-Voltage Motors	D 81.1
SIMOTICS FD Flexible Duty Motors	D 81.8
LOHER Low-Voltage Motors	D 83.1
MOTOX Geared Motors	D 87.1
SIMOGEAR Geared Motors	MD 50.1
SIMOGEAR Gearboxes with adapter	MD 50.11

Mechanical Driving Machines

FLENDER Standard Couplings	MD 10.1
FLENDER High Performance Couplings	MD 10.2
FLENDER SIG Standard industrial gear unit	MD 30.1
FLENDER SIP Standard industrial planetary gear units	MD 31.1

Process Instrumentation and Analytics

Field Instruments for Process Automation	FI 01
<i>Digital: SIPART Controllers and Software</i>	MP 31
Products for Weighing Technology	WT 10
<i>Digital: Process Analytical Instruments</i>	PA 01
<i>Digital: Process Analytics, Components for the System Integration</i>	PA 11

Digital: These catalogs are only available as a PDF or an E-Book.

**Low-Voltage Power Distribution and
Electrical Installation Technology**

Catalog

SENTRON · SIVACON · ALPHA Protection, Switching, Measuring and Monitoring Devices, Switchboards and Distribution Systems	LV 10
Standards-Compliant Components for Photovoltaic Plants	LV 11
Electrical Components for the Railway Industry	LV 12
<i>Digital: TÜV-certified Power Monitoring System</i>	LV 14
3WT Air Circuit Breakers up to 4000 A	LV 35
3VT Molded Case Circuit Breakers up to 1600 A	LV 36
<i>Digital: SIVACON System Cubicles, System Lighting and System Air-Conditioning</i>	LV 50
<i>Digital: ALPHA Distribution Systems</i>	LV 51
ALPHA FIX Terminal Blocks	LV 52
SIVACON S4 Power Distribution Boards	LV 56
SIVACON 8PS Busbar Trunking Systems	LV 70
<i>Digital: DELTA Switches and Socket Outlets</i>	ET D1

Motion Control

SINUMERIK & SIMODRIVE Automation Systems for Machine Tools	NC 60
SINUMERIK & SINAMICS Equipment for Machine Tools	NC 61
SINUMERIK 840D sl Type 1B Equipment for Machine Tools	NC 62
SINUMERIK 808 Equipment for Machine Tools	NC 81.1
SINUMERIK 828 Equipment for Machine Tools	NC 82
SIMOTION, SINAMICS S120 & SIMOTICS Equipment for Production Machines	PM 21
Drive and Control Components for Cranes	CR 1

Power Supply

Power supply SITOP	KT 10.1
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Safety Integrated

Safety Technology for Factory Automation	SI 10
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SIMATIC HMI/PC-based Automation

Human Machine Interface Systems/ PC-based Automation	ST 80/ ST PC
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SIMATIC Ident

Industrial Identification Systems	ID 10
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SIMATIC Industrial Automation Systems

Products for Totally Integrated Automation	ST 70
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Add-ons for the SIMATIC PCS 7 Process Control System	ST PCS 7 AO

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SIRIUS Industrial Controls

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