



Support Frame STB

Load charts

Support frame

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Support frame

Preliminary notes

The following load charts are based on the assumption that the fresh-concrete pressure (maximum hydrostatic fresh-concrete pressure for normal concrete, specific weight $\gamma = 25 \text{ kN/m}^3$) acts over the entire height.

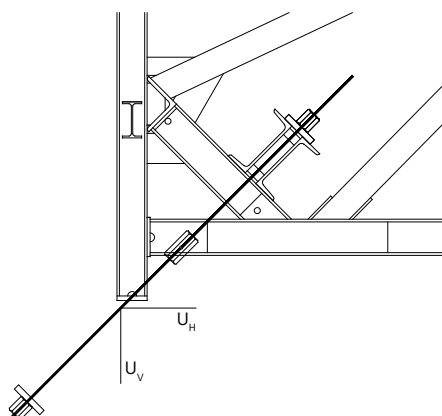
For heights greater than 6.00 m, we recommend determining the fresh-concrete pressure as a moving load according to DIN 18218 as a function of end of setting t_e and the rate of placing (see pages 110 to STB-115).

The anchoring takes places by means of the anchor loops encased in the concrete or by means of straight tie rods (in pairs).

Permissible anchor loads (for 2 tie rods) in kN		
	Anchor loops	Straight tie rod
DW 15	$2 \times 85 = 170$	$2 \times 90 = 180$
DW 20	$2 \times 150 = 300$	$2 \times 160 = 320$
DW 26.5	$2 \times 245 = 490$	$2 \times 250 = 500$

Deflection forces for support frame STB 450:

The tie rods are installed at a 45° angle. As the resultant force generally acts a larger angle, this results in a deflection force.



Key:

$$\alpha = \arctan (V/H)$$

$$\gamma = \alpha - 45^\circ$$

$$\text{Tensile force on tie-rod } Z = \sqrt{H^2 + V^2}$$

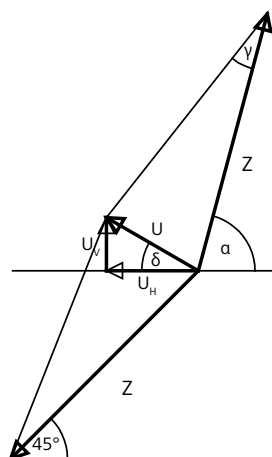
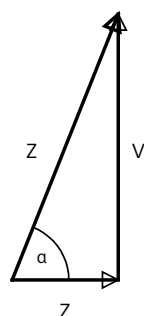
$$\text{Deflection force } U = \sin (\gamma/2) * Z * 2$$

$$\delta = (90^\circ - \gamma)/2$$

$$U_V = U * \sin \delta \rightarrow \text{rebar required for } U_V *$$

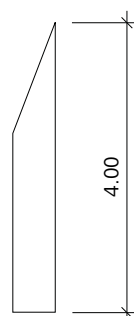
$$U_H = U * \sin \delta \rightarrow \text{rebar required for } U_H *$$

* The existing rebars can be taken into account. Thus, it may not be necessary to install additional rebars.



Moving load:

The concrete that has already set no longer exerts pressure on the formwork. Thus, the concrete pressure is only to be taken into account as a moving load up to the end of setting t_e .



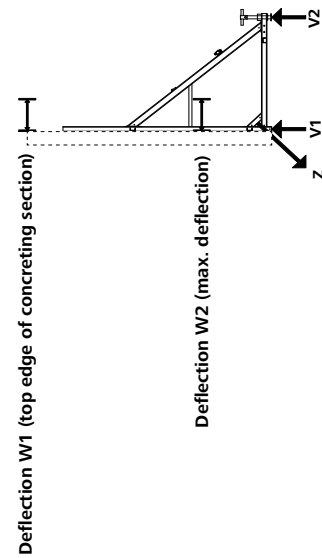
$$h = 5 \text{ h} \times 0.8 \text{ m/h} = 4.00$$

Support frame

STB 300

Pouring height (m)	Fresh-concrete pressure (kN/m ²)	Tensile force on tie rod Z (kN)	Tie rod DW Minimum size	Vertical force V1 (kN)	Vertical force V2 (kN)	Deflection W1 (mm)	Deflection W2 (mm)
Influence width e = 1.25 m (M panel, height 250 cm, horizontal use)							
2.50	62.5*	138.11	15	52.45	45.20	-0.1	6.1
2.75	68.75*	167.11	15	57.91	60.25	-1.1	7.3
2.50	60	137.89	15	52.30	45.20	-0.1	6.1
2.75	60	164.40	15	56.11	60.14	-1.1	7.3
2.50	50	132.59	15	48.89	44.86	-0.1	6.1
2.75	50	154.68	15	50.31	59.06	-1.3	7.0
3.00	50	176.78	15 (straight tie rod)	49.53	75.48	-1.0	7.5
2.50	40	120.21	15	41.85	43.15	-0.3	5.6
2.75	40	137.89	15	41.58	55.93	-1.1	6.3
3.00	40	155.56	15	39.55	70.45	-0.5	6.5
3.30	40	176.78	15 (straight tie rod)	34.79	90.21	5.4	6.5
2.50	30	100.76	15	32.31	38.94	-0.3	4.8
2.75	30	114.03	15	31.06	49.56	-0.8	5.0
3.00	30	127.28	15	28.48	61.53	0.4	5.1
3.30	30	143.19	15	23.64	77.61	7.0	7.1

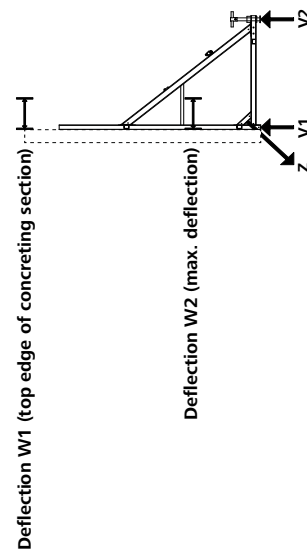
* Max. hydrostatic fresh-concrete pressure for normal concrete (specific weight $\gamma = 25 \text{ kN/m}^3$)



STB 300

Pouring height (m)	Fresh-concrete pressure (kN/m ²)	Tensile force on tie rod Z (kN)	Tie rod DW Minimum size	Vertical force V1 (kN)	Vertical force V2 (kN)	Deflection W1 (mm)	Deflection W2 (mm)
Influence width e = 1.20 m (M 350 panel, height 350 cm, horizontal use)							
2.50	62.5*	132.59	15	50.35	43.39	-0.1	5.9
2.75	68.75*	160.43	15	55.60	57.84	-1.1	7.0
2.50	60	132.37	15	50.21	43.39	-0.1	5.9
2.75	60	157.82	15	53.87	57.73	-1.1	7.0
2.50	50	127.28	15	46.93	43.07	-0.1	5.9
2.75	50	148.49	15	48.30	56.70	-1.2	6.7
3.00	50	169.70	15	47.54	72.46	-1.0	7.2
2.50	40	115.40	15	40.18	41.42	-0.2	5.4
2.75	40	132.37	15	39.91	53.69	-1.1	6.0
3.00	40	149.34	15	37.97	67.63	-0.5	6.2
3.30	40	169.70	15	33.40	86.60	5.2	6.2
2.50	30	96.73	15	31.02	37.38	-0.2	4.6
2.75	30	109.46	15	29.82	47.58	-0.7	4.8
3.00	30	122.18	15	27.34	59.06	0.4	4.9
3.30	30	137.46	15	22.69	74.51	6.7	6.8

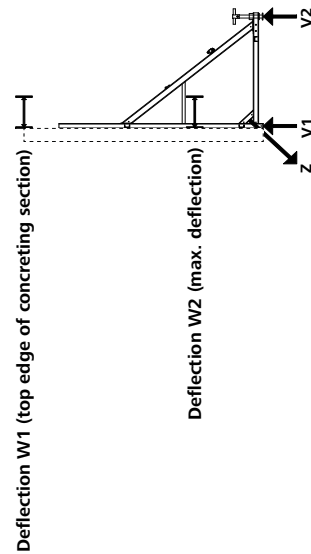
* Max. hydrostatic fresh-concrete pressure for normal concrete (specific weight $\gamma = 25 \text{ kN/m}^3$)



STB 300

Pouring height (m)	Fresh-concrete pressure (kN/m ²)	Tensile force on tie rod Z (kN)	Tie rod DW Minimum size	Vertical force V1 (kN)	Vertical force V2 (kN)	Deflection W1 (mm)	Deflection W2 (mm)
Influence width e = 1.35 m (ST panel, height 270 cm, horizontal use)							
2.50	62.5*	149.16	15	56.65	48.82	-0.1	6.6
2.50	60	148.92	15	56.48	48.82	-0.1	6.6
2.75	60	177.55	15 (straight tie rod)	60.60	64.95	-1.2	7.8
2.50	50	143.19	15	52.80	48.45	-0.1	6.6
2.75	50	167.05	15	54.34	63.79	-1.4	7.6
2.50	40	129.83	15	45.20	46.60	-0.3	6.1
2.75	40	148.92	15	44.90	60.40	-1.2	6.8
3.00	40	168.01	15	42.71	76.09	-0.5	7.0
2.50	30	108.82	15	34.90	42.05	-0.3	5.1
2.75	30	123.15	15	33.55	53.53	-0.8	5.4
3.00	30	137.46	15	30.75	66.45	0.4	5.5
3.30	30	154.64	15	25.53	83.82	7.6	7.7

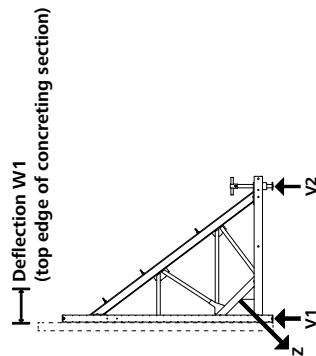
* Max. hydrostatic fresh-concrete pressure for normal concrete (specific weight $\gamma = 25 \text{ kN/m}^3$)



Support frame

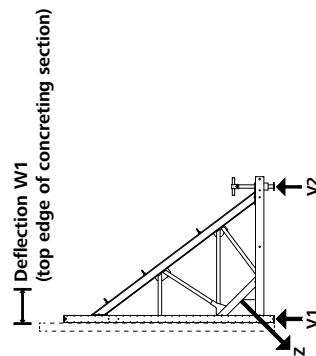
STB 300 plus

Pouring height (m)	Fresh-concrete pressure (kN/m ²)	Tensile force on tie rod Z (kN)	Tie rod DW Minimum size	Vertical force V1 (kN)	Vertical force V2 (kN)	Deflection W1 (mm)
Influence width e = 1.25 m (M panel, height 250 cm, horizontal use)						
2.50	60	137.89	15	43.89	53.61	1.9
2.75	60	164.40	15	45.53	70.72	2.4
3.00	60	190.92	20	44.28	90.72	2.8
3.25	60	217.44	20	40.16	113.59	3.7
2.50	50	132.58	15	40.68	53.08	1.9
2.75	50	154.68	15	40.12	69.26	2.3
3.00	50	176.78	15 (straight tie rod)	37.12	87.84	2.6
3.25	50	198.87	20	31.80	108.82	3.6
2.50	40	120.21	15	34.18	50.82	1.8
2.75	40	137.89	15	32.20	65.30	2.1
3.00	40	155.56	15	28.30	81.70	2.3
3.25	40	173.24	15 (straight tie rod)	22.47	100.03	3.3
2.50	30	100.76	15	25.64	45.61	1.5
2.75	30	114.02	15	23.00	57.63	1.7
3.00	30	127.28	15	18.92	71.08	2.0
3.25	30	140.54	15	13.40	85.98	2.9



STB 300 plus

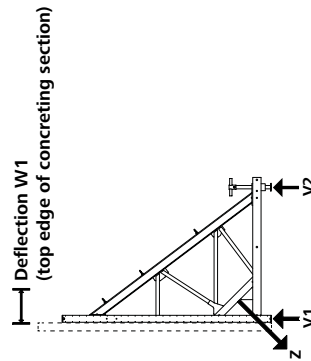
Pouring height (m)	Fresh-concrete pressure (kN/m ²)	Tensile force on tie rod Z (kN)	Tie rod DW Minimum size	Vertical force V1 (kN)	Vertical force V2 (kN)	Deflection W1 (mm)
Influence width e = 1.20 m (M panel, height 350 cm, horizontal use)						
2.50	60	132.37	15	42.13	51.47	1.9
2.75	60	157.83	15	43.71	67.90	2.3
3.00	60	183.28	20	42.51	87.09	2.7
3.25	60	208.74	20	38.55	109.05	3.6
2.50	50	127.28	15	39.05	50.95	1.8
2.75	50	148.49	15	38.51	66.49	2.2
3.00	50	169.71	15	35.67	84.33	2.5
3.25	50	190.92	20	30.53	104.47	3.4
2.50	40	115.40	15	32.81	48.79	1.7
2.75	40	132.37	15	30.91	62.69	2.0
3.00	40	149.34	15	27.16	78.44	2.3
3.25	40	166.31	15	21.57	96.03	3.2
2.50	30	96.73	15	24.61	43.79	1.5
2.75	30	109.46	15	22.08	55.32	1.7
3.00	30	122.19	15	18.16	68.24	1.9
3.25	30	134.92	15	12.86	82.54	2.8



Support frame

STB 300 plus

Pouring height (m)	Fresh-concrete pressure (kN/m ²)	Tensile force on tie rod Z (kN)	Tie rod DW Minimum size	Vertical force V1 (kN)	Vertical force V2 (kN)	Deflection W1 (mm)
Influence width e = 1.35 m (ST panel, height 270 cm, horizontal use)						
2.50	60	148.25	15	47.40	57.90	2.1
2.75	60	177.55	15 (straight tie rod)	49.17	76.38	2.5
3.00	60	206.19	20	47.83	97.98	3.0
3.25	60	234.83	20	43.37	122.68	4.0
2.50	50	143.19	15	43.93	57.32	2.0
2.75	50	167.05	15	43.33	74.80	2.4
3.00	50	190.92	20	40.13	94.87	2.8
3.25	50	214.78	20	34.35	117.53	3.8
2.50	40	129.83	15	36.92	54.88	1.9
2.75	40	148.92	15	34.78	70.53	2.2
3.00	40	168.01	15	30.56	88.24	2.5
3.25	40	187.10	20	24.27	108.03	3.6
2.50	30	108.82	15	27.69	49.26	1.6
2.75	30	123.14	15	24.84	62.24	1.9
3.00	30	137.46	15	20.43	76.77	2.2
3.25	30	151.78	15	14.47	92.85	3.2

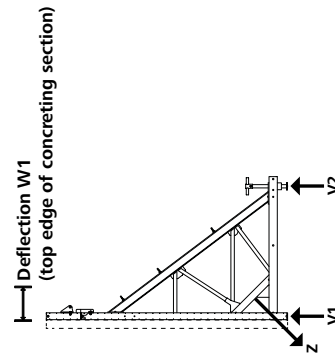


STB 300 plus + 1 STB height extension, without braces

Pouring height	Fresh-concrete pressure	Tensile force on tie rod Z	Tie rod DW	Vertical force V1	Vertical force V2	Deflection W1
(m)	(kN/m ²)	(kN)	Minimum size	(kN)	(kN)	(mm)
Influence width e = 1.25 m (M panel, height 250 cm, horizontal use)						
3.50	60	243.95	20	33.15	139.35	6.3
3.50	50	220.97	20	24.04	132.03	6.1
3.50	40	190.92	20	14.73	120.27	5.8
3.50	30	153.79	15	6.44	102.31	5.3

Pouring height	Fresh-concrete pressure	Tensile force on tie rod Z	Tie rod DW	Vertical force V1	Vertical force V2	Deflection W1
(m)	(kN/m ²)	(kN)	Minimum size	(kN)	(kN)	(mm)
Influence width e = 1.20 m (M panel, height 350 cm, horizontal use)						
3.50	60	234.19	20	31.82	133.78	6.0
3.50	50	212.13	20	23.08	126.92	5.8
3.50	40	183.28	20	14.14	115.46	5.5
3.50	30	147.64	15	6.18	98.22	5.1

Pouring height	Fresh-concrete pressure	Tensile force on tie rod Z	Tie rod DW	Vertical force V1	Vertical force V2	Deflection W1
(m)	(kN/m ²)	(kN)	Minimum size	(kN)	(kN)	(mm)
Influence width e = 1.35 m (ST panel, height 270 cm, horizontal use)						
3.50	60	263.47	20	35.80	150.50	6.8
3.50	50	238.65	20	25.96	142.79	6.5
3.50	40	206.19	20	15.91	129.89	6.2
3.50	30	166.10	15	6.95	110.50	5.8



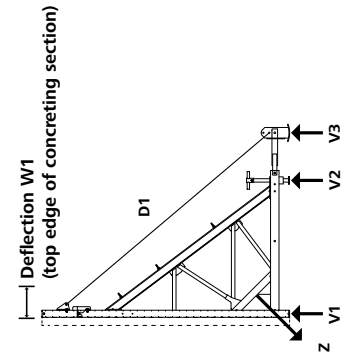
Support frame

STB 300 plus + 1 STB height extension, 1 brace

Pouring height	Fresh-concrete pressure	Tensile force on tie rod Z	Tie rod DW	Vertical force V1	Vertical force V2	Vertical force V3	Diagonal force D1	Brace	Deflection W1
(m)	(kN/m ²)	(kN)	Minimum size	(kN)	(kN)	(kN)	(kN)	Type	(mm)
Influence width e = 1.25 m (M panel, height 250 cm, horizontal use)									
3.50	50	220.97	20	28.62	116.58	11.10	11.46	R 460	3.3
3.75	50	243.07	20	21.48	130.84	19.20	19.91	R 460	3.9
3.50	40	190.92	20	19.26	104.80	10.90	11.34	R 460	3.0
3.75	40	208.60	20	12.96	115.51	19.00	19.73	R 460	3.5
3.50	30	153.80	15	10.88	87.16	10.71	11.10	R 460	2.5
3.75	30	167.05	15	5.74	93.81	18.57	19.26	R 460	2.9

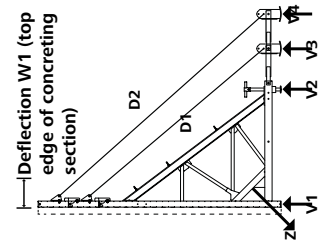
Pouring height	Fresh-concrete pressure	Tensile force on tie rod Z	Tie rod DW	Vertical force V1	Vertical force V2	Vertical force V3	Diagonal force D1	Brace	Deflection W1
(m)	(kN/m ²)	(kN)	Minimum size	(kN)	(kN)	(kN)	(kN)	Type	(mm)
Influence width e = 1.20 m (M panel, height 350 cm, horizontal use)									
3.50	50	212.13	20	27.48	111.92	10.60	11	R 460	3.2
3.75	50	233.34	20	20.97	125.60	18.40	19.11	R 460	3.7
3.50	40	183.28	20	18.49	100.61	10.50	10.88	R 460	2.8
3.75	40	200.25	20	12.44	110.89	18.30	18.94	R 460	3.3
3.50	30	147.64	15	10.44	83.68	10.28	10.66	R 460	2.4
3.75	30	160.37	15	5.51	90.06	17.83	18.49	R 460	2.8

Pouring height	Fresh-concrete pressure	Tensile force on tie rod Z	Tie rod DW	Vertical force V1	Vertical force V2	Vertical force V3	Diagonal force D1	Brace	Deflection W1
(m)	(kN/m ²)	(kN)	Minimum size	(kN)	(kN)	(kN)	(kN)	Type	(mm)
Influence width e = 1.35 m (ST panel, height 270 cm, horizontal use)									
3.50	50	238.65	20	30.91	125.91	11.90	12.37	R 460	3.6
3.75	50	262.51	20	23.59	141.30	20.70	21.50	R 460	4.2
3.50	40	206.19	20	20.80	113.19	11.80	12.25	R 460	3.2
3.75	40	225.28	20	13.99	124.75	20.60	21.31	R 460	3.7
3.50	30	166.10	15	11.75	94.14	11.56	11.99	R 460	2.7
3.75	30	180.42	20	6.20	101.31	20.06	20.80	R 460	3.2



Support frame

STB 300 plus + 2 STB height extensions + 2 braces



Pouring height	Fresh-concrete pressure	Tensile force on tie rod Z	Tie rod DW	Vertical force V1	Vertical force V2	Vertical force V3	Vertical force V4	Diagonal force D1	Brace D1	Diagonal force D2	Brace D2	Deflection W1
(m)	(kN/m ²)	(kN)	Minimum size	(kN)	(kN)	(kN)	(kN)	(kN)	Type	(kN)	Type	(mm)
Influence width e = 1.25 m (M panel, height 250 cm, horizontal use)												
3.75	40	208.60	20	13.44	117.09	13.16	3.81	14.40	R 460	4.01	R 460	3.4
4.00	40	226.27	20	7.30	126.53	17.70	8.47	20.03	R 460	8.91	R 460	3.9
4.25	40	243.95	20	0.82	133.05	24.85	13.77	31.20	Triplex R	14.49	R 460	4.2
3.75	30	167.05	15	6.25	95.49	12.34	4.05	13.60	R 460	4.26	R 460	2.8
4.00	30	180.31	20	1.61	100.87	16.35	8.67	18.68	R 460	9.12	R 460	3.2
4.25	30	196.00	20	0.00	99.67	23.83	15.09	30.32	Triplex R	15.88	R 460	4.3

Pouring height	Fresh-concrete pressure	Tensile force on tie rod Z	Tie rod DW	Vertical force V1	Vertical force V2	Vertical force V3	Vertical force V4	Diagonal force D1	Brace D1	Diagonal force D2	Brace D2	Deflection W1
(m)	(kN/m ²)	(kN)	Minimum size	(kN)	(kN)	(kN)	(kN)	(kN)	Type	(kN)	Type	(mm)
Influence width e = 1.20 m (M panel, height 350 cm, horizontal use)												
3.75	40	200.25	20	12.90	112.41	12.63	3.66	13.82	R 460	3.85	R 460	3.3
4.00	40	217.22	20	7.01	121.46	16.99	8.13	19.23	R 460	8.56	R 460	3.7
4.25	40	234.19	20	0.79	127.73	23.86	13.22	29.95	Triplex R	13.91	R 460	4.0
3.75	30	160.37	15	6.00	91.67	11.84	3.89	13.05	R 460	4.09	R 460	2.7
4.00	30	173.10	15 (straight tie rod)	1.55	96.84	15.70	8.32	17.93	R 460	8.75	R 460	3.1
4.25	30	188.16	20	0.00	95.68	22.88	14.49	29.11	Triplex R	15.24	R 460	4.1

Pouring height	Fresh-concrete pressure	Tensile force on tie rod Z	Tie rod DW	Vertical force V1	Vertical force V2	Vertical force V3	Vertical force V4	Diagonal force D1	Brace D1	Diagonal force D2	Brace D2	Deflection W1
(m)	(kN/m ²)	(kN)	Minimum size	(kN)	(kN)	(kN)	(kN)	(kN)	Type	(kN)	Type	(mm)
Influence width e = 1.35 m (ST panel, height 270 cm, horizontal use)												
3.75	40	225.28	20	14.51	126.46	14.21	4.12	15.55	R 460	4.33	R 460	3.7
4.00	40	244.38	20	7.89	136.65	19.11	9.15	21.64	R 460	9.63	R 460	4.2
4.25	40	263.47	20	0.89	143.70	28.64	14.87	33.69	Triplex R	15.65	R 460	4.5
3.75	30	180.42	20	6.75	103.13	13.32	4.37	14.68	R 460	4.60	R 460	3.1
4.00	30	194.74	20	1.74	108.94	17.66	9.36	20.17	R 460	9.85	R 460	3.5
4.25	30	211.68	20	0.00	107.64	25.73	16.30	32.75	Triplex R	17.15	R 460	4.7

Support frame

STB 300 plus + 3 STB height extensions + 3 braces

Pouring height	Fresh-concrete pressure	Tensile force on tie rod Z	Tie rod DW	Vertical force V1	Vertical force V2	Vertical force V3	Vertical force V4	Vertical force V5	Diagonal force D1	Brace D1	Diagonal force D2	Brace D2	Diagonal force D3	Brace D3	Deflection W1
(m)	(kN/m ²)	(kN)	Minimum size	(kN)	(kN)	(kN)	(kN)	(kN)	(kN)	Type	(kN)	Type	(kN)	Type	(mm)
Influence width e = 1.25 m (M panel, height 250 cm, horizontal use)															
4.25	40	243.95	20	0.81	133.82	25.10	10.92	1.86	30.93	Triplex R	11.88	R 460	1.97	R 460	4.2
4.50	40	265.75	20	0.00	133.57	31.58	16.56	6.19	39.70	Triplex R	18.71	R 460	6.58	R 460	5.8
4.25	30	195.97	20	0.00	100.75	23.78	11.63	2.41	29.62	Triplex R	12.74	R 460	2.56	R 460	4.3
4.50	30	214.79	20	0.00	102.80	27.19	15.17	6.73	34.44	Triplex R	17.36	R 460	7.15	R 460	4.7

Pouring height	Fresh-concrete pressure	Tensile force on tie rod Z	Tie rod DW	Vertical force V1	Vertical force V2	Vertical force V3	Vertical force V4	Vertical force V5	Diagonal force D1	Brace D1	Diagonal force D2	Brace D2	Diagonal force D3	Brace D3	Deflection W1
(m)	(kN/m ²)	(kN)	Minimum size	(kN)	(kN)	(kN)	(kN)	(kN)	(kN)	Type	(kN)	Type	(kN)	Type	(mm)
Influence width e = 1.20 m (M panel, height 350 cm, horizontal use)															
4.25	40	234.19	20	0.78	128.47	24.09	10.48	1.78	29.70	Triplex R	11.40	R 460	1.89	R 460	4.1
4.50	40	255.09	20	0.00	128.22	30.31	15.90	5.94	38.11	Triplex R	17.96	R 460	6.32	R 460	5.6
4.25	30	188.13	20	0.00	96.72	22.83	11.17	2.31	28.43	Triplex R	12.23	R 460	2.46	R 460	4.1
4.50	30	206.20	20	0.00	98.69	26.10	14.56	6.46	33.06	Triplex R	16.66	R 460	6.87	R 460	4.5

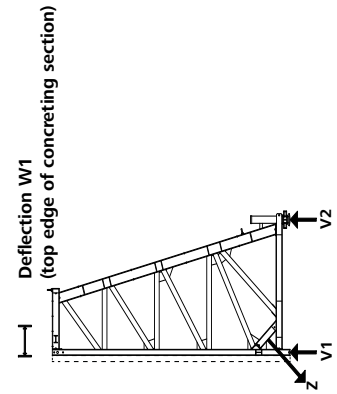
Pouring height	Fresh-concrete pressure	Tensile force on tie rod Z	Tie rod DW	Vertical force V1	Vertical force V2	Vertical force V3	Vertical force V4	Vertical force V5	Diagonal force D1	Brace D1	Diagonal force D2	Brace D2	Diagonal force D3	Brace D3	Deflection W1
(m)	(kN/m ²)	(kN)	Minimum size	(kN)	(kN)	(kN)	(kN)	(kN)	(kN)	Type	(kN)	Type	(kN)	Type	(mm)
Influence width e = 1.35 m (ST panel, height 270 cm, horizontal use)															
4.25	40	263.47	20	0.87	144.53	27.10	11.79	2.00	33.41	Triplex R	12.83	R 460	2.13	R 460	4.6
4.50	40	286.97	20	0.00	144.25	34.10	17.88	6.68	42.87	Triplex R	20.21	R 460	7.11	R 460	6.3
4.25	30	211.65	20	0.00	108.81	25.68	12.56	2.60	31.99	Triplex R	13.76	R 460	2.76	R 460	4.7
4.50	30	231.97	20	0.00	111.03	29.36	16.38	7.26	37.19	Triplex R	18.75	R 460	7.72	R 460	5.1



Deflection W1 (top edge of concreting section)

STB 450

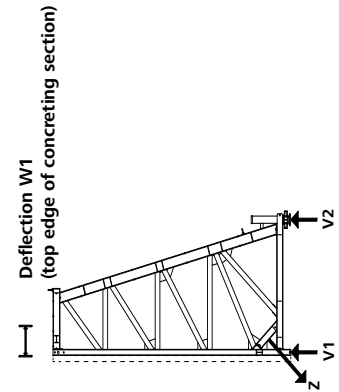
Pouring height (m)	Fresh-concrete pressure (kN/m²)	Tensile force on tie rod Z (kN)	Tie rod DW Minimum size	Force angle α (°)	Vertical force V1 (kN)	Vertical force V2 (kN)	Deflection W1 (mm)	Deflection force UV (kN)	Deflection force UH (kN)
Influence width e = 1.25 m (M panel, height 250 cm, horizontal use)									
3.70	75	291.69	20	45.00	82.46	123.79	3	0.00	0.00
4.00	75	331.46	26.5	45.00	79.91	154.46	4	0.00	0.00
4.30	75	371.23	26.5	45.00	73.51	188.99	4	0.00	0.00
4.60	75	411.00	26.5	45.00	63.29	227.34	5	0.00	0.00
4.90	75	450.78	26.5	45.00	49.23	269.53	7	0.00	0.00
5.20	75	490.55	26.5 (straight tie rod)	45.00	31.34	315.54	8	0.00	0.00
3.70	60	265.16	20	45.00	68.53	118.98	3	0.00	0.00
4.00	60	269.99	20	45.00	63.41	146.59	3	0.00	0.00
4.30	60	328.80	26.5	45.00	55.24	177.26	4	0.00	0.00
4.60	60	360.63	26.5	45.00	43.99	211.01	5	0.00	0.00
4.90	60	392.45	26.5	45.00	29.68	247.83	6	0.00	0.00
5.20	60	424.26	26.5	45.00	12.29	287.71	7	0.00	0.00
3.70	50	238.65	20	45.00	56.64	112.11	3	0.00	0.00
4.00	50	265.16	20	45.00	50.68	136.83	3	0.00	0.00
4.30	50	291.69	20	45.00	42.15	164.10	4	0.00	0.00
4.60	50	318.20	20 (straight tie rod)	45.00	31.06	193.94	5	0.00	0.00
4.90	50	344.71	26.5	45.00	17.44	226.31	6	0.00	0.00
5.20	50	371.23	26.5	45.00	1.24	261.26	7	0.00	0.00
3.70	40	205.06	20	45.00	43.71	101.29	2	0.00	0.00
4.00	40	226.28	20	45.00	37.59	122.41	3	0.00	0.00
4.30	40	247.49	20	45.00	29.40	145.60	4	0.00	0.00
4.60	40	268.70	20	45.00	19.18	170.83	4	0.00	0.00
4.90	40	289.91	20	45.00	6.90	198.10	5	0.00	0.00
5.20	40	317.51	20 (straight tie rod)	46.14	0.00	228.95	8	4.43	4.52
3.70	30	164.40	15	45.00	30.69	85.56	2	0.00	0.00
4.00	30	180.31	15 (straight tie rod)	45.00	25.06	102.44	2	0.00	0.00
4.30	30	196.23	20	45.00	17.90	120.85	3	0.00	0.00
4.60	30	212.14	20	45.00	9.21	140.79	3	0.00	0.00
4.90	30	228.91	20	45.22	0.00	162.48	5	0.61	0.61
5.20	30	255.08	20	47.45	0.00	187.91	6	7.54	7.87



Support frame

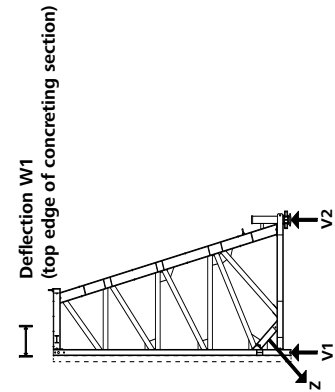
STB 450

Pouring height (m)	Fresh-concrete pressure (kN/m ²)	Tensile force on tie rod Z (kN)	Tie rod DW Minimum size	Force angle α (°)	Vertical force V1 (kN)	Vertical force V2 (kN)	Deflection W1 (mm)	Deflection force U _v (kN)	Deflection force U _h (kN)
Influence width e = 1.20 m (M 350 panel, height 350 cm, horizontal use)									
3.70	75	280.02	20	45.00	79.16	118.84	3	0.00	0.00
4.00	75	318.20	20 (straight tie rod)	45.00	76.72	148.28	3	0.00	0.00
4.30	75	356.38	26.5	45.00	70.57	181.43	4	0.00	0.00
4.60	75	394.56	26.5	45.00	60.76	218.24	5	0.00	0.00
4.90	75	432.74	26.5	45.00	47.26	258.74	6	0.00	0.00
5.20	75	470.93	26.5	45.00	30.08	302.92	8	0.00	0.00
3.70	60	254.56	20	45.00	65.78	114.22	3	0.00	0.00
4.00	60	285.11	20	45.00	60.88	140.72	3	0.00	0.00
4.30	60	315.65	20 (straight tie rod)	45.00	53.03	170.17	4	0.00	0.00
4.60	60	346.20	26.5	45.00	42.23	202.57	5	0.00	0.00
4.90	60	376.75	26.5	45.00	28.49	237.91	6	0.00	0.00
5.20	60	407.29	26.5	45.00	11.80	276.20	7	0.00	0.00
3.70	50	229.10	20	45.00	54.37	107.63	2	0.00	0.00
4.00	50	254.56	20	45.00	48.65	131.35	3	0.00	0.00
4.30	50	280.02	20	45.00	40.46	157.54	4	0.00	0.00
4.60	50	305.47	20 (straight tie rod)	45.00	29.82	186.18	4	0.00	0.00
4.90	50	330.92	26.5	45.00	16.74	217.26	5	0.00	0.00
5.20	50	356.38	26.5	45.00	1.19	250.81	6	0.00	0.00
3.70	40	196.86	20	45.00	41.96	97.24	2	0.00	0.00
4.00	40	217.22	20	45.00	36.08	117.52	3	0.00	0.00
4.30	40	237.59	20	45.00	28.22	139.78	3	0.00	0.00
4.60	40	257.95	20	45.00	18.41	163.99	4	0.00	0.00
4.90	40	278.32	20	45.00	6.62	190.18	5	0.00	0.00
5.20	40	304.81	20 (straight tie rod)	46.14	0.00	219.79	7	4.25	4.34
3.70	30	157.82	15	45.00	29.46	82.14	2	0.00	0.00
4.00	30	173.10	15 (straight tie rod)	45.00	24.06	98.34	2	0.00	0.00
4.30	30	188.38	20	45.00	17.18	116.02	3	0.00	0.00
4.60	30	203.65	20	45.00	8.84	135.16	3	0.00	0.00
4.90	30	219.76	20	45.22	0.00	155.98	5	0.58	0.59
5.20	30	244.88	20	47.45	0.00	180.40	6	7.24	7.56



Support frame

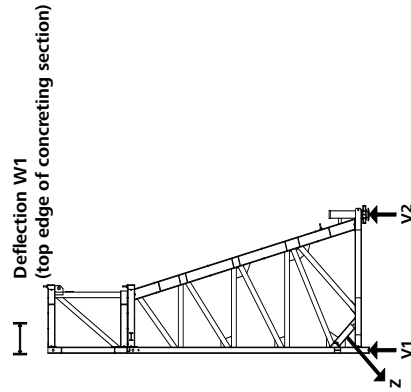
STB 450



Pouring height (m)	Fresh-concrete pressure (kN/m²)	Tensile force on tie rod Z (kN)	Tie rod DW Minimum size	Force angle α (°)	Vertical force V1 (kN)	Vertical force V2 (kN)	Deflection W1 (mm)	Deflection force U _v (kN)	Deflection force U _h (kN)
Influence width e = 1.35 m (StarTec panel, height 270 cm, horizontal use)									
3.70	75	315.02	20 (straight tie rod)	45.00	89.06	133.69	3	0.00	0.00
4.00	75	357.98	26.5	45.00	86.31	166.82	4	0.00	0.00
4.30	75	400.92	26.5	45.00	79.39	204.11	5	0.00	0.00
4.60	75	443.88	26.5	45.00	68.35	245.52	6	0.00	0.00
4.90	75	486.84	26.5	45.00	53.16	291.09	7	0.00	0.00
3.70	60	286.38	20	45.00	74.01	128.49	3	0.00	0.00
4.00	60	320.75	26.5	45.00	68.49	158.31	4	0.00	0.00
4.30	60	355.10	26.5	45.00	59.66	191.44	4	0.00	0.00
4.60	60	389.48	26.5	45.00	47.51	227.89	5	0.00	0.00
4.90	60	423.85	26.5	45.00	32.05	267.65	6	0.00	0.00
5.20	60	458.20	26.5	45.00	13.27	310.73	8	0.00	0.00
3.70	50	257.74	20	45.00	61.17	121.08	3	0.00	0.00
4.00	50	286.38	20	45.00	54.73	147.77	3	0.00	0.00
4.30	50	315.02	20 (straight tie rod)	45.00	45.52	177.23	4	0.00	0.00
4.60	50	343.66	26.5	45.00	33.55	209.45	5	0.00	0.00
4.90	50	372.29	26.5	45.00	18.83	244.42	6	0.00	0.00
5.20	50	400.92	26.5	45.00	1.34	282.16	7	0.00	0.00
3.70	40	221.47	20	45.00	47.21	109.39	3	0.00	0.00
4.00	40	244.38	20	45.00	40.59	132.21	3	0.00	0.00
4.30	40	267.29	20	45.00	31.75	157.25	4	0.00	0.00
4.60	40	290.20	20	45.00	20.71	184.49	4	0.00	0.00
4.90	40	313.11	20 (straight tie rod)	45.00	7.45	213.95	5	0.00	0.00
5.20	40	342.91	26.5	46.14	0.00	247.27	8	4.78	4.88
3.70	30	177.55	15 (straight tie rod)	45.00	33.14	92.41	2	0.00	0.00
4.00	30	194.74	20	45.00	27.07	110.63	3	0.00	0.00
4.30	30	211.92	20	45.00	19.33	130.52	3	0.00	0.00
4.60	30	229.11	20	45.00	9.95	152.05	4	0.00	0.00
4.90	30	247.23	20	45.22	0.00	175.47	6	0.66	0.66
5.20	30	275.49	20	47.45	0.00	202.95	7	8.15	8.50

Support frame

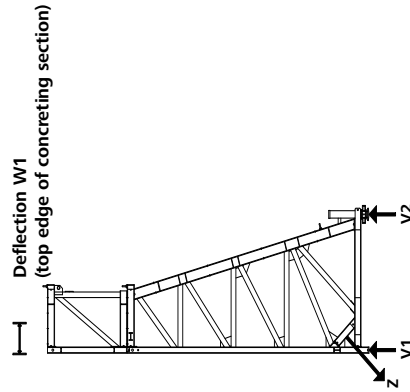
STB 450 + 1 height extension 150



Pouring height (m)	Fresh-concrete pressure (kN/m ²)	Tensile force on tie rod Z (kN)	Tie rod DW Minimum size	Force angle α (°)	Vertical force V1 (kN)	Vertical force V2 (kN)	Deflection W1 (mm)	Deflection force U _v (kN)	Deflection force U _h (kN)
Influence width e = 1.25 m (M panel, height 250 cm, horizontal use)									
5.50	60	463.10	26.5	45.86	0.00	332.35	13	4.89	4.97
5.50	50	412.96	26.5	47.07	0.00	302.38	12	10.37	10.75
5.80	50	458.57	26.5	49.14	0.00	346.83	14	22.57	24.26
5.50	40	353.21	26.5	48.29	0.00	263.69	10	13.93	14.76
5.80	40	391.20	26.5	50.28	0.00	300.89	12	24.27	26.62
6.10	40	431.52	26.5	52.11	0.00	340.56	14	35.44	40.13
6.40	40	474.19	26.5	53.81	0.00	382.71	16	47.40	55.31
5.50	30	282.98	20	49.51	0.00	215.20	8	15.11	16.34
5.80	30	312.62	20 (straight tie rod)	51.41	0.00	244.34	10	23.29	26.05
6.10	30	344.01	26.5	53.16	0.00	275.33	12	32.08	37.01
6.40	30	377.19	26.5	54.79	0.00	308.18	13	41.45	49.22
6.70	30	412.16	26.5	56.29	0.00	342.89	16	51.42	62.69

Support frame

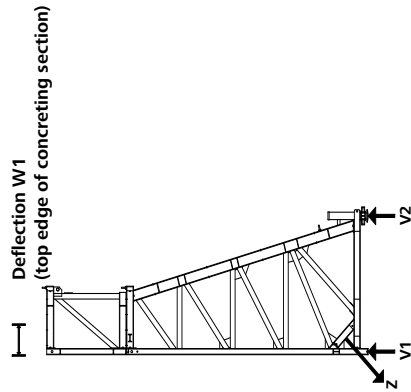
STB 450 + 1 height extension 150



Pouring height (m)	Fresh-concrete pressure (kN/m²)	Tensile force on tie rod Z (kN)	Tie rod DW Minimum size	Force angle α (°)	Vertical force V1 (kN)	Vertical force V2 (kN)	Deflection W1 (mm)	Deflection force UV (kN)	Deflection force UH (kN)
Influence width e = 1.20 m (M 350 panel, height 350 cm, horizontal use)									
5.50	60	444.58	26.5	45.86	0.00	319.06	12	4.70	4.77
5.80	60	495.02	26.5 (straight tie rod)	48.01	0.00	367.90	14	17.87	18.84
5.50	50	396.44	26.5	47.07	0.00	290.28	11	9.96	10.32
5.80	50	440.23	26.5	49.14	0.00	332.95	13	21.66	23.29
6.10	50	486.79	26.5	51.05	0.00	378.59	15	34.37	38.21
5.50	40	339.08	26.5	48.29	0.00	253.14	10	13.38	14.17
5.80	40	375.55	26.5	50.28	0.00	288.85	12	23.30	25.56
6.10	40	414.26	26.5	52.11	0.00	326.94	13	34.02	38.53
6.40	40	455.23	26.5	53.81	0.00	367.40	16	45.50	53.10
6.70	40	498.48	26.5 (straight tie rod)	55.38	0.00	410.22	18	57.74	69.28
5.50	30	271.66	20	49.51	0.00	206.59	8	14.50	15.69
5.80	30	300.11	20 (straight tie rod)	51.41	0.00	234.56	9	22.36	25.01
6.10	30	330.25	26.5	53.16	0.00	264.31	11	30.79	35.53
6.40	30	362.10	26.5	54.79	0.00	295.85	13	39.80	47.25
6.70	30	395.68	26.5	56.29	0.00	329.15	15	49.36	60.19

Support frame

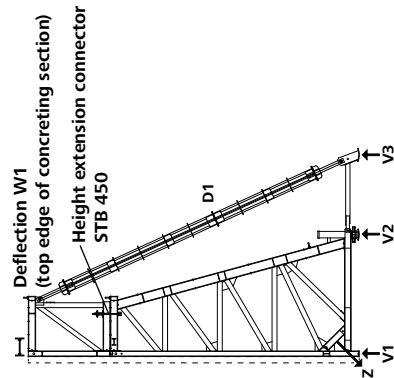
STB 450 + 1 height extension 150



Pouring height (m)	Fresh-concrete pressure (kN/m ²)	Tensile force on tie rod Z (kN)	Tie rod DW Minimum size	Force angle α (°)	Vertical force V1 (kN)	Vertical force V2 (kN)	Deflection W1 (mm)	Deflection force UV (kN)	Deflection force UH (kN)
Influence width e = 1.35 m (StarTec panel, height 270 cm, horizontal use)									
5.50	50	445.99	26.5	47.07	0.00	326.57	12	11.20	11.61
5.80	50	495.26	26.5	49.14	0.00	374.57	15	24.37	26.20
5.50	40	381.46	26.5	48.29	0.00	284.78	11	15.05	15.94
5.80	40	422.49	26.5	50.28	0.00	324.96	13	26.22	28.75
6.10	40	466.04	26.5	52.11	0.00	367.81	15	38.27	43.35
5.50	30	305.61	20 (straight tie rod)	49.51	0.00	232.42	9	16.31	17.65
5.80	30	337.62	26.5	51.41	0.00	263.88	11	25.15	28.13
6.10	30	371.53	26.5	53.16	0.00	297.35	12	34.64	39.97
6.40	30	407.36	26.5	54.79	0.00	332.83	14	44.77	53.15
6.70	30	445.14	26.5	56.29	0.00	370.29	17	55.53	67.71

STB 450 + 1 height extension 150 + 1 Triplex

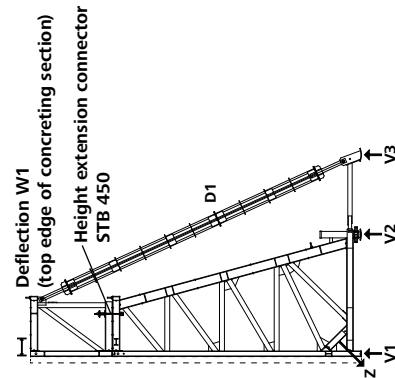
Pouring height (m)	Fresh-concrete pressure (kN/m²)	Tensile force on tie rod Z (kN)	Tie rod DW Minimum size	Force angle α (°)	Vertical force V1 (kN)	Vertical force V2 (kN)	Vertical force V3 (kN)	Diagonal force D1 (kN)	Brace D1 Type	Deflection W1 (mm)	Deflection force UV (kN)	Deflection force UH (kN)
Influence width e = 1.25 m (M panel, height 250 cm, horizontal use)												
5.50	60	456.09	26.5	45.00	17.61	262.88	42.01	46.24	Triplex SB	7	0.00	0.00
5.80	60	487.90	26.5	45.00	0.00	293.35	51.65	56.84	Triplex SB	8	0.00	0.00
5.50	50	397.75	26.5	45.00	6.26	236.25	38.74	42.64	Triplex SB	7	0.00	0.00
5.80	50	426.85	26.5	45.34	0.00	245.29	58.35	64.21	Triplex SB	9	1.81	1.82
6.10	50	468.01	26.5	47.07	0.00	272.86	69.81	76.83	Triplex SB	10	11.75	12.18
5.50	40	332.34	26.5	45.00	0.00	196.25	38.75	42.64	Triplex SB	6	0.00	0.00
5.80	40	362.70	26.5	46.43	0.00	211.30	51.49	56.65	Triplex SB	8	6.31	6.47
6.10	40	396.52	26.5	48.06	0.00	233.35	61.61	67.80	Triplex SB	9	14.58	15.38
6.40	40	431.45	26.5	49.54	0.00	254.71	73.55	80.94	Triplex SB	10	23.17	25.09
6.70	40	467.48	26.5	50.87	0.00	275.29	87.36	96.14	Triplex SB	11	32.09	35.56
5.50	30	263.42	20	45.77	0.00	153.04	35.37	39.31	Triplex SB	5	2.48	2.52
5.80	30	288.53	20	47.48	0.00	169.88	42.79	47.09	Triplex SB	6	8.64	9.02
6.10	30	314.47	20 (straight tie rod)	49.02	0.00	186.14	51.25	56.40	Triplex SB	7	15.03	16.12
6.40	30	341.20	26.5	50.40	0.00	201.71	61.18	67.31	Triplex SB	8	21.62	23.76
6.70	30	368.72	26.5	51.66	0.00	216.68	72.51	79.80	Triplex SB	9	28.46	31.98



Support frame

STB 450 + 1 height extension 150 + 1 Triplex

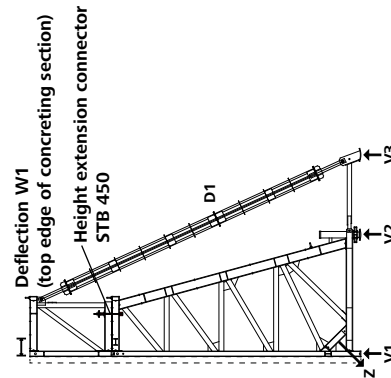
Pouring height (m)	Fresh-concrete pressure (kN/m²)	Tensile force on tie rod Z (kN)	Tie rod DW	Force angle α (°)	Vertical force V1 (kN)	Vertical force V2 (kN)	Vertical force V3 (kN)	Diagonal force D1 (kN)	Brace	Deflection W1 (mm)	Deflection force UV (kN)	Deflection force UH (kN)
Influence width e = 1.20 m (M 350 panel, height 350 cm, horizontal use)												
5.50	60	437.84	26.5	45.00	16.91	252.36	40.33	44.39	Triplex SB	7	0.00	0.00
5.80	60	468.38	26.5	45.00	0.00	281.62	49.58	54.56	Triplex SB	8	0.00	0.00
5.50	50	381.84	26.5	45.00	6.01	226.80	37.19	40.93	Triplex SB	6	0.00	0.00
5.80	50	409.77	26.5	45.34	0.00	235.48	56.02	61.64	Triplex SB	8	1.73	1.74
6.10	50	449.29	26.5	47.07	0.00	261.95	67.02	73.75	Triplex SB	10	11.28	11.70
6.40	50	490.29	26.5 (straight tie rod)	48.64	0.00	287.99	79.98	88.02	Triplex SB	11	21.29	22.68
5.50	40	319.04	20 (straight tie rod)	45.00	0.00	188.40	37.20	40.93	Triplex SB	6	0.00	0.00
5.80	40	348.19	26.5	46.43	0.00	202.85	49.43	54.38	Triplex SB	7	6.06	6.21
6.10	40	380.66	26.5	48.06	0.00	224.02	59.15	65.09	Triplex SB	8	14.00	14.77
6.40	40	414.19	26.5	49.54	0.00	244.52	70.61	77.70	Triplex SB	9	22.25	24.08
6.70	40	448.78	26.5	50.87	0.00	264.28	83.87	92.29	Triplex SB	11	30.81	34.14
5.50	30	252.89	20	45.77	0.00	146.92	34.30	37.74	Triplex SB	5	2.39	2.42
5.80	30	276.99	20	47.48	0.00	163.08	41.08	45.20	Triplex SB	6	8.29	8.66
6.10	30	301.89	20 (straight tie rod)	49.02	0.00	178.69	49.20	54.14	Triplex SB	7	14.43	15.48
6.40	30	327.55	26.5	50.40	0.00	193.64	58.73	64.62	Triplex SB	8	20.76	22.81
6.70	30	353.97	26.5	51.66	0.00	208.01	69.61	76.61	Triplex SB	8	27.32	30.70



Support frame

STB 450 + 1 height extension 150 + 1 Triplex

Pouring height (m)	Fresh-concrete pressure (kN/m ²)	Tensile force on tie rod Z (kN)	Tie rod DW Minimum size	Force angle α (°)	Vertical force V1 (kN)	Vertical force V2 (kN)	Vertical force V3 (kN)	Diagonal force D1 (kN)	Brace D1 Type	Deflection W1 (mm)	Deflection force U _v (kN)	Deflection force U _h (kN)
Influence width e = 1.35 m (StarTec panel, height 270 cm, horizontal use)												
5.50	60	492.57	26.5 (straight tie rod)	45.00	19.02	283.91	45.37	49.94	Triplex SB	8	0.00	0.00
5.50	50	429.57	26.5	45.00	6.76	255.15	41.84	46.05	Triplex SB	7	0.00	0.00
5.80	50	460.99	26.5	45.34	0.00	264.91	63.02	69.35	Triplex SB	9	1.95	1.96
5.50	40	358.92	26.5	45.00	0.00	211.95	41.85	46.05	Triplex SB	7	0.00	0.00
5.80	40	391.72	26.5	46.43	0.00	228.20	55.61	61.18	Triplex SB	8	6.82	6.99
6.10	40	428.24	26.5	48.06	0.00	252.02	66.54	73.22	Triplex SB	9	15.75	16.61
6.40	40	465.97	26.5	49.54	0.00	275.09	79.43	87.41	Triplex SB	11	25.03	27.09
5.50	30	284.50	20	45.77	0.00	165.28	38.58	42.46	Triplex SB	6	2.68	2.72
5.80	30	311.62	20 (straight tie rod)	47.48	0.00	183.47	46.21	50.85	Triplex SB	7	9.33	9.74
6.10	30	339.63	26.5	49.02	0.00	201.03	55.35	60.91	Triplex SB	8	16.23	17.41
6.40	30	368.50	26.5	50.40	0.00	217.85	66.07	72.70	Triplex SB	9	23.35	25.66
6.70	30	398.22	26.5	51.66	0.00	234.01	78.31	86.18	Triplex SB	9	30.74	34.54



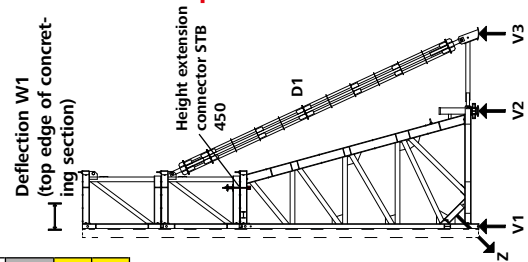
Support frame

STB 450 + 2 height extensions 150 + 1 Triplex

Pouring height	Fresh-concrete pressure	Tensile force on tie rod Z	Tie rod DW	Force angle α	Vertical force V1	Vertical force V2	Vertical force V3	Diagonal force D1	Brace D1	Deflection W1	Deflection force U _v	Deflection force U _h
(m)	(kN/m ²)	(kN)	Minimum size	(°)	(kN)	(kN)	(kN)	(kN)	Type	(mm)	(kN)	(kN)
Influence width e = 1.25 m (M panel, height 250 cm, horizontal use)												
7.00	30	397.14	26.5	52.82	0.00	231.34	85.09	93.63	Triplex SB	10	35.60	40.82
7.30	30	425.28	26.5	53.79	0.00	242.26	100.86	110.99	Triplex SB	12	42.41	49.46

Pouring height	Fresh-concrete pressure	Tensile force on tie rod Z	Tie rod DW	Force angle α	Vertical force V1	Vertical force V2	Vertical force V3	Diagonal force D1	Brace D1	Deflection W1	Deflection force U _v	Deflection force U _h
(m)	(kN/m ²)	(kN)	Minimum size	(°)	(kN)	(kN)	(kN)	(kN)	Type	(mm)	(kN)	(kN)
Influence width e = 1.20 m (M 350 panel, height 350 cm, horizontal use)												
7.00	40	484.46		52.10	0.00	283.48	98.80	108.72		12	39.71	44.97
7.00	30	381.26		52.82	0.00	222.08	81.68	89.88		9	34.17	39.19
7.30	30	408.27		53.79	0.00	232.57	96.83	106.55		12	40.71	47.49

Pouring height	Fresh-concrete pressure	Tensile force on tie rod Z	Tie rod DW	Force angle α	Vertical force V1	Vertical force V2	Vertical force V3	Diagonal force D1	Brace D1	Deflection W1	Deflection force U _v	Deflection force U _h
(m)	(kN/m ²)	(kN)	Minimum size	(°)	(kN)	(kN)	(kN)	(kN)	Type	(mm)	(kN)	(kN)
Influence width e = 1.35 m (StarTec panel, height 270 cm, horizontal use)												
7.00	30	428.91		52.82	0.00	249.84	91.89	101.12		11	38.45	44.09
7.30	30	459.30		53.79	0.00	261.64	108.93	119.87		13	45.80	53.42



D1 Triplex must be reinforced in both directions. If you have any questions, please contact the structural engineering department.

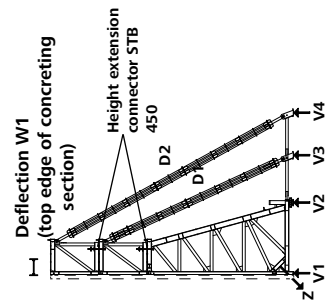
Support frame

STB 450 + 2 height extensions 150 + 2 Triplex

Pouring height	Fresh-concrete pressure	Tensile force on tie rod Z	Tie rod DW	Force angle α	Vertical force V1	Vertical force V2	Vertical force V3	Vertical force V4	Diagonal force D1	Brace D1	Diagonal force D2	Brace D2	Deflection W1	Deflection force U_v	Deflection force U_h
(m)	(kN/m ²)	(kN)	Minimum size	(°)	(kN)	(kN)	(kN)	(kN)	(kN)	Type	(kN)	Type	(mm)	(kN)	(kN)
Influence width $e = 1.25$ m (M panel, height 250 cm, horizontal use)															
7.30	30	407.84	26.5	51.97	0.00	224.46	63.19	33.61	69.53	Triplex SB	38.36	Triplex SB	10	32.87	37.13
7.60	30	433.69	26.5	52.75	0.00	233.86	70.31	41.05	77.38	Triplex SB	46.85	Triplex SB	10	38.56	44.16
7.90	30	459.66	26.5	53.45	0.00	242.21	77.26	49.78	85.03	Triplex SB	56.81	Triplex SB	11	44.22	51.27
8.20	30	483.45	26.5	53.88	0.00	244.63	84.35	61.54	92.83	Triplex SB	70.24	Triplex SB	12	48.66	56.85

Pouring height	Fresh-concrete pressure	Tensile force on tie rod Z	Tie rod DW	Force angle α	Vertical force V1	Vertical force V2	Vertical force V3	Vertical force V4	Diagonal force D1	Brace D1	Diagonal force D2	Brace D2	Deflection W1	Deflection force U_v	Deflection force U_h
(m)	(kN/m ²)	(kN)	Minimum size	(°)	(kN)	(kN)	(kN)	(kN)	(kN)	Type	(kN)	Type	(mm)	(kN)	(kN)
Influence width $e = 1.20$ m (M 350 panel, height 350 cm, horizontal use)															
7.30	30	391.53	26.5	51.97	0.00	215.48	60.66	32.27	66.74	Triplex SB	36.83	Triplex SB	9	31.56	35.65
7.60	30	416.34	26.5	52.75	0.00	224.51	67.50	39.41	74.28	Triplex SB	44.98	Triplex SB	10	37.01	42.39
7.90	30	441.28	26.5	53.45	0.00	232.52	74.17	47.78	81.62	Triplex SB	54.54	Triplex SB	10	42.45	49.22
8.20	30	464.12	26.5	53.88	0.00	234.84	80.98	59.08	89.11	Triplex SB	67.43	Triplex SB	11	46.72	54.58

Pouring height	Fresh-concrete pressure	Tensile force on tie rod Z	Tie rod DW	Force angle α	Vertical force V1	Vertical force V2	Vertical force V3	Vertical force V4	Diagonal force D1	Brace D1	Diagonal force D2	Brace D2	Deflection W1	Deflection force U_v	Deflection force U_h
(m)	(kN/m ²)	(kN)	Minimum size	(°)	(kN)	(kN)	(kN)	(kN)	(kN)	Type	(kN)	Type	(mm)	(kN)	(kN)
Influence width $e = 1.35$ m (StarTec panel, height 270 cm, horizontal use)															
7.30	30	440.47	26.5	51.97	0.00	242.42	68.24	36.30	75.09	Triplex SB	41.43	Triplex SB	10	35.50	40.10
7.60	30	468.38	26.5	52.75	0.00	252.57	75.94	44.33	83.57	Triplex SB	50.60	Triplex SB	11	41.64	47.69
7.90	30	496.43	26.5 (straight tie rod)	53.45	0.00	261.59	83.44	53.76	91.83	Triplex SB	61.36	Triplex SB	12	47.76	55.38



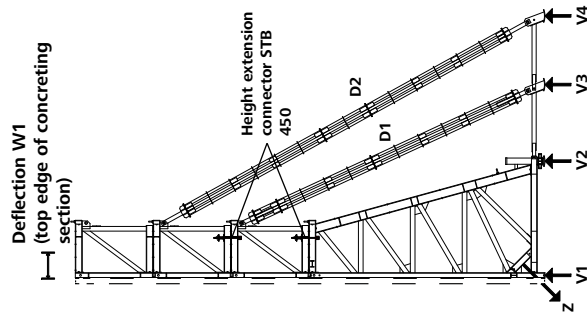
Support frame

STB 450 + 3 height extensions 150 + 2 Triplex

Pouring height	Fresh-concrete pressure	Tensile force on tie rod Z	Tie rod DW	Force angle α	Vertical force V1	Vertical force V2	Vertical force V3	Vertical force V4	Diagonal force D1	Brace D1	Diagonal force D2	Brace D2	Deflection W1	Deflection force UV	Deflection force UH
(m)	(kN/m ²)	(kN)	Minimum size	(°)	(kN)	(kN)	(kN)	(kN)	(kN)	Type	(kN)	Type	(mm)	(kN)	(kN)
Influence width e = 1.25 m (M panel, height 250 cm, horizontal use)															
8.20	30	483.47	26.5	53.88	0.00	244.64	84.39	61.51	92.86	Triplex SB	70.21	Triplex SB	12	48.67	56.86

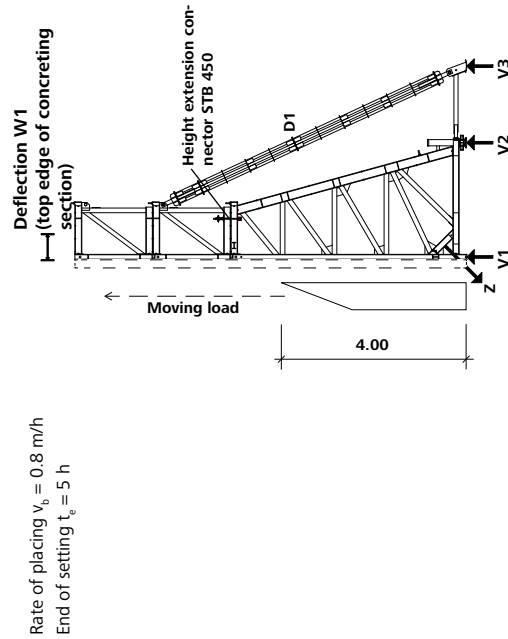
Pouring height	Fresh-concrete pressure	Tensile force on tie rod Z	Tie rod DW	Force angle α	Vertical force V1	Vertical force V2	Vertical force V3	Vertical force V4	Diagonal force D1	Brace D1	Diagonal force D2	Brace D2	Deflection W1	Deflection force UV	Deflection force UH
(m)	(kN/m ²)	(kN)	Minimum size	(°)	(kN)	(kN)	(kN)	(kN)	(kN)	Type	(kN)	Type	(mm)	(kN)	(kN)
Influence width e = 1.20 m (M 350 panel, height 350 cm, horizontal use)															
8.20	30	464.13	26.5	53.88	0.00	234.85	81.01	59.05	89.15	Triplex SB	67.40	Triplex SB	11	46.72	54.59
8.50	30	488.92	26.5	54.43	0.00	240.05	87.59	70.07	96.38	Triplex SB	79.98	Triplex SB	12	51.98	61.32

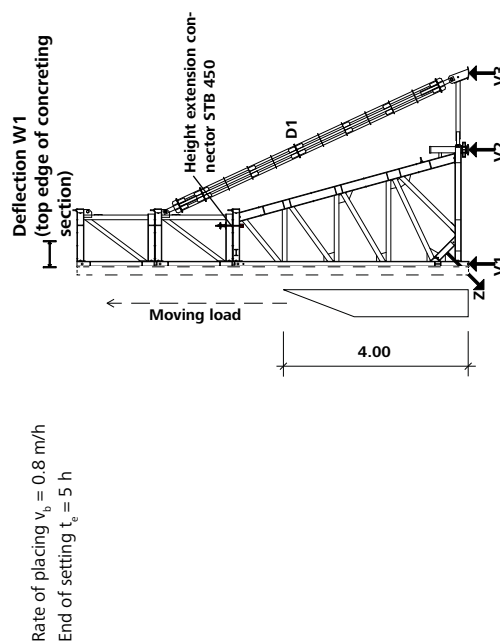
D1 Triplex must be reinforced in both directions. If you have any questions, please contact the structural engineering department.



STB 450 + 2 height extensions 150 + 1 Triplex, with moving load

Pouring height	Fresh-concrete pressure	Tensile force on tie rod Z	Tie rod DW	Force angle α	Vertical force V1	Vertical force V2	Vertical force V3	Diagonal force D1	Brace D1	Deflection W1	Deflection force U_v	Deflection force U_h
(m)	(kN/m ²)	(kN)	Minimum size	(°)	(kN)	(kN)	(kN)	(kN)	Type	(mm)	(kN)	(kN)
Influence width $e = 1.25$ m (M panel, height 250 cm, horizontal use)												
7.00	40	311.55	20 (straight tie rod)	59.10	45.28	206.74	60.58	66.63	Triplex SB	8	47.03	60.30
7.30	40	323.62	26.5	60.37	45.28	212.94	68.35	75.19	Triplex SB	9	52.47	68.84
7.60	40	335.31	26.5	61.50	45.30	217.84	76.84	84.55	Triplex SB	9	57.57	77.10
7.90	40	346.67	26.5	62.51	45.30	221.41	86.11	94.76	Triplex SB	10	62.41	85.13
7.00	30	251.61	20	59.55	31.66	165.98	50.94	56.04	Triplex SB	7	39.00	50.42
7.30	30	261.04	20	60.76	31.66	170.28	57.51	63.26	Triplex SB	7	43.20	57.08
7.60	30	270.21	20	61.84	31.66	173.59	64.65	71.13	Triplex SB	8	47.17	63.56
7.90	30	278.09	20	62.71	31.66	173.24	73.90	81.29	Triplex SB	9	50.50	69.14



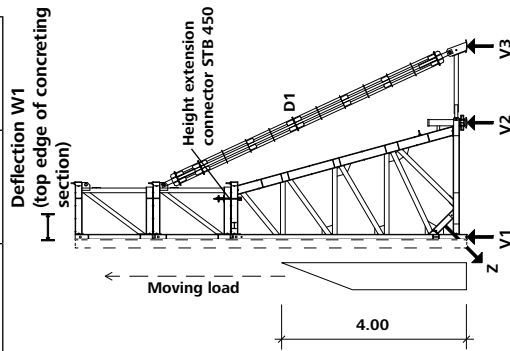


Support frame

STB 450 + 2 height extensions 150 + 1 Triplex, with moving load

Pouring height (m)	Fresh-concrete pressure (kN/m ²)	Tensile force on tie rod Z (kN)	Tie rod DW Minimum size	Force angle α (°)	Vertical force V1 (kN)	Vertical force V2 (kN)	Vertical force V3 (kN)	Diagonal force D1 (kN)	Brace D1 Type	Deflection W1 (mm)	Deflection force U _v (kN)	Deflection force U _h (kN)
Influence width e = 1.35 m (StarTec panel, height 270 cm, horizontal use)												
7.00	40	336.47	26.5	59.10	48.90	223.28	65.42	71.96	Triplex SB	9	50.79	65.12
7.30	40	349.51	26.5	60.37	48.90	229.97	73.82	81.20	Triplex SB	9	56.67	74.34
7.60	40	362.13	26.5	61.50	48.92	235.26	82.98	91.31	Triplex SB	10	62.18	83.26
7.90	40	374.40	26.5	62.51	48.92	239.13	93.00	102.34	Triplex SB	11	67.40	91.94
7.00	30	271.74	20	59.55	34.20	179.25	55.01	60.52	Triplex SB	7	42.12	54.45
7.30	30	281.92	20	60.76	34.20	183.90	62.11	68.32	Triplex SB	8	46.66	61.65
7.60	30	291.82	20	61.84	34.20	187.47	69.82	76.82	Triplex SB	8	50.94	68.65
7.90	30	300.34	20 (straight tie rod)	62.71	34.20	187.10	79.81	87.79	Triplex SB	9	54.54	74.67

D1 Triplex must be reinforced in both directions. If you have any questions, please contact the structural engineering department. placing $v_b = 0.8 \text{ m/h}$
End of setting $t_s = 5 \text{ h}$

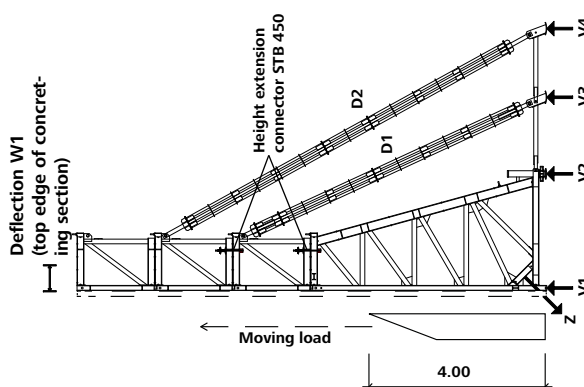


Support frame

STB 450 + 3 height extensions 150 + 2 Triplex, with moving load

Pouring height	Fresh-concrete pressure	Tensile force on tie rod Z	Tie rod DW	Force angle α	Vertical force V1	Vertical force V2	Vertical force V3	Vertical force V4	Diagonal force D1	Brace D1	Brace D2	Deflection W1	Deflection force UV	Deflection force UH
(m)	(kN/m ²)	(kN)	Minimum size	(°)	(kN)	(kN)	(kN)	(kN)	(kN)	Type	Type	(mm)	(kN)	(kN)
Influence width e = 1.25 m (M panel, height 250 cm, horizontal use)														
8.20	40	360.95	26.5	63.69	46.33	203.64	84.59	65.59	93.03	Triplex SB	Triplex SB	10	68.32	95.23
8.50	40	363.32	26.5	63.87	46.33	201.60	87.56	80.11	96.30	Triplex SB	Triplex SB	12	69.28	96.90
8.80	40	365.64	26.5	64.05	46.33	198.74	91.51	94.18	100.65	Triplex SB	Triplex SB	13	70.23	98.54
8.20	30	288.13	20	63.74	32.59	160.40	68.06	55.54	74.86	Triplex SB	Triplex SB	8	54.65	76.24
8.50	30	289.83	20	63.90	32.59	158.39	70.04	67.44	77.04	Triplex SB	Triplex SB	10	55.34	77.45
8.80	30	291.66	20	64.08	32.59	158.54	72.99	78.78	80.28	Triplex SB	Triplex SB	11	56.08	78.73
9.10	30	293.20	20	64.22	32.59	159.99	75.18	90.69	82.69	Triplex SB	Triplex SB	13	56.70	79.82
9.40	30	294.58	20	64.35	32.59	160.89	76.43	103.20	84.06	Triplex SB	Triplex SB	15	57.26	80.80

D2 Triplex must be reinforced in both directions. If you have any questions, please contact the structural engineering department.

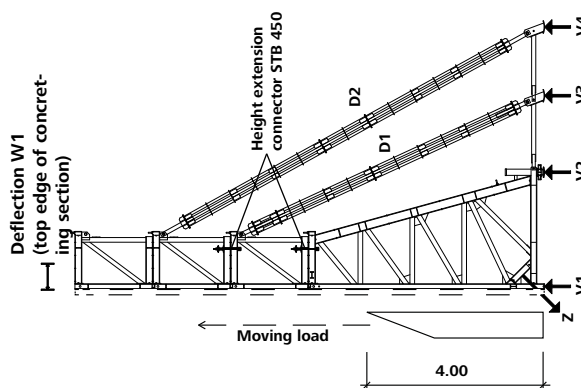


Support frame

STB 450 + 3 height extensions 150 + 2 Triplex, with moving load

Pouring height	Fresh-concrete pressure	Tensile force on tie rod Z	Tie rod DW	Force angle α	Vertical force V1	Vertical force V2	Vertical force V3	Vertical force V4	Diagonal force D1	Brace D1	Diagonal force D2	Brace D2	Deflection W1	Deflection force UV	Deflection force UH
(m)	(kN/m ²)	(kN)	Minimum size	(°)	(kN)	(kN)	(kN)	(kN)	(kN)	Type	(kN)	Type	(mm)	(kN)	(kN)
Influence width e = 1.20 m (M 350 panel, height 350 cm, horizontal use)															
8.20	40	346.52	26.5	63.69	44.47	195.49	81.20	62.96	89.30	Triplex SB	71.83	Triplex SB	10	65.59	91.42
8.50	40	348.78	26.5	63.87	44.47	193.54	84.06	76.91	92.45	Triplex SB	87.73	Triplex SB	11	66.51	93.03
8.80	40	351.01	26.5	64.05	44.47	190.79	87.85	90.41	96.62	Triplex SB	103.13	Triplex SB	13	67.42	94.60
8.20	30	276.61	20	63.74	31.28	153.98	65.34	53.32	71.87	Triplex SB	60.83	Triplex SB	8	52.46	73.19
8.50	30	278.24	20	63.90	31.28	152.05	67.24	64.74	73.96	Triplex SB	73.86	Triplex SB	9	53.13	74.35
8.80	30	279.99	20	64.08	31.28	152.20	70.07	75.62	77.06	Triplex SB	86.27	Triplex SB	11	53.84	75.58
9.10	30	281.47	20	64.22	31.28	153.59	72.17	87.06	79.38	Triplex SB	99.31	Triplex SB	12	54.43	76.63
9.40	30	282.80	20	64.35	31.28	154.45	73.37	99.07	80.70	Triplex SB	113.02	Triplex SB	14	54.97	77.57

D2 Triplex must be reinforced in both directions. If you have any questions, please contact the structural engineering department.



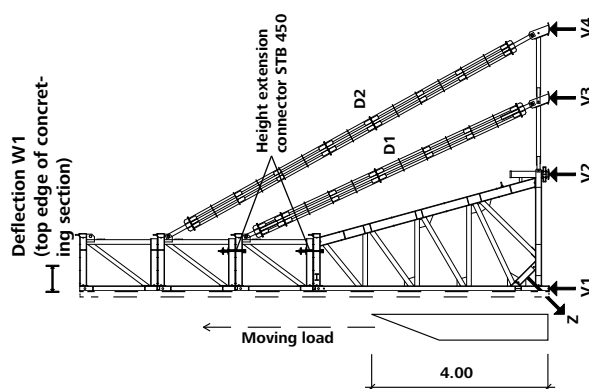
Support frame

STB 450 + 3 height extensions 150 + 2 Triplex, with moving load

Pouring height	Fresh-concrete pressure	Tensile force on tie rod Z	Tie rod DW	Force angle α	Vertical force V1	Vertical force V2	Vertical force V3	Vertical force V4	Diagonal force D1	Brace D1	Diagonal force D2	Brace D2	Deflection W1	Deflection force UV	Deflection force UH
(m)	(kN/m ²)	(kN)	Minimum size	(°)	(kN)	(kN)	(kN)	(kN)	(kN)	Type	(kN)	Type	(mm)	(kN)	(kN)
Influence width e = 1.35 m (StarTec panel, height 270 cm, horizontal use)															
8.20	40	389.83	26.5	63.69	50.03	219.93	91.35	70.83	100.47	Triplex SB	80.81	Triplex SB	11	73.79	102.85
8.50	40	392.38	26.5	63.87	50.03	217.73	94.57	86.52	104.00	Triplex SB	98.70	Triplex SB	12	74.83	104.66
8.80	40	394.89	26.5	64.05	50.03	214.64	98.83	101.71	108.70	Triplex SB	116.02	Triplex SB	14	75.84	106.43
8.20	30	311.18	20 (straight tie rod)	63.74	35.19	173.23	73.51	59.98	80.85	Triplex SB	68.43	Triplex SB	9	59.02	82.34
8.50	30	313.02	20 (straight tie rod)	63.90	35.19	171.06	75.64	72.83	83.20	Triplex SB	83.09	Triplex SB	10	59.77	83.65
8.80	30	314.99	20 (straight tie rod)	64.08	35.19	171.22	78.83	85.08	86.70	Triplex SB	97.05	Triplex SB	12	60.56	85.03
9.10	30	316.65	20 (straight tie rod)	64.22	35.19	172.79	81.19	97.94	89.30	Triplex SB	11.73	Triplex SB	14	61.24	86.21

D2 Triplex must be reinforced in both directions.

D2 and D2 Triplex must be reinforced in both directions. If you have any questions, please contact the structural engineering department.





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