WIRTHWEIN

Forming Innovation.

CABLE DUCT

Assembly instruction for Cable Duct I & II

english

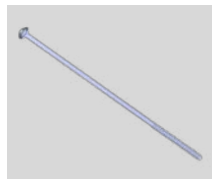
ADVANTAGES OF CABLE DUCTS MADE BY WIRTHWEIN

- No lifting equipment required for laying due to its low weight
- Wide range of application in all railroad areas and many application sites
- Reusability of the cable ducts for changing construction sites
- Simple and economical execution of miter cuts for detour and lowerings
- Change of the route possible (90° on 45 meters)
- Wirthwein cable ducts are maintenance-free

TECHNICAL DATA

	Cable Duct I	Cable Duct II
Length	1.000 mm	1.000 mm
Width (inside / outside)	100 mm / 215 mm	250 mm / 360 mm
Height (inside / outside)	155 mm / 210 mm	155 mm / 215 mm
Weight	4.9 kg	7.3 kg
Material	PP Copolymer (UV-stable)	
Fire protection	K1 according to DIN 53438 part 2	
Dimensional stability	-30°C bis + 80°C	
Load capacity	Class A15 (9 kN) according to DIN EN 124-1/ DIN EN 1433	Class A15 (15 kN) according to DIN EN 124-1/ DIN EN 1433
Electrical Properties	Surface resistance approx. 1015 Ω x cm Dielectric strength Ed approx. 0.6 / 0.8 at 100 kV / mm according to DIN VDE 303-ICE 243	
Additional equipment	• Angular elements and T-pieces • Lifting / lowering • Separators • End plates	• Ground screws • Locking screws • Wrench for opening / closing the cable duct cover

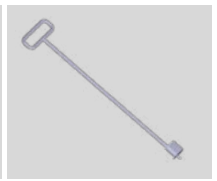
ACCESSORIES



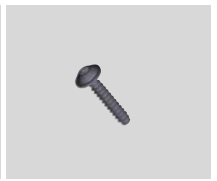
Ground screw

Separator

End plate



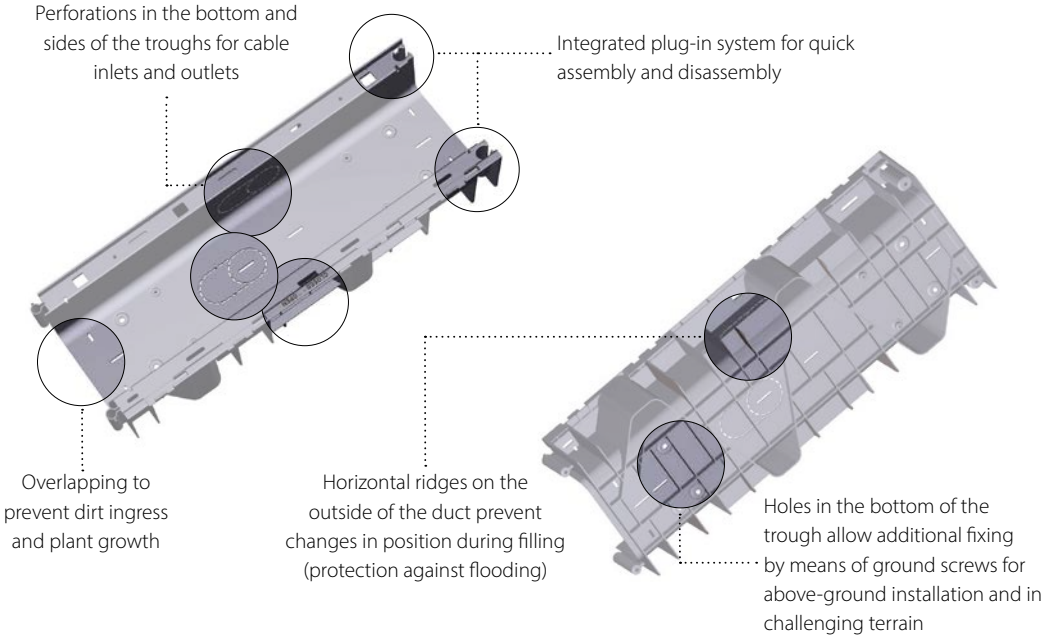
Turnkey opener (key)



Locking screw M8 x 40

- Ground screws for securing the position of the cable ducts
- Separation and subdivision of the cables by installing separators
- Closure of the cable ducts at the end of the route possible with suitable end plates
- Key for opening and closing the cable duct covers (turnkey opener)
- Special M8 x 40 screws for additional securing of the cable duct covers

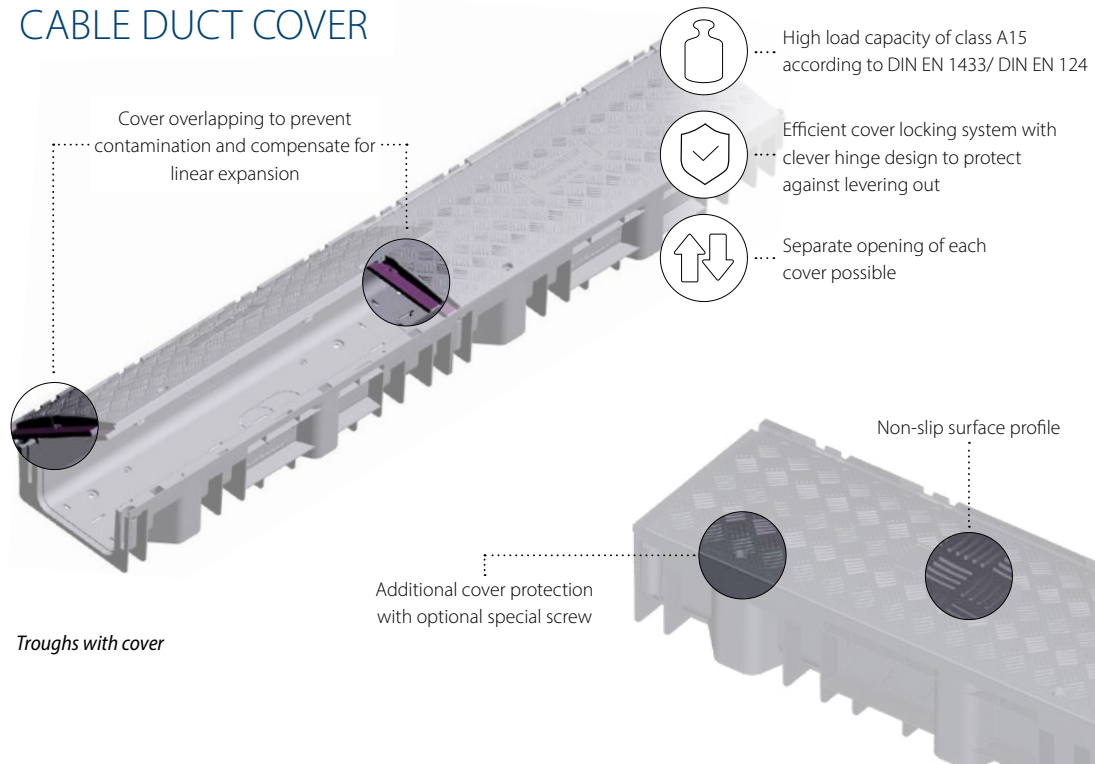
CABLE DUCT TROUGH



Trough from above

Trough from below

CABLE DUCT COVER



Troughs with cover

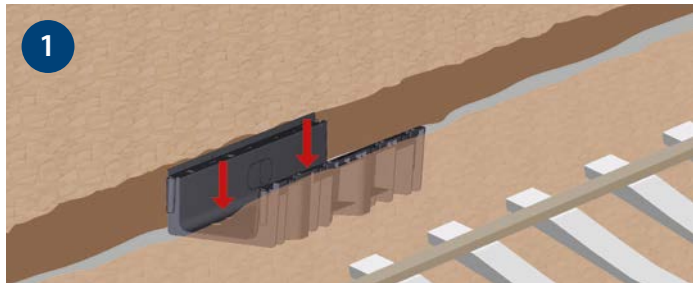
PREPARATION AND INSTALLATION

- For optimal cable duct installation, it is necessary to dig a trench. The upper edge of the trough should be level with the ground surface.
- Fill the trough with a leveled installation layer at least 3 cm thick. Chippings, gravel, sand or fine-grained excavated material can be used as filling material.
- By using a straightedge, the cable ducts can be easily laid in line and at the correct height.

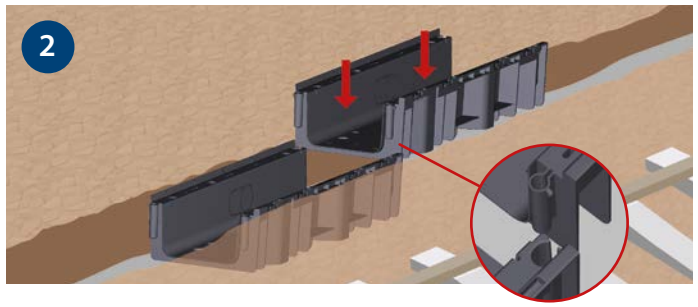
OPENING DIRECTION

IMPORTANT

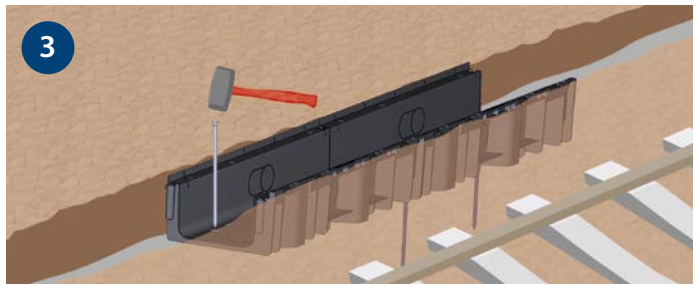
Prior to installation, define the future opening direction of the covers.



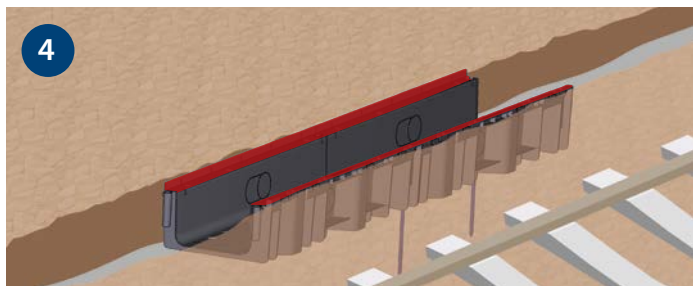
Place the cable duct in the prepared trench and press it straight into the installation layer so that the ribbed base dips in and rests on the full surface.



Connect the cable ducts to each other using the integrated plug-in system.

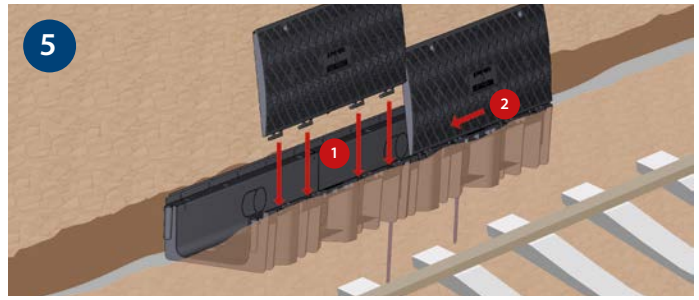


To increase stability in terms of direction and position, ground screws can be driven into the ground through the holes provided.

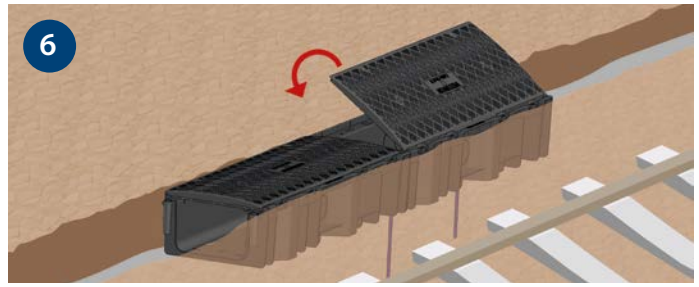


Prior to mounting the cover, please ensure that the hinge area and the contact surfaces are free of contamination!

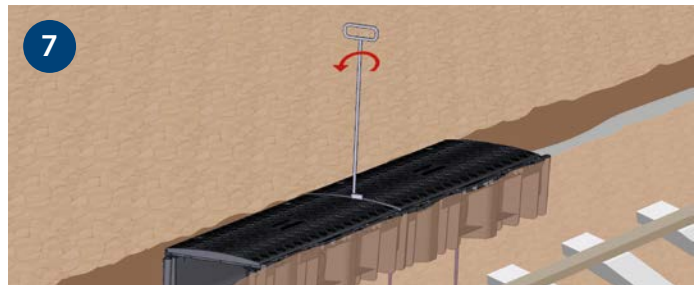
Attention! The installation and function of the cable duct cover must not be impaired during backfilling. If necessary, mount the cover prior to backfilling.



With the cover in the open position, insert it vertically into the hinge area and push it in the direction which the hinge pins are pointing to.



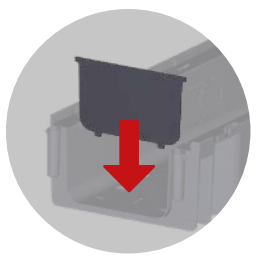
The cover can now be folded down and closed.



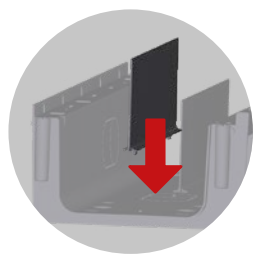
For final locking of the cover, use the turnkey, insert it in the recess of the neighboring cover and turn it to the left.

OPTIONAL ACCESSORIES

For additional securing of the cable duct, the covers can be fixed with special M8x40 screws. The tightening torque for the screws here is max. 1.5 Nm.



Vertical end plates are used to close the cable ducts at the ends of the sections.



To subdivide the cables, two separators can be inserted per cable duct and fixed using a plastic hammer.

Do you have an inquiry, would you like technical advice or a callback?
Please contact us. We are happy to be at your service.

For commercial questions, the Wirthwein Railway team will be happy to assist you:

Bernhard Ganter:
Phone +49 7933 702-850
E-mail: bernhard.ganter@wirthwein.de

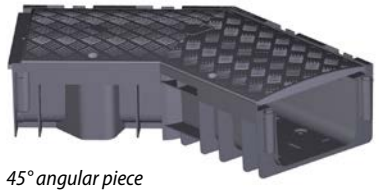
For technical advice, please get in touch with the team of Wirthwein Brandenburg GmbH & Co. KG:

Marco Kinnemann:
Phone +49 3381 619218-23
E-mail: marco.kinnemann@wirthwein.de

CABLE DUCT VARIANTS

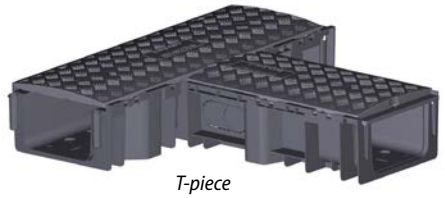
Should changes in direction be necessary in the course of the cable duct route, there are two different ways to implement them:

1. We manufacture precision-fit angular elements, lowering elements and T-pieces according to individual customer requirements (sawing and welding). Some examples are shown below.
2. You manufacture angular pieces on site by yourself. When cutting the cable ducts, please make sure that their functionality is still guaranteed. Please find instructions for manufacturing 45° or 90° angular pieces on the next page.



45° angular piece

90° angular piece



T-piece

30° lowering

30° lifting

RAIL-SPECIFIC REQUIREMENTS

- Buried cable ducts must not be used for ballast edging.
- Laying only permitted outside the pressure range of traffic loads.
- Use in tunnels is prohibited!
- The upper edge of the cable trough should be level with the ground surface.
- Drainage of surface water must not be impeded by the cable ducts (see Ril 836.4101).
- When using angular elements, the specified installation radii for DB cables must be observed.
- For the installation of cable ducts in the Deutsche Bahn track network, only covers with the marking „DB" on the inside are permissible.

MANUFACTURING INSTRUCTIONS FOR ANGULAR ELEMENTS

Should you wish to produce angular elements on site, please observe the following instructions:

Notes:

- Prior to manufacturing an angular element, check that the bending radii of the cables to be installed are not below the specified values.
- When cutting the cable ducts, make sure that their functionality is still guaranteed. Therefore, follow the instructions in this manual.
- Wear protective equipment adapted to the sawing tool during work.
- In the case of angular elements manufactured on site, please drive additional ground screws into the ground to secure the position. Holes are provided in the bottom of the troughs for this purpose.

Manufacturing of 45° and 90° angular elements

1. Completely assemble the cable duct prior to manufacturing an angular element (see installation).
2. Mark the cutting lines on the top and sides of the cable duct using the cutting paths shown in Figure 1 and Figure 2 respectively. Observe the color-coded cutting paths for left- and right-sided route changes.
3. Saw the individual angular pieces to size along the previously marked cutting paths.
4. Lock the cable duct cover by moving the cover sideways to the left.
5. Deburr the cut edges with a suitable tool to reduce the risk of injury during subsequent assembly work and to produce a clean butt edge.
6. Align the butt edges of the angular pieces with each other as shown in Figure 3 and Figure 4 to manufacture the required angular element.
7. Fix the angular element in place with ground screws.

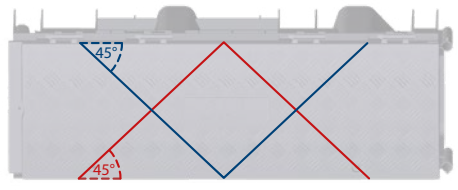


Figure 1: Cutting paths for 90° angular element

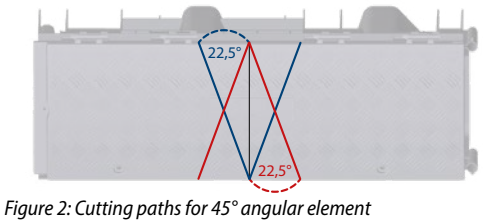


Figure 2: Cutting paths for 45° angular element

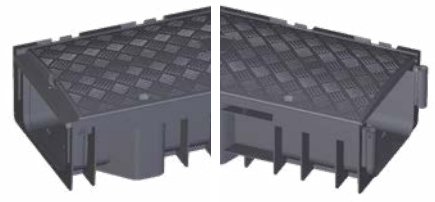


Figure 3: Angular piece for 45° angular element

Figure 4: Angular piece for 90° angular element

WIRTHWEIN

Forming Innovation.

Wirthwein
GmbH & Co. KG
Walter-Wirthwein-Str. 2-10
97993 Creglingen
Germany

Phone +49 7933 702-0
Fax +49 7933 702-910
info@wirthwein.de
www.wirthwein.de

Wirthwein Brandenburg
GmbH & Co. KG
Uferstraße 96
14774 Brandenburg-Kirchmöser
Germany

Phone +49 3381 619218-0
Fax +49 3381 619218-26
info@wirthwein.de
www.wirthwein.de

Wirthwein Fastening Systems
(Kunshan) Co., Ltd.
Yuan Feng Road 158
Yushan Town, Kunshan City,
Postcode 215301
Jiangsu Province, China

Phone +86 512 8163 8998
Fax +86 512 8163 9118
info@wirthwein-plastics.cn
www.wirthwein.cn