



Operating Instructions



MOVITRANS® Installation Material TCS, TVS, TLS



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1 General information

1.1 About this documentation

The documentation at hand is the original.

This documentation is an integral part of the product. The documentation is intended for all employees who perform work on the product.

Make sure this documentation is accessible and legible. Ensure that persons responsible for the systems and their operation as well as persons who work on the product independently have read through the documentation carefully and understood it. If you are unclear about any of the information in this documentation or if you require further information, contact SEW-EURODRIVE.

1.2 Other applicable documentation

Observe the corresponding documentation for all additional components.

1.3 Structure of the safety notes

1.3.1 Meaning of signal words

The following table shows the graduation and meaning of the signal words in the safety notes.

Signal word	Meaning	Consequences if not observed
▲ DANGER	Imminent danger	Death or severe injuries
▲ WARNING	Possibly dangerous situation	Death or severe injuries
▲ CAUTION	Possibly dangerous situation	Minor injuries
NOTICE	Possible damage to property	Damage to the product or its environment
INFORMATION	Useful information or tip: Simplifies handling of the product.	

1.3.2 Structure of section-related safety notes

Section-related safety notes do not apply to a specific action but to several actions pertaining to one subject. The hazard symbols used either indicate a general hazard or a specific hazard.

This is the formal structure of a safety note for a specific section:



SIGNAL WORD

Type and source of hazard.

Possible consequence(s) if disregarded.

- Measure(s) to prevent the hazard.

1.3.3 Structure of embedded safety notes

Embedded safety notes are directly integrated into the instructions just before the description of the dangerous step.

This is the formal structure of an embedded safety note:

▲ SIGNAL WORD! Type and source of danger. Possible consequence(s) if disregarded. Measure(s) to prevent danger.

1.4 Decimal separator in numerical values

In this document, a period is used to indicate the decimal separator.

Example: 30.5 kg

1.5 Rights to claim under limited warranty

Read the information in this documentation. This is essential for fault-free operation and fulfillment of any rights to claim under limited warranty. Read the documentation before you start working with the product.

1.6 Product names and trademarks

The product names mentioned in this documentation are trademarks or registered trademarks of the respective titleholders.

1.7 Copyright notice

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2 Safety notes

2.1 Preliminary information

The following general safety notes serve the purpose of preventing injury to persons and damage to property. They primarily apply to the use of products described in this documentation. If you use additional components, also observe the relevant warning and safety notes.

2.2 Duties of the user

As the user, you must ensure that the basic safety notes are observed and complied with. Make sure that persons responsible for the machinery and its operation as well as persons who work on the device independently have read through the documentation carefully and understood it.

As the user, you must ensure that all of the work listed in the following is carried out only by qualified specialists:

- Setup and installation
- Installation and connection
- Startup
- Maintenance and repairs
- Shutdown
- Disassembly

Ensure that the persons who work on the product pay attention to the following regulations, conditions, documentation, and information:

- The national and regional regulations governing safety and the prevention of accidents
- Product safety label on the product
- All other associated project planning documents, installation and startup instructions, as well as wiring diagrams
- Do not assemble, install or operate damaged products
- All system-specific specifications and regulations

Ensure that systems in which the product is installed are equipped with additional monitoring and protection devices. Observe the applicable safety regulations and legislation governing technical work equipment and accident prevention regulations.

2.3 Target group

Specialist for mechanical work

Any mechanical work may be performed only by adequately qualified specialists. Specialists in the context of this documentation are persons who are familiar with the design, mechanical installation, troubleshooting, and maintenance of the product, and who possess the following qualifications:

- Qualifications in the field of mechanics in accordance with the national regulations
- Familiarity with this documentation

Specialist for electrotechnical work	Any electrotechnical work may be performed only by electrically skilled persons with a suitable education. Electrically skilled persons in the context of this documentation are persons who are familiar with electrical installation, startup, troubleshooting, and maintenance of the product, and who possess the following qualifications: • Qualifications in the field of electrical engineering in accordance with the national regulations • Familiarity with this documentation
Additional qualifications	In addition to that, these persons must be familiar with the valid safety regulations and laws, as well as with the requirements of the standards, directives, and laws specified in this documentation. The persons must have the express authorization of the company to operate, program, parameterize, label, and ground devices, systems, and circuits in accordance with the standards of safety technology.
Instructed persons	All work in the areas of transport, storage, installation, operation and waste disposal may only be carried out by persons who are trained and instructed appropriately. These instructions must enable the persons to carry out the required activities and work steps safely and in accordance with regulations.

2.4 Designated use

The product is intended for installation in electrical systems.

The product is intended for stationary use in industrial and commercial systems with contactless energy transfer systems.

During installation, the product must not be taken into operation until it has been determined that the system complies with all the applicable local laws and guidelines. For Europe, Machinery Directive 2006/42/EC as well as the Low Voltage Directive 2014/35/EU apply. Observe EN 60204-1 (Safety of machinery – electrical equipment of machines).

Technical data and information on the connection conditions are provided in chapter "Technical data" in the documentation. Always comply with the data and conditions.

Unintended or improper use of the product may result in severe injury to persons and damage to property.

2.4.1 Restrictions under the European WEEE Directive 2012/19/EU

Options and accessories from SEW-EURODRIVE may only be used in combination with products from SEW-EURODRIVE.

2.5 Functional safety technology

If the documentation does not expressly permit it, the product must not perform any drive safety functions without higher-level safety systems.

2.6 Transport

Inspect the shipment for damage as soon as you receive the delivery. Inform the shipping company immediately about any damage. If the product or the packaging is damaged, do not assemble, install, connect, or start up the product. If the packaging is damaged, the product itself may also be damaged.

Observe the following notes when transporting the device:

- Ensure that the product is not subject to mechanical impact.
- Before transportation, cover the connections with the supplied protection caps.
- Only place the product on the cooling fins or on the side without connectors during transportation.
- Always use all attachment points if available. The attachment points are designed to carry only the mass of the product. Do not apply any additional loads.

If necessary, use suitable, adequately dimensioned transport aids.

Observe the notes on the climatic conditions in accordance with chapter "Technical data" in the corresponding product manual.

2.7 Installation/assembly

Ensure that the product is installed and cooled in accordance with the regulations in the documentation.

Protect the product from excessive mechanical strain. The product and its mounted components must not protrude into the path of persons or vehicles. Ensure that no components are deformed or no insulation spaces are modified, particularly during transportation. Electrical components must not be mechanically damaged or destroyed.

Observe the notes in chapter "Mechanical installation" in the documentation.

2.7.1 Restrictions of use

The following applications are prohibited unless the device is explicitly designed for such use:

- Use in potentially explosive areas.
- Use in areas exposed to harmful oils, acids, gases, vapors, dust, and radiation.
- Operation in applications with impermissibly high mechanical vibration and shock loads in excess of the regulations stipulated in EN 60068-2-6 and/or EN 60068-2-27.
- Operation at an elevation of more than 2000 m above sea level.

2.8 Protective separation

The product meets all requirements for protective separation of power and electronics connections in accordance with IEC 61800-5-1. The connected signal circuits must meet requirements according to SELV (**S**afety **E**xtra **L**ow **V**oltage) or PELV (**P**rotective **E**xtra **L**ow **V**oltage) to ensure protective separation. The installation must meet the requirements for protective separation.

In order to avoid exceeding the permitted contact voltages in SELV or PELV power circuits in the event of a fault, continuous equipotential bonding is required in the vicinity of these power circuits. If this is not possible, other protective measures must be taken. These protective measures are described in IEC 61800-5-1.

2.9 Electrical connection

Observe the following notes for the electrical connection of MOVITRANS® units:

- Do not connect or disconnect any cables, plug connectors or conductor rails while they are energized.
- Observe applicable national accident prevention guidelines when working on live parts of MOVITRANS® units.
- Perform electrical installation according to the pertinent regulations (e.g. cable cross-sections, fusing, protective conductor connection). For any additional information, refer to the applicable documentation.
- Protective measures and protection devices must correspond to the regulations in force (e.g. EN 60204-1 or EN 50178).

Required protective measures:	• Ground the units
Required protection device:	• Overcurrent protection devices for supply system leads

- Take suitable steps to ensure that the protective measures and protection devices described in the operating instructions for the individual MOVITRANS® units have been implemented correctly.

2.10 Electromagnetic fields

Observe ICNIRP 2010 and IEEE C95.1-2019 or the national installation regulations, for example DGUV regulation 15 - "Electromagnetic fields", when installing, starting up and operating systems with a contactless energy transfer system based on the inductive principle in the vicinity of workplaces. For more information on electromagnetic fields, refer to the manual "MOVITRANS® Protective Measures and Planning Information for Systems".

2.11 Startup/operation

Observe the following notes during startup and operation of the MOVITRANS® units:

- Only electrical specialists with the appropriate accident prevention training are allowed to perform installation, startup, and service work on the units. These specialists must also comply with the regulations in force (e.g. EN 60204, VBG 4, DIN-VDE 0100/0113/0160) when performing this work.
- Never install damaged units or put these into operation.
- Do not deactivate monitoring and protection devices even for a trial run.
- Use appropriate measures to ensure that the system does not start up unintentionally when the supply system is switched on.
- Depending on the degree of protection, MOVITRANS® units may have live, uninsulated, and sometimes moving or rotating parts, as well as hot surfaces during operation.
- When the unit switch is in the ON position, dangerous voltages are present at the output terminals as well as in any connected cables, terminals, and MOVITRANS® units. Dangerous voltages can occur even if the supply unit is blocked and the system is standing still.
- The fact that the operation LED and other display elements on the supply unit are no longer illuminated does not indicate that the unit and connected MOVITRANS® units have been disconnected from the supply system and no longer carry any voltage.
- Unit-internal safety functions can result in the stopping of the system. Removing the cause of the problem or performing a reset can result in the system restarting automatically. If this is not permitted for safety reasons, first disconnect the supply unit from the supply system and then correct the cause of the problem.
- Disconnect the units from the supply system before removing the protective cover. Dangerous voltages can still be present in the units and the connected MOVITRANS® units up to 10 minutes after disconnecting from the supply system.
- Before working on the MOVITRANS® line cable system and line cable system components, discharge the line cable system to ground to divert any residual charges to earth capacitance.
- Wear appropriate personal protective equipment during assembly, particularly when soldering the TLS line cable.

3 Device structure

3.1 TCS compensation box

3.1.1 Type designation

The type designation of the TCS compensation box comprises the following characteristic data:

TCS10	MOVITRANS® stationary compensation box	
.	Housing protection class:	
	A	Housing in protection class I
	B	Housing in protection class II
-		
E	Increased degree of protection IP65	
.	Frequency:	
	0 or A	25 kHz
	B	50 kHz
.	Line cable current:	
	6	60 A
	8	85 A
-		
...	Compensation capacity:	
	042	418 nF (60 A / 50 kHz)
	090	900 nF (60 A / 25 kHz and 60 A / 50 kHz)
	120	1224 nF (85 A / 25 kHz)
	209	2090 nF (85 A / 25 kHz and 60 A / 25 kHz)
-		
.	Design of the flange plates / connections:	
	1	4 x M25, 4 x M25
	3	2 x M32, 2 x M32

3.1.2 Scope of delivery

The following components are included in the scope of delivery of the TCS10B compensation box:

TCS10B

Compensation box	Scope of delivery
TCS10B-E...-1	1 TCS compensation box with mounted blanking plugs
TCS10B-E...-3	2 M8 combi pan head screws, each with lock washer and washer 1 M5 combi pan head screw with lock washer and washer 1 insulation insert

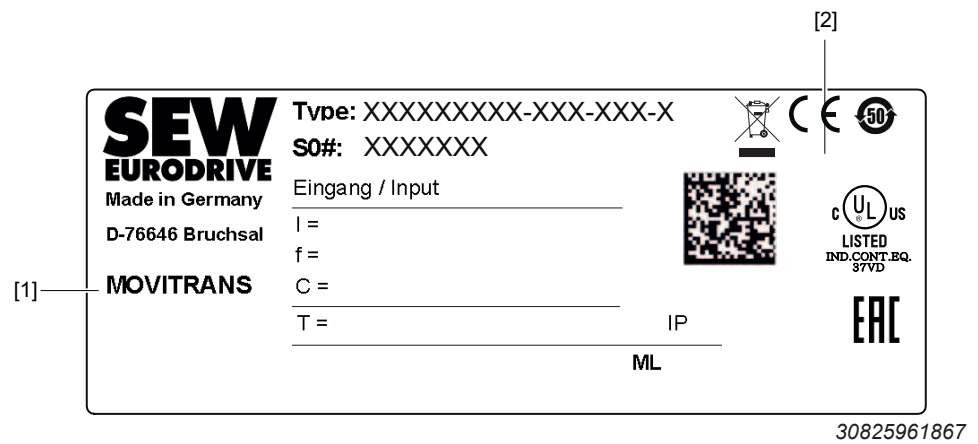
Accessories

The following cable glands and thread reductions are available as accessories for the TCS10A and TCS10B compensation boxes:

Accessories	Part number	Scope of delivery
TCS-PACK-4 accessories	28266366	2 × M25 × 1.5 with sealing insert for the wedge-shaped cable TLS10K003-03-1 2 x reduction adapters M32 x 1.5 to M25 x 1.5
Accessories set 1	28313143	12 × plastic reduction adapters M32 to M25
Accessories set 2	28313151	12 × M25 plastic screw fittings (for TLS10E025-01-1)
Accessories set 3	28313178	12 × M32 plastic screw fittings (for TLS10E041-01-1 and TLS10E006-06-1)
Accessories set 4	28313186	12 × M32 sealing insert + 12 × M32 plastic screw fittings (for 2 × TLS10E008-01-1)
Accessories set 5	28313194	12 × M25 sealing insert + 12 × M25 plastic screw fitting (for TLS10K003-03-1)
Accessories set 6	28313208	12 × M25 sealing insert + 12 × M25 plastic screw fittings (for 2 × TLS10E003-01-1)
Accessories set 7	28313216	24 × M25 to M20 plastic reduction adapters + 24 × screw fitting (for TLS10E008-01-1)

3.1.3 Nameplate

The nameplate lists information about the product type. The following figure shows an example of a nameplate:



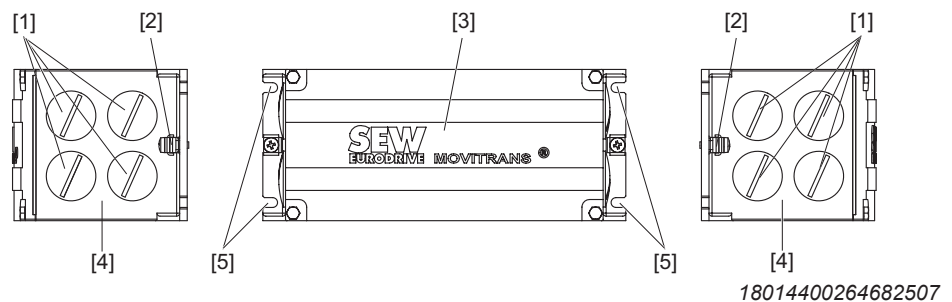
- [1] Product name
[2] Approval identification

Depending on the product design, the following information is listed on the nameplate:

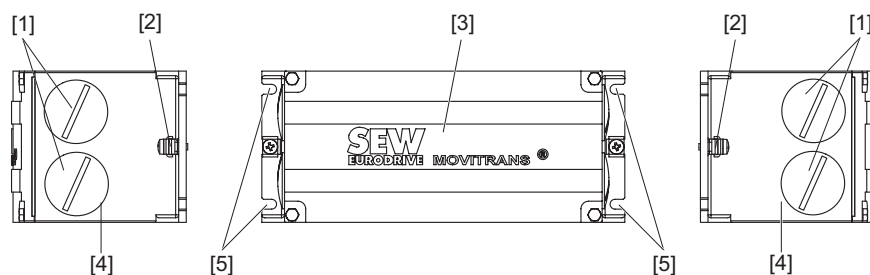
Value	Specification
Type	Type designation
SO#	Serial number
I	Current
f	Frequency
T	Ambient temperature
IP	Degree of protection

3.1.4 Device overview

The following figure shows the TCS compensation box:



- [1] 4 x M25 blanking plugs
[2] Ground connection
[3] TCS compensation box
[4] Flange plate
[5] Mounting holes for fastening



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- [1] 2 x M32 blanking plugs
 [2] Ground connection
 [3] TCS compensation box

- [4] Flange plate
 [5] Mounting holes for fastening

TCS10B blanking plugs

The following table provides the number and size of blanking plugs for the two flange plates of the individual TCS compensation boxes, and their protection class.

TCS type compensation box	Number and size of blanking plugs		Protection class
	Flange plate 1	Flange plate 2	
TCS10B-EB6-042-1	4 × M25	4 × M25	II
TCS10B-EB6-090-1	4 × M25	4 × M25	II
TCS10B-EA6-090-1	4 × M25	4 × M25	II
TCS10B-EA8-120-1	4 × M25	4 × M25	II
TCS10B-EA8-120-3	2 × M32	2 × M32	II
TCS10B-EA8-209-1	4 × M25	4 × M25	II
TCS10B-EA8-209-3	2 × M32	2 × M32	II

Other capacities and designs are available on request.

3.1.5 Functional principle

The TCS compensation box is used to compensate the track inductance.

3.2 TVS connection distributor

3.2.1 Type designation

The type designation of the connection distributor comprises the following characteristic data:

TVS10

TVS10	MOVITRANS® stationary connection distributor	
.	Housing protection class:	
	A	Housing in protection class I
	B	Housing in protection class II
-		
E	Increased degree of protection IP65	
..	Line cable current:	
	06	60 A
	08	85 A
-		
000	Compensation capacity: not integrated	
-		
.	Design of the flange plates / connections:	
	1	4 x M25, 2 x M32
	2	2 x M32, 2 x M32

3.2.2 Scope of delivery

TVS10A

The following components are included in the scope of delivery of the TVS10A connection distributor:

Connection distributor	Scope of delivery
TVS10A-E06-000-1	1 connection distributor with mounted blanking plugs 3 M5 combi pan head screws with lock washer and washer 16 hex nuts M6 16 jumpers
TVS10A-E08-000-1	1 connection distributor with mounted blanking plugs
TVS10A-E08-000-2	1 M5 combi pan head screw with lock washer and washer 4 hex nuts M8 4 jumpers

TVS10B

The following components are included in the scope of delivery of the TVS10B connection distributor for line cable voltages of 60 A:

Connection distributor	Scope of delivery
TVS10B-E06-000-1	1 connection distributor with mounted blanking plugs 3 M5 combi pan head screws with lock washer and washer 16 hex nuts M6 16 jumpers 1 insulation insert
TVS10B-E08-000-1	1 connection distributor with mounted blanking plugs
TVS10B-E08-000-2	1 M5 combi pan head screw with lock washer and washer 4 hex nuts M8 4 jumpers 1 insulation insert

Accessories

The following cable glands and thread reductions are available as accessories for the TVS connection distributor:

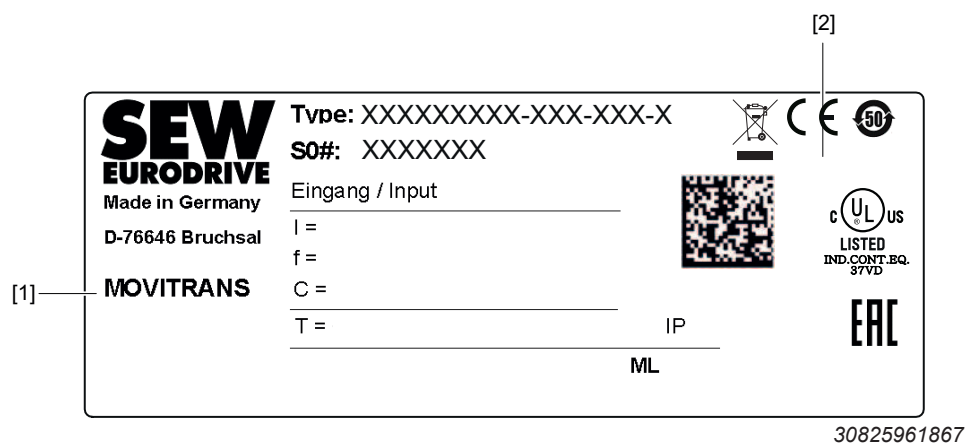
Accessories	Part number	Scope of delivery
TVS-PACK-1 accessories	28269985	2 x M32 x 1.5 EMC 3 x M25 x 1.5 EMC (20 mm) 3 x PE conductor (6 mm², 26 cm, RT: M5/M6) 1 x M25 x 1.5 metal screw plug
TCS-PACK-4 accessories	28266366	2 x M25 x 1.5 with sealing insert for the wedge-shaped cable TLS10K003-03-1 2 x reduction adapters M32 x 1.5 to M25 x 1.5
Accessories set 1	28313143	12 x plastic reduction adapters M32 to M25
Accessories set 2	28313151	12 x M25 plastic screw fittings (for TLS10E025-01-1)
Accessories set 3	28313178	12 x M32 plastic screw fittings (for TLS10E041-01-1 and TLS10E006-06-1)
Accessories set 4	28313186	12 x M32 sealing insert + 12 x M32 plastic screw fittings (for 2 x TLS10E008-01-1)
Accessories set 5	28313194	12 x M25 sealing insert + 12 x M25 plastic screw fitting (for TLS10K003-03-1)

Accessories	Part number	Scope of delivery
Accessories set 6	28313208	12 × M25 sealing insert + 12 × M25 plastic screw fittings (for 2 × TLS10E003-01-1)
Accessories set 7	28313216	24 × M25 to M20 plastic reduction adapters + 24 × screw fitting (for TLS10E008-01-1)

For further information about the TVS-PACK-1 accessories, see the product manual "MOVITRANS® Synchronization decentralized supply unit TES31A".

3.2.3 Nameplate

The nameplate lists information about the product type. The following figure shows an example of a nameplate:



[1] Product name

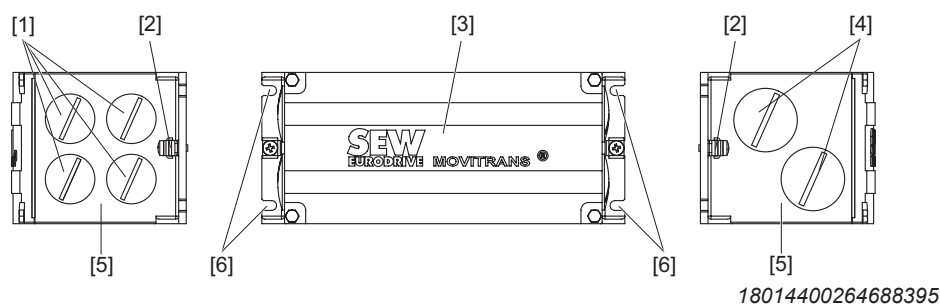
[2] Approval identification

Depending on the product design, the following information is listed on the nameplate:

Value	Specification
Type	Type designation
SO#	Serial number
I	Current
f	Frequency
T	Ambient temperature
IP	Degree of protection

3.2.4 Device overview

The following figure shows the TVS connection distributor:



[1] 4 x M25 blanking plugs

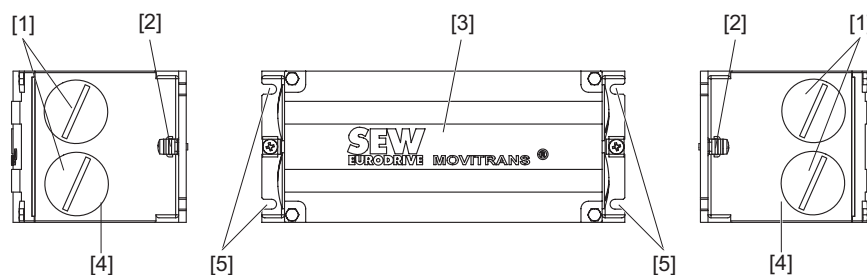
[2] PE connection

[3] TVS connection distributor

[4] 2 x M32 blanking plugs

[5] Flange plate

[6] Mounting holes for fastening



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- | | | | |
|-----|----------------------------|-----|------------------------------|
| [1] | 2 x M32 blanking plugs | [4] | Flange plate |
| [2] | PE connection | [5] | Mounting holes for fastening |
| [3] | TVS connection distributor | | |

Blanking plugs

The following table provides the number and size of blanking plugs for the two flange plates of the individual TVS connection distributors, and their protection class.

TVS10A

TVS connection distributor type	Number and size of blanking plugs		Protection class
	Flange plate 1	Flange plate 2	
TVS10A-E06-000-1	2 × M32	4 × M25	I
TVS10A-E08-000-1			I
TVS10A-E08-000-2	2 × M32	2 × M32	I

TVS10B

TVS connection distributor type	Number and size of blanking plugs		Protection class
	Flange plate 1	Flange plate 2	
TVS10B-E06-000-1	2 × M32	4 × M25	II
TVS10B-E08-000-1			II
TVS10B-E08-000-2	2 × M32	2 × M32	II

3.2.5 Functional principle

The TVS connection distributor is used for:

- Connecting the TLS supply cable to the energy transfer system.
- Connecting the TLS line cable of various energy transfer systems.

3.3 TLS line cable and supply cable

3.3.1 Type designation

The type designation of the line cables comprises the following characteristic data:

TLS10E

TLS10E	MOVITRANS® stationary high frequency line cable	
...	Cable cross section:	
	003	3 millimeters ²
	006	6 millimeters ²
	008	8 millimeters ²
	025	25 millimeters ²
	041	41 millimeters ²
-		
..	Design:	
	01	Single-core
	06	6-core
-		
1	Design: Standard	

TLS10K

TLS10K	MOVITRANS® stationary high frequency line cable	
...	Cable cross section:	
	003	3 × 3 mm ²
-		
..	Design:	
	03	3-core
-		
1	Design: Standard	

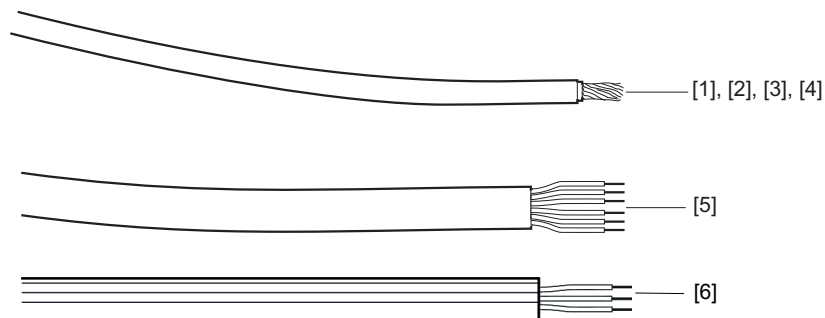
3.3.2 Scope of delivery

The following components are included in the scope of delivery of the TLS line cable / supply cable:

TLS line cable / supply cable	Part number	Scope of delivery
TLS10E006-06-1	13227793	TLS line cable / supply cable of the desired length (Indicate the desired length in meters when ordering.)
TLS10E003-01-1	25671073	
TLS10E008-01-1	13227742	
TLS10E025-01-1	13227769	
TLS10E041-01-1	13227777	
TLS10K003-03-1	25639455	An M25 screw fitting with special sealing profile is available for the TLS10K003-03-1 wedge-shaped cable
Accessories	Part number	Scope of delivery
Stripping pliers for wedge-shaped cable TLS10K003-03-1	25679244	1 × stripping pliers
TCS-PACK-4 accessories	28266366	2 × M25 × 1.5 with sealing insert for the wedge-shaped cable TLS10K003-03-1 2 x reduction adapters M32 x 1.5 to M25 x 1.5

3.3.3 Device overview

The following figure shows the TLS line cable / supply cable:



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- [1] TLS10E003-01-1 line cable cross section 3 mm²
- [2] TLS10E008-01-1 line cable cross section 8 mm²
- [3] TLS10E025-01-1 line cable cross section 25 mm²
- [4] TLS10E041-01-1 line cable cross section 41 mm²
- [5] TLS10E006-06-1 supply cable cross section 6 × 6 mm²
- [6] TLS10K003-03-1 wedge-shaped cable cross section 3 × 3 mm²

The figure is not true to scale, but rather designed as a schematic diagram.

3.3.4 Functional principle

INFORMATION



The round line cables TLS10E003-01-1 with the cable cross section of 3 mm² and TLS10E008-01-1 with the cable cross section of 8 mm² are only permitted for U-shaped pick-ups. The line cables TLS10E025-01-1, TLS10E041-01-1, and TLS10K003-03-1 with cable cross sections of 25 mm², 41 mm², and 3 x 3 mm² are only permitted for flat pick-ups.

INFORMATION



The supply line to the line cable TLS10E006-06-1 can either be installed fixed or as a trailing cable. A single laid supply line is approved for a maximum of 60 A. A double laid supply line is approved for a maximum of 85 A.

TLS10E003-01-1 line cable

- Medium-frequency cable for TDM U-shaped transformer unit
- Laying as current loop in the TIS90C cable holder (further information in the operating instructions "MOVITRANS® line TIS90C installation components")

TLS10E008-01-1 line cable

- Medium-frequency cable for THM U-shaped transformer unit
- Laying as current loop in the TIS20A cable holder (further information in the operating instructions "MOVITRANS® line TIS20A installation components" 25 kHz or 50 kHz)

TLS10E025-01-1 / TLS10E041-01-1 / TLS10K003-03-1 line cables:

- Medium-frequency cable for flat THM/TDM transformer head
- Laying as current loop or in the floor

TLS10E006-06-1 supply cable:

- Fine-wire litz wires as supply cable to the energy transfer system
- Fixed installation (e.g. in the cable duct) or as drag-chain cable

3.4 Coil body

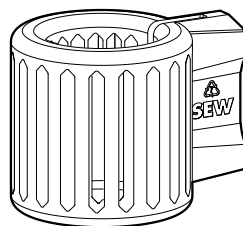
3.4.1 Scope of delivery

The following components are included in the scope of delivery of the coil body:

Component	Part number	Scope of delivery
Coil body	27712788	1 × coil body

3.4.2 Unit overview

The following figure shows the coil body (without line cable):



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3.4.3 Functional principle

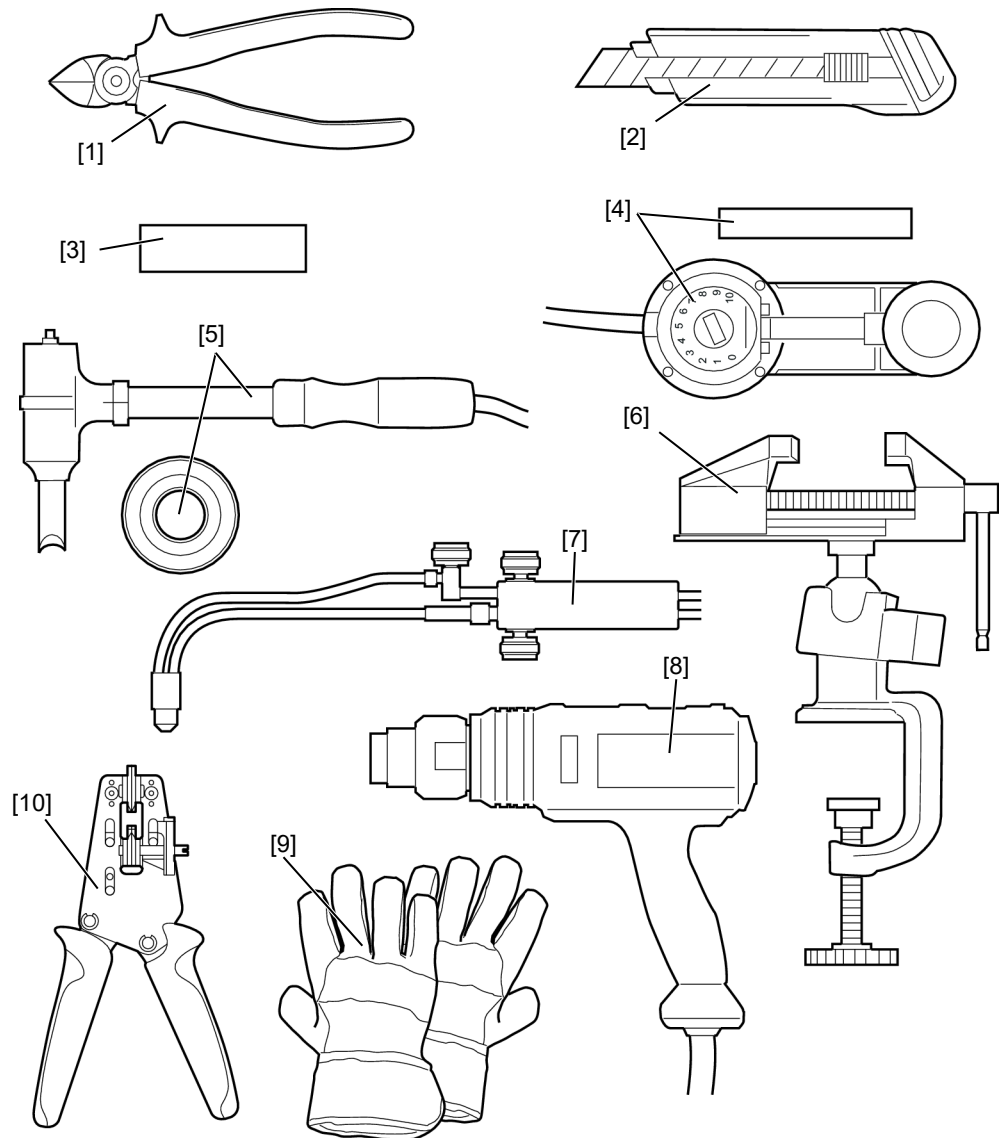
The coil body is required for the inductive compensation at very short transmission paths. To establish the inductive compensation, you must wrap a line cable around the coil cable.

For details, refer to chapter "Establishing inductive compensation" (→ 49).

4 Electrical installation

4.1 Tools

The tools that are required for assembling the TLS line cables are shown below:



9007240623927179

- [1] Diagonal cutting pliers
- [2] Safety knife
- [3] Heat shrink tubing
- [4] Soldering pot
- [5] Hatchet-type soldering iron, alternatively gas torch
- [6] Vise and 2 wooden boards for clamping the cable lugs
- [7] Gas torch, alternatively hatchet-type soldering iron
- [8] Hot air gun
- [9] Work gloves
- [10] Stripping pliers

4.2 Assembly of the line cable

4.2.1 Cable type

The line cables are designed as medium-frequency cables.

4.2.2 Procedure

INFORMATION



When using cable lugs, observe the size of the respective connection bolts. Use the appropriate M8 cable lugs for M8 connection bolts. For cable lug types, refer to chapter "Technical data" (→  52).

INFORMATION



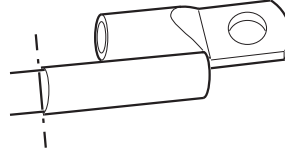
When assembling the line cables, the ends are soldered to a cable lug. Crimping of the cable lugs is not permitted!

If you have a soldering pot, it is best to use method 1 for cable assembly: "Cable assembly with soldering pot".

Preparing the cable for soldering

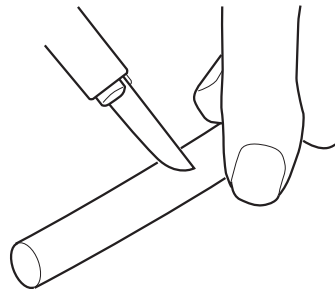
To assemble the line cable, proceed as follows:

1. Slide the heat shrink tubing over the end of the cable.
2. Mark the length that you want to strip.



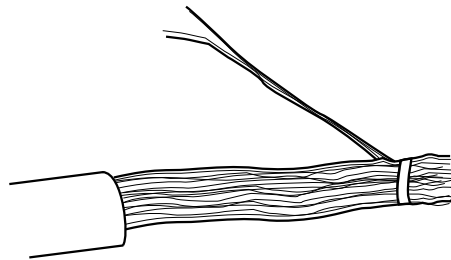
9007199424826379

3. Remove the insulation.



28376343947

4. Bundle the litz wire with an enameled copper wire.

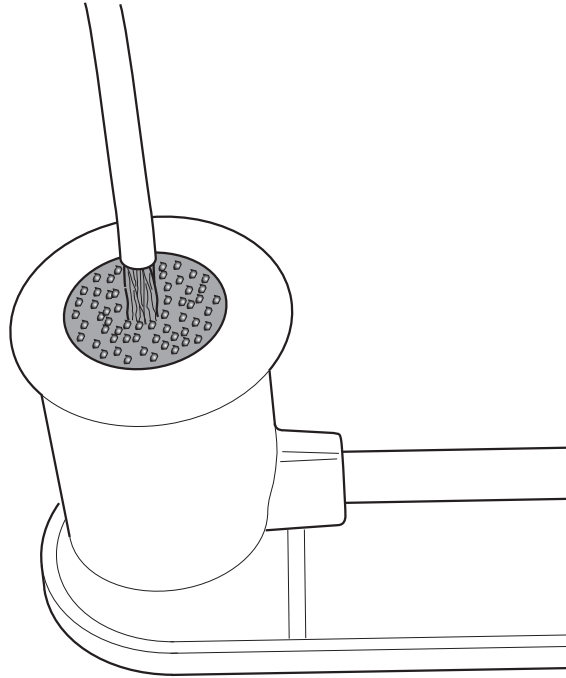


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5. Select one of the following 2 methods to strip the insulation (enamel layer) from the individual wires and solder the cable lug:

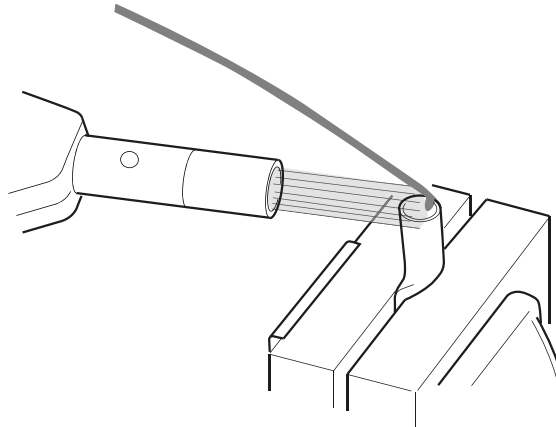
Method 1: Cable assembly with soldering pot

1. **⚠ CAUTION!** Danger of burns due to hot solder. Injury.
Wear heat-resistant gloves when working with a with soldering pot, gas torch, or hatchet-type soldering iron.
2. Hold the stripped cable end in the soldering pot until the insulation of the individual wires melts and floats to the top of the soldering cup.



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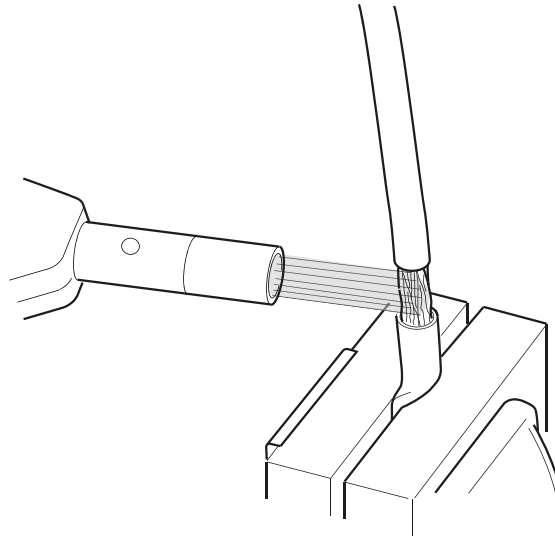
3. Fill the cable lug with a little solder.



9007204870554635

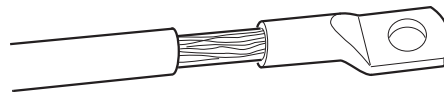
4. Insert the cable end in the cable lug.

5. Heat the cable lug again with the hatchet-type soldering iron, gas torch or hot air dryer. Add more solder, if necessary.



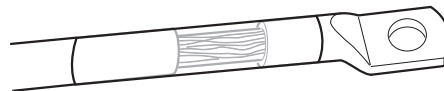
9007204870558219

6. Cut the heat shrink tubing in such a way that it completely covers the insulation of the TLS line cable inside the housing up to the cable gland. For use in UL-approved systems, use UL-approved heat shrink tubing (permitted operating temperature at least 105 °C).
7. Push the heat shrink tubing over the soldering point.



9007199424832907

8. Heat the shrink tubing until it closes tightly around the soldering point.

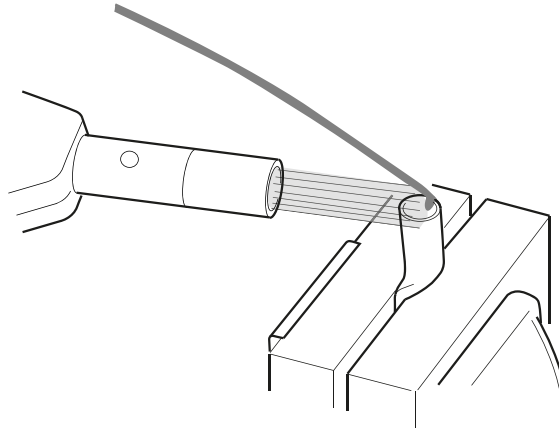


9007199424830731

9. To ensure that the contact surfaces of the cable lug lie flat on the connection surface after assembly, clean the contact surfaces of the cable lug from paint and tin residues.

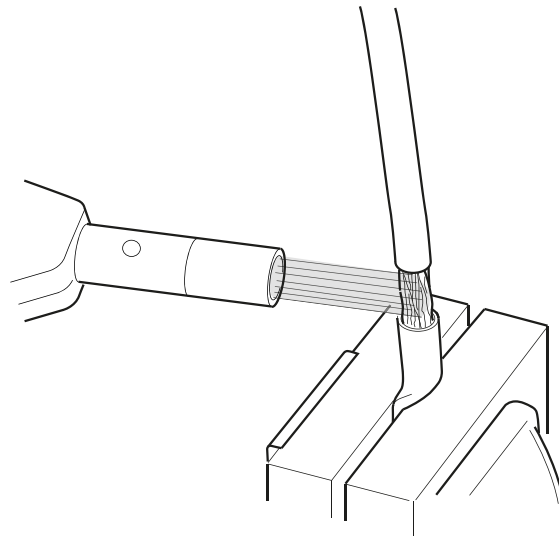
Method 2: Cable assembly without soldering pot

1. **⚠ CAUTION!** Danger of burns due to hot solder. Injury.
Wear heat-resistant gloves when working with a with soldering pot, gas torch, or hatchet-type soldering iron.
2. Fill the cable lug with a little solder:



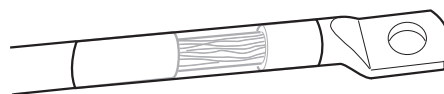
9007204870554635

3. Insert the stripped cable end in the cable lug.
4. Heat the cable lug with the hatchet-type soldering iron, gas torch or hot air dryer until the insulation of the individual wires melts and leaks out of the cable lug as brown waste. Add more solder, if necessary.



9007204870558219

5. Remove the waste.
6. Push the shrinking tube over the soldering point.
7. Heat the shrink tubing with the hot air dryer until it closes tightly around the soldering point.



9007199424830731

8. Remove any coating and solder residue from the contact surfaces of the cable lug so that the lug is flush with the connection surface after assembly.

4.3 Assembly of the supply cable

4.3.1 Cable outlet

The TLS10E006-06-1 supply cable is a six-core cable. There are 3 blue cores and 3 black ones. In the supply cable, the conductor wires are not insulated against one another. Three cores of the same color are used as outgoing cables or return cables.

4.3.2 Procedure

INFORMATION



When using cable lugs, observe the size of the respective connection bolts. Use the appropriate M8 cable lugs for M8 connection bolts. For cable lug types, refer to chapter "Technical data" (→ 52).

INFORMATION

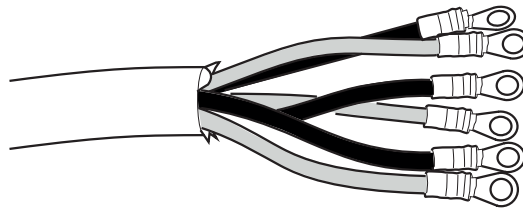


When assembling the supply cable, the cable lugs can be crimped. Crimping of the cable lugs is permitted for the TLS10E006-06-1 supply cable with a cable cross section of $6 \times 6 \text{ mm}^2$!

To assemble the supply cable, proceed as follows:

Use a standard tool to crimp each conductor end with a ring cable lug.

The following figure shows the supply cable with ring cable lugs:

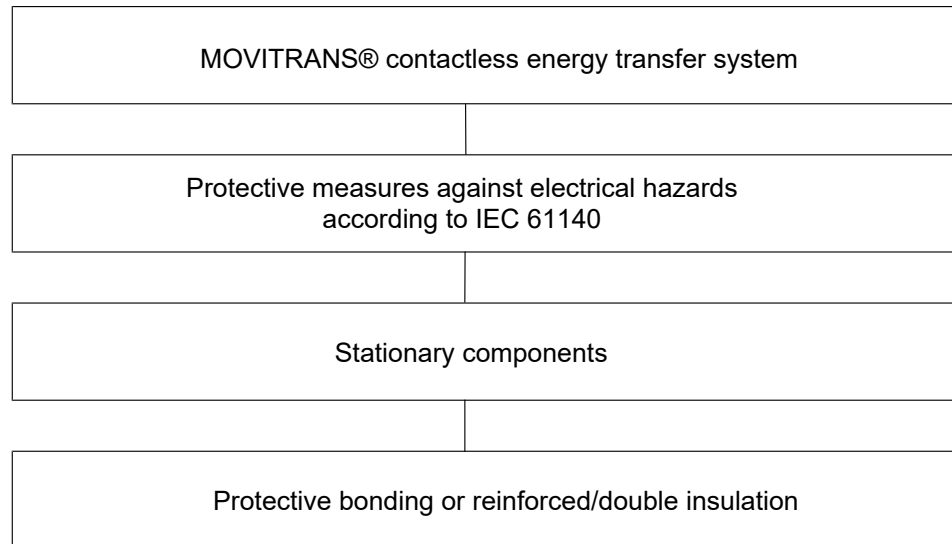


41209777419

4.4 Protective measures against electrical hazards

4.4.1 Overview

The following figure provides an overview of the protective measures against electrical hazards according to DIN EN 61140 (IEC 61140:2016):



9007225053307531

4.4.2 Installing ground connection or equipotential bonding



⚠ WARNING

Electric shock due to faulty ground connection or faulty protective bonding.
Severe or fatal injuries.

- Make sure you install the ground connection and protective bonding correctly.

You must protect all electrical operating resources, such as the device or the motor, using ground connection or protective bonding.

4.4.3 Earth connection of the TVS connection distributor

Guidelines

The TVS10A connection distributor is equipment of protection class I.

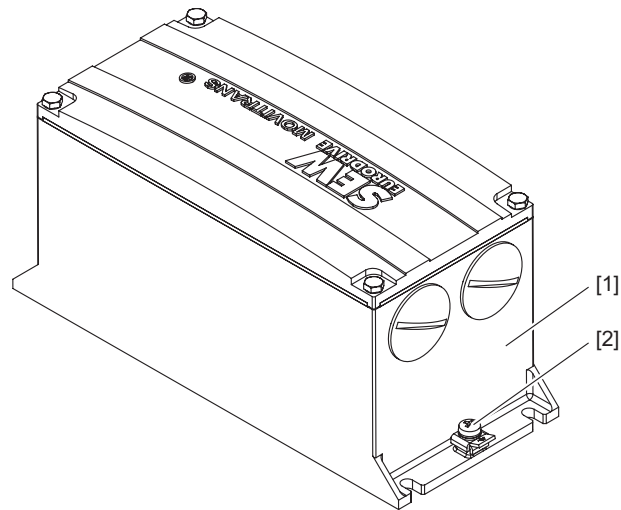
Observe the following guidelines for the earth connection of the TVS10A connection distributor:

- Ground the unit using the shortest possible route.
- Use a green/yellow grounding cable.

Procedure

Proceed as follows to ground the TVS10A connection distributor:

1. Connect the earth connection (cable cross section 16 mm²) to the local ground potential (e.g. to an aluminum rail of electrified monorail systems).



1757384715

4.4.4 Earth connection of the compensation box / connection distributor

Guidelines

The TCS10B compensation box and the TVS10B connection distributor are qualified as equipment of protection class II.

If there is a risk of external voltage effects, e.g. from a 50/60 Hz line voltage, you may connect the ground connection (chassis) to the local PE conductor.

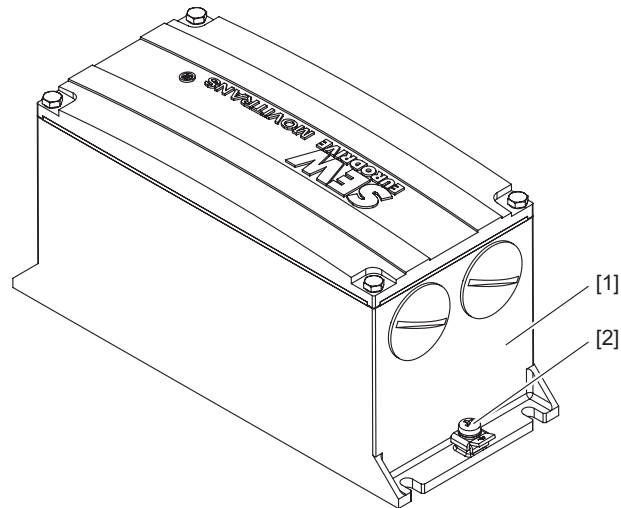
Comply with the following guideline when establishing the earth connection for the TCS10B compensation box and the TVS10B connection distributor:

- Carry out the ground connection in the shortest possible way.

Procedure

Do the following to establish ground connection for the TCS10B compensation box and the TVS10B connection distributor:

1. Connect the ground connection point with the local PE conductor.



1757655307

4.5 Connecting the TCS compensation box/TVS connection distributor



⚠ WARNING

Live parts in the system.

Severe or fatal injuries.

- Disconnect the system from the power supply before starting any procedure.
- Secure the system against an unintended restart.
- Check to ensure the system is de-energized.
- Make sure the ground connection or equipotential bonding are installed correctly.
- Cover or fence-off any adjacent live parts before opening a section of the system.

INFORMATION



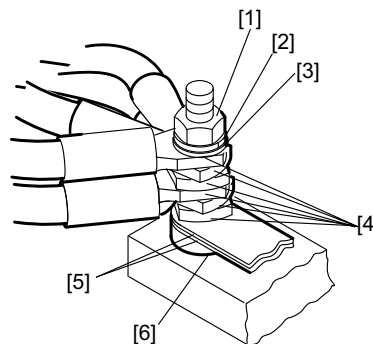
For the number and position of TCS compensation boxes and TVS connection distributors, refer to the MOVITRANS® Project Planning manual and the track layout.

INFORMATION



Observe the permitted ambient temperature range of the TCS compensation boxes, TVS connection distributors, and TLS line cables of -20 °C to +45 °C. For more information, refer to chapter "Technical data" (→ 52).

It is permitted to lay up to 6 single wires on 1 connecting bolt for the TLS supply cable. The following figure shows 6 connected single wires on 1 connection bolt:



30425916555

- [1] Hex nut
- [2] Lock washer
- [3] Washer

- [4] 6 cable lugs
- [5] 2 jumpers
- [6] Washer

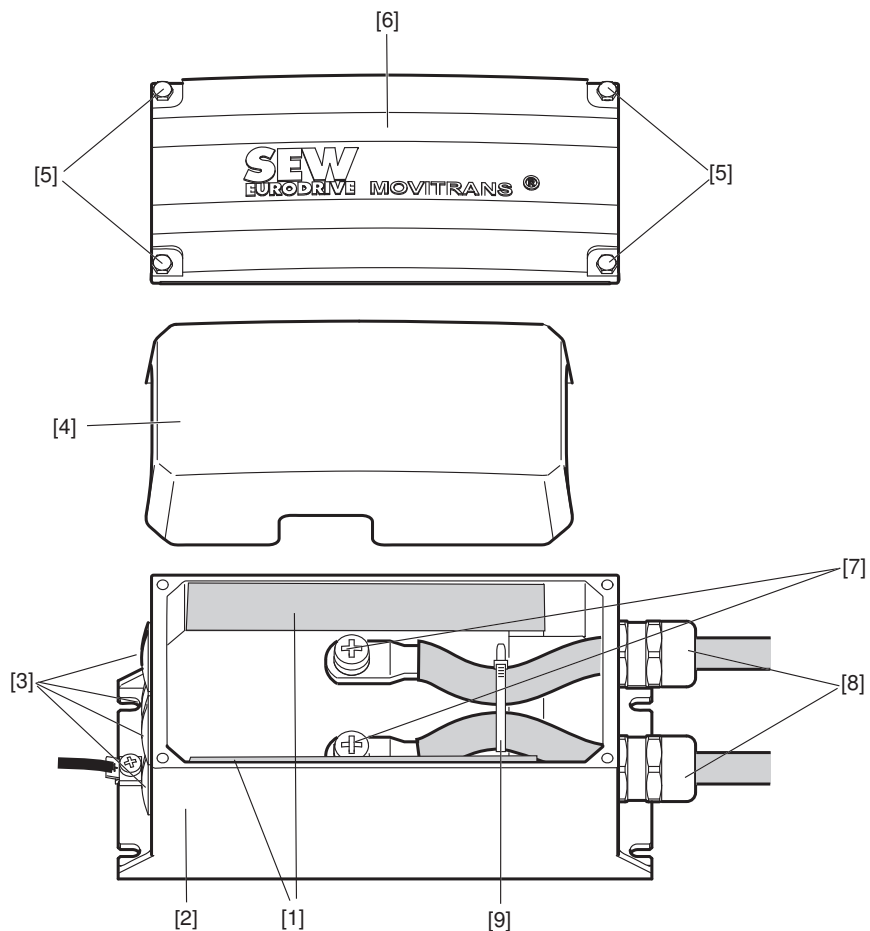
4.5.1 Connecting the TCS compensation box

INFORMATION



Make sure that the gasket is properly seated and the screws are securely tightened to ensure degree of protection IP65.

The following figure shows an example of the TLS line cable connected to the TCS10B compensation box:



18014400266045067

- | | |
|-----------------------------|---------------------------|
| [1] Nomex paper | [6] Housing cover |
| [2] TCS10B compensation box | [7] Combi pan head screws |
| [3] Blanking plugs | [8] Cable glands |
| [4] Insulation insert | [9] Cable tie |
| [5] 4 hex head screws | |

Proceed as follows to connect the line cable to the TCS compensation box:

1. Remove the blanking plugs according to the number of line cables to be connected.
2. Insert the correct number of M 25 / M 32 cable glands in place of the blanking plugs.
3. Open the compensation box. To do so, unscrew the 4 M5 hex head screws of the housing cover.
4. Remove the insulation insert from the compensation box.

5. Insert the prefabricated line cable through the cable gland into the wiring space of the compensation box.
6. Unscrew the 2 M8 combi pan head screws from the connection points on the connection board of the compensation box.
7. **▲ WARNING!** Danger due to live parts. Severe or fatal injuries.
Make sure that the cable lugs are free of dirt and solder residues. Make sure that the cable lugs can lie flat on the contact surfaces.
8. Fasten the line cables prefabricated with cable lugs loosely to the connection points on the connection board using the 2 combi pan head screws.
9. Connect the line cables with a cable tie.
10. **▲ WARNING!** Danger due to live parts. Severe or fatal injuries.
Make sure that no bare, live parts of the cable lugs touch the housing or other contacts/bolts. Maintain the insulation distance from the housing to the live parts of the cable lugs.
11. Tighten both combi pan head screws with a tightening torque of 9.0 Nm.
12. Re-insert the insulation insert. Make sure that the Nomex paper abuts between the insulating insert and the inner housing wall.
13. Attach the housing cover including the gasket using the 4 M5 hex head screws and a tightening torque of 4.0 Nm.

4.5.2 Wiring the TVS connection distributor

INFORMATION

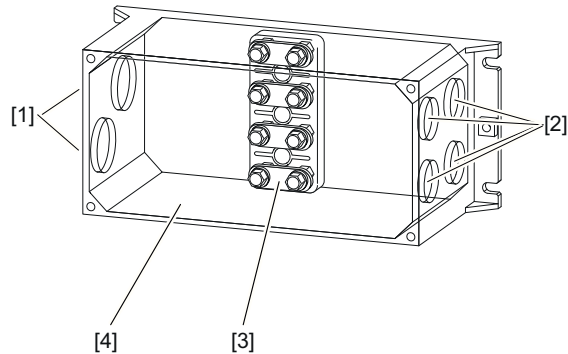


Make sure that the gasket is properly seated and the screws are securely tightened to ensure degree of protection IP65.

TVS connection distributors are divided into connection distributors for 60 A systems and connection distributors for 85 A systems.

On delivery, the following terminal connection points are jumpered with connection brackets in the connection distributors:

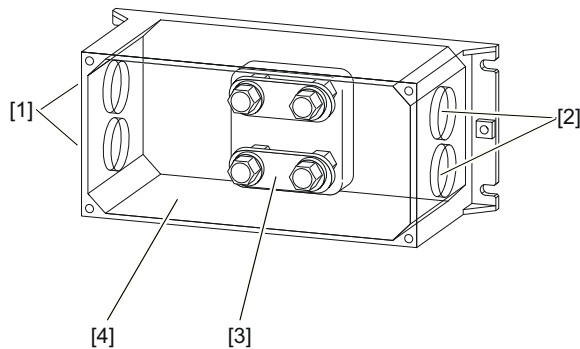
60 A system



26558889611

- [1] Blanking plugs for the connection of the TLS supply cable
- [2] Blanking plugs for the connection of TLS line cables
- [3] Connection, jumpered (with 4 superimposed connection brackets)
- [4] MOVITRANS® TVS10B-E06-000-1 and TVS10A-E06-000-1 connection distributors

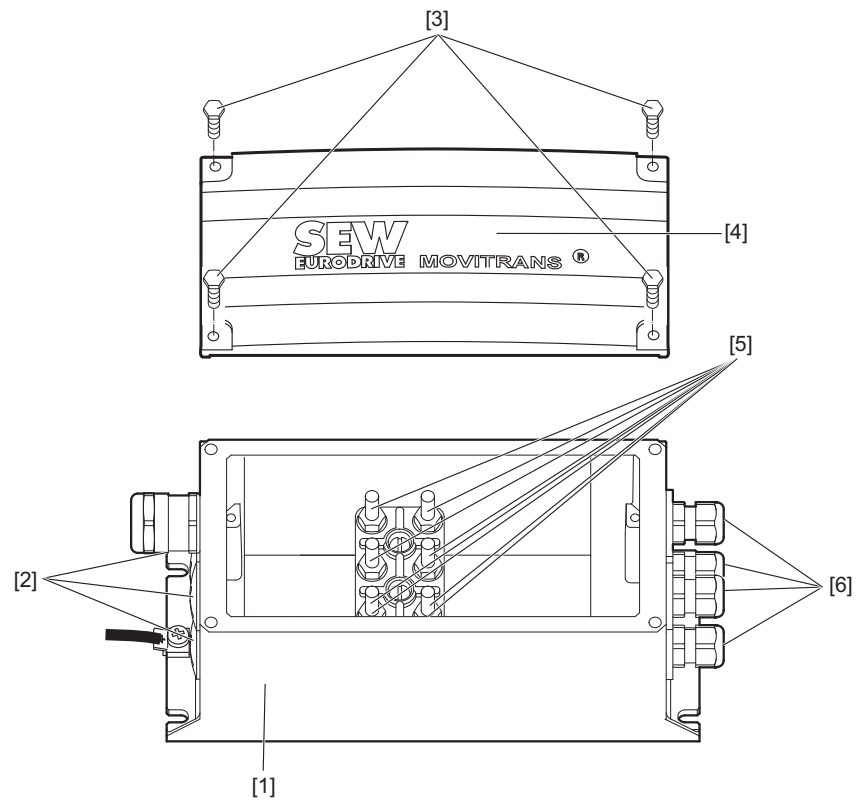
85 A system



26627312523

- [1] Blanking plugs for the connection of the TLS supply cable
- [2] Blanking plugs for the connection of TLS line cables
- [3] Connection, jumpered (with 2 superimposed connection brackets)
- [4] MOVITRANS® TVS10B-E08-000-2 and TVS10A-E08-000-2 connection distributors

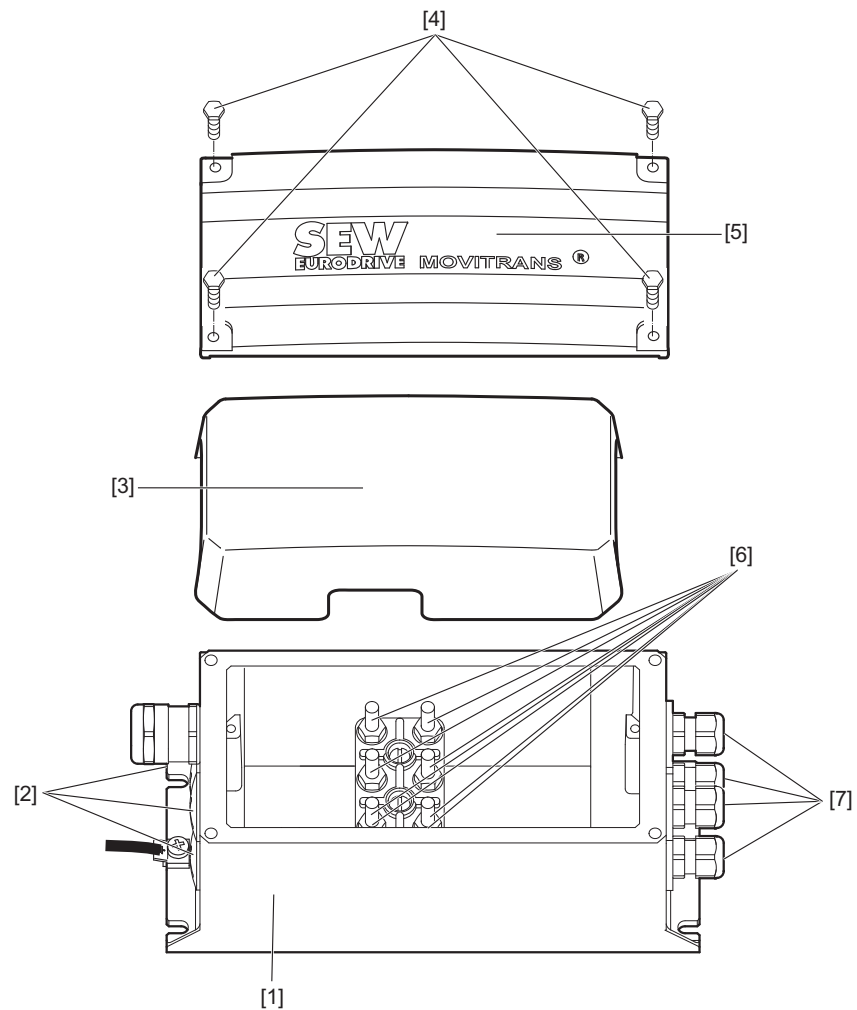
The following figure shows the TVS10A connection distributor:



31396952075

- | | | | |
|-----|-------------------------------|-----|----------------|
| [1] | TVS10A connection distributor | [4] | Housing cover |
| [2] | Blanking plugs | [5] | Terminal studs |
| [3] | 4 hex head screws | [6] | Cable glands |

The following figure shows the TVS10B connection distributor:



31396949643

- [1] TVS10B connection distributor
- [2] Blanking plugs
- [3] Insulation insert
- [4] 4 hex head screws

- [5] Housing cover
- [6] Terminal studs
- [7] Cable glands

Preparing the TVS connection distributor

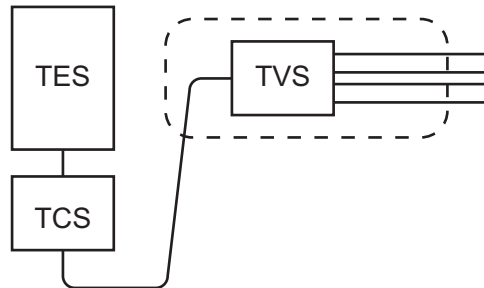
For connecting the line cable and the TLS supply cables to the TVS connection distributor, proceed as follows:

- ✓ The wire ends of the cables are equipped with cable lugs. For detailed information, refer to chapters "Assembly of the line cable" (→ 26) and "Assembly of the supply cable" (→ 31).
- 1. Remove the blanking plugs according to the number of line cables to be connected.
- 2. Insert the correct number of M 25 / M 32 cable glands in place of the blanking plugs.
- 3. Open the connection distributor. To do so, remove the four M5 hex head screws from the housing cover.
- 4. Remove the insulation insert from the TVS10B connection distributor.
- 5. Insert the prefabricated line cable through the cable gland into the wiring space of the connection distributor.
- 6. Insert the prefabricated supply cables through the cable glands into the wiring space of the connection distributor.
- 7. Remove the M6/M8 hexagon nuts from the connection thread bolts on the terminal board according to the number of line cables to be connected.
- 8. **⚠ WARNING!** Danger due to live parts. Death or severe injuries.
Make sure that the cable lugs are free of dirt and solder residues. Make sure that the cable lugs can lie flat on the contact surfaces.
- 9. Connect the jumpers according to the circuit diagram.
- 10. **⚠ WARNING!** Danger due to live parts. Death or severe injuries.
Make sure that no bare, live parts of the cable lugs touch the housing or other contacts/bolts. Maintain the insulation distance from the housing to the live parts of the cable lugs.
- 11. For the TVS10B connection distributor, additionally connect the line cables with a cable tie.

The wiring in the connection distributor varies depending on the application. The different cases are described below:

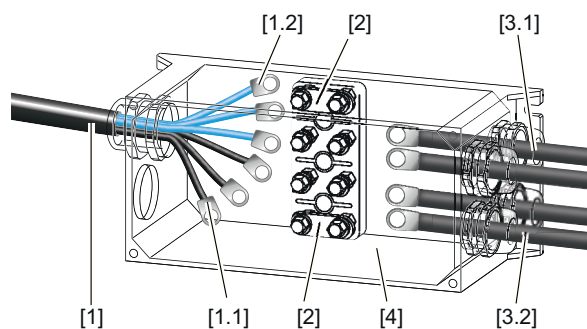
Wiring the 60 A system in a stationary section

Wiring between TVS connection distributor and supply



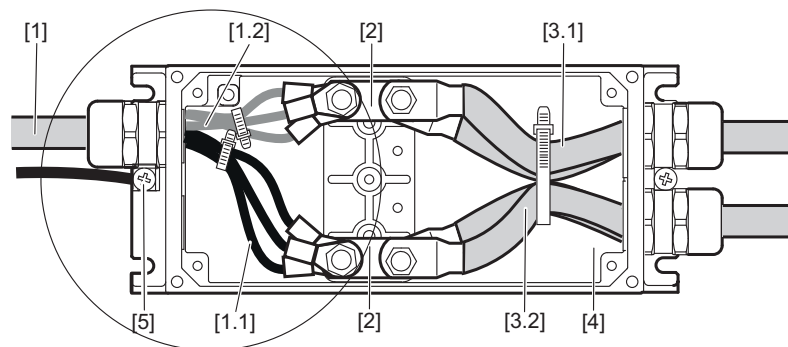
26571203083

Wiring in the connection distributor is performed as follows:



26571206667

The following figure shows the TLS supply cable connected to the connection distributor:

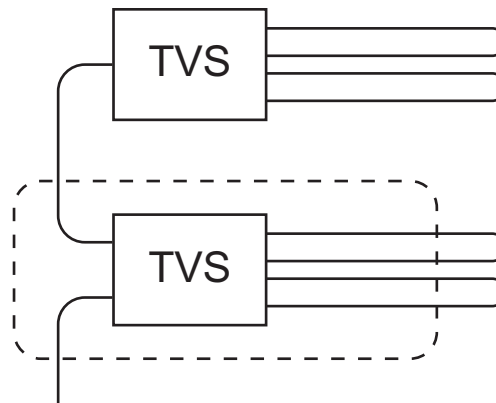


9007205069623307

- [1] MOVITRANS® supply cable TLS10E006-06-1
- [1.1] Single wires black
- [1.2] Single wires blue
- [2] Connection, jumpered (with 2 superimposed connection brackets)
- [3.1] MOVITRANS® line cable TLS10E008-01-1
- [3.2] MOVITRANS® line cable TLS10E008-01-1
- [4] MOVITRANS® connection distributor TVS10A-E06-000-1 alternatively TVS10A-E08-000-2 (not shown here)
- [5] PE connection (only for TVS10A)

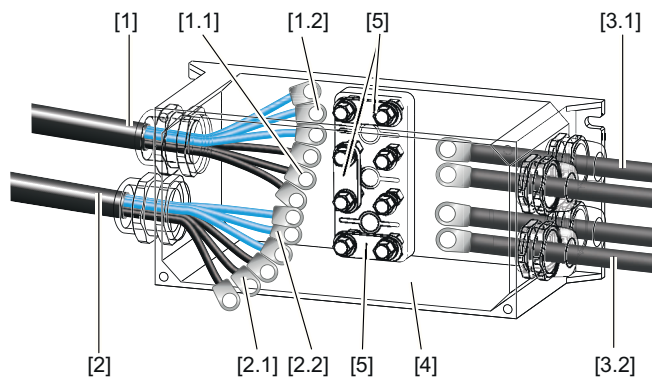
Supply cable (2×)
Return cable (2×)

Wiring several connection distributors in series (loop)



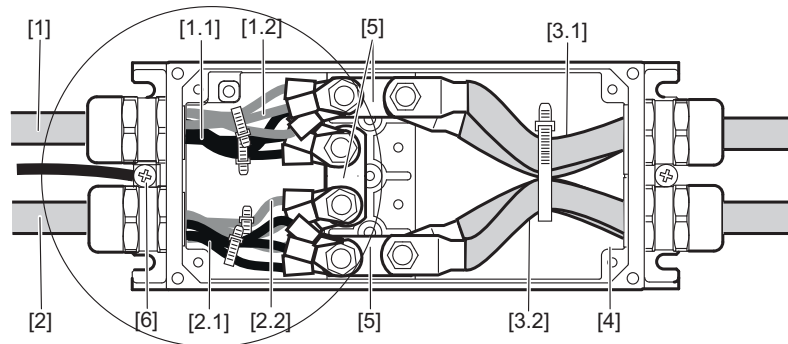
26572253451

Wiring in the connection distributor is performed as follows:



26572257547

The following figure shows an example of the TLS supply cable connected to the connection distributor:



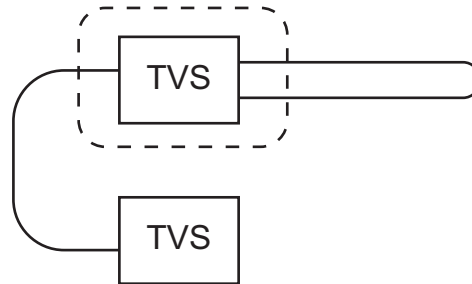
30422291979

- [1] MOVITRANS® supply cable TLS10E006-06-1
- [1.1] Single wires black
- [1.2] Single wires blue
- [2] MOVITRANS® supply cable TLS10E006-06-1
- [2.1] Single wires black
- [2.2] Single wires blue
- [3.1] MOVITRANS® line cable TLS10E008-01-1
- [3.2] MOVITRANS® line cable TLS10E008-01-1
- [4] MOVITRANS® connection distributor TVS10A-E06-000-1
alternatively TVS10A-E08-000-2 (not shown here)
- [5] Connection, jumpered (with 2 superimposed connection
brackets)
- [6] PE connection (only for TVS10A)

Supply cable (2×)
Return cable (2×)

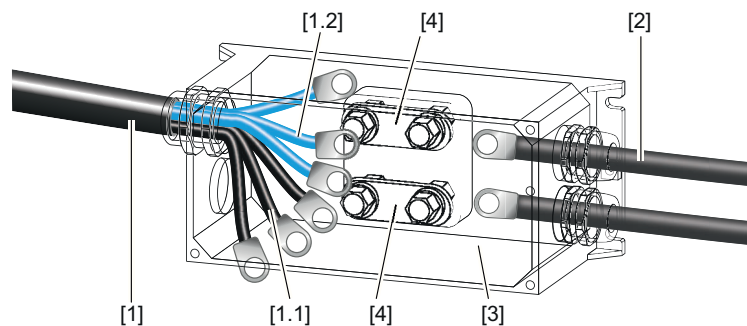
Wiring 60 A systems in a moving section

The overview shows the wiring of a TVS connection distributor in a moving section (60 A system). The lower connection distributor is the stationary connection distributor at the supply unit.



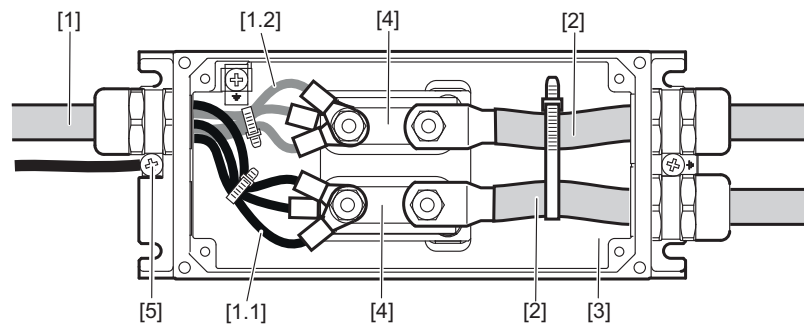
26652759819

Wiring in the connection distributor is performed as follows:



26652430091

The following figure shows an example of the TLS supply cable connected to the connection distributor:



30422297227

- [1] MOVITRANS® supply cable TLS10E006-06-1
- [1.1] Single conductors, black
- [1.2] Single conductors, blue
- [2] MOVITRANS® line cable TLS10E025-01-1 or TLS10E041-01-1
- [3] MOVITRANS® connection distributor TVS10A-E08-000-2
- [4] Connection, jumpered (with 2 superimposed connection brackets)
- [5] PE connection (only for TVS10A)

Wiring 85 A systems in a moving section

INFORMATION



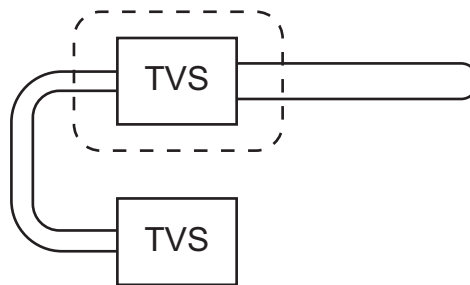
Make sure that the gasket is properly seated and the screws are securely tightened to ensure degree of protection IP65.

INFORMATION



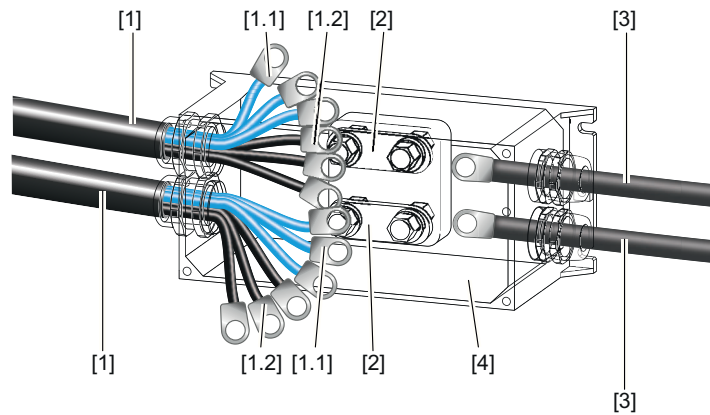
The current-carrying capacity of the TLS10E006-06-1 supply cable is 60 A. If you are using this type of cable in a system with 85 A, you must route 2 cables in parallel.

The overview shows the wiring of a TVS connection distributor in a moving section (85 A system). The lower connection distributor is the stationary connection distributor at the supply unit.



26572566923

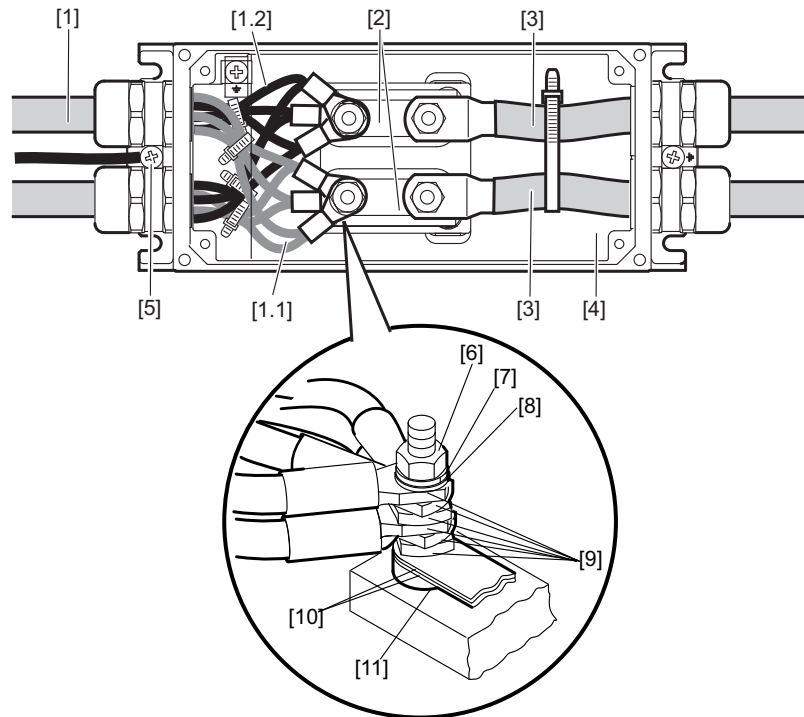
Wiring in the connection distributor is performed as follows:



26652766987

- [1] MOVITRANS® supply cable TLS10E006-06-1
- [1.1] Single conductors, blue
- [1.2] Single conductors, black
- [2] Connection, jumpered (with 2 superimposed connection brackets)
- [3] MOVITRANS® line cable TLS10E025-01-1 or TLS10E041-01-1
- [4] MOVITRANS® connection distributor TVS10B-E08-000-2

The following figure shows an example of the TLS supply cables connected to the connection distributor:

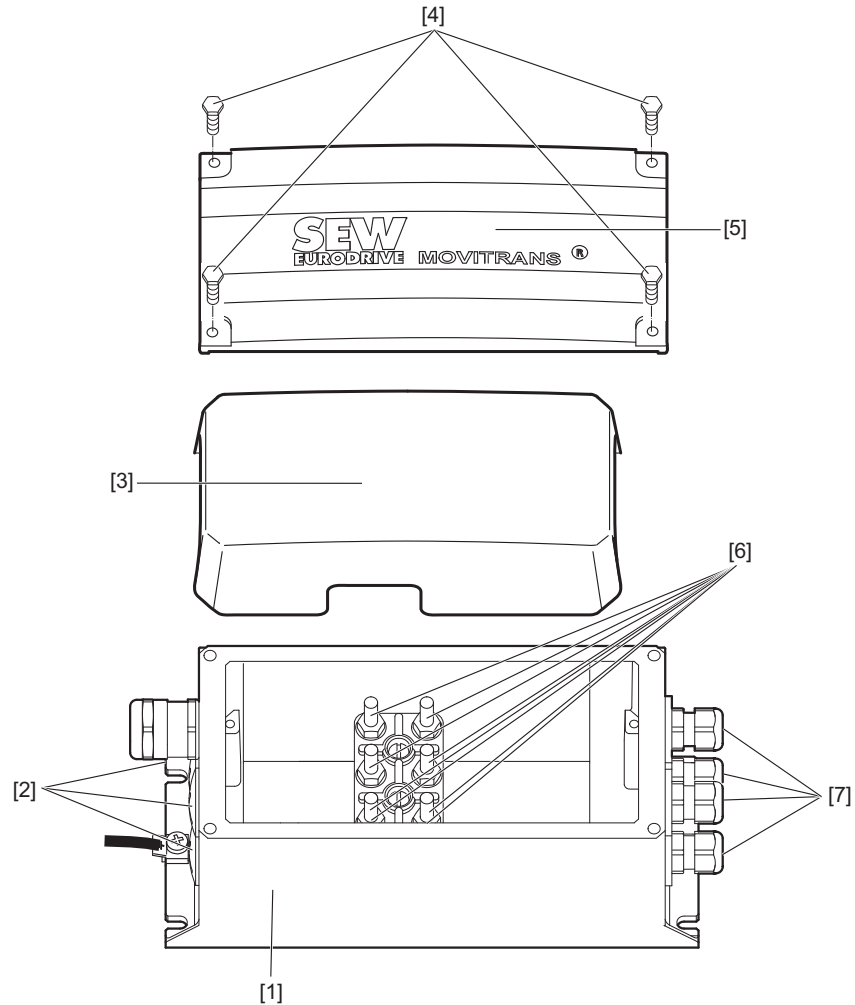


9007204735305995

- | | | | |
|-------|---|------|--------------------|
| [1] | MOVITRANS® supply cable
TLS10E006-06-1 | [6] | 1 hex nut |
| [1.1] | Single conductors, blue | [7] | 1 lock washer |
| [1.2] | Single conductors, black | [8] | 1 washer |
| [2] | Connection, jumpered (with 2 super-
imposed connection brackets) | [9] | 6 crimp cable lugs |
| [3] | MOVITRANS® line cable
TLS10E025-01-1 or
TLS10E041-01-1 | [10] | 1 washer |
| [4] | MOVITRANS® connection distributor
TVS10A-E08-000-2 | [11] | 2 jumpers |
| [5] | PE connection (only for TVS10A) | | |

Closing the TVS connection distributor

1. Tighten the M6 hex nuts with 3.0 Nm and the M8 hex nuts with 6.0 Nm.
2. Insert the insulation insert of the TVS10B connection distributor again. Make sure that the Nomex paper is fitted between insulation insert and inner wall of the housing.
3. Attach the housing cover including the gasket using the 4 M5 hex head screws and a tightening torque of 4.0 Nm.

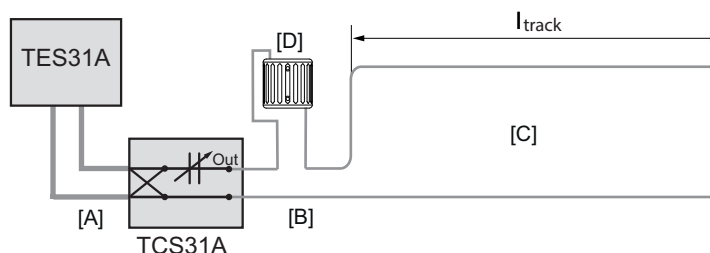


31396949643

- | | | | |
|-----|-------------------------------|-----|----------------|
| [1] | TVS10B connection distributor | [5] | Housing cover |
| [2] | Blanking plugs | [6] | Terminal studs |
| [3] | Insulation insert | [7] | Cable glands |
| [4] | 4 hex head screws | | |

4.6 Establishing inductive compensation

In the case of very short transmission paths, inductive compensation is required. In this case, you do not need a TCS10 compensation box.

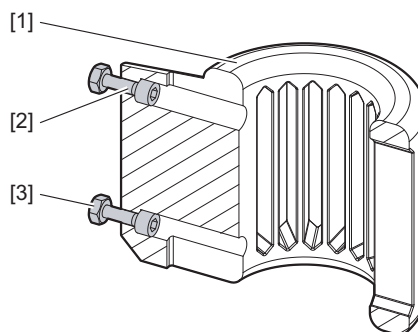


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- [A] 2 load cables ($5 \times 6 \text{ mm}^2$ including PE)
- [B] Supply cable area (line cables guided narrowly)
- [C] TLS10E025-01-1 or TLS10K003-03-1 line cable
- [D] Inductive compensation: Coil body wrapped with line cable

The inductive compensation is established with the help of the coil body wrapped with a line cable. Use the line cables TLS10E025-01-1 or TLS10K003-03-1. Proceed as follows:

1. Allow for 8 m of additional length of the line cable (TLS10E or TLS10K) for wrapping it around the coil body. In addition, take into account the connection length to the coil body (approx. $2 \times 1 \text{ m}$) and the length of the transmission path (approx. $2 \times l_{\text{track}}$).
2. Secure the coil body to the substructure by using an M10 cap screw [2] and an M10 nut [3] as shown in the figure. Make sure that you mount the coil body vertically as depicted in the figure and that the natural convection through the middle of the coil body is not hindered.
3. Tighten the nuts with a tightening torque of 15 Nm.

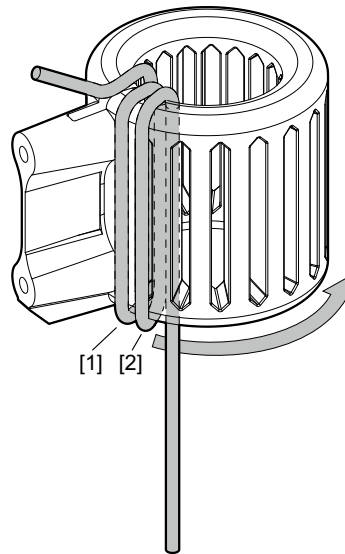


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- [1] Coil body, part number 27712788
- [2] Cap screw ISO4762 M10
- [3] M10 nut

4. According to the connection and wrapping length, feed approx. 9 m of line cable (TLS10E or TLS10K) through the coil body.

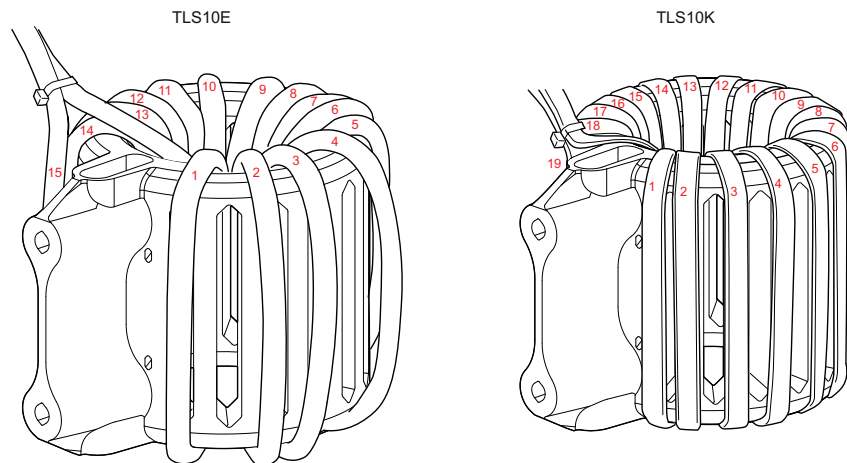
5. Begin at the holding fixture and wrap the fed-through line cable around the coil body.



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- [1] Winding 1
[2] Winding 2

6. Wrap the coil body according to the figure.
7. Make sure to use the correct number of windings: You need 15 windings for the TLS10E line cable and 19 windings for the TLS10K line cable.



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8. Wind the cable as closely as possible along the coil body.
9. Repeat the process until you have reached the last winding.
10. Secure the first and last winding with a cable tie.

For transmission paths with TLS10E008-01-1 in the TIS20A cable holder, find the installation steps in the operating instructions "MOVITRANS® line TIS20A installation components" 25 kHz or 50 kHz.

5 Service

5.1 Waste disposal

Dispose of the product and all parts separately in accordance with their material structure and the national regulations. Put the product through a recycling process or contact a specialist waste disposal company. If possible, divide the product into the following categories:

- Iron, steel or cast iron
- Stainless steel
- Magnets
- Aluminum
- Copper
- Electronic parts
- Plastics

The following materials are hazardous to health and the environment. These materials must be collected and disposed of separately:

- Oil and grease

Collect used oil and grease separately according to type. Ensure that the used oil is not mixed with solvent. Dispose of used oil and grease correctly.

- Screens
- Capacitors



Waste disposal according to WEEE Directive 2012/19/EU

This product and its accessories may fall within the scope of the country-specific application of the WEEE Directive. Dispose of the product and its accessories according to the national regulations of your country.

For further information, contact the responsible SEW-EURODRIVE branch or an authorized partner of SEW-EURODRIVE.

6 Technical data

6.1 General

6.1.1 Standards and directives

The development and verification of the MOVITRANS® TCS10B compensation box and the MOVITRANS® TVS10B connection distributor are based on the following standards:

- EN 61140 Protection against electric shock, chapter 7.3 Protection class II equipment
- EN 60417-1/2 Graphical symbols for use on equipment
- EN 60204 Safety of machinery, chapter 8 equipotential bonding

6.1.2 Approvals

The following table shows the relevant approvals for MOVITRANS® components:

Component	Type	Approval
Supply cable	TLS10E006-06-1	UL, CSA
Line cable	TLS10E003-01-1	UL
Line cable	TLS10E008-01-1	UL
Line cable	TLS10E025-01-1	UL
Line cable	TLS10E041-01-1	UL
Wedge-shaped cable	TLS10K003-03-1	UL

6.1.3 Ambient temperature

Designation	Temperature
Temperature range	-20 °C to +45 °C

6.2 TLS line cable and supply cable

6.2.1 Mechanical properties

The following table shows the mechanical properties of the TLS line cable / supply cable:

Line cable type	Cable cross section	Outer diameter	Installation type	Bending radius
	[mm ²]	[mm]		[mm]
TLS10E006-06-1	6 × 6	20.5 ±0.3	Fixed or flexible	80 / 190
TLS10E003-01-1	3	5.9 ±0.2	Fixed	18
TLS10E008-01-1	8	8.6 ±0.3		35
TLS10E025-01-1	25	12.5 ±0.4		45
TLS10E041-01-1	41	15 ±0.4		60
TLS10K003-03-1	3 × 3	6 × 13.5		18 (in x direction)

Line cable type	Current
TLS10E006-06-1	60 A
TLS10E003-01-1	30 A
TLS10E008-01-1	60 A
TLS10E025-01-1	60 A / 85 A
TLS10E041-01-1	85 A
TLS10K003-03-1	60 A

6.2.2 Electrical properties

The following table shows the electrical properties of the TLS line cable / supply cable:

Type of line cable	Insulation/sheath material	Electrical power losses ¹⁾	Operating voltage
	[mm]	[W/m]	[V]
TLS10E006-06-1	Thermoplastic / polyurethane	15 (at 60 A, 25 kHz) 17 (at 60 A, 50 kHz)	1000
TLS10E003-01-1		8 (at 30 A, 50 kHz) (2 cables laid in parallel)	1000
TLS10E008-01-1		13 (at 60 A, 25 kHz) 15 (at 60 A, 50 kHz) (2 cables laid in parallel)	1000
TLS10E025-01-1		13 (at 60 A, 25 kHz) 15 (at 60 A, 50 kHz) 25 (at 85 A, 25 kHz)	1000
TLS10E041-01-1		15 (at 85 A, 25 kHz)	1000
TLS10K003-03-1		23 (at 60 A, 25 kHz) 26 (at 60 A, 50 kHz)	1000

1) Electrical power losses per meter of track

6.2.3 Data for connecting the TLS line cable/supply cable with terminal stud M6

The following tables show the data for connecting the TLS line cables / supply cables to the TVS10.-E06-000-. connection distributor with M6 terminal stud.

With UL approval

The following table shows the data for cable lugs with UL approval:

Type of line cable	Cable lug (without UL approval)		Fastening method	Cable gland	Clamping area
	Type	Width [mm]		(plastic)	[mm]
TLS10E006-06-1	IKUMA 101036UL	11	Crimp	M32	15 – 25
TLS10E008-01-1	Klauke 3R6	12	Solder	M20	8 – 13
TLS10E025-01-1	Klauke 6SG6	15		M25	11 – 17

Without UL approval

The following table shows the data for cable lugs without UL approval:

Line cable type	Cable lug (without UL approval)		Installation method	Cable glands	Clamping area
	Type	Width [mm]		(plastic)	[mm]
TLS10E006-06-1	Klauke 6506	11	Crimping	M32	15 – 25
TLS10E008-01-1	Klauke 702F6	12	Soldering	M20	8 – 13
TLS10E025-01-1	Klauke 705F6	17		M25	11 – 17

6.2.4 Data for connecting the TLS line cable/supply cable with M8 terminal studs

The following tables show the data for connecting the TLS line cable / supply cable to the following components with M8 terminal studs:

- The TCS10 compensation box
- The TVS10.-E08-000-. connection distributor

With UL approval

The following table shows the data for cable lugs with UL approval:

Line cable type	Cable lug (with UL approval)		Fastening method	Cable gland (plastic)	Clamping area [mm]
	Type	Width [mm]			
TLS10E006-06-1	IKUMA 101038UL	14	Crimping	M32	15 – 25
TLS10E008-01-1	Klauke 3R8	15	Soldering	M20	8 – 13
TLS10E025-01-1	Klauke 6SG8	17		M25	11 – 17
TLS10E041-01-1	Klauke 7SG8	17		M32	15 – 25
TLS10K003-03-1	Klauke 3R8	15		M25	–

Without UL approval

The following table shows the data for cable lugs without UL approval:

Line cable type	Cable lug (without UL approval)		Fastening method	Cable gland (plastic)	Clamping area [mm]
	Type	Width [mm]			
TLS10E006-06-1	Klauke 6508	14	Crimping	M32	15 – 25
TLS10E008-01-1	Klauke 702F8	16	Soldering	M20	8 – 13
	Klauke 103R8	13			
TLS10E025-01-1	Klauke 705F8	18		M25	11 – 17
TLS10E041-01-1	Klauke 706F8	21		M32	15 – 25
TLS10K003-03-1	Klauke 103R8	13		M25	–

6.2.5 Tightening torques for electrical connections

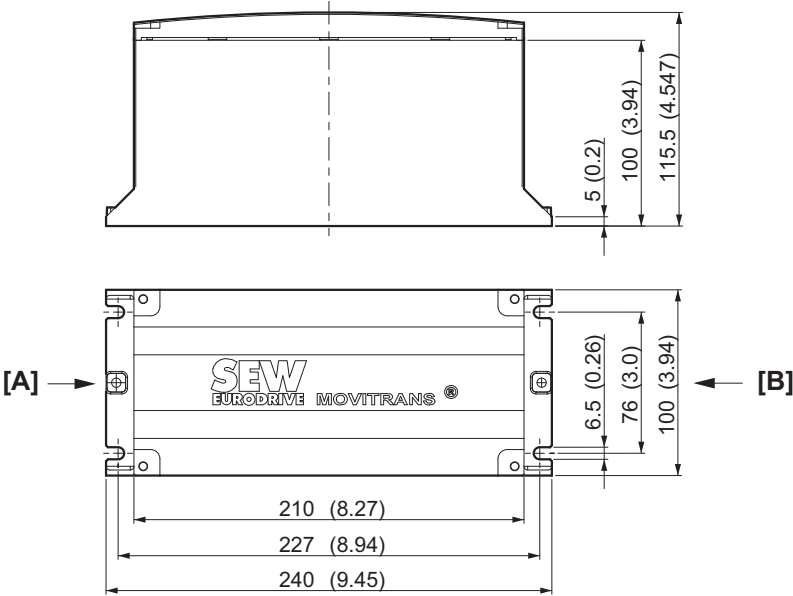
The following table shows the tightening torques for electrical connection units:

Connection unit	Type/size	Torque
TVS10.-E06 connection distributor	Nut M6	3.0 Nm
TVS10.-E08 connection distributor	Nut M8	6.0 Nm
TCS10 compensation box	Screw M8	9.0 Nm

6.3 Dimension drawings

6.3.1 TCS10 compensation box

The following figure shows the dimension drawing of the TCS10A / TCS10B compensation box with dimensions in mm (in):

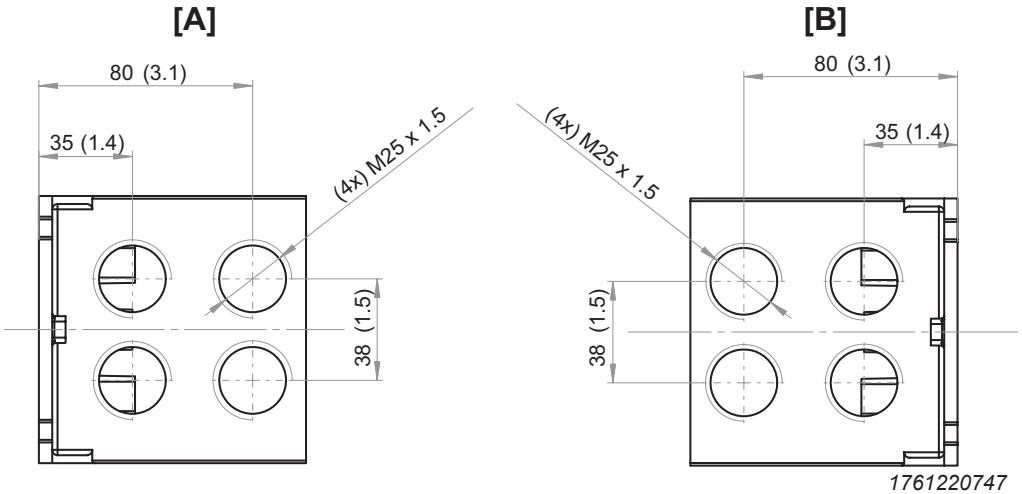


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[A]	Flange plate 1
[B]	Flange plate 2

TCS...-1 blanking plugs

The following figure shows the dimension drawing of the TCS...-1 blanking plugs, dimensions in mm (in):

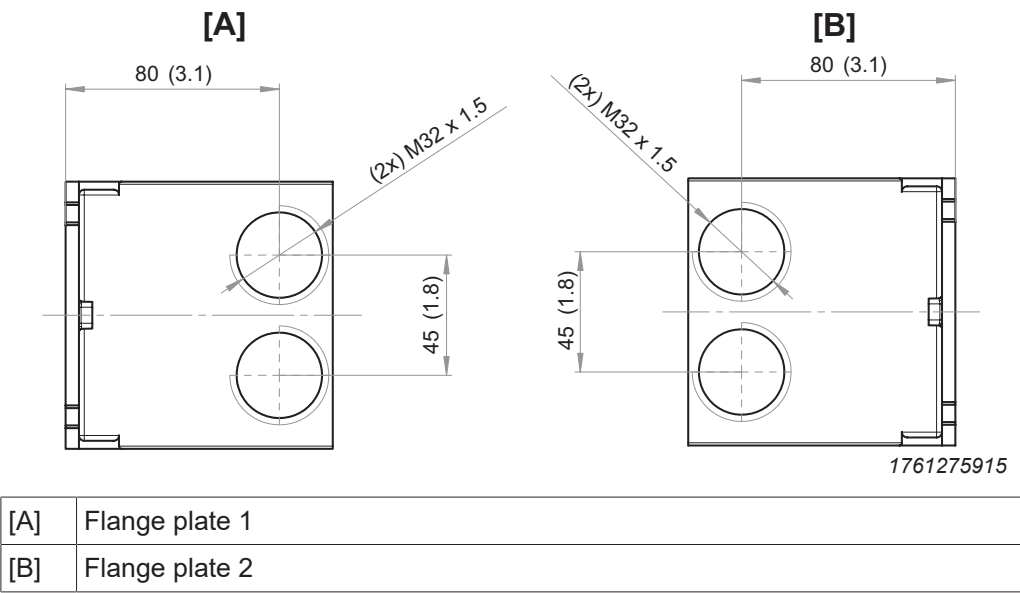


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[A]	Flange plate 1
[B]	Flange plate 2

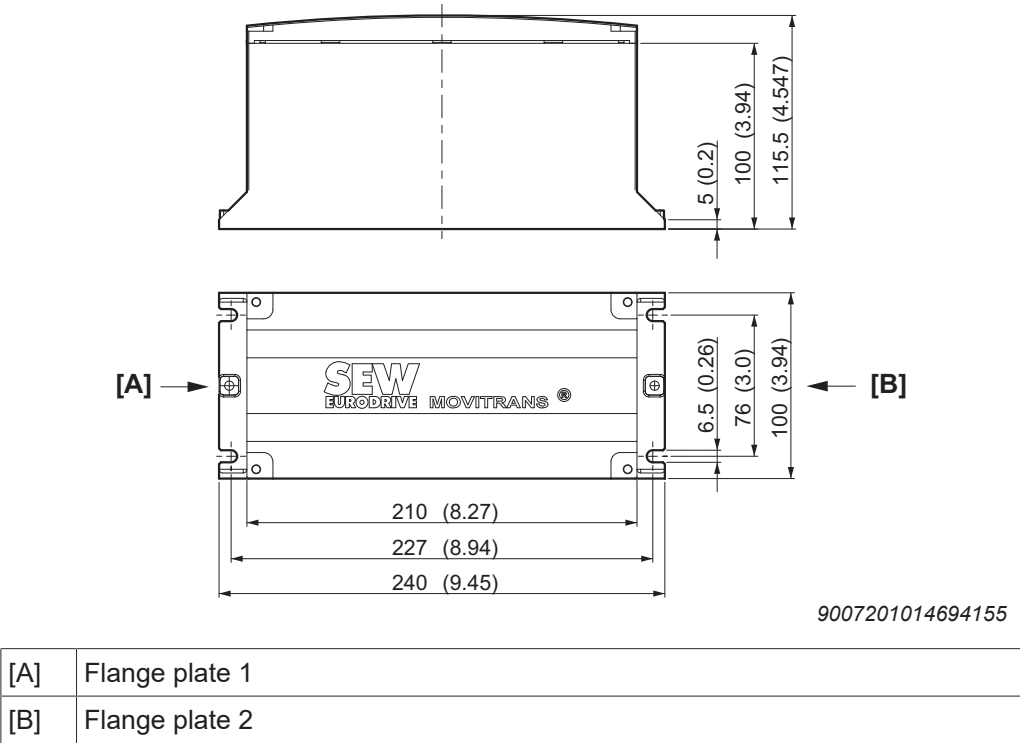
TCS...-3 blanking plugs

The following figure shows the dimension drawing of the TCS...-3 blanking plugs, dimensions in mm (in):



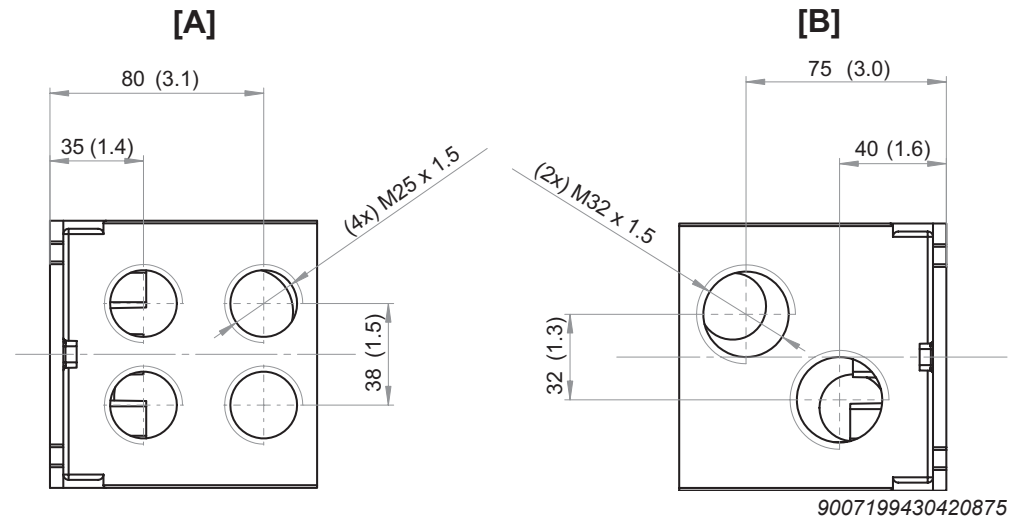
6.3.2 TVS10 connection distributor

The following figure shows the dimension drawing of the TVS10A / TVS10B connection distributor with dimensions in mm (in):



TVS...-1 blanking plugs

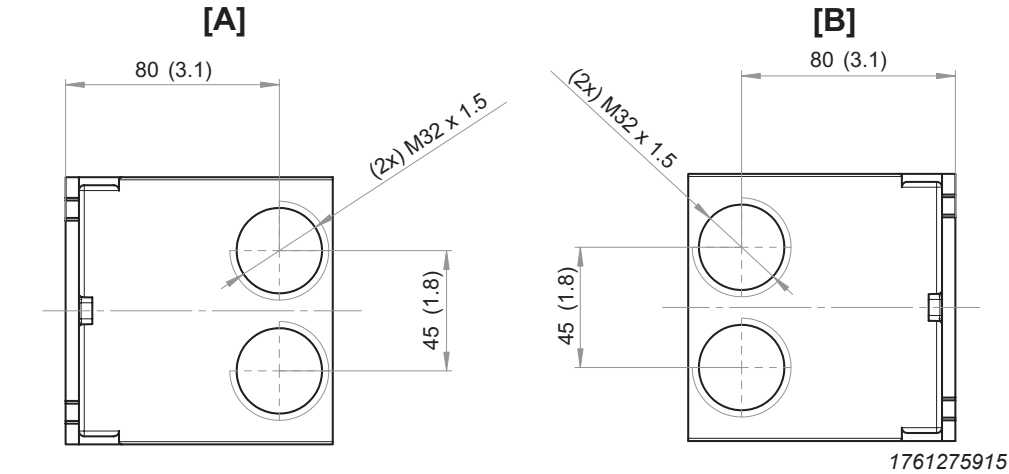
The following figure shows the dimension drawing of the TVS...-1 blanking plugs, dimensions in mm (in):



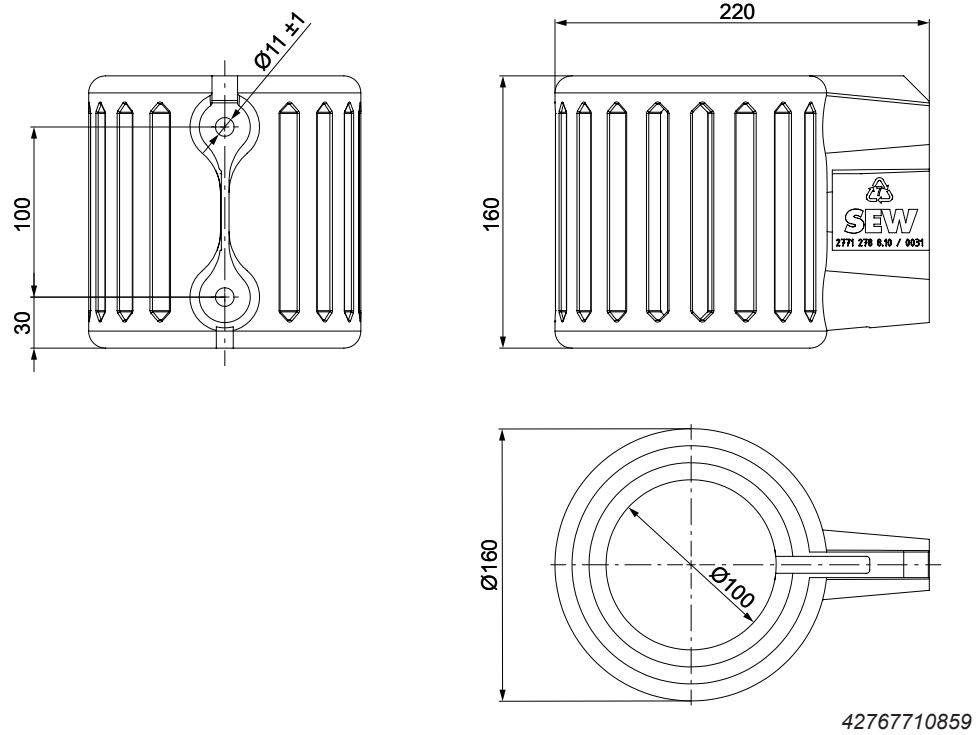
[A]	Flange plate 1
[B]	Flange plate 2

TVS...-2 blanking plugs

The following figure shows the dimension drawing of the TVS...-2 blanking plugs, dimensions in mm (in):



[A]	Flange plate 1
[B]	Flange plate 2

6.3.3 Coil body

7 Contacting SEW-EURODRIVE

You can find the worldwide contact data and locations on the **SEW-EURODRIVE website** via the following link or the QR code shown below.

<https://www.sew-eurodrive.de/contacts-worldwide>



SEW
EURODRIVE



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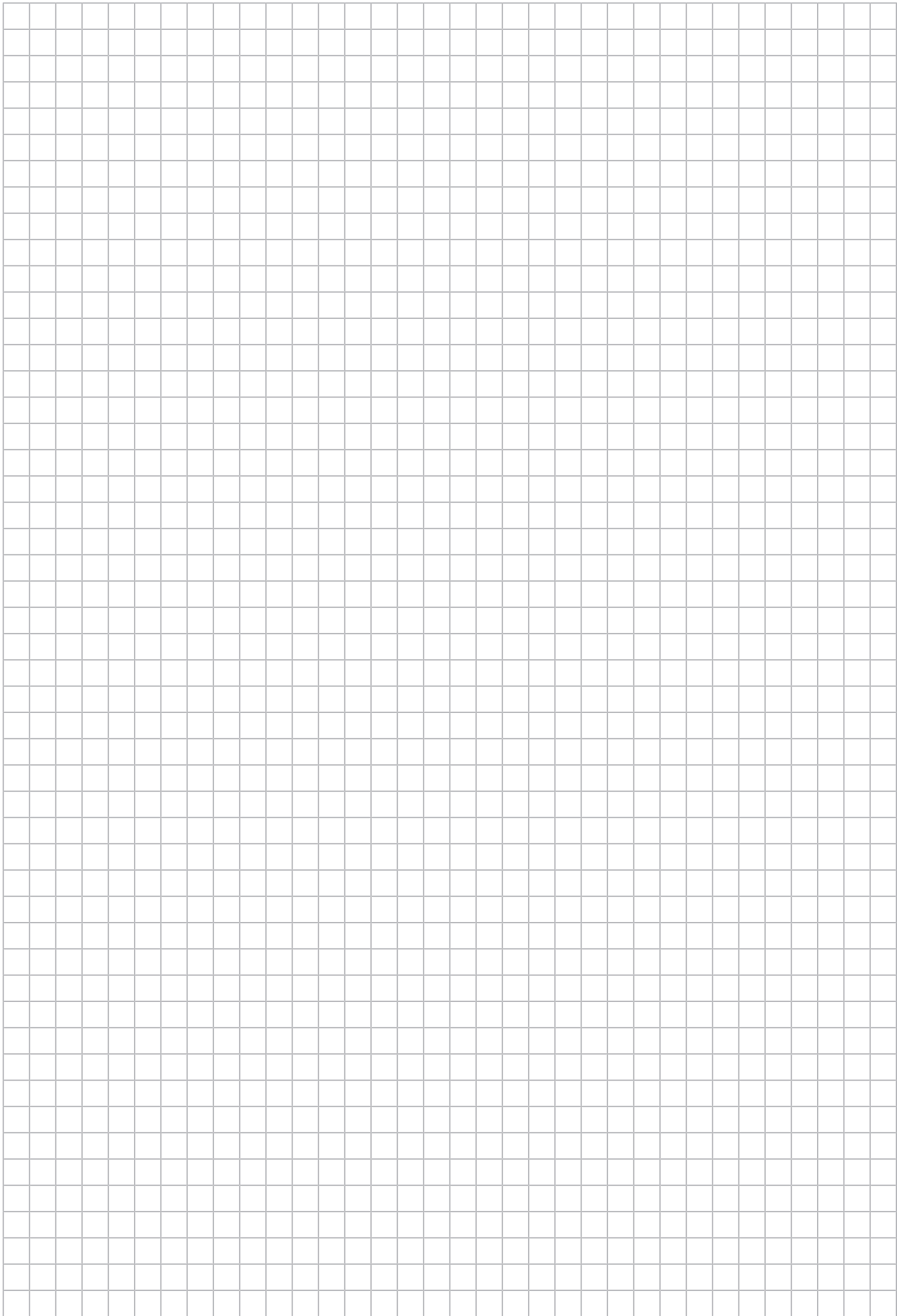
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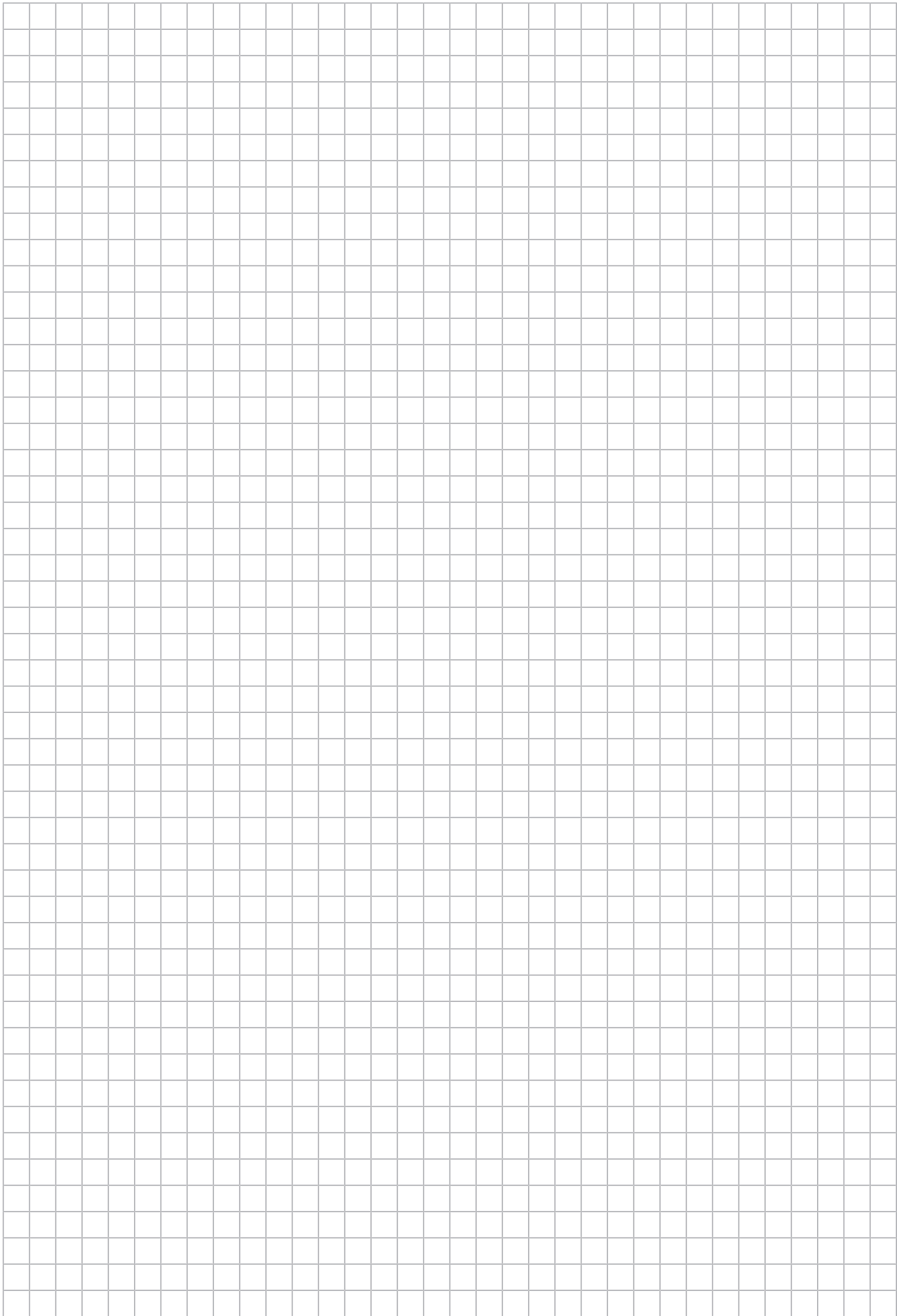
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SEW
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SEW-EURODRIVE GmbH & Co KG
Ernst-Blickle-Str. 42
76646 BRUCHSAL
GERMANY
Tel. +49 7251 75-0
Fax +49 7251 75-1970
sew@sew-eurodrive.com
→ www.sew-eurodrive.com