MEIERGUSS

Self-levelling manhole covers – NW 600 – telescopic in the cone/compensation ring for selective renovation

Operating, installation and maintenance instructions

Contents

Please read the entire document before commencing work.
Please hand these operating, installation and maintenance instructions over to the end user.

General information

General information

Manhole covers are used to cover shafts in traffic areas, e.g. access shafts. They are subject to the same loads from traffic as the traffic areas themselves. Manhole covers are deemed as not causing any obstruction or danger to traffic or pedestrians if they comply with the requirements/design features of DIN EN 124.

Technical rules and standards

Observe and adhere to the following rules and engineering regulations in the currently valid version:

■ **RStO**	German guidelines for the standardisation of the surfaces in traffic areas
■ **VOB Teil C**	German general technical specifications in construction contracts
■ **ATV DIN 18317**	Road construction – Asphalt surfacings
■ **DIN EN 124 Teil 1**	Gully tops and manhole covers for traffic areas – Definitions, classifications, general principles of design, performance requirements and test methods
■ **ATV DIN 18299**	German general rules applying to all types of construction work
■ **ZTV Asphalt-StB**	German additional technical terms of contract and guidelines for the construction of road surfacing made of asphalt
■ **ZTV E-StB**	Supplementary technical conditions of contract and guidelines for earthworks in road construction
■ **ZTV Ew-StB**	Supplementary technical conditions of contract and guidelines for the construction of drainage systems in road construction
■ **ZTV Fug-StB**	Supplementary technical conditions of contract and guidelines for joints in traffic areas

The planner or company executing the construction work is responsible for the planning of the shaft construction and execution of the construction work itself.

Prior to installation on site, check all construction components and accessories for damage and completeness. Do not install damaged components. Use a suitable lifting tool for loading and unloading. Attach the lifting tool at the frame.

Operating instructions

Please refer to the individual operating instructions to ensure a technically correct function.

Perform additional maintenance depending on the amount of traffic and loads (see page 10).

Carry out the following activities every time the manhole cover is opened or closed:

Inspections	Recommended measure
Inspect the general condition of the entire cover.	Replace defective or loose covers.
Inspect the cushioning inserts (if applicable).	Loose, defective or worn elements must be replaced with new ones.
Inspect the functional components such as hinges, screw fasteners, bolts, split pins or locking springs.	Clean the functional components. Replace loose, defective or worn elements. Apply grease to bolts or screw fasteners.
Check the support surfaces.	Thoroughly clean the support surfaces including the cushioning insert (if applicable).
In the case of versions with assisted opening with gas springs, check the condition of the mechanics and the gas springs.	Replace any defective or worn components. Clean and grease moving parts.
In the case of surface water-tight/back-pressure proof designs, inspect the gaskets and O-rings if applicable.	Replace defective or worn elements. The required set can be purchased from construction hardware dealers.
Inspect the integrated reception socket MEISTEP®.	Clean the integrated reception socket MEISTEP®, in particular, the bayonet fitting which the handhold bar enters. If the integrated reception socket is damaged, it is necessary to replace the frame.

Manhole covers with a loosely inserted lid/grating

Loose/loosened lids/gratings can be lifted out using a suitable, commercially available shaft cover hook. Please use the holes provided for this purpose.

In the case of versions with the access aid MEISTEP®, you can now insert the provided handhold bar into the integrated reception socket. Ensure that the small pin on the bar engages. To remove the handhold bar, lift it up slightly and unscrew it counter-clockwise. To close the lid/grating, place it back in the frame. The lid/grating is normally provided with anti-rotation locking devices that are inserted loosely into the holes of the frame. Ensure that the lid/grating is centred.

Operating instructions

Lid for paving by the customer

The clearance height of approx. 75 mm in the cover above the rib cross permits e.g. the use of mosaic stones according to DIN EN 1342/DIN 18502. Before paving, the lid trough must be cleaned. Then fill it up to approx. 1/3 of the clearance height using concrete C35 / 45 with a grain size of 0 to 8 mm, exposure class XC4, XD2 and XF4 according to DIN EN 206-1 and DIN 1045-2. The stones are then inserted in the fresh concrete. The concrete rising during this process must fill up the joints between the stones without any gaps. It is not permitted to move across the paveable lid with vibratory plates or rollers.

Manhole covers with a lid/grating with a locking device

(Lid and frame locked by screw fasteners)

To open, turn the bolts counter-clockwise until the screw fastener makes contact with the lid/grating. Loose/loosened lids/gratings are lifted out using a suitable, commercially available shaft cover hook. Please use the holes provided for this purpose.

In the case of versions with the access aid MEISTEP®, you can now insert the provided handhold bar into the integrated reception socket. Ensure that the small pin on the bar engages. To remove the handhold bar, lift it up slightly and unscrew it counter-clockwise. Before closing, turn the bolts counter-clockwise until the screw fastener makes contact with the lid/grating and reaches the end of the thread (analogue to the opening process). To close the lid/grating, place it back in the frame. The lid/grating is normally provided with anti-rotation locking devices that are inserted loosely into the holes of the frame. Ensure that the lid/grating is centred.

Tighten the bolts by turning clockwise in a cross pattern with a tightening torque of 100 Nm. Products with special locking washers must be tightened with a tightening torque of 125 Nm for M16 bolts and with 150 Nm for M20 bolts.

Manhole covers with a lid/grating with a screw connection

(Lid and frame directly screwed together)

To open, unscrew the bolts counter-clockwise until they can be removed from the lid/grating. Remove connection elements (bolts, washers if applicable, O-rings etc.) and keep them in a safe place. The lid/grating is now unfastened. Loose/loosened lids/gratings are lifted out using a suitable, commercially available shaft cover hook. Please use the holes provided for this purpose.

In the case of versions with the access aid MEISTEP®, you can now insert the provided handhold bar into the integrated reception socket. Ensure that the small pin on the bar engages. To remove the handhold bar, lift it up slightly and unscrew it counter-clockwise. To close the lid/grating, place it back in the frame. The lid/grating is normally provided with anti-rotation locking devices that are inserted loosely into the holes of the frame. Ensure that the lid/grating is centred.

Reinsert connection elements (bolts, washers if applicable, O-rings etc.). Tighten the bolts by turning clockwise in a cross pattern with a tightening torque of 100 Nm. Products with special locking washers must be tightened with a tightening torque of 125 Nm for M16 bolts and with 150 Nm for M20 bolts.

Operating instructions

Manhole covers with a hinged lid | MEITOP® series

To open the lid, a suitable tool (e.g. pry bar) must be used to lever the lid out of the frame at the position of the leverage opening between the lid and the frame or the lid must be unlocked. After overcoming the closing force of the locking spring, the lid can now be opened to the inspection position (approx. 120°). To close the lid, move it to its safety position (approx. 70°). Move the lid out of its safety position by moving it left and right along the hinge axle and close it in a controlled manner.

NOTE: Once the closing force of the locking springs has been overcome, ensure that the lid is positioned in the frame so that it is flush with the surface.

The lid is removed from and inserted in the frame with a lid tilt of approx. 100°.

Manhole covers with a hinged lid | BUDALOCK® series

To open the lid, a suitable tool must be used to lever the lid out of the frame at the position OPEN AUF or the lid must be unlocked. To do so, move the locking spring toward the lid to overcome the lock on the frame. The lid can now be opened up to the inspection position > 100°. To close the lid, move it to its safety position (approx. 90°).
Move the lid out of its safety position by moving it left and right along the hinge axle and close it in a controlled manner.

NOTE: Once the closing force of the locking springs has been overcome, ensure that the lid/grating is positioned in the frame so that it is flush with the surface.

The lid is removed from and inserted in the frame with a lid tilt of approx. 90°.

Manhole covers with a lid/grating with spring locking mechanism | ECOTOP® series

To open the lid/grating, a suitable tool must be used to lever the lid out of the frame at the position OPEN AUF or the lid must be unlocked. Once the locking force of the locking spring has been overcome, the lid/grating can be removed.
In the case of versions with the access aid MEISTEP®, you can now insert the provided handhold bar into the integrated reception socket. Ensure that the small pin on the bar engages. To remove the handhold bar, lift it up slightly and unscrew it counter-clockwise.
To close the lid, insert the projecting cast-iron protrusion of the lid/grating into the frame (each marked with an arrow). Afterwards lock the lid/grating in place in the frame by applying pressure from above.

NOTE: Once the closing force of the integrally cast spring has been overcome, ensure that the lid is positioned in the frame so that it is flush with the surface.

The lid is removed from and inserted in the frame in a vertical position (lid tilt 90°).

Manhole covers with a lid/grating with spring locking mechanism | BUDATOP® series

To open the lid/grating, a suitable tool must be used to lever the lid out of the frame at the position OPEN AUF or the lid must be unlocked. Once the locking force of the locking spring has been overcome, the lid/grating can be removed.
In the case of versions with the access aid MEISTEP® , you can now insert the provided handhold bar into the integrated reception socket. Ensure that the small pin on the bar engages. To remove the handhold bar, lift it up slightly and unscrew it counter-clockwise.
To close the lid, insert the projecting cast-iron protrusion of the lid/grating into the frame (each marked with an arrow). Afterwards lock the lid/grating in place in the frame by applying pressure from above.

NOTE: Ensure that the lid/grating is positioned in the frame so that it is flush with the surface after being locked in place

In principle, the lid can also be inserted when twisted by 180°.

Manhole covers with a lid/grating with spring locking mechanism |

MEISTAR® series

To open the lid/grating, a suitable tool must be used to lever the lid out of the frame at the lid recess (opposite the anti-twist protection) or the lid must be unlocked. Once the locking force of the locking spring has been overcome, the lid can be removed.
In the case of versions with the access aid MEISTEP®, you can now insert the provided handhold bar into the integrated reception socket. Ensure that the small pin on the bar engages. To remove the handhold bar, lift it up slightly and unscrew it counter-clockwise. To close the lid, insert the anti-twist protection of the lid (opposite the unlocking section) into one of the 4 available recesses on the frame. Afterwards lock the lid in place in the frame by applying pressure from above.

NOTE: Ensure that the lid is positioned in the frame so that it is flush with the surface after being locked in place.

Installation instructions

The following installation instructions are recommendations for installing self-levelling manhole covers with a roll-in frame – which are telescopic in the cone/compensation ring – in traffic areas.

These manhole covers which are telescopic in the cone/compensation ring with a clear diameter of 600 - 610 mm were developed for the use on shafts according to DIN 4034, brick-built or suitable cast-in-place concrete shafts. They are rolled or vibrated into a bituminous road surfacing.

This applies to the following product series:

MEILEVEL®-K | MEITOP®-S | ECOTOP®-SN with hinge

MEILEVEL®-K (manhole cover with loosely inserted lid/grating)

MEITOP®-S (manhole cover with hinged lid)

ECOTOP®-SN (manhole cover with hinged lid)

Scope of delivery:
- Manhole cover consisting of self-levelling cast frame incl. lid
- Optional installation mould article no. 104298
- Optional accessories for manhole covers (dirt traps, lifting and operation spanners)

Installation instructions

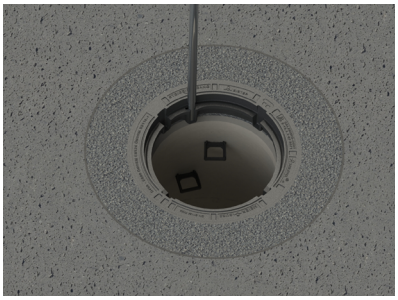

Figure 1

On insertion, manhole covers with the access aid MEISTEP® must be turned so that the access aid is aligned with the manhole steps.

On manhole covers without access aids, 2 dirt trap pockets should be installed parallel to the road and 2 of them should be installed rotated by 90° for appearance reasons.

Manhole covers with a self-levelling frame are telescopic in the cone/compensation ring based on their adjustment range.

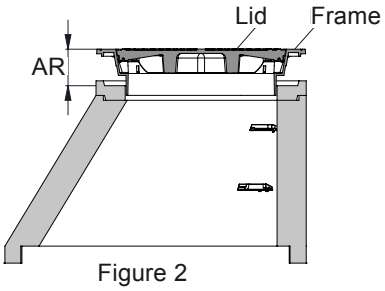

Figure 2

	Adjustment range (AR)	
Series	**min. height**	**max. height**
MEILEVEL®-K	140 mm	180 mm
MEITOP®-S	140 mm	170 mm
ECOTOP®-SN with hinge	110 mm	140 mm

Insert a dirt collection pan in the neck of the shaft, then excavate the surface of the old manhole cover and remove it. Excavate a diameter of the shaft head that permits subsequent problem-free compaction with a compacting machine. Remove and properly replace damaged shaft sections (figure 3).

For the installation height, please refer to the table above.

After the material has hardened sufficiently, insert the installation mould (figure 4). We recommend first spraying the installation mould with a release agent.

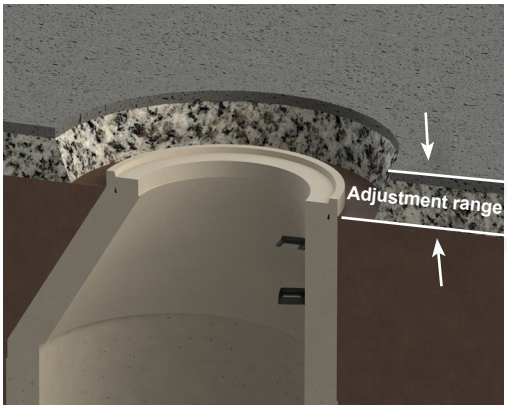

Figure 3

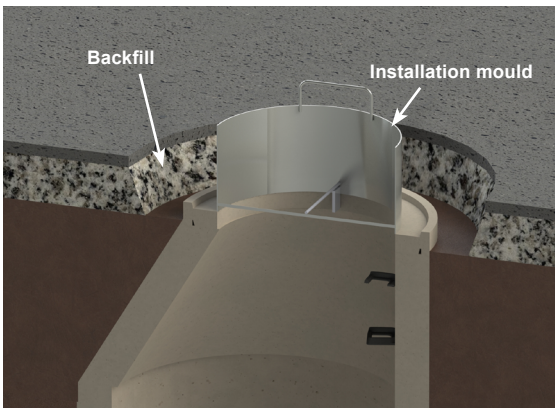

Figure 4

Installation instructions

Then fill the hollow space around the installation mould with hot mixed asphalt, cold asphalt or base layer material as specified by the manufacturer according to ZTV Asphalt-StB up to 40 mm under the top edge of the surface and compact the material.

Then install the TOK® band in the transition area with the existing road surface as specified in ZTV Fug-StB. The final asphalt layer should be approx. 10 to 15 mm higher than the top edge of the adjacent road surface depending on the material. We recommend the use of fine-grained cover layer material, e.g. cover layer grain size 0/8 to 0/11 for hot installation (figure 5).

Slightly compact the inserted material around the installation mould to ensure that the installation mould can be removed without problems.

For covers with a hinge, excavate the area of the hinge box in the asphalt. Depending on the material and degree of compaction, the dirt trap pockets may also have to be excavated.

NOTE: If possible, align hinged manhole covers so that the lid folds down in the direction of travel. An exception must be made for hinge covers with the access aid MEISTEP®. These must be aligned as shown in figure 1.

Now carefully and vertically remove the installation mould (rotate slightly, do not tilt). Break the fresh asphalt edge to the shaft entrance with a chamfer of 50 mm x 50 mm on all sides and remove the asphalt. Then insert the self-levelling manhole cover (figure 6).

Do not vibrate or roll manhole covers with a concrete cast lid. For these manhole covers, either insert the old lid or a fully cast lid first.

Then use a plate compactor/vibration roller to compact the manhole cover with the previously inserted asphalt to the top edge of the asphalt layer (figure 7). If a vibration roller is used, ensure that the vibration is switched off on the first pass. Then pass over the manhole cover until the renovation point incl. the manhole cover is level with the adjacent asphalt.

After completion of the work, carry out the following tasks: Clean the support surfaces and check the function units such as cushioning inserts, locking units, screw connections and hinge units. Remove the dirt collection basin.

Ensure that vehicular or pedestrian traffic is not permitted in the area of the finished installation before the respective materials have fully cured. Please observe the curing times specified by the manufacturer.

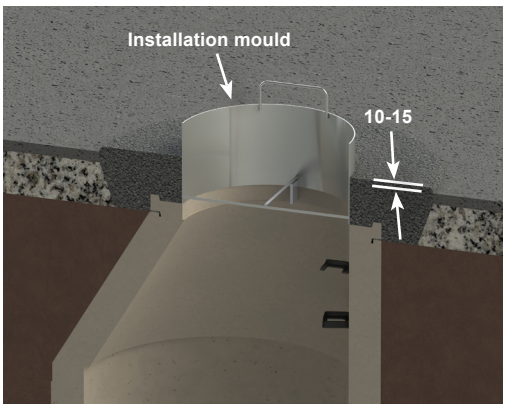

Figure 5

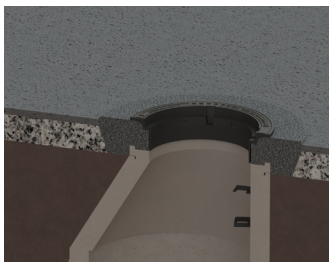
Figure 6

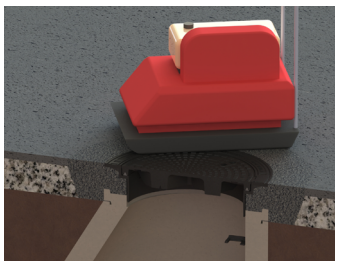
Figure 7

Maintenance instructions

Please refer to the individual operating instructions to ensure technically correct function (see page 4).

Perform additional maintenance depending on the amount of traffic and loads.

	Manhole covers with a loosely inserted lid/ grating	Manhole covers with hinge, screw connection or locking device.	Manhole covers with gasket (surface water-tight, back-pressure proof)
Maximum number of axle loads	every 500,000	every 350,000	every 250,000
but at least	every 12 months	every 9 months	every 6 months

When the maintenance intervals have been reached, carry out the following activities:

Maintenance	**Recommended measure**
Inspect the general condition of the entire cover.	Replace defective or loose covers.
Inspect the cushioning inserts (if applicable).	Replace loose, defective or worn elements.
Inspect the functional components such as hinges, screw fasteners, bolts, split pins, locking springs.	Clean the functional components. Replace loose, defective or worn elements. Apply grease to bolts or screw fasteners.
Check the support surfaces.	Thoroughly clean the support surfaces including the cushioning insert (if applicable).
In the case of versions with assisted opening with gas springs, check the condition of the mechanics and the gas springs.	Replace any defective or worn components. Clean and grease moving parts.
In the case of surface water-tight/back-pressure proof designs, inspect the gaskets and O-rings if applicable.	Replace defective or worn elements. The required set can be purchased from construction hardware dealers.
Inspect the integrated reception socket MEISTEP®.	Clean the integrated reception socket MEISTEP®, in particular, the bayonet fitting which the handhold bar enters. If the integrated reception socket is damaged, it is necessary to replace the frame.

MEIERGUSS
QUALITÄT

MeierGuss sets the benchmark for quality

As a manufacturer and specialist for sewer castings, MeierGuss stands for high quality standards and first-class, ready-to-install cast iron products. Our products are manufactured at three production sites in Germany. Thanks to the consistent high quality of our products and on-time delivery, together with continuous investment, we have achieved market leadership in Germany.

ISO 9001
ISO 14001
ISO 50001
BUREAU VERITAS Certification

KIWA

Quality in sewer casting is particularly important, as these products have to meet high safety standards and are subject to increasingly high demands due to steadily increasing traffic. The MeierGuss Group is one of the few suppliers in the area of sewer casting whose distribution company and production sites are certified in accordance with DIN EN ISO 9001, DIN EN ISO 14001 and DIN EN ISO 50001.

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Our operating, installation and maintenance instructions you will find on our website: www.meierguss.de

1 | 04 | 2020 | 10315-EXP-GB | Subject to technical changes. – With the publication of this edition, all previous operating, installation and maintenance instructions become invalid.
For the sake of the environment, we do not coat the surfaces of our products. The resulting traces of rust do not affect the quality of the products..