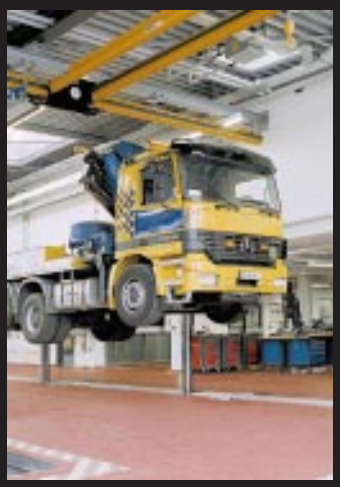
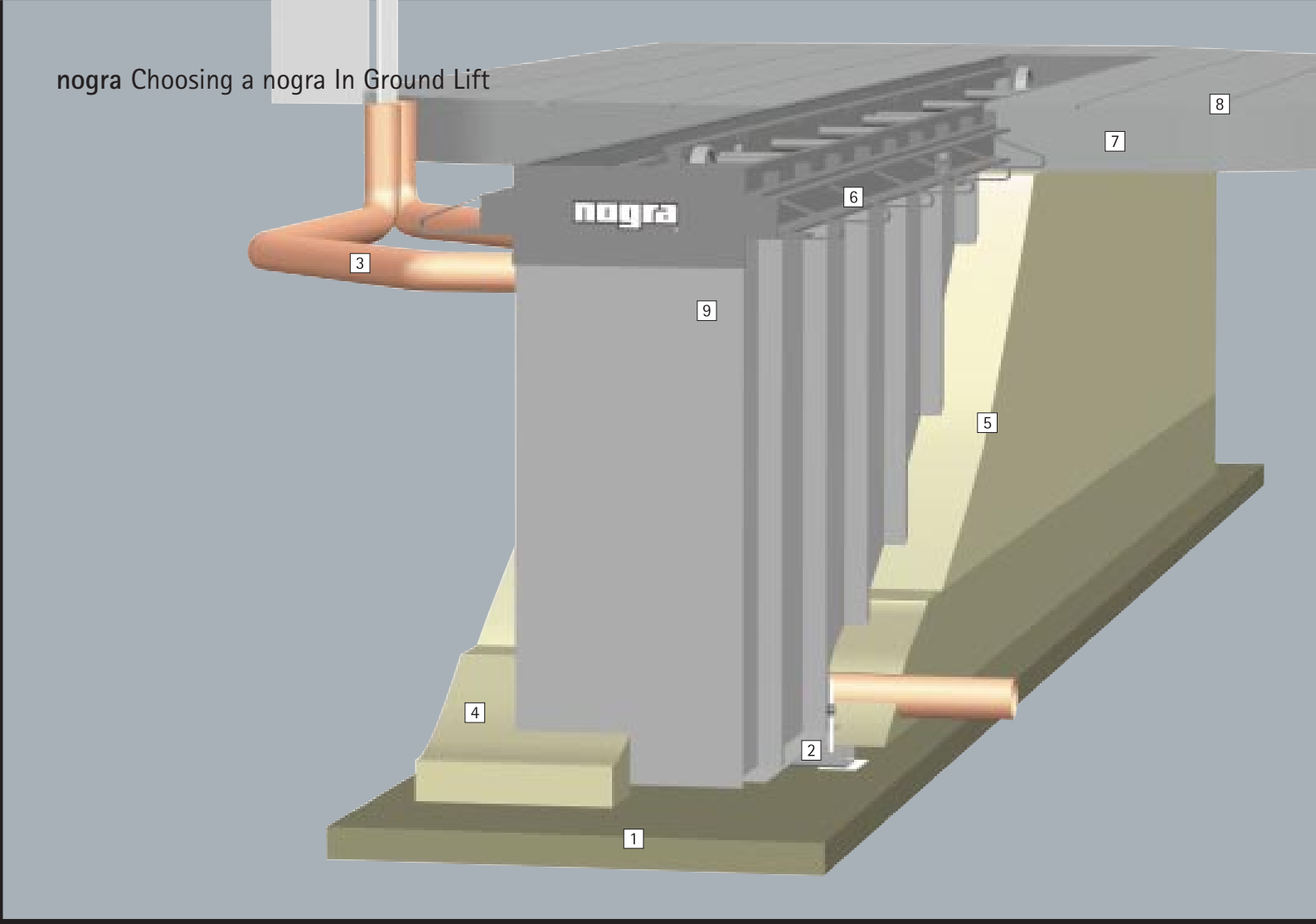
# In Ground Lifts



nogra




1 **Clean Layer** A layer approx. 8 cm thick with a concrete quality of at least B15. It serves as a support for the cassette.

2 **Levelling Tool** This enables precise adjustment of the cassette during installation. The levelling result should not exceed a tolerance of more than ± 2 mm across the entire length and breadth.

3 **Empty Pipes** For the electrical installation, as a drainage outlet and possibly for ventilation purposes, empty pipes with a Ø of 100 mm must provided.

4 **Fixing Layer** A roughly 30 cm high concrete layer in concrete quality of B25.

5 **Middle Layer** In B25 quality, this concrete layer connects directly to the floor plate.

6 **Stone Anchors** Evenly distributed, the stone anchors ensure an uniform distribution of force across the floor plate.

7 **Floor Plate** This corresponds to the height of the hall floor. Both the floor plate and the reinforcement are subject to static calculations.

8 **Fitted Flooring** Particularly the strength plays a decisive part in the choice of fitted flooring. The evenly distributed vertical working load amounts to 10 kN/m².

9 **Cassette/Frame** Depending on the length of the Ground Lift, the cassette or frame will be delivered in one or several parts. Encased in concrete, the mobile and fixed lifting posts and the roll covering find their place.

**Quattro Analysis for Decision-Making** Many questions still remain to be answered when you decide to choose an In Ground Lift. To help in the decision-making process, the nogra Quattro Analysis provides a powerful decision matrix. Starting with four basic analytic approaches, which are explained in more detail below, our specialists configure a custom-built In Ground Truck Lift.

The Truck Fleet Analysis concentrates primarily on the types of vehicles to be lifted. It gathers information such as type and length, lifting possibilities and standard number of axles. The future-trends factor is also important in the Truck Fleet Analysis.

The Workshop Analysis assesses the „on-site" situation. The height of the workshop, for example, should be at least 6 m. Lane length and width help to determine which types of In Ground Lifts are possible.

The Activity Analysis examines the suitability of the planned range of applications. What type of work is to be carried out on the raised vehicle? Is a pit also available?

Finally, the Installation Analysis examines whether a cassette or frame construction is best for the job. Other factors playing a roll are whether the building is old or new, and the time schedule available for the project.

**Fitting and Installation** The installation of an In Ground Lift should be planned and executed with the utmost care. The main steps in the installation of a cassette or frame are explained below:

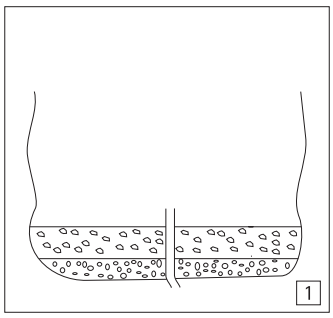
1 Once the pit has been dug out, a drainage pipe can be laid as necessary. In the case of the cassette construction the granular sub-base is cemented on top of the gravel layer.

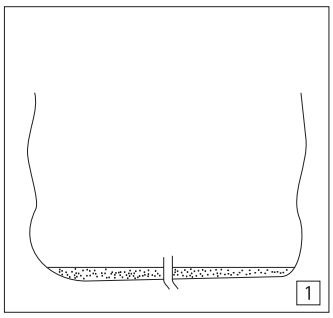
2 To permit the cassette to be levelled, stay bolts are screwed into the clean layer. The cassette, placed on top of these, can then be precisely aligned with the help of the adjusting nuts. In the case of the frame construction, the concrete can be introduced to the pit as the second step. First, the empty pipes for the electrical installation should be positioned.

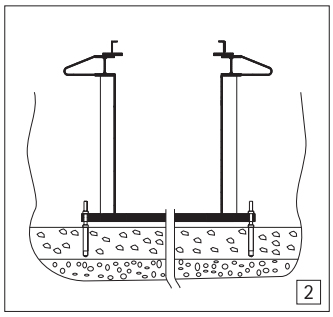
3 Now the cassette is encased in liquid concrete up to a height of approx. 30 cm. Care should be taken, with this so-called fixing layer, that the cassette does not "swim". In the case of a frame, the remaining gap is filled with gravel to the upper edge of the pit.

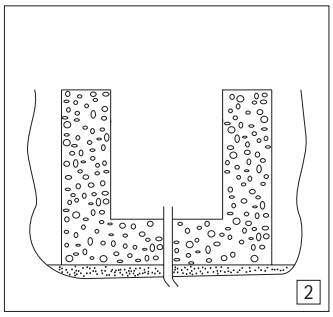
4 For the cassette construction the empty pipes for the electrical installation are now laid. The middle layer is made by pouring in concrete up to the lower surface of the floor plate. For the frame construction, the stay bolts can now be screwed into the pit and the frame can be levelled.

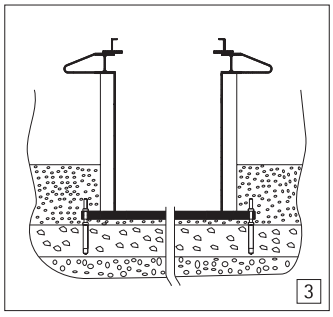
5 The last step is the construction of the floor plate and the fitted flooring. Finally, the electrical installation work can be carried out via the empty pipes already laid.

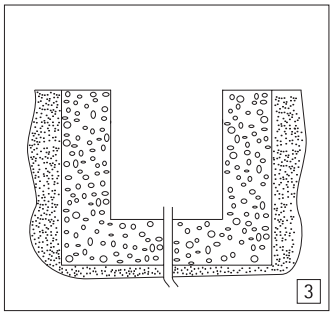


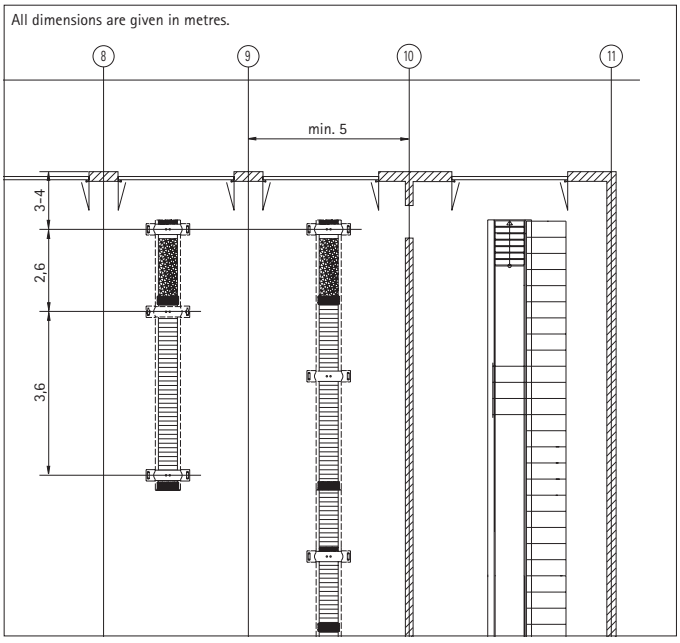



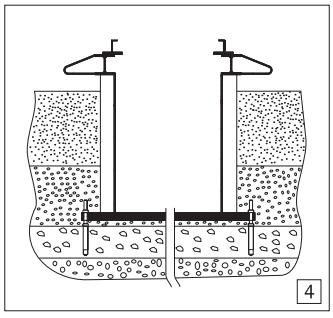



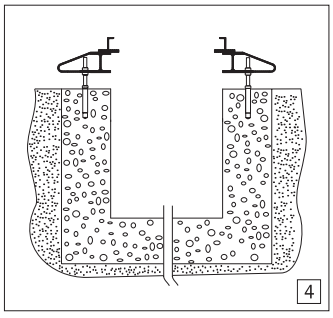



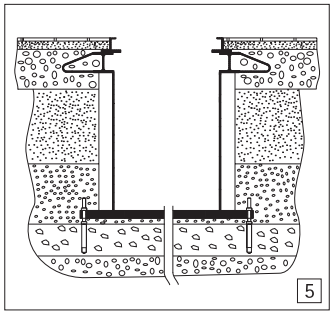



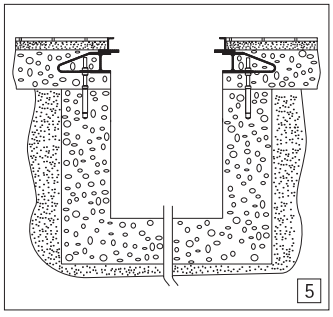



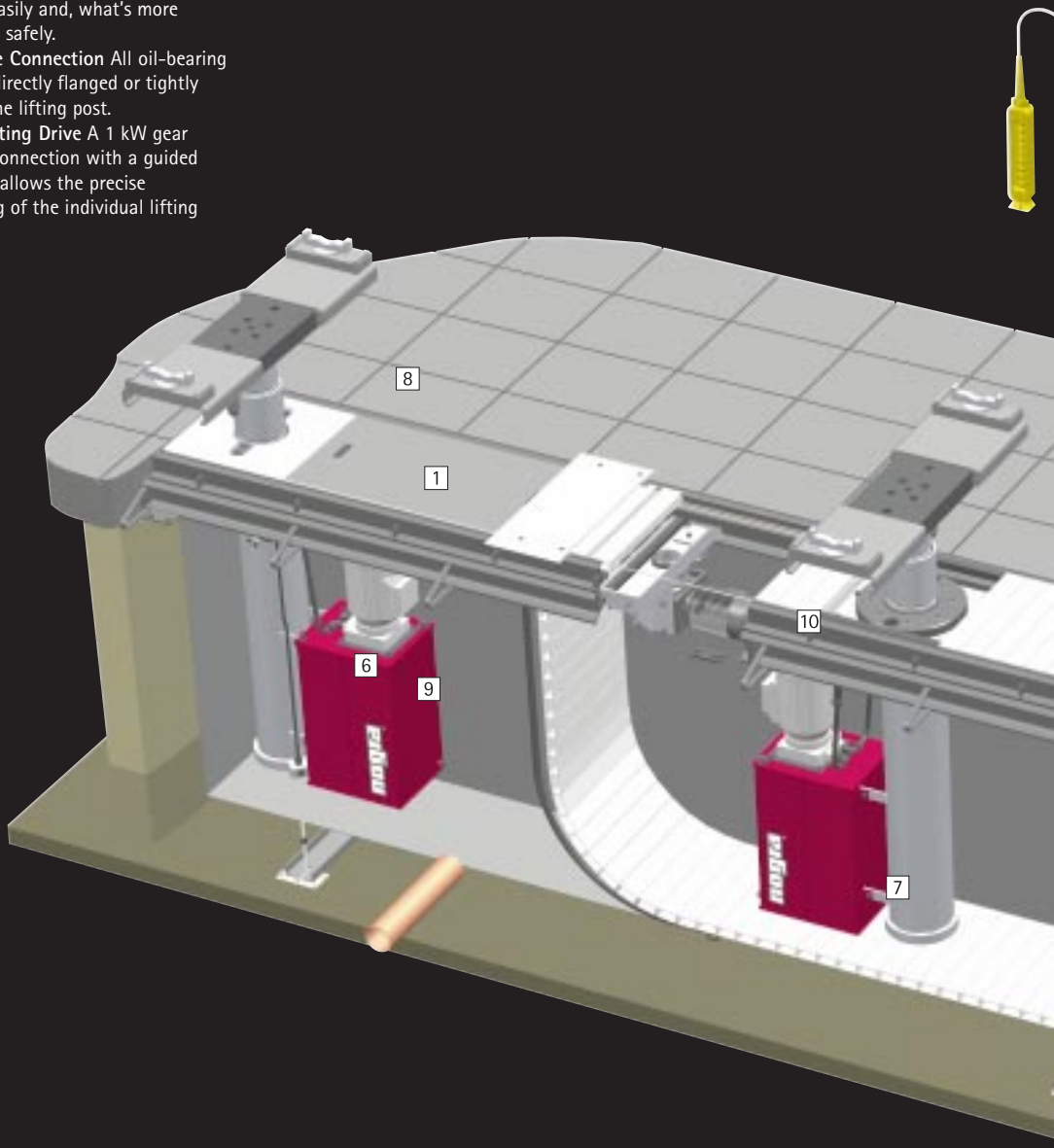

**Important Planning Measures**
In addition to the number of lifting posts, the distance between the posts and the distance to the door, as well as the width of the assembly area and the height of the workshop, all play an important role.

**Cassette**
Cassettes allow very short construction times. They are therefore particularly suitable for subsequent installation in existing workshops and pits. Manufacturer guarantees dimensional accuracy.

**Frames** Usually, in the case of new buildings, the frame is the ideal choice. The factors time, cost and precision however are carried mainly by the customer.

# **nogra** Mammut In Ground Lift

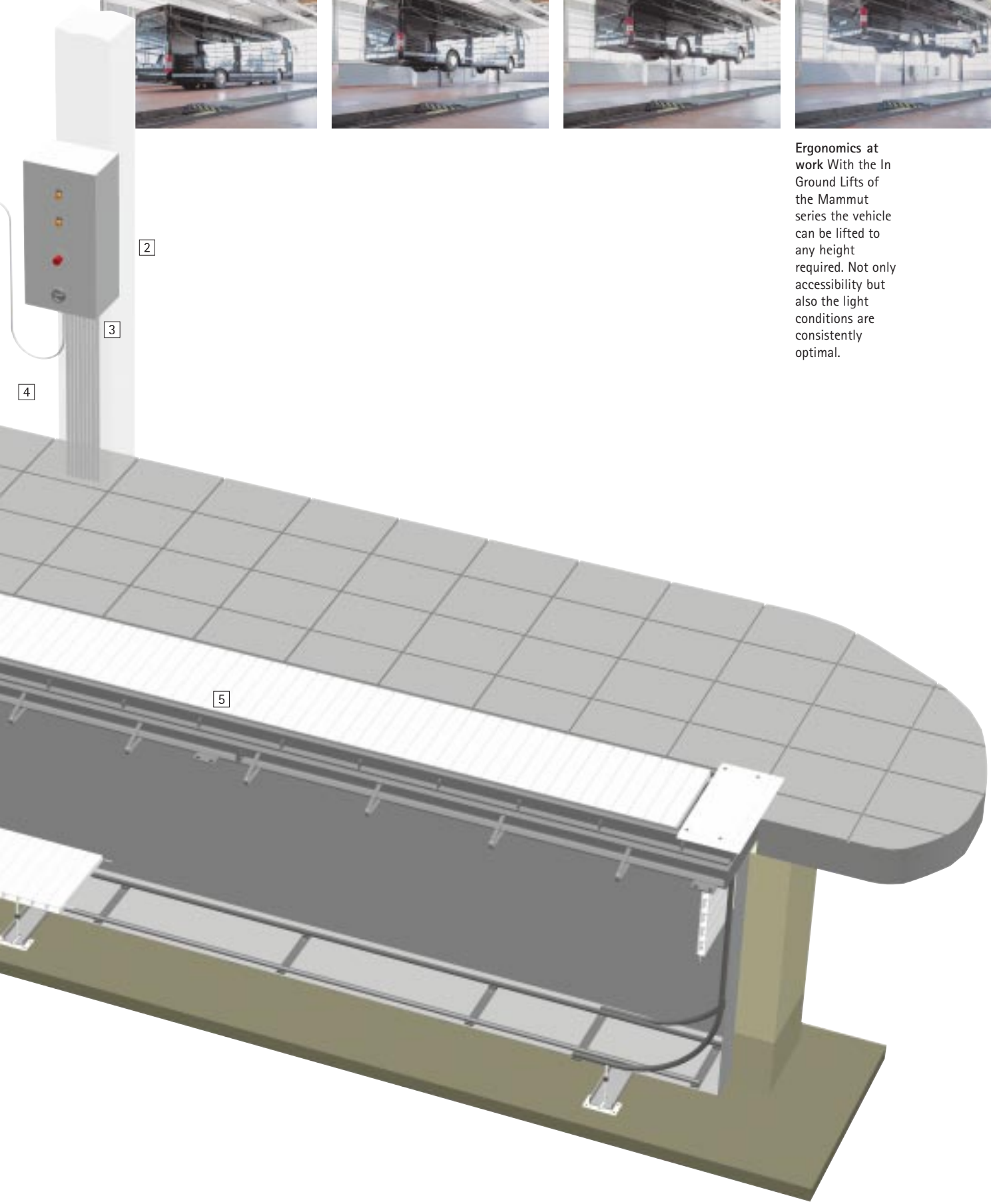
1 **Conforming to EN 1493** Mammut In Ground Lifts comply with the latest European safety regulations.
2 **Control Unit** The IP 54/65 protected central control is standard equipped with an automatic synchronisation. Unintentional height differences are thereby avoided. The redundant design of the central control unit – consisting of two SPS controls – provides safety at the highest level.
3 **Emergency Lowering** Connected to an external 24 V power supply (e.g. truck or forklift battery) the central control unit can be used to lower the load.
4 **Control Panel** The lifting and lowering movements and adjustment functions of the individual lifts can be finely controlled using the control unit.
5 **InlineCover** The innovative design of the nogra roll covering, which forms an absolutely level workshop floor, allows work to be done - e.g. with pit lifts - directly above the covering. And the galvanized, joint-free segments can be fully driven over by a wheel load of 3.5 t.
6 **DCS Technology (Dual-Cylinder System)** Two separate hydraulic circuits and two separate cylinder systems give all Mammut lifting posts that extra safety-plus.
7 **Hydraulic Pump** The special construction allows a constant lifting and lowering speed – either with or without load.
8 **Traverse** Together with the extensive programme of matching accessories, just about any vehicle can be lifted easily and, what's more important, safely.
9 **Stable Connection** All oil-bearing parts are directly flanged or tightly piped to the lifting post.
10 **Adjusting Drive** A 1 kW gear motor in connection with a guided link chain allows the precise positioning of the individual lifting posts.




**Note** Some optional features are subject to an extra charge.

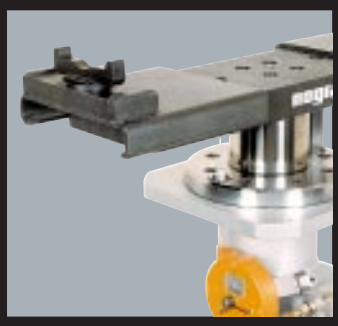
# **nogra** Mammut In Ground Lift

**Ergonomics at work** With the In Ground Lifts of the Mammut series the vehicle can be lifted to any height required. Not only accessibility but also the light conditions are consistently optimal.



# **nogra** Mammut In Ground Lift

**Execution** With attention to detail in well-proven nogra quality.



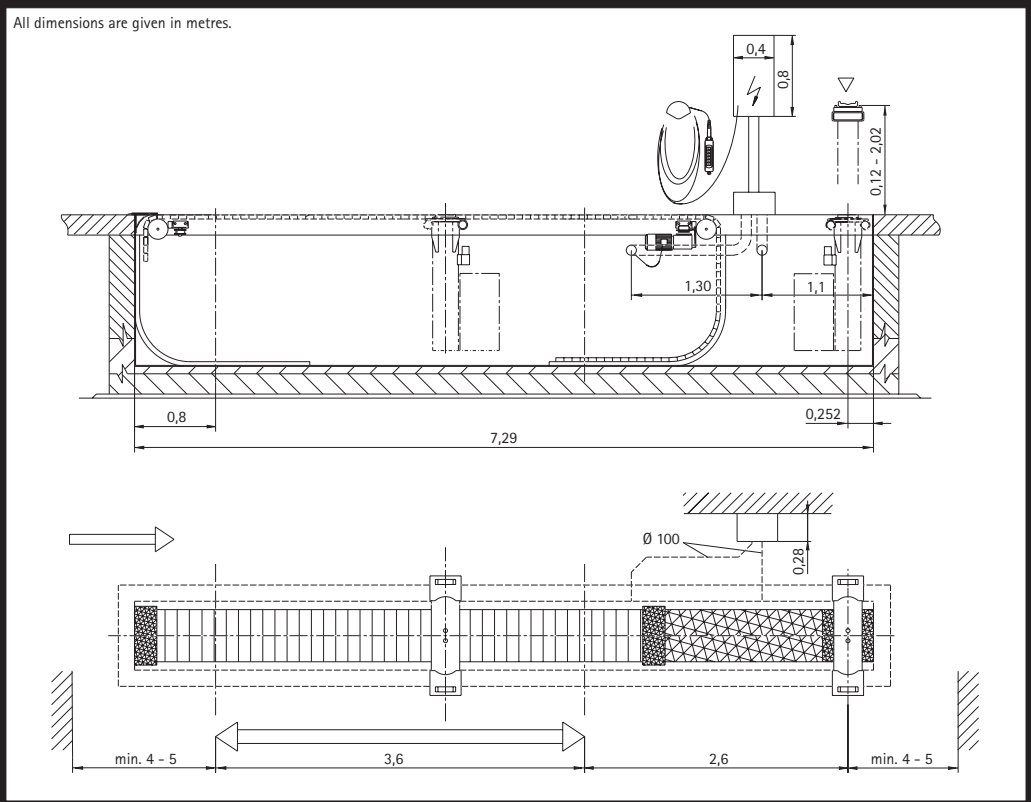
**Traverse** With its exchangeable slides and plug-type connections, the Mammut traverse can be universally deployed.

| Model | Capacity | Stroke | Lifting Cyl. total/ moveable | Installation depth | Lifting time | Electric motor | Adjusting range | Order No. |
|---|---|---|---|---|---|---|---|---|
| | t | mm | | mm | s (ca.) | kW | mm[1] | |
| **Mammut 2 Frame**[2] | 2 x 15 | 1900 | 2/1 | 1450 | 88 | 3 | 2600-6200 | **500011** |
| **Mammut 2 Cassette**[2] | 2 x 15 | 1900 | 2/1 | 1500 | 88 | 3 | 2600-6200 | **500012** |
| **Mammut 3 Frame**[2] | 3 x 15 | 1900 | 3/2 | 1450 | 88 | 3 | custom made | **500013** |
| **Mammut 3 Cassette**[2] | 3 x 15 | 1900 | 3/2 | 1500 | 88 | 3 | custom made | **500014** |
| **Mammut 4 Frame**[2] | 4 x 15 | 1900 | 4/3 | 1450 | 88 | 3 | custom made | **500015** |
| **Mammut 4 Cassette**[2] | 4 x 15 | 1900 | 4/3 | 1500 | 88 | 3 | custom made | **500016** |

[1] **Note**
Adaptable lifting-cylinder adjusting range on request.

[2] **Standard Frame/Cassette Length**
Mammut 2 7290 mm
Mammut 3 14580 mm
Mammut 4 20740 mm

All dimensions are given in metres.



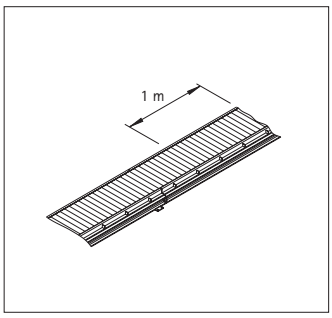

**How many lifting posts for whom?** At the start of the decision-making phase for an in-ground truck lift one of the first questions is how many lifting posts are needed. The following is intended to help with this decision:

The smallest variation, the 2-post Mammut, is mainly for lifting towing cabins, trucks and busses.

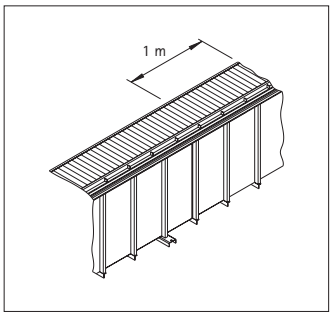
Where semi-trailers or articulated busses are also lifted, a 3-post Mammut is necessary.

The 4-post Mammut offers more of everything and is ideally suitable – thanks to 2 control panels – for working on two vehicles at once in the same lane. Due to the standard synchronisation control the full scope of performance becomes particularly apparent when lifting a truck together with its trailer.

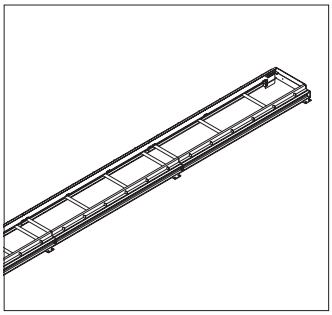
# **nogra** Options



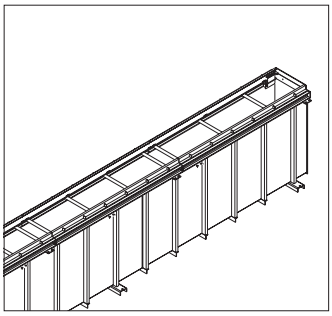

**Extended Frame**
Including InlineCover.




**Extended Cassette**
Including InlineCover.



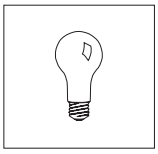
**Galvanized Frame**
Instead of standard paintwork.



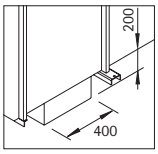
**Galvanized Cassette**
Instead of standard paintwork.

| Model | Order No. |
|---|---|
| **Extended Frame including InlineCover (per meter)** | **500018** |
| **Extended Cassette including InlineCover (per meter)** | **500020** |
| **Galvanized Frame** | **500021** |
| **Galvanized Cassette** | **500022** |
| **Emergency Lighting** | **500025** |
| **Pump Pit** | |
| **Pump pit for cassette** | **500023** |
| **Pump for pump pit** | **500024** |
| **Washing Bay Execution** | |
| **For Mammut 2** | **500026** |
| **For Mammut 3** | **500027** |
| **Sunken Traverse** | **500028** |

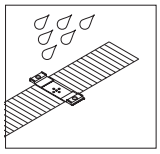
**Note**
Options should be ordered together with the Mammut Ground Lift.



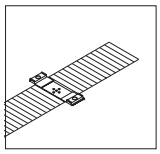
**Emergency Lighting**
Useful for maintenance work in the Ground Lift pit.




**Pump Pit**
Recommended for cassette to collect spray- and melt-water.

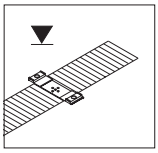


**Washing Bay Execution**
Traverses, rollers, axles, load-bearing claws, channel covering, protective hood against spray-water for galvanized hydraulic drive, control cabinet IP 66.

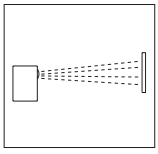


**Sunken Traverse**
At a specified point.

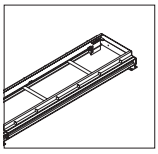
# **nogra** Accessories



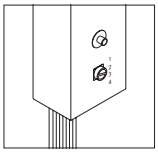
**Rest Position Signalling Unit**
Message from the retracted lifting unit.



**Automatic „Run Into" Protection**
Light barrier for areas with overhead cranes.



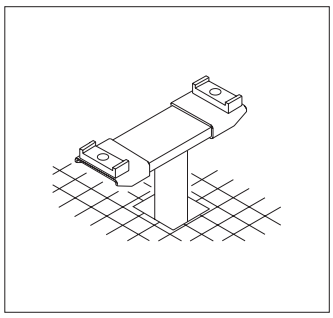
**Frame** For subsequent installation of the lifting units and roll covering, 7 m long. A temporary cover should be obtained by the operator.



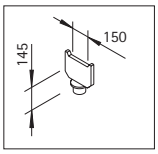
**Automatic Axle-Distance Preselection** For fast positioning of the lifting posts.

| Model | Order No. |
|---|---|
| **Rest Position Signaling Unit** | |
| **For Mammut 2** | **500029** |
| **For Mammut 3** | **500030** |
| **For Mammut 4** | **500031** |
| **Automatic „Run Into" Protection** | **500032** |
| **Frame (per piece)** | **500033** |
| **Automatic Axle-Distance** | **500034** |

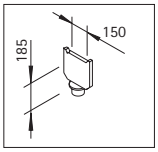
# **nogra** Load carrying devices



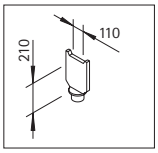
**SSB** Slides for mounting the various load uptakes.



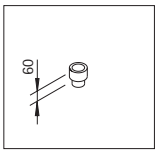

**ABU 145** Load carrying device for rear axle with differential.



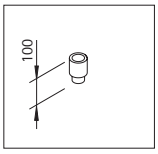

**ABU 185** Load carrying device for rear axle with differential.



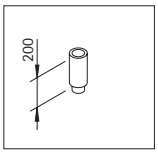

**ABU 210** Load carrying device for rear axle with differential.



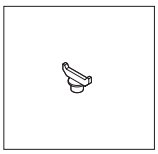

**SBZ 60** 60 mm spacer.



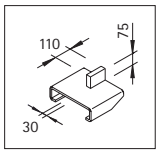

**SBZ 100** 100 mm spacer.



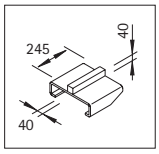

**SBZ 200** 200 mm spacer.



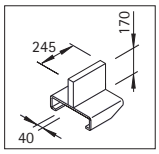
**ABX** Standard Load carrying device.



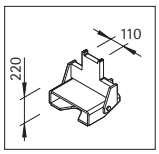

**ABS 75** For Rear Axle MAN Bus SL 240, Neoplan Bus and Daimler-Benz Bus.



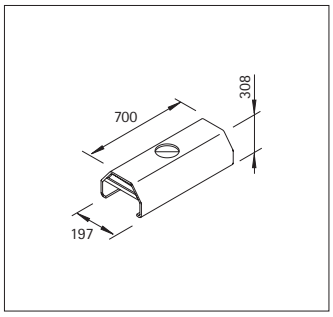

**ABS 40** For DB Bus Rear Axle, MAN Bus SG 242 Middle Axle, Articulated Busses' Middle and Trailer Axles.




**ABS 170** For Rear Axle Büssing Busses, Daimler-Benz Truck (Model 2628, 2635, 3328, 3335, etc.).




**ABK 220** Hinged slide especially for forged axles.




**ABA** Mounting for semi-trailers. Is slid directly onto the traverse.

| Model | Order No. |
|---|---|
| **SSB (per piece)** | **500048** |
| **Load Carrying Devices** | |
| **ABU 145 (per piece)** | **500041** |
| **ABU 185 (per piece)** | **500042** |
| **ABU 210 (per piece)** | **500043** |
| **SBZ 60 (per piece)** | **500044** |
| **SBZ 100 (per piece)** | **500045** |
| **SBZ 200 (per piece)** | **500046** |
| **ABX (per piece)** | **500047** |
| **ABS 75 (per piece)** | **500049** |
| **ABS 40 (per piece)** | **500050** |
| **ABS 170 (per piece)** | **500051** |
| **ABK 220 (per piece)** | **500052** |
| **ABA** | **500053** |

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