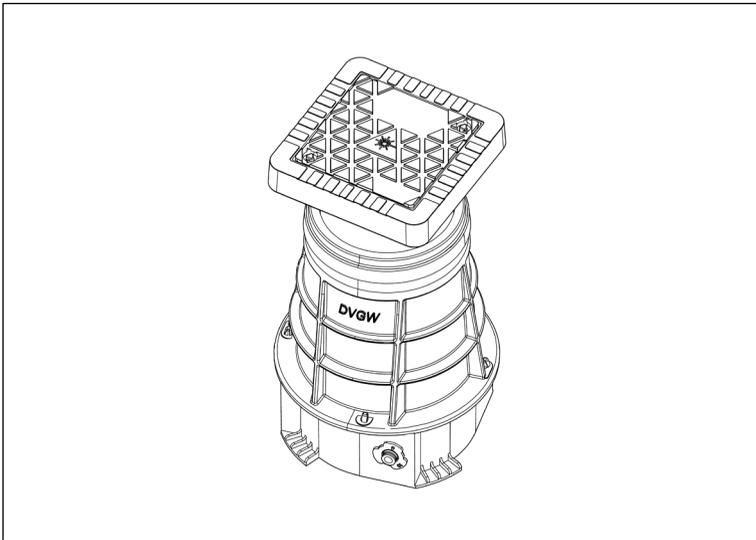




Installation instructions - Basic unit 2LINE G-BOX

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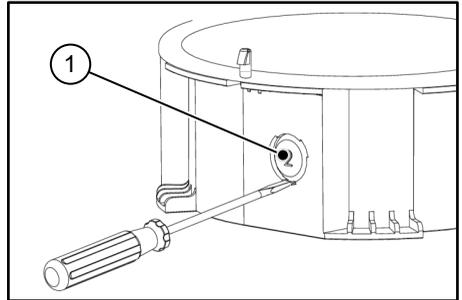
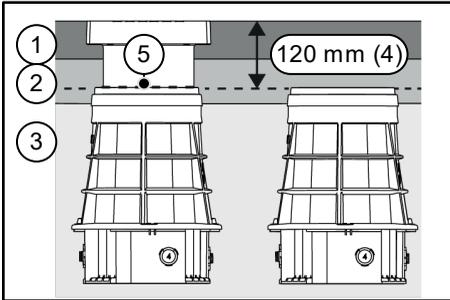
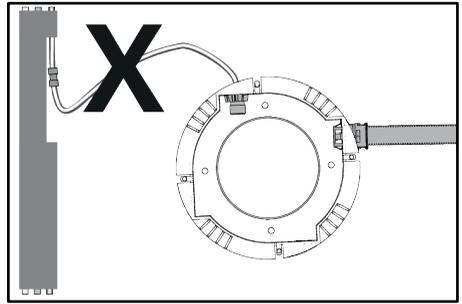
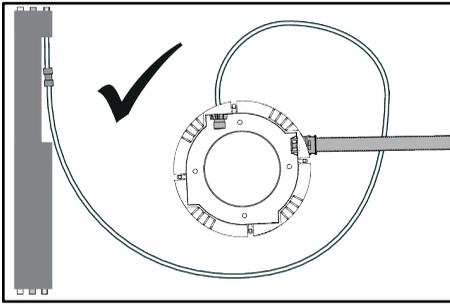
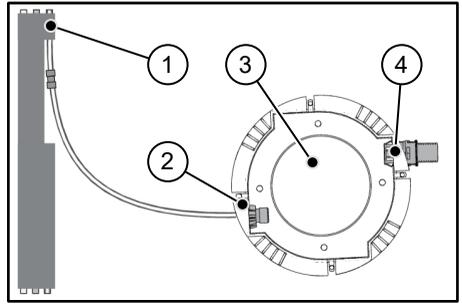
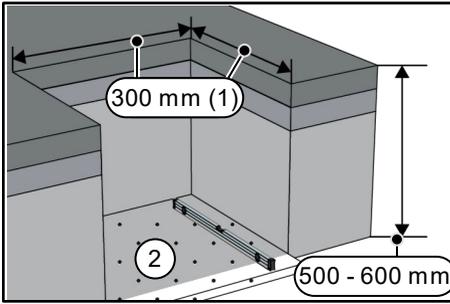
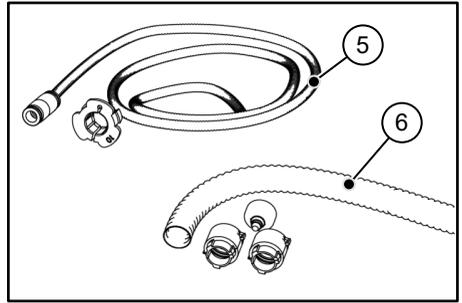
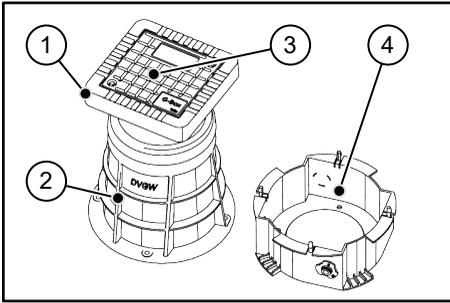


Read the instructions prior to installation and keep them in a safe place!



2LINE G-BOX

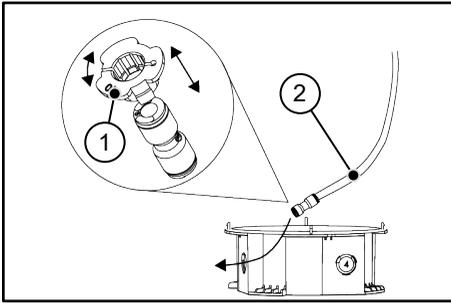
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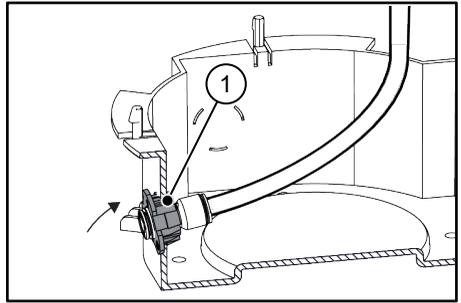


2LINE G-BOX

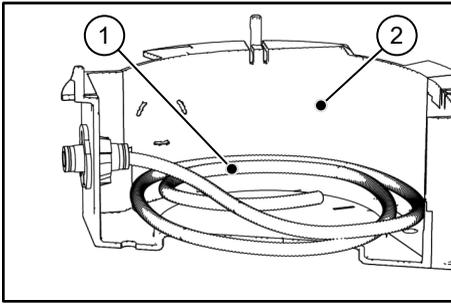
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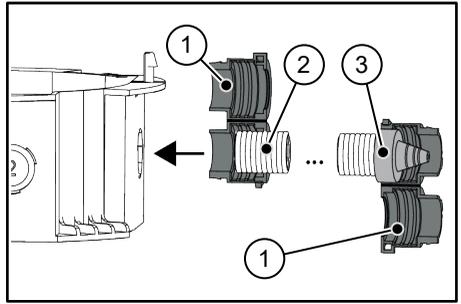
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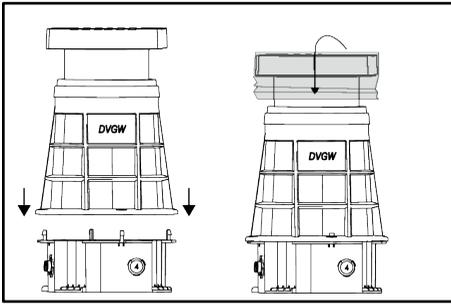
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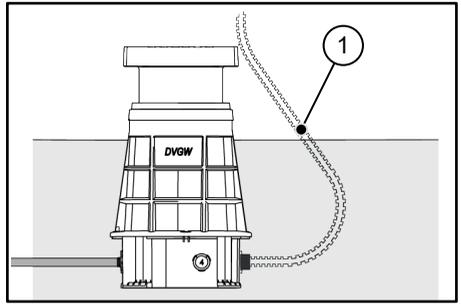
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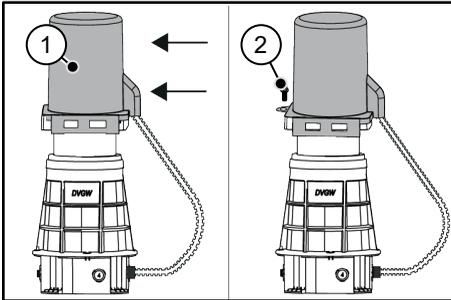
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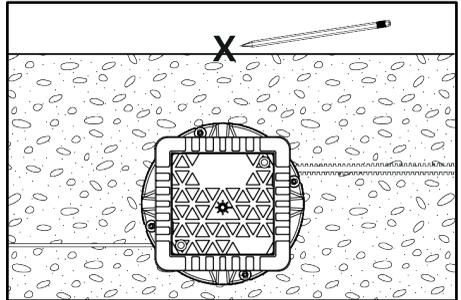
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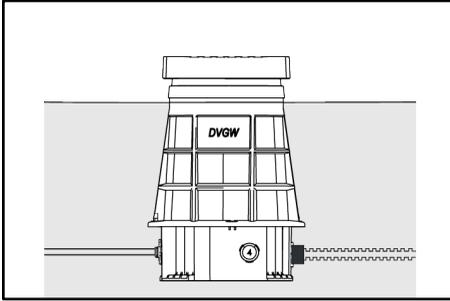


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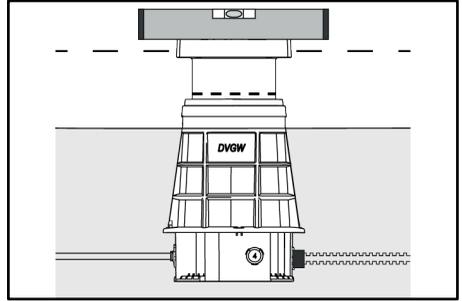


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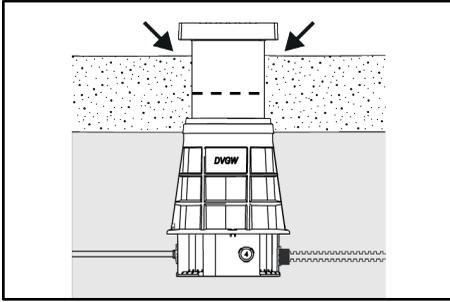
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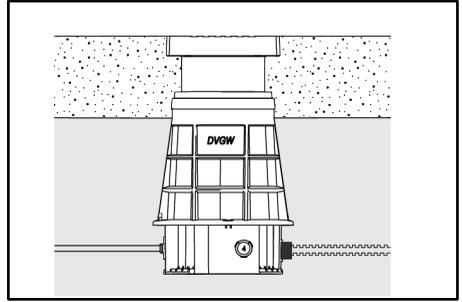
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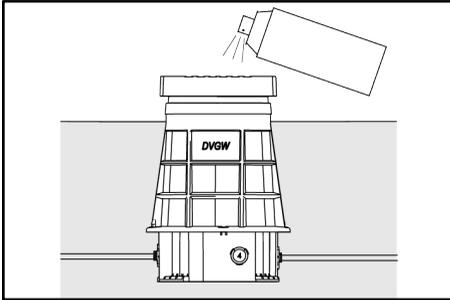
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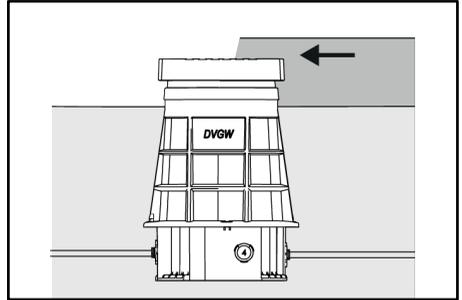
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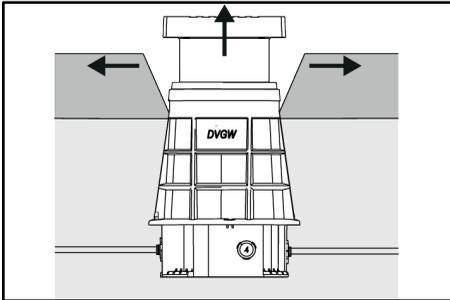
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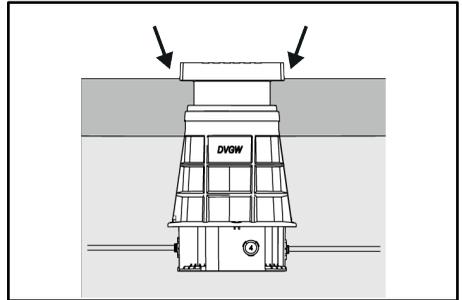
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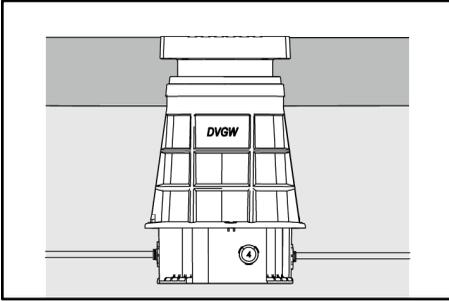


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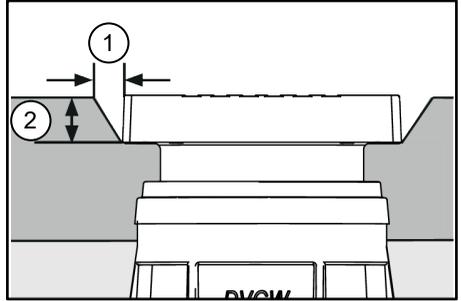


2LINE G-BOX

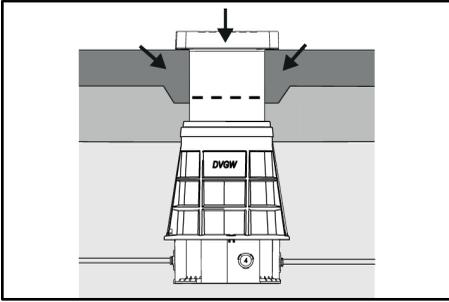
Basic unit



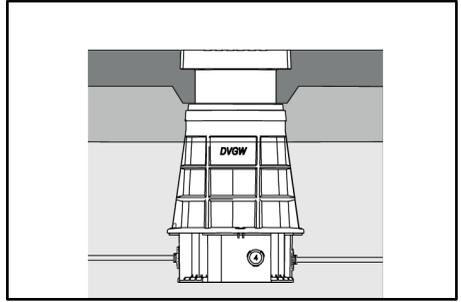
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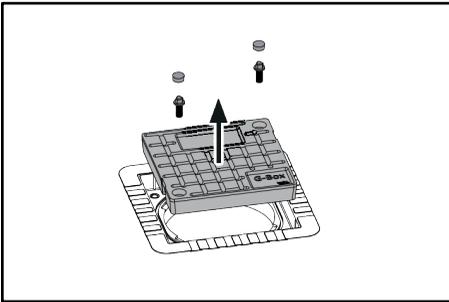
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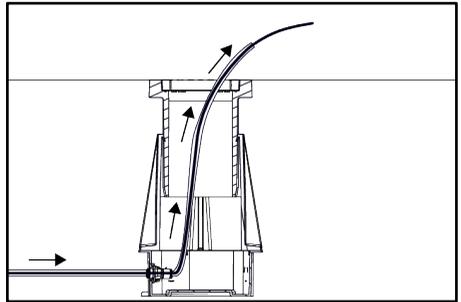
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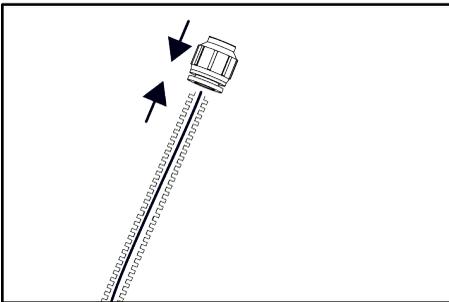
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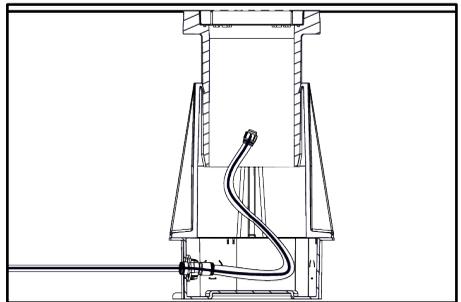
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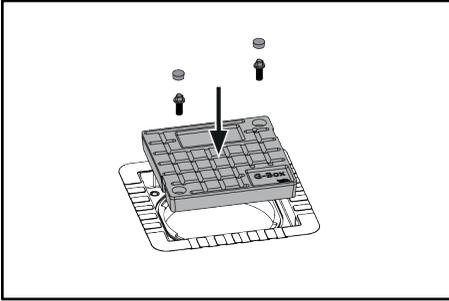


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2LINE G-BOX

Basic unit



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EN Safety Instructions and Information

Target Group

The installation may only be carried out by technical experts.

- Qualified and trained individuals carrying out installation must have
- knowledge of general safety and accident prevention regulations as amended,
- knowledge of how to use safety equipment,
- knowledge of how to use hand tools and electric tools,
- knowledge of the relevant standards and guidelines for laying pipes/cables and for backfilling utility trenches as amended,
- knowledge of the regulations and installation guidelines of the supply company as amended,
- knowledge of the waterproof concrete directive and building waterproofing standards as amended.

General information and intended use

In line with their intended use, our products have been developed solely for installation in buildings made of state-of-the-art materials. Insofar as no express written confirmation has been provided by us, we do not accept any liability for any other purposes or purposes going beyond the above.

For warranty conditions, please see our current General Terms and Delivery Conditions. We explicitly draw your attention to the fact that no warranty whatsoever applies for any subsequent damage occurring as a result of failure to follow the installation instructions or if our products are used incorrectly or combined with third-party products.

The 2LINE G-BOX is a modified street cap made of glass fibre reinforced plastic, which is placed as a fixed transfer point for the fibre optics as a mini shaft in the ground at the boundary between the property and the pavement. It serves as a supply point for microcable ducts and as a depot for the fibre optics, which can be blown into the ducts immediately after the 2LINE G-BOX has been installed or at a later point in time. There is the option of integrating a demarcation point. The 2LINE G-BOX thus acts as an interface between the network operator and the house connection at the property line. The G-Box is suitable for installation in public and private areas. The 2LINE G-BOX can be tarred into road surfaces (not suitable for heavy-duty paving) or integrated into other suitable surfaces.

Safety

This section provides an overview of all the main safety aspects for optimum protection of personnel and a safe installation process.

A failure to observe the instructions and safety information set out here may result in significant hazards.

During installation of the 2LINE G-BOX it is imperative to observe the relevant professional association rules, the VDE provisions, the relevant national safety and accident prevention regulations and your company's guidelines (work and procedure instructions).

The fitter must wear the relevant protective clothing. Only intact components may be installed.

The following instructions are to be observed prior to installation of the 2LINE G-BOX Basic unit:

WARNING!

Risk of injury in the event of improper installation!

Improper installation can result in significant bodily harm and property damage.

-  Do not look directly into the fibre ends or connectors or look directly at them with optical instruments. Invisible laser beams can cause irreversible eye damage!
- Observe the applicable accident prevention regulations and regulations for handling fibre optics.
- Observe the nationally applicable laying and filling regulations for pipes and cables.
- Seal the underground and cable substructure well prior to laying pipes or cables so that the latter cannot subside.

NOTICE!

No sealing due to incorrect installation!

Improper installation can result in damage.

- The installation temperature of 240°C must not be exceeded.
- Micropipes/corrugated pipes must always be pushed into the fittings as far as they will go.
- Micropipes and fibre optics must not be kinked or excessively bent.
- The incorrect laying of cables or ducts and improper filling of the cable trench causes settlement, which can lead to damage and leaks.
- Do not use cleaning agents containing solvents to clean the 2LINE G-BOX. We recommend using the cable cleaner KRMTX.
- For details of other accessories and further information, see www.hauff-technik-gridcom.de and the technical data sheets as well as the safety data sheet.

Personnel requirements

Qualifications

WARNING!

Risk of injury in case of inadequate qualification!

Improper handling can result in significant bodily harm and property damage.

- Installation may only be carried out by qualified and trained individuals who have read and understood these instructions.

Skilled experts

Based on their specialist training, skills, experience and familiarity with the relevant provisions, standards and regulations, skilled experts are able to carry out the work assigned, independently identifying and avoiding potential hazards.

Transport, packaging, scope of delivery and storage

Safety instructions in connection with transport

NOTICE!

Damage in the event of improper transport!

Significant damage can occur in the event of improper transport.

- When unloading packaging items on delivery and in the course of in-house transport, proceed with care and observe the symbols on the packaging.

Transport inspection

Inspect the delivery immediately on receipt for completeness and transport damage. In the event of transport damage being visible from the outside, proceed as follows:

- Do not accept the delivery or only do so subject to reservations.
- Make a note of the extent of damage in the transport documentation or delivery note provided by the transporter.
 - Submit a claim for every defect as soon as it has been identified.
 - Claims for damages can only be asserted within the applicable claim period.

Scope of supply

The scope of delivery of the 2LINE G-BOX includes the following:

- 1 x 2LINE G-BOX lid
- 2 x triangular screws and closing caps
- 1 x 2LINE G-BOX top section
- 1 x 2LINE G-BOX body with bottom section
- Connection set according to configuration
- Corrugated pipe set according to configuration

Optional

- 1 x triangular spanner key

Storage

NOTICE!

Damage due to improper storage!

Significant damage can occur in the event of improper storage.

- The 2LINE G-BOX is to be protected from damage, damp and soiling prior to installation. Only intact components may be installed.

Disposal

If no return or disposal agreement has been concluded, recycle dismantled components after they have been properly dismantled:

- Metal remains are to be scrapped according to existing environmental regulations.
- Dispose of elastomers according to existing environmental regulations.
- Dispose of plastics according to existing environmental regulations.
- Dispose of packaging material according to existing environmental regulations.



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1 Publishing Notes

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2 Explanation of Symbols

- 1 Work stages
- ▶ Effect/result of a work step
- ⊙ Reference numerals in drawings

3 Tools and aids required

For the correct installation of the 2LINE G-BOX **Basic unit**, the following tools and aids are required in addition to the usual standard tools:

Tools:

- 1 Pipe deburring device for micropipes
- 1 Marker
- 1 Spirit level
- 1 Micropipe

Aids

- Release agent
- KRMTX cable cleaner

4 Description

Description **2LINE G-BOX** (see Fig.: 1)

Legend for Fig.: 1

- 1 Top section
- 2 Body
- 3 Lid
- 4 Bottom section

Connection sets (see Fig. 2)

Key to Fig. 2

- 5 Connection set
comprising double plug-in fitting, adaptor coupling and corrugated pipe
- 6 Corrugated pipe set
comprising corrugated pipe connection couplings, rubber grommet and corrugated pipe

Trench (see Fig. 3):

Legend for Fig. 3

- 1 Trench dimensions
- 2 Compact the soil evenly, water-permeable material

Connection example: 1 building/home (see Fig. 4)

Legend for Fig.: 4

- 1 Empty conduit bundle
- 2 Supply from the grid
- 3 2LINE G-BOX
- 4 Connection 1 Building/home

5 Preparing for installation

ⓘ The position of the 2LINE G-BOX and the alignment of the connections must be selected such that the micropipes can be laid in a sufficient bending radius (see Figs. 4 and 5). If the bending radii are too tight (see Fig. 6), difficulties may arise when subsequently blowing in the fibre optics.

If the micropipe is too deep, it must be brought to the level of the 2LINE G-BOX in a loop or a sufficiently large bend without falling below the minimum bending radius (see Fig. 5).

*ⓘ The body of the 2LINE G-BOX must be laid at least **12 cm** lower than the finished asphalt surface or the otherwise finished surface (see Fig. 7).*



Basic unit

The 2LINE G-BOX must be laid in a suitable construction aggregate that is permeable to water (sand or gravel).

Legend for Fig. 7

- 1 Asphalt or other surface
- 2 Bearing layer
- 3 Gravel
- 4 12 cm minimum installation depth of the body top edge
- 5 Extract sticker minimum installation depth (12 cm)

- 1 Excavate trench (**Total installation depth min. 500 mm, max. 600 mm, circumference 300 mm**) (see Fig. 3).

Legend for Fig. 3

- 1 Trench dimensions
- 2 Compact the soil evenly

- 2 Compact the soil evenly (see Fig. 3).

6 Install connection set

The position of the 2LINE G-BOX and the alignment of the connections must be selected such that the micropipes can be laid in a sufficient bending radius (see Figs. 4 and 5). If the bending radii are too tight (see Fig. 6), difficulties may arise when subsequently blowing in the fibre optics.

If the micropipe is too deep, it must be brought to the level of the 2LINE G-BOX in a loop or a sufficiently large bend without falling below the minimum bending radius (see Fig. 5).

Several connection sets or corrugated pipe sets must be installed, depending on the planned allocation of the 2LINE G-BOX.

- 1 Break out corresponding blind covers in the bottom section of the 2LINE G-BOX (see Fig. 8).

Legend for Fig. 8

- 1 Blind cover/insertion opening
- 2 Remove the connection coupling from the fitting and push in the connection set (see Fig. 9).
 - 3 Push the connection coupling onto the fitting and engage the connection coupling with the fitting in the insertion opening.
- For easier assembly, first hang in the connection coupling at an angle and then snap it in flush (see Fig. 10).

Legend for Figs. 9 and 10

- 1 Connection coupling

2 Connection set

- 4 Stow the connection set in the bottom section (see Fig. 11).

Legend for Fig. 11

- 1 Connection set
- 2 Interior of bottom section

- 5 Install another connection set/corrugated pipe set or attach the top section of the 2LINE G-BOX (see Fig. 13).

The drawstring bag holding the accessories can optionally be pulled over the 2LINE G-BOX (see Fig. 13). This will prevent sand and contamination from getting into the 2LINE G-BOX.

7 Installing the corrugated pipe set

- 1 Push the cable grommet onto the end of the corrugated pipe, fold the corrugated pipe connection coupling around the corrugated pipe and the grommet and close (see Fig. 12).

The outside of the grommet can be lubricated to make it easier to close the corrugated pipe connection coupling.

- The corrugated pipe connection coupling snaps into place.
- 2 Fold the second corrugated pipe connection coupling around the corrugated pipe and close.
- The corrugated pipe connection coupling snaps into place.
- 3 Snap the end of the corrugated pipe with the corrugated pipe connection coupling but without a cable grommet into the 2LINE G-BOX.
- If a cable is inserted, the cable grommet must be pierced at the corresponding diameter mark. The cable grommet can also be widened with a suitable grommet spreader.

Legend for Fig. 12

- 1 Corrugated pipe connection coupling
- 2 Corrugated pipe
- 3 Rubber grommet

- 4 Install another connection set/corrugated pipe set or attach the top section of the 2LINE G-BOX (see Fig. 13).

- If pylons are being used, run the corrugated pipe up along the 2LINE G-BOX (see Fig. 14, final installation position).

Legend for Fig. 14

- 1 Corrugated pipe position



Basic unit

 *The drawstring bag holding the accessories can optionally be pulled over the 2LINE G-BOX (see Fig. 13). This will prevent sand and contamination from getting into the 2LINE G-BOX.*

8 Installing the top section in soil

- 1** Check trench (**total installation depth min. 500 mm, max. 600 mm, circumference 300 mm**) (see Fig. 3).
- 2** Measure the 2LINE G-BOX and mark the position on the edge of the trench (see Fig. 16).
- 3** Push the top section in all the way down (see Fig. 17).
 - ▶ When pushing it in, press from the top and do not hold your fingers under the edge!
- 4** Pull up the top section (approx. 2 cm over the final top surface height) and align it (see Fig. 18).
 - ▶ The marking showing the minimum installation depth (12 cm) must still be visible.
- 5** Fill in the trench completely and compact it in layers (20 - 30 cm).
- 6** Support the top section with aggregate, compact it and press it in so that it is flush (see Figs. 19 and 20).

9 Installing the top section in asphalt

 *The 2LINE G-BOX must be laid in a suitable construction aggregate that is permeable to water (sand or gravel).*

- 1** Check trench (**total installation depth min. 500 mm, max. 600 mm, circumference 300 mm**) (see Fig. 3).
- 2** Push in the top section.
 - ▶ When pushing it in, press from the top and do not hold your fingers under the edge!
- 3** Measure the 2LINE G-BOX and mark the position on the edge of the trench (see Fig. 16) to enable it to be found again beneath the support layer.
- 4** Push the top section all the way down and spray the cover with a release agent if necessary (see Fig. 21). Observe the safety data specifications for the release agent.
- 5** Lay the bearing layer over the top section (see Fig. 22).
- 6** Remove the bearing layer over the top section, pull the top section up (min. 2 cm above the bearing layer), line with bearing layer material and roll in (see Figs. 23, 24 and 25).
- 7** Expose the top section again after rolling in the bearing layer (4 cm wide, 4 cm deep) (see Fig. 26).

Legend for Fig. 26

- | | |
|---|----------------------|
| 1 | Lateral spacing 4 cm |
| 2 | Depth distance 4 cm |

- 8** Lay the asphalt or fine layer over the top section.
- 9** Remove the asphalt or fine layer over the 2LINE G-BOX. Pull up and align the top section, **carefully** support it with asphalt and roll it in so that it is flush (see Figs. 27 and 28).

 *The top section must be free from foreign bodies and may site up to 2 cm at maximum higher than the final surface level before being rolled in.*

10 Blow in fibre optics

- 1** If a pylon is mounted on the 2LINE G-BOX, it must be removed first. To do this, open the screw and pull off the pylons.
- 2** Remove the closing caps and open the cover of the 2LINE G-BOX with a triangular spanner key (see Fig. 29).

 *The rear end of the triangular spanner key can be inserted into a screw hole in the cover to lever the cover out.*

- 3** Before blowing in, lay the connection set straight (see Fig. 30).
- 4** Blow in the fibre optics (see Fig. 30).
 - ▶ If you have any difficulties blowing in, see Chapter 11 Questions about blowing in fibre optics, page 11.
- 5** Push fibre optics back flush into the connection set or cut them to length so that they are flush.
 - ▶ If the fibre optics are to be spliced here, allow approx. 1 m to protrude and do not seal the connection set with an end plug.
- 6** Close the connection set with an end plug (not included as standard) and stow the connection set back in the 2LINE G-BOX with a twisting movement (see Figs. 31 and 32).
- 7** Close the cover of the 2LINE G-BOX until the sealing case is in place, fasten with the screws and reinsert the closing caps (see Fig. 33).
- 8** Optional: reattach the pylons removed in Step 1.

 *For installation of the sealing case, see **separate installation instructions, '2LINE G-BOX sealing case'**.*



11 Questions about blowing in fibre optics

Problem	Recommended course of action
Fibre optics get stuck when blowing in.	Blow fibre optics in with a cable guide head. Using a cable guide head is generally recommended so that the fibre optics do not get caught on abutting edges.
Fibre optics get stuck in connection set.	Remove the connection set and, after blowing in, push it back onto the fibre optics and plug into the G-Box.

Table 1

Service telephone + 49 7967 9008-30

Subject to change!

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