

# TWF TIEFBAUTECHNIK

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**SLIDE RAIL SHORING**

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**OPERATING MANUAL**

V-05-2023-E

## ► TWF slide rail shoring

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► Operating manual



## ► TWF slide rail shoring

### • TWF slide rail shoring

The next generation of our proven slide rail shoring system:  
**Versatile. Cost efficient. Safe!**

- Modular system of double and corner slide rails, roller struts, shoring plates, pile chamber elements
- Ideal for securing low-lying infrastructure structures
- For temporarily stable ground and a trench depth of up to 10 m

TWF double slide rail shoring is an edge- and frame-supported shoring system, particularly suited for temporarily stable grounds and a trench depth of up to 10 metres, e.g. for replacing low-lying sewage collectors in town centres.

Our TWF shoring systems can be easily extended or added to in order to make them suitable for different types of tasks. Our slide share shoring system was also designed according to this principle.

A low-vibration process is used to install the 750-series double slide rail in line with working space widths pursuant to DIN 4124 and EN 1610 standards. The top edge of the shoring system must remain 5 to 10 cm above ground level.

Our slide rail systems can be used in particularly difficult ground conditions, for example in rolling and flowable soils with water layers. TWF slide rails and TWF slide rail plates with lateral guide rails make this the perfect extension of our modular shoring systems. The result: Excellent cost efficiency due to fast installation.

The TWF double slide rail shoring system can be used with existing shoring and cutting plates with lateral guide rails and thus increases their utilisation.



With its torsionally rigid back, widened to 320 mm, the TWF double slide rail presses against the trench wall and thus prevents twisting when loads are applied on one side by the shoring plates.

First, the slide rail is pressed into the ground or, alternatively, threaded into the shoring plates that have already been lowered into place. Each side of the shoring system is inserted individually and gradually lowered into place as excavation progresses. Lowering the slide rails into place gradually ensures that they are inserted evenly.

**At the same time, installation is quick and gentle on materials in this way.**

Each side of the shoring system can be individually pushed or pulled. This minimises the forces when lowering or pulling the slide rail shoring system.

After laying the pipe and filling in the trench, the shoring system is gradually removed.

In order to prevent any cavities from remaining after the slide rail is pulled and to avoid subsidence, it is recommended to backfill and compact the hollow space against the existing soil.

With the TWF slide rail shoring system, the number of struts is significantly reduced compared to edge-supported shoring systems. Using fewer struts results in a systemic advantage in terms of installing supply lines, reducing the workload for restrutting.



## ► Operating manual

**The following accident prevention regulations, standards and guidelines must be observed at all times during the building process:**

- DIN 4123 – Excavations, foundations and underpinnings in the area of existing buildings
- DIN 4124 – Excavations and trenches
- DIN 1054 – Subsoil - Verification of the safety of earthworks and foundations
- DIN EN 13331 – Trench lining systems
- German Social Accident Insurance (DGUV) regulations of BG BAU (the statutory accident insurance institution for the construction sector)
- Section 28 Securing against mass movement

### **Guidelines:**

- Recommendations of the “Excavation pits” working group (EAB)
- Recommendations of the “Shoreline edging” working group (EAU)
- Additional technical regulations (ZTV)
- Notifications from the German Institute of Building Technology (DIBt)
- Earth or rock walls must be sloped or secured pursuant to DIN 4124 “Excavations and trenches – slopes, shoring working widths”.
- The minimum trench width must be determined based on nominal width and/or pipe diameter and trench depth. The larger minimum trench width is applicable. Table 1 (DIN EN 1610) applies for sewage pipes and channels. For all other pipelines table 2 (DIN 4124) is applicable.
- Pipeline trenches must be shored pursuant to DIN 4124. If the dimensions deviate from the standard values, shoring must be statically verified.
- Any cavities between shoring and soil must be filled in and tamped.
- The shoring must sit tight to the soil and protrude at least 5 cm or 10 cm above the ground surface. No soil may leak through joints and butts.
- The front and back ends of the trenches must also be fully shored or sloped.
- At the upper edge, a 0.6-m wide (minimum) protective strip must be kept free.
- Shoring must start at the latest when the trench depth has reached 1.25 m.
- Check all parts of the shoring system:
  - after heavy rain
  - when significant load changes have occurred
  - in case of thaw
  - after longer interruptions to the work
  - after blasting work

### **Crossings – access**

- For trenches with a width of > 0.8 m crossings must be put in place. The crossings must be at least 0.5 m wide.
- If the trenches are > 2.0 m deep, three-section side protection must be installed on both sides of the crossings.
- Trenches with a depth of > 1.25 m must be accessed via stairs or ladders.

### **Traffic safety measures**

- Traffic safety measures must be put in place where excavation work takes place on public roads or the work impacts road traffic. The measures need to be agreed with the relevant road and building authorities as well as the police.
- Safety distances between trench edges and construction vehicles, construction machinery, lifting equipment etc. must be adhered to.

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Sources and further information:  
DGUV Regulation 38 (previously BGV C22)  
“Construction work”  
“Guideline for securing work sites on roads”

- DIN 4124
- DIN EN 1610
- DIN EN 13331

## ► TWF slide rail shoring

### Technical description

- Edge-supported, slide-rail guided shoring system
- For trench depths of up to 10.0 m without extension rail
- Plate lengths up to 7.0 m
- Base plate height 2.4 m
- Extension plate height 1.4 m
- Working widths up to 13.64 m



### Benefits

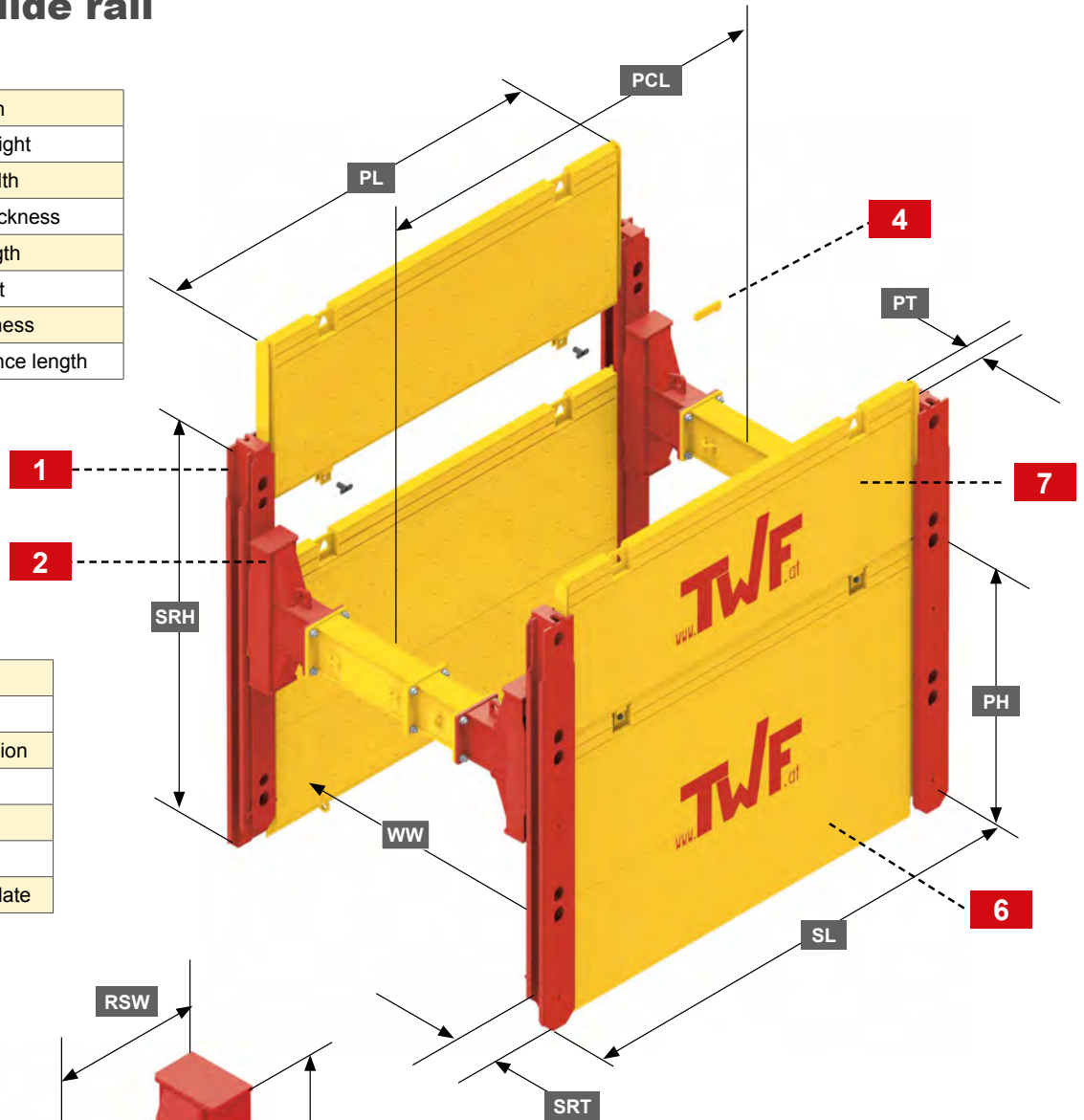
- Simple installation and extraction
  - Plates, slide rails and roller struts can be height adjusted individually.
- Pipe clearance heights can be adjusted infinitely.
- Strut extensions lengths: 0.25 | 0.50 | 0.75 | 1.00 | 2.00 and 3.00 m, customised lengths available on request
- Easy mounting of extensions with M30 grade 10.9 bolts



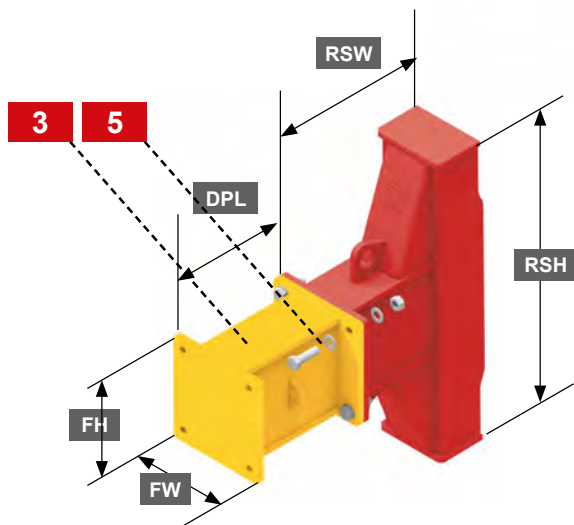
## ► Operating manual

### ■ Single slide rail

PL	Panel length
SRH	Slide rail height
WW	Working width
SRT	Slide rail thickness
SL	System length
PH	Panel height
PT	Panel thickness
PCL	Pipe clearance length



1	Slide rail
2	Rolling strut
3	Strut extension
4	Stop pin
5	Bolted joint
6	Base plate
7	Extension plate



RSH	Rolling strut height
RSW	Rolling strut width
DPL	Distance piece length
FH	Flange height
FW	Flange width



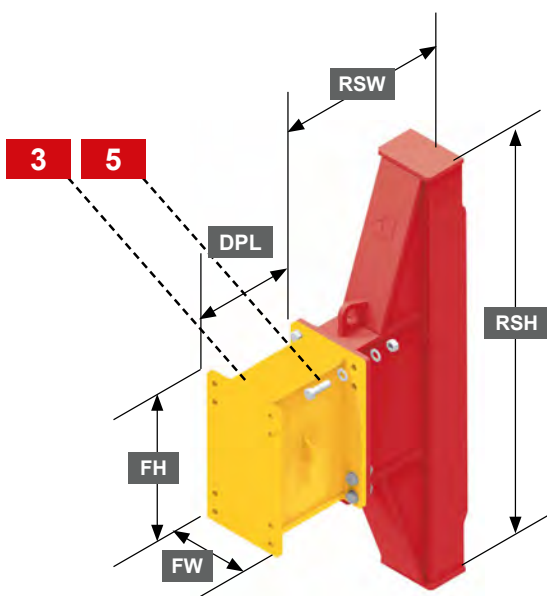
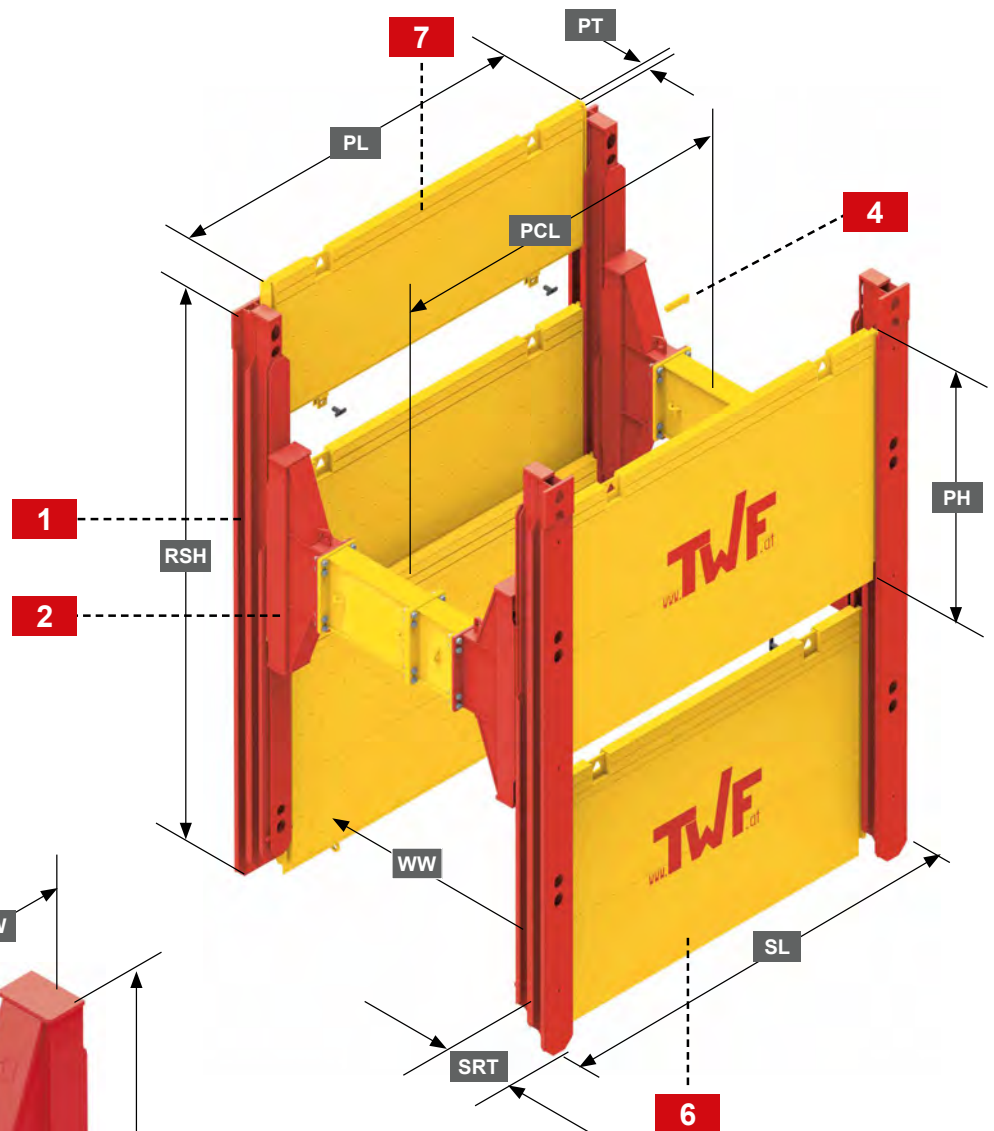


## ► TWF slide rail shoring

### ■ Double slide rail standard

PL	Panel length
SRH	Slide rail height
WW	Working width
SRT	Slide rail thickness
SL	System length
PH	Panel height
PT	Panel thickness
PCL	Pipe clearance length

1	Slide rail
2	Rolling strut
3	Strut extension
4	Stop pin
5	Bolted joint
6	Base plate
7	Extension plate



RSH	Rolling strut height
RSW	Rolling strut width
DPL	Distance piece length
FH	Flange height
FW	Flange width

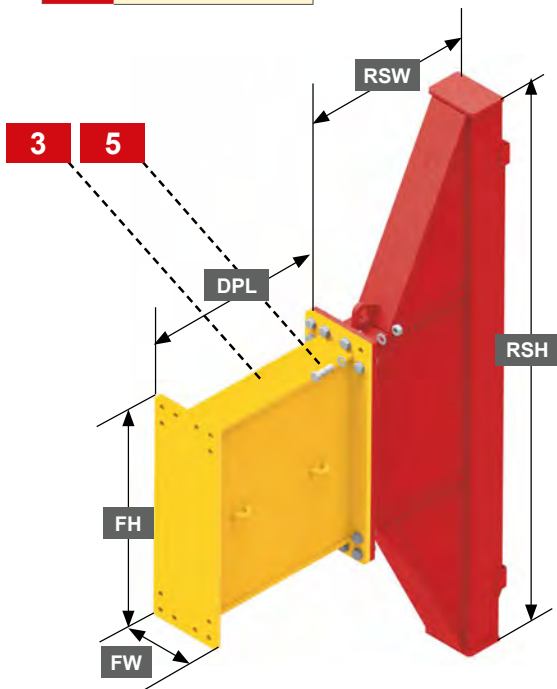
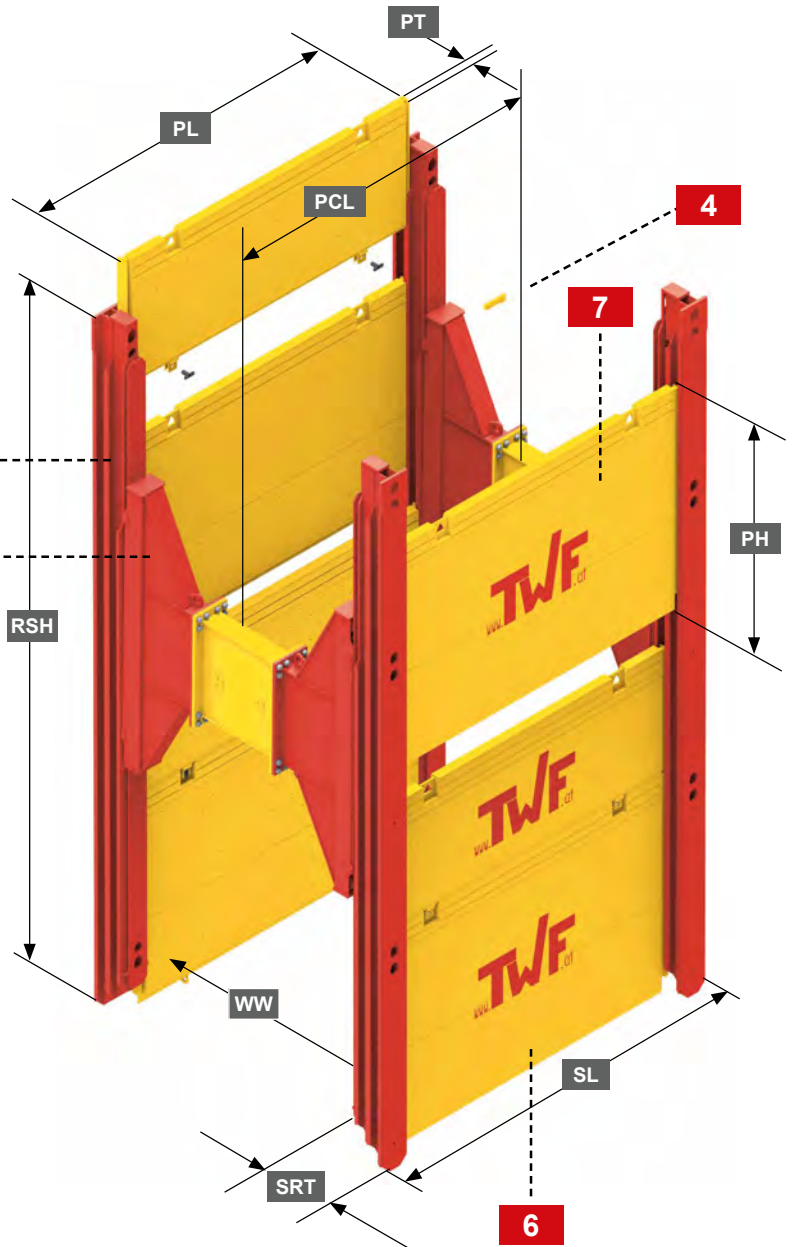


► **Operating manual**

■ **Double slide rail XL**

PL	Panel length
SRH	Slide rail height
WW	Working width
SRT	Slide rail thickness
SL	System length
PH	Panel height
PT	Panel thickness
PCL	Pipe clearance length

1	Slide rail
2	Rolling strut
3	Strut extension
4	Stop pin
5	Bolted joint
6	Base plate
7	Extension plate



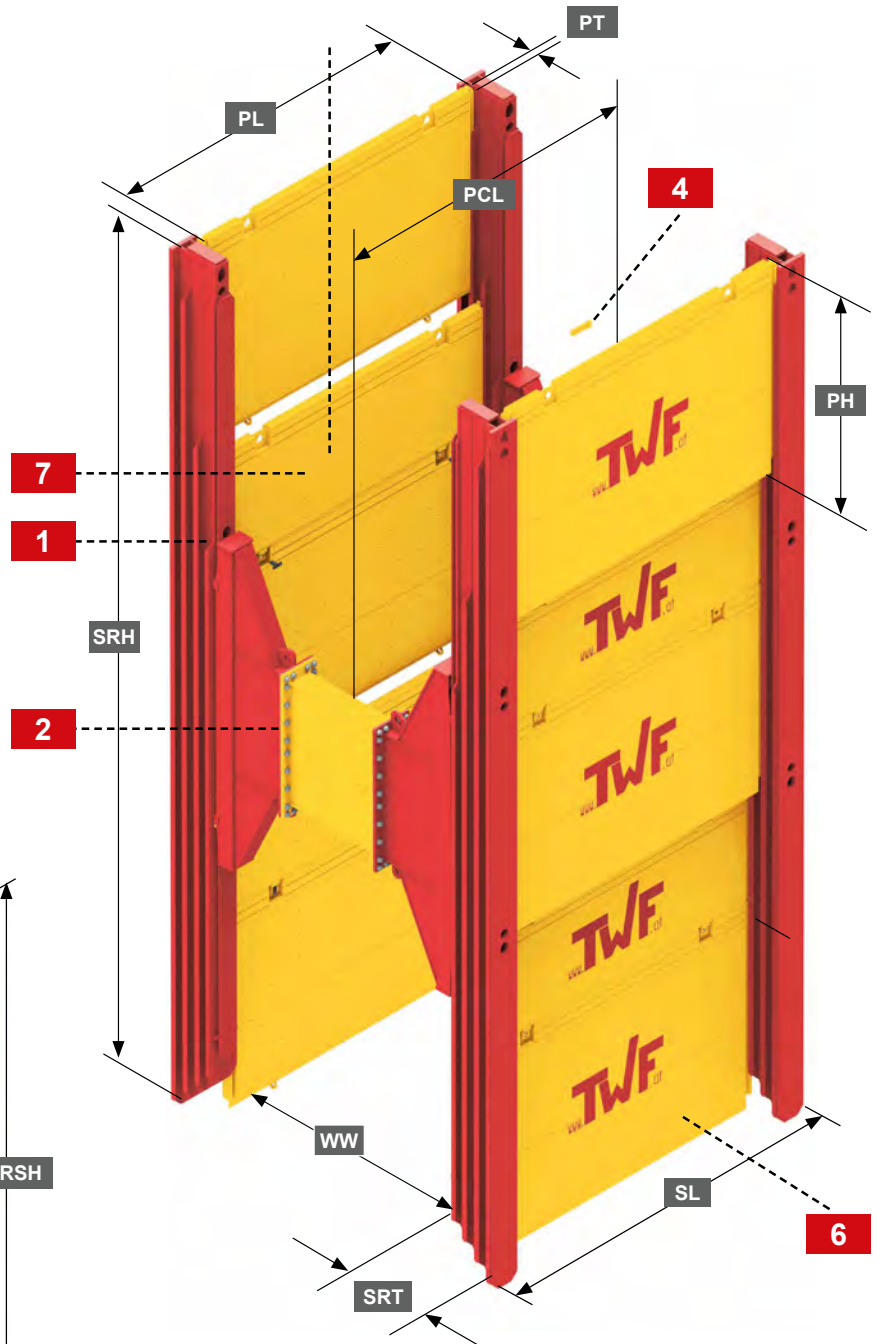
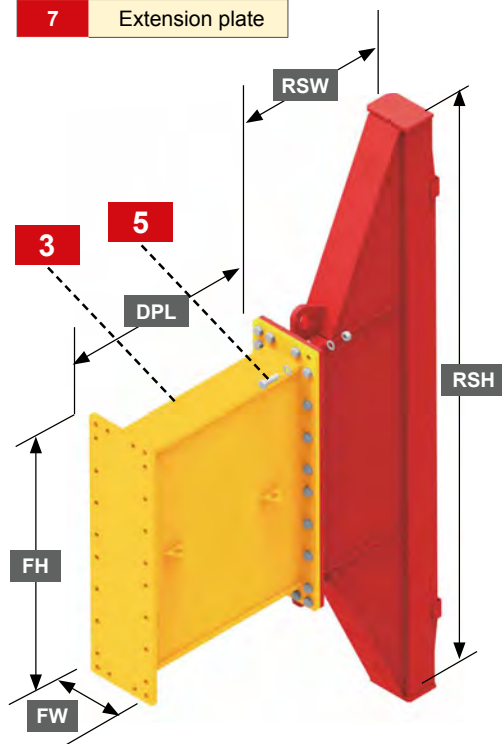
RSW	Rolling strut width
DPL	Distance piece length
FH	Flange height
FW	Flange width

## ► TWF slide rail shoring

### ■ Triple slide rail XXL

PL	Panel length
SRH	Slide rail height
WW	Working width
SRT	Slide rail thickness
SL	System length
PH	Panel height
PT	Panel thickness
PCL	Pipe clearance length

1	Slide rail
2	Rolling strut
3	Strut extension
4	Stop pin
5	Bolted joint
6	Base plate
7	Extension plate

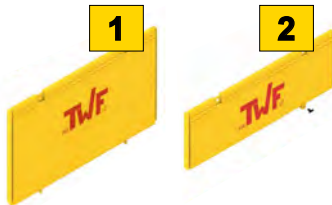


RSH	Rolling strut height
RSW	Rolling strut width
DPL	Distance piece length
FH	Flange height
FW	Flange width

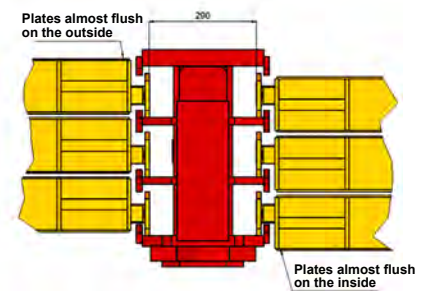
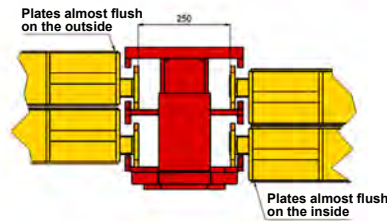
## ► Operating manual

### ■ ■ Slide rail plates

1	Base plate
2	Extension plate
PL	Plate length
PH	Plate height
PS	Plate thickness
RDL	Pipe clearance length
SL	System length



■ **Standard** - ■ slide rail and plate flush on the outside – shoring for built-up areas - Provides for an almost straight cut through blacktop



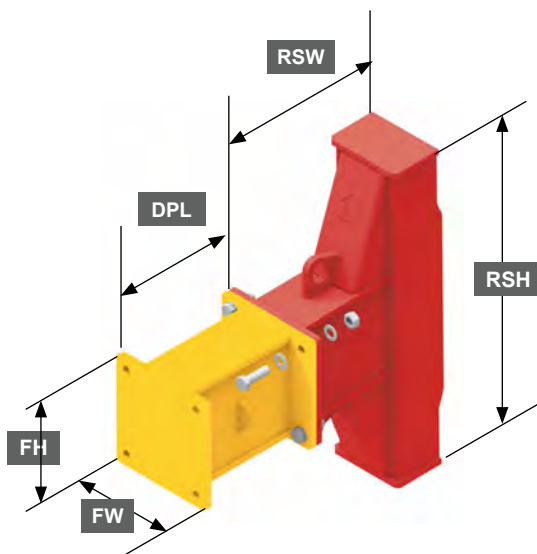
■ **In-situ concrete** - slide rail and plate flush on the inside - Used for in-situ concrete structures - slide rail and plate are almost plane and make up the formwork, protected by plastic wrap or sheeting

Element	Panel length PL (m)	Panel height PH (m)	Panel thickness PT (mm)	PC-length PCL (m)	System length (m)	Char. system resistance $R_k$ (kN/m <sup>2</sup> )	Weight (kg)
1	2,00	2,40	107	1,85	2,25   2,29*	220,2	575
2		1,40					367
1	2,44	2,40	107	2,29	2,69   2,73*	141,2	660
2		1,40					434
1	2,94	2,40	107	2,79	3,19   3,23*	97,9	828
2		1,40					521
1	3,52	2,40	107	3,37	3,77   3,81*	72,0	966
2		1,40					608
1	4,02	2,40	107	3,87	4,27   4,31*	55,1	1105
2		1,40					694
1	4,52	2,40	130	4,37	4,77   4,81*	78,5	1530
2		1,40					1010
1	5,02	2,40	130	4,87	5,27   5,31*	63,6	1788
2		1,40					1239
1	5,52	2,40	130	5,37	5,77   5,81*	52,6	1967
2		1,40					1200
1	6,02	2,40	130	5,87	6,27   6,31*	44,1	1980
2		1,40					1490
1	6,52	2,40	150	6,37	6,77   6,81*	45,0	2650
2		1,40					1810
1	7,02	2,40	150	6,87	7,27   7,31*	38,8	2850
2		1,40					1950

► **REINFORCED PLATES, FOR HEAVY-DUTY APPLICATIONS** on request  
PCL applies to all slide rail systems | \* Values for triple slide rail XXL

## ► TWF slide rail shoring

### ■ Rolling strut

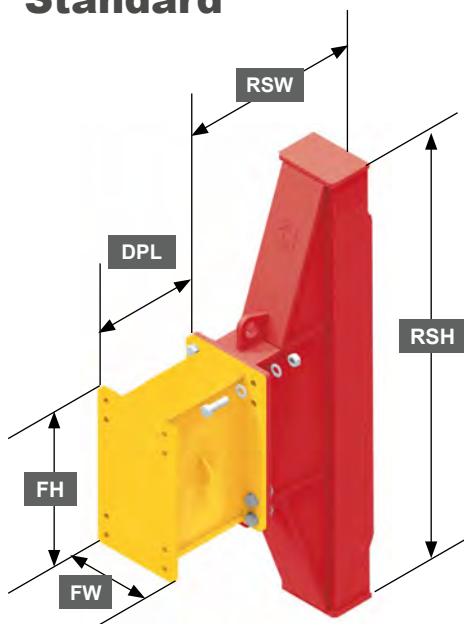


Distance piece						
Length DPL (m)	0,25	0,50	0,75	1,00	2,00	3,00
Weight (kg)	90	122	157	189	315	442

Rolling strut	
Height RSH (m)	1,24
Width RSW (m)	0,50* 0,62
Flange width FW (mm)	405
Flange height FH (mm)	420
Weight / RS-pair (kg)	620
min. Working width WW (m)	1,24

\*Special sizes on request

### ■ Rolling strut Standard



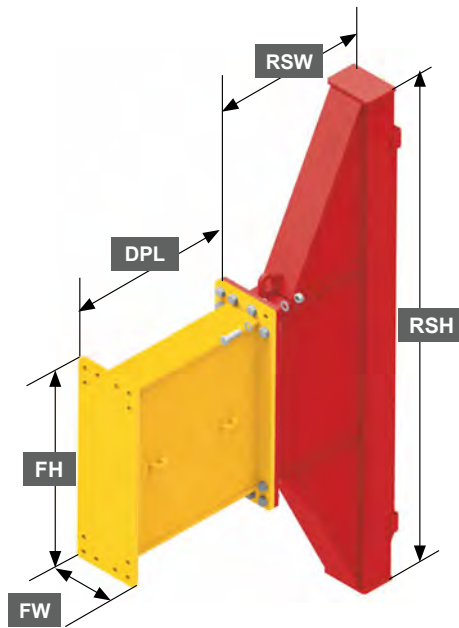
Distance piece - Standard						
Length DPL (m)	0,25	0,50	0,75	1,00	2,00	3,00
Weight (kg)	163	202	245	277	437	597

Rolling strut - Standard	
Height RSH (m)	2,04
Width RSW (m)	0,50* 0,62
Flange width FW (mm)	405
Flange height FH (mm)	720
Weight / RS-pair (kg)	980
min. Working width WW (m)	1,24

\*Special sizes on request

## ► Operating manual

### ■ Rolling strut XL



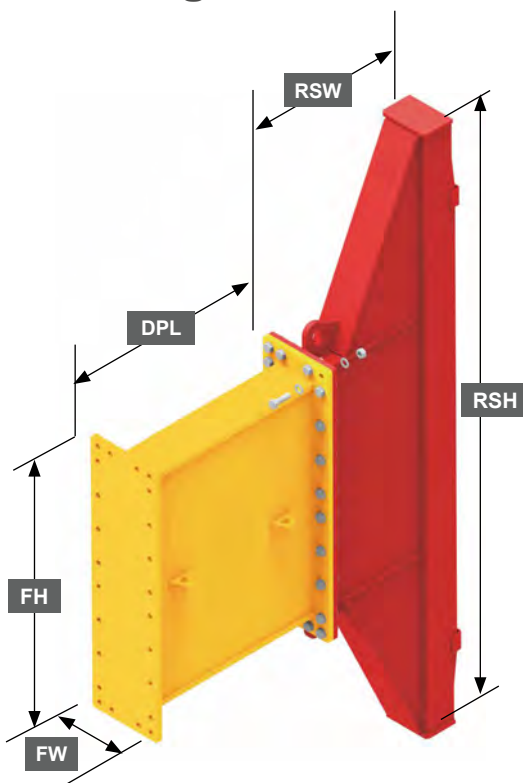
#### Distance piece - XL

Length DPL (m)	0,25	0,50	0,75	1,00	2,00	3,00
Weight (kg)	306	363	418	475	714	960

#### Rolling strut - XL

Height RSH (m)	3,04
Width RSW (m)	0,92
Flange width FW (mm)	405
Flange height FH (mm)	1220
Weight / RS-pair (kg)	1700
min. Working width WW (m)	1,84

### ■ Rolling strut XXL



#### Distance piece - XXL

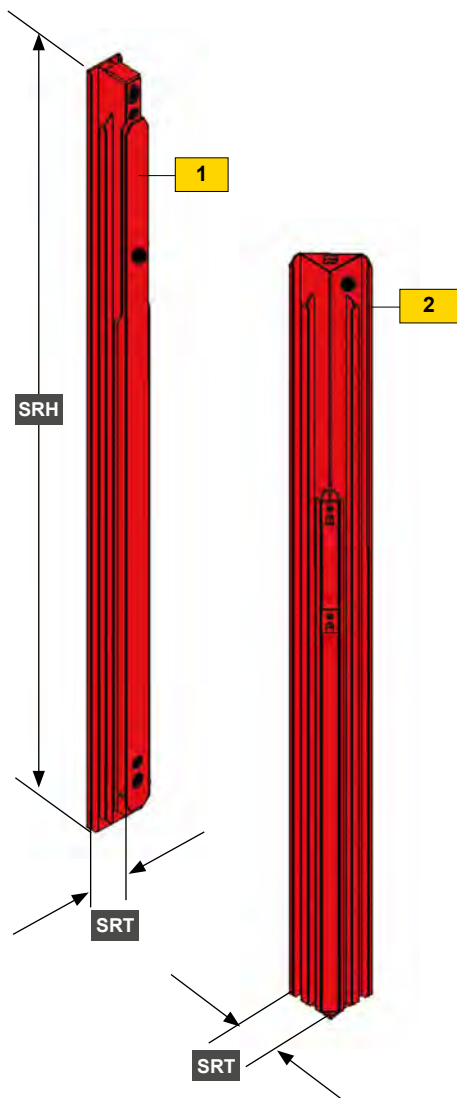
Length DPL (m)	0,25	0,50	0,75	1,00	2,00	3,00
Weight (kg)	417	518	618	723	1125	1528

#### Rolling strut - XXL

Height RSH (m)	3,66
Width RSW (m)	0,93
Flange width FW (mm)	454
Flange height FH (mm)	1635
Weight / RS-pair (kg)	2160
min. Working width WW (m)	1,86

## ► TWF slide rail shoring

### ■ Slide rails



Element	Slide rail height SRH (m)	Weight (kg)	Slide rail thickness SRT (mm)	Char. system re-sistance
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#### Single slide rail

Element	Slide rail height SRH (m)	Weight (kg)	Slide rail thickness SRT (mm)	Char. system re-sistance
Slide rail	3,50	540	220	460,0 kNm
Corner slide rail		337	270	130,9 kN/m*

#### Double slide rail

Element	Slide rail height SRH (m)	Weight (kg)	Slide rail thickness SRT (mm)	Char. system re-sistance
Slide rail	4,50	960	375	949,2 kNm
	5,50	1176		
	6,00	1266		
Corner slide rail	4,50	810	430	130,9 kN/m*
	5,50	957		
	6,50	1188		
	7,50	1338		

#### Triple slide rail

Element	Slide rail height SRH (m)	Weight (kg)	Slide rail thickness SRT (mm)	Char. system re-sistance
Slide rail	10,0	4446	590	1858,0 kNm
Corner slide rail	10,0	3347	586	130,9 kN/m*

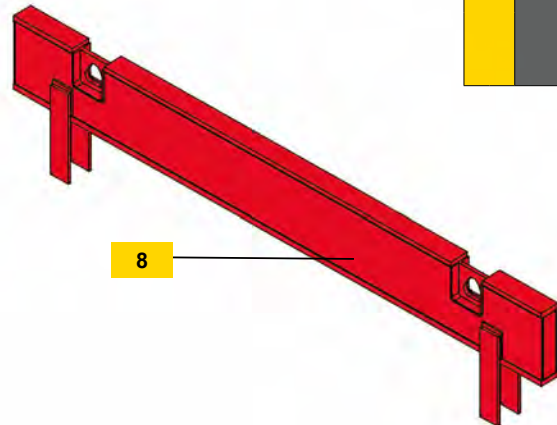
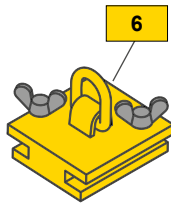
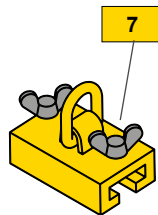
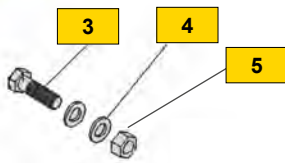
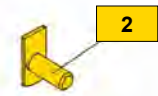
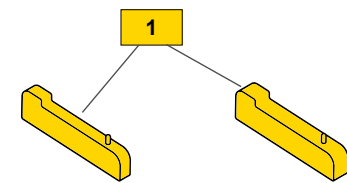
\* Rail insertion force per side

SRH	Slide rail height
SRT	Slide rail thickness
1	Slide rail
2	Corner slide rail



## ► Operating manual

### ■ Accessories



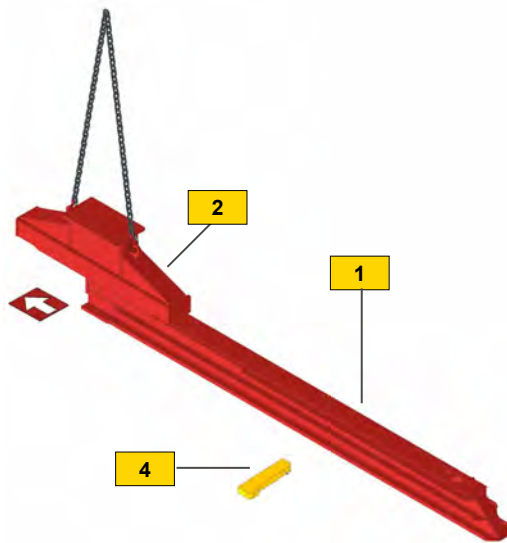
Description	Used for	For component measurement (mm)	Dimensions (mm)	Weight (kg)
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1	Stop pin	To secure rolling strut	220 und 385	25 x 70 x 255	3,00
			405 und 590	35 x 70 x 255	4,00
2	Bolt	Extension plate	bis 130 ab 150	Ø40 x 90 Ø45 x 125	1,50 1,75
3	Hexagon head bolt	Flange	t = 25	M30 x 90	0,96
			t = 30	M30 x 100	1,01
4	Washer	Flange		A31	0,05
5	Nut	Flange		M30	0,24
6	Assembly aid	Single slide rail			7,6
7	Assembly aid	Double slide rail			15

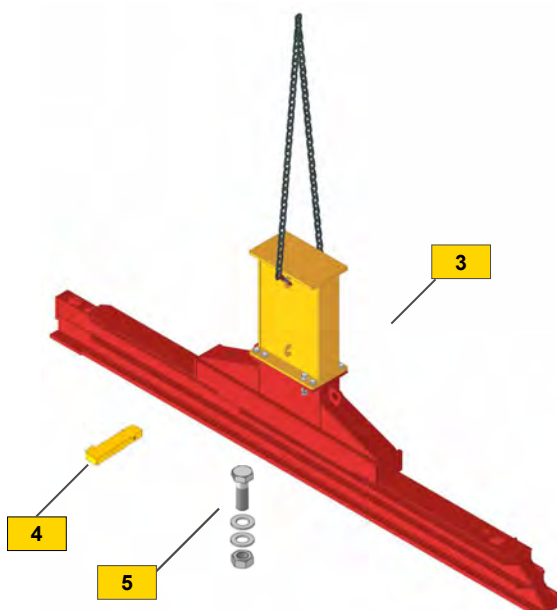
		Length			
8	Protection rail	Shoring plates	107	1800	220
				2500	265
				2800	243
				3300	279
				3800	316
			130	3800	398
				4300	420
				4800	470
				5300	525
				5800	544

## ► TWF slide rail shoring

### ■ Installation instructions



1	Slide rail
2	Rolling strut
3	Strut extension
4	Stop pin
5	Bolts M30



- Place slide rail with the guiding profile facing upwards on an even and firm surface. Position the lower lock with the locking pin pointing downward, (away from the rolling strut) in such a way that it will be positioned in the centre after installation.

- To ensure the A-position of the rolling strut as shown in the drawing, it must be installed with the arrow pointing upwards.

- Place the lower castor of the rolling strut onto the rolling profile of the slide rail and carefully push it upwards towards the top-end of the slide rail until it hits the lower stop pin.

- Above the rolling strut another stop pin must be inserted with the pin pointing upwards (away from the rolling strut). The rolling strut is now locked into place in the middle of the slide rail and can no longer be moved. The remaining rolling struts must be installed following the same process.

**Please note:** The locking pin must always point away from the rolling strut.

- If strut extensions are used, they must be attached at the lifting eyes, lowered onto the flange plate of the rolling strut and connected using M30 grade 10.9 bolts.

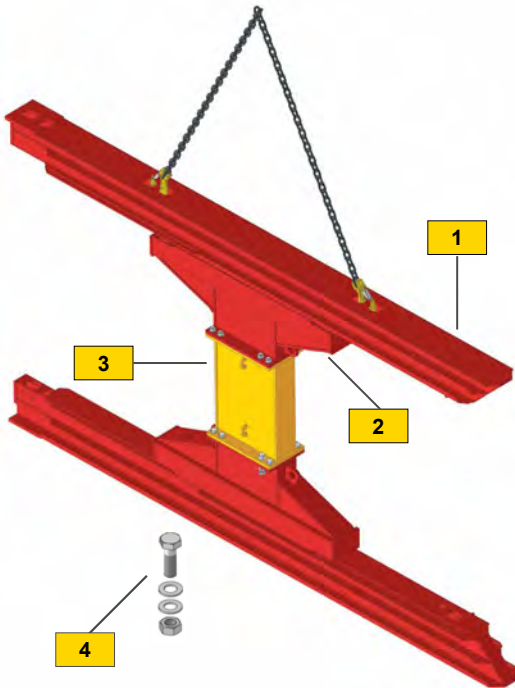
- If several strut extensions are required to achieve the required working width, they must be connected together lying flat on the ground first and then connected to the rolling strut flange as described above.

- Place one washer each under the bolt head and the nut.

- Tighten the bolts crosswise with a torque of 1350 Nm. The strut extension remains connected to the lifting equipment during the installation process.



## ► Operating manual



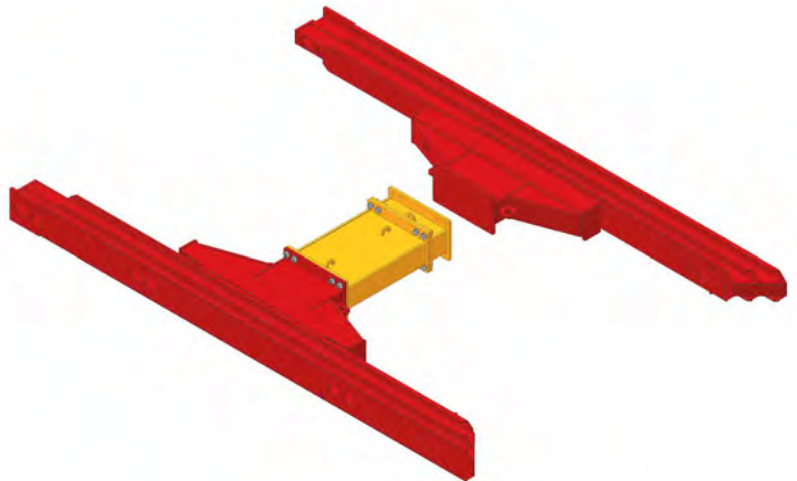
1	Slide rail
2	Rolling strut
3	Strut extension
4	Bolts M30

**Please note:** For safety reasons, the slide rails must be assembled to form a complete frame **lying flat** on the ground for working widths exceeding 2.0 m.

The rolling struts with attached extensions are placed lying flat on the ground facing each other, aligned and then bolted together.

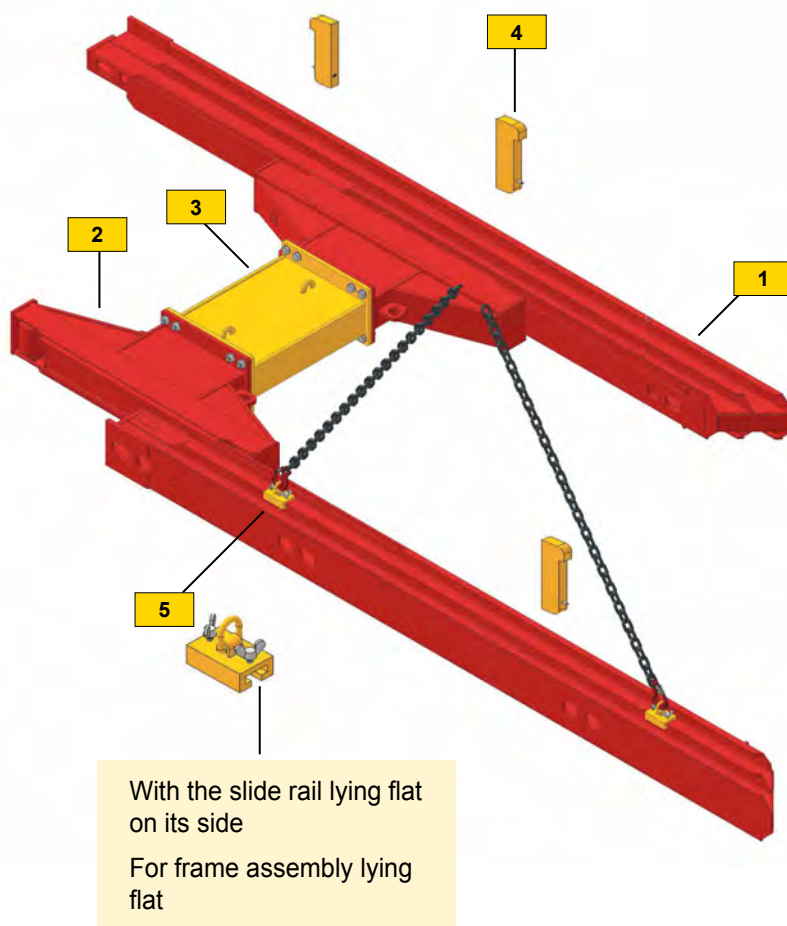
Alternatively, the frames can be assembled using assembly aids.

- The slide rail with attached strut extension can be placed directly on the side. After the chain has been attached to the mounting holes on the back of the slide rail, the slide rail with the attached strut extension must be lifted up and moved above the flange plate of the rolling strut attached to the slide rail on the ground. The flange plates can be easily aligned, since the slide rail remains connected to the lifting equipment during the assembly process.
- The components must then be bolted together as described above. The fully assembled slide rail frame can be placed on its side.
- The remaining frames must be assembled following the same process.



## ► TWF slide rail shoring

### ■ Assembly aid



When loading and storing slide rails, they may sometimes be placed on their sides making it impossible to attach lifting equipment at the designated holes. To this end, we developed assembly aids that can be clamped to the guiderails. After the assembly aids are positioned and fastened, lifting chains can be attached to them.

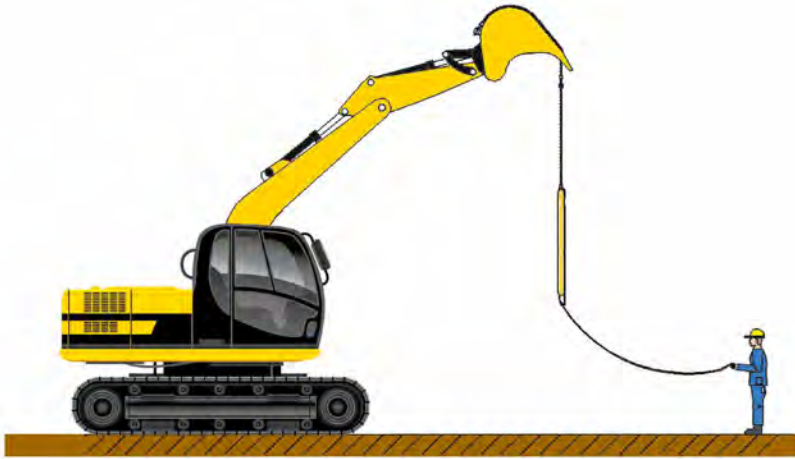
The assembly aid can also be used to assemble the rolling strut frame when it is lying flat. The strut extensions are attached to the rolling strut first. Then, the slide rail with the lifting gear attached to the assembly aids is slid into place into the lying rolling strut from the side.

► **Operating manual**

■ **Installation instructions**

**Alignment of the first shoring bay**

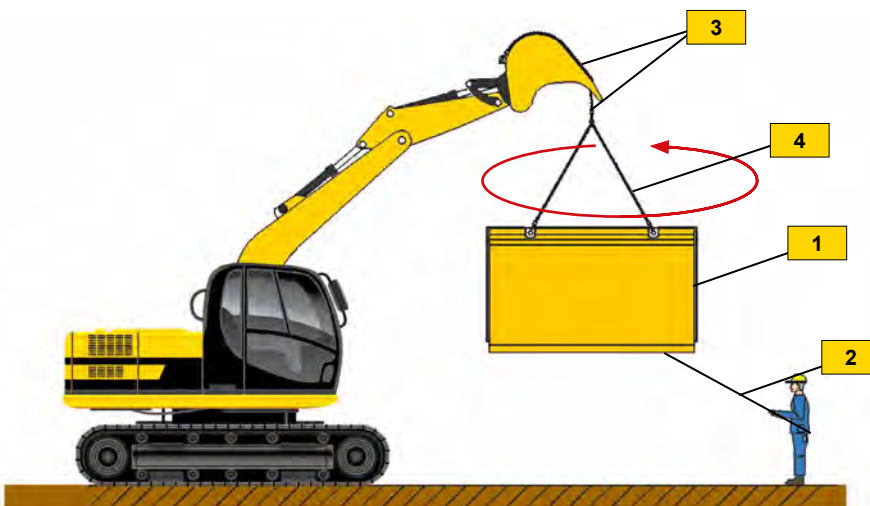
The pre-dug trench must be no wider than 1.25 m and no longer than one shoring box length. Pre-excavation generally depends on the type of soil and is subject to the relevant safety regulations



1	Slide rail plate
2	Rope
3	Single-leg sling
4	Double-leg sling

**Slide rail plates**

A single-leg and a double-leg chain sling are recommended for transporting the slide rail plate.



**Z Permissible tensile forces**

An den einzelnen Anschlagpunkten können nachfolgend aufgeführte Zugkräfte aufgenommen werden:

**Slide rail**

per lifting eye = 196 kN  
per guiding profile opening = 164 kN

**Slide rail plate**

per lifting eye = 196 kN  
per eye at cutting edge = 49 kN

**Rolling strut**

per lifting eye = 164 kN

**Strut extension**

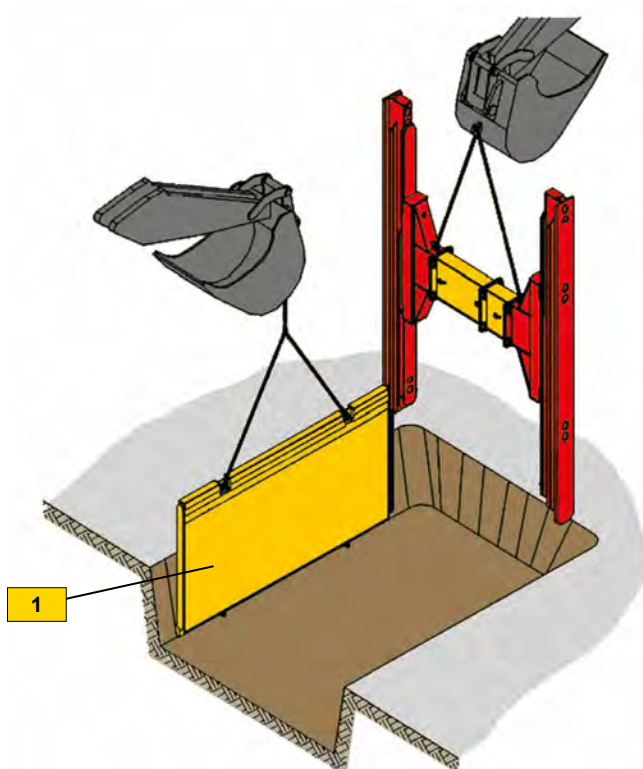
per lifting eye = 49 kN

The single-leg sling is to be fixed to a suitable attachment point on the excavator bucket. The length of the chain must provide for the pick-up ring of the double-leg sling being located below the bucket regardless of the position of the bucket. This ensures that the shoring plate can be rotated into position safely and easily, without any jerky movements.

The excavator must not be moved when the plates are being rotated

## ► TWF slide rail shoring

### ■ Installation instructions

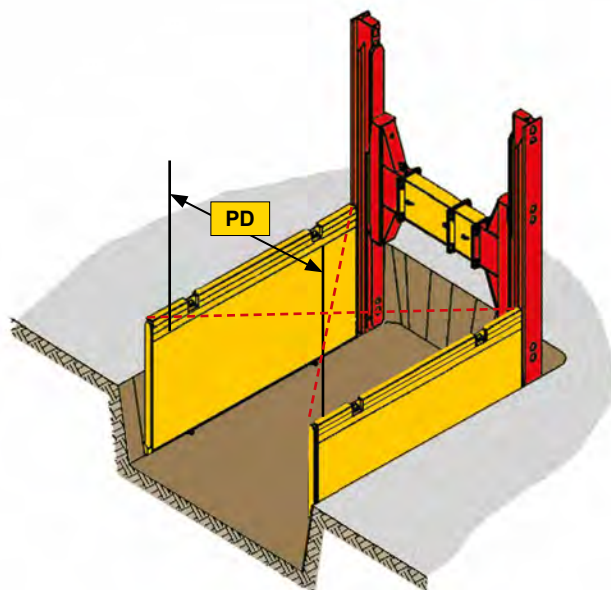


- Set the base plate down into the pre-dug trench, press down and hold in place with the arm of the first excavator. Lift the pre-assembled slide rail frame with a second excavator with a sufficient lifting height, lower towards the pre-excavated line trench above the shoring plate, insert into the outer slide rail guide and press down.

During this phase it is not permitted to enter the trench.

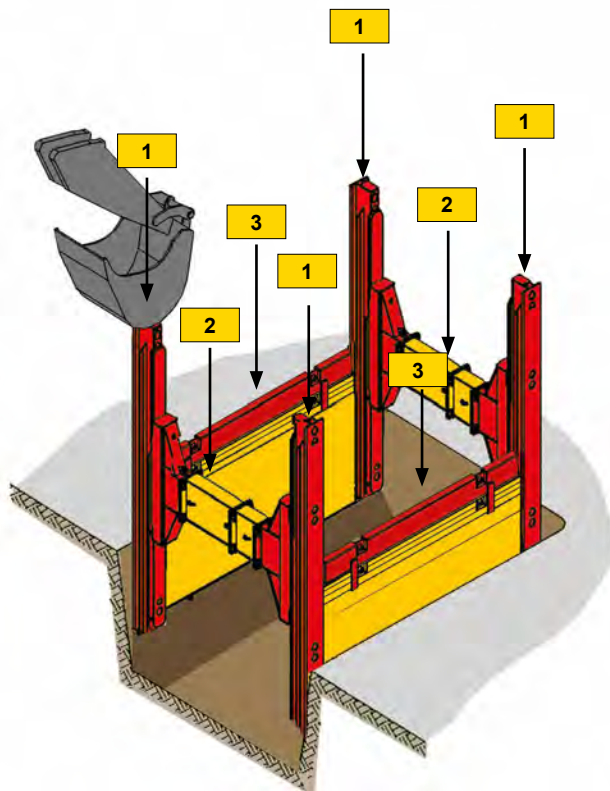
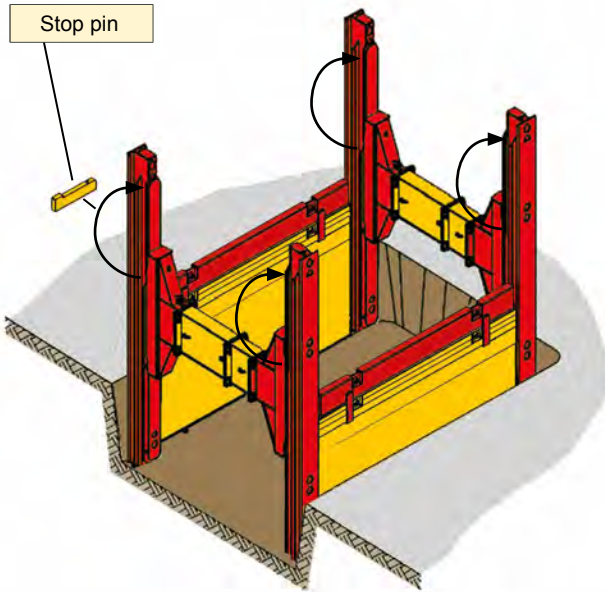
- Insert the second shoring plate into the outer slide rail guide of the opposite slide rail and lower it down to the bottom of the trench.

- Align the two shoring plates in parallel to each other and at a right angle across the diagonal.



<b>1</b>	Base plate
<b>PD</b>	Plate distance

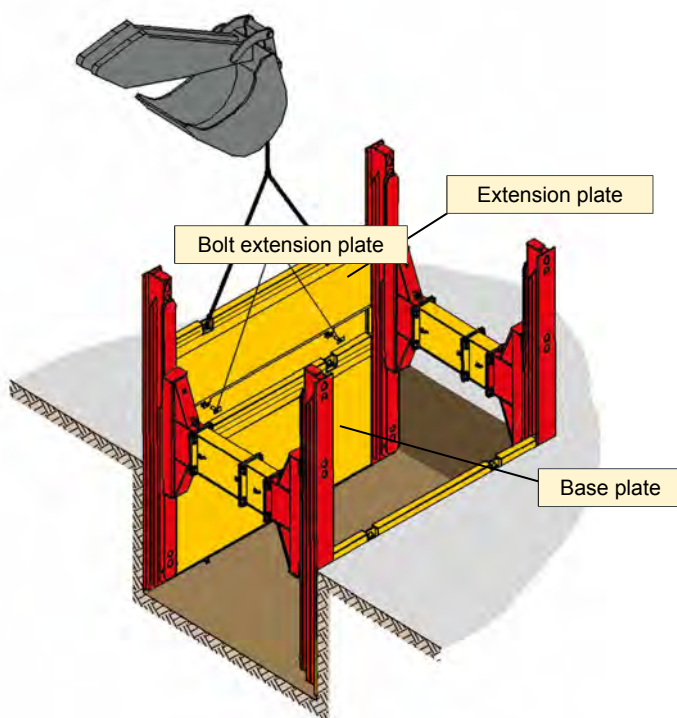
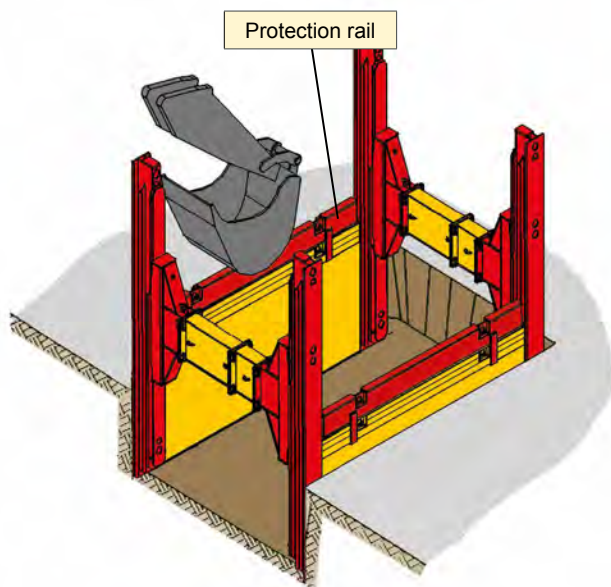
## ► Operating manual



- Now insert the second pre-assembled slide rail frame into the two profiles of the plates and press down into the soil. Press down slide rails and plates and align as required. Any cavities between the shoring system and the soil must be backfilled and compacted!
- The upper stop pins must now be repositioned as shown. The rolling strut pair can now be moved along the slide rails and the rolling strut shoring works as intended.
- Inserting the stop pin into the top-most slot prevents the rolling struts from unintentionally slipping out of the slide rail when the shoring is lowered.
- Dig down approximately another 50 cm and push down slide rails (1), rolling strut (2) and shoring plates (3) alternatingly. It must be ensured that the plates do not protrude from under the slide rails, that all components are pressed down by roughly the same distance and that the rolling strut is positioned as centrally as possible in the sliding rail frame.

## ► TWF slide rail shoring

### ■ Installation instructions



- To protect the shoring plates from damage and to ensure a long useful life of the systems, we recommend using protection rails. The individual shoring components must be pushed rather than driven down.
- Once the upper edge of the externally guided base plate has reached the upper edge of the surrounding terrain, an extension plate or a base plate can be inserted into the nearest internal guide profile, as required.

When using extension plates, they must be connected to the base plates with the correct pins.

The steps for gradually lowering the system into place by incrementally pressing down slide rails, rolling struts and plates must be repeated until the final depth of the trench is reached.

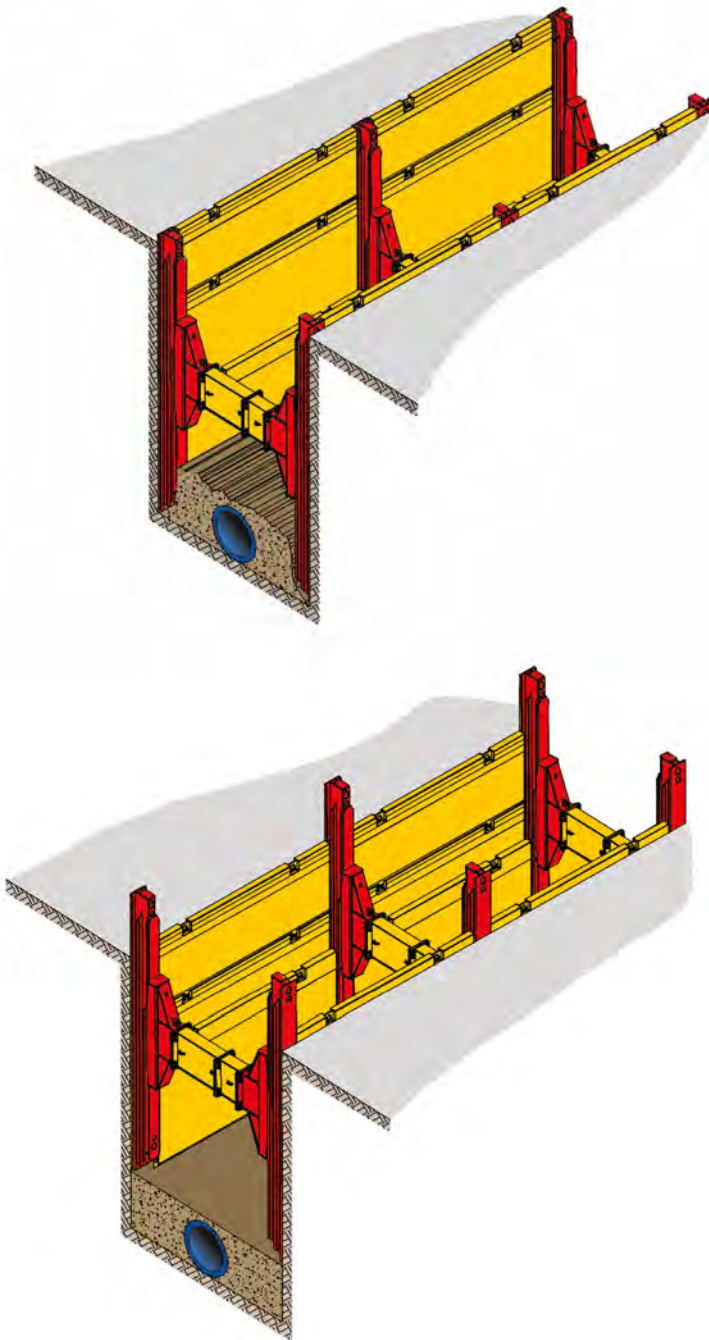
The top of the shoring system must remain at least 5 cm or 10 cm above ground level!

- Only now can the rolling strut be positioned to achieve the required pipe clearance in line with static specifications. Repositioning the lower stop pin prevents the rolling strut from sliding out of the rail unintentionally during the pipe laying work.

Further shoring sections can be added as described above by inserting the shoring plates into the slide rail guides. The plate distance must be checked for each additional shoring section.

## ▶ Operating manual

### ■ Extraction



- The shoring system is to be extracted incrementally and the excavation pit must be backfilled and compacted. The shoring system must be pulled up in increments following the instructions from site management or the surveyor in charge and the backfilled material must be compacted against the existing soil.

- Pull up the shoring components by a distance equal to the filling height. Then compact the filling material against the existing soil.

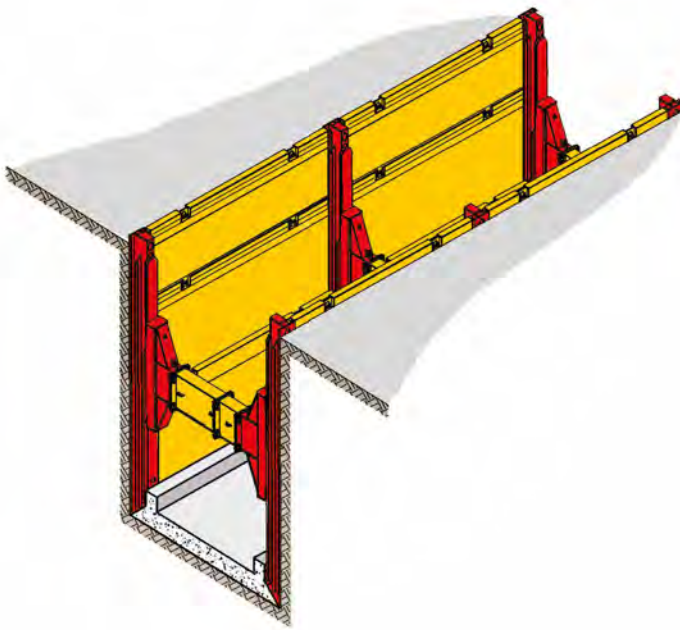
Keep repeating the process as outlined above until the shoring elements can be lifted out of the ground in line with all relevant safety regulations.

- The shoring components must only be pulled up using the designated lifting points and chains.

Please note that it is not permitted to enter the risk area during installation as well as extraction of the system.

## ► TWF slide rail shoring

### ■ Bottom support



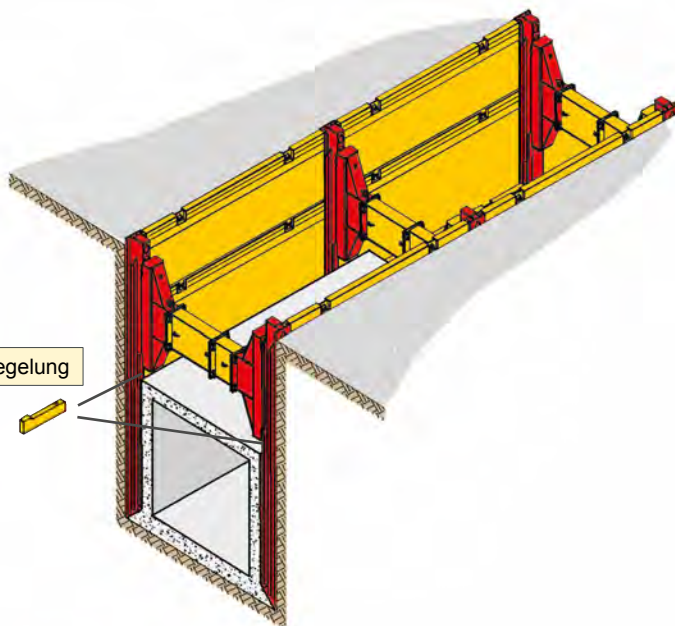
- When working with great pipe clearance heights or in-situ concrete structures it is often required to brace the rolling strut/ slide rail frame at the bottom of the trench.

To this end, the shoring system is first lowered down to the required trench depth as per installation instructions.

During this phase, the rolling strut should be positioned centrally or in line with structural requirements.

According to static calculation a steel or concrete slab is inserted between the sliding rails at the bottom of the trench.

It must be ensured that the support lies flat between the rolling profiles of the frame and that there is a sufficiently large contact surface for the rolling profile.



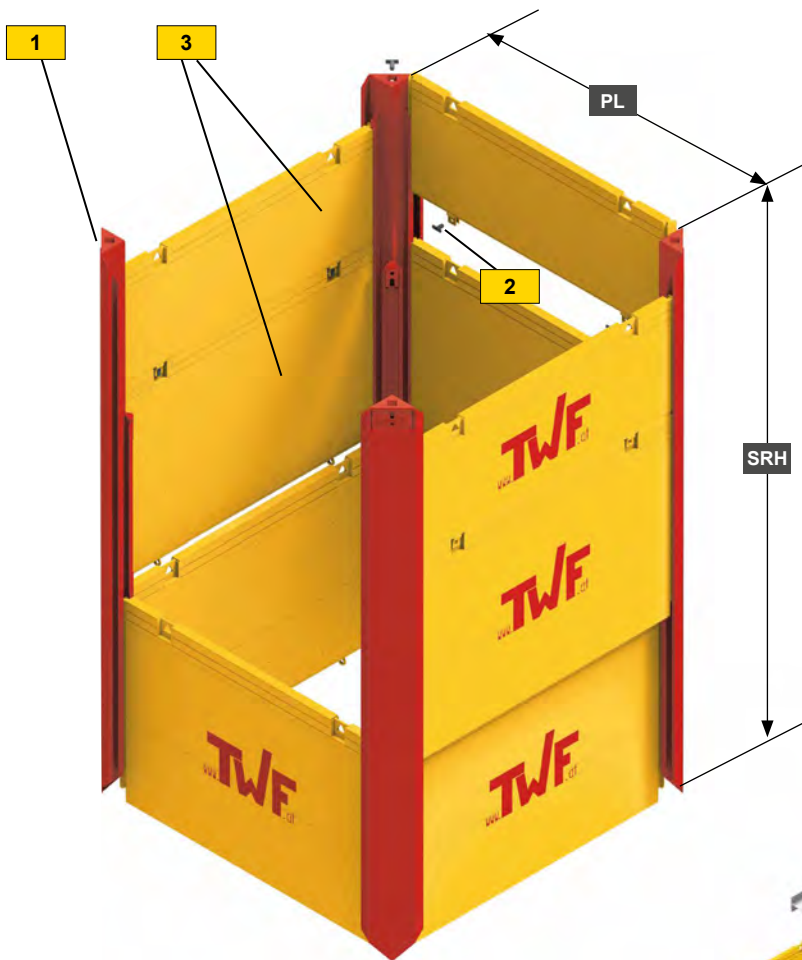
- After the bottom support is fixed or the concrete slab has cured, the rolling strut can be pulled up to pipe clearance height in the frame, in line with static calculations. The stop pin must be inserted below the rolling strut.



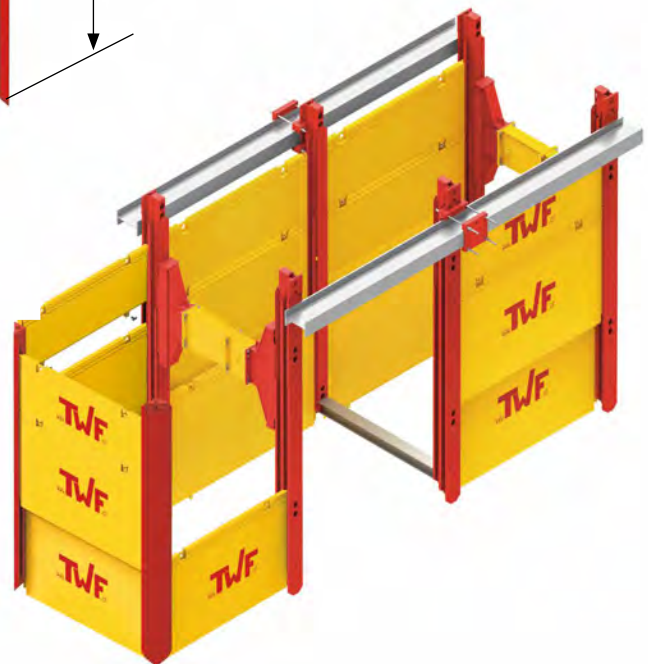


## ► Operating manual

### ■ Shaft shoring



PL	Plate length
SRH	Slide rail height
1	Corner slide rail
2	Bolt
3	Slide rail plate

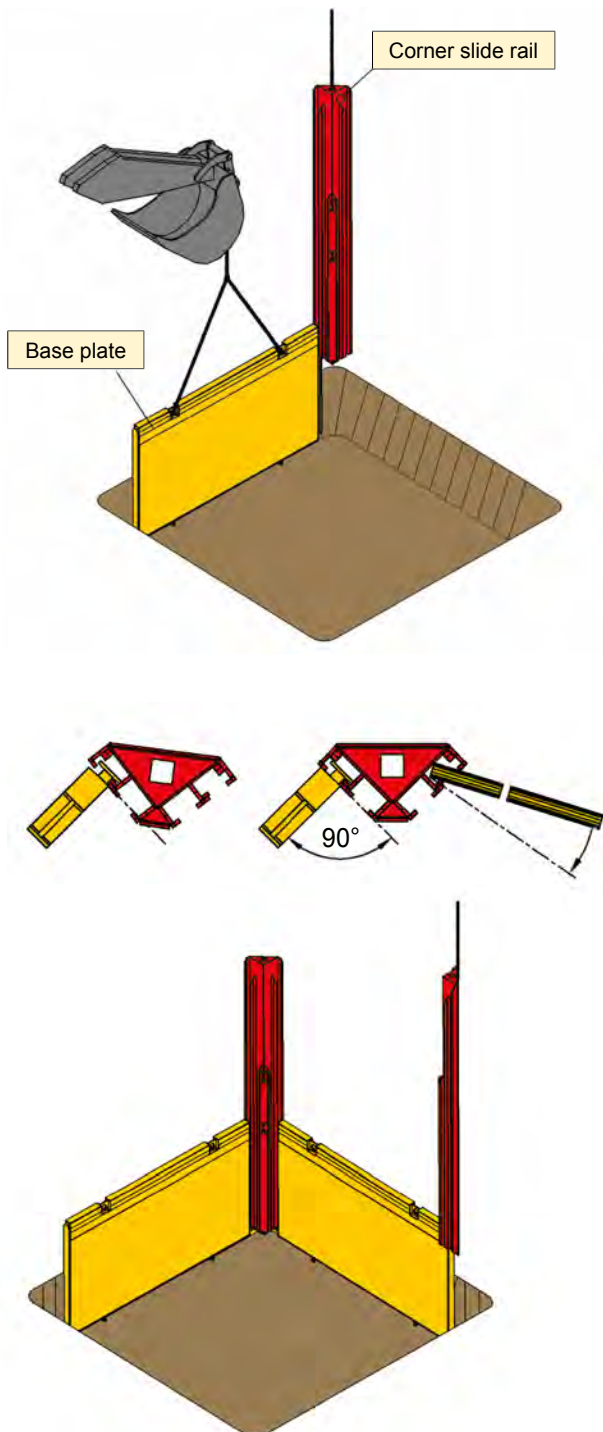


Corner slide rails can be combined with rolling strut frames for shafts of different sizes.



## ► TWF slide rail shoring

### ■ Installation instructions

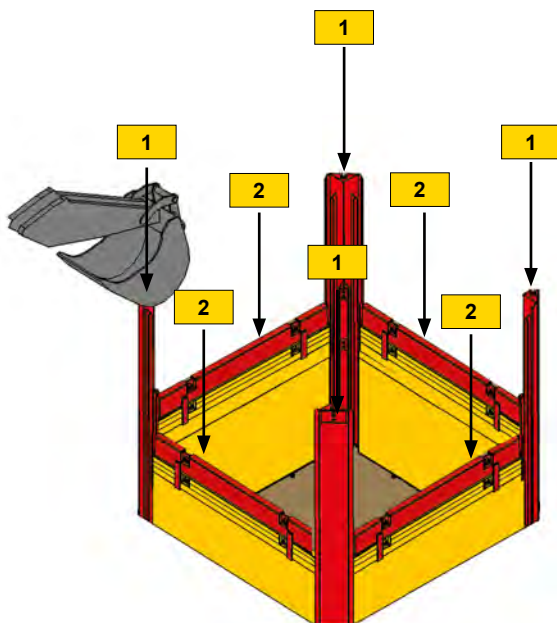
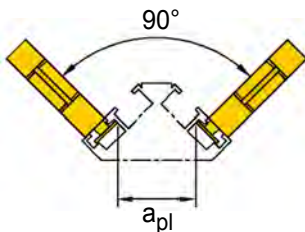
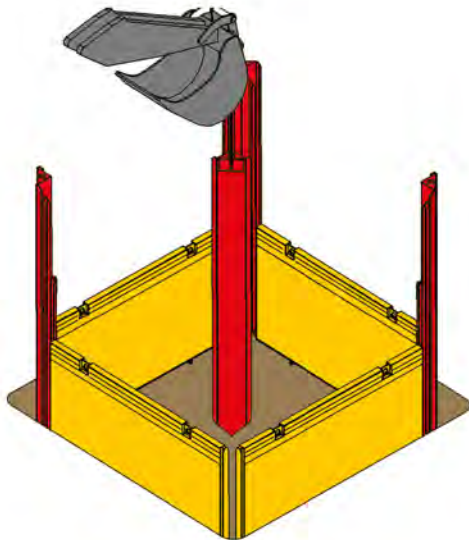


- Pre-excavate to a depth of max. 1.25 m and 10 cm wider than the finished shaft. Pre-excavation generally depends on the type of soil and the safety regulations. Set the first base plate down into the pre-excavated pit, press it in and secure it against falling over.
- Lift the first corner slide rail above the shoring plate with an excavator with a sufficient lifting height, insert it into the outer guide profile and lower it down. During this phase it is not permitted to enter the trench.

- Insert the second shoring plate into the free outside guide profile of the rail and align at a right angle. Now insert the second corner slide rail via the plate guide profile and push down into the soil.

Continue installation as described above

## ► Operating manual



- After the fourth plate has been inserted, the free guide profiles of the first and last plate must be aligned in such a way that the last corner slide rail can be inserted into both plate guides.

The optimal distance between guide profiles ( $a_{pl}$ ) is approximately 33 cm.

The shaft is now fully clad with shoring plates and can be adjusted via the diagonal if required.

- Dig down approximately another 0.50 m and push down, alternating between corner slide rails and shoring plates. It must be ensured that the plates do not protrude more than 0.50 m beneath the rails.

Any voids between the outside of the shoring system and the trench wall must be backfilled and compacted!

To protect the shoring plates from damage and to ensure a long useful life of the systems, we recommend using protection rails. The individual shoring components must be pushed rather than driven down.

- Once the upper edge of the externally guided base plate has reached the upper edge of the surrounding terrain, an extension plate or a base plate can be inserted into the nearest internal guide profile, as required.

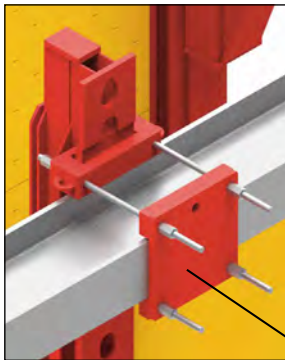
When using extension plates, they must be connected to the base plates with the correct pins.

The steps for gradually lowering the system into place by incrementally pressing down corner slide rails (1) and plates (2) must be repeated until the bottom of the trench is reached.

The top edge of the shoring box must remain at least 5 cm or 10 cm above ground level!

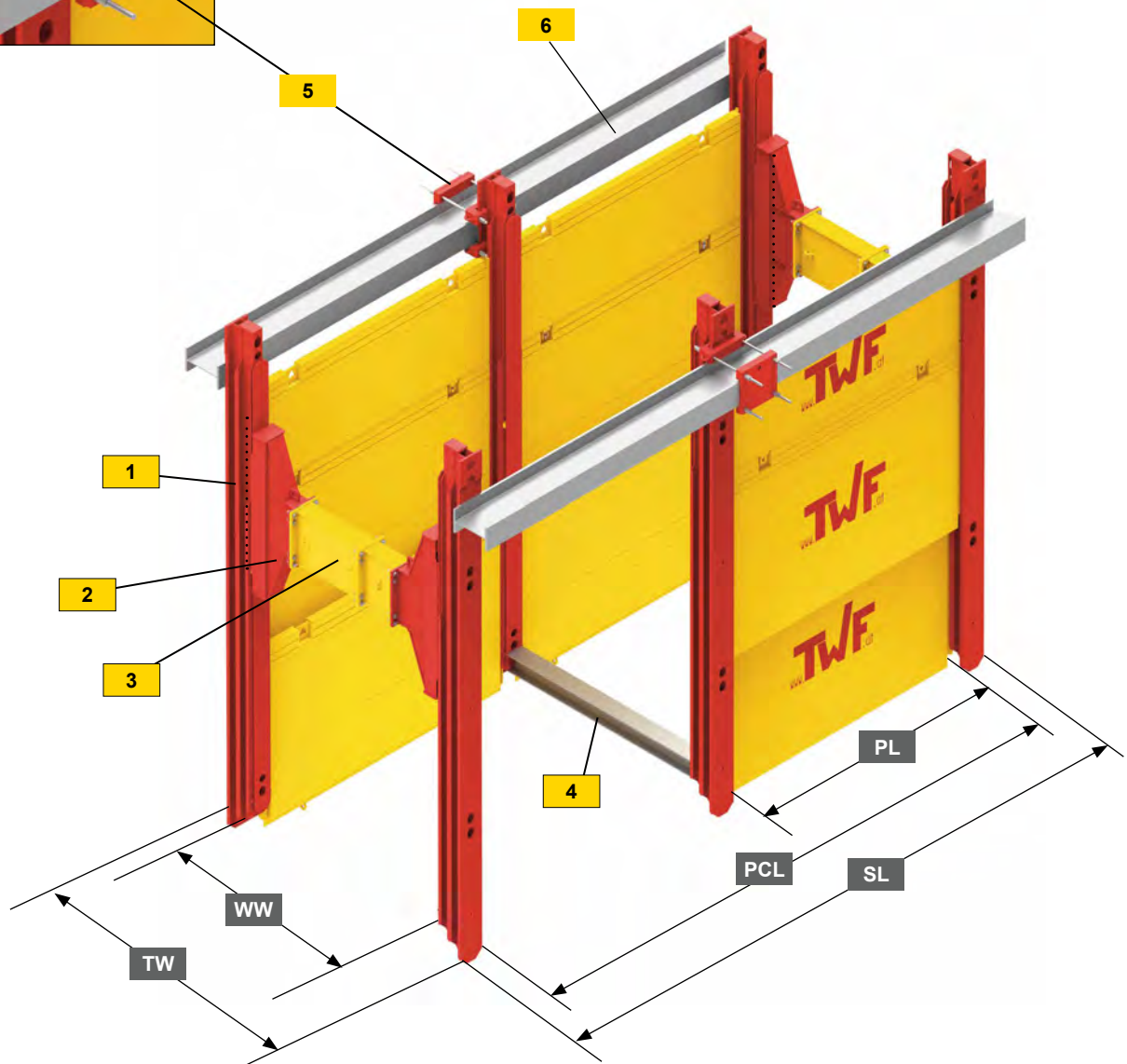
► TWF slide rail shoring

■ ■ Adjustable clamping device



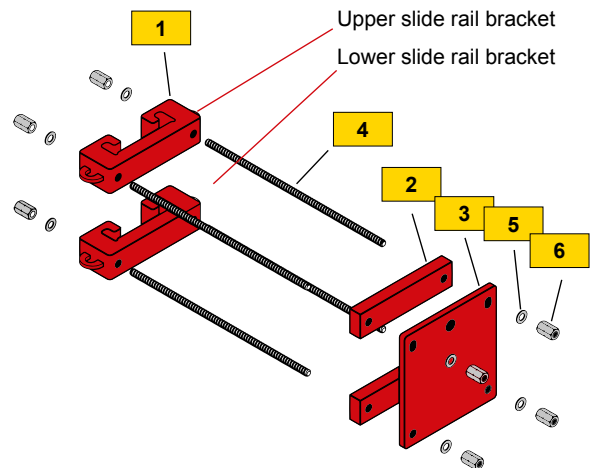
TW	Trench width
WW	Working width
PL	Plate length
SL	System length
PCL	Pipe clearance length

1	Slide rail
2	Rolling strut
3	Strut extension
4	Bottom support
5	Adjustable clamping device
6	Upper waler line



## ► Operating manual

Description	Dimensions (mm)	Weight (kg)
<b>1</b> Slide rail bracket	120 x 180 x 520	59,0
<b>2</b> Lug	60 x 120 x 520	29,4
<b>3</b> Flange plate A Flange plate B	30 x 550 x 520 für HEB 30 x 561 x 520 for slide rails	66,0 67,0
<b>4</b> Threaded rod 1 Threaded rod 2	Ø26,5 x 1000 (up to HEB600 and slide rail) Ø26,5 x 1200 (up to HEB800)	4,50 5,50
<b>5</b> Washer	A31	0,05
<b>6</b> Hexagonal nut	26.5	0,54



Strut-free pits, e.g. for the laying of long pipes, for the construction of a building or for inserting a press drill machine, can be constructed using the adjustable clamping device.

After the clamping device has been installed, one or more rolling struts can be taken out. The slide rails in the frame that is to be made strut-free must be approximately 1.35 m longer than the required trench depth. The extra length is needed for bottom support at the lower end of the slide rail and for mounting the clamping devices above the trench.

The clamping device is inserted into the outer slide rail guide and fastens the external horizontal waler. The upper forces introduced by the slide rail beam are transmitted via the external waler to the slide rail beams at the edge.

### Assembly instructions

After the slide rail shoring system has been installed and the frame supported at the bottom of the trench, the clamping devices can be mounted above the trench.

The lower slide rail bracket, pre-assembled with threaded rods, must be inserted into the slide rail profile and placed at the top edge of the shoring plate. Additional underlay at the top edge of the trench, e.g. made of timber, can support the devices and protect against dirt. The lower lug keeps the two threaded rods at a set distance and supports the upper waling. Further underpinning distributed along the length of the waling could be made up of squared timbers, for example.

The dimensioning of the waling depends on the structural requirements, whereby two waling girders can also be placed one behind the other.

Place the waling behind the slide rail on the lower slide rail bracket and lug. Then slide the upper slide rail bracket, which is pre-assembled with threaded rods, over the guide profile, secure it with the lug and place it on the waling. Slide the flange plate over the four ends of the threaded rods and fasten securely with washers and nuts.

After the bottom support is fixed or the concrete slab has cured, the upper stop pins can be removed from the slide rail frame and the rolling struts can be removed.

► **More about the TWF range of services ...**

## TWF Used Machinery and Trench Shoring Systems

TWF is a reliable partner with respect to used **machinery** and **equipment** as well as used **trench shoring systems**.

Prior to sale all **machines** will be checked and tested on our premises according to the **manufacturer's instructions**. (§11 AM-VO).



## TWF Trench Shoring Systems



In addition we **sell** and **lease trench shoring systems** as well as **excavation-specific solutions**, Trench Sheets, Sheet Piles and anchoring equipment.

Our **trench shoring systems** are produced in the TWF plant in **Heinsberg, Germany**.

**We are a certified company! „Quality made in Germany“**



## TWF Safety Systems

The **TWF Trench Shoring Safety Systems** provides sites with much needed **physical barricades** to prevent **workers falling** into open trenches and excavations and the risk of injury to workers from **falling objects** will be reduced.



## TWF Temporary roadways

Our **MRS-Mobile Road System-ground protection tiles** are available in different categories. They are used to to **protect the ground** by building **temporary access roads** or parking lots.



► ... at [www.twf-tiefbautechnik.de](http://www.twf-tiefbautechnik.de) / [www.twf.at](http://www.twf.at)

## TWF Rolled steel sections

We also offer a broad range of

- Trench Sheets,
- Light-weight profiles and
- Sheet Piles

in different formats and sizes.



## TWF Trench Struts

In our offering you will find the right strut for every trench shoring sector.

- GIGANT with hook-type angle
- TITAN with bearing angle
- TERRA with claw plate and nail hole



**ISCHEBECK**®

## TWF Hydraulic Pipe Puller / Round Grab

For safe **lifting** and **lowering** or **contraction** of reinforced concrete pipes **pipe grabs** and **hydraulic pipe pullers** are a great help.

- The strong **combination** of **grab** and **sling** for the **safe handling** of cylindrical parts (pipes, cylinders ... )



# TWF TIEFBAUTECHNIK

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OPERATING MANUAL