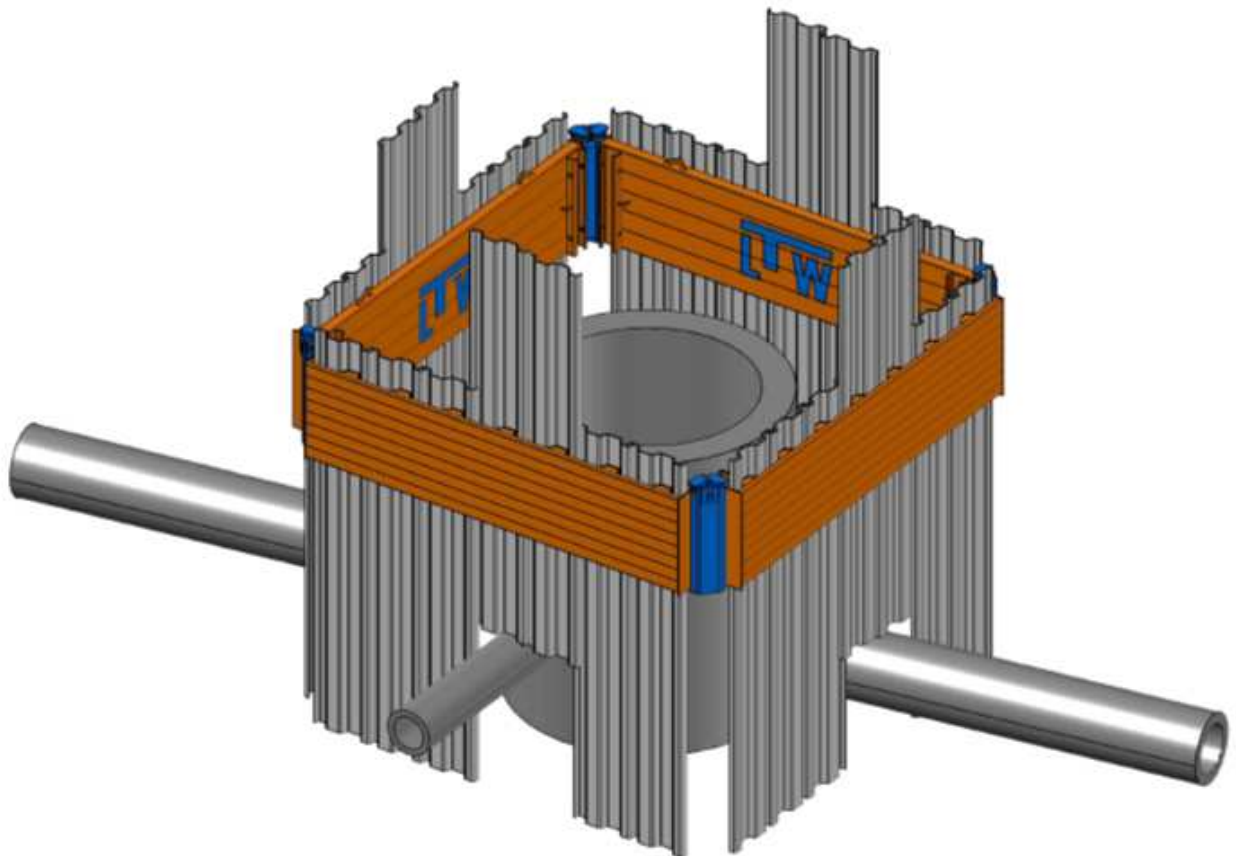


ASSEMBLY AND OPERATING MANUAL

LTW PILE GUIDE BOX with corner connectors



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General Instructions

The following regulations and rules have to be followed in their valid version:

- *Regulations of the BG-Fachausschuss Tiefbau (technical committee civil and underground engineering)*
- *DIN 4124 Baugruben & Gräben (excavation pits and trenches)*
- *DIN EN 13331 Teil 1 & 2 Grabenverbaugeräte (part 1 and 2 construction equipment)*
- *Regeln für Sicherheit und Gesundheit bei der Arbeit (rules for safety and health during work)*
- *Unfallverhütungsvorschriften/Arbeitsschutzvorschriften (regulations for the prevention of accidents and safety at work rules)*

Our shoring components have the GS-Sign „Certified Safety“.

Please follow the instructions making use of our Pile Guide Box.

Lifting & Transportation

The shoring may only be attached at the corresponding eyes and openings and/or lifting accessories.

Lifting chains must be chosen to suit the weight being handled.

To prevent the accidental detachment of the load use only load hooks with safety catches.

The allowed tensile forces have to be kept in any cases.

Transportation has to be carried out next to soil and unneeded oscillations have to be avoided.

It is prohibited to stand within the pivoting range of the excavator or crane and beneath suspended loads.

When handling and removing the shoring, watch out for overhead contact lines (power cables).

A load operator must stand to the front of the excavator and be in eye contact with the machine operator.

Measures to reduce hazards

The safety of persons on site must be enhanced with the aid of signs, cones, warning tapes and/or safety staff specially deployed on site for this purpose.

Neighbouring traffic flow has to be made possible by means of safety staff if needed.

Personnel must wear protective clothing (helmet/safety shoes/gloves).

The risk of instability as a consequence of wind loads when setting up or using the shoring must be considered.

The shoring must be lowered onto level and firm ground. Where the ground is sloping or uneven, the shoring should be set up, if possible, at right angles to the slope.

Maintenance & Repair

Before use, all shoring components must be checked for their correct function.

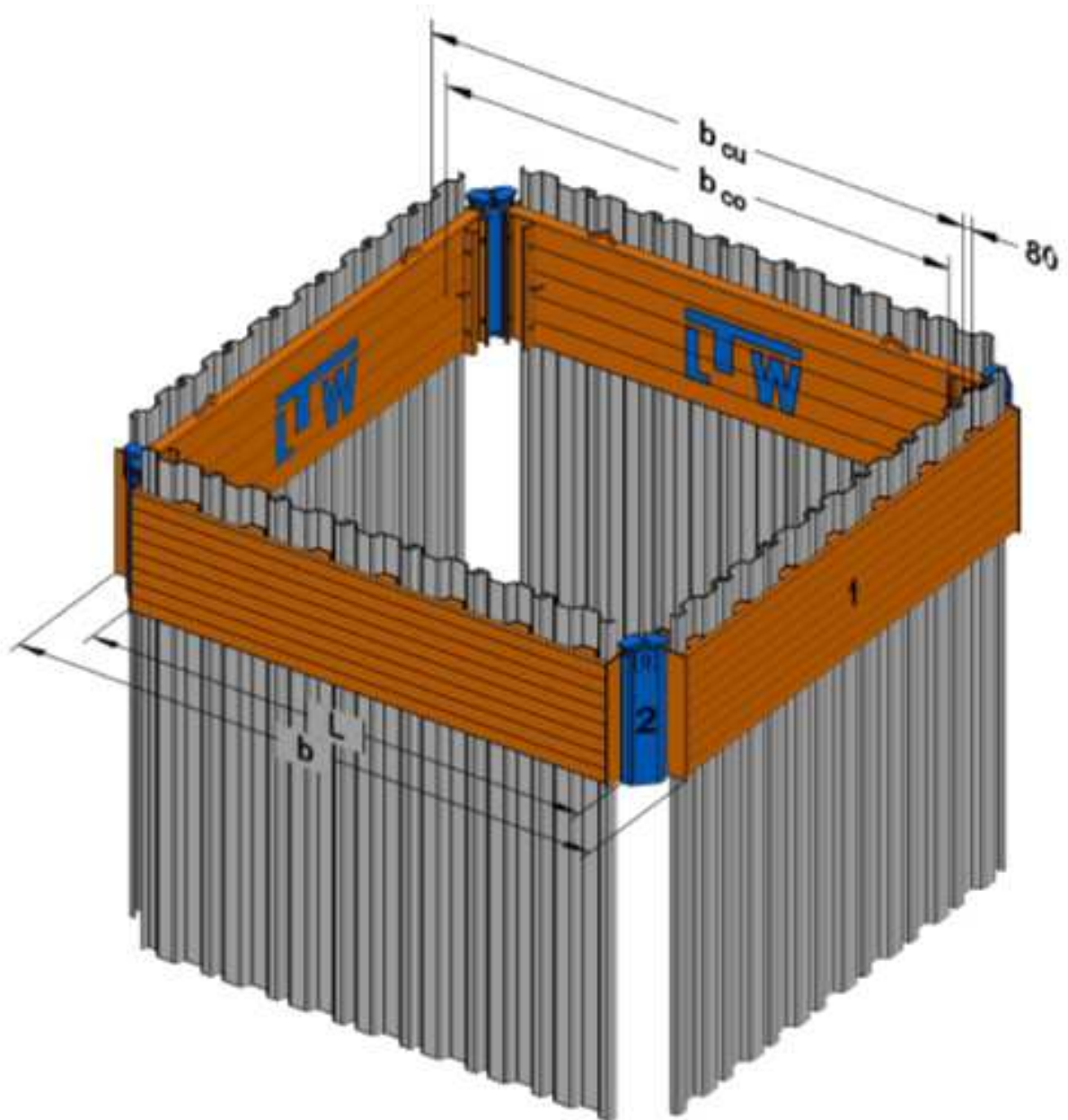
Faulty or deformed parts must be replaced in any case.

Minor repairs can be carried out by the user, after consultation with LTW.

There is no warranty on incorrectly performed repairs and the use of non-original parts.

According to intensity of use, the components should be painted with anticorrosion paint every two years.

System view



1 standard pile guide box
2 corner connector

L plate length
b trench width

b_{co} working width inside plates
 b_{cu} working width between sheets

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Technical characteristics

standard pile guide box $t_{PI-(inner\ Plate)} = 120\text{ mm}$

box with guidance for being used in the slide rail system with sheets type KD 6/8

plate length L [m]	plate height H [m]	working width between		shaft width b [m]	number of trench sheets n per plate	limit state design beam load q_d [kN / m]	plate weight G_{PL} [kg]
		plates b_{co} [m]	sheets b_{cu} [m]				
2,52	1,00	~2,65	~2,89	~3,20	4 * KD6	212,8	635
2,94	1,00	~3,07	~3,31	~3,62	5 * KD6	154,9	725
3,52	1,00	~3,65	~3,89	~4,20	6 * KD6	107,1	845
4,02	1,00	~4,15	~4,39	~4,70	7 * KD6	81,6	945

Tensile forces

lifting eyes at the plate head $R_d = 229\text{ kN}$

Trench sheets steel quality S275JRC

KD 6/8



type	width b [mm]	height h [mm]	thickness t [mm]	section modulus W_y [cm ³ /m]	moment of inertia I_y [cm ⁴ /m]	bending moment M_d [kNm/m]	weight single pile [kg/m]	weight wall [kg/m ²]
KD 6/8	600	80	8	242	969	60,5	50,0	83,3

Accessories

description	dimension	numbers per shaft	weight [kg/piece]
corner connector	$L = 1,10m$	4	82
end cap for the above	100*170*82	8	2,1
bolt	Ø20 * 200	8	0,6
locking clip	Ø5	8	0,1

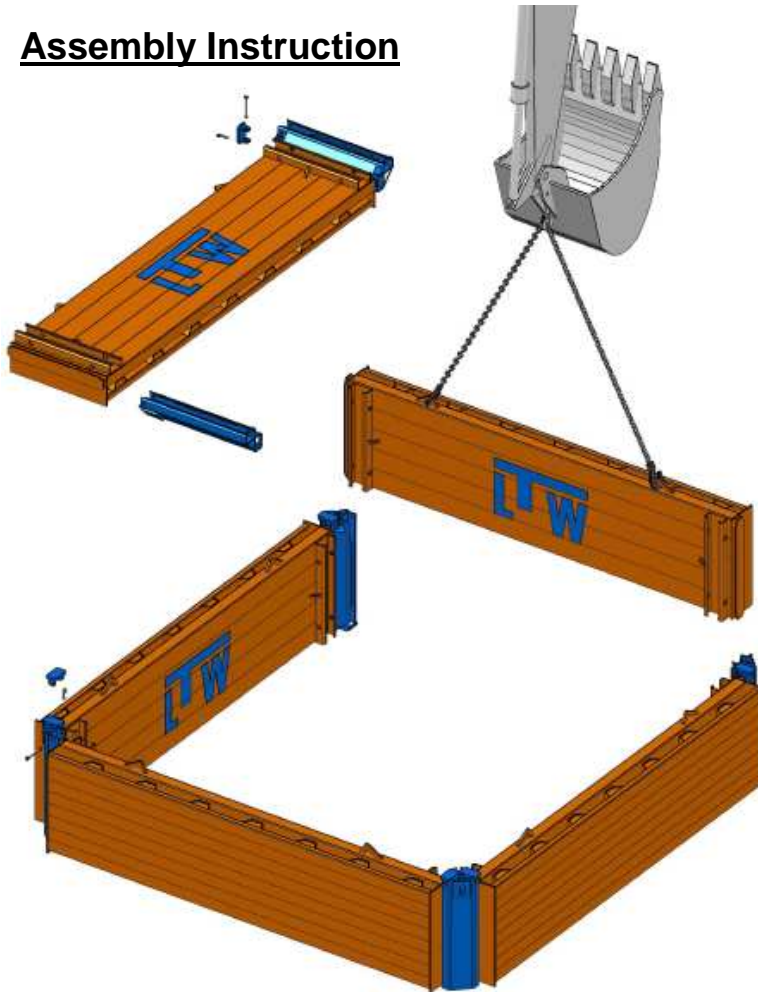


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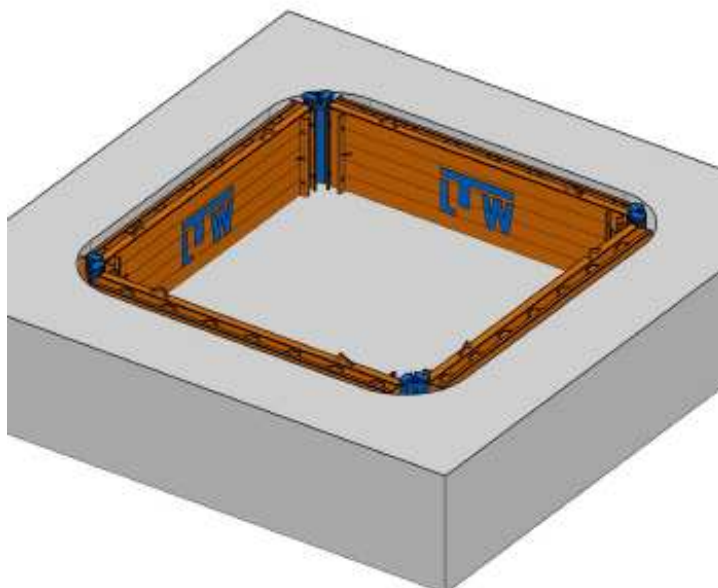
Assembly Instruction



Place 2 Plates on the attachment points facing upwards.

The corner connector will be threaded from below over the T-shaped side adapters of the Pile guide plates. Insert now from the top the end caps into the corner rails and secure them with bolt $\varnothing 20 \times 200 \text{mm}$ and locking clip.

Installation Instruction

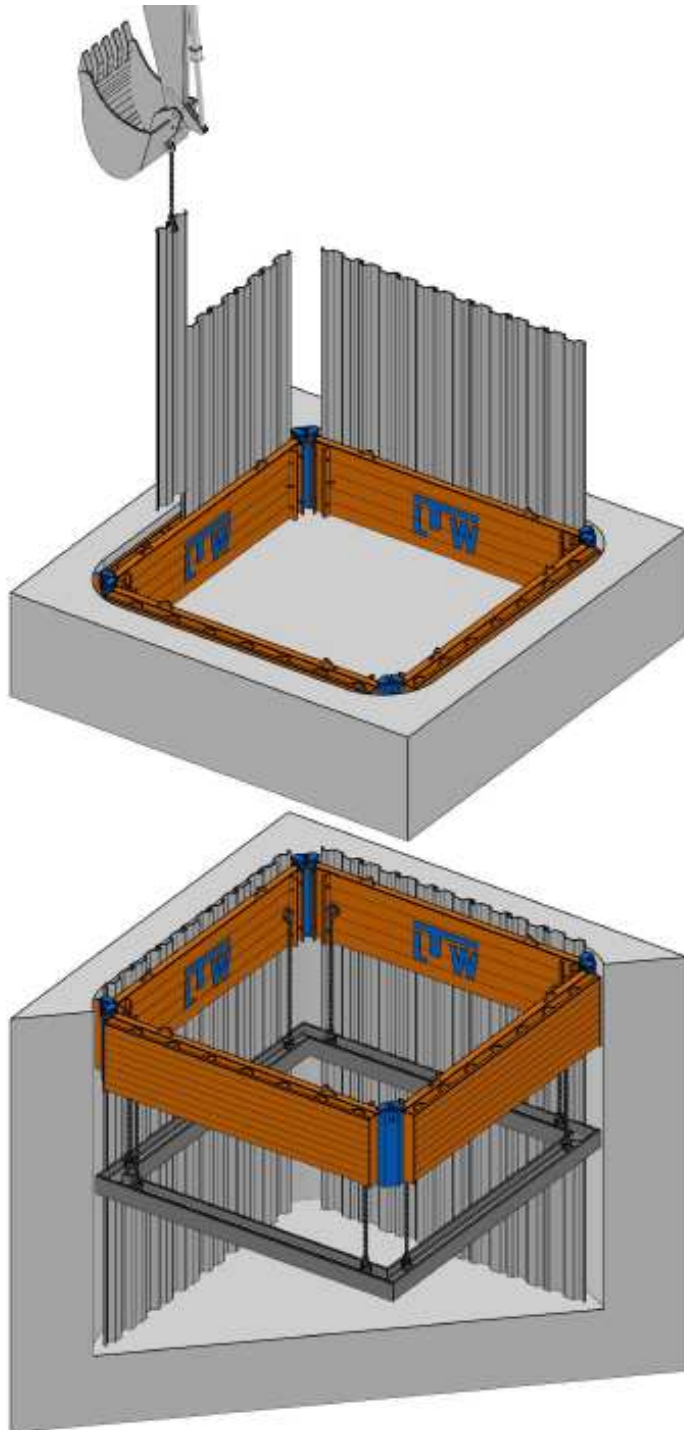


The shoring must be without gap close to the ground. The limited values for max. loads have to be kept strictly.

Pre-Excavation max. 1,00m and ~10cm wider than the dimension of the manhole to be placed.

Pre-assemble the complete frame. Connect the lifting hooks into all four lifting eyes of the inner-plate and insert the pre-assembled frame into the excavation. Observe details regarding the frame weight as per our technical data sheet.

Fill up and compact the gaps between the trench walls and the shoring!



Place the trench sheets into the guidance's between inner and outer plate and press-in using the excavator bucket. The guidance's in between the inner and outer plate will ensure, that the trench sheets are properly guided and kept. The lowering of the trench sheets is effected in turn with the excavation. The trench sheets have to be pressed in by the excavator bucket, or by means of vibration (and not "hammering" with the bucket). Excavate about further 0,5m and press in the trench sheets by turn. Repeat this procedure until reaching the required trench depths.

When service lines crossing the trench, the installation of the trench sheet concerned, is effected up to the summit of the crossing. Lock this trench sheet(s) against further sliding. Underneath the service line it has to be shored conventionally e.g. with timber.

Depending on soil conditions and depths and if buildings at risk of settlements are close to the excavation, wailers have to be provided and installed on site. These have to be chosen according to static requirements and must be checked upon every case of operation. The site specific engineering will report position and rating of the required wailer.

Re-Installation

According to compacting possibilities bring in 0,5m filling material. Lift the trench sheets by the filled height and start compacting. Repeat this procedure as described until the trench sheets can be lifted out of the trench. Finally, the complete lifted frame will be lifted out; observe the safety regulations. Connect the lifting hooks into all four lifting eyes of the inner-plate and lift the frame out of the trench.

It is prohibited to stand within the pivoting range of the excavator or crane and beneath suspended loads.