German Formwork Technology

Formwork ▪ Support Systems ▪ Services

GFT20 Support Tower System

Assembly and Application Guide

Product Information and Features

Contents

Product Information

The GFT20 Support Tower is a load-bearing tower with base dimensions of 1.00m x 1.00m. By using only 5 different standard components, any required tower height can be assembled. Referring to the table of combinations on page no. 18, it is clearly shown which individual items and quantities are needed to assemble the GFT20 support tower according to the required height.

Since the Head and Base Jack's combined adjustment range exceeds 33 cm grid of the frames, any tower height can be erected. All individual components are hot-dip galvanized. The dead load of a GFT20 support tower comes up to 42 kg/ rising meter which include Head and Base Jacks.

In order to allow adaptations to inclined surface of up to 6%, the bearing plates of the Head and Base Jacks are fixed. The total adjustment range of the Head and Base Jacks is almost 60 cm.

Both vertical frames 100 and 133 require only one type of GFT20 Diagonal as bracing. Owing to the required assembly procedure, the same rigidity in all vertical planes of the tower is achieved by changing the position of frames by 90° from lift to lift.

All vertical and end frames are connected tension proof by the built-in quick-fastening connectors.

The post of the vertical frames consists of 48.3 mm dia. tube which allows mounting of bracing by common scaffold tubes with a Rigid or Swivel Coupler 48/48. The towers may have to be stabilized by horizontal anchoring at certain levels depending on the total tower height.

Details of the vertical distances for this type of stabilizing method can be taken from the relevant load tables.

The GFT20 Formwork System is designed and manufactured in accordance with BS EN 12812 : 2008, code of practice for Falsework

Product Features

A. Easy assembly - using only 5 different GFT20 components makes the assembly of the GFT20 support tower quick and easy. The heaviest part (GFT20 Frame 133) weighs 19.1 kg only.

B. Horizontal assembly - the design of the individual components of the GFT20 support tower allows the assembly of the tower safely on the ground in horizontal position. The GFT20 support tower can be safely assembled horizontally, lifted by crane and placed into position.

C. Application alternatives - due to its versatility, the GFT20 support tower offers various possibilities of applications in various field of construction such as industrial, housing, bridge construction etc.

D. Combination variations - due to high flexibility of the GFT20 support tower, the system can be combined with additional supporting frames which are closely attached to the tower in order to transfer high loads safely into the ground. The system ensures an extremely high adaptation to all structural shapes and situations.

E. Galvanization - to ensure the high quality of the GFT20 support tower, all individual components are hot-dip galvanized. Due to this, cleaning and maintenance costs are considerably low.

F. Design approval - using the GFT20 support tower allows a maximum load-bearing capacity of up to 4 X 50 kN = 200 kN. The project and design related permissible vertical and horizontal loads should be taken directly from the Design calculation and drawing issued by GFT technical department from each specification application

Important Remark

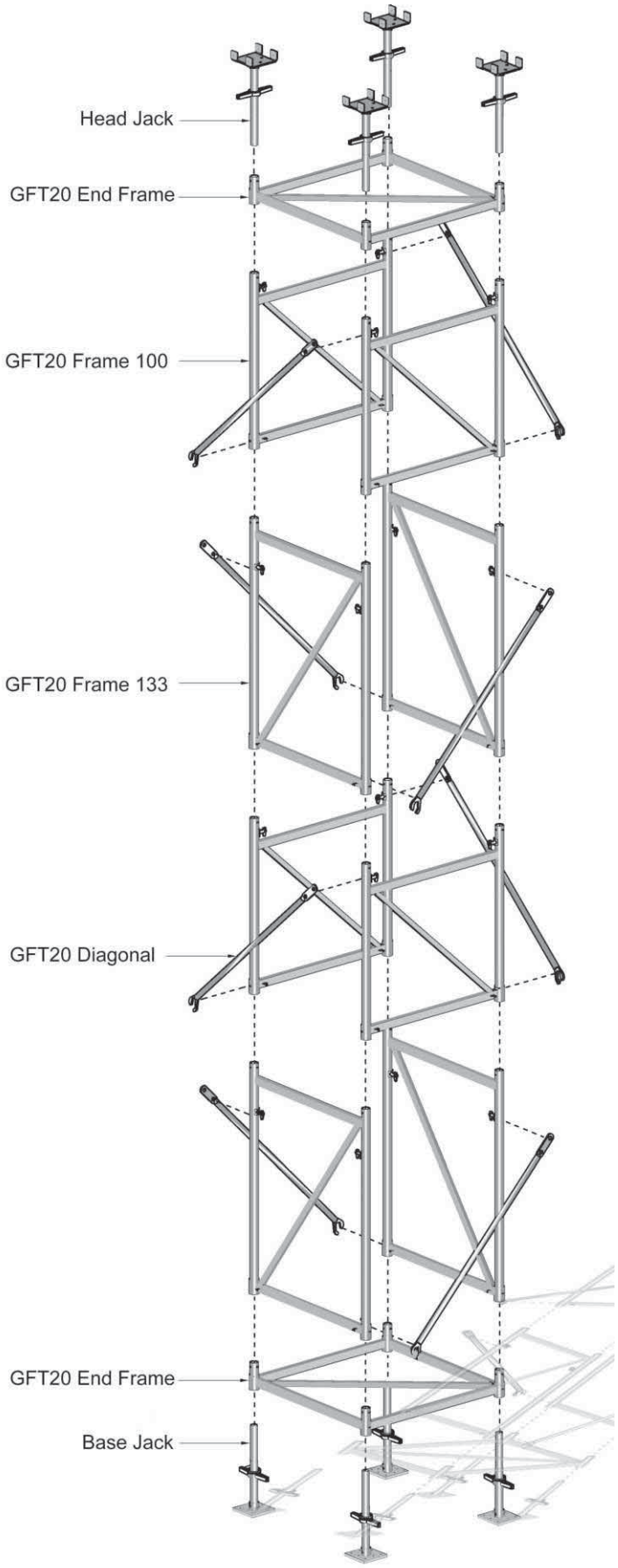
The succeeding instructions for assembly and application has to be carefully read as it contains detailed information on the proper application and handling of the GFT20 support tower. All instructions concerning technical operation and function have to be observed carefully. Please note that exceptional use of the GFT20 support tower requires a separate design calculation.

In order to ensure a technical and safe use of our product, all relevant national safety rules and regulations and safety instructions of national institutes and/or local authorities have to be observed. In general, only undamaged material and components which are in proper condition must be used.

It is important that damaged components are sorted out and removed from the construction site. In case of repairs, only original spare parts of GFT must be used.

The use of GFT formwork systems combined with other supplier's materials may involve certain dangers and therefore require an additional inspection and quality check by our formwork specialist.

Due to technical development of our system, we would like to emphasize that GFT reserves the right to revise, change, or modify any of the product's components at any time without prior notice.

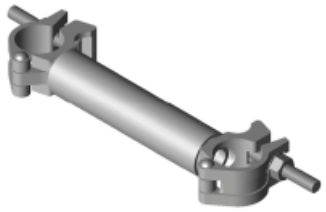

Head Jack
GFT20 End Frame
GFT20 Frame 100
GFT20 Frame 133
GFT20 Diagonal
GFT20 End Frame
Base Jack

Components

GFT20 support towers for required construction heights can be assembled using five major components of the basic equipment. Reference must always be made to the design approval of GFT20 with End Frame.

	Art. No	Weight Kg/pc.	
Head Jack 38/52 For positioning and bearing timber and or steel beams. Slope of up to 6% can be compensated by the head plate. **Height adjustment:** from 8 cm to 29.5 cm	330011	8.2	
Base Jack 38/52 Used for the assembly of the GFT20 support towers. The tower always has to be based on solid ground. Slope of up to 6% can be compensated by the base plate. Height adjustment: from 8.7 cm to 30 cm	330012	8.0	
GFT20 Frame 133 **GFT20 Frame 100** All vertical and end frames are connected tension proof by the tightly integrated wedges of the quick fastening connectors. Pins with gravity flips are supplied for fixing the diagonals. **Design height of frame:** 100 cm or 133.5 cm.	330013 330014	19.1 16.1	
GFT20 Diagonal Used as bracing for both GFT20 Frame 100 and GFT20 Frame 133. The upper end is attached to the hinged pin of the frame and the lower end with the clasp is attached to the bottom bar of the plane.	330015	2.8	
GFT20 End Frame For the assembly of the tower, the GFT20 End Frame serves as a sectional bracing of the frame support tower to stabilize and to ensure the square shape of 1.00 m. For each tower, at least two GFT20 End Frames (one at the top and one at the base) are required. **Installation height at the base: 16cm** **Installation height at the top: 9cm**	330018	15.8	

Components

	Art. No	Weight Kg/pc.	
GFT20 Adjustment Frame 33 Used for adjusting the GFT20 support tower height. It makes the adjustments of the tower height even more flexible. **Frame Structural height:** 33.5 cm.	330211	8.8	
GFT20 Diagonal 33 Used for bracing of the GFT20 Adjustment Frame 33. The lower part is fixed with the pin in the hole of the horizontal bottom bar of the frame and the upper part is fixed to the hinged pin of the opposite frame.	330212	1.9	
Frame Connection 27 Used for connection of an additional vertical frame panel to the GFT20 support tower. The distance of legs from center to center is 27 cm.	330213	2.2	
GFT20 Base Jack Retainer It is fixed to the bottom of the GFT20 End Frame and to the Base Jacks in order to prevent the Base Jacks from falling out when towers are raised and shifted by crane. Scaffold tubes 48.3 x 3.2 mm for bracing.	330215	0.1	
Scaffold Tubes			
Scaffold Tube 50	410071	1.9	
Scaffold Tube 100	410072	3.8	
Scaffold Tube 150	410073	5.7	
Scaffold Tube 200	410074	7.6	
Scaffold Tube 250	410075	9.5	
Scaffold Tube 300	410076	11.4	
Scaffold Tube 350	410077	13.3	
Scaffold Tube 400	410078	15.2	
Scaffold Tube 450	410079	17.1	
Scaffold Tube 500	410080	19.0	
Rigid Coupler 48/48 (w.a.f. 22) **Rigid Coupler 48/48 (w.a.f. 19)** Permissible Load : 9 kN Required torque : 5 kN cm	410082 410083	1.2 1.2	
Swivel Coupler 48/48 w.a.f. 22) **Swivel Coupler 48/48 w.a.f. 19)** Permissible Load : 5 kN Required torque : 5 kN cm	410084 410085	1.2 1.2	

Erection and Dismantling

Guidelines and Instructions

A. Pre-assemble the GFT20 support towers according to the required height combinations and the planned assembly sequence.

B. Adjustment of the Head and Base Jacks should be done roughly to the requested extension height. The Head Jack must have enough reserve adjustment length to quickly release it from its load when dismantling the towers.

C. For lifting the pre-assembled towers into position by crane, attach the crane ropes to the horizontal members of the upper frames. Please note that the GFT20 End Frame nor the Head Jacks should not be used for lifting.

D. Base Jacks may only stand on a solid and sturdy foundation. The maximum allowable inclination is up to a maximum of 6%.

E. During erection of the towers, make sure that the vertical Frames 100 and 133 are installed perpendicularly.

F. Install bracing by Scaffold Tubes and Couplers in order to take over horizontal forces, if required, for statical reasons or other technical requirements.

G. During erection and striking, it is important to consider simple auxiliary bracing or any other type of provisions in order to avoid tilting the GFT20 support towers. In most cases, the installation of horizontal Scaffold Tubes which are connected to the adjacent legs of towers by means of Rigid/Swivel Couplers 48/48 may be adequate. Due to statical requirements, it is advisable to fix the Scaffold Tube of the bracing as close as possible to existing structural parts such as walls or columns for safe transmittal of forces. Also, a single support tower has to be stabilized to the ground by Scaffold Tubes and Couplers.

H. It is recommended to carry out the final height adjustment (leveling) at the Head Jacks after placing the primary beams into position. Since the Head Jack can adapt up to a 6% inclination, greater inclinations have to be compensated by means of wooden wedges or leveling steel plates.

I. All aspect of the approval and statical computation has to be followed.

Dismantling:

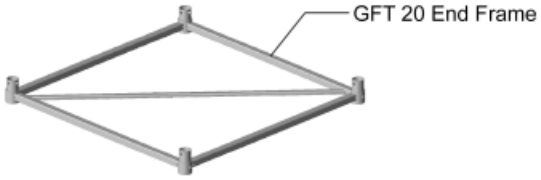
For lowering the support system, it is advisable to release first the Head Jacks of the tower.

The dismantling of the frame support can be started after the H20 Timber Beams and/or steel beams/lattice girders have been removed from the top of the lowered support towers.

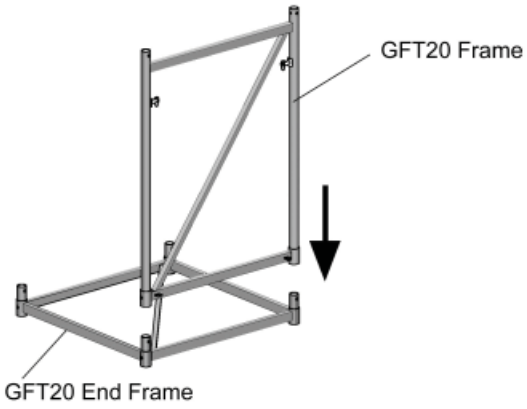
Dismantling of the tower in an upright position starts by removing the Head Jacks and by releasing and taking away one component after the other.

Erection Sequence

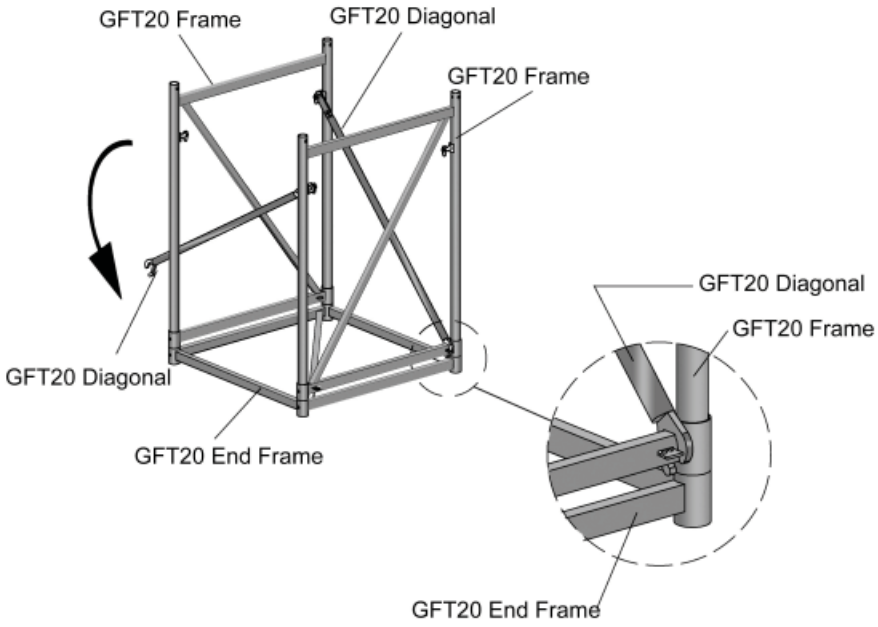
A. Place the GFT20 End Frame on an even assembly ground within the working range of the crane.



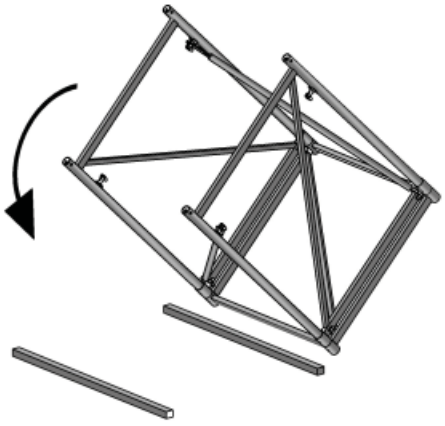
B. Insert 2 frames into the GFT20 End Frame and lock them by means of the quick-fastening connectors



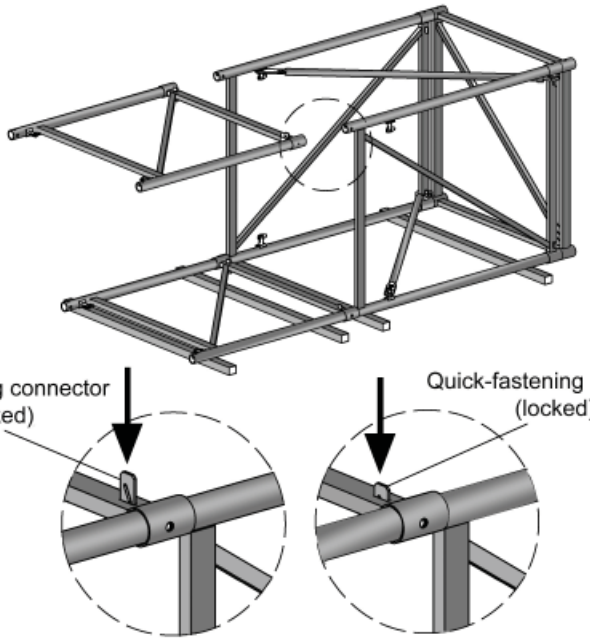
C. Fix the GFT20 Diagonal with its lower end over the horizontal member of the vertical frame.



D. Turn the assembled unit on its side in order to complete assembly in a horizontal and safe manner.



E Fix further horizontal frames and lock them with quick-fastening connectors.



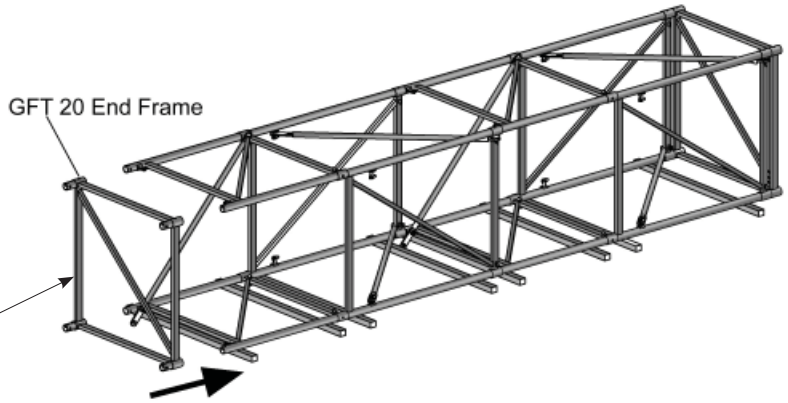
Note

Prior to lifting into position the pre-assembled towers by crane, make sure the crane ropes are attached to the horizontal members of the upper frames.

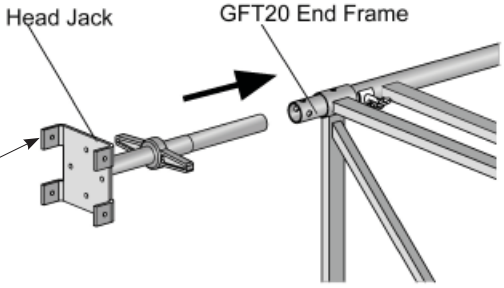
Attention

Prior to lifting into position the pre-assembled towers by crane, make sure the crane ropes are attached to the horizontal members of the upper frame

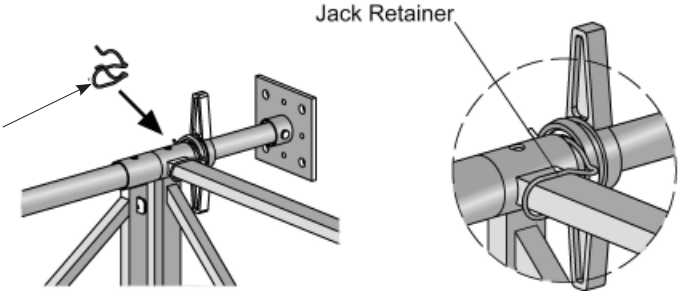
F Continue attaching additional vertical frames as described previously until the required combination height has been reached.



G. Fix GFT20 End Frame on the last 2 vertical frames.



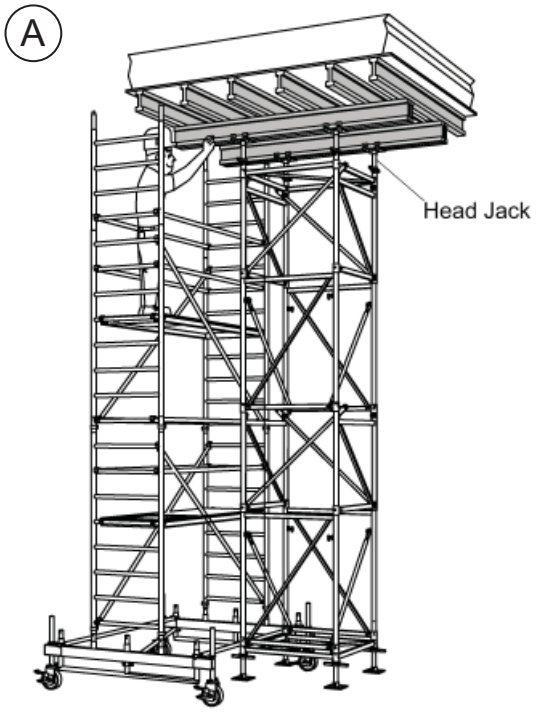
H. Finally, insert Head Jacks into the GFT20 End Frame.



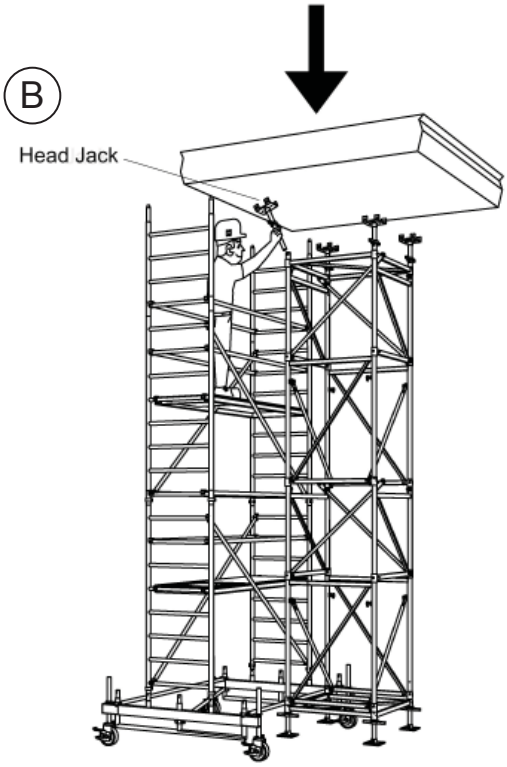
I. Insert jack retainer to secure base jack in place

Dismantling

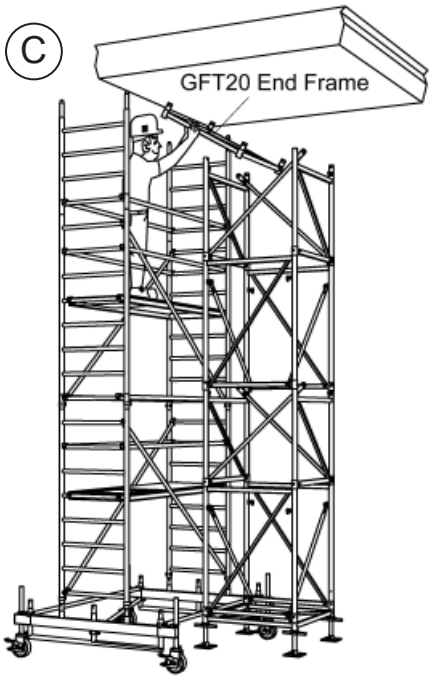
It is advisable to carry out assembly and dismantling works from mobile scaffolding or from a working platform



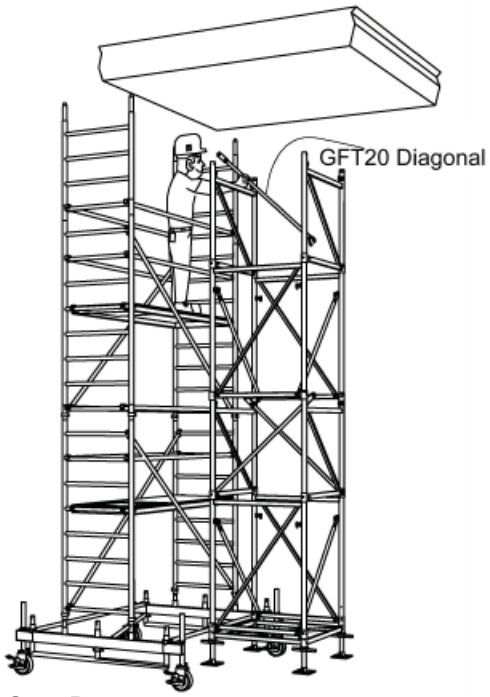
Step A: Dismantling starts by lowering the Head Jacks. The supported slab formwork has to be removed in accordance with the assembly and use guide of the formwork system applied.



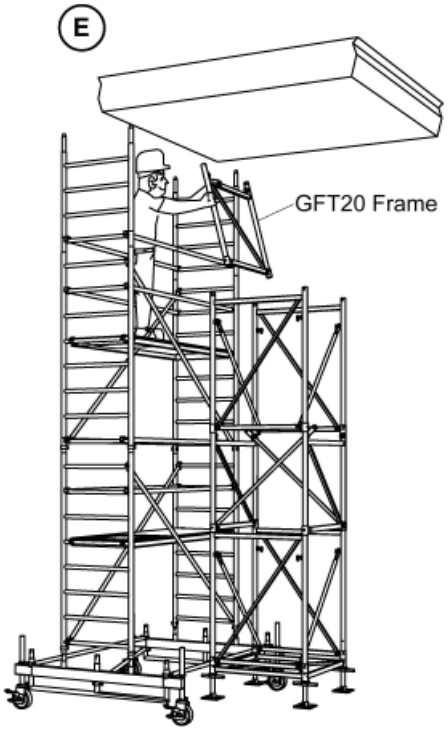
Step B: Dismantling of Head Jack



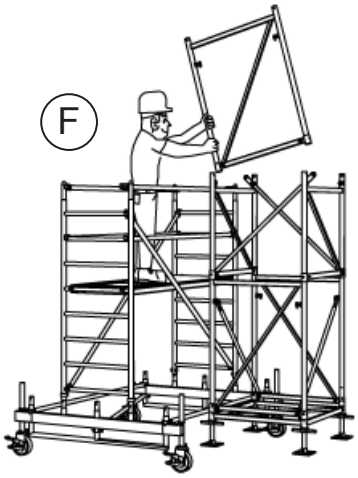
Step C: Dismantling of GFT20 End Frame



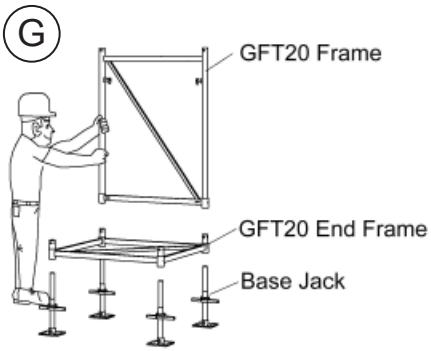
Step D: Dismantling of GFT20 Diagonal



Step E: Dismantling of GFT20 Frame

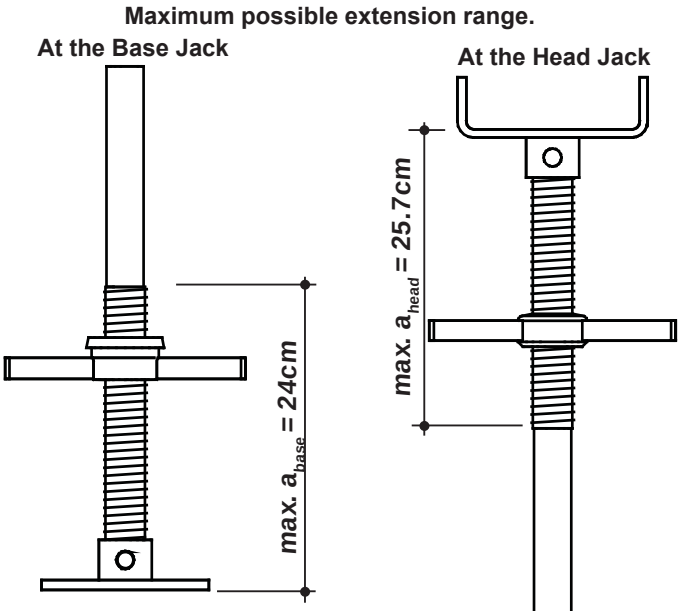


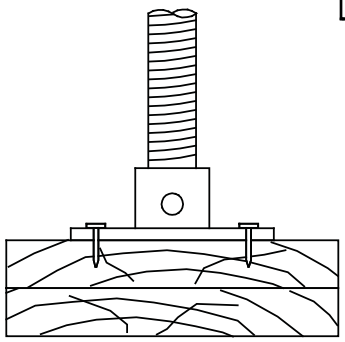
Step F: The working height of the mobile scaffold has to be adopted to the required height for all operations during erection and dismantling.



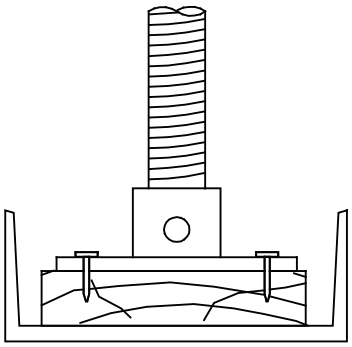
Step G: After removing the last two vertical frames at the bottom, the GFT20 End Frame can be easily lifted and taken away from the 4 Base Jacks.

Shifting Variations



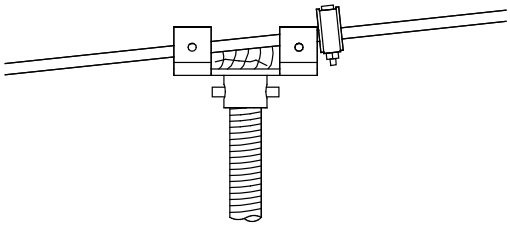


Wooden planks



Wooden plank in U-channel Steel profile

The head plate adapts to slope of up to 6%



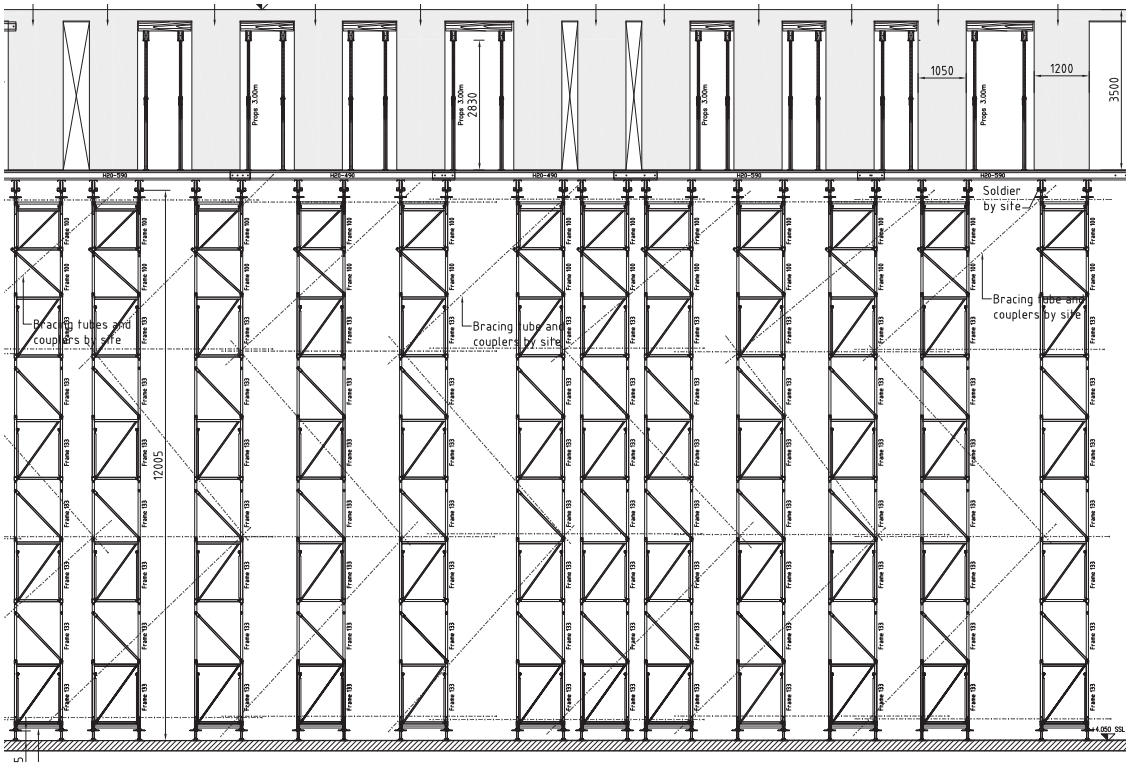
Wooden wedge for compensating inclination of primary beam (e.g. H20 Timber Beam, steel beam or lattice girder)

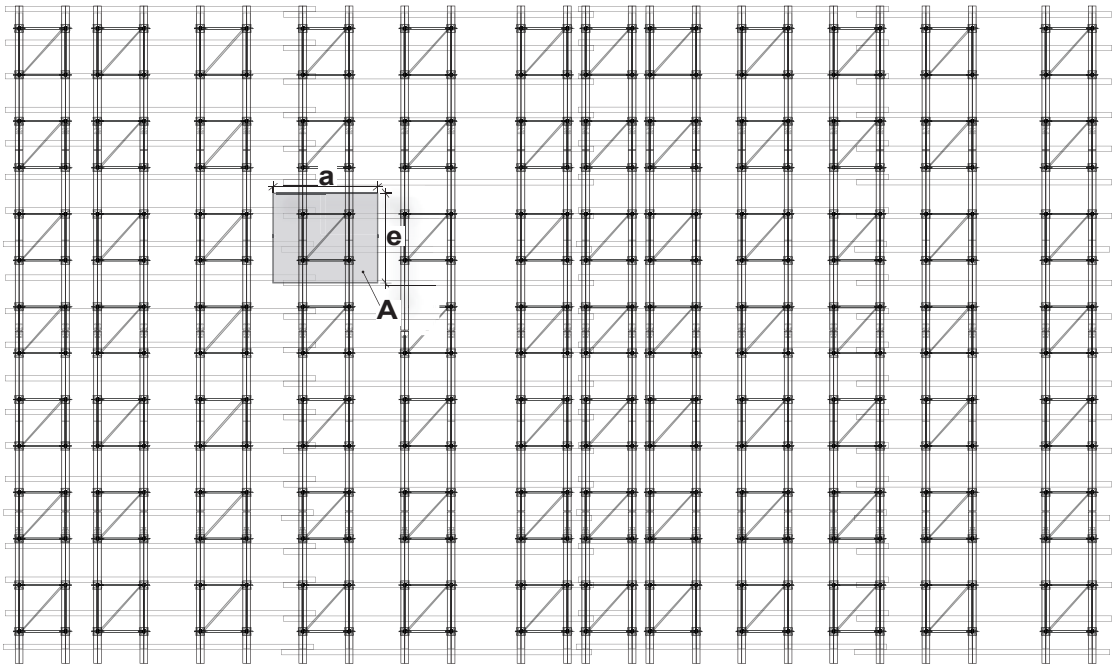
The longitudinal and cross directional distances of the GFT20 support towers have to be determined according to the vertical loads on the towers as shown in the corresponding statical computation.

Assumption (V-load):

Dead load of concrete, dead load of formwork, live load.
Horizontal loads from wind pressure and V/100 require bracing (Scaffold Tubes and Couplers) between towers for false work stability.

Sample Application in Heavy Bridge





A= e x a

The fast and easy erection of GFT20 support tower is significantly improved by proper application of design and preparatory work.

Application Design

Latest design analyses approval, shop drawings, corresponding material list and the assembly and application guide should be completely turned over to the job site.

Preparation for Erecting

A. Prior to erecting the support towers, all materials have to be carefully checked with regards to the quality and quantity.

B. Damaged or unusable parts should be separated and removed from the site. Head Jack bearing plates with too much slope are also considered damaged.

C. Before proceeding with the erection of the GFT20 support tower, make sure that Base Jacks with its End Frame are based on solid ground or foundation.

D. Make sure that the site staff receive necessary information and a copy of the assembly and application guide.

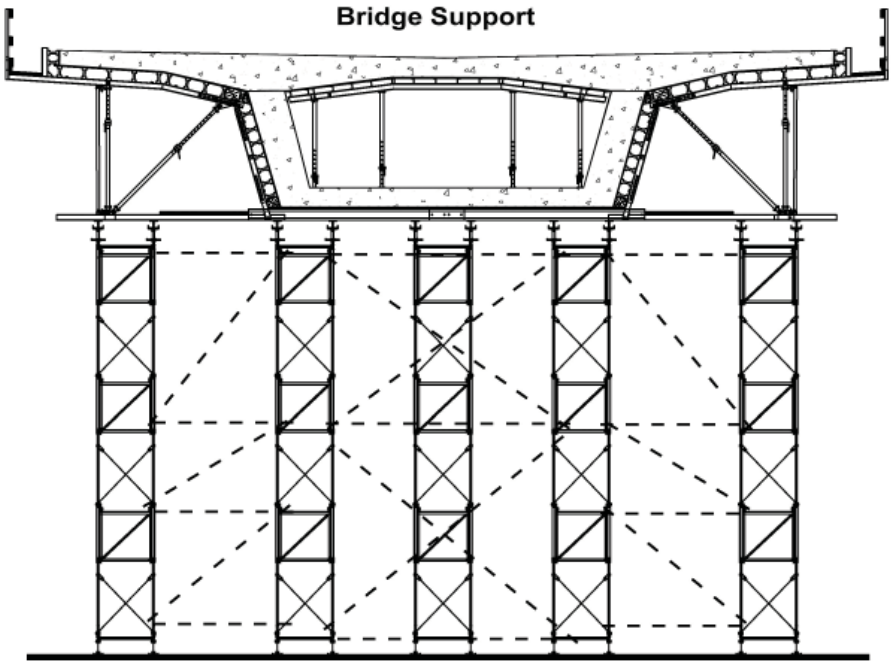
Static Basics for the Design Calculation

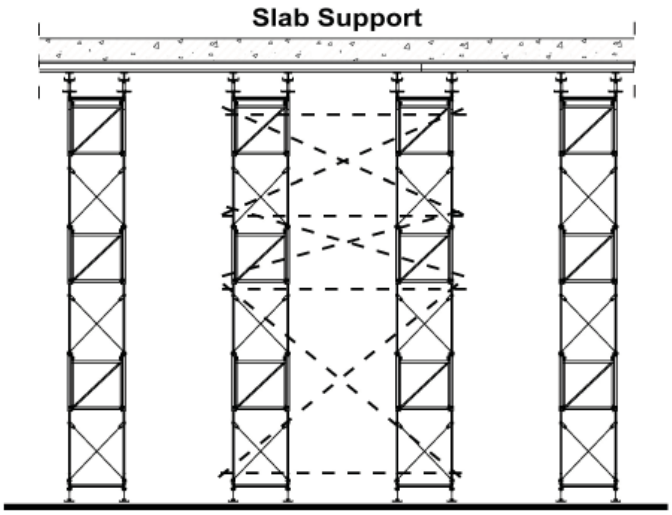
Weight density of freshly placed concrete:
γ_c=26.0 kN/m3

Dead load resulting from formwork of superstructure, shoring structure, timber beams, lattice girders or steel beams.

Assumption of live loads according to DIN 4421.

Assumption for horizontal loads from wind pressure according to DIN 1055, part 4.





To ensure that additional loads have no statical impact on the formwork due to lateral concrete preassure, Tie Road and Tie Anchors must be used to take over these additional loads.

* Wind preassure

q = 0	with the building (no wind)
q = 0.5 kN / m²	0-8 m over ground
q = 0.8 kN / m²	> 8-20 m over ground
q = 1.1 kN / m²	> 20-100 m over ground

shape coefficient for GFT20 tower: **1.3**

* Wind load per rising “m” of GFT20 1.3. 0.4 m2/m · q

	= 0.52m2/m . q
0 to 8 m	= 0.52 · 0.5 = 0.26 kN/m
> 8 to 20 m	= 0.52 · 0.8 = 0.42 kN/m
> 20 to 100 m	= 0.52 · 1.1 = 0.57 kN/m

Load-Bearing Capacity

The sample diagrams below illustrate the load-bearing capacity of the GFT20 support tower. All applicable features and standards should be taken into consideration for design calculation and execution of a shoring system.

Statical computation based on DIN 4421 uses the following general formula:

$$\gamma_T \cdot v \leq \text{perm}, v$$

legend:

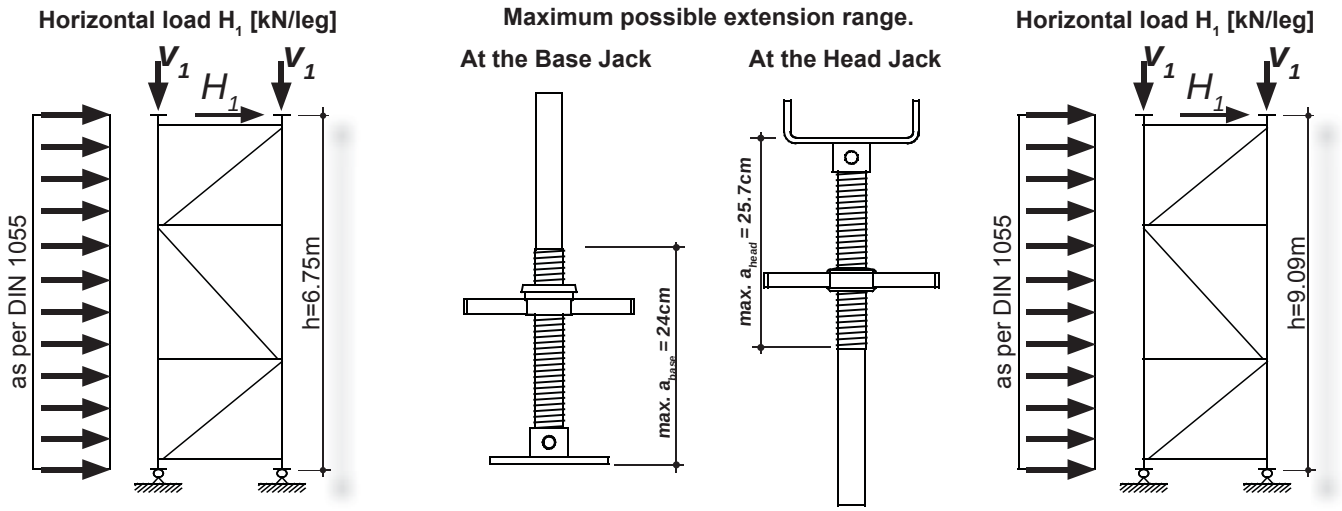
γ_T group factor as to DIN 4421
v existing vertical load
perm.v Permissible vertical load

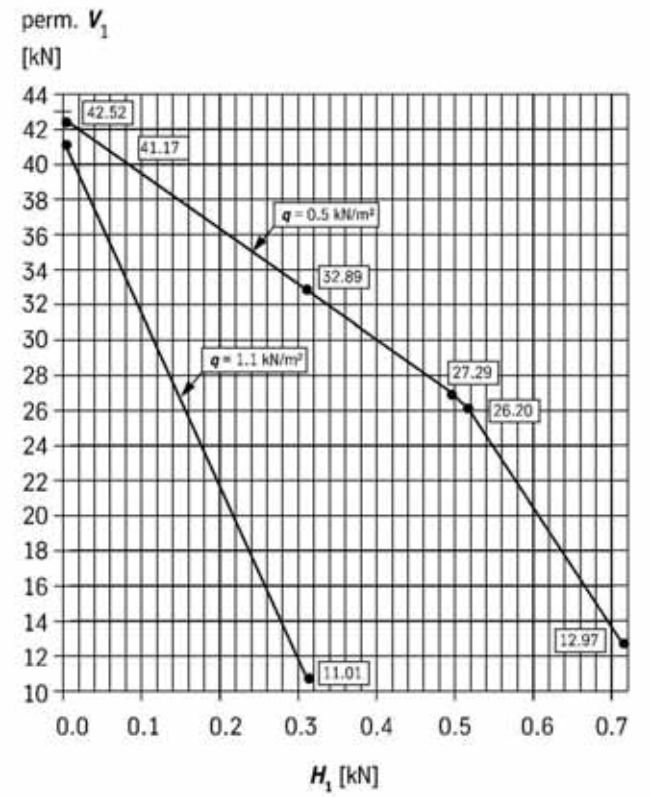
Sample - A

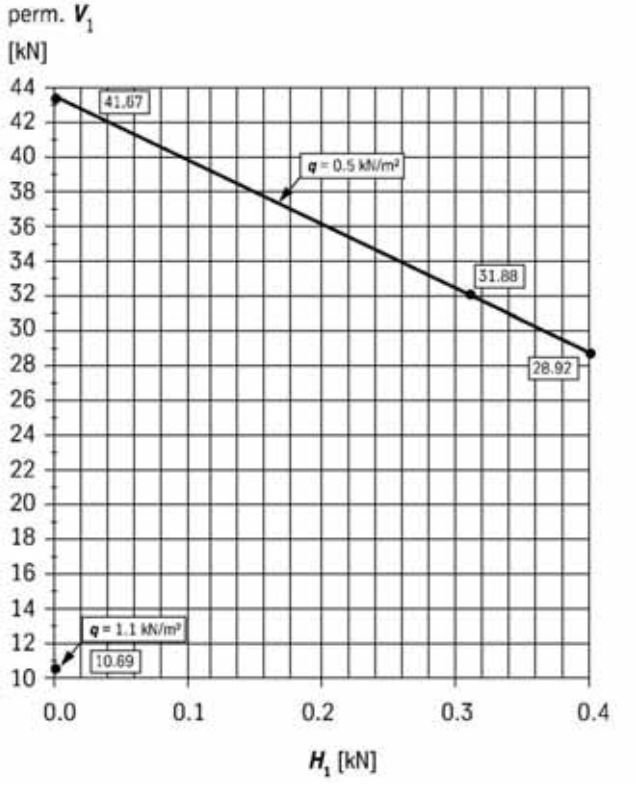
Combination of permissible horizontal and vertical loads for a self-supporting GFT20 support tower with a tower height of 6.75 m.

Sample - B

Combination of permissible horizontal and vertical loads for a self-supporting GFT20 support tower with a tower height of 9.09 m.







Load-Bearing Capacity

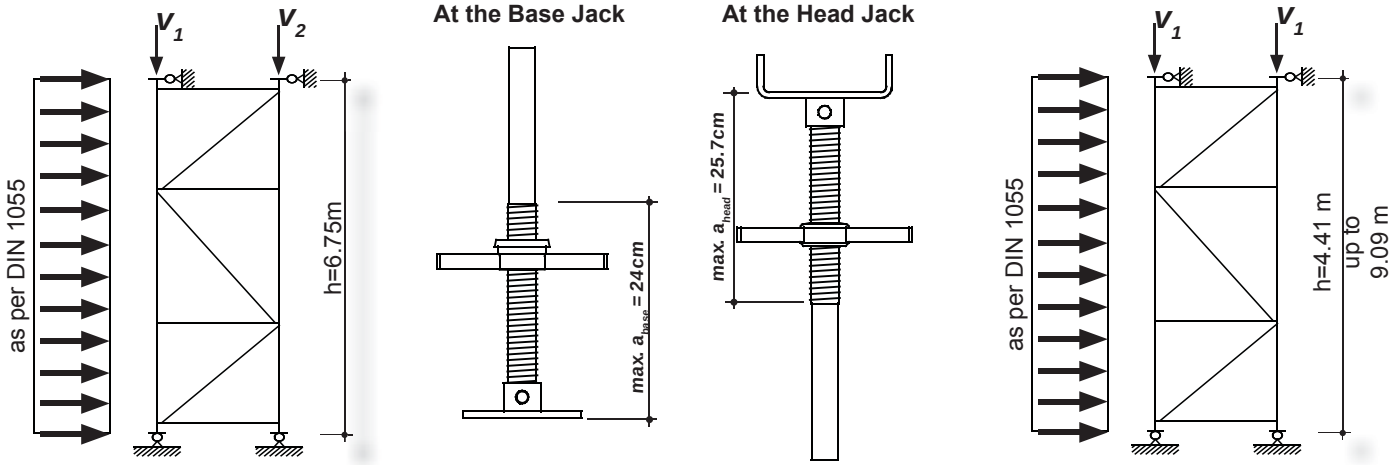
Sample - C

Permissible vertical loads (with different loads per leg) for GFT20 support tower which is supported at the head. Horizontal loads must be taken and transmitted above the Head Jacks.

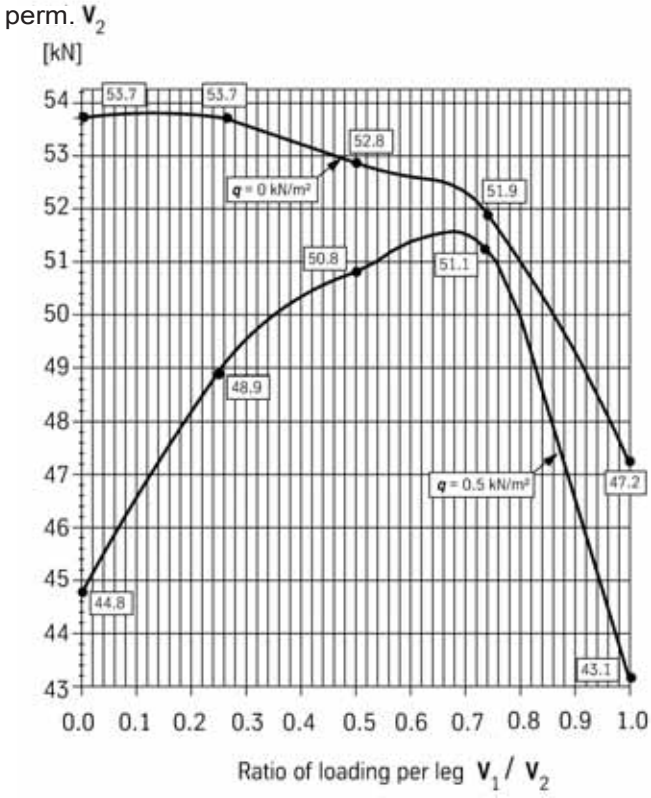
Sample - D

Permissible vertical loads for GFT support tower which is supported at the head. Horizontal loads must be taken away and transmitted above the Head Jacks.

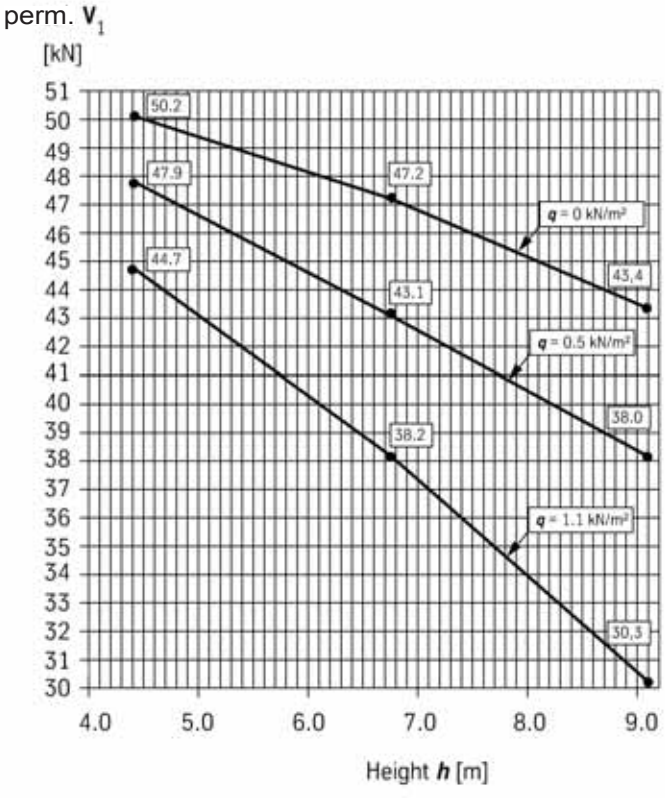
Maximum possible extension range.



Height of tower h = 6.75 m



Height of tower from 4.41 m up to 9.09 m



GFT20 support tower with H20 Timber Beam

Secondary beam distance (m)

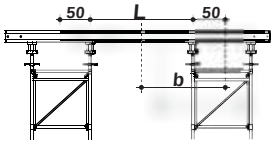
Deflections of beams are limited to L/500.
Please note that the above loading table should be considered as a general indication for technical elaborations but does not replace an individual structural proof for the final stability of the whole structure.

Load assumptions

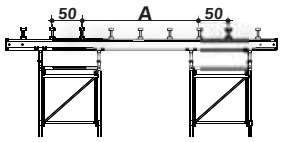
$\mathbf{w_f}$ dead load for formwork = 0.25 kN/m²
$\mathbf{w_c}$ load of concrete = **t** [m] x 25.0 kN/m³
weight density of concrete = 25 kN/m³
p live load p = 0.75+(0.75≤0.1 x W_C≥1.75) kN/m²
Total load $\boldsymbol{q = w_f + w_c + p}$ [kN/m²]

Loading Table (with H20 secondary beam and Double H20 primary beams)

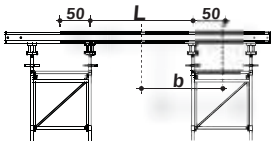
	"**t**" slab thickness [cm]													
	"**q**" total loading [kN/m²]													
	14	16	18	20	22	24	26	28	30	35	40	45	50	55
	5.00	**5.50**	**6.00**	**6.50**	**7.00**	**7.50**	**8.00**	**8.50**	**9.00**	**10.38**	**11.75**	**13.13**	**14.50**	**15.88**
Secondary beam distance (m)	L = permissible distance of secondary beam [m]													
0.20	4.00	4.00	4.00	4.00	3.94	3.83	3.73	3.65	3.57	3.39	3.25	3.13	3.02	2.93
0.33	3.83	3.68	3.54	3.43	3.32	3.23	3.15	3.08	3.01	2.86	2.74	2.64	2.55	2.47
0.40	3.61	3.46	3.33	3.22	3.13	3.04	2.96	2.89	2.83	2.69	2.58	2.48	2.40	2.32
0.50	3.35	3.21	3.09	2.99	2.90	2.82	2.75	2.69	2.63	2.50	2.39	2.30	2.22	2.14
0.63	3.11	2.98	2.87	2.78	2.69	2.62	2.55	2.49	2.44	2.32	2.22	2.12	2.01	1.92
0.67	3.04	2.92	2.81	2.72	2.64	2.56	2.50	2.44	2.39	2.27	2.17	2.05	1.95	1.86
0.75	2.92	2.80	2.70	2.61	2.54	2.47	2.40	2.35	2.29	2.18	2.05	1.93	1.83	1.68



b loading widths [m] (b=L/2 + 0.5 m)	**"A" Permissible distance of primary beams [m]**(double beams: 2 x H20 Timber Beams)													
	Resulting loads per leg [kN]													
1.00	3.35	3.21	3.09	2.99	2.90	2.82	2.75	2.69	2.63	2.50	2.39	2.30	2.22	2.14
	10.88	11.58	12.27	12.97	13.65	14.33	15.00	15.68	16.34	18.16	19.92	21.66	23.35	24.92
1.25	3.11	2.98	2.87	2.78	2.69	2.62	2.55	2.49	2.44	2.32	2.22	2.12	2.01	1.92
	12.84	13.68	14.51	15.36	16.14	16.97	17.75	18.54	19.35	21.53	23.65	25.59	27.28	28.97
1.50	2.92	2.80	2.70	2.61	2.54	2.47	2.40	2.35	2.29	2.18	2.05	1.93	1.83	1.68
	14.70	15.68	16.65	17.60	18.59	19.52	20.40	21.36	22.21	24.74	26.88	28.84	30.78	31.91
1.75	2.78	2.66	2.57	2.48	2.41	2.34	2.28	2.23	2.18	2.02	1.9	1.76	1.59	1.44
	16.54	17.61	18.74	19.79	20.89	21.92	22.96	24.02	25.04	27.42	29.82	31.70	32.86	33.89
2.00	2.66	2.55	2.46	2.37	2.3	2.24	2.17	2.1	2.04	1.89	1.73	1.54	1.39	1.26
	18.30	19.53	20.76	21.91	23.10	24.30	25.36	26.35	27.36	29.98	32.08	33.34	34.66	35.88
2.25	2.55	2.45	2.35	2.26	2.18	2.11	2.04	1.98	1.92	1.75	1.54	1.37	1.23	1.12
	19.97	21.35	22.61	23.84	25.04	26.24	27.36	28.50	29.57	32.10	33.58	34.99	36.38	37.86
2.50	2.44	2.33	2.23	2.15	2.07	2	1.94	1.88	1.82	1.58	1.38	1.23	1.11	1.01
	21.50	22.89	24.23	25.59	26.86	28.13	29.40	30.60	31.73	33.46	34.96	36.59	38.24	39.89



	"**t**" slab thickness [cm]													
	"**q**" total loading [kN/m²]													
	60	65	70	75	80	85	90	95	100	105	110	115	120	125
	17.25	**18.63**	**20**	**21.25**	**22.5**	**23.75**	**25**	**26.25**	**27.5**	**28.75**	**30**	**31.25**	**32.5**	**33.75**
Secondary beam distance (m)	L = permissible distance of secondary beam [m]													
0.20	2.84	2.77	2.70	2.64	2.59	2.54	2.49	2.45	2.40	2.37	2.33	2.30	2.26	2.23
0.33	2.40	2.34	2.28	2.23	2.18	2.12	2.06	2.00	1.96	1.92	1.88	1.85	1.81	1.75
0.40	2.26	2.20	2.13	2.06	1.99	1.93	1.88	1.83	1.76	1.69	1.62	1.56	1.51	1.46
0.50	2.05	1.97	1.90	1.84	1.75	1.64	1.55	1.47	1.41	1.35	1.30	1.25	1.21	1.17
0.63	1.84	1.71	1.59	1.49	1.40	1.31	1.24	1.18	1.13	1.08	1.04	1.00	—	—
0.67	1.74	1.61	1.49	1.39	1.31	1.23	1.16	1.10	1.06	1.01	—	—	—	—
0.75	1.55	1.43	1.33	1.24	1.16	1.10	1.04	—	—	—	—	—	—	—



b loading widths [m] (b=L/2 + 0.5 m)	**"A" Permissible distance of primary beams [m]**(double beams: 2 x H20 Timber Beams)													
	resulting loads per leg [kN]													
1.00	2.05	1.97	1.90	1.84	1.75	1.64	1.55	1.47	1.41	1.35	1.30	1.25	1.21	1.17
	26.31	27.66	29.00	30.18	30.94	31.35	31.88	32.42	33.14	33.78	34.50	35.16	35.91	36.62
1.25	1.84	1.71	1.59	1.49	1.4	1.31	1.24	1.18	1.13	1.08	1.04	1.00		
	30.62	31.55	32.38	33.07	33.75	34.29	35.00	35.77	36.61	37.38	38.25	39.06		
1.50	1.55	1.43	1.33	1.24	1.16	1.10	1.04							
	32.99	33.94	34.95	35.70	36.45	37.41	38.25							
1.75	1.33	1.22	1.14	1.06										
	35.17	36.18	37.45	38.30										

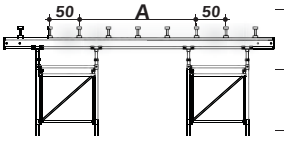


Table of Various Combinations & Material Lists

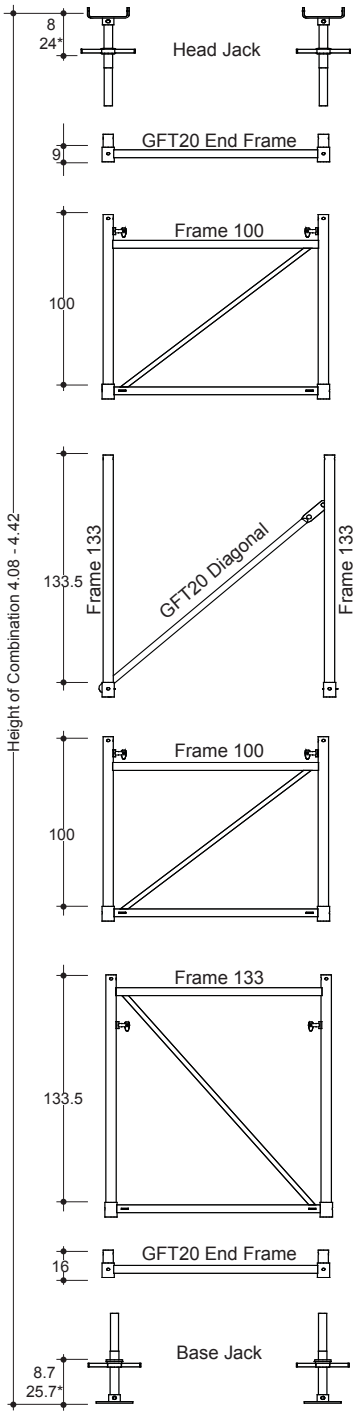
Art No.:	330011	330012	330013	330014	330018	330015	
Weight/item [kg]	8.2	8.0	19.1	16.1	15.8	2.8	Weight of
Height of tower M	**Head Jack**	**Base Jack**	**GFT 20 Frame 133**	**GFT 20 Frame 100**	**GFT 20 End Frame**	**GFT 20 Diago-nal**	tower kg
1.42 - 1.75	4	4	-	2	2	2	134.2
1.75 - 2.08	4	4	2	-	2	2	140.2
1.85 - 2.17	4	4	2	-	2	2	156.0
1.93 - 2.26	4	4	2	-	2	2	171.8
2.42 - 2.75	4	4	-	4	2	4	172.0
2.75 - 3.08	4	4	2	2	2	4	178.0
3.09 - 3.42	4	4	4	-	2	4	184.0
3.42 - 3.75	4	4	-	6	2	6	209.8
3.75 - 4.08	4	4	2	4	2	6	215.8
4.09 - 4.72	4	4	4	2	2	6	221.8
4.42 - 4.75	4	4	6	-	2	6	227.8
4.75 - 5.08	4	4	2	6	2	8	253.6
5.09 - 5.42	4	4	4	4	2	8	259.6
5.42 - 5.75	4	4	6	2	2	8	265.6
5.76 - 6.09	4	4	8	-	2	8	271.6
6.09 - 6.42	4	4	4	6	2	10	297.4
6.42 - 6.75	4	4	6	4	2	10	303.4
6.76 - 7.09	4	4	8	2	2	10	309.4
7.09 - 7.42	4	4	10	-	2	10	315.4
7.42 - 7.75	4	4	6	6	2	12	341.2
7.76 - 8.09	4	4	8	4	2	12	347.2
8.09 - 8.42	4	4	10	2	2	12	353.2
8.43 - 8.76	4	4	12	-	2	12	359.2
8.76 - 9.09	4	4	8	6	2	14	385.0
9.09 - 9.42	4	4	10	4	2	14	391.0
9.43 - 9.76	4	4	12	2	2	14	397.0
9.76 - 10.09	4	4	14	-	2	14	403.0
10.09 - 10.42	4	4	10	6	2	16	428.8
10.43 - 10.76	4	4	12	4	2	16	434.8
10.76 - 11.09	4	4	14	2	2	16	440.8
11.10 - 11.43	4	4	16	-	2	16	446.8
11.43 - 11.76	4	4	12	6	2	18	472.6
11.76 - 12.09	4	4	14	4	2	18	478.6
12.10 - 12.43	4	4	16	2	2	18	484.6
12.43 - 12.76	4	4	18	-	2	18	490.6
12.76 - 13.09	4	4	14	6	2	20	516.4
13.10 - 13.43	4	4	16	4	2	20	522.4
13.43 - 13.76	4	4	18	2	2	20	528.4
13.77 - 14.10	4	4	20	-	2	20	534.4
14.10 - 14.43	4	4	16	6	2	22	560,2
14.43 - 14.76	4	4	18	4	2	22	566,2
14.77 - 15.10	4	4	20	2	2	22	572,2
15.10 - 15.43	4	4	22	-	2	22	578,2
15.43 - 15.76	4	4	18	6	2	24	604.0
15.77 - 16.10	4	4	20	4	2	24	610.0
16.10 - 16.43	4	4	22	2	2	24	616.0
16.44 - 16.77	4	4	24	-	2	24	622.0
16.77 - 17.10	4	4	20	6	2	26	647.8
17.10 - 17.43	4	4	22	4	2	26	653.8
17.44 - 17.77	4	4	24	2	2	26	659.8
17.77 - 18.10	4	4	26	-	2	26	665.8
18.10 - 18.43	4	4	22	6	2	28	691.6
18.44 - 18.77	4	4	24	4	2	28	697.6
18.77 - 19.10	4	4	26	2	2	28	703.6
19.10 - 19.44	4	4	28	-	2	28	709.6
19.44 - 19.77	4	4	24	6	2	30	735.4
19.77 - 20.10	4	4	26	4	2	30	714.4

For the calculation of the required assembly and dismantling guiding figures should be taken into consideration:

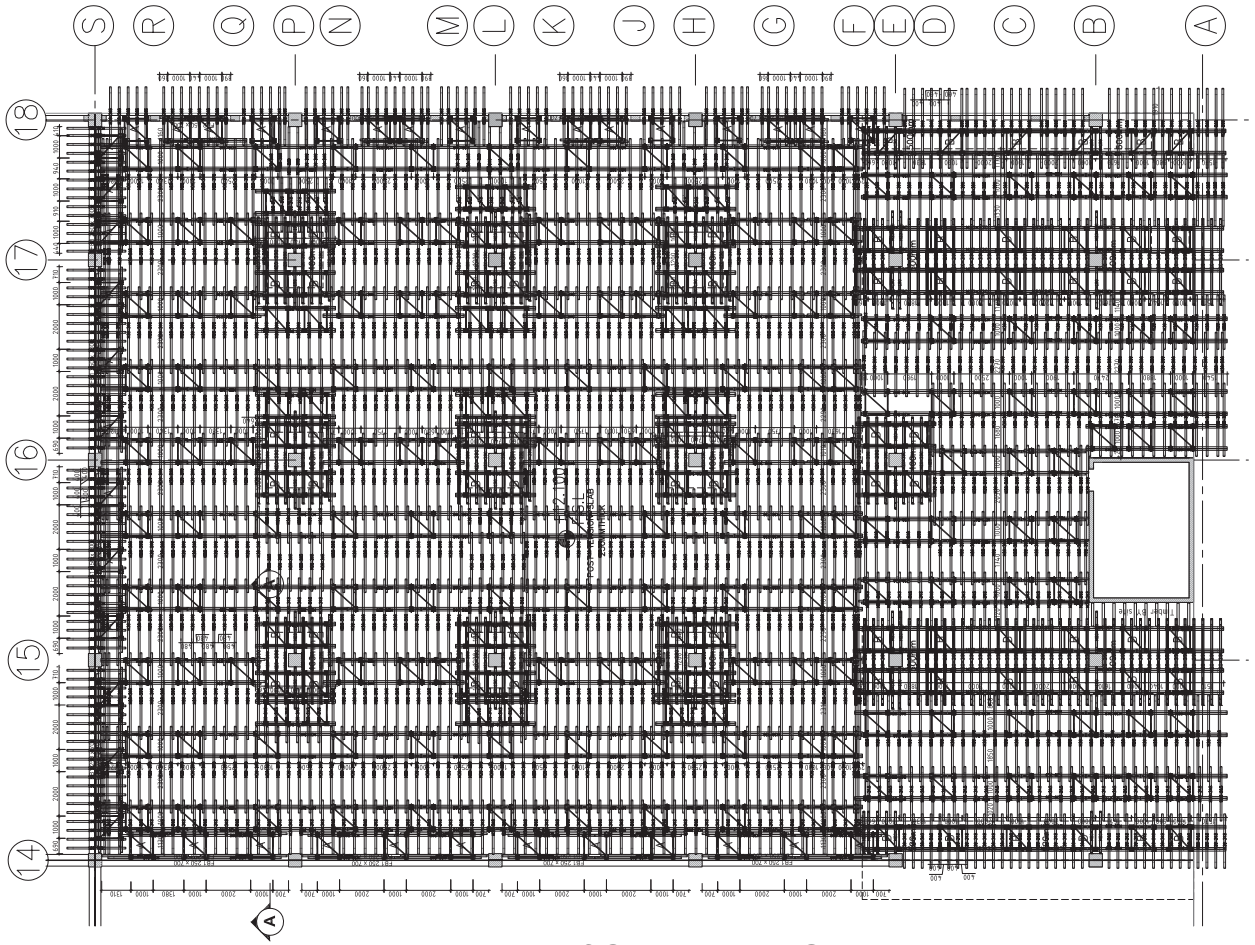
for each procedure, (assembling and dismantling) approximately 4 hours per ton on an average should be calculated based on 0.17 hours per rising meter.

the required time for tubes and couplers should be calculated as 25 to 30 hours based on the weight of the GFT20 support tower.

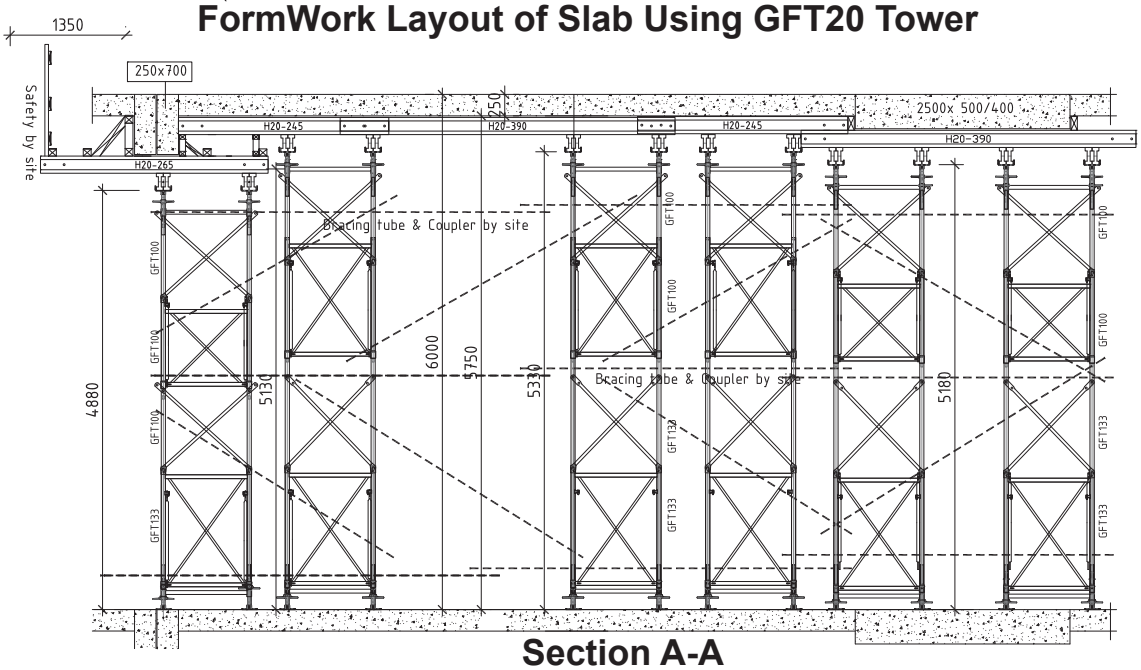
GFT20 Support Tower
Combination Sample



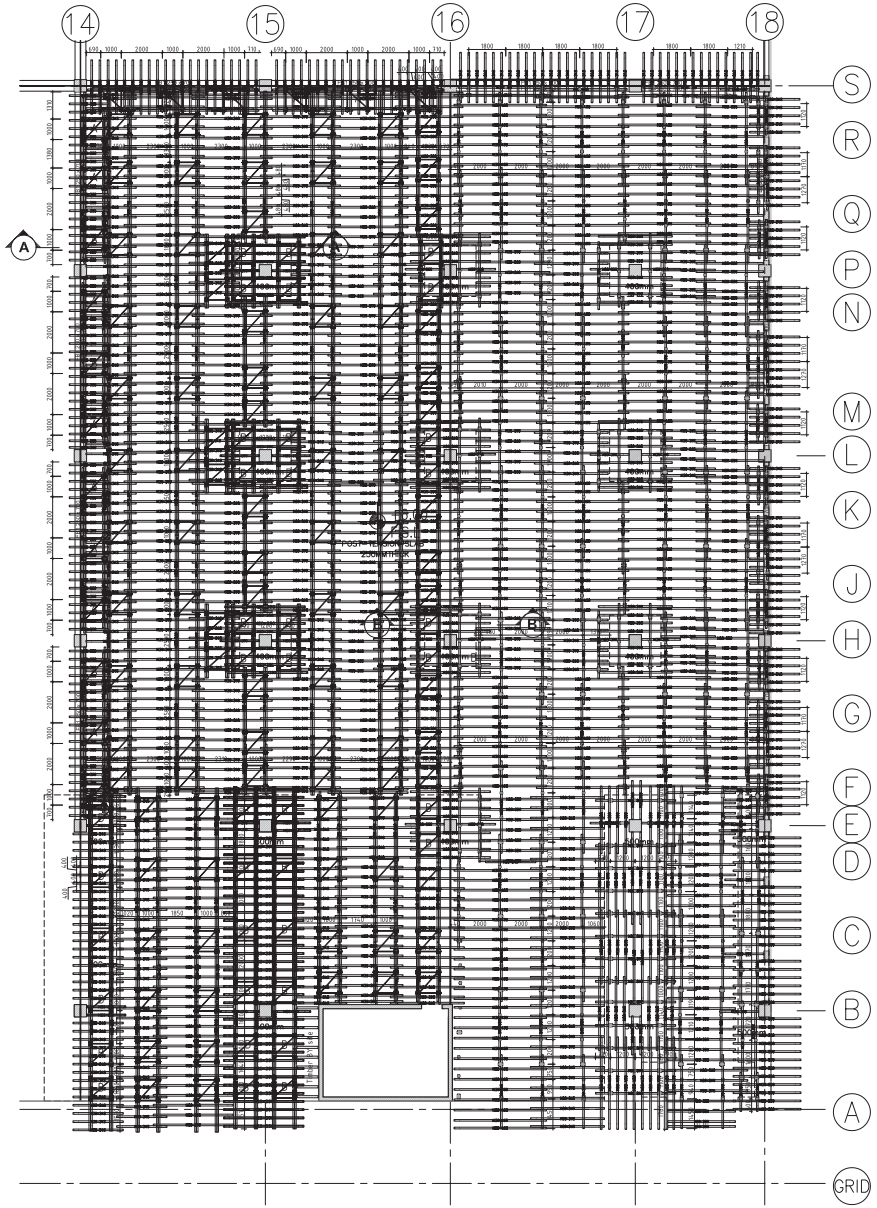
A. All the Shop drawing, Technical data & the Statical calculation will be Submitted by GFT in accordance with the structural drawing project requirement
B. The site erection should be done as per GFT's shop drawing and shall be supervised and inspected by GFT's formwork specialist
C. The spacing and positioning of the Formwork material are arranged based on the statical requirements and as shown in the GFT's execution drawing & Calculation



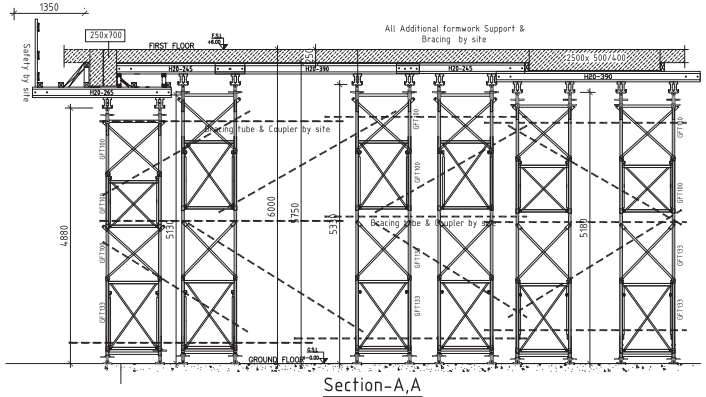
FormWork Layout of Slab Using GFT20 Tower



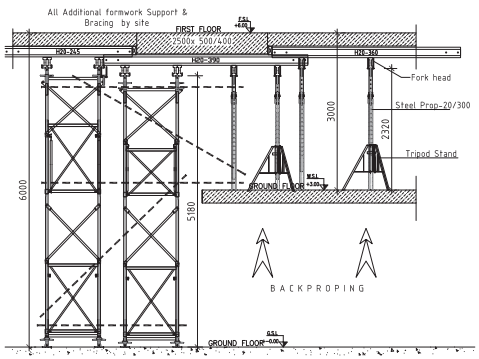
Section A-A



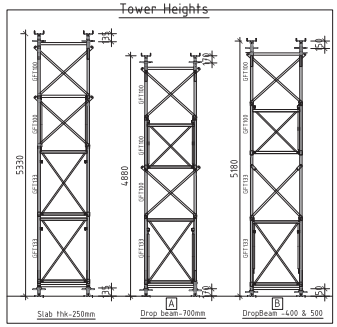
Planview for First Floor Slab Formwork Layout (Grid 14to18 & StoA) (GFT20) Zone-1A1



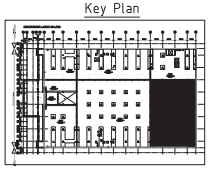
Section-A,A



Section-B,B



Key Plan



PLEASE NOTE FOR:

Slab thickness up to 25 cm
Max. Tower distance = 250X230cm
Max. distance between secondary beam = 48 cm
Otherwise Noted

Slab thickness up to 25 cm
Max. Main Beam distance = 200cm
Max. Prop distance = 120cm
Max. distance between secondary beam = 48 cm
Otherwise Noted

For Drop Beams Max. distance-
between secondary beam = 40 cm

All Timber Formwork & support by site

This drawing is valid only with the associated assembly instructions. Measurements have to be verified on site.

Date	Name	Revision	Remark	Index
				Index C
12/05/2009	Shibu	00	formwork revised asper client reqments	Index B
05/05/2009	Shibu	00	issued for approval.	Index A

Drawing,NC:	
Scale:	NTS
Drawn	GFT-CON-SLB-THN-FR-02
Date	Name
29-04-2009	Shibu

Project
MADINAT SHOPPING CENTER
AbuDhabi - U.A.E.
First Floor Slab / FORMWORK LAYOUT
(USING GFT20 SYSTEM) ZONE-1A1 - Total-1806m2

Client
THINET CIVIL CONTRACTING

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