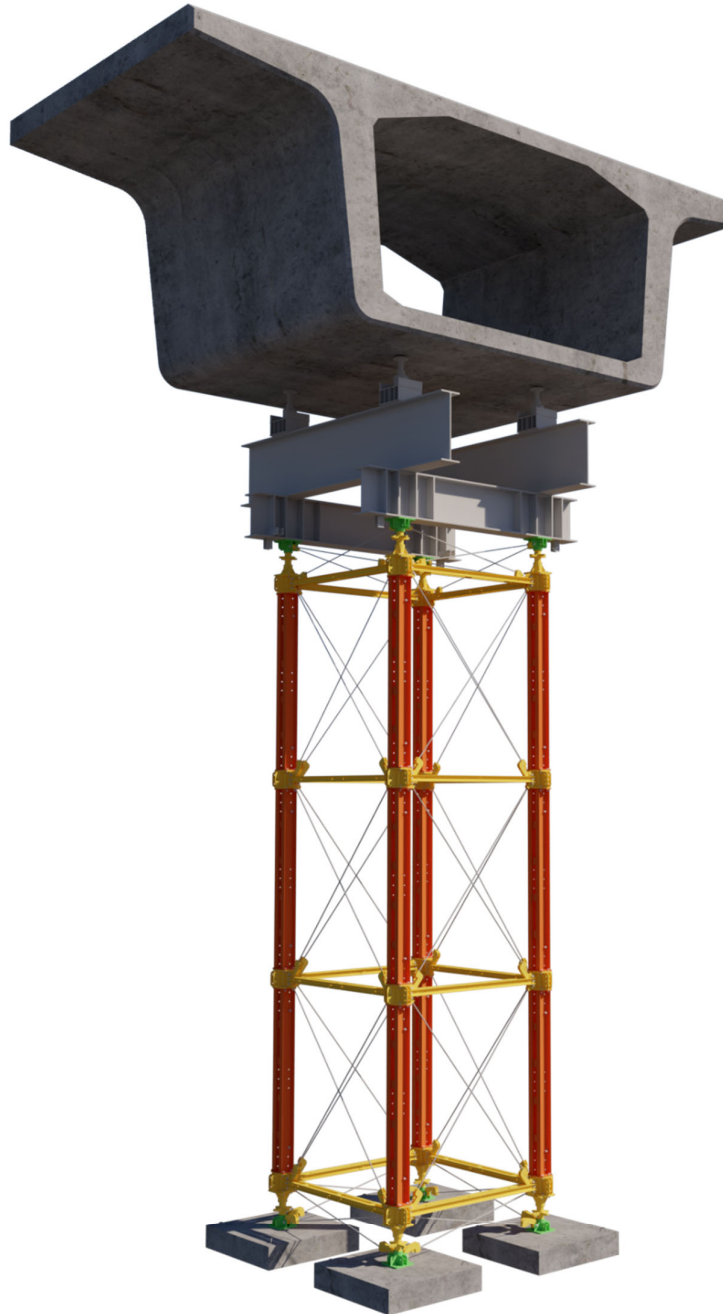


Assembly Instruction (quick guide)



Edition 03 | May 2022

PERI (Hong Kong) limited

Formwork Scaffolding Engineering
19C&D, Tower B, Billion Centre
1 Wang Kwong Road
Kowloon Bay
Hong Kong
Tel. +852 3102 7900
Fax +852 3188 9258
info@perihk.com
www.perihk.com

PERI Trading (Shanghai) Co., Ltd.

派利贸易(上海) 有限公司
info@peri.net.cn
www.peri.net.cn

Important notes

All current safety regulations and guidelines must be observed in those countries where PERI products are used. Computer graphics are used which are to be understood as system representations. For ensuring a better understanding, these and the detailed illustration shown have been partially reduced to certain aspects. Errors and typographical mistakes reserved.

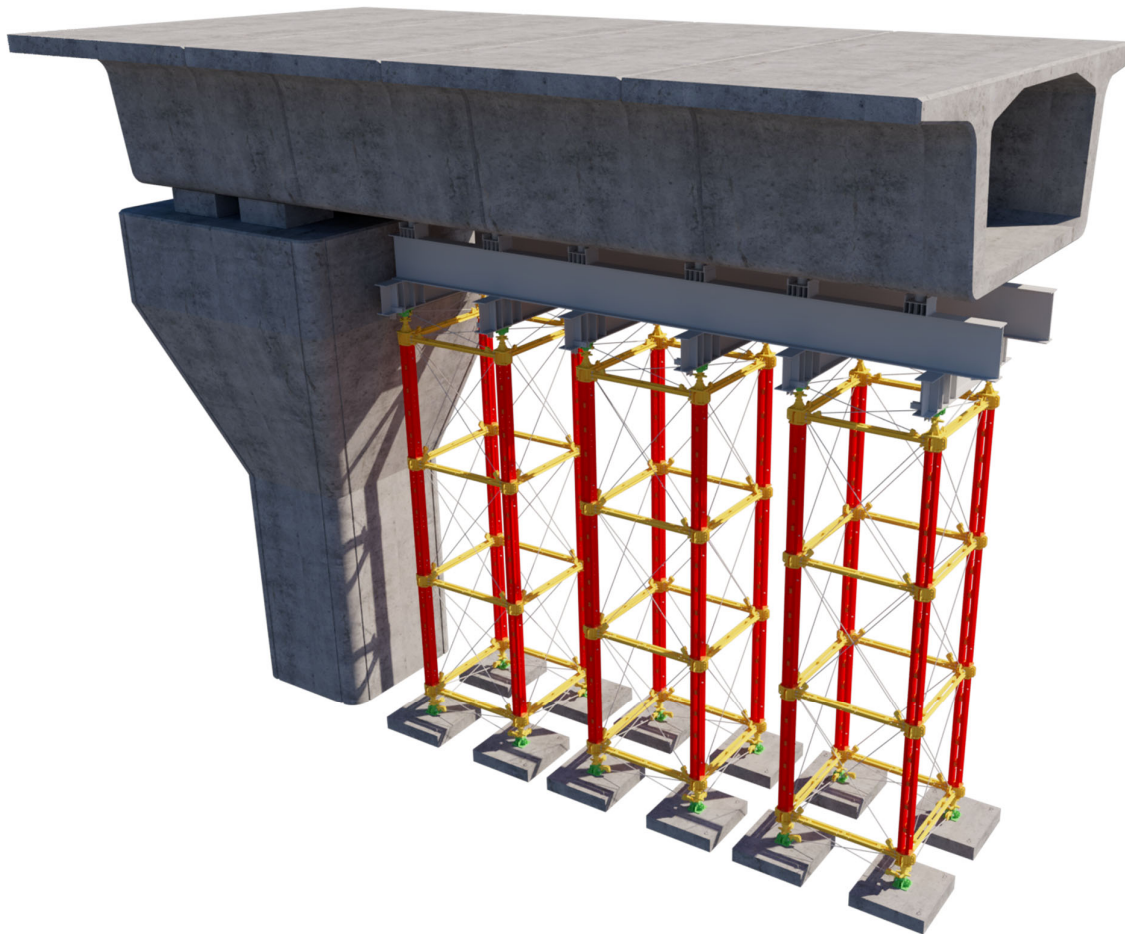
Content

- 1. Introduction4**
 - 1.1 Product description.....4
 - 1.2 General Instructions.....4
 - 1.3 Overview of components.....6

- 2. Assembly of standard configuration..... 10**
 - 2.1 Preparation.....10
 - 2.2 Assembly in horizontal positions.....11
 - 2.3 Disassembly.....20
 - 2.4 Check list.....21

- 3. Standard details.....22**

- 4. Catalogue.....24**



1. Introduction

1.1 Product description

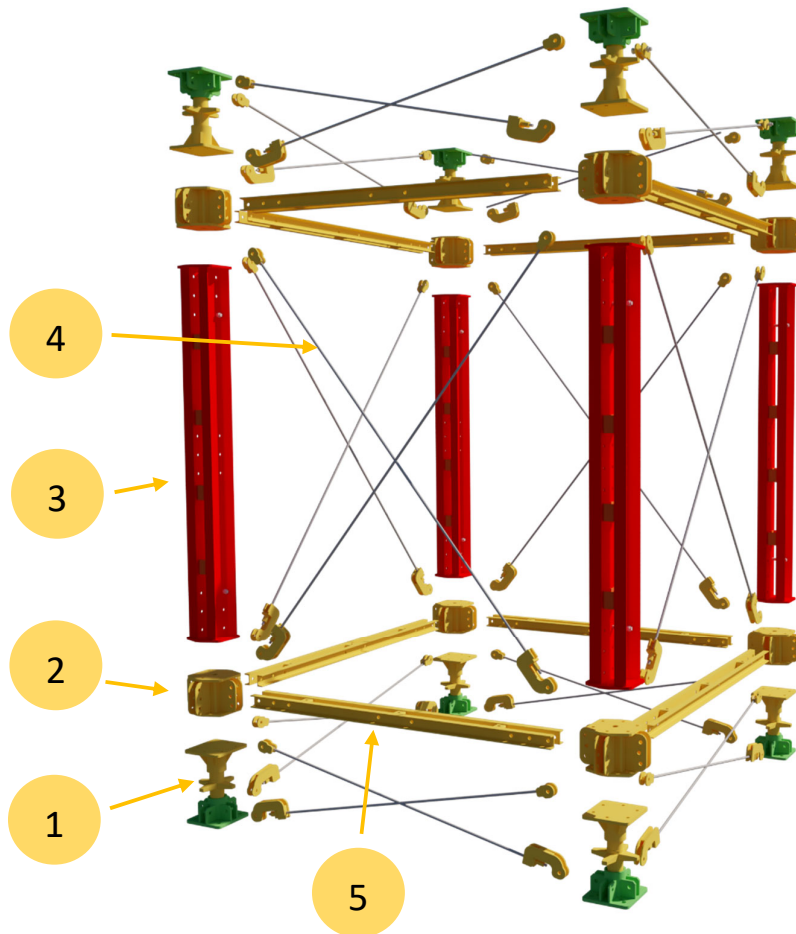
PERI HDS system is a heavy-duty shoring system which can be used for construction of different types of structures, such as: pre-cast bridges, in-situ bridges, temporary support structures.

1.2 General instructions

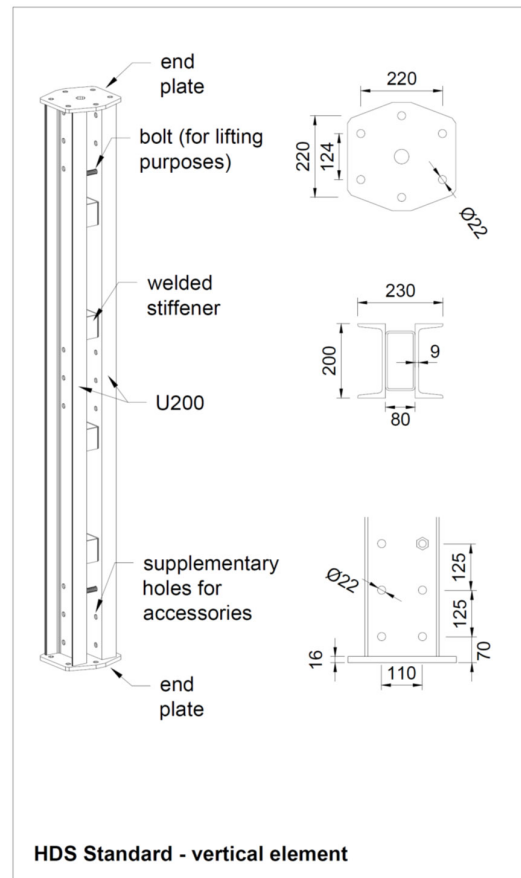
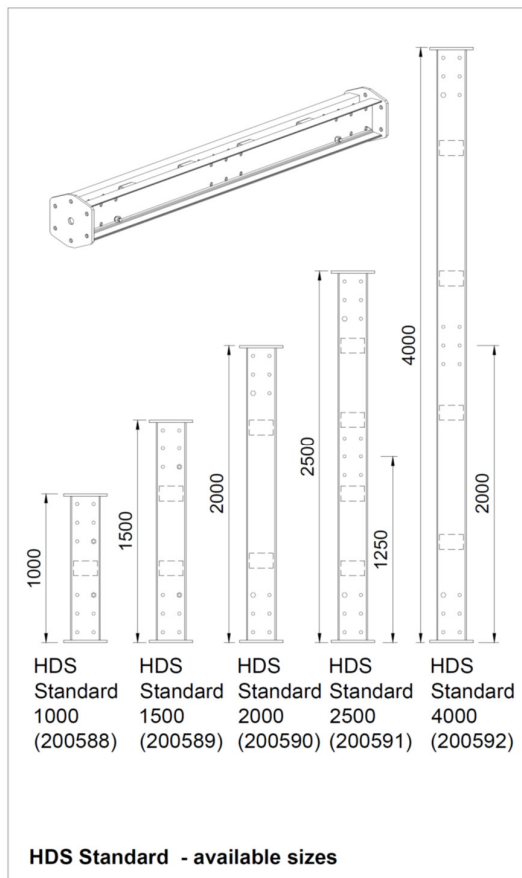
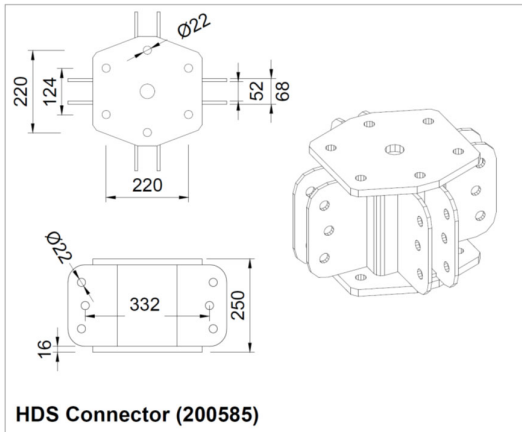
- 1.2.1 PERI HDS have been designed for exclusive use in the industrial and commercial sectors by qualified personnel only.
- 1.2.2 Only PERI original components may be used. The use of other products and spare parts represent a misapplication with associated safety risks.
- 1.2.3 The components are to be inspected before each use to ensure that they are in perfect condition as well as being able to function properly. Also, the components are to be inspected for signs of damage by authorized personnel at regular intervals. Damaged components are to be inspected, sorted out and replaced.
- 1.2.4 Changes to PERI components are not permitted and represent a misapplication with associated safety risks.
- 1.2.5 Any deviations from the standard configuration may only be carried out after a separate risk assessment has been done by the contractor (user). On this basis, appropriate measures for the working safety and stability are to be implemented
- 1.2.6 During unfavorable weather conditions, suitable precautions and measures are to be taken in order to ensure both working safety and stability.
- 1.2.7 The contractor (user) is responsible for calculation, design and preparation of the foundation for HDS Towers and Steel structures on top of HDS towers.
- 1.2.8 The contractor (user) must ensure the stability during all stages of construction. He must ensure and verify that all loads which occur are safely transferred.
- 1.2.9 Any repairs to PERI products are to be carried out by qualified PERI personnel only.
- 1.2.10 Detailed project-specific static proof of HDS as well as planning is required for each time of use.
- 1.2.11 The contractor (user) is responsible for safety of works related to assembly, disassembly and usage of PERI HDS system.
- 1.2.12 Lifting or lowering operations are only to be performed when a competent person has given the go-ahead and the upper construction has sufficient load-bearing capacity.

1.2.13 The contractor (user) must ensure that all operations related to crane are carried out by professional, authorized and competent personnel according to local regulations.

1.3 Overview of components



- 1 - HDS Screw Jack
- 2 – HDS Connector (node)
- 3 – HDS Standard (vertical element)
- 4 – Diagonal x-bracing (tension only)
- 5 – HDS Ledger (horizontal element)



side A (yellow)

extension 420...620 mm

min. 52

90

76

19

$\varnothing 22$

side B (green)

297

297

200

140

297

220

124

220

$\varnothing 22$

200

140

297

297

140

200

$\varnothing 22$

Side A (yellow) - this side should be connected to HDS Connector

Side B (green) - this side should be connected to steel beams or concrete structure (basement).

HDS Screw Jack (200608)

⚠ *maximum allowable extension should be specified by responsible engineer for each particular project and depends on:
a) vertical load b) horizontal load transferred through HDS Screw Jack

HDS LEDGER 4500 (200601)

4500

HDS LEDGER 4000 (200600)

4000

HDS LEDGER 3500 (200599)

3500

HDS LEDGER 3000 (200598)

3000

HDS LEDGER 2500 (200597)

2500

HDS LEDGER 2000 (200596)

2000

HDS LEDGER 1500 (200595)

1500

158

80

5

72

125 125

80

$\varnothing 22$

welded stiffener

U80

mounting holes

supplementary holes for accessories

HDS Ledger - horizontal element

50

$\varnothing 20$

$\varnothing 22$

50

30

DW15

HDS Bracing Hook (200272)

HDS Fixing Nut (200273)

$\varnothing 22$

50

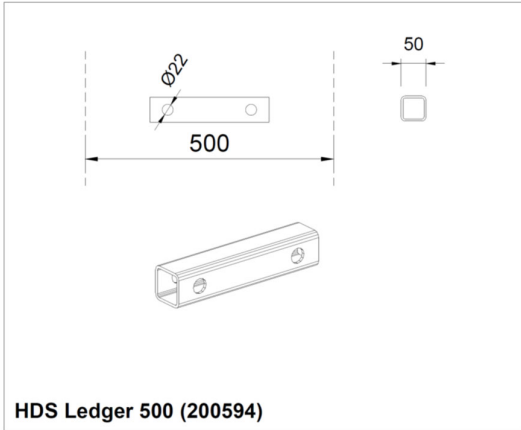
DW15

HDS Bracing Nut (200271)

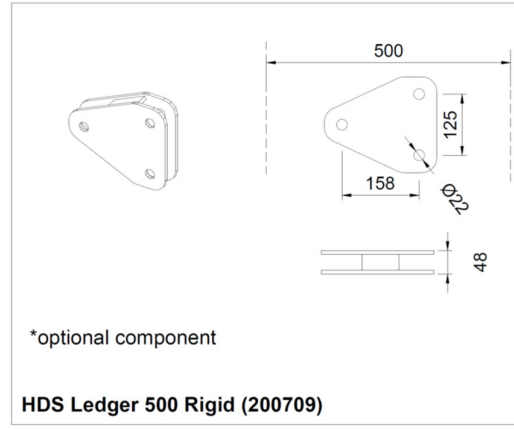
HDS Brace 3M (200275) - DW15, L=3.0 m

HDS Brace 6M (200274) - DW15, L=6.0 m

HDS - diagonal elements

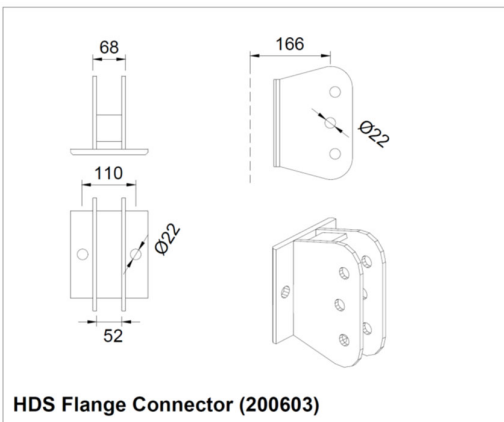


HDS Ledger 500 (200594)

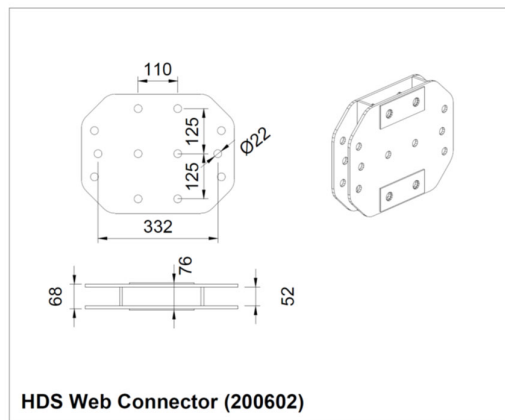


*optional component

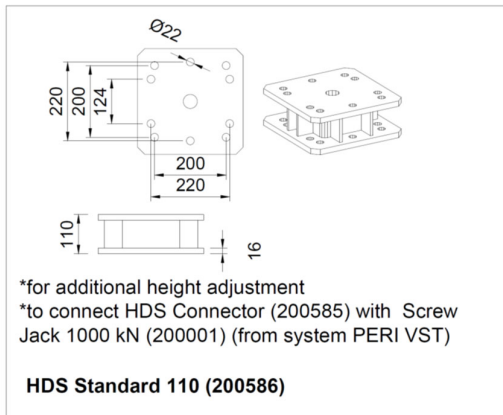
HDS Ledger 500 Rigid (200709)



HDS Flange Connector (200603)

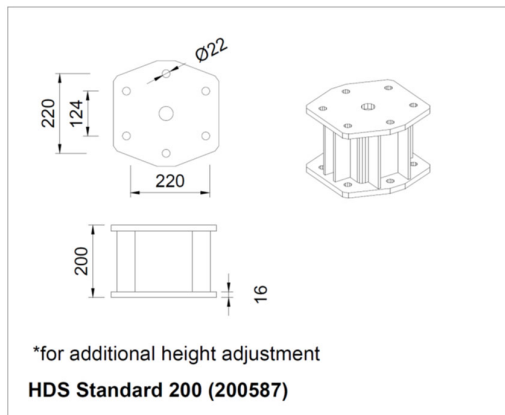


HDS Web Connector (200602)



*for additional height adjustment
*to connect HDS Connector (200585) with Screw Jack 1000 kN (200001) (from system PERI VST)

HDS Standard 110 (200586)



*for additional height adjustment

HDS Standard 200 (200587)

2. Assembly of standard configuration

2.1 Preparation

2.1.1 Prepare a flat assembly area with a width at least 2 m wider than the double width of the widest HDS frame and the length at least 5 m longer than the highest HDS Tower. A crane with a suitable load-bearing capacity (more than the weight of a single tower) should be able to work in this area.

2.1.2 Prepare a storage area near the assembly area. A crane with a suitable load-bearing capacity (more than the weight of a single tower) should be able to work in this area (it is recommended to use at least 25t mobile crane, however final assessment and decision should be done by the contractor).

2.1.3 Prepare all the necessary tools for assembly (minimum quantity is shown below):

- Electric/pneumatic power wrench - 2 pc.
- Sockets SW 30 (for M20) and extension – 2 pc.
- Open end spanner SW30 (for M20) – 4 pc.
- Ring spanner SW30 (for M20) – 4 pc.
- Socket spanner SW30 (for M20) – 4 pc.
- Grease
- Hammer 500g – 2 pc.
- Tape measure – 1 pc.
- Level – 1 pc.
- Tire iron (or similar tool) with diameter $d < 20$ mm – 2 pc.
- Temporary scaffolding / ladders / working platforms
- Timber/ wooden girders $h = 200$ mm (or similar) for padding – quantity to be defined by site

2.1.4 Ensure that:

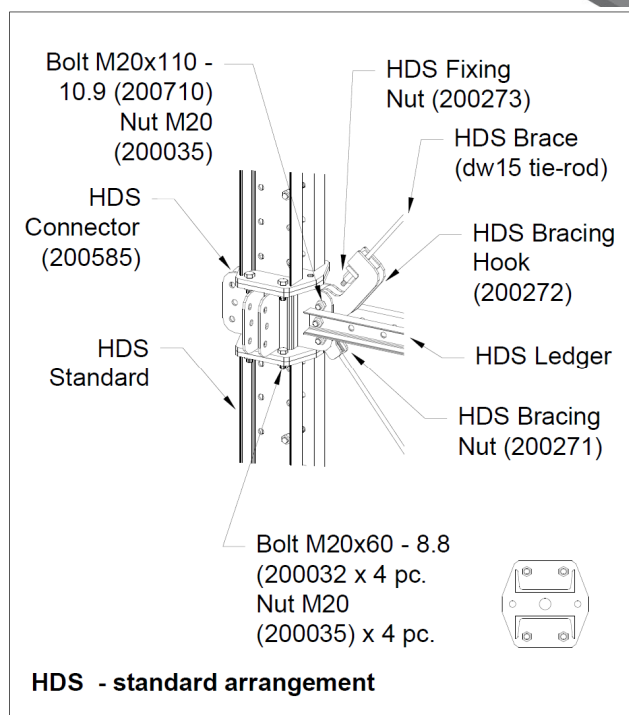
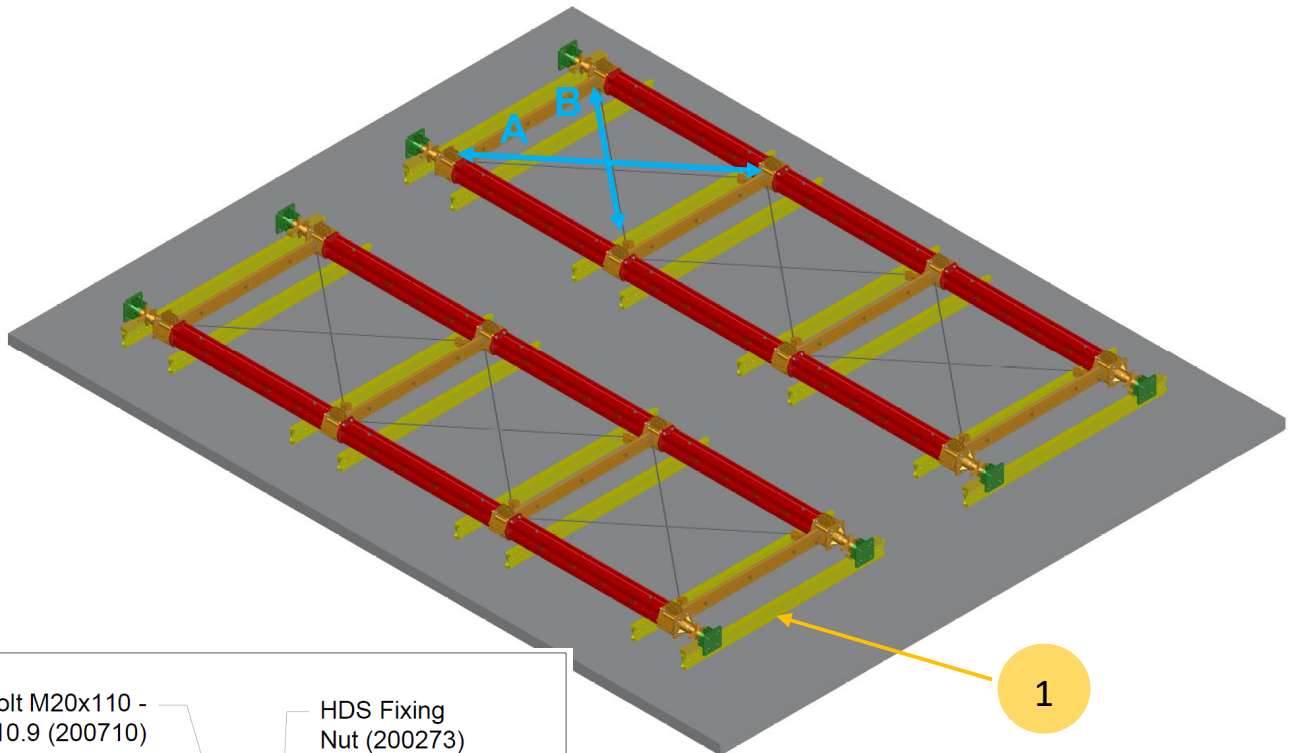
- Reinforced concrete foundations for HDS towers are designed and built.
- The concrete has reached sufficient strength.

2.1.5 Prepare all the necessary tools and equipment for anchoring of HDS towers:

- Post-drilled anchors M20
- Drill, drill bit

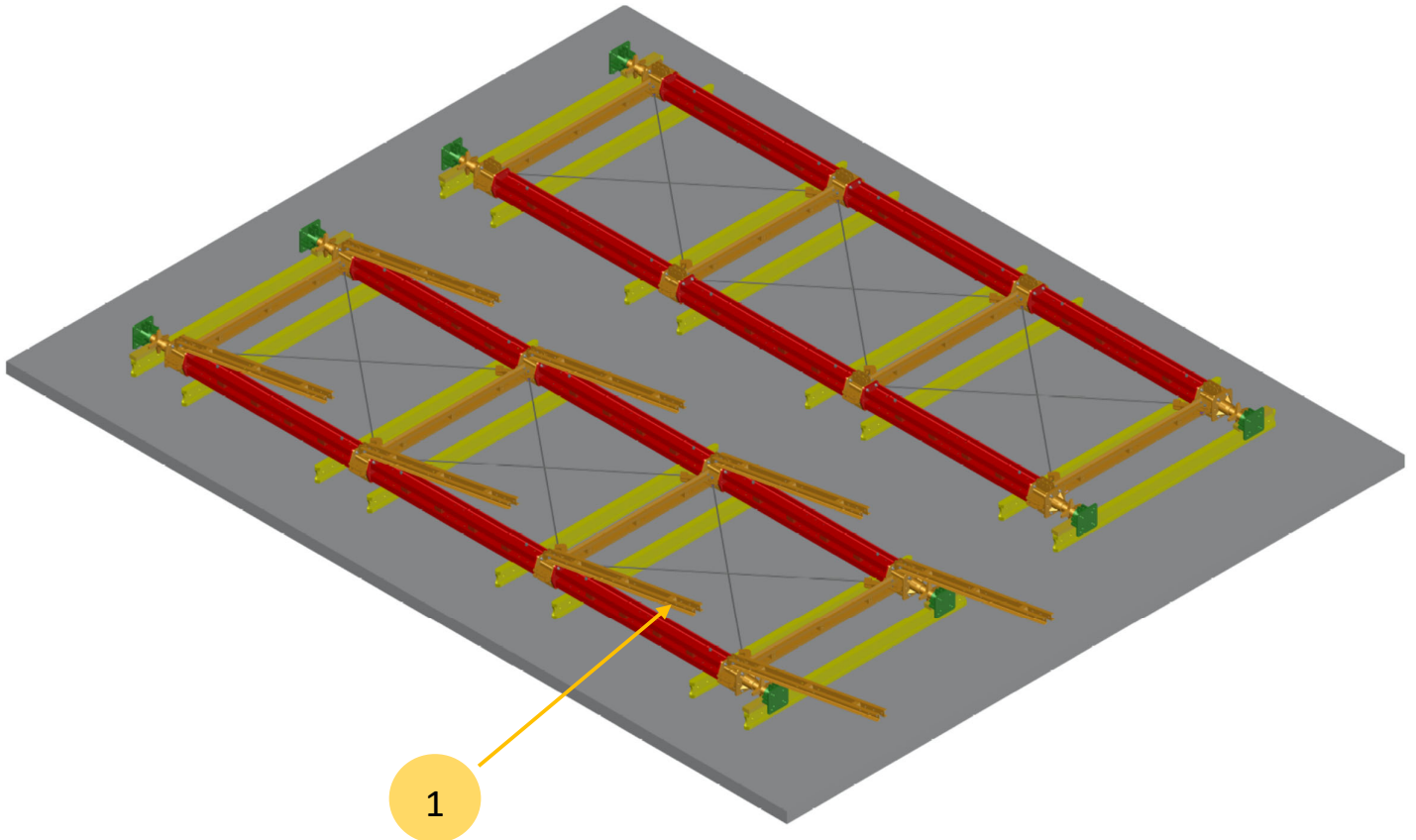
2.2 Assembly in horizontal position

2.2.1 Assemble two frames in horizontal position. Use the widest possible frame for this step (if HDS tower has dimensions in plan view 4.5m x 2.5m, then assemble frame with width 4.5m). Put wooden padding under the HDS frames (1).

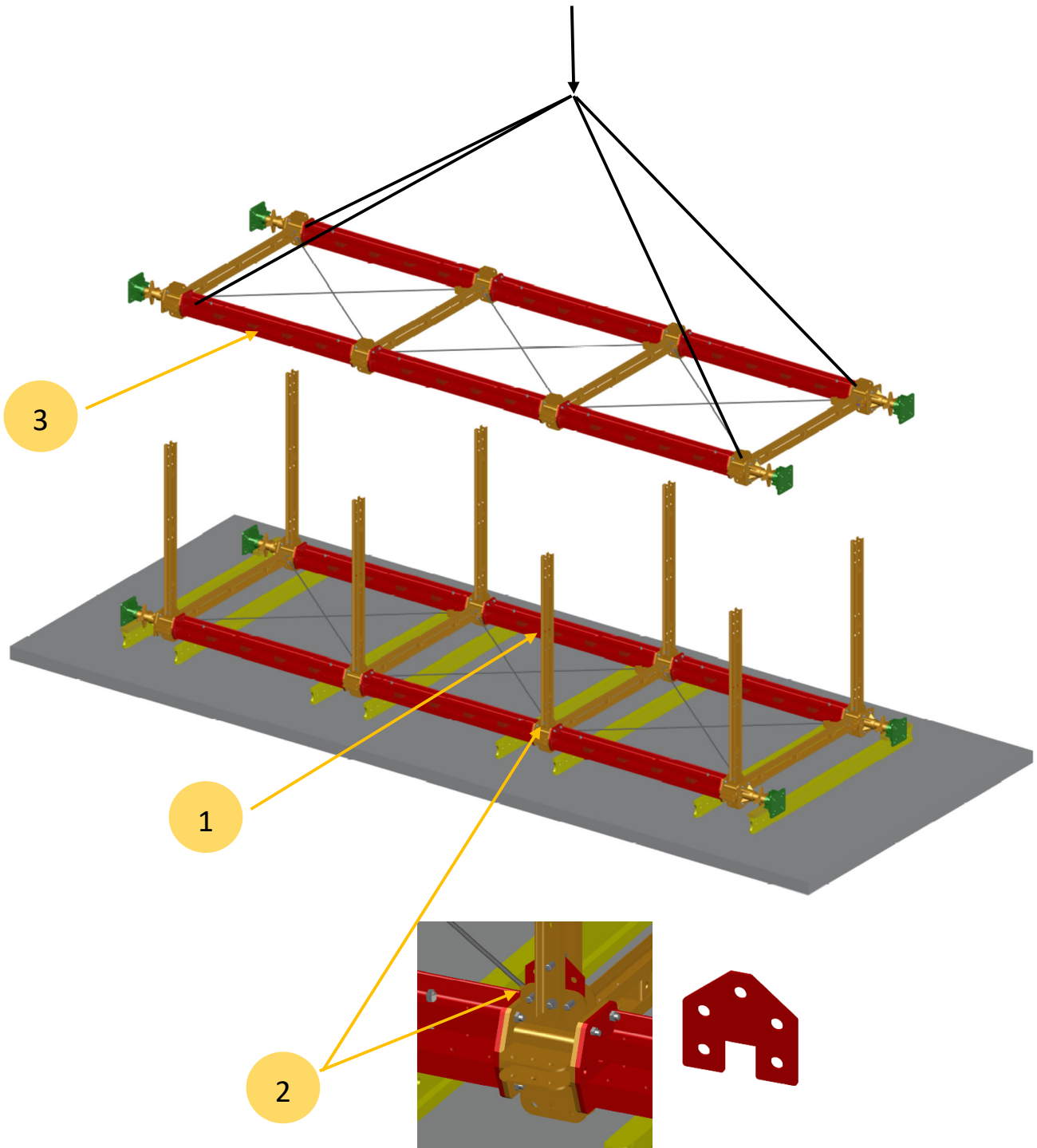


■ Measure diagonals (A=B) to ensure that the angle between HDS Ledger and HDS Standard is 90 degrees. Adjust if necessary.

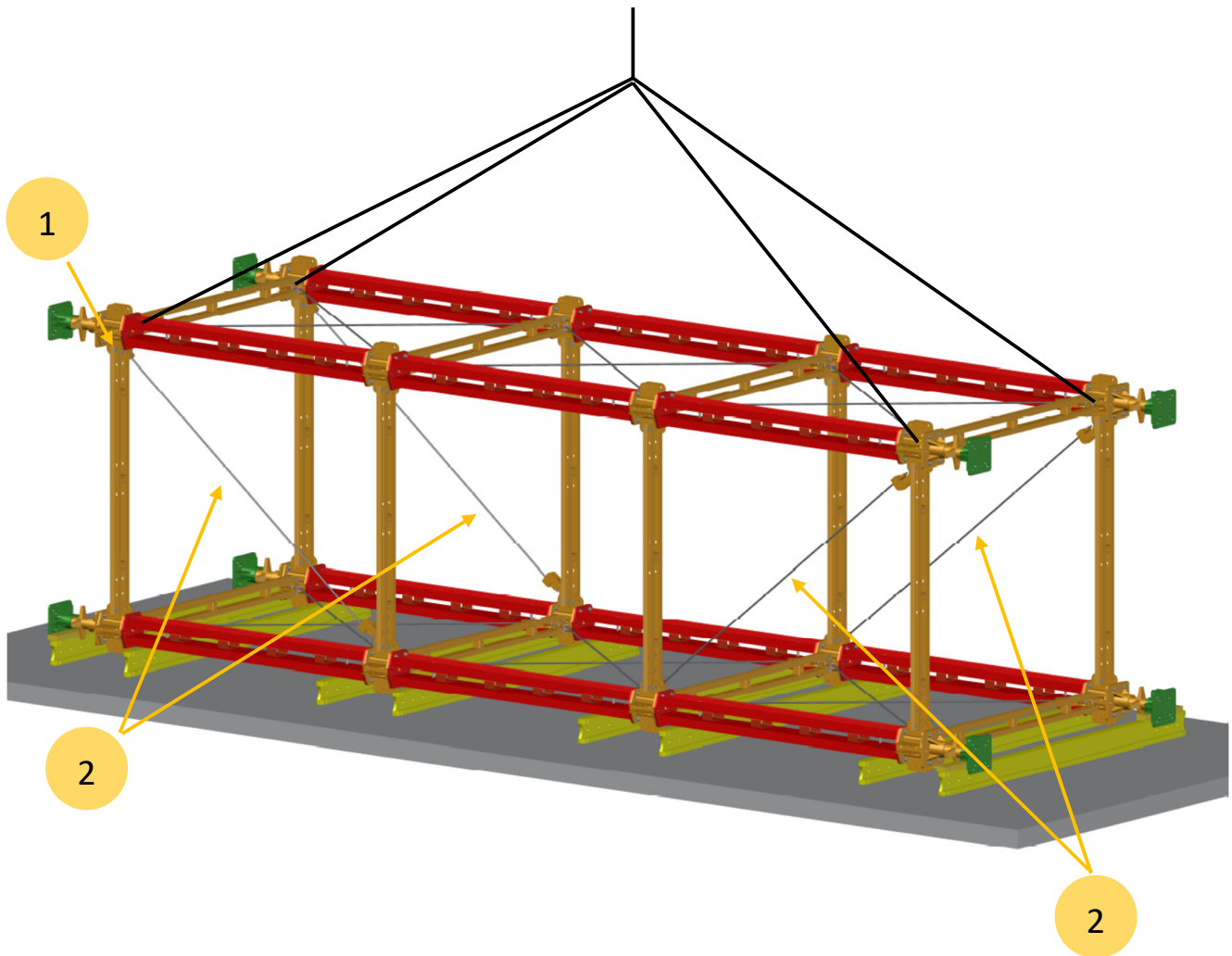
2.2.2 Attach horizontal ledgers HDS to one of the frames (1).



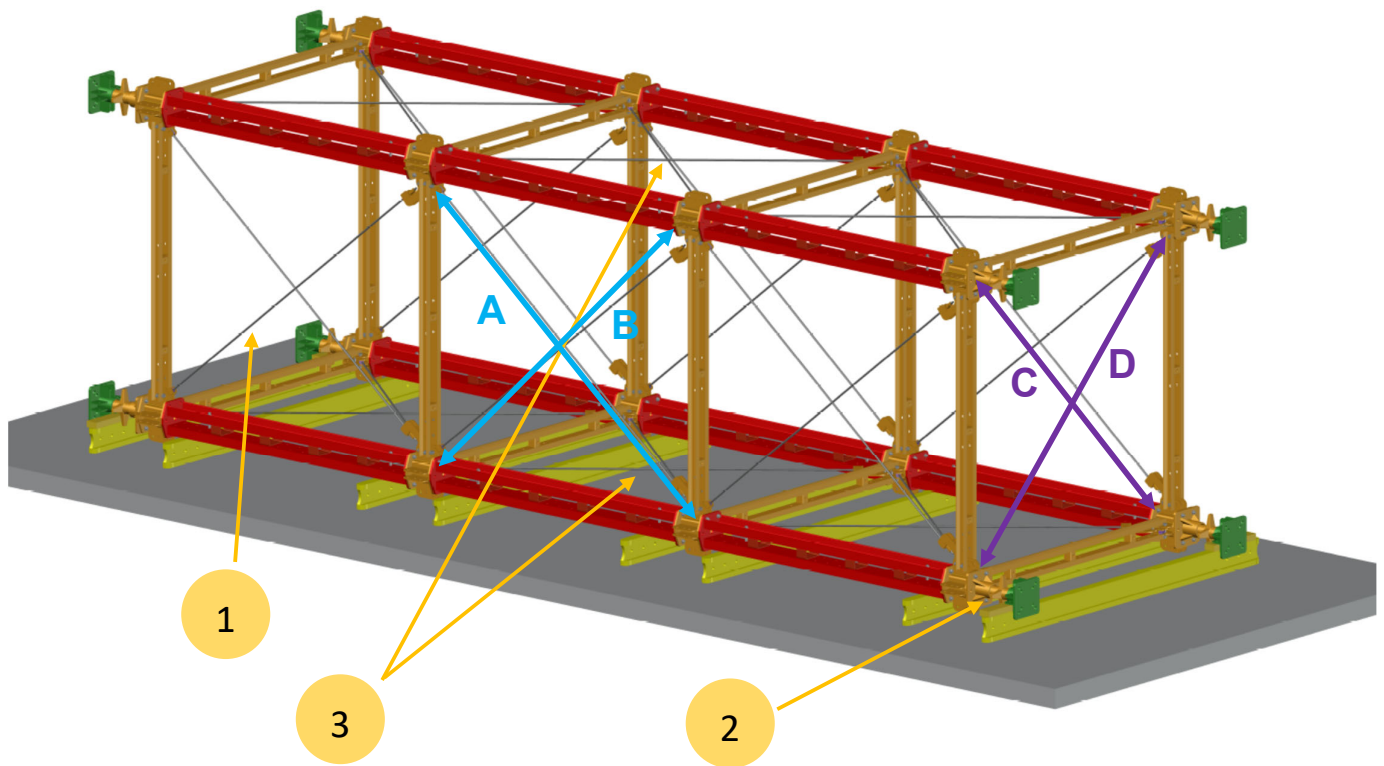
2.2.3 Hold the HDS ledgers in vertical position (1) , HDS ADAPTER LV (2) can be used for this purpose (use bolts M20x110 x 3 pc.), lift the second frame HDS with a crane (3) .



2.2.4 Connect the HDS Ledgers with the top HDS frame (1), Install at least one diagonal for each direction for every vertical frame to prevent folding of the vertical frames (2).

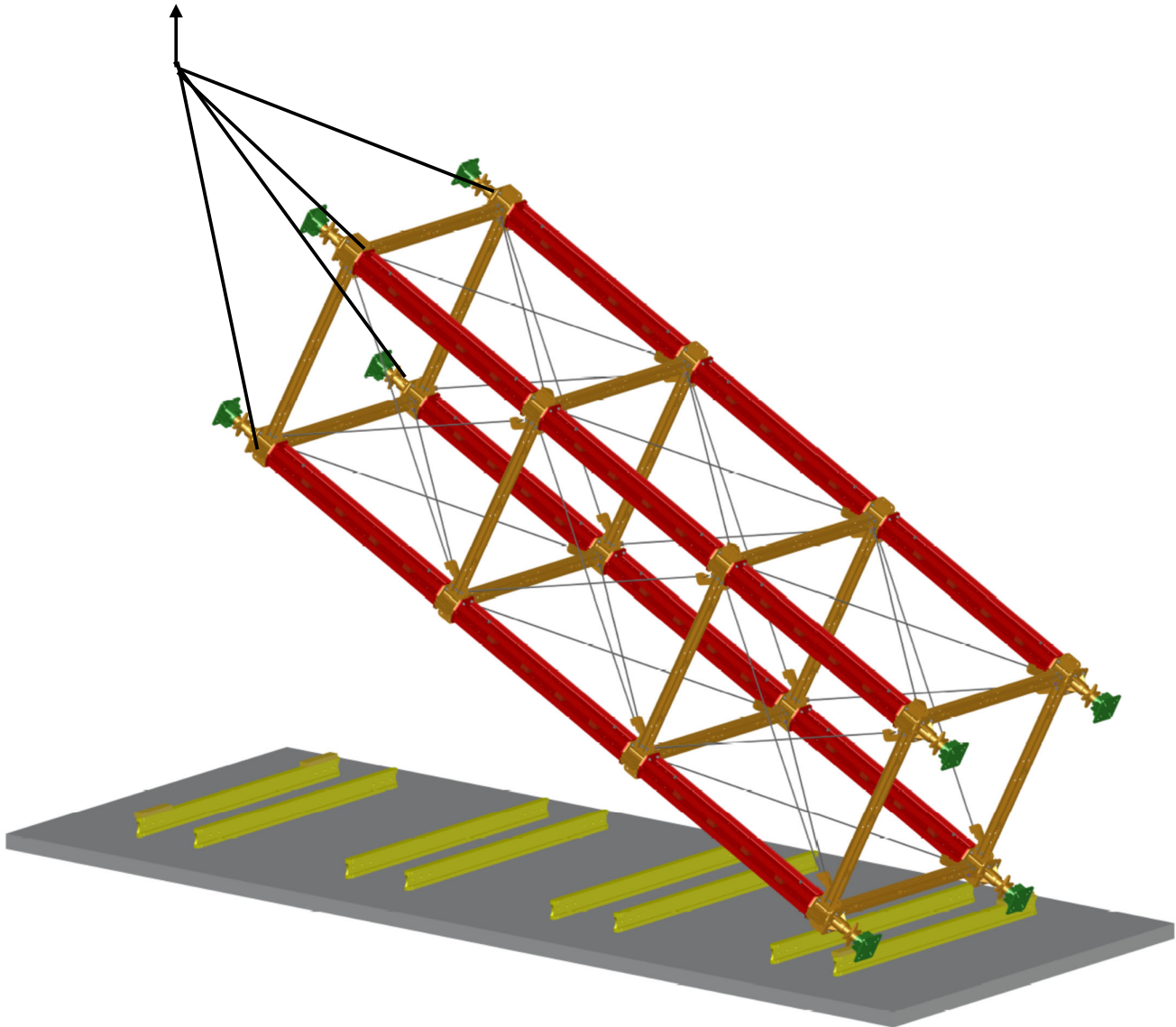


2.2.5 Install the remaining diagonal braces (1), double check extension of the screw jacks (2), tighten loosen diagonal braces (3).

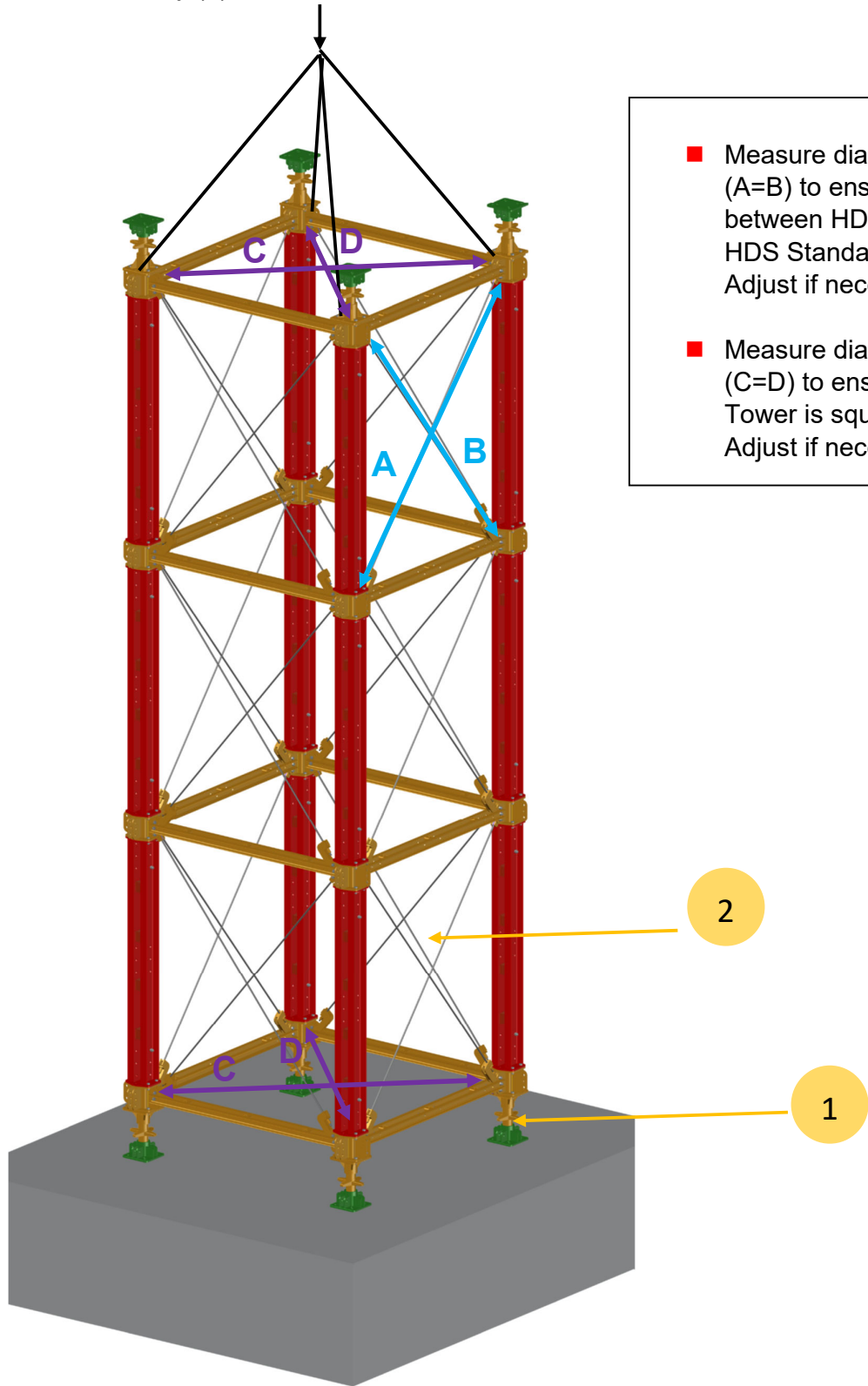


- Measure diagonals A & B ($A=B$) to ensure that the angle between HDS Ledger and HDS Standard is 90 degrees. Adjust if necessary.
- Measure diagonals C & D ($C=D$) to ensure that the HDS Tower is square in plan view. Adjust if necessary.

2.2.6 Rotate the HDS tower into vertical position with a crane.

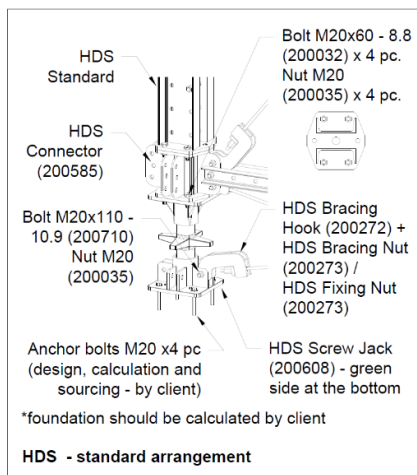
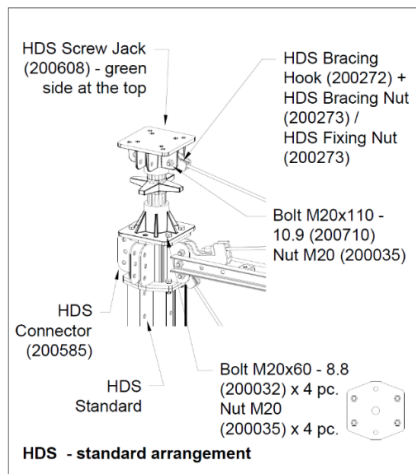
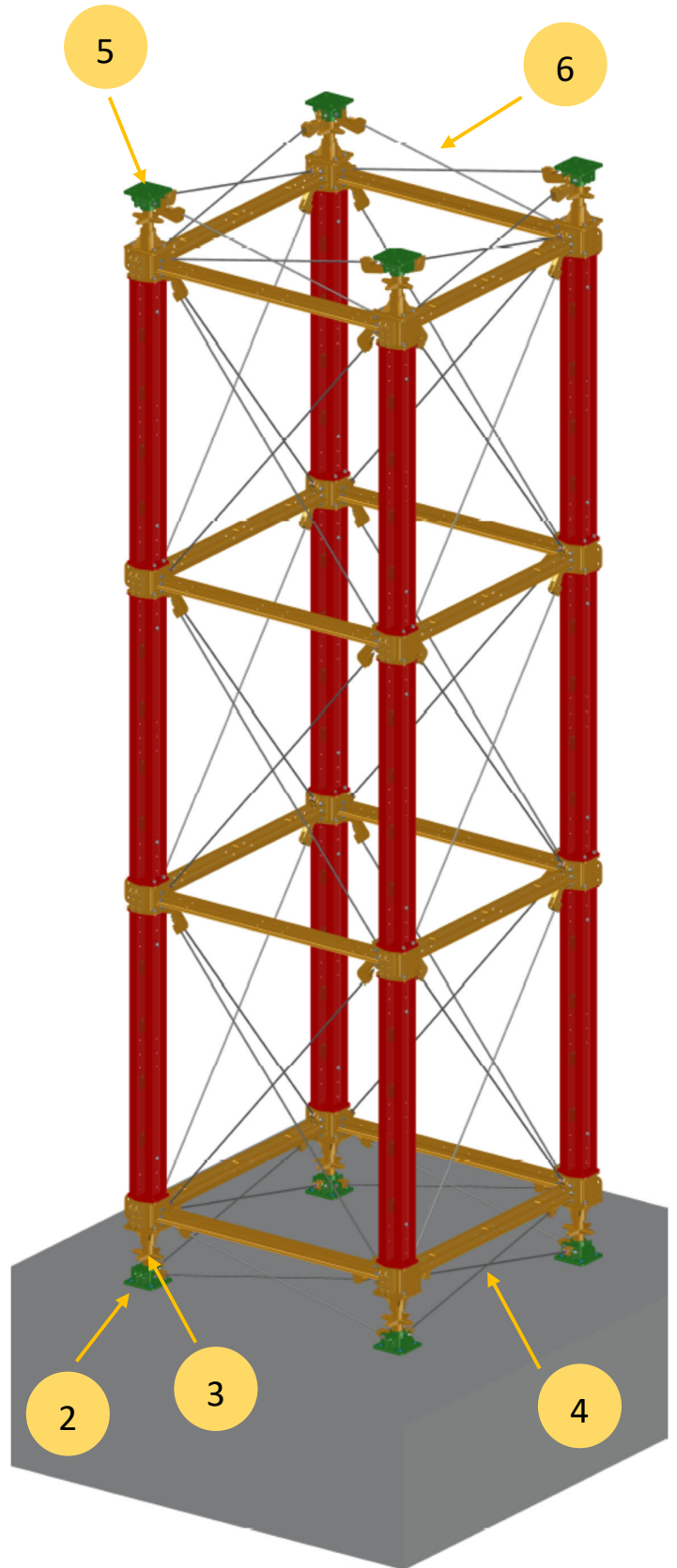


2.2.7 Put the HDS tower into the correct position. Ensure that the HDS tower is in vertical position. Adjust the screw jacks if necessary (1). Tighten again the tie-rods if necessary (2).



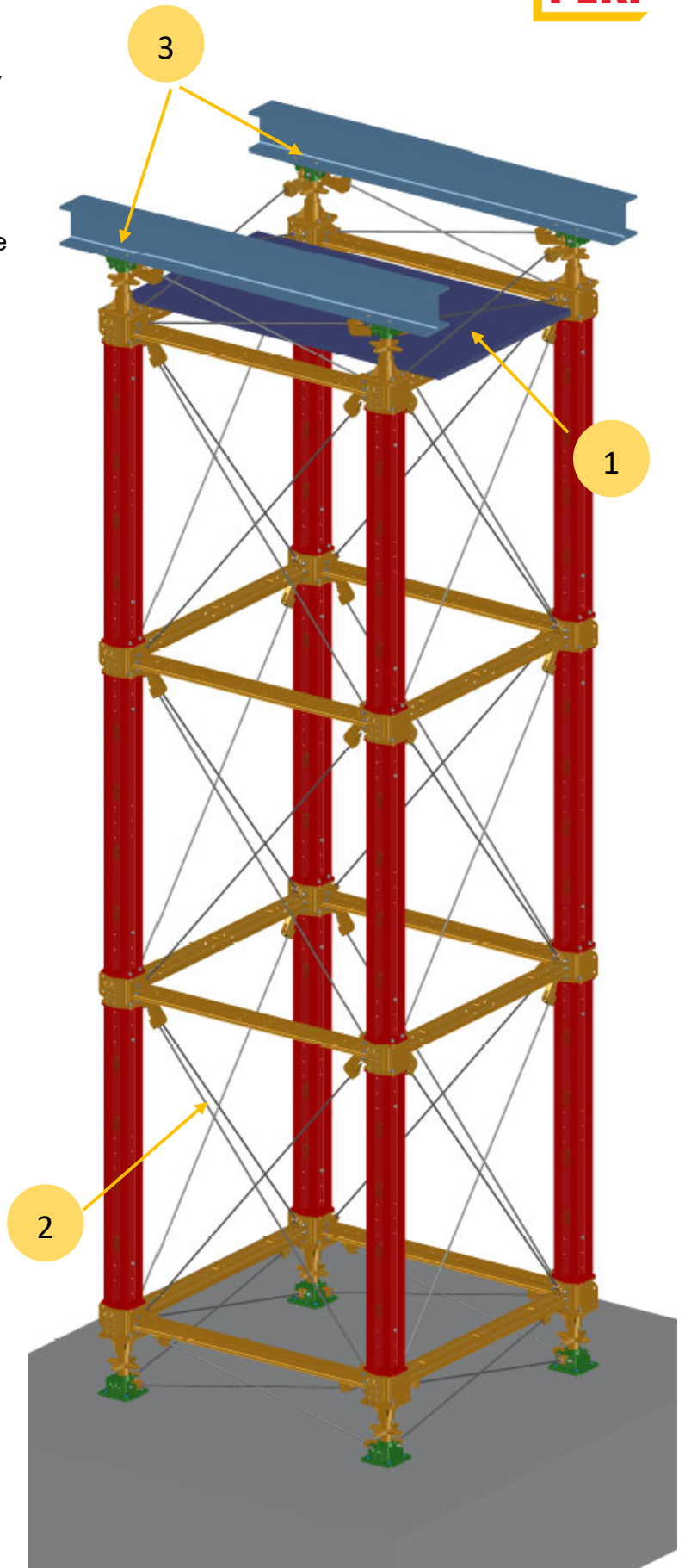
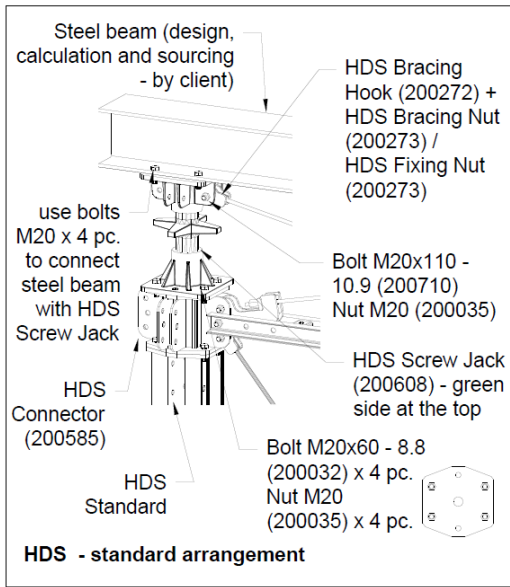
- Measure diagonals A & B (A=B) to ensure that the angle between HDS Ledger and HDS Standard is 90 degrees. Adjust if necessary.
- Measure diagonals C & D (C=D) to ensure that the HDS Tower is square in plan view. Adjust if necessary.

2.2.8 Fix the bottom screw jacks to the concrete foundation with anchor bolts (1). Check verticality of the HDS tower and adjust the bottom screw jacks if necessary (2). Install braces for the bottom screw jacks (3). Double check top level of the top screw jacks and adjust if necessary (4). Install braces for the top screw jacks (5). Holes for the anchor bolts can be drilled beforehand, use a template made of plywood and timber for this purpose.



PERI HDS

2.2.9 Install steel decks if necessary (1) (steel decks can be attached to the top HDS ledgers during stage 2.2.5). Tighten all the diagonal braces again (2). Place steel beams on top of the screw jacks and secure with bolts and nuts (3)



2.3 Disassembly

2.3.1 Ensure that structures above have enough strength to take all the loads which will occur after removing of the HDS towers.

Reverse sequence of assembly sequence (2.2):

2.3.2 Remove steel beams from the top of HDS tower

2.3.3 Remove steel decks from the top of HDS (if necessary)

2.3.4 Attach crane slings

2.3.5 Remove anchor bolts from the bottom screw jacks

2.3.6 Move the HDS tower to the area for disassembly with a crane

2.3.7 Rotate the HDS tower into horizontal position with a crane

2.3.8 Remove diagonal bracing

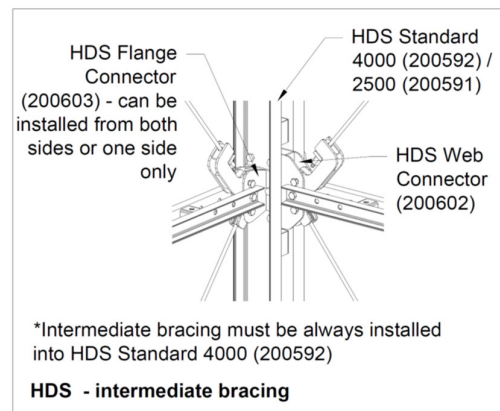
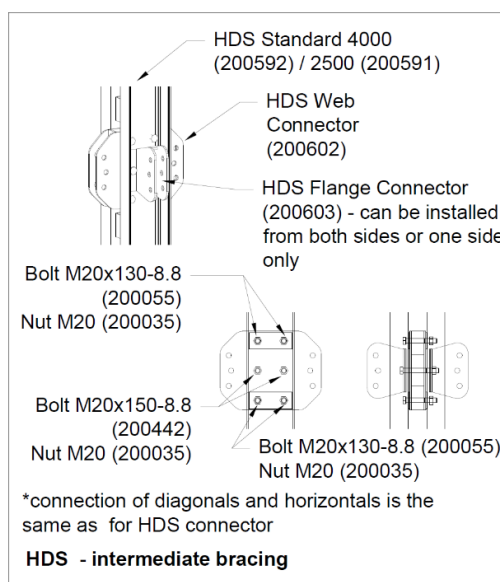
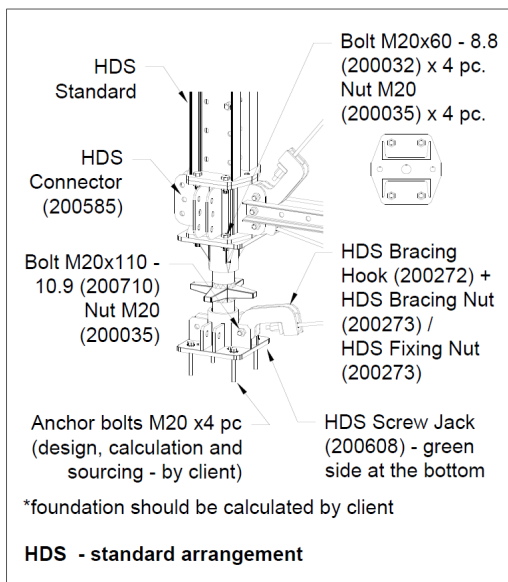
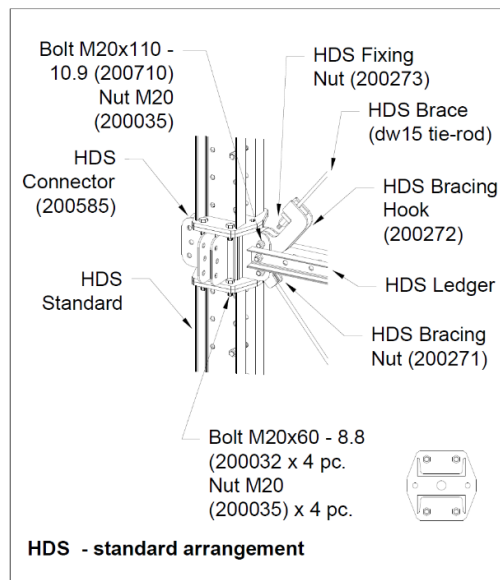
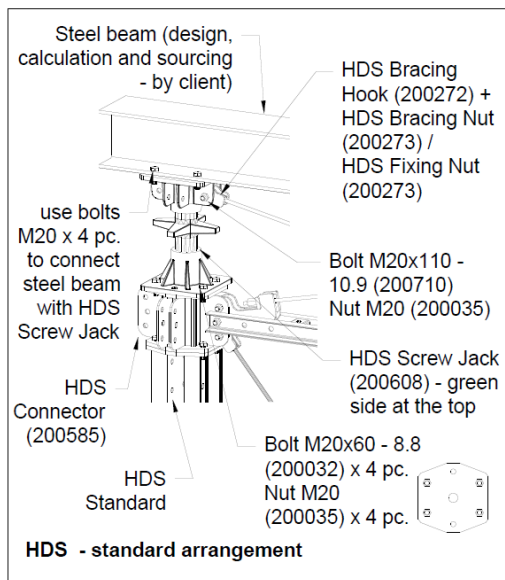
2.3.9 Disconnect the top HDS frame from the bottom HDS frame and move it aside with a crane.

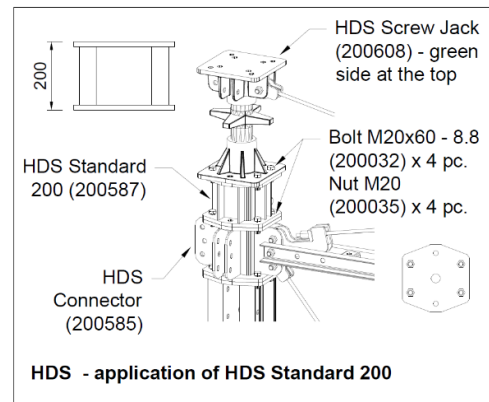
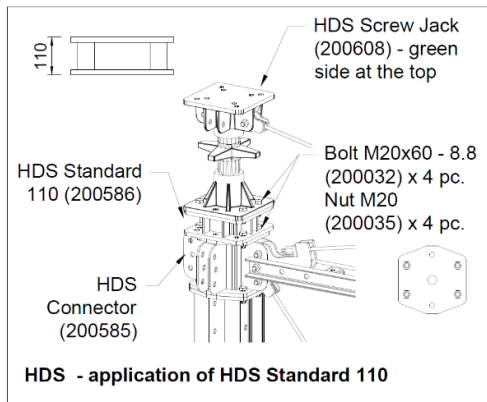
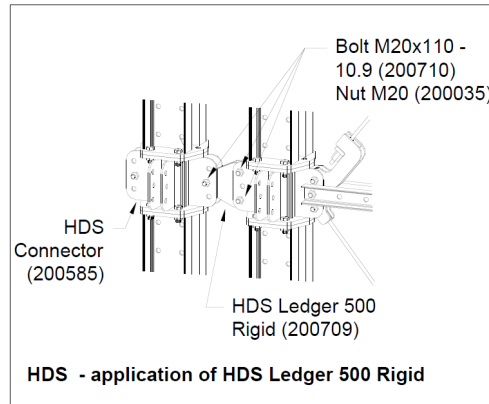
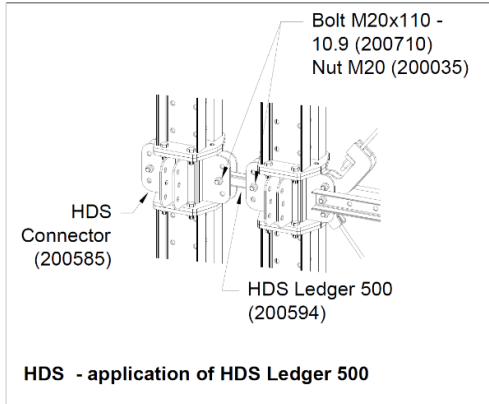
2.3.9 Disconnect the remaining HDS parts piece by piece

2.4 Check-list

- Prior to 2.2.7 – before putting the HDS tower into the correct position.
 - The foundation under the HDS Tower has enough capacity to accommodate vertical and horizontal forces from the HDS Tower.
- Prior to 2.2.9 (3) – before installation of the top steel beams
 - Diagonals “A” are equal to diagonals “B”
 - The HDS tower is square in plan view (diagonal “C” equals to diagonal “D”).
 - All the tie-rods are tighten
 - The HDS legs are vertical
 - Bottom HDS Screw Jack are fixed to the concrete foundation by anchor bolts
 - Top Steel beam is connected to the top HDS Screw Jack by bolts.
 - The top level of the top HDS Screw Jack are according to the project

3. Standard details (most frequently used)



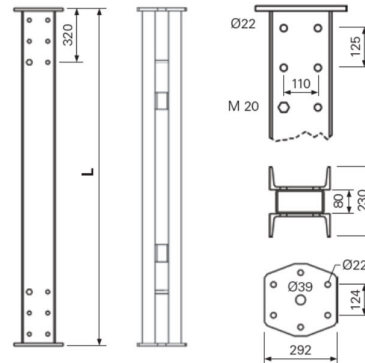


4. Catalogue

Item no.	Weight kg	HDS Standards	L
200588	74.000	HDS Standard 1000	1000
200589	101.500	HDS Standard 1500	1500
200590	127.300	HDS Standard 2000	2000
200591	153.100	HDS Standard 2500	2500
200592	234.100	HDS Standard 4000	4000

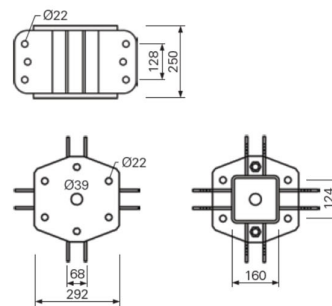
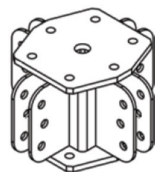
Note

Bolts are needed for connecting accessories:
 2 pc. 200266 M20 x 130 Hex Bolt-8.8
 2 pc. 200268 M20 Nut



200585	40.100	HDS Connector	Note
--------	--------	---------------	-------------

For rigid connection of HDS standards.

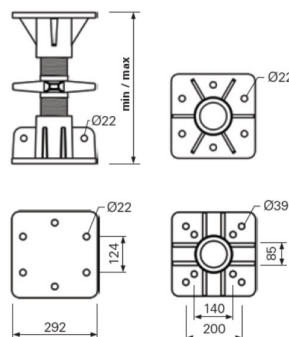
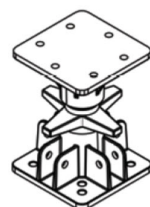


200608	71.980	HDS Screw Jack	min. L	max. L
--------	--------	----------------	--------	--------

410 620

Note

For top and bottom connections with adjustable leveling. Maximum load capacity 1,000 kN.

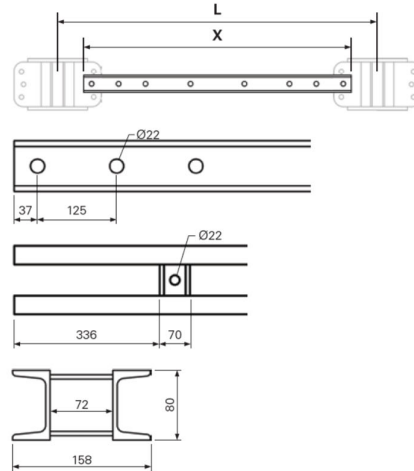
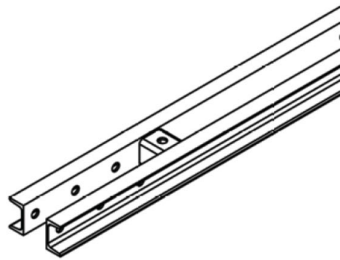


Item no.	Weight kg
200595	21.420
200596	29.480
200597	38.240
200598	46.300
200599	55.100
200600	63.100
200601	72.660

HDS Ledgers
HDS Ledger 1500
HDS Ledger 2000
HDS Ledger 2500
HDS Ledger 3000
HDS Ledger 3500
HDS Ledger 4000
HDS Ledger 4500

X	L
1242	1500
1742	2000
2242	2500
2742	3000
3242	3500
3742	4000
4242	4500

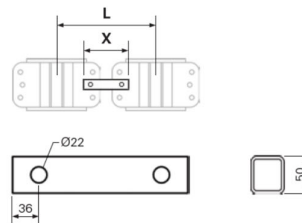
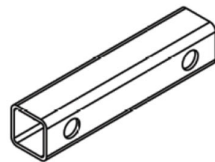
Note
 All lengths below 80.00kg and thus man-handlable.



200594	1.640
--------	-------

HDS Ledger 500

X	L
240	500

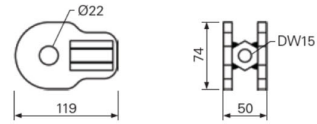
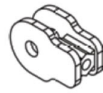


Item no. Weight kg
200271 1.400

HDS Bracing Nut

Note

As an articulated connection to the HDS Connector, Screw Jack or Standard for bracing with tie-rods DW15.

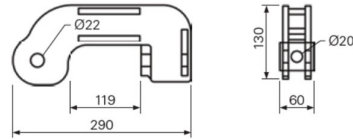


200272 5.000

HDS Bracing Hook

Note

For tensioning and as an articulated connection to the HDS Connector, Screw Jack or Standard for bracing with tie-rods DW15.

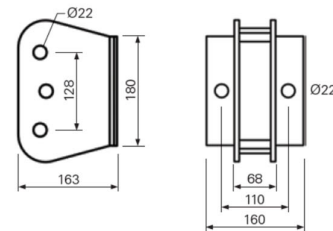
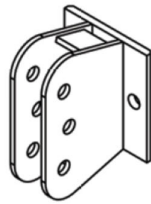


200603 7.000

HDS Flange Connector

Note

For optional restraining HDS Standard 2500 & 4000 at the middle with a ledger.

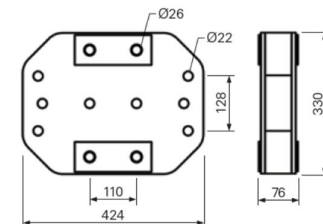
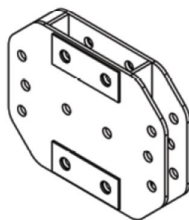


200602 18.500

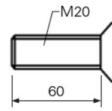
HDS Web Connector

Note

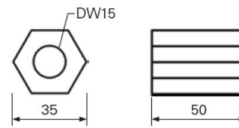
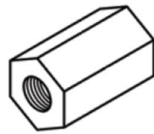
For optional restraining HDS Standard 2500 & 4000 at the middle with ledger.



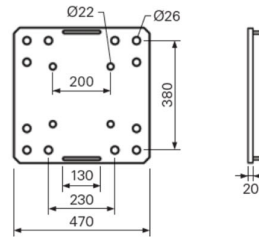
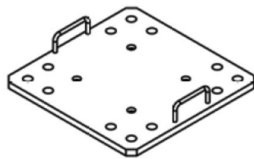
Item no.	Weight kg		
200607	3.860	CSK Bolt M20 x 60-8.8	Note High-strength bolt for HDS Base Plate and HDS Centric Plate.



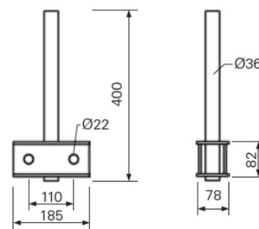
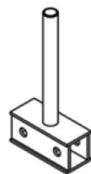
200273	0.230	HDS Fixing Nut	Note For anchoring with diagonal braces.
--------	-------	-----------------------	--



200604	34.900	HDS Base Plate	Note For easy installation of post-drilled anchors, optional.
--------	--------	-----------------------	---



200606	3.510	HDS Centric Bar	Note For easy erection of HDS towers, optional.
--------	-------	------------------------	---

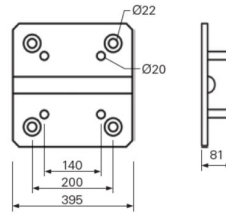
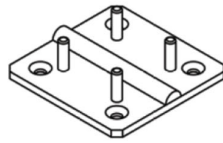


Item no.	Weight kg
200605	13.020

HDS Centric Plate

Note

For removing eccentric loads applied to HDS Screw Jack, optional.

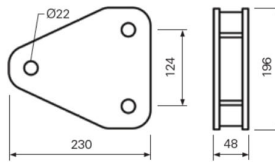
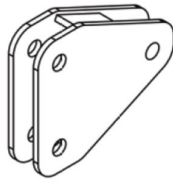


200709	4.400
--------	-------

HDS Ledger 500 Rigid

Note

For rigidly connecting HDS tower element without diagonal bracings, for crane-lifting.

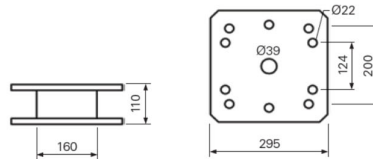
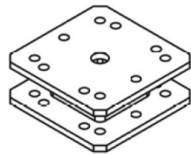


200586	24.700
--------	--------

HDS Standard 110

Note

For extending HDS Standard and attaching HDS Connector to VST Screw Jack.

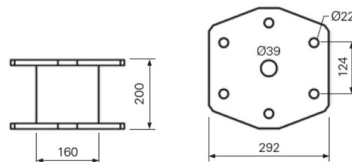
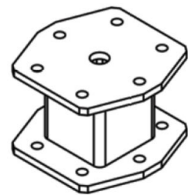


200587	29.380
--------	--------

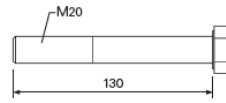
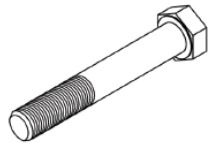
HDS Standard 200

Note

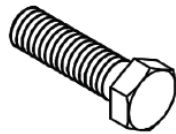
For extending HDS Standard.



Item no.	Weight kg	
200055	0.36	M20 x 130 Hex Bolt-8.8



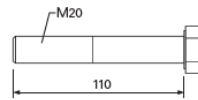
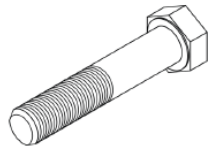
200032	0.23	M20 x 60 Hex Bolt-8.8
--------	------	------------------------------



200035	0.065	M20 Nut
--------	-------	----------------



200710	0.328	M20 x 110 Hex Bolt-10.9
--------	-------	--------------------------------



200442	0.420	M20 x 150 Hex Bolt-8.8
--------	-------	-------------------------------

