

Formwork accessories

User guide



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1 General

In this Catalogue you will find essential information concerning the erection and application of the formwork accessories from HÜNNEBECK as well as the precautionary measures that are necessary for safe erection and application. The formwork accessories includes products which are not directly included in a formwork system. Most of these parts can be used with more than one system.

This catalogue and the related instructions are intended as support for the effective work with the formwork accessories. Therefore please read this catalogue with great care prior to the erection and use of the parts of the formwork accessories and then archive the Catalog as subsequent reference material. Also refer to the user guide of the related system.

1.1 Safety Instructions

Important information regarding the intended use and safe application of formwork and falsework

The contractor is responsible for drawing up a comprehensive risk assessment and a set of installation instructions. The latter is not usually identical to the user guide.

- Risk assessment
The contractor is responsible for the compilation, documentation, implementation and revision of a risk assessment for each construction site. His employees are obliged to implement the measures resulting from this in accordance with all legal requirements.
- Installation instructions
The contractor is responsible for compiling a written set of installation instructions. The user guide forms part of the basis for the compilation of a set of installation instructions.
- User guide
Formwork is technical work equipment which is intended for commercial use only. The intended use must take place exclusively through properly trained personnel and appropriately qualified supervising personnel. The user guide is an integral component of the formwork construction. It comprises at least safety guidelines, details on the standard configuration and intended use, as well as the system description. The functional instructions (standard configuration) contained in the user guide are to be complied with as stated. Enhancements, deviations or changes represent a potential risk and therefore require separate verification (with the help of a risk assessment) or a set of installation instructions which comply with the relevant laws, standards and safety regulations. The same applies in those cases where formwork and/or falsework components are provided by the contractor.
- Availability of the user guide
The contractor has to ensure that the user guide provided by the manufacturer or formwork supplier is available at the place of use. Site personnel are to be informed of this before assembly and use takes place, and that they are available at all times.
- Representations
The representations shown in the user guide are, in part, situations of assembly and not always complete in terms of safety considerations. The safety installations which have possibly not been shown in these representations must nevertheless be available.
- Storage and transportation
The special requirements of the respective formwork constructions regarding transportation procedures as well as storage must be complied with. By way of example, name the appropriate lifting gear to be used.

- **Material check**
Formwork and falsework material deliveries are to be checked on arrival at the construction site/place of destination as well as before each use to ensure that they are in perfect condition and function correctly. Changes to the formwork materials are not permitted.
- **Spare parts and repairs**
Only original components may be used as spare parts. Repairs are to be carried out by the manufacturer or authorized repair facilities only.
- **Use of other products**
Combining formwork components from different manufacturers carries certain risks. They are to be individually verified and can result in the compilation of a separate set of assembly instructions required for the installation of the equipment.
- **Safety Symbols**
Individual safety symbols are to be complied with.

Examples:



DANGER

Danger!

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.



WARNING

Warning!

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION

Caution!

CAUTION used with the safety alert symbol indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTE

Note

NOTE refers to practices not related to personal injury.



VISUAL CHECK

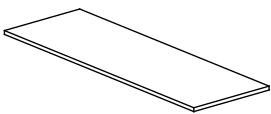
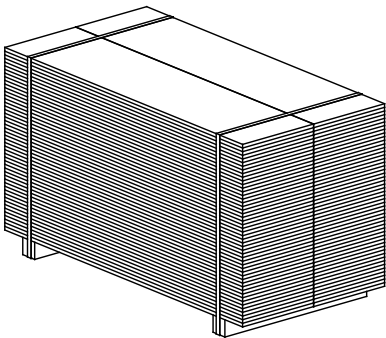
VISUAL CHECK refers to a visual check and is not related to personal injury.

- **Miscellaneous**
Technical improvements and modifications are subject to change without notice. For the safety-related application and use of the products, all current country-specific laws, standards as well as other safety regulations are to be complied with without exception. They form a part of the obligations of employers and employees regarding industrial safety. This results in, among other things, the responsibility of the contractor to ensure the stability of the formwork and falsework constructions as well as the structure during all stages of construction. This also includes the basic assembly, dismantling and the transport of the formwork and falsework constructions or their components. The complete construction is to be checked during and after assembly.

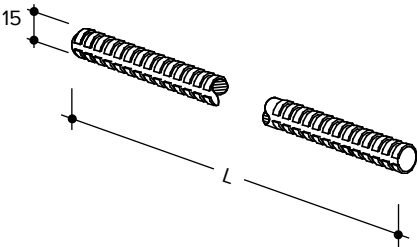
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PO BOX 10 44 61
40852 Ratingen
Germany

2 Shuttering panels

	Component	Product code	Weight [kg]
	Shuttering panel 3-S 150 x 50 Plywood size: 1,50 x 0,50 m (0,75 m ²). Design according to DIN 18215. Thickness 21 mm.	581050	8.00
	Shuttering panel 3-S 200 x 50 Plywood size: 2,00 x 0,50 m (1,0 m ²). Design according to DIN 18215. Thickness 21 mm.	581060	10.60
	Shuttering panel 3-S 150, 100 Panels Plywood size: 1,50 x 0,50 m (75 m ²). Design according to DIN 18215. Thickness 21 mm.	569708	800.00
	Shuttering panel 3-S 200, 100 Panels Plywood size: 2,00 x 0,50 m (100 m ²). Design according to DIN 18215. Thickness 21 mm.	569719	1060.00

3 Anchorage material

	Component	Product code	Weight [kg]
	Tie rod 15 Tie rod with self-cleaning thread, System D&W 15, core diameter 15 mm, Permitted load acc. to DIN 18 216. F _{max} = 90 kN. Tie rods in length above 6,0 m are delivered on order according to agreement.		
	Tie rod 50 cm¹⁾ (DW 15)	102527	0.72
	Tie rod 75 cm¹⁾ (DW 15)	437660	1.08
	Tie rod 100 cm¹⁾ (DW 15)	24387	1.44
	Tie rod 130 cm¹⁾ (DW 15)	20481	1.87
	Tie rod 175 cm¹⁾ (DW 15)	20470	2.52
	Tie rod 200 cm¹⁾ (DW 15)	24398	2.88
	Tie rod 250 cm¹⁾ (DW 15)	24402	3.60
	Tie rod 300 cm¹⁾ (DW 15)	24413	4.32
	Tie rod 350 cm¹⁾ (DW 15)	24424	5.04
	Tie rod 400 cm¹⁾ (DW 15)	24435	5.76
	Tie rod 600 cm¹⁾ (DW 15)	136260	8.64
	1 running meter tie rod 15¹⁾²⁾	164811	1.44

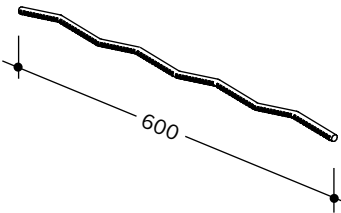

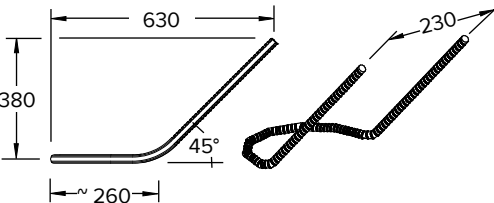
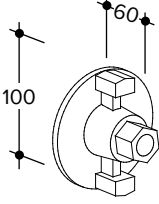
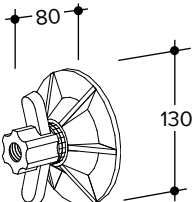
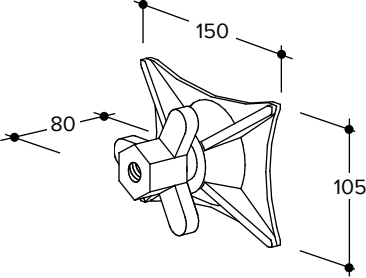
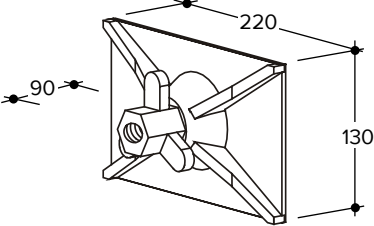


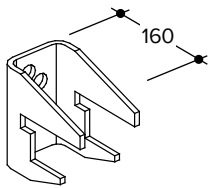
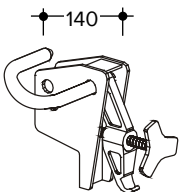
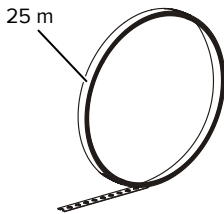
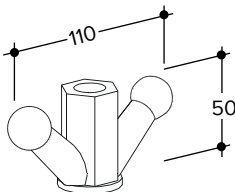
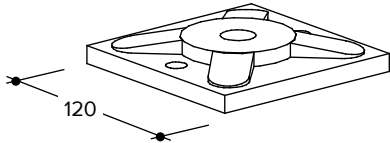
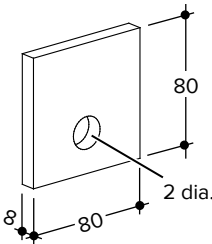
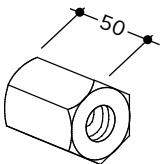
WARNING

Warning!

Do not weld or heat tie rods! Otherwise risk of unheralded failure!

Anchorage material

	Component	Product code	Weight [kg]
	Pigtail anchor 60¹⁾ (DW 15) Anchorage, e.g. for support frames.	509581	1.00
	WARNING Warning! Do not weld or heat the Pigtail anchor and the Anchor stirrup, otherwise risk of unheralded failure!		
	Anchor stirrup 15¹⁾ Is set in concrete to transfer traction forces into the building. Lost part. Permissible load: 2 x 90 kN	602017	2.20
	Tension nut (DW 15) The tension nut can be operated with a round bar, with a hammer or with a hexagon spanner w.a.f.: 25. Permissible load: 40 kN	197332	0.65
	Manto-tie nut (DW 15) Is easily to use with the ratchet SW 36 or a hammer, also with full anchor load. Permissible load: 90 kN	464600	1.26
	Tie nut 85 (DW 15) With large plate and spherical nut for up to 10° inclination. Permissible load: 90 kN.	20492	1.22
	Tie nut 230 (DW 15) The tiltable, captivated and hot-dip galvanised base plate permits the shuttering of walls with an inclination of 10°. The robust forged tie nut can be operated, also with full load, with the MANTO ratchet or a hammer. Permissible load: 90 kN	48344	2.40

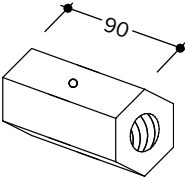
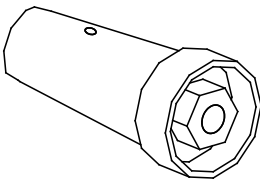
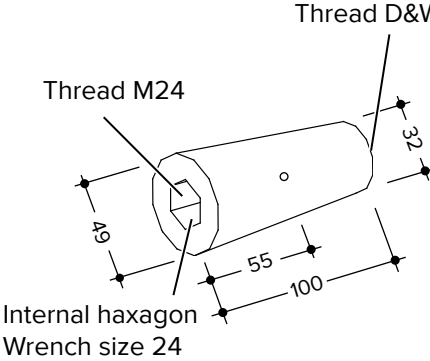
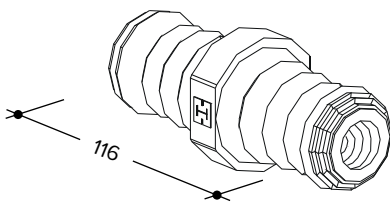
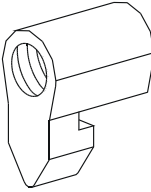
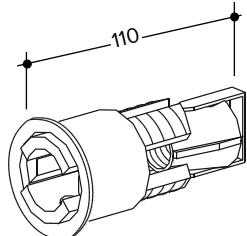
	Component	Product code	Weight [kg]
	Edge tie fastener MR For stepless tying outside the edge of shuttering panel. For tie DW 15. Permissible load = 10 kN	566667	2.40
	FU-tightener For the construction of foundations with frame panels. The FU-tightener is attached to the panels and is used to tighten the Punched steel tape. Permissible load: 12,0 kN	568357	3.60
	Punched steel tape 25 m¹⁾ The Punched steel tape and the FU-tightener are used for anchorage underneath the foundations. Width: 50 mm Thickness: 2 mm Permissible load: 15 kN	568081	17.20
	Wing nut galv. (DW 15) The Wing nut galv. is to be used with the Counter plate 12/12/2. To tighten or loosen use a hexagon spanner (size 27) or a hammer. Permissible load: 90 kN	509618	0.32
	Counter plate 12/12¹⁾ Use with Wing nut galv.	509559	1.00
	Plate 8/8¹⁾ Used for horizontally arranged panels to enable the lower tie to be installed together 8 with the hexagon nut 15/50. Permissible load: 90 kN	400214	0.40
	Hexagon nut 15/50¹⁾ This hexagon nut is used as anchor nut for the rigid plates without thread. Wrench size 30. Permissible load: 90 kN	164535	0.22

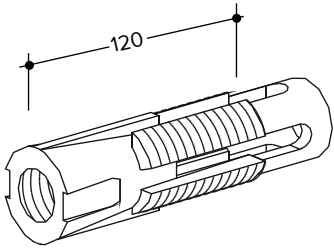
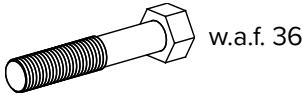
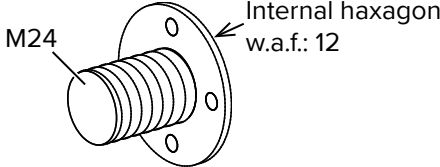
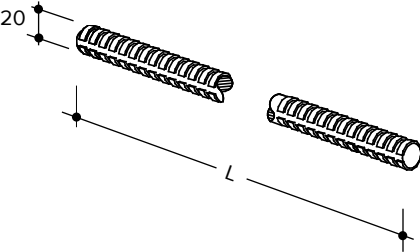

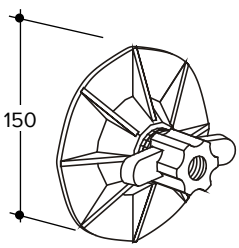
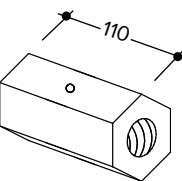



WARNING

Warning!

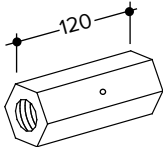

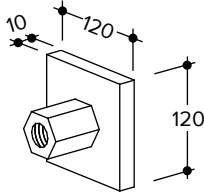
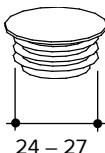
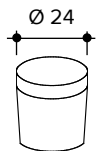

The tie rods must be screwed into the following products to a complete stop. With to short screw-in depth the maximum load application is not possible!

	Component	Product code	Weight [kg]
	Hexagon nut 15/90 with pin¹⁾ The Hexagon nut 15/90 is used as nut with a middle stop pin for 2 tie rods Ø 15 mm. The pin prevents the tie rods to be screwed in to deep and/or the other tie rod to short. Wrench size: 30 Permissible load: 90 kN	164546	0.38
	Tie cone 15/90S¹⁾ This tie cone is equipped with a through hole with a D&W thread.	164557	0.59
	A-tie-cone M24/D&W¹⁾ steel cone for suspended scaffolds. The outer connection provides a M24, the inner grouted anchor a DW15 thread.	496664	0.65
	Water stop (DW 15)¹⁾ The Water stop 15 is used for water proofed walls and is to place in the Middle of the wall. The tie rods must be connected on both sides.	164400	0.55
	Block nut¹⁾ The Block nut can be inserted into the bore holes (Ø D=20 mm) of the Takko-, Rasto- and Manto-panels. In combination with the tie rods D&W 15 universal connectionjs can be realised Permissible load: 10 kN	414333	0.14
	Rock anchor¹⁾ To anchor tie rods DW15 from one side into Rock; Bore hole Ø 35 mm (13/8"), Bore hole depth min. 23 cm.	509592	0.40

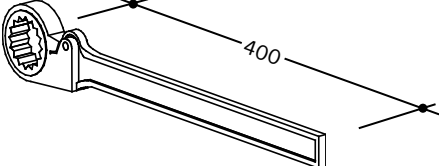
	Component	Product code	Weight [kg]
	Concrete anchor¹⁾ To anchor tie rods DW15 from one side into concrete; Bore hole Ø 35 mm (13/8"), Bore hole depth min. 23 cm.	509607	0.35
	Fit bolt M24 x 70 8.8¹⁾ DIN 7968 To connect the bracket bearing of the HG 180 und folding scaffold to the A-tie-cone M24/D&W.	185635	0.47
	Nailable fixing disc M24¹⁾ Fixes the anchor cone to the plywood (Use allen key wrench size 12 mm for mounting) of the wall formwork with climbing scaffold.	515947	0.16
	Tie rod 20¹⁾ Tie rod with self-cleaning thread, System D&W 20. Core diameter 20 mm, Permissible load acc. to DIN 18216 Fmax: 150 kN.		
	Tie rod 100/20¹⁾	531600	2.56
	Tie rod 130/20¹⁾	531610	3.33
<div>  WARNING </div> <div> Warning! Do not weld or heat tie rods. Otherwise risk of unheralded failure! </div>			
	Tie nut 150 (DW 20) Is easily to use with the ratchet SW 36 or a hammer, also with full anchor load. Permissible load: 150 kN	531481	1.51
	Coupling nut 20/103 with pin¹⁾ The Coupling nut 20/103 is used as nut with a middle stop pin for 2 tie rods Ø 15 mm. The pin prevents the tie rod to be screwed in too far and/or the other tie rod to short. System D&W, Wrench size 36	582374	0.74
<div>  WARNING </div> <div> Warning! With to short screw-in depth the maximum load application is not possible! </div>			

Anchorage material

	Component	Product code	Weight [kg]
	Anchor stirrup DW 20¹⁾ Is set in concrete to transfer traction forces into the building. Lost part. System D&W, Permissible load: 2 x 150 kN.	602018	4.20
<div>  WARNING </div> <div> Warning! Do not weld or heat tie rods. Otherwise risk of unheralded failure! </div>			
	Tie rod 26.5 Tie rod with self cleaning thread, System D&W 26,5. Core diameter 26,5 mm, Permissible load ac. to DIN 18216 $F_{max} = 250$ kN		
	Tie rod 26.5 - 40¹⁾	509651	1.80
	Tie rod 26.5 - 100¹⁾	509662	4.50
<div>  WARNING </div> <div> Warning! Do not weld or heat tie rods. Otherwise risk of unheralded failure! </div>			
	Hexagon nut 26.5/60¹⁾ Is used with counter plate 12/12, Wrench size 46.	509684	1.00
	Anchor stirrup DW 26.5¹⁾ Is set in concrete to transfer traction forces into the building. Lost part. System D&W, Permissible load: 2 x 240 kN	602019	9.90
<div>  WARNING </div> <div> Warning! Do not weld or heat tie rods. Otherwise risk of unheralded failure! </div>			
	VA-Loop tie¹⁾ Lost tying part in the concrete. Always to be applied in pairs.	578191	1.09
	Counter plate 12/12/2¹⁾ Is used as anchor plate in combination with the hexagon nut 26,5/60.	509695	1.00

	Component	Product code	Weight [kg]
	Coupling nut 26.5/120¹⁾ is used as nut with a middle stop pin for 2 tie rods Ø D&W 15 mm. The pin prevents the tie rod to be screwed in too far and/or the other tie rod to short. Wrench size 46.	509673	1.10
	Warning! With too short screw-in depth the maximum load application is not possible!		
	Anchor plate with nut 26.5¹⁾ Lost anchor part is used with support frames. Discharges tensile loads into the building and remains permanently in the concrete with a tie rod. Wrench size 46. Order 2 parts with each support frame.	509640	3.60
	200 plugs 28.5¹⁾ For covering the unused tie holes in the MANTO-column frames.	82798	0.83
	100 plugs 24-27 K¹⁾ 100 plugs for sealing the unused 27 mm tie holes in the MANTO panels. With extruded lip.	581483	0.40
	100 Manto-plugs¹⁾ To close the pattern holes in the MANTO and RASTO MP-panels. Without extruded lip.	453253	0.20
	25 Sleeves 2.8 x 200¹⁾ Spacer made from plastic. Cut the sleeves 2 cm shorter than wall thickness. Sleeves and cones secure the distance between the formwork walls.	48220	15.35
	200 Cones 2.2¹⁾ Remove the cones after striking. The cones can be used again, provided that they are in perfect conditions.	48311	1.52
	500 plugs 2.3¹⁾ The sleeves in the wall are closed with this plugs.	48322	1.55

Push-Pull props


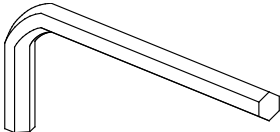
	Component	Product code	Weight [kg]
	MANTO ratchet With the Manto ratchet (w.a.f. 36) all clamps and tie nuts can effortlessly be operated without damaging the material.	408780	1.00



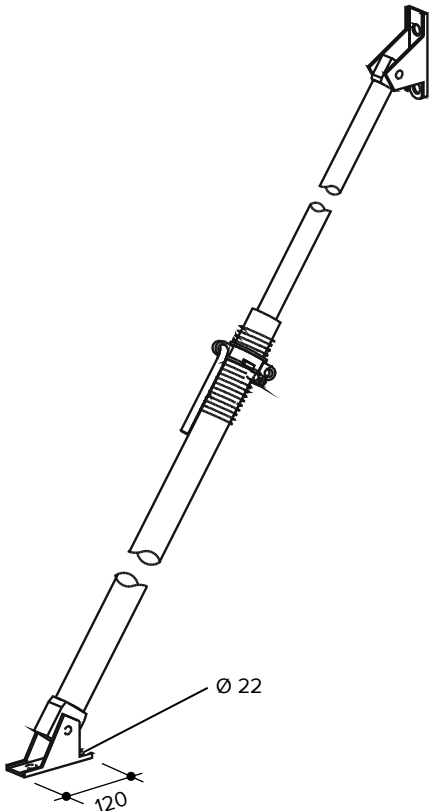
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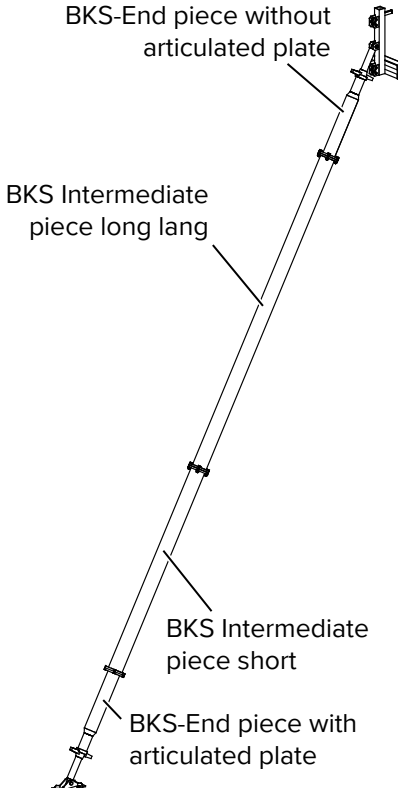
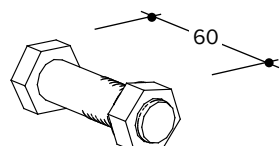
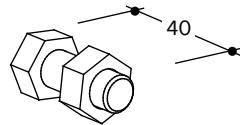
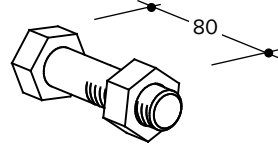
Warning!

Do not use an extension tube with this tool!

	Open-jawed spanner w.a.f. 46¹⁾ Facilitates the operation of turnbuckles.	542460	0.78
	Turnscrew w.a.f. 24¹⁾	542471	1.25

4 Push-Pull props

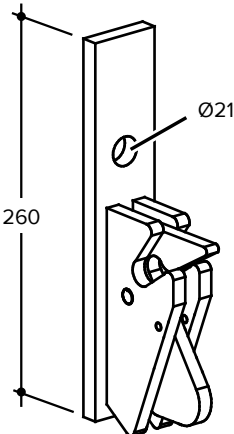
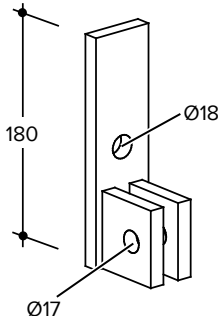
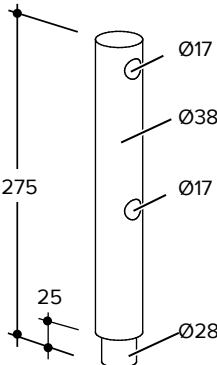
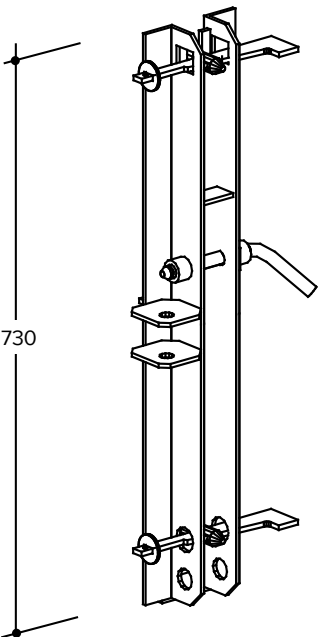
	Component	Product code	Weight [kg]								
	Push-Pull prop 360 F The Push-pull prop 360 F is to be used for the push-pull proofed bracing of precasted concrete units. The connection is to be made as illustrated. The head and the foot are symmetrical.	132559	15.60								
<table border="1"> <thead> <tr> <th>L min. [cm]</th><th>F Perm. [kN]</th><th>L max. [cm]</th><th>F Perm. [kN]</th></tr> </thead> <tbody> <tr> <td>216</td><td>20</td><td>353</td><td>8</td></tr> </tbody> </table>				L min. [cm]	F Perm. [kN]	L max. [cm]	F Perm. [kN]	216	20	353	8
L min. [cm]	F Perm. [kN]	L max. [cm]	F Perm. [kN]								
216	20	353	8								

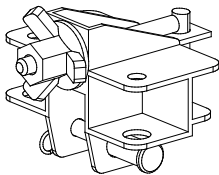
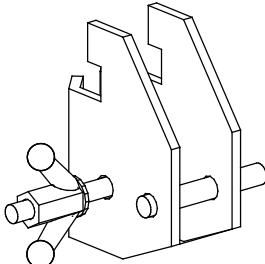
	Component	Product code	Weight [kg]																																																
	Wall strut with double spindle and 2 articulated plates, laquered																																																		
	BKS Ends piece with articulated plate	489102	36.20																																																
	BKS End piece without articulated plate	489775	29.00																																																
	BKS Intermediate piece short	489113	44.00																																																
	BKS Intermediate piece long	489124	63.00																																																
> 8 m prop length, with MANTO-Strut connector and Strut adaptor (max. 34 kN)																																																			
<table><tr><th rowspan="2">Type</th><th colspan="2">Adjustment range [cm]</th><th rowspan="2">Permissible load [kN] fully extended</th><th colspan="2">Number of end pieces</th><th colspan="2">Number of interm. pieces</th></tr><tr><th>min.</th><th>max.</th><th>with art.</th><th>without art.</th><th>short (240cm)</th><th>long (370cm)</th></tr><tr><td></td><td></td><td></td><td></td><td>489102</td><td>489775</td><td>489113</td><td>489124</td></tr><tr><td>BKS 4</td><td>705 - 840</td><td></td><td>32.6</td><td rowspan="4">1 each</td><td rowspan="4">1 each</td><td>2</td><td>—</td></tr><tr><td>BKS 5</td><td>835 - 970</td><td></td><td>28.2</td><td>1</td><td>1</td></tr><tr><td>BKS 6</td><td>965 - 1100</td><td></td><td>23.8</td><td>—</td><td>2</td></tr><tr><td>BKS 7</td><td>1075 - 1210</td><td></td><td>20.1</td><td>2</td><td>1</td></tr></table>				Type	Adjustment range [cm]		Permissible load [kN] fully extended	Number of end pieces		Number of interm. pieces		min.	max.	with art.	without art.	short (240cm)	long (370cm)					489102	489775	489113	489124	BKS 4	705 - 840		32.6	1 each	1 each	2	—	BKS 5	835 - 970		28.2	1	1	BKS 6	965 - 1100		23.8	—	2	BKS 7	1075 - 1210		20.1	2	1
Type	Adjustment range [cm]		Permissible load [kN] fully extended		Number of end pieces			Number of interm. pieces																																											
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BKS 6	965 - 1100		23.8			—	2																																												
BKS 7	1075 - 1210		20.1			2	1																																												
	Bolt M16x60 with nut¹⁾	600529	0.18																																																
	Bolt M20x40 with nut¹⁾	11300	0.21																																																
	Bolt M20x80 with nut¹⁾	489801	0.36																																																

5 Alingment struts

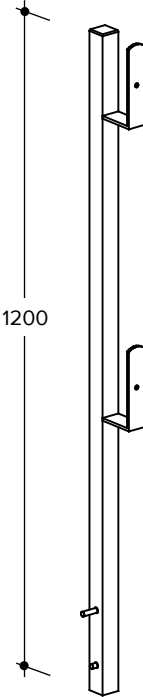
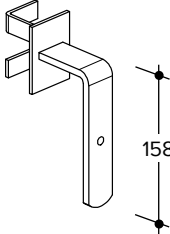
All Alingment struts have a telescopic design and an extremely low weight. They are used for the adjustment of storey-high prefabricated concrete slabs during installation. A spindle with an encapsulated thread is used for fine tuning.

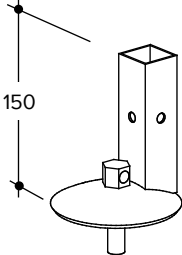
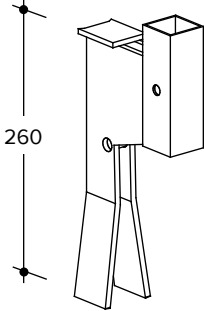
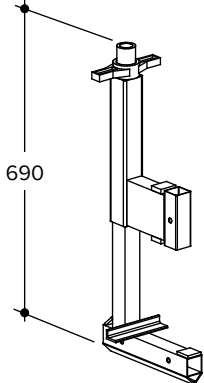
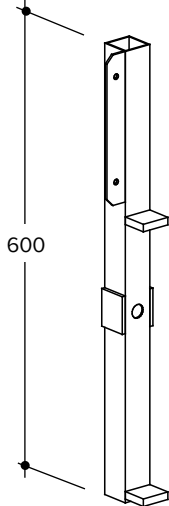
	Component	Product code	Weight [kg]
	Alignment strut P330 perm. load 13.0 kN (length 2.05 m) perm. load 9.5 kN (length 3.30 m) Top and base plate have the same dimensions	600800	13.85
	Alignment strut K440 perm. load 20 kN (length 3.25 m) perm. load 11 kN (length 4.40 m)	601208	23.42
	Alignment strut K600 perm. load 20 kN (length 4.80 m) perm. load 14 kN (length 6.00 m)	601210	35.79
	Alignment strut K760 perm. load 20 kN (length 5.30 m) perm. load 15 kN (length 7.60 m)	601212	51.29
	Alignment strut Super 10 Alignment strut Super 10 can be telescoped twice its length. perm. load 25.0 kN (length 7.05 m) perm. load 22.3 kN (length 10.25 m)	602095	84.03

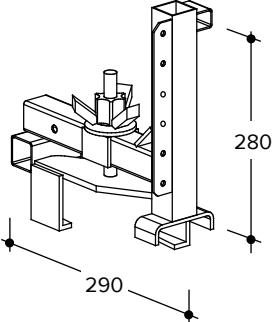
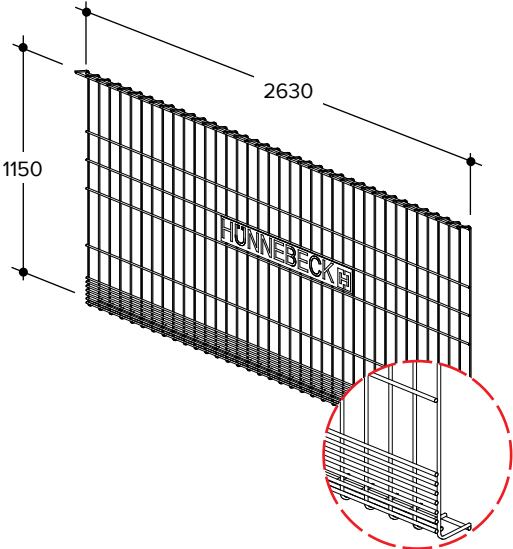
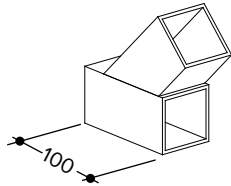
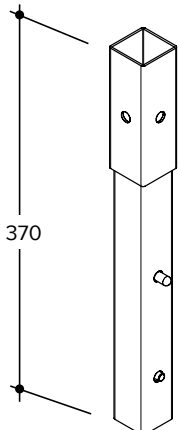
	Component	Product code	Weight [kg]
	Quick-action fastener The Quick-action fastener is threaded onto the prefabricated wall or support and thus forms a connection with the Alignment strut.	601385	2.76
	Head attachment K Alu Alignment strut Can be used as an alternative to the Quickaction fastener.	602038	1.30
	Adaptor for alignment strut Is used as connecting piec between the alingning struts and the MANTO strut connector, the M-strut connector as well as the Rasto strut head.	601733	1.31
	MANTO-strut connector Connects the MANTO-aligning strut and all other aligning struts to the MANTO-formwork.	565114	8.90

	Component	Product code	Weight [kg]
	MANTO-strut head connects the aligning strut (via the Adaptor for alignment strut) with the to the horizontal Manto-formwork.	600035	4.33
	RASTO-Strut head connects the aligning strut (via the Adaptor for alignment strut) to the vertical RASTO-formwork	603455	2.77

6 Fall protection

	Component	Product code	Weight [kg]
	PROTECTO Railing post The railing post is the principle item of the PROTECTO system. It can be used either with a board railing or with the PROTECTO Protective grating. When being inserted into one of the various holding devices, it will automatically be fixed by way of the built-in locking mechanism. The railing post is durably protected against corrosion by hot-dip galvanizing.	601225	3.65
	PROTECTO Toe board retainer This item serves as a supplementary part to the railing post and secures the toe board of the board railing. The PROTECTO toe board retainer can even be attached to the railing post afterwards.	601227	0.69

	Component	Product code	Weight [kg]
	PROTECTO Screw base joint It is the holding device for the railing post on a horizontal surface. The screw base joint has to be fixed to the concrete slab with the built-in bolt M16 and an additional dowel to be installed before (dowel to be supplied additionally).	601228	1.02
	PROTECTO Staircase bracket To be used for providing a temporary board railing in a staircase until the final railing will be installed. It ensures safe work and passage in the staircase during construction time. The staircase bracket has to be fixed to the stair string with a bolt M12 and an adequate dowel (both connecting parts provided additionally).	601229	2.02
	PROTECTO Multiple clamp An universal holding device for the railing post. It can be attached to many parts of the structure like slab edges, parapets or roof parapets. It is also possible to attach this clamp to structural parts made of timber or steel. The whole range of the multiple clamp is 1 to 47 cm. The "grip" of the clamp can be varied by simply turning the movable jaw of it.	601226	6.49
	PROTECTO Front attachment The holding device for the railing post applied on closed gable walls of the structure. At the same time it may also serve as support for the stopend of a slab. The integrated plate with nail holes allows shuttering boards or other wooden members to be fixed. Usually, the front attachment is connected to the wall by means of a threaded rod (e.g. tie rod).	601285	2.01

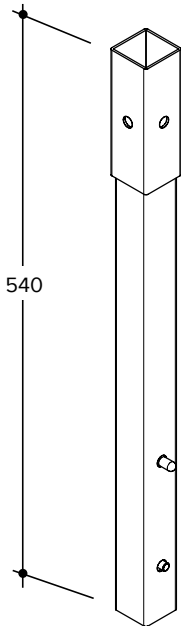

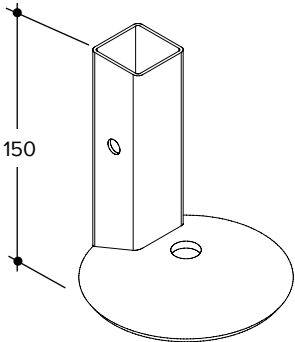
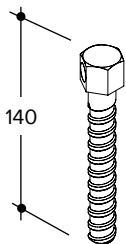
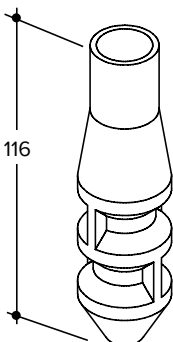
	Component	Product code	Weight [kg]
	PROTECTO Timber beam connector A connecting part and holding device for the railing post on standard timber beams with heights of 20 or 24 cm. At the same time it is also applicable as support for the stopend of the slab formwork. Nail holes are provided in the integrated plate for nailing purposes. The beam connector can simply be assembled by tightening the wing nut of the clamping part with a hammer. It may also be used on timber beams arranged vertically (e.g. wall formwork).	601291	4.20
	PROTECTO Protective grating The alternative solution for edge protections instead of using board railing. The grating has an integrated toe plate and offers a safe over-all protection at threatening edges. It can easily and quickly be attached to the railing posts. Due to the hot-dip galvanization of the protective grating a high durability and a long service life are given.	601231	22.20
	PROTECTO Beam section clamp This clamping piece enables PROTECTO multiple clamps to be connected to rolled steel beams arranged either in vertical or horizontal position. For this purpose the standard movable jaw of the multiple clamp has to be removed and replaced by 2 PROTECTO Beam section clamps.	601310	0.79
	PROTECTO-Post extension 26 This article extends the PROTECTO-Post by 26 cm. When using plank railing with post extension 26, the maximum post spacing is limited to 1.70 m.	602111	0.93

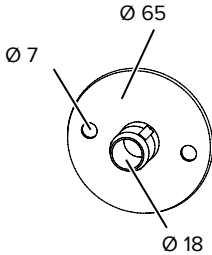
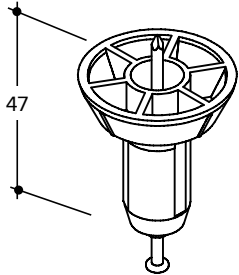
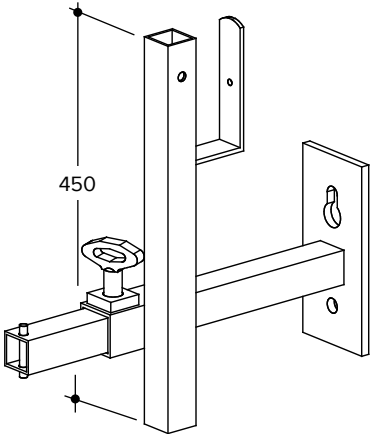
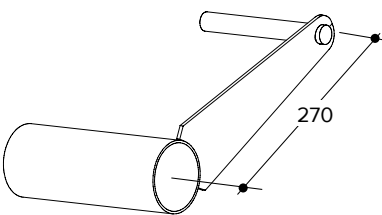
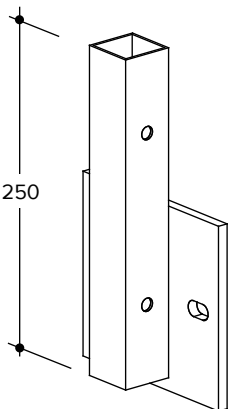


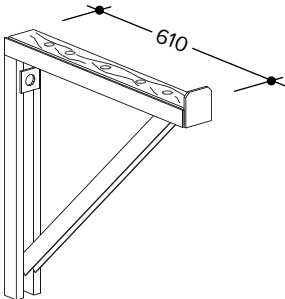
WARNING

Warning!

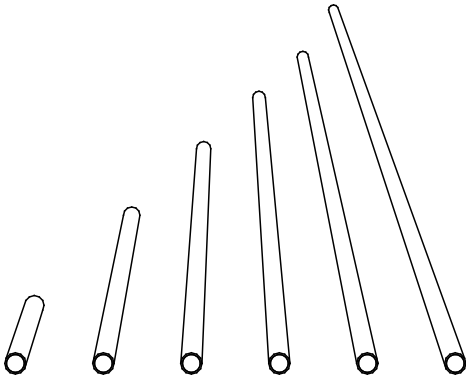
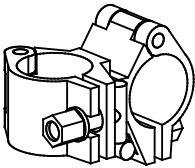
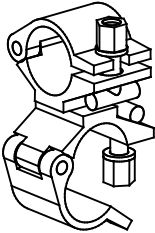
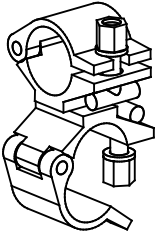
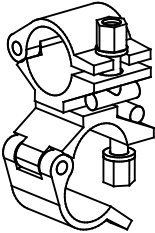
Check maximum post spacing!.

	Component	Product code	Weight [kg]
	PROTECTO-Post extension 42 This article extends the PROTECTO-Post by 42 cm. When using plank railing with post extension 42, the maximum post spacing is limited to 1.30 m.	602580	1.19
<div>  WARNING </div> <div> Warning! Check maximum post spacing! The PROTECTO-Post extension must not be inserted into the PROTECTO-Post holder vari! </div>			
	PROTECTO-Screw base without bolt This screw base will be delivered without bolt.	601258	0.90
	PROTECTO-SF-Screw DW 15 Fixes the PROTECTO-Screw base without bolt to the Tie Sleeve DW 15 previously embedded in the concrete slab.	602583	0.22
	Tie Sleeve DW 15 The embedded tie sleeve can be used alternatively instead of a dowel.	602584	0.04

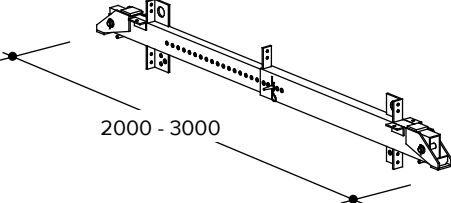
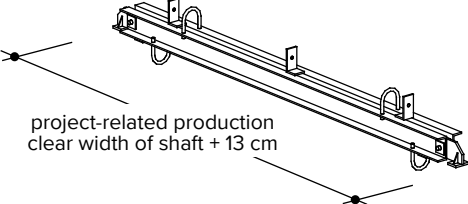
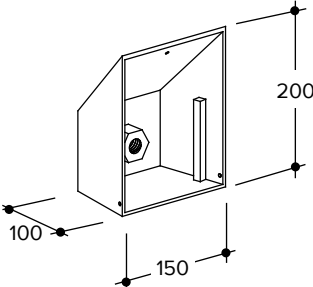
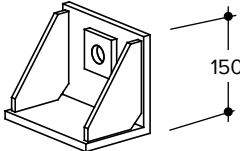
	Component	Product code	Weight [kg]
	Cap for the Tie Sleeve The cap covers the Tie Sleeve DW 15 when this one is positioned and embedded in freshly placed concrete.	602026	0.01
	Fixing cone for Tie Sleeve Fixes the Tie Sleeve DW 15 to formwork.	602025	0.02
	PROTECTO-Post holder vari This type of post bracket is mounted to the exterior wall and due to its range of adjustment can be used to compensate for ceiling protrusions.	602150	6.01
	PROTECTO-Fixing device for clamp This fixing device forms the railing protection for stairways with the PROTECTO Multiple clamp and the PROTECTO post.	601990	2.16
	PROTECTO-Screw-on holder This type of post retainer is mounted to the exterior wall.	601892	2.00

	Component	Product code	Weight [kg]
	Uni-Bracket	542920	6.80
	Usable for stopends at the edges of floor slabs, for projecting beams and other auxiliary supporting tasks. Also applicable in conjunction with the joist clamping connector.		

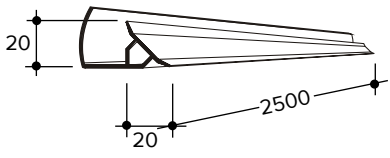
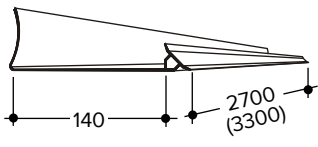
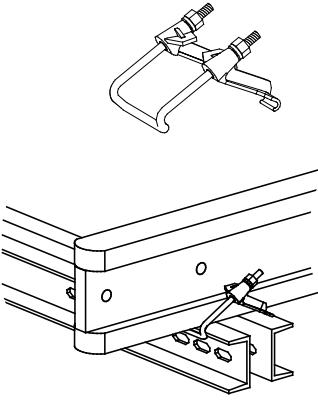
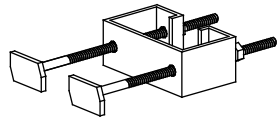
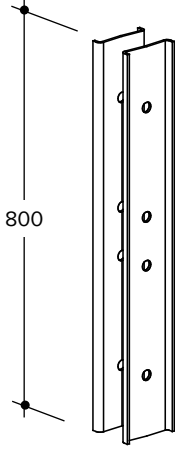
7 Tubes and couplers

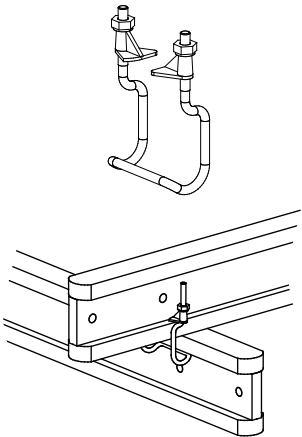
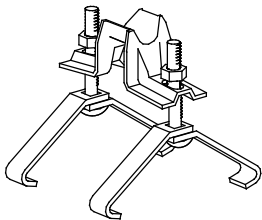
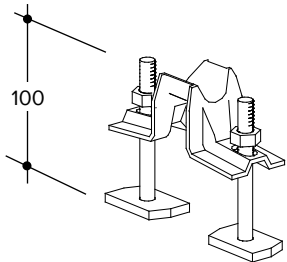
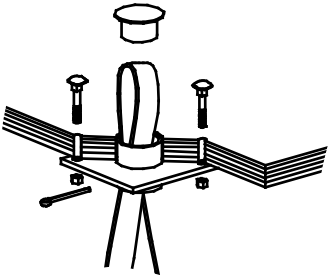
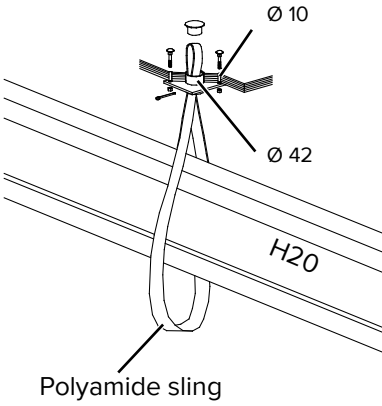
	Component	Product code	Weight [kg]
	mm cm		
	Scaffold tube 48.3 x 50	169001	1.90
	Scaffold tube 48.3 x 100	169012	3.81
	Scaffold tube 48.3 x 150	169023	5.72
	Scaffold tube 48.3 x 200	169034	7.62
	Scaffold tube 48.3 x 250	169045	9.53
	Scaffold tube 48.3 x 300	169056	11.43
	Scaffold tube 48.3 x 350	169067	13.34
	Scaffold tube 48.3 x 400	169078	15.24
	Scaffold tube 48.3 x 450	169089	17.15
	Scaffold tube 48.3 x 500	169090	19.05
	Scaffold tube 48.3 x 600	169115	22.86
	To be used for bracing climbing bracket units and trailing platforms as well as rigid support frames for single-sided formwork. Wall thickness: 3.2 mm		
	Rigid coupler 48/48 w.a.f. 22	2514	1.18
	Rigid coupler 48/48 w.a.f. 19	801135	1.20
	Permissible load: 6 kN (Class A) 9 kN (Class B). Torque: 50 Nm.		
	Swivel coupler 48/48 w.a.f. 22	2525	1.37
	Swivel coupler 48/48 w.a.f. 19	801146	1.40
	Permissible load: 6 kN (Class A) 9 kN (Class B). Torque: 50 Nm.		

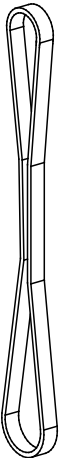
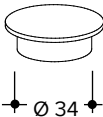
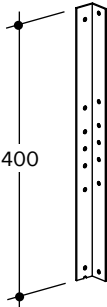
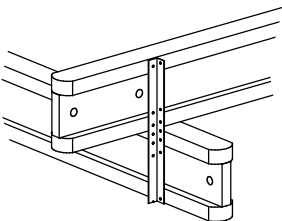
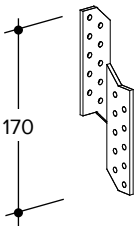
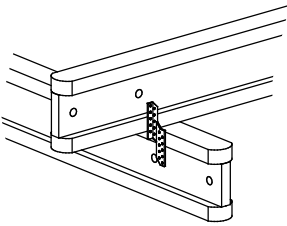
8 Platform beams

	Component	Product code	Weight [kg]
	Platform beam 200 - 300 (telescopic) Spans openings in shafts and can be adjusted in steps of 1 cm within a total telescopic range of 100 cm.	600330	89.50
	Pawl-locked platform beams Load-carrying component within a shaft platform. With articulated bearing claws which automatically latch when shifted by crane. The wooden construction of the platform must be made and mounted by site. Pawl-locked platform beam for clear shaft widths of: Platform beam for inner width:		
	Pawl-locked platform beam 350¹⁾ to < 400 cm	410931	122.20
	Pawl-locked platform beam 300¹⁾ to < 350 cm	410920	108.80
	Pawl-locked platform beam 250¹⁾ to < 300 cm	410910	95.40
	Pawl-locked platform beam 200¹⁾ to < 250 cm	410909	82.00
	Pawl-locked platform beam 150¹⁾ to < 200 cm	410894	68.60
	Pawl-locked platform beam 125¹⁾ to < 150 cm	410883	55.20
	Pawl-locked platform beam¹⁾ < 125 cm on request.		
	Box-out¹⁾ Provides the recess in the shaft wall for the pawl-locked platform beam. Conical shape allows re-use if part is in perfect condition.	410942	2.60
	KB.Supporting part This KB.Supporting part is fixed with the fit bolt M24x70 to the shaft wall and is the bearing for the platform beam. Premissible load: 22.5kN	600338	5.81

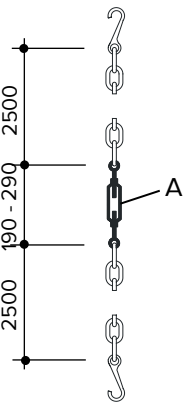
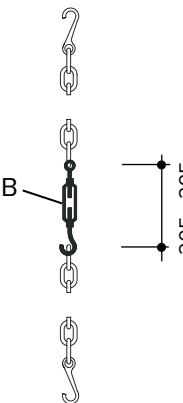
9 Peripheral Products

	Component	Product code	Weight [kg]
	Triangular fillet (UZ)¹⁾ Used for beam formwork with 21 mm thick plywood panel. Length: 2.50 m	547555	0.45
	Triangular fillet 270¹⁾ Triangular fillet 330¹⁾ Used for concrete columns in order to splay the sharp edges (2 cm chamfer). Applied to the edge profiles of MANTO panels.	544952 549830	1.40 1.70
	H20 Timber beam clamp The H20 Timber beam clamp connects the waler to the H 20 or R 24 beam. (w.a.f. 19 mm)	568048	0.79
	H20-Beam clamp fastener RU The beam fastener is required for circular formwork when the H 20 beam is attached to cam walers with intermediate arc templates.	568703	1.04
	H 20 Extension butt strap Used for connection of H20-beams when wall elements are extended at height. Extension butt strap to be ordered 2 times, bolt M20 x 80 4 times (Product code 489801).	582352	4.45

	Component	Product code	Weight [kg]
	H 20 Extension butt strap Used for connection of H20-beams when wall elements are extended at height. Extension butt strap to be ordered 2 times, bolt M20 x 80 4 times (Product code 489801).	563001	0.55
	Waler clamp F24^{*1)} The Waler clamp F24 is required for the segment-bound and secure fastening of the girders R24 to F-walers. (w.a.f. 17 mm)	504410	0.59
	Swivel clamp 100/R24^{*1)} Serves as a segment-bound and secure fastening device for attaching R24 girders to the cam walers.	516128	0.45
	Crane suspension for fast and safe crane-shifting of KST-tables and other slab formwork elements with retractable Polyamide Sling. The covering of the passage opening in the shuttering skin is done by means of the PVC Cap 34.		
			

	Component	Product code	Weight [kg]
	Polyamide sling, 25 mm¹⁾ This is used for crane suspension. (length = 1.70 m circumference)	510120	0.14
	PVC Cap 34¹⁾ Used for covering the hole of the Table Suspension in the plywood panel.	510164	0.01
 	Connection Angle 400 Used for fixing timber beams or squared timber to the timber beams H 20 or R 24.	492655	0.35
 	Perforated Angular Plate 170 mm¹⁾ This is used for fixing timber beams or squared timber to the timber beams H 20 or R 24.	510028	0.07

Pallets and lattice boxes

		Component	Product code	Weight [kg]
<p>Form A Turnbuckle with 2 eyes.</p> 	<p>Form B Turnbuckle with 1 eye and 1 hook.</p> 	<p>Tension chains</p> <p>They serve as tensioning members in conjunction with base brackets or inclined props for the correct alignment of all forming elements or prefabricated concrete parts.</p> <p>Do not use these secondary tension chains as load-bearing chains.</p> <p>The allowable working load as per DIN 763 is 4 kN (400 kg).</p>		
		<p>Tension chain with turnbuckle¹⁾</p> <p>Form A, 4 kN, with 2 eyes.</p>	164741	5.80
		<p>Tension chain with turnbuckle¹⁾</p> <p>Form B, 4 kN, with 1 eye and 1 hook.</p>	164763	5.80

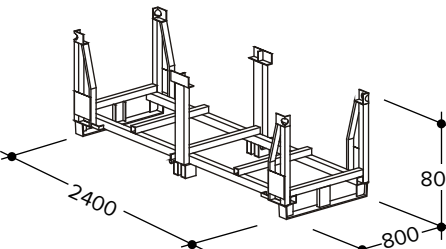
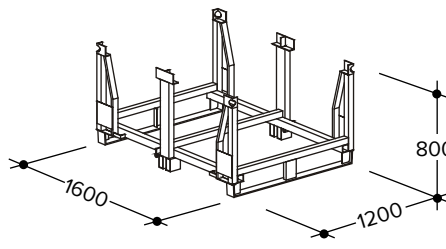
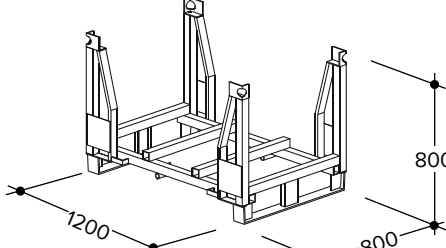


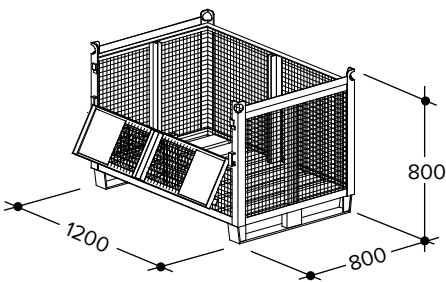
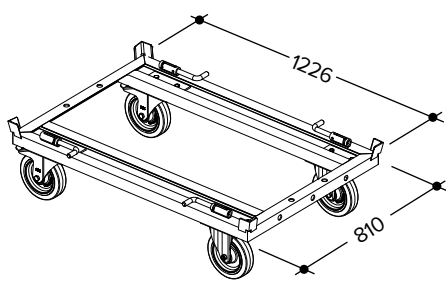

WARNING

Warning!

The tension chains must not be used for lifting actions!

10 Pallets and lattice boxes

		Component	Product code	Weight [kg]
		<p>Euro stacking frame 240/80</p> <p>Used for storing and transporting long components of the formwork and scaffolding range (e.g. steel props, H 20 timber beams, scaffold tubes, etc.).</p> <p>Allowable working load: 1,200 kg</p>	566509	92.47
		<p>Euro stacking frame 160/120</p> <p>Used for storing and transporting long components of the formwork and scaffolding range (e.g. steel props, H 20 timber beams, scaffold tubes, etc.).</p> <p>Allowable working load: 1,200 kg</p>	566494	84.02
		<p>Euro stacking frame 120/80</p> <p>Used for storing and transporting long components of the formwork and scaffolding range (e.g. steel props, H 20 timber beams, scaffold tubes, etc.).</p> <p>Allowable working load: 1,200 kg</p>	553689	54.47

	Component	Product code	Weight [kg]
	Euro lattice box Equipped with an operating flap which allows it to be opened even if the boxes are stacked. Ideally used for small parts (couplers, tie rods, tie nuts, clamps, connectors, etc.). Allowable working load: 1,200 kg	548480	68.76
	Euro Trolley For manual transport of lattice boxes and stacking frames. The Euro Trolley can be firmly connected to the lattice boxes and stacking frames by means of the lock and then lifted by crane. The Euro Trolley has 2 lockable castors. Load-bearing capacity: 1,300 kg	607610	39.52
	Restorative set for plywood¹⁾ Applied to film-coated plywood panels which have to be mended and restored. Damages to the shuttering surface can quickly and cheaply be repaired by small wooden veneer disks.	573773	17.33

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Last updated: January 2019
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