

MANUAL



STANDARD-BOX VB 100

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TRENCH SHORING SYSTEMS FROM SHORING PROFESSIONALS

Trench shoring equipment

Production - Sales - Rental - Service

These instructions for use must be presented to the building site personnel.

The diagram relating to the stress on the lower strut must be observed, as well as the load capacity diagram (characteristic stress curve) of the strut type. With the strut stress determined from the stress diagram, it must be checked on the load capacity diagram for the strut whether it is possible to use the required trench width.

1. General purpose of use

Edge-supported shoring box with a plate thickness of 105 mm (up to 3,500 mm plate length) or 120 mm plate thickness at a length of 4,000 or 5,000 mm
Optimal stability means it is best suited for installation in the lowering procedure.

2. Specifications

Box length	: 2000/2500/3000/3500/4000/5000 mm
Box height of baseplate	: 2.600/2.400 mm
Max. pipe culvert height	: 1.555/1.355 mm
Box height, support plate	: 1.300 mm
Strut type	: SP SB 98 x 700/500/392 or 817

3. Safety regulations

WARNING

We refer to the fact that the above shoring system is only for the intended use and may only be assembled, installed, dismantled and unmounted in the sequence listed under points 4 - 7, exclusively with the use of all relevant "original construction elements".

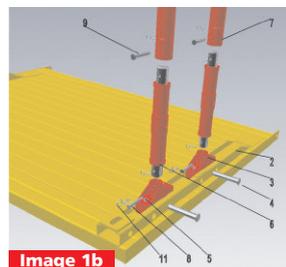
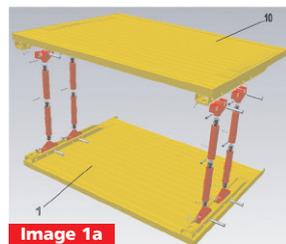
Please ensure a steady installation of the box; otherwise, it should be changed if necessary! If this is not observed, the manufacturer's liability and warranty are invalid. Observe the load-bearing capacity of the shoring elements.

Note:

All of the requirements of BG-Bau (the professional association) as well as DIN 4124 "Excavations and trenches, embankments, work-room widths, shoring" are applicable. In the event of conditions deviating from the standard conditions, construction site statics must be prepared.

4. Assembly:

- Lay the plate (1) with the soldier profiles (2) facing upwards on level ground.
- Insert four pretensioned mushrooms (3) into the guide profiles of the soldier profiles. Insert the corresponding bolts (4) $d = 43$ mm, $L = 212$ mm into the mounting holes provided on the soldier profiles and secure them with safety clips. Detension the mushrooms by loosening the nuts (5). Note: Two mushrooms with a strut (6) and possibly a extension pipe (7) form one strut unit.
- Insert the strut (6) into the spring caps. Insert the bolt (8) $d = 20$ mm, $L = 140$ mm and secure with cotter pins.
- If necessary, i.e. according to the trench width, only one Extension pipe(7) may be used for each strut unit. The extension pipe must not be longer than 3.00 m. For static reasons, the struts are mounted alternately staggered (Fig. 1), attached with bolts (9) $d = 20$ mm, $L = 140$ mm and safety clips.
- Attach the second plate (10) equipped with mushrooms onto the mounted strut/widening tubes and bolt and secure with safety clips pins as described above.
- Using a strut wrench on the struts, increase the lower distance of the plates by 4-5 cm (Fig. 2).



5. Installation

5.1 Installation procedure for solid ground

Pick up the first preassembled shoring box using an appropriate hoisting device and place it in the previously raised ditch section. The weights can be taken from the datasheets, as mentioned above. Then, by turning the shafts with the shaft wrench, press the plates against the ditch walls.

5.2 Lowering procedure for unsolid ground

- Protect the plates of the VB 100 against damage before insertion by the excavator by attaching the pressure rails (13) to them.
The shoring unit is pressed in the area of the post. The max. distance "B" per insertion procedure is shown in Fig. 2. For example, a ditch width "A" of 300 cm results in a distance "B" of 37 cm. If the distance "B" is greater than that shown in Fig. 2, individual components of the shoring unit may become damaged. Pre-excavate the ditch to a max. depth of 1.25 m.
- Lift the preassembled shoring unit set to the ditch width with an appropriate hoisting device and place it in the pre-excavated ditch. Refer again to the datasheets to find the weights.
- Excavate approx. 0.50 m alternately and press down the plates by the distance "B" (see Fig. 2).
- If the ditch depth exceeds the box height, then the shoring depth can be increased if necessary with the support boxes (Fig. 3). These are connected to the guide posts with connecting rings (14) via locking pins (4) $d = 43 \text{ mm}$ and secured with cotter pins. Now excavate and press down again, as described in 5.2 c).



Image 2

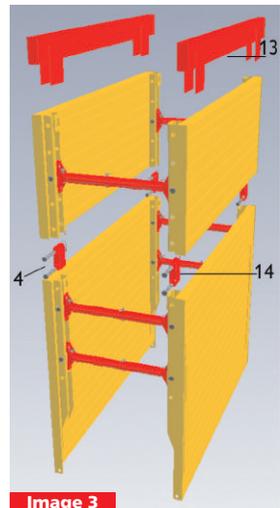
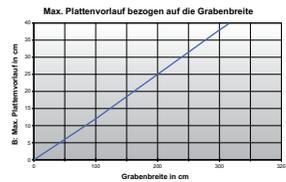


Image 3

6. Dismantling

6.1 Dismantling in setting procedures

- a) Loosen the plates pressed against the ditch wall (see 5.1) by turning the struts away from the ditch wall.
- b) Insert the backfilling material in layers (observing the compaction level).
- c) Pull the entire shoring unit up to the filled height.
- d) Compact the back filling material.
- e) Restart at point 6.1.b, until the VB 100 is completely pulled out of the earth.

6.2 Dismantling in the lowering procedure

- a) Insert the back filling material in layers (observing the compaction level).
- b) Pull out the VB 100 up to the filled area. The height of the respective individual pass "B" is according to Fig. 2.
- c) Compact the back filling material.
- d) Restart at point 6.2.a, until the VB 100 is completely pulled out of the earth.

7. Disassembly

Before transporting away the VB 100, it is disassembled analogously to the assembly but in the reverse sequence.

8. Maintenance / Service

On each disassembly, the VB 100 should be cleaned. The free strut ends must be cleaned and kept in a well-lubricated state. The entire shoring unit must be protected against corrosion caused by handling damage by the use of appropriate protective measures.

9. Transport

When unloading, you should store the supplied wooden blocks and the rubber plates appropriately. These parts must always be re-used for the return transport. As the shipper, you are co-responsible for the appropriate shipping of the return transport.

10. Lifting and pulling

- Lifting, transporting, pulling or towing are only permitted with an appropriate and approved lifting accessory.
- Use a loading hook with a safety latch.
- Transport as close to the ground as possible.
- Only place on level, solid ground.
- Standing underneath hanging loads is prohibited.
- Standing in the machine area is prohibited.

11. Criteria for removing parts from service and repair instructions

- a) As a matter of principle, all shoring parts must be checked for functionality before use.
- b) The criteria for the removal from service of worn or damaged parts include:
 - 1 missing parts, such as nuts, screws, rungs and bolts
 - 2 broken parts, such as shafts, bolts, spreading systems
 - 3 With regard to strongly deformed or twisted parts, or holes in the plate body, for example, the manufacturer should be consulted in case of doubt.
- c) Defective parts must be replaced or repaired.
- d) Smaller repairs may be performed by the user, after consultation with the manufacturer.
- e) Only original manufacturer spare parts may be used.
- f) There is no warranty for improperly performed repairs or the use of non-original parts.
- g) The requirements of the Operating Safety Ordinance are applicable.

12. Deflection according to DIN EN 13331-1

The calculated deflection applies to maximum load at the identified point.

13. Dimensioning of the pendant

Diagram for selecting the lifting accessory (pendant). The vertical axis indicates the tractive force in t and the horizontal axis indicates the earth pressure in kN/m^2 .

(Depth of use according to standard BG example:

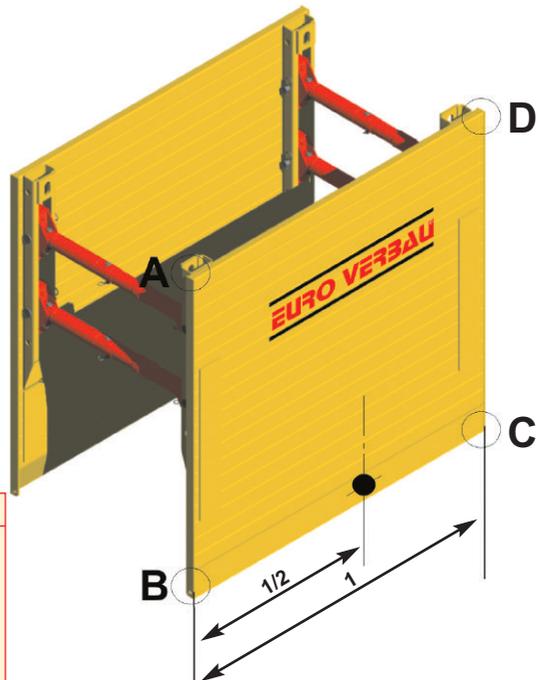
Ditch depth <	3.0	4.0	5.0	6.0	7.0 m
	17.5	23.0	28.6	34.1	39.7 kN/m^2

Dimensioning of the pendant:

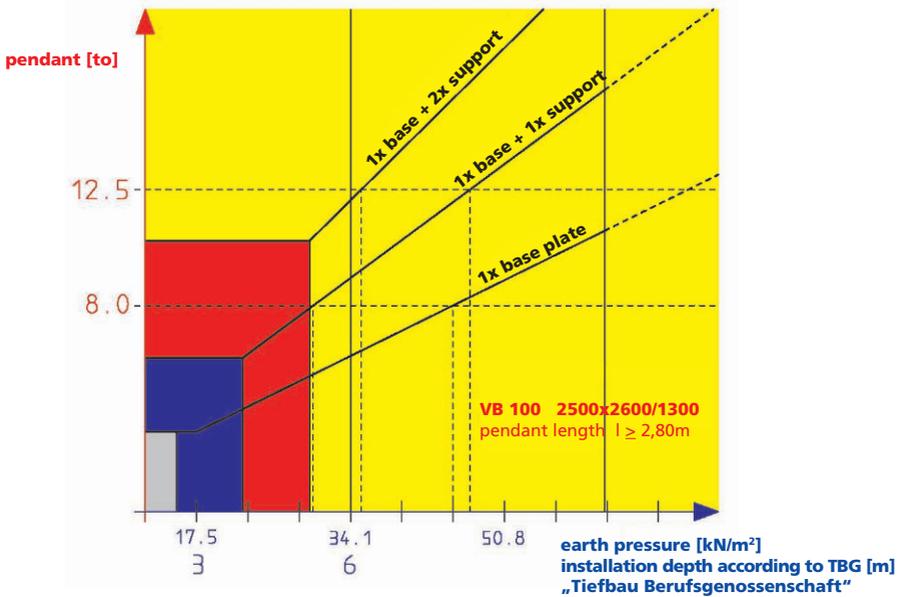
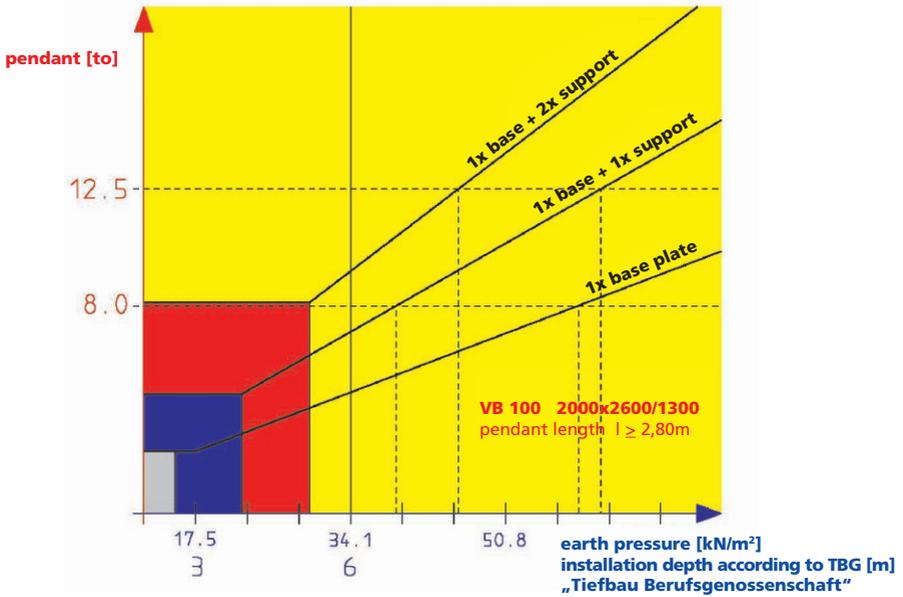
- Required payload of the pendant = $Eah \times l \times h \times \mu \times 0.05 / \sin [to]$
- Eah = Earth pressure
- l = plate length
- h = plate height
- μ = friction coefficient (0.2-0.5)
- = try-square of the pendant

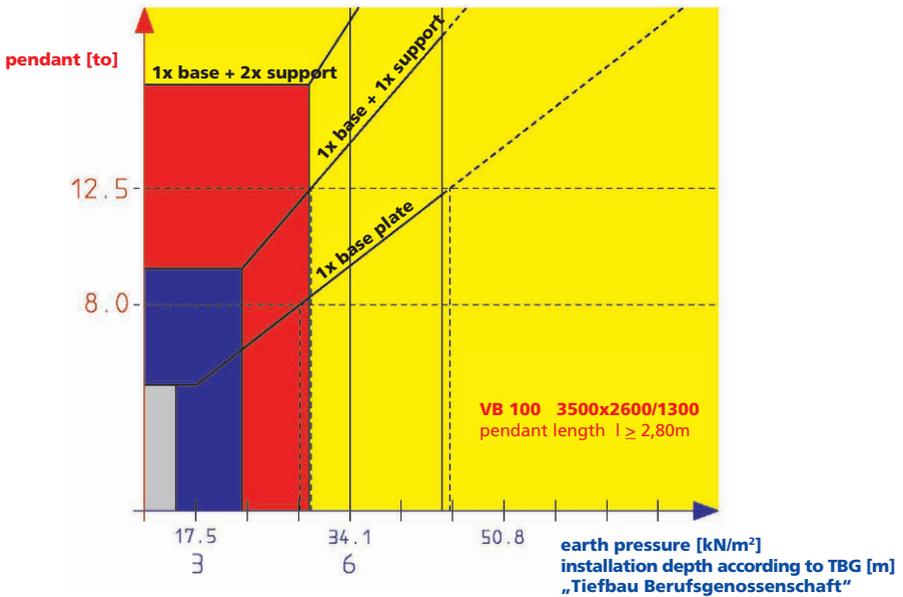
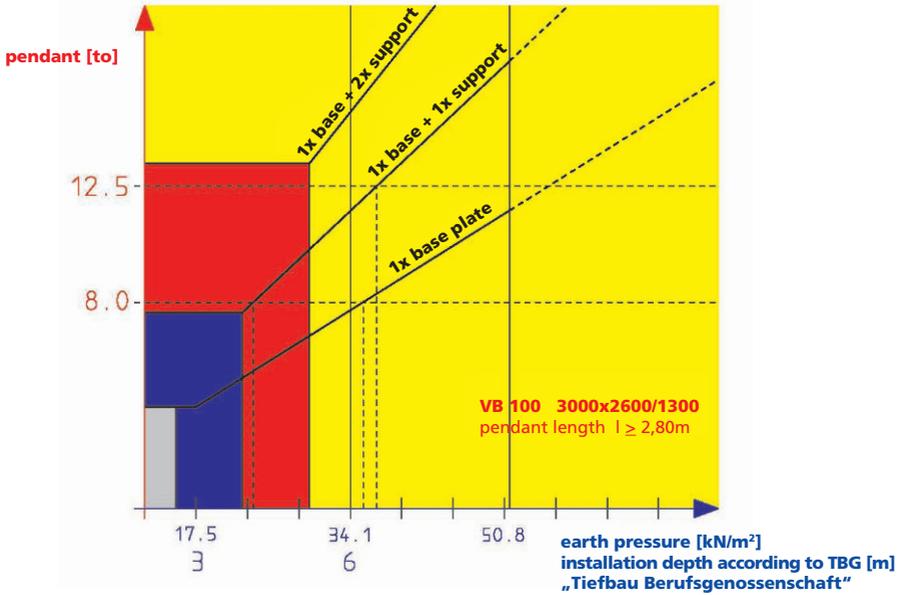
The values in the diagram are dimensioned with $\alpha=0.5$.

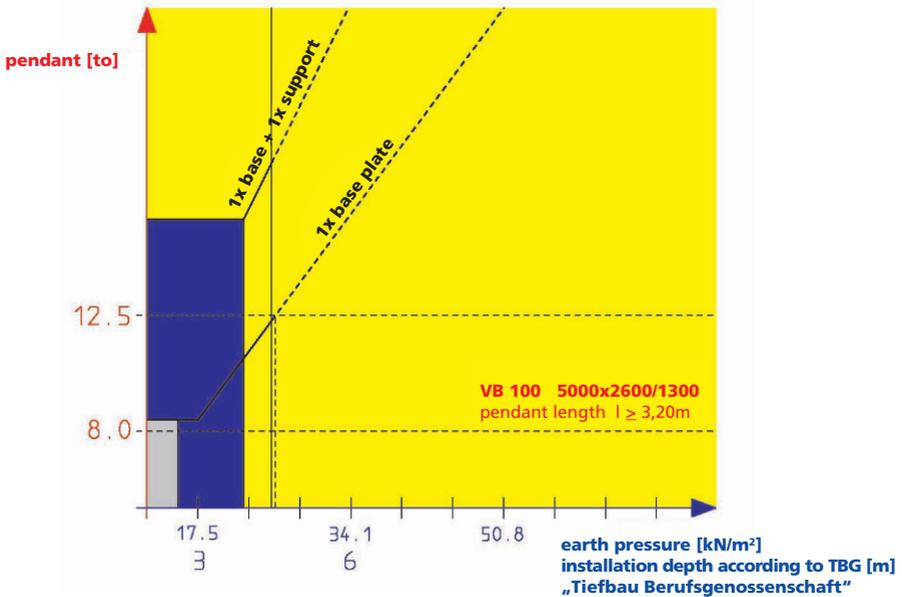
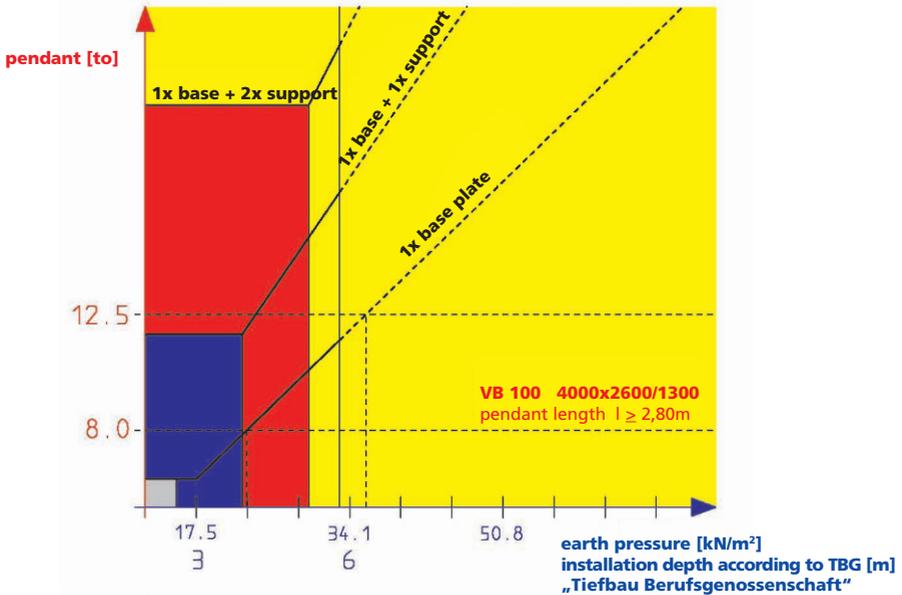
In the case of loose (or dry) soil, the indicated values can be more than halved accordingly.



Shoring plate	Deflection f [mm]
VB100 2000x2600	16.25
VB100 2500x2600	19.32
VB100 3000x2600	24.22
VB100 3500x2600	31.46
VB100 3750x2600	33.23
VB100 4000x2600	35.32
VB100 5000x2600	32.84







Manufacturer Certification in Compliance with DIN EN 1090-2

