

Concrete cones and adhesive

Tie points

Instructions for Assembly and Use – Standard configuration – Version 2.2



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System components

Concrete cones / plugs						
Image	Article no.	Pos.	Designation	Adhesive	Consumption of adhesive per cone	Number of cones per kg of adhesive
	031642	55.1	Concrete Cone DK DW15 Ø58x30mm ^{1), 2), 3)}	Repoxal adhesive Article no. 031550 – for recessed installation	~ 24 g	~ 41 pcs
				Sealing Adhesive-3 Article no. 131709 – for flush-mounted installation	~ 27 g	~ 37 pcs
	031643	55.2	Concrete Cone DK Ø58x52mm uni ^{1), 2), 3), 4)}	Sealing Adhesive-3 Article no. 131709	~ 34 g	~ 29 pcs
	132972	55.3	Concr. Cone-2 DK Ø58/52mm uni ^{1, 2, 3)}	Sealing Adhesive-3 Article no. 131709	~ 24 g	~ 41 pcs
	031650	55.4	Concrete Cone SK DW20 Ø67x60mm ^{1, 2, 3)}	Sealing Adhesive-3 Article no. 131709	~ 45 g	~ 22 pcs
	031651	55.5	Concrete Cone SK DW26 Ø100x60mm ^{1, 2, 3)}	Sealing Adhesive-3 Article no. 131709	~ 76 g	~ 13 pcs
	104643	61	Lead Cone SK DW15 ⁵⁾	Install without adhesive.	–	–
	031652	64.1	Concrete Cone KK M24 Ø67x52mm	Sealing Adhesive-3 Article no. 131709	~ 33 g	~ 30 pcs
	031653	64.2	Concrete Cone KK M30 Ø80x52mm	Sealing Adhesive-3 Article no. 131709	~ 43 g	~ 23 pcs
	031654	64.3	Concrete Cone KK M36 Ø90x52mm	Sealing Adhesive-3 Article no. 131709	~ 57 g	~ 17 pcs
	136576	64.4	Concrete Cone HD Ø105x52mm M36	Sealing Adhesive-3 Article no. 131709	~ 84 g	~ 12 pcs

Applications			
	Article no.	Pos	Shuttering components
	031635	51.1	Sealing Cone DK DW15 35mm
	031639	50.1	Sealing Ring SK DW15 uni
	112937	51.8	Magnet Cone MX 15
	127425	51.9	Magnet Cone MX 18
	031636	51.2	Sealing Cone DK DW15 55mm
	031639	50.1	Sealing Ring SK DW15 uni
	126609	51.5	Anchor Cone-2 SK DW15
	031639	50.1	Sealing Ring SK DW15 uni
	031637	51.3	Sealing Cone DK DW20 55mm
	031638	51.4	Sealing Cone DK DW26 55mm
	112937	51.8	Magnet Cone MX 15
	127425	51.9	Magnet Cone MX 18
	031636	51.2	Sealing Cone DK DW15 55mm
	031639	50.1	Sealing Ring SK DW15 uni
	126609	51.5	Anchor Cone-2 SK DW15
	031639	50.1	Sealing Ring SK DW15 uni
	031637	51.3	Sealing Cone DK DW20 55mm
	031638	51.4	Sealing Cone DK DW26 55mm
	112937	51.8	Magnet Cone MX 15
	127425	51.9	Magnet Cone MX 18
	031646	51.6	Anchor Cone SK DW20
	031648	50.2	Sealing Ring SK DW20
	031647	51.7	Anchor Cone SK DW26
	031649	50.3	Sealing Ring SK DW26
	126609	51.5	Anchor Cone-2 SK DW15
	031220	62.2	Climbing Cone-2 DW15 M24 ga
	114158	62.1	Screw-On Cone-2 DW20 M24 ga
	029480		Mounting Ring M30 ga
	029490		Mounting Ring M36 ga
	029480		Mounting Ring M30 ga
	029490		Mounting Ring M36 ga
	126609	51.5	Anchor Cone-2 SK DW15
	031646	51.6	Anchor Cone SK DW20
	031647	51.7	Anchor Cone SK DW26
	128536	62.4	Heavy Duty Cone DW26 Ø10.8 M36

¹⁾ sound-absorbing

²⁾ suitable for drinking water

³⁾ fire resistant F240

⁴⁾ impermeable to water

⁵⁾ radiation-resistant, install in addition to SK Concrete Cone DW 15

Concrete cones / plugs						
Image	Article no.	Pos.	Designation	Adhesive	Consumption of adhesive per cone	Number of cones per kg of adhesive
	116234	67.1	Concrete Plug Ø32mm	Repoxal adhesive Article no. 031550	~ 9 g	~ 108 pcs
	123820	67.2	Concrete Plug Ø40mm	Repoxal adhesive Article no. 031550	~ 12 g	~ 83 pcs
	126699	72	Concrete Plug MX15 50mm Type 1 ^{1), 3), 4)}	Repoxal adhesive Article no. 031550	~ 8 g	~ 122 pcs
	126700	73	Concrete Plug MX15 50mm Type 2 ^{1), 3), 4)}	Repoxal adhesive Article no. 031550 Sealing Adhesive-3 Article no. 131709	~ 9 g	~ 107 pcs
	136737	74	Concrete Plug MX18 50mm Type 3 ^{1), 3)}	Repoxal adhesive Article no. 031550	~ 11 g	~ 88 pcs
	136738	75	Concrete Plug MX18 50mm Type 4 ^{1), 3)}	Repoxal adhesive Article no. 031550 Sealing Adhesive-3 Article no. 131709	~ 13 g	~ 76 pcs
	031360	76	Concrete Plug Ø22mm	Repoxal adhesive Article no. 031550	~ 5 g	~ 183 pcs

Sealing Adhesive-3

2 components

Article no. 131709 – set of tins, 6 tins each component A + 6 tins each component B. Also available in tins as single components:

- Article no. 131710, Sealing Adhesive-3, tin KO-A
- Article no. 131711, Sealing Adhesive-3, tin KO-B

Sealing Adhesive-3 ensures an all-round uniform sealing joint when installing concrete cones. This ensures that the concrete cone is centred. At the same time, it prevents the concrete cone from settling. (Fig. 01)

Repoxal adhesive

2 components

Article no. 031550

Repoxal adhesive

- connects the concrete cone/plug to the concrete wall by means of a thin layer – thin-layer adhesive joint (full-surface bonding).

The Concrete Cone DK DW15 Ø58x30mm can only be coated with Repoxal adhesive in the lower third in order to prevent the adhesive from leaking out of the gap. In this application, verification for ¹⁾ (sound-absorbing) and ³⁾ (fire resistant F240) is not required. (Fig. 02)

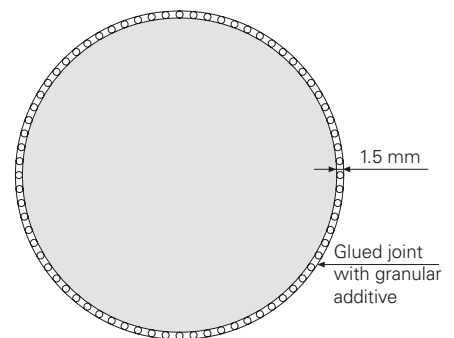


Fig. 01



Fig. 02

Applications		
Article no.	Shuttering components	
026230 116233 115150	Anchor Sleeve M24 Cone FRC Ø32/52mm C=40 Anchor Position. M24x65mm ga	
026230 123800 129157	Anchor Sleeve M24 Threaded Cone M24/40mm Wire Nail 4.6x130mm	
113847 112387 112464	Tie MX 15 15–25 Tie MX 15 20–30 Tie MX 15 30–40	
123901 123902 123903 123904 123905	Tie MX 18 15–25 Tie MX 18 20–30 Tie MX 18 30–40 Tie MX 18 40–50 Tie MX 18 50–60	
065033 031260 031390	Concrete Plug Ø22mm Fibre Cement Pipe FZR Ø22mm 90 Cone FZR Ø22mm	

¹⁾ sound-absorbing

²⁾ suitable for drinking water














³⁾ fire resistant F240

⁴⁾ impermeable to water




⁵⁾ radiation-resistant, install in addition to SK Concrete Cone DW 15

Key

Pictogram | Definition

-  Danger/Warning/Caution
-  Note
-  To be complied with
-  Load-bearing point
-  Visual inspection
-  Tip
-  Incorrect use
-  Safety helmet
-  Safety shoes
-  Safety gloves
-  Safety goggles
-  Personal protective equipment to prevent falling from a height (PPE)
-  Observe additional documentation

Arrows

-  Arrow representing an action
-  Arrow representing a reaction of an action*
-  Arrow representing forces

* If not identical to the action arrow.

Safety instruction categories

The safety instructions alert site personnel to the risks involved and provide information on how to avoid these risks. Safety instructions can be found at the beginning of the section or before instructions for action and are highlighted as follows:

Danger

This sign indicates an extremely hazardous situation that could result in death or serious, irreversible injury if the safety instructions are not followed.

Warning

This sign indicates a hazardous situation that could result in death or serious irreversible injury if the safety instructions are not followed.

Caution

This sign indicates a hazardous situation that could result in minor or moderate injury if the safety instructions are not followed.

Note

This sign indicates situations in which failure to observe the information can result in material damage.

Format of the safety instructions

Signal word

Type and source of hazard!
Consequences of non-compliance.
⇒ Preventative measures.

Dimensions

Dimensions are usually given in cm. Other measurement units, e.g. m, are shown in the illustrations.

Conventions

- Instructions are numbered with: 1., 2., 3.
- The result of an instruction is shown by: →
- Position numbers are clearly provided for the individual components and are given in the drawing, e.g. **1**, in the text in brackets, for example (**1**).
- Multiple position numbers, i.e. alternative components, are represented with a slash: e.g. **1/2**.

Terminology

The following terms have been renamed to make them easier to read and understand:

- "Sealing Cone DK" or "Tie Cone SK" in the headings or instructions to "cones".
- "Sealing Adhesive-3" or "Repoxal adhesive" to "adhesive".

Notes on illustrations

The illustration on the front cover of these instructions is understood to be a system representation only. The assembly steps presented in these Instructions for Assembly and Use are shown in the form of examples with only one component size. They are valid for all component sizes contained in the standard configuration.

To facilitate understanding, illustrations are sometimes incomplete. The safety equipment that is not shown in these detailed descriptions must nevertheless be available.

Target groups

Contractors

These Instructions for Assembly and Use are designed for contractors who either

- assemble, modify and dismantle PERI systems, or
- use them, e.g. for concreting, or
- allow them to be used for other operations, e.g. carpentry or electrical work.

Safety and Health Protection Coordinator*

- is appointed by the client,
- must identify potential hazards during the planning phase,
- determines measures that provide protection against risks,
- creates a safety and health protection plan,
- coordinates the protective measures for the contractor and site personnel so that they do not endanger each other,
- monitors compliance with the protective measures.

Competent person

- is appointed by the contractor,
- must be on site for all system operations,
- prepares and updates the plan for assembly, modification and dismantling,
- prepares and updates the plan for use of the system by the user,
- supervises the assembly, modification and dismantling work (supervisor).

Competent persons qualified to carry out inspections

Due to the specialist knowledge gained from professional training, professional experience and recent professional activity, the competent person qualified to carry out inspections has a reliable understanding of safety-related issues and can carry out inspections correctly. Depending on the complexity of the inspection to be undertaken, e.g. scope of testing, type of testing or the use of certain measuring devices, a range of specialist knowledge is necessary.

Qualified personnel

PERI systems may only be assembled, modified or dismantled by personnel who are suitably qualified to do so. Qualified personnel must have completed a course of training** in the work to be performed, covering the following points at least:

- Explanation of the plan for the assembly, modification or dismantling of the system in an understandable form and language.
- Description of the measures for safely assembling, modifying or dismantling the system.
- Naming of the preventive measures to be taken to avoid the risk of persons and objects falling.

- Designation of the safety precautions in the event of changing weather conditions that could adversely affect the safety of the system, as well as the personnel concerned.
- Details regarding permissible loads.
- Description of all other risks and dangers associated with assembly, modification or dismantling operations.



- **Ensure that the respective current version of relevant national guidelines and regulations are complied with!**
- **If no country-specific regulations are available, PERI recommends that you proceed according to German guidelines and regulations.**
- **Observe manufacturer-specific instructions for chemical components (e.g. safety data sheets).**

Additional technical documentation

- Safety data sheets for the adhesives: Scan or click on the QR code to access the current issue of the safety data sheet for Sealing Adhesive-3.



<https://peri.link/safety-data-sheet>

* Valid in Germany e.g.: Regulations for Occupational Health and Safety on Construction Sites 30 (RAB 30).

** Instructions are given by the contractor themselves or a competent person selected by them.

Intended use

Product description

PERI products have been designed to be used exclusively in industrial and commercial sectors by suitably trained personnel only.

Concrete cones

Characteristic of concrete cones:

- the visible surface meets SB4-P4 as defined in "DBV Code of Practice 'Architectural Concrete' (2015 version)"
- grey concrete colour (the colour of the concrete cones may vary slightly due to the manufacturing process).
- certified water permeability in accordance with DIN EN 12390-8:2019 (corresponds to 50 m head of water)

Various PERI tie systems and therefore different groups of concrete cones can be used depending on the requirements of the application. For an overview of the concrete cones, see the "System components" table on Page 4.

PERI tie systems* MX, SK and DK are

- impermeable to water in accordance with DIN EN 12390-8:2019
- fire resistant F240
- sound-absorbing

Adhesive

There are two different types of adhesive. These are:

- Sealing Adhesive-3
- Repoxal glue

Sealing Adhesive-3

Sealing Adhesive-3

- is a 2-component adhesive
- has a grey concrete colour
- has a processing time of approx. 1 hour at 23 °C
- has a density of 1.70 g/cm³
- is resistant to salt water
- is cold and heat-resistant
- is acid resistant to a limited extent
- is suitable for:
 - drinking water tanks
 - containers for foodstuffs according to KTW (German Drinking Water Standard) and DVGW (German Technical and Scientific Association for Gas and Water) recommendations

- ensures an all-round uniform sealing joint when installing concrete cones by means of an granular additive with particles of a suitable size for the gap. This ensures that the concrete cone is centred and prevents the concrete cone from settling.

Repoal adhesive

Repoal adhesive

- is a 2-component adhesive
- has a light grey colour
- has a density of 1.54 g/cm³



Note

See also the manufacturer's data sheet!

* always take the overall system and all its framework conditions into account.

Instructions for Use

Use in a way not intended, deviating from the standard configuration or the intended use according to the Instructions for Assembly and Use, represents a misapplication with a potential safety risk, e.g. risk of falling.

Only PERI original components may be used. The use of other products and spare parts is not allowed and represents a misapplication with associated safety risks

Changes to PERI components are not permitted.

The system described in these Instructions for Assembly and Use may contain patent-protected components.

Cross-system



Safety instructions apply to all service life phases of the system.

General information

The contractor must ensure that the Instructions for Assembly and Use supplied by PERI are available at all times and understood by the site personnel.

These Instructions for Assembly and Use can be used as the basis for creating a risk assessment. The risk assessment is compiled by the contractor. The Instructions for Assembly and Use are not a substitute for a risk assessment!

Observe and comply with the safety instructions and permissible loads.

For the application and inspection of PERI products, observe the current laws and regulations in force in the respective countries.

Materials and working areas are to be inspected before each use and assembly for:

- damage,
- stability and
- functional correctness.

Damaged components must be exchanged immediately on site and no longer used.

Safety components are to be removed only when they are no longer required.

When on slab formwork, scaffolds and working platforms:

- do not jump,
- do not run,
- do not drop anything from or onto it.

Components provided by the contractor must comply with the characteristics stipulated in these Instructions for Assembly and Use and all applicable laws and standards. Unless otherwise indicated, the following applies in particular:

- Timber components:
Strength class C24 for solid wood according to DIN EN 338:2016-07.
- Scaffolding tubes:
Galvanised steel tubes with minimum dimension \varnothing 48.3 x 3.2 mm according to DIN EN 12811-1:2004-03 4.2.1.2.
- Scaffolding tube couplings:
according to DIN EN 74-1:2022-09 and DIN EN 74-2:2022-09.

Deviations from the standard configuration are only permitted after a further risk assessment has been carried out by the contractor.

Appropriate measures for working and operational safety, as well as stability, are defined on the basis of this risk assessment.

Corresponding proof of stability can be provided by PERI on request if the risk assessment and resulting measures to be implemented are made available.

Nails and wood screws must not protrude. Only allow other connecting components to protrude to the extent that is necessary.

If necessary, mark protruding components or fit them with protective material.

Secure all bolts with cotter pins and all screws with nuts

Before and after extraordinary events that may have damaging effects on the safety of the system, the contractor must immediately

- produce another risk assessment, the results of which must be used to implement suitable measures to ensure the stability of the system,
- arrange for an extraordinary inspection to be carried out by a competent person qualified to do so. The aim of this inspection is to detect and repair damage in good time in order to ensure safe use of the system.

Exceptional events could be:

- accidents, fire, explosions, collisions,
- long periods of non-use,
- natural events, e.g. heavy rainfall, heavy snowfall, significant icing, storms or earthquakes.

Suitable measures could be:

- removing nets/tarpaulin,
- clearing snow and ice,
- reducing live loads,
- securing loose materials.

Assembly, modification and dismantling work

PERI systems may only be assembled, modified or dismantled under the supervision of a person qualified to do so and by technically suitable employees. The qualified personnel must have received appropriate training for the work to be carried out with regard to specific risks and dangers.

On the basis of the risk assessment and Instructions for Assembly and Use, the contractor must create installation instructions in order to guarantee safe assembly, modification and dismantling of the climbing unit.



The contractor must ensure that the personal protective equipment required for the assembly, modification or dismantling of the scaffolding system, e.g.

- Safety helmet,
- Safety shoes,
- Safety gloves,
- Safety goggles,

is available and used as intended.

For work at a higher level, use an approved ladder or platform system, or an assembly scaffold.



If personal protective equipment against falling from a height (PPE) is required or specified in local regulations, the contractor must determine appropriate attachment points on the basis of the risk assessment.

The PPE to be used to prevent falling is determined by the contractor.

The contractor must

- provide safe working areas for site personnel, which are to be reached through the provision of safe access ways. cordon off and clearly mark danger zones.
- guarantee stability during all stages of construction, in particular during assembly, modification and dismantling operations.
- ensure and demonstrate that all loads that occur are safely transferred.

Use

Every contractor who uses or allows the PERI systems to be used, is responsible for ensuring that the equipment is in good condition.

If the system is used successively or at the same time by several contractors, the health and safety coordinator must point out any possible mutual hazards and all work must then be coordinated.

When systems are used in publicly accessible areas,

- measures to prevent unauthorised use, e.g. enclosure of access areas, must be taken.
- Measures are taken against injuries caused by bumping against protruding components, e.g. assembly of protective components.

Always keep the contact surfaces of the system free of dirt, objects, snow and ice.

Close off the system in extreme weather conditions.

System-specific

Strike components only when the concrete has sufficiently hardened and the person in charge has given the go-ahead for deshuttering to take place.

Anchoring

Anchoring is to take place only if the anchorage has sufficient concrete strength.

Adhesive

Adhesives can pose hazards. Observe the manufacturer's instructions for use and safety data sheets.

Removing tie cones



Condition after striking.

- 50** Sealing cover
- 51** Sealing Cone DK or Tie Cone SK or Magnet Cone MX

Tools for removing tie cones

Pos.	Anchoring	Pos.	Tool	Article no.
50.1	Sealing Ring SK DW15 uni	50	Screwdriver	
50.2	Sealing Ring SK DW20			
50.3	Sealing Ring SK DW26			
51.1	Sealing Cone DK DW15 35mm	52.1	Cone Spanner DK uni	031655
51.2	Sealing Cone DK DW15 55mm			
51.3	Sealing Cone DK DW20 55mm			
51.4	Sealing Cone DK DW26 55mm			
51.5	Anchor Cone-2 SK DW15	52.2	Socket SW 27 – ½" + ratchet wrench ½"	029650
51.6	Anchor Cone SK DW20	52.3	Socket Wrench SW36 chromate	031480
51.7	Anchor Cone SK DW26	52.4	Socket SW 46 – 1" + ratchet wrench 1"	029630 029610
51.8	Magnet Cone MX 15	52.5	Magnet Cone Spanner MX 15 / MX 18	126696
51.9	Magnet Cone MX 18			

Tab. A1.01

1. If present: Lift and remove the sealing cover (**50**) with a screwdriver or similar tool. (Fig. A1.01)
2. Only in the case of magnet cones: Use the lug of the magnet cone spanner to remove concrete slurry promptly after deshuttering. (Fig. A1.02)

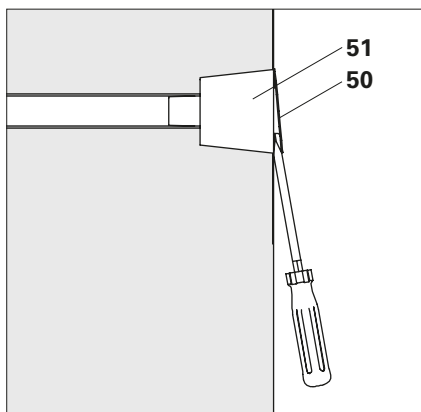


Fig. A1.01

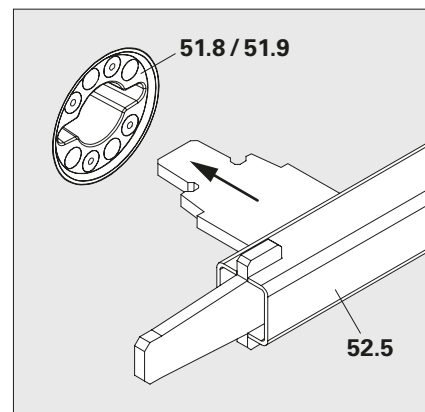


Fig. A1.02

3. Unscrew cone (**51**) with the appropriate tool (**52**), see (Tab. A1.01). (Fig. A1.03 + Fig. A1.04)

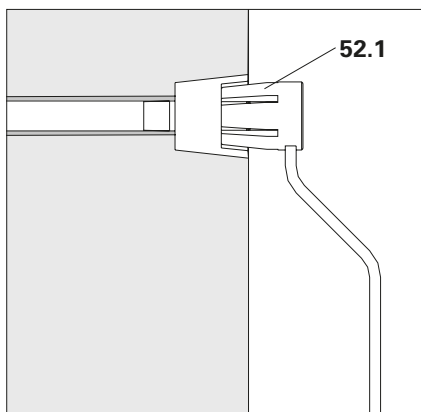


Fig. A1.03

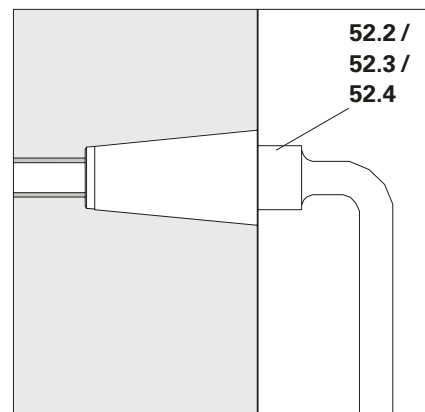


Fig. A1.04

4. Clean the hole, e.g. with a brush.
(Fig. A1.05)

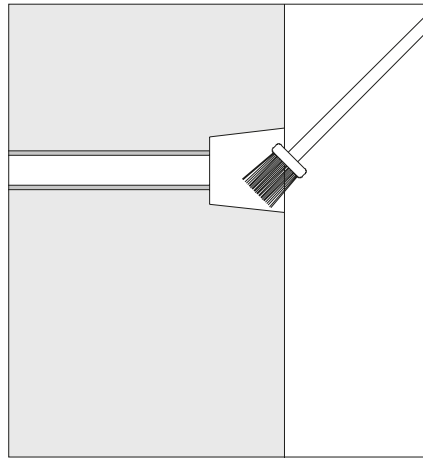


Fig. A1.05

Adhesive



Warning

The adhesive can pose hazards.

- Observe the respective manufacturer's instructions for use and safety data sheets.



Rough Tube 22

Select adhesive, see "System components" on Page 4.

Installing concrete cones



- The surface of the cone openings must be dry and free of ice, grease and dust.
- Open the packing tub before fixing and allow the concrete cones to dry out.
- Ensure that the ambient temperature in the vicinity of the adhesive conforms to the manufacturer's instructions.
- The specific requirements of the area of application, e.g. impermeable to water, fire-resistant or radiation-resistant, must be checked by the customer to see whether the measures taken are sufficient.
- The tie points will only be tight if the concrete cones are glued in carefully.

Tool

- 53** Tongs for Concrete Cone DK or SK (Tab. A1.02)
- 54** Concrete cone gauge

Tongs for concrete cone for installing concrete cones

Pos.	Concrete cone	Pos.	Tool	Article no.
55.1	Concrete Cone DK DW15 Ø58x30mm	53.1	Tongs for Concrete Cone DK Ø58mm	031644
55.2	Concrete Cone DK Ø58x52mm uni			
55.3	Concr.Cone-2 DK Ø58/52mm uni			
55.4	Concrete Cone SK DW20 Ø67x60mm	53.2	Cone Pliers SK Ø67mm	031656
55.5	Concrete Cone SK DW26 Ø100x60mm	53.3	Tongs for Concrete Cone SK Ø100mm	031657

Tab. A1.02

Components

54	Concrete cone gauge
55.1	Concrete Cone DK DW15 Ø58x30mm
55.2	Concrete Cone DK Ø58x52mm uni
55.3	Concr.Cone-2 DK Ø58/52mm uni
55.4	Concrete Cone SK DW20 Ø67x60mm
55.5	Concrete Cone SK DW26 Ø100x60mm
56	Sealing Adhesive-3
57	Repoxal adhesive



- Only ever mix full tins of Sealing Adhesive-3.
- The specific requirements for architectural concrete, e.g. adhesive residue, must be checked by the customer.
- The colour of the concrete cones may vary slightly due to the manufacturing process.

Preparation

Prepare the adhesive (**56 / 57**) according to the manufacturer's instructions.

Assembly

1. Apply a thin, even coat of concrete adhesive (**56 / 57**) to the cone opening. (Fig. A1.06)
2. Hold the dry concrete cone (**55**) with suitable tongs for concrete cones (**53**) and apply the prepared adhesive (**56 / 57**) evenly to the sides and end faces, at least 2 mm thick. (Fig. A1.07)
3. Insert the concrete cone into the tie point and turn it slightly several times → The adhesive spreads out evenly. (Fig. A1.08)
4. Tap it with the concrete cone gauge (**54**) until it is level. (Fig. A1.09)
5. Scrap the surplus adhesive off with a filling knife. (Fig. A1.10) → The tie point is clean and tightly closed.



Fig. A1.06

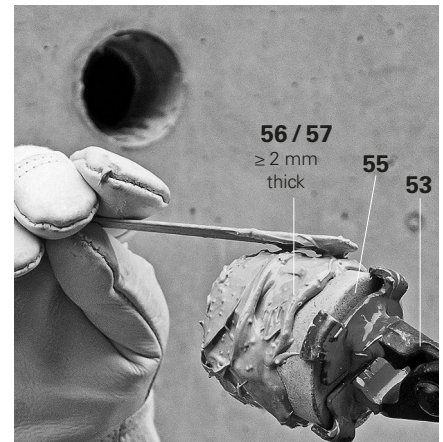


Fig. A1.07

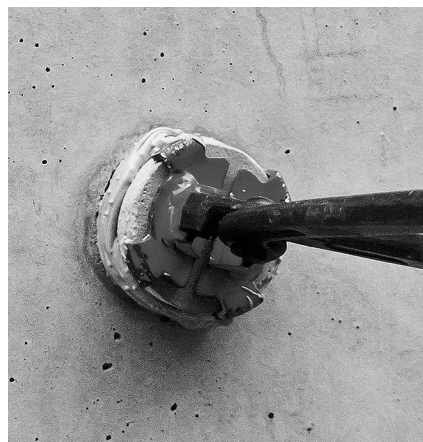


Fig. A1.08



Fig. A1.09



Fig. A1.10

Installing the lead cone



- Condition after striking.
- For the purposes of radiation optimisation, the tie rod without spacer tube is a lost component. The Lead Cone SK is installed in addition to the Concrete Cone DK.
- The specific requirements of the area of application, e.g. impermeable to water, fire-resistant or radiation-resistant, must be checked by the customer to see whether the measures taken are sufficient.
- Tie Rod DW 15 for wall thickness ≥ 30 cm.
- Installed on both sides.

Components for removal

- 50 Sealing cover
- 51 Sealing Cone DK

Assembly equipment

- | | | |
|------|---------------------|--------|
| 52.1 | Cone Spanner DK uni | 031655 |
| 59 | Steel tube | |
| 60 | Hammer | |

Pos. Components Article no.

- | | | |
|------|----------------------------------|--------|
| 55.2 | Concrete Cone DK
Ø58x52mm uni | 031643 |
| 56 | Sealing Adhesive-3 | 131709 |
| 61 | Lead Cone SK DW15 | 104643 |

Assembly

1. Remove the tie cone (51) with Cone Spanner DK (52.1). (Fig. A2.01)
2. Lift off and remove the sealing cover (50). (not shown)
3. Insert the lead cone (61) into the recess. (Fig. A2.02)
4. Tap in the lead cone with steel tube (59) and hammer (60).
→ Lead cone is deformed by ~ 15 mm (Fig. A2.03)
5. Glue in the concrete cone, see "Installing concrete cones" on Page 15.
6. Repeat points 1 to 5 on the other side of the wall.
(Fig. A2.01 + Fig. A2.04)

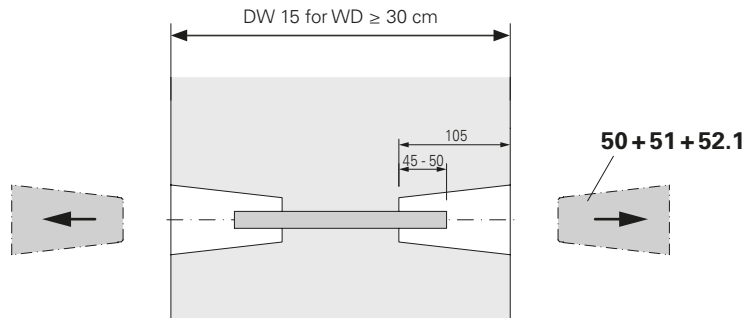


Fig. A2.01

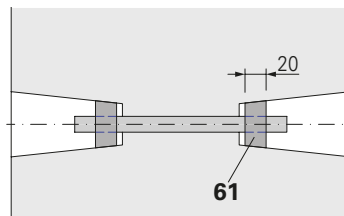


Fig. A2.02

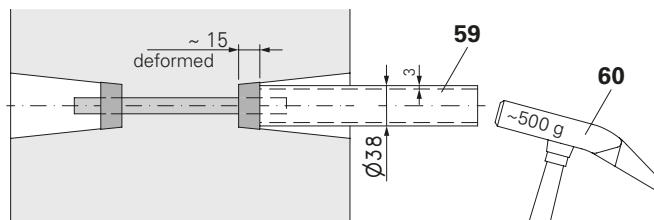


Fig. A2.03

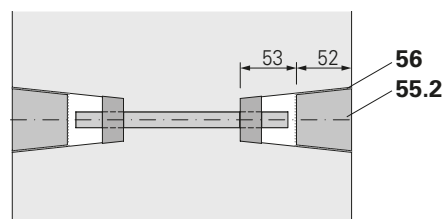


Fig. A2.04



For tools for installing and removing cones, see Section "A1 Concrete Cones DK and SK" on page 14.

Concrete Cones KK and SWLK

- For architectural concrete or water-proof concrete, seal the tie holes of the KK Climbing Cones with KK Concrete Cones.
- SWLK Concrete Cones are used to seal the tie points of the Heavy-Duty Cone M36/DW26 – Ø 108 mm.



- The specific requirements of the area of application, e.g. impermeable to water, fire-resistant or radiation-resistant, must be checked by the customer to see whether the measures taken are sufficient.
- Only ever use Sealing Adhesive-3 for KK Concrete Cones.
- Sealing Adhesive-3 ensures an all-round uniform sealing joint when installing concrete cones. It prevents the concrete cone from setting.

Components for removal

- 62.1** Screw-On Cone-2 DW20 M24 ga
- 62.2** KK Climbing Cone-2 DW15 M24 ga
- 62.3** KK Climbing Cone M36
- 62.4** SWLK Heavy Duty Cone DW26 Ø10.8 M36

Removing tie cones

1. Loosen the climbing cone (**62**) with a suitable tool, see (Tab. A3.01).
2. Unscrew the climbing cone by hand and remove. (Fig. A3.01)

Tools for removing climbing cones

Pos.	Tie cone	Pos.	Tool	Article no.
62.1	Screw-On Cone-2 DW20 M24 ga	63.1	Socket Wrench SW36 chromate	031480
62.2	Climbing Cone-2 DW15 M24 ga	63.2	Socket SW 46 – 1" + ratchet wrench 1"	029630 029610
62.3	Climbing Cone M 36	63.3	12-point Wrench Socket SW 55 - 1"+ ratchet wrench 1"	029640 029610
62.4	Heavy Duty Cone DW26 Ø10.8 M36	63.4	Recovering Tool SW 36 + ratchet wrench 1"	128601 029610

Tab. A3.01

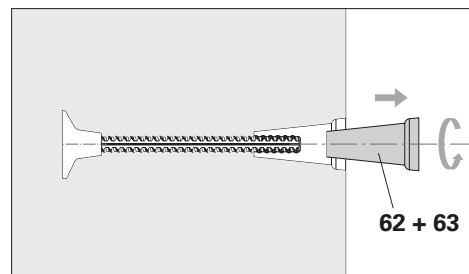


Fig. A3.01

Installing concrete cones



Warning

The adhesive can pose hazards.

- Observe the manufacturer's instructions for use and safety data sheets.

Installing components

56 Sealing Adhesive-3

64.1 Concrete Cone KK M24 Ø67x52mm

64.2 Concrete Cone KK M30 Ø80x52mm

64.3 Concrete Cone KK M36 Ø90x52mm

64.4 Concrete Cone SWLK Ø105x52mm M36

Preparation

Prepare the adhesive (**56**) according to the manufacturer's instructions.

Assembly

1. Coat the outer surface of the KK Concrete Cone (**64**) with prepared adhesive (**56**).
2. Insert the KK Concrete Cone into the tie hole by hand.
Tongs for concrete cone are not required for this.
→ The tie hole is closed. (Fig. A3.02)

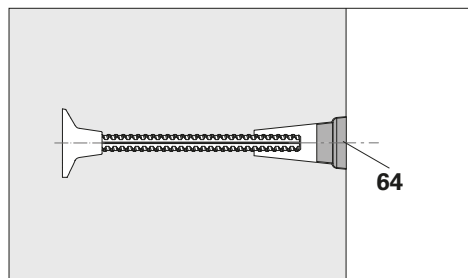


Fig. A3.02

Installing concrete plugs



There are two sizes of tie hole and therefore also two concrete plugs.

- Ø 32 mm for fibre cement pipe – lost component. (Fig. A4.01)
- Ø 40 mm for threaded cone. (Fig. A4.02)
- Remove add-on parts
- Install concrete plugs with Repoxal adhesive only.

Pos.	Installation components	Article no.
57	Repoxal adhesive	031550
67.1	Concrete Plug Ø32mm	116234
67.2	Concrete Plug Ø40mm	123820

Adhesive



Warning

The adhesive can pose hazards.

⇒ Observe the manufacturer's instructions for use and safety data sheets.

Preparation

Prepare the adhesive (57) according to the manufacturer's instructions.



Fig. A4.01



Fig. A4.02

Sealing the tie hole for Concrete Plug Ø32mm

1. Clean tie hole.
2. Apply the prepared Repoxal adhesive to one end surface and the side surface of the Concrete Plug Ø32mm (**67.1**). (Fig. A4.03)
3. Insert the concrete plug into the opening and tap it into the tie hole with a rubber mallet until it is flush. (Fig. A4.04)
4. Remove adhesive residue with a spatula. (not shown)

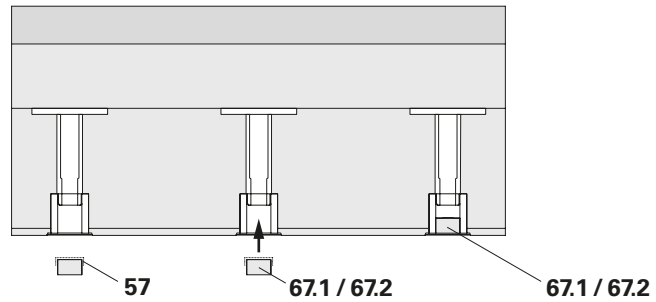


Fig. A4.03

Sealing the tie hole for Concrete Plug Ø40mm

1. Remove threaded cone.
2. Clean tie hole.
3. Apply the prepared adhesive (**57**) to one end surface and the side surface of the Concrete Plug Ø40mm (**67.2**).
4. Insert the concrete plug into the opening and tap it into the tie hole with a rubber mallet until it is flush.
5. Remove adhesive residue with a spatula. (not shown)

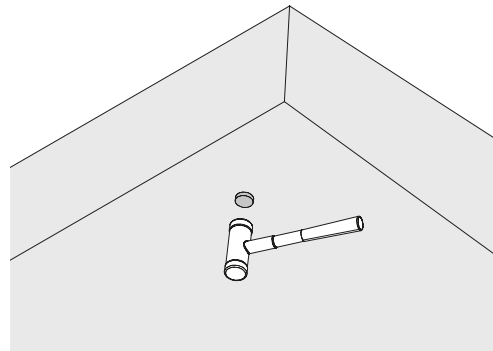


Fig. A4.04

Closing the tie hole



- Concrete Plug MX15 50mm Type 1 and Concrete Plug MX15 50mm Type 2 are tested for water impermeability.
- The specific requirements of the area of application, e.g. impermeable to water, fire-resistant or radiation-resistant, must be checked by the customer to see whether the measures taken are sufficient.

Tools for installation of the components

68	Threaded rod M 12	1x
69	Nut M 12	1x
70	Washer	1x

Components to be installed

57	Repoxal adhesive	1x
	Article no. 031550	
57	or Sealing Adhesive-3	1x
	Article no. 131709	
71a	Plug MXM 15 Ø 18.3	2x
	Article no. 124895	
71b	Plug MX 18 Ø 24-28	2x
	Article no. 125300	
72	Concrete Plug MX15 50mm Type 1	1x
	Article no. 126699	
73	Concrete Plug MX15 50mm Type 2	1x
	Article no. 126700	
74	Concrete Plug MX18 50mm Type 3	1x
	Article no. 136737	
75	Concrete Plug MX18 50mm Type 4	1x
	Article no. 136738	

Adhesive



Warning

The adhesive can pose hazards.
⇒ Observe the manufacturer's instructions for use and safety data sheets.

Preparation

Prepare the adhesive (**57**) according to the manufacturer's instructions.

- Observe the following during installation:
 - Conical tie hole
 - Different diameters of plugs
 - Concrete Plug MX15 50mm Type 1 or Concrete Plug MX15 50mm Type 2
 - Concrete Plug MX18 50mm Type 3 or Concrete Plug MX18 50mm Type 4
 - Installation position of the plugs
 - MXM 15 Ø 18.3 – dimension 51
 - MX 18 Ø24-28 – dimension 51
- The specific requirements for architectural concrete must be checked by the customer.
- Install Concrete Plugs MX with Repoxal adhesive or Sealing Adhesive-3 (see table, Section "Overview" on page 6).

Installing concrete plugs

Assembly

1. Insert the threaded rod into the plug (**71a / 71b**) and adjust to dimension "x" with the threaded rod (**68**), nut (**69**) and washer (**70**). (Fig. A5.03b)
2. Push the threaded rod with plug into the tie hole from the larger diameter of the tie hole until the washer hits the edge of the concrete.
→ There are 51 mm remaining on the other side. (Fig. A5.01)
3. Coat Concrete Plug MX15 50mm Type 1 or Concrete Plug MX18 50mm Type 3 (**72 / 74**) on one end face and the outer surface with ready-to-use Repoxal adhesive or Sealing Adhesive-3 (**57**) and push into the tie hole from the smaller side of the tie hole. Make sure that the adhesive-coated end face is pushed onto the flat surface of the plug. (Fig. A5.02)
4. Insert the threaded rod (**68**) into the plug (**71a / 71b**) and adjust to dimension "51" with the threaded rod (**68**), washer (**70**) and nut (**69**). (Fig. A5.03a)
5. Push the plug (**71a / 71b**) into the larger side of the tie hole with the threaded rod against the flat surface of the plug. (Fig. A5.03)
6. Coat Concrete Plug MX15 50mm Type 2 or Concrete Plug MX18 50mm Type 4 (**73 / 75**) on one end face and the outer surface with ready-to-use adhesive (**57**) and push into the tie hole. Make sure that the adhesive-coated end face is pushed onto the flat surface of the plug. (Fig. A5.04 + Fig. A5.05)
7. If necessary, fill the existing recess – on both sides – with adhesive and smooth it down. (not shown)

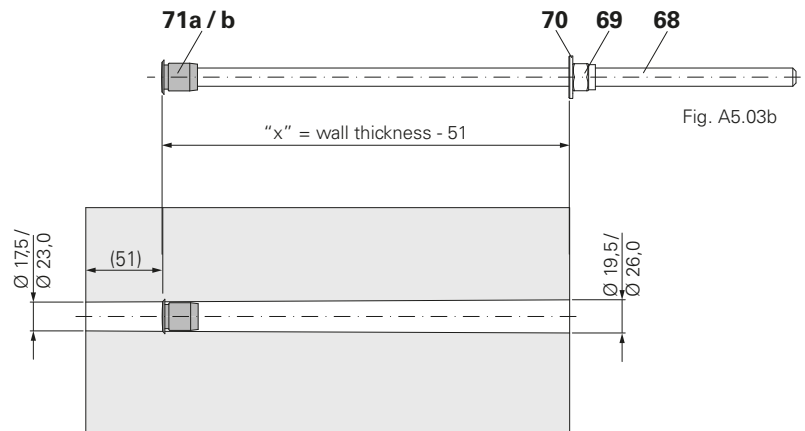


Fig. A5.01

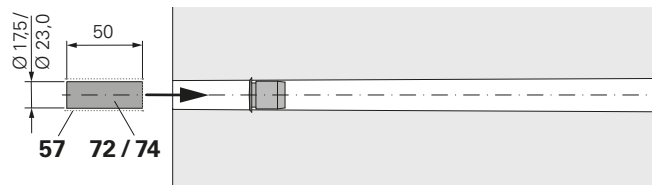


Fig. A5.02

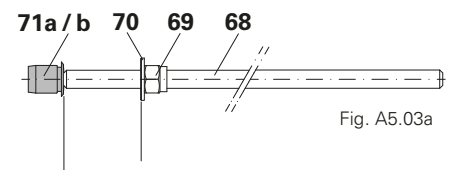


Fig. A5.03a

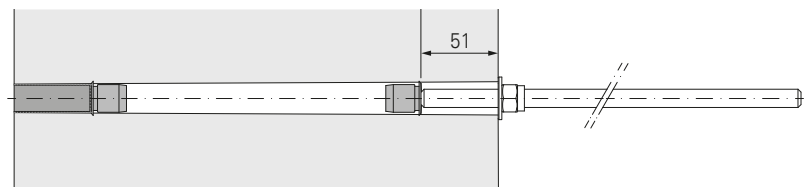


Fig. A5.03

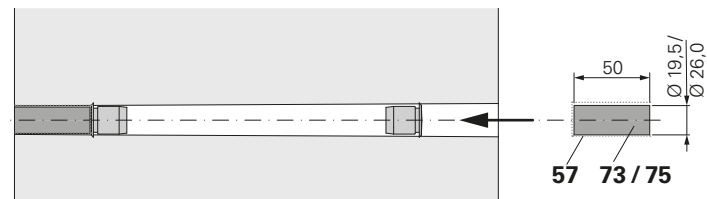


Fig. A5.04

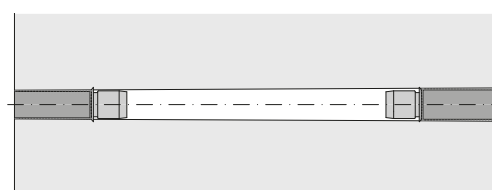


Fig. A5.05

Installing concrete plugs



The specific requirements of the area of application, e.g. impermeable to water, fire-resistant or radiation-resistant, must be checked by the customer to see whether the measures taken are sufficient.

Components to be installed

56	Repoxal adhesive	1x
	Article no. 031550	
76	Concrete Plug Ø22mm	2x
	Article no. 031360	



Fig. A5.06

Adhesive



Warning

The adhesive can pose hazards.

⇒ Observe the manufacturer's instructions for use and safety data sheets.

Preparation

Prepare the adhesive (**57**) according to the manufacturer's instructions.

Assembly

1. Coat the plug (**76**) with prepared adhesive (**57**).
2. Insert the plug into the tie hole.
(Fig. A5.06)

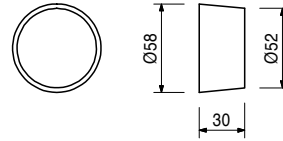
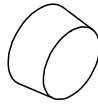
Concrete Cones and Adhesives

Art no.	Weight [kg]	
031642	0.152	Concrete Cone DK DW15 Ø58x30mm

For closing anchor points with Sealing Cone SK DW15 35mm, DW15 55mm, DW20 55mm, DW26 55mm, Anchor Cone SK DW15, Magnet Cone MX15-55, Magnet Cone MX18-55, Arch. Leading Cone M24.

Notes

Delivery unit 50 pieces.

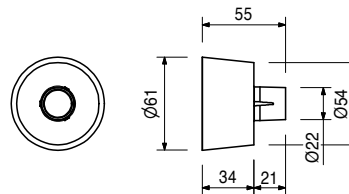


Art no.	Weight [kg]	
031635	0.043	Sealing Cone DK DW15 34mm

For fire-resistant and soundproof anchor points with DW15. Resistant to seepage. For use with Spacer Tube rough 22.

Notes

Delivery unit 50 pieces.



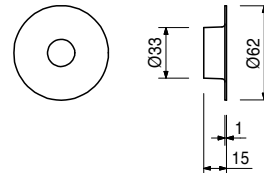
Art no.	Weight [kg]	
031639	0.006	Sealing Ring SK DW15 uni

For sealing Sealing Cones DK DW15 and Anchor Cones SK DW15 on the formwork side.

Notes

Delivery unit 50 pieces.

When using the Sealing Cover SK with Anchor Cone SK, the tie rod must be shortened by 1mm on each side.

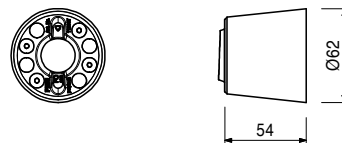
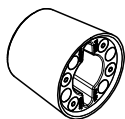


Art no.	Weight [kg]	
112937	0.173	Magnetic Cone MX15

For use with MAXIMO. Use with Anchor MX.

Notes

For use with waterproofed concrete or architectural concrete.



Accessory (not included)

126696	1.220	Magnetic Cone Spanner MX15/18
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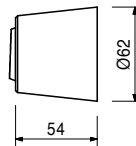
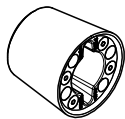
Concrete Cones and Adhesives

Art no.	Weight [kg]	
127425	0.160	Magnetic Cone MX18

For the use with MAXIMO.
Use with Anchor MX.

Notes

For use with waterproofed concrete or architectural concrete.



Accessory (not included)

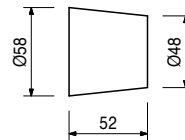
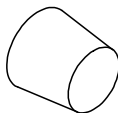
126696	1.220	Magnetic Cone Spanner MX15/18
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Art no.	Weight [kg]	
031643	0.225	Concrete Cone DK Ø58x52mm uni

For closing anchor points with Sealing Cone DK DW15 55mm, DW20 55mm, DW26 55mm, SK Anchor Cone DW15, Magnet Cone MX15-55, Magnet Cone MX18-55, Arch. Leading Cone M24.

Notes

Delivery unit 50 pieces.

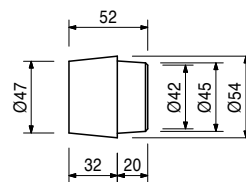
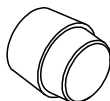


Art no.	Weight [kg]	
132972	0.206	Concr.Cone-2 DK Ø54/52mm uni

For closing anchor points with Sealing Cone DK DW15 55mm, DW20 55mm, DW26 55mm, Anchor Cone SK DW15, Magnet Cone MX15-55, Magnet Cone MX18-55, Arch. Leading Cone M24 with corresponding architectural requirements.

Notes

Replacement for art. no. 031641.

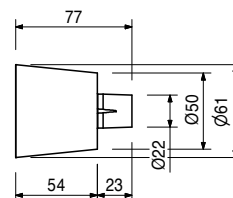
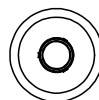
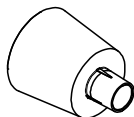


Art no.	Weight [kg]	
031636	0.063	Sealing Cone DK DW15 54mm

For waterproof, fire-resistant and soundproof anchor points with Tie Rod DW15.
Used with Spacer Tube rough 22.

Notes

Delivery unit 50 pieces.



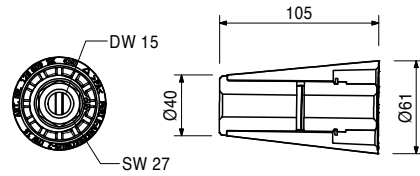
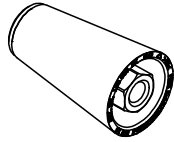
Art no. Weight [kg]

126609 0.593 **Anchor Cone-2 SK DW15**

For waterproof, fire-resistant, soundproof and radiation-proof anchor points with Tie Rod DW15. Suitable for security tracts..

Notes

Permissible tension force 90kN.
Tie rod length = wall thickness - 2x55mm.



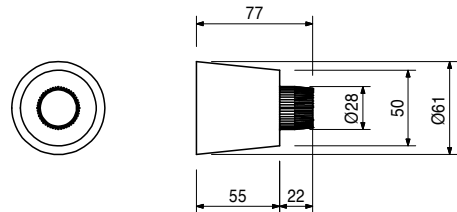
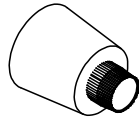
Art no. Weight [kg]

031637 0.055 **Sealing Cone DK DW20 55mm**

For waterproof, fire-resistant and soundproof anchor points with Tie Rod DW20. Use with Spacer Tube rough 28.

Notes

Delivery unit 50 pieces.



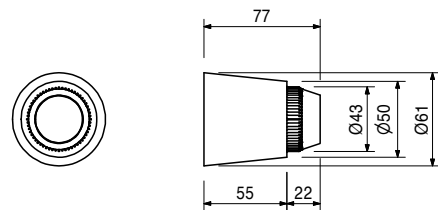
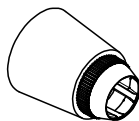
Art no. Weight [kg]

031638 0.054 **Sealing Cone DK DW26 55mm**

For waterproof, fire-resistant and soundproof anchor points with Tie Rod DW26. Used with Spacer Tube rough 42.

Notes

Delivery unit 50 pieces.



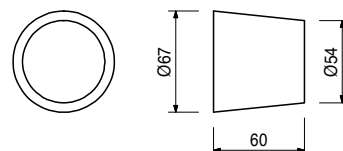
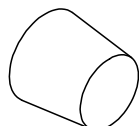
Art no. Weight [kg]

031650 0.364 **Concrete Cone SK DW20 Ø67x60mm**

For closing anchor points with Anchor Cone SK DW20.

Notes

Delivery unit 50 pieces.



Concrete Cones and Adhesives

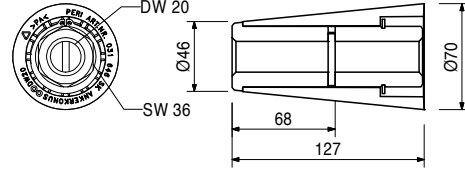
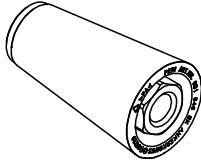
Art no. Weight [kg]

031646 1.030 **Anchor Cone SK DW20**

For waterproof, fire-resistant, soundproof and radiation-proof anchor points with Tie Rod DW20. Suitable for security tracts.

Notes

Permissible tension force 150kN.
Tie rod length = wall thickness - 2x65mm.



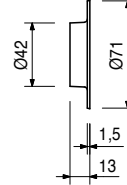
Art no. Weight [kg]

031648 0.008 **Sealing Ring SK DW20**

For sealing Anchor Cones SK DW20 on the formwork side.

Notes

Delivery unit 50 pieces.
When using the SK Sealing Cover with Anchor Cone SK, the tie rod must be shortened by 1.5mm on each side.



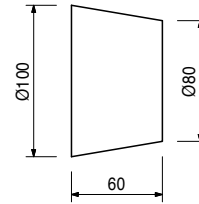
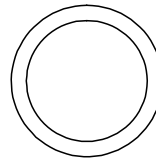
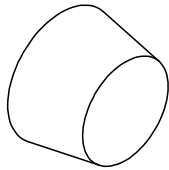
Art no. Weight [kg]

031651 0.801 **Concr. Cone SK DW26 Ø100x60mm**

For closing anchor points with Anchor Cone SK DW26.

Notes

Delivery unit 10 pieces.



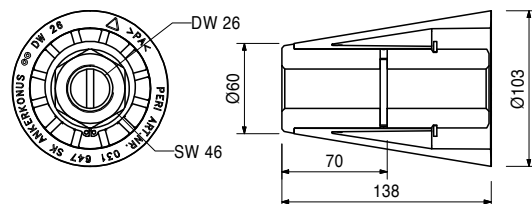
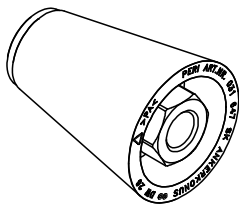
Art no. Weight [kg]

031647 1.920 **Anchor Cone SK DW26**

For waterproof, fire-resistant, soundproof and radiation-proof anchor points with Tie Rod DW26. Suitable for security tracts.

Notes

Permissible tension force 250kN.
Tie rod length = wall thickness - 2x75mm.



Concrete Cones and Adhesives

Art no. Weight [kg]

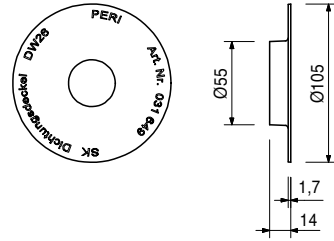
031649 0.014 **Sealing Ring SK DW26**

For sealing Anchor Cones SK DW26 on the formwork side.

Notes

Delivery unit 50 pieces.

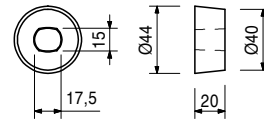
When using the Sealing Cover SK with Anchor Cone SK, the tie rod must be shortened by 2mm on each side.



Art no. Weight [kg]

104643 0.260 **Lead Cone SK DW15**

For closing tie holes with Anchor Cone SK DW15 for radiation-proof areas.



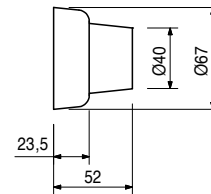
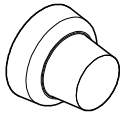
Art no. Weight [kg]

031652 0.247 **Concrete Cone KK M24 Ø67x52mm**

For closing anchor points with Climbing Cone-2, M24/DW15 or Screw-On Cone-2 M24/DW20.

Notes

Delivery unit 50 pieces.



Accessory (not included)

131709 9.980 **Sealing Adhesive-3 6-Cans-Set**

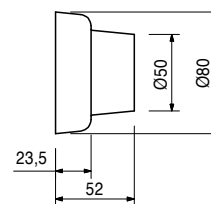
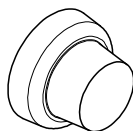
Art no. Weight [kg]

031653 0.364 **Concrete Cone KK M30 Ø80x52mm**

For closing anchor points with Climbing Cone-2 M30/DW20 or Screw Cone M30/DW26.

Notes

Delivery Unit 50 pieces.



Accessory (not included)

131709 9.980 **Sealing Adhesive-3 6-Cans-Set**

Concrete Cones and Adhesives

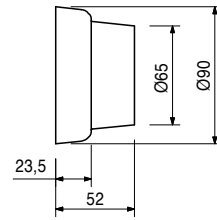
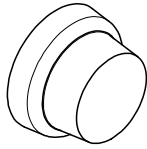
Art no. Weight [kg]

031654 0.512 **Concrete Cone KK M36 Ø90x52mm**

For closing anchor points with Climbing Cone-2 M36/DW26.

Notes

Delivery unit 50 pieces.



Accessory (not included)

131709 9.980 **Sealing Adhesive-3 6-Cans-Set**

Art no. Weight [kg]

031645 0.593 **Anchor Cone SK DW15**

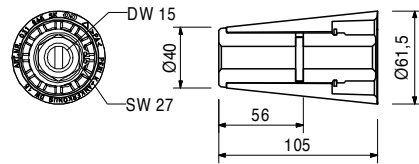
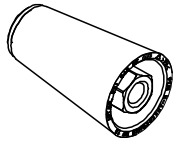
For waterproof, fire-resistant soundproof and radiation-proof tie points with prestressing steel DW15. Suitable for security tracts.

Notes

Width across flats SW27.

Permissible tensile force according to DIN18216: 90kN.

Anchor rod length = wall thickness - 2x55mm.



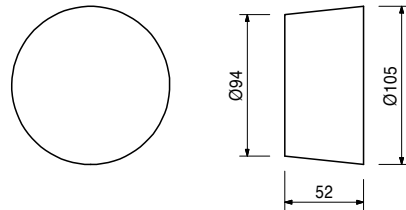
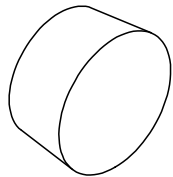
Art no. Weight [kg]

136576 0.838 **Concrete Cone HD Ø105x52mm M36**

For closing anchor points with Heavy Duty Cone DW26 Ø108mm M36.

Notes

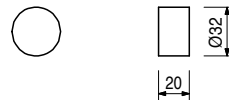
Delivery unit 10 pieces.



Art no. Weight [kg]

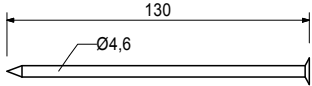
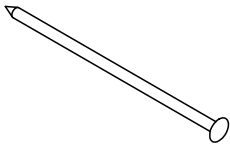
116234 0.033 **Concrete Plug Ø32mm**

For closing the FRC Tube Ø32mm. Made of fibre-reinforced concrete.



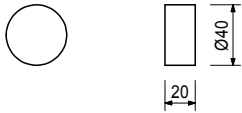
Concrete Cones and Adhesives

Art no.	Weight [kg]	
129157	0.017	Wire Nail 4.6x130mm

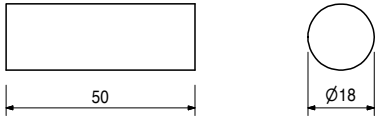
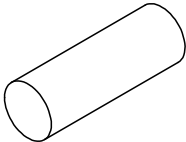


Art no.	Weight [kg]	
123820	0.063	Concrete Plug $\varnothing 40$mm

For closing the tie hole when using Threaded Cone M24.

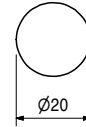
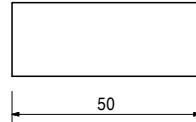
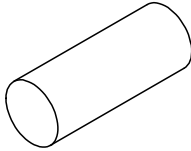


Art no.	Weight [kg]	
126699	0.027	Concrete Plug MX15 50mm Type 1

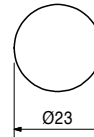
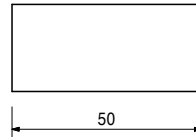
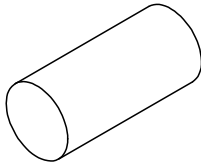


Concrete Cones and Adhesives

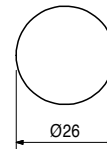
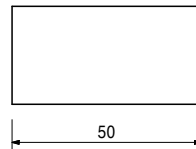
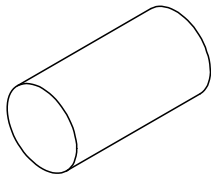
Art no.	Weight [kg]	
126700	0.033	Concrete Plug MX15 50mm Type 2



Art no.	Weight [kg]	
136737	0.043	Concrete Plug MX18 50mm Type 3



Art no.	Weight [kg]	
136738	0.056	Concrete Plug MX18 50mm Type 4

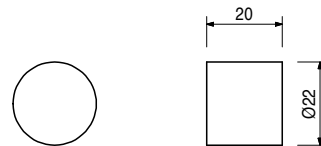
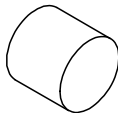


Art no.	Weight [kg]	
031360	0.017	Concrete Plug Ø22mm

Made of fibre reinforced concrete. Suitable for Concr.Spacer Tube FZR Ø22mm.

Notes

Delivery unit 1000 pieces.

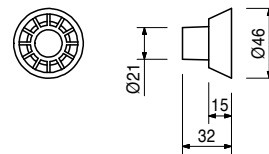


Art no.	Weight [kg]	
065033	0.010	Cone DR 22

Plastic. Suitable for Spacer Tube DR 22.

Notes

Delivery unit 500 pieces.

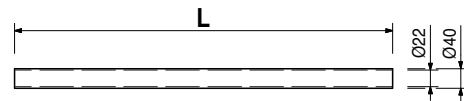
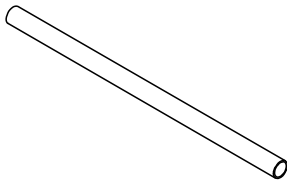


Concrete Cones and Adhesives

Art no. Weight [kg]

031260 1.500 **Concr.Spacer Tube FZR Ø22mm 90**

Spacer Tube made of fibre reinforced concrete for use with Tie Rod DW15, wall thickness 9mm B15, asbestos-free!



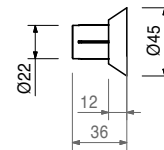
Art no. Weight [kg]

031390 0.005 **Cone FZR Ø22mm**

Suitable for Concr.Spacer Tube FZR 22mm.

Notes

Delivery unit 1000 pieces.



Art no. Weight [kg]

131709 9.980 **Sealing Adhesive-3 6-Cans-Set**

For bonding PERI Concrete Cones.

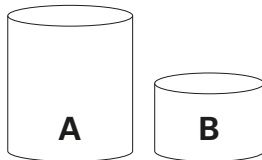
Notes

See Safety Data sheet!

Consisting of: 6 x Component A, 6 x Component B

Component A = Net quantity / Can 459ml / 752g

Component B = Net quantity / Can 356ml / 583g



Consists of

6 pc 131710 Sealing Adhesive-3 Can CO-A

6 pc 131711 Sealing Adhesive-3 Can CO-B

Art no. Weight [kg]

131710 0.890 **Sealing Adhesive-3 Can CO-A**

Notes

Component A = Net quantity / Can 459ml / 752g

Art no. Weight [kg]

131711 0.670 **Sealing Adhesive-3 Can CO-B**

Notes

Component B = Net quantity / Can 356ml / 583g

Concrete Cones and Adhesives

Art no.	Weight [kg]	
031550	1.000	Repoxal Glue

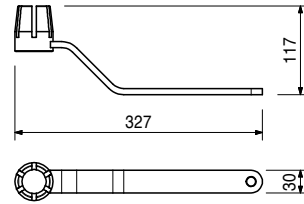
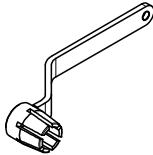
Two-component adhesive for bonding fibre reinforced concrete plugs. Requirements: 1kg adhesive for approx. 200 Plugs FZR 32 or 330 Plugs FZR 22.

Notes

See Safety Data sheet!
Delivery unit 1kg.

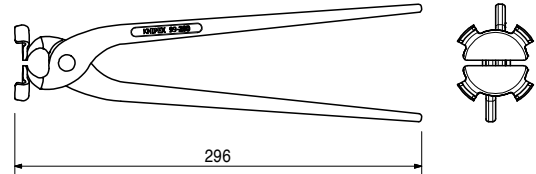
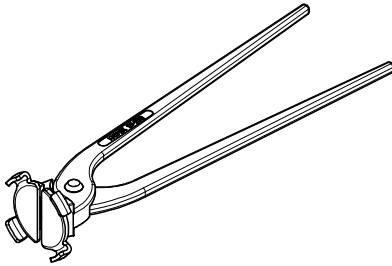
Art no.	Weight [kg]	
031655	0.940	Cone Spanner DK uni

For removing Sealing Cones DK.



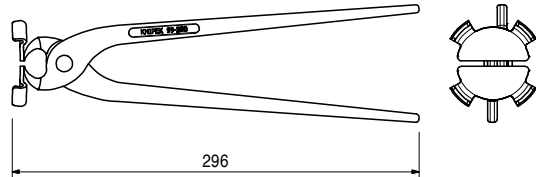
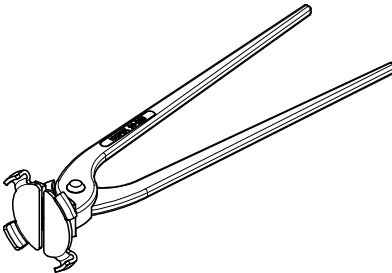
Art no.	Weight [kg]	
031644	0.588	Cone Pliers DK Ø58mm

For holding Concrete Cones DK, SK or KK with corresponding diameter during installation.



Art no.	Weight [kg]	
031656	0.600	Cone Pliers SK Ø67mm

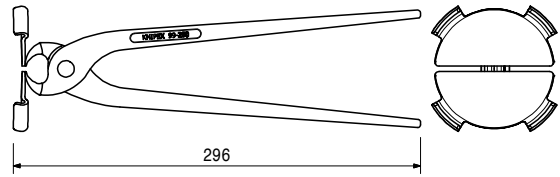
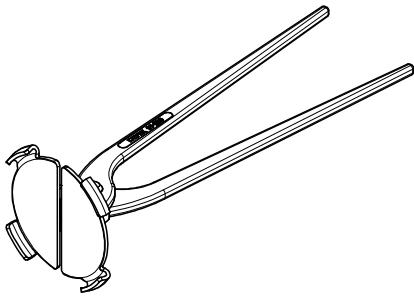
For Concrete Cones SK DW20 and Concrete Cones KK M24.



Concrete Cones and Adhesives

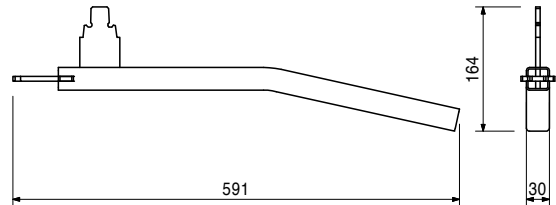
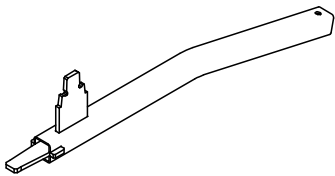
Art no.	Weight [kg]	
031657	0.660	Cone Pliers SK Ø100mm

For Concrete Cones SK DW26.



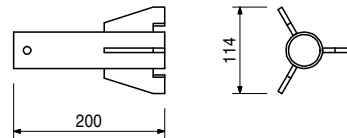
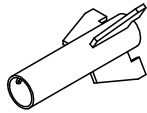
Art no.	Weight [kg]	
126696	1.220	Magnetic Cone Spanner MX15/18

For dismantling of Magnet Cone MX15 and MX18.



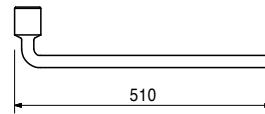
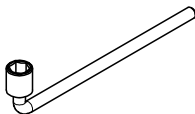
Art no.	Weight [kg]	
101995	1.020	Concrete Cone Gauge

Installation of concrete cones flush with the surface.

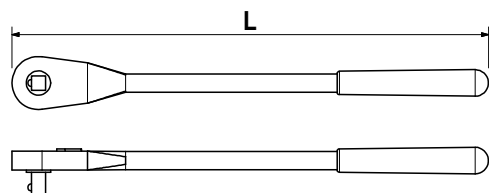
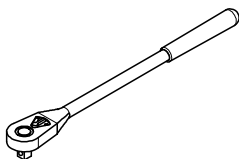


Art no.	Weight [kg]	
031480	2.460	Socket Wrench SW36 chromate

For various applications.



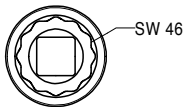
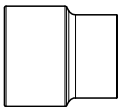
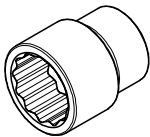
Art no.	Weight [kg]		L [mm]
Ratchet Wrenches			
072180	0.560	Ratchet Wrench 1/2 "	300
029610	5.300	Ratchet Wrench 1 "	900



Concrete Cones and Adhesives

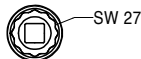
Art no.	Weight [kg]	
029630	0.580	Socket SW46 1"

Fits to Hex.Screws M12 or Height Adjusting Unit SW46.



Art no.	Weight [kg]		L [mm]	X [mm]
029650	0.160	Socket SW27 1/2"	600	300

Fits to DW15 and Hex.Screw M24.





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