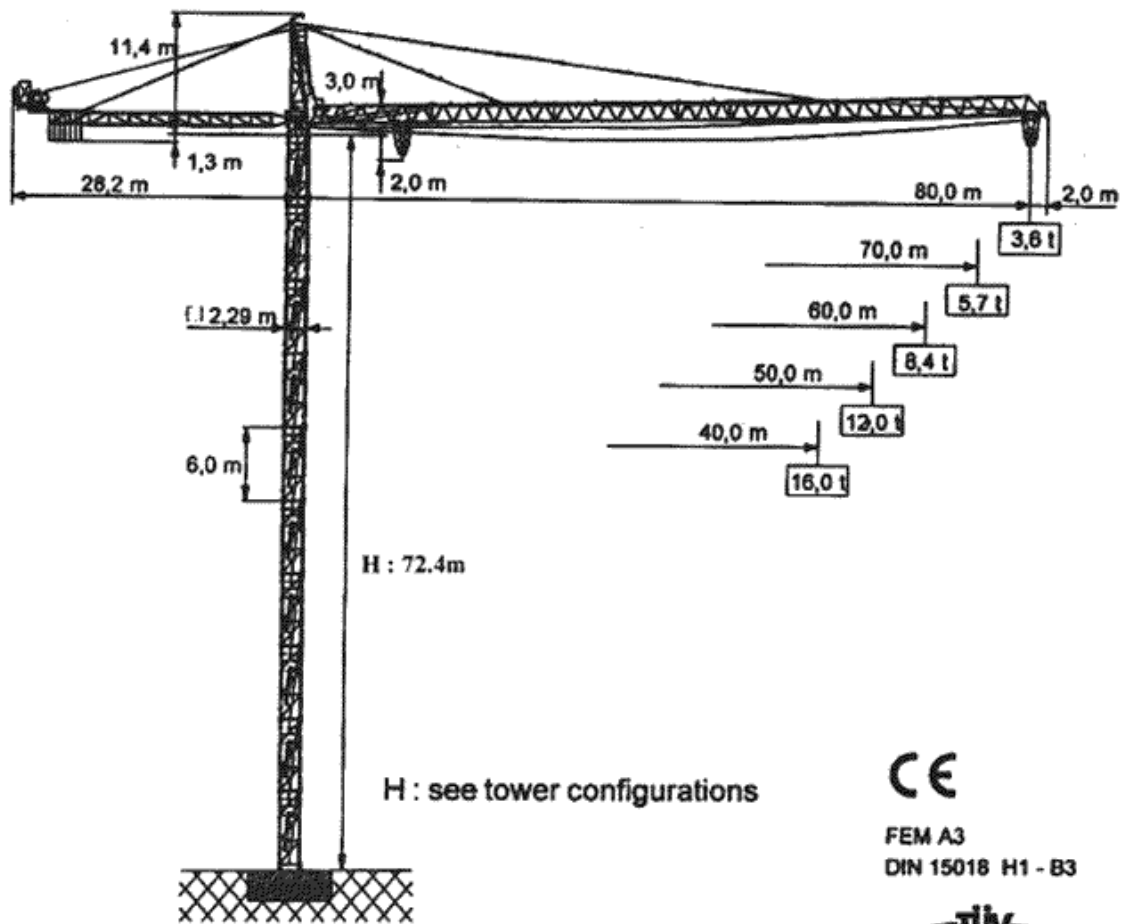




# TOWER CRANE BK 560 - 20

2/4- fall



H : see tower configurations

CE

FEM A3  
DIN 15018 H1 - B3



DIN EN ISO 9001

Edition 09.97 Subject to modification

560\_204K.PM4













Steinheilstraße 8  
85737 Ismaning  
Germany  
Tel.: 089-962 42 90






# BK 560- 20

2/4-fall

## Radius and capacity

Jib		max. Capacity		m x t										
m	Rope fall	t	m	16	18	20	25	30	35	40	50	60	70	80
80,0		20,0	19,7	20,0	20,0	19,7	15,2	12,4	10,3	8,80	6,70	5,31	4,33	3,60
		10,0	35,9	10,0	10,0	10,0	10,0	10,0	10,0	8,80	6,70	5,31	4,33	3,60
70,0		20,0	24,1	20,0	20,0	20,0	19,2	15,6	13,1	11,2	8,63	6,91	5,70	
		10,0	44,1	10,0	10,0	10,0	10,0	10,0	10,0	10,0	8,63	6,91	5,70	
60,0		20,0	28,2	20,0	20,0	20,0	20,0	18,7	15,7	13,5	10,4	8,40		
		10,0	51,7	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	8,40		
50,0		20,0	31,8	20,0	20,0	20,0	20,0	20,0	18,0	15,5	12,0			
		10,0	50,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0			
40,0		20,0	32,8	20,0	20,0	20,0	20,0	20,0	18,6	16,0				
		10,0	40,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0				

## Speeds

380 V 60 Hz			
Motor	9,0 KW	3 x 5,2 KW	2 x 9,0 KW
Speeds	v = 0 - 85 m/min	0,80 rpm	v = 30 m/min

## Power required - top crane

380 V 60 Hz	Hoist unit ( KW )		
	79		
<b>KW-kVA</b>	<b>104-130</b>		

## Counterweight

Jib	Hoist unit ( KW )		
	79		
80,0 m	26,0 t		

# BK 560-20 FEM 1.003 A 3

Hoist unit 79 kW SL/WB T 500/18

Radius and capacity



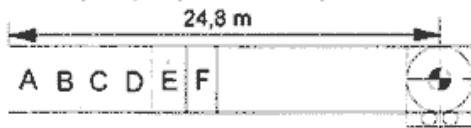
Jib	Max. capacity		Radius (m) and capacity (t)											
	t	m	18,0	20,0	23,0	25,0	28,0	30,0	35,0	40,0	50,0	60,0	70,0	80,0
L 5 80,0 m	20,0	2,4 - 19,7	20,0	19,7	16,8	15,2	13,4	12,4	10,3	8,80	6,70	5,31	4,33	3,60
L 4 70,0 m	20,0	2,4 - 24,1	20,0	20,0	20,0	19,2	16,9	15,6	13,1	11,2	8,83	6,91	5,70	
L 3 60,0 m	20,0	2,4 - 28,2	20,0	20,0	20,0	20,0	20,0	18,7	15,7	13,5	10,4	8,40		
L 2 50,0 m	20,0	2,4 - 31,8	20,0	20,0	20,0	20,0	20,0	20,0	18,0	15,5	12,0			
L 1 40,0 m	20,0	2,4 - 32,8	20,0	20,0	20,0	20,0	20,0	20,0	18,6	16,0				

## Speeds

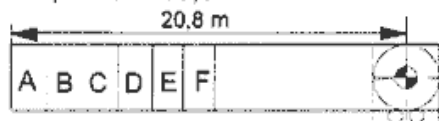
	$v = 0 - 85,0 \text{ m/min}$	9,0 kW-WB																																																								
	$n = 0 - 0,73 \text{ min}^{-1}$	3x5,2 kW-WB																																																								
	$v = 0 - 30,0 \text{ m/min}$	2x9,0 kW-FK																																																								
		<table border="1"> <tr> <td>1.Gear</td> <td>32,0 m/min</td> <td>10,0 t</td> </tr> <tr> <td></td> <td>3,2 m/min</td> <td></td> </tr> <tr> <td>2.Gear</td> <td>50,0 m/min</td> <td>6,1 t</td> </tr> <tr> <td></td> <td>5,0 m/min</td> <td></td> </tr> <tr> <td>3.Gear</td> <td>80,0 m/min</td> <td>3,7 t</td> </tr> <tr> <td></td> <td>8,0 m/min</td> <td></td> </tr> <tr> <td>4.Gear</td> <td>127 m/min</td> <td>2,1 t</td> </tr> <tr> <td></td> <td>12,7 m/min</td> <td></td> </tr> <tr> <td>HH</td> <td colspan="2"><math>max = 270,0 \text{ m}</math></td> </tr> </table>	1.Gear	32,0 m/min	10,0 t		3,2 m/min		2.Gear	50,0 m/min	6,1 t		5,0 m/min		3.Gear	80,0 m/min	3,7 t		8,0 m/min		4.Gear	127 m/min	2,1 t		12,7 m/min		HH	$max = 270,0 \text{ m}$		<table border="1"> <tr> <td>1.Gear</td> <td>16,0 m/min</td> <td>20,0 t</td> </tr> <tr> <td></td> <td>1,6 m/min</td> <td></td> </tr> <tr> <td>2.Gear</td> <td>25,0 m/min</td> <td>12,1 t</td> </tr> <tr> <td></td> <td>2,5 m/min</td> <td></td> </tr> <tr> <td>3.Gear</td> <td>40 m/min</td> <td>7,3 t</td> </tr> <tr> <td></td> <td>4,0 m/min</td> <td></td> </tr> <tr> <td>4.Gear</td> <td>64 m/min</td> <td>4,2 t</td> </tr> <tr> <td></td> <td>6,4 m/min</td> <td></td> </tr> <tr> <td>HH</td> <td colspan="2"><math>max = 135,0 \text{ m}</math></td> </tr> </table>	1.Gear	16,0 m/min	20,0 t		1,6 m/min		2.Gear	25,0 m/min	12,1 t		2,5 m/min		3.Gear	40 m/min	7,3 t		4,0 m/min		4.Gear	64 m/min	4,2 t		6,4 m/min		HH	$max = 135,0 \text{ m}$		79 kW-WB
		1.Gear	32,0 m/min	10,0 t																																																						
			3,2 m/min																																																							
		2.Gear	50,0 m/min	6,1 t																																																						
			5,0 m/min																																																							
		3.Gear	80,0 m/min	3,7 t																																																						
	8,0 m/min																																																									
4.Gear	127 m/min	2,1 t																																																								
	12,7 m/min																																																									
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4.Gear	64 m/min	4,2 t																																																								
	6,4 m/min																																																									
HH	$max = 135,0 \text{ m}$																																																									
380 V - 60 Hz	power required - upper part of crane	125 kVA																																																								

## Ballast- counterjib

L = 60,0 m, 70,0 m and 80,0 m



L = 40,0 m and 50,0 m



Jib	40,0	50,0	60,0	70,0	80,0
A (t)			6,00*		
B (t)		4,00*	6,00	4,00*	4,00*
C (t)	6,00*	6,00	6,00	4,00	4,00
D (t)	6,00	6,00	6,00	6,00	6,00
E (t)	6,00	6,00		6,00	6,00
F (t)	4,00	6,00		6,00	6,00
Total (t)	22,00	28,00	24,00	26,00	26,00

\* Put the ballast block before install the jib

Part-No.: 2 710 5601

Technical data

# BK 560-20

Crane transport



Nb.	Description	Sketch	Dimensions m			Weight per piece t
			l	b	h	
1	Turntable + KDA 56-23		2,75	2,30	2,50	10,40
1	Cabin + Platform + Railing		3,90	1,60	2,60	0,72
1	Hoist unit 66 kW SL		4,54	2,30	2,00	5,60
1	Counterjib part 1 Railing + Suspension		8,08	2,12	1,88	3,55
1	Counterjib part 2 Railing + Suspension		11,89	2,22	1,88	5,30
1	Counterjib part 3 Railing + Suspension		4,17	2,12	1,88	1,50
1	Platforms counterjib loose		3,90	1,36	0,75	0,33
1	Railings counterjib loose		3,85	0,40	1,15	0,22
1	Counterweight BG		1,60	0,50	3,55	6,00
1			1,60	0,50	2,40	4,00
1	Tower top		9,85	1,80	2,60	5,90
1	Transformer platform + Railing		2,40	1,50	1,27	0,43
1	Tower section TG 23-6		6,04	2,28	2,29	4,52
1	Climbing unit KE 22/23		11,20	2,96	3,17	12,20

# BK 560-20



## Crane transport

Nb.	Description	Sketch	Dimension m			Weight per piece t
			l	b	h	
1	Jib section AS 912-01 + Trolley unit		12,01	1,98	2,34	4,07
1	Jib section AS 912-02		12,01	1,90	1,90	3,19
1	Jib section AS 912-03		12,01	1,90	1,90	2,32
1	Jib section AS 905-01		5,94	1,90	1,82	1,16
1	Jib section AS 910-01		10,24	1,90	1,82	1,70
1	Jib section AS 910-02		10,23	1,90	1,80	1,52
1	Jib section AS 910-03		10,20	1,90	1,80	1,00
1	Jib section AS 910-04		10,08	1,90	1,79	0,74
1	Jib suspension for 60, 70, 80 m		6,72	0,77	0,75	5,75
1	Jib suspension for 50 m		6,72	0,77	0,51	4,46
1	Jib suspension for 40 m		6,72	0,62	0,27	2,00
1	Jib traverse		0,96	2,08	1,57	0,18
1	Trolley		2,16	2,30	1,15	0,60
1	Hook block		1,10	0,41	2,47	0,84

Crane transport

# BK 560-20



Hook heights

Tower TG 23

TG 23-3 = 3,0 m    TG 23-6 = 6,0 m (climbing tower)

		Version A		
Number of the tower sections TG				
23-3	23-6	L = 40 m, 50 m and 60 m	L = 70 m	L = 80 m
1		1,4	1,4	1,4
2	1	4,4	4,4	4,4
3		7,4	7,4	7,4
4	2	10,4	10,4	10,4
5		13,4	13,4	13,4
6	3	16,4	16,4	16,4
7		19,4	19,4	19,4
8	4	22,4	22,4	22,4
9		25,4	25,4	25,4
10	5	28,4	28,4	28,4
11		31,4	31,4	31,4
12	6	34,4	34,4	34,4
13		37,4	37,4	37,4
14	7	40,4	40,4	40,4
15		43,4	43,4	43,4
16	8	46,4	46,4	46,4
17		49,4	49,4	49,4
18	9	52,4	52,4	52,4
19		55,4	55,4	55,4
20	10	58,4	58,4	58,4
21		-	61,4	61,4
22	11	-	64,4	64,4
23		-	-	67,4
24	12	-	-	70,4

# BK 560-20



Version A - Crane at foundation

Jib length L = 40,0 m , 50,0 m and 60,0 m

Foundation loading

Tower TG 23

Hook height m	Number of the tower sections	Foundation loading (kN, kNm)			Foundation size (m)		Ground pressure $P_1$ (kN/m <sup>2</sup> )
		N	$M_x$	Q	L	$h_f$	
4.4	1 x TG 23-6	1315	4969	33.9	6.30	1.60	218
10.4	2 x TG 23-6	1362	5475	37.0	6.50	1.60	220
16.4	3 x TG 23-6	1409	5983	40.0	6.70	1.60	220
22.4	4 x TG 23-6	1456	6487	43.1	7.00	1.60	208
28.4	5 x TG 23-6	1503	6983	46.2	7.20	1.60	205
34.4	6 x TG 23-6	1550	7467	49.2	7.30	1.60	212
40.4	7 x TG 23-6	1597	7932	52.3	7.50	1.60	207
46.4	8 x TG 23-6	1644	8373	55.4	7.60	1.60	211
52.4	9 x TG 23-6	1691	8786	58.4	7.80	1.60	204
58.4	10 x TG 23-6	1733	9166	61.2	7.90	1.60	205

## Foundation dimensions

The dimensions of the foundation depends on the stability.

Boom is out of operation free slewing.

Criterion: Gaping joint.

$$h_{f,min} = 1,6 \text{ m}$$

$$e \leq L/3$$

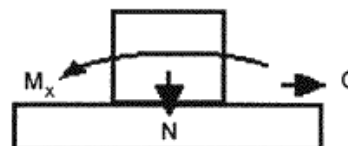
$$e = (M_x + (Q \times h_f)) / (N + G_f)$$

$$G_f = h_f \times L^2 \times 24 \text{ (kN)}$$

The permissible ground pressure must not be exceeded.

Concrete grade: B 15

Required reinforcement provided by the owner respectively by inquiry.



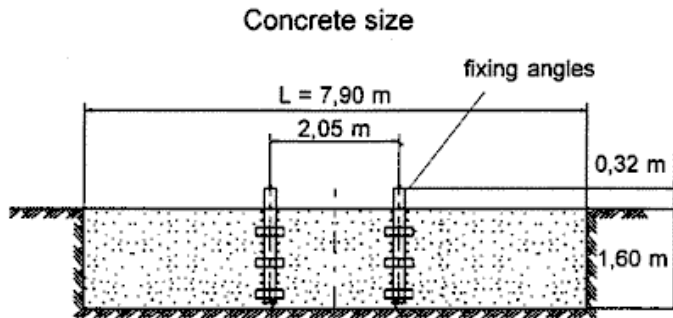
# BK 560-20



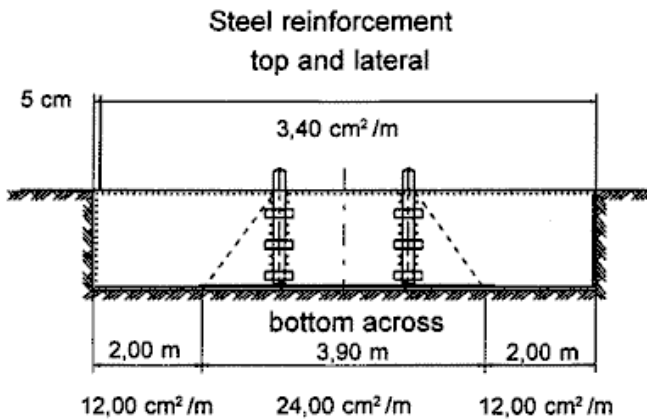
Foundation with TG 23

Jib lengths: L = 40,0 m, 50,0 m and 60,0 m

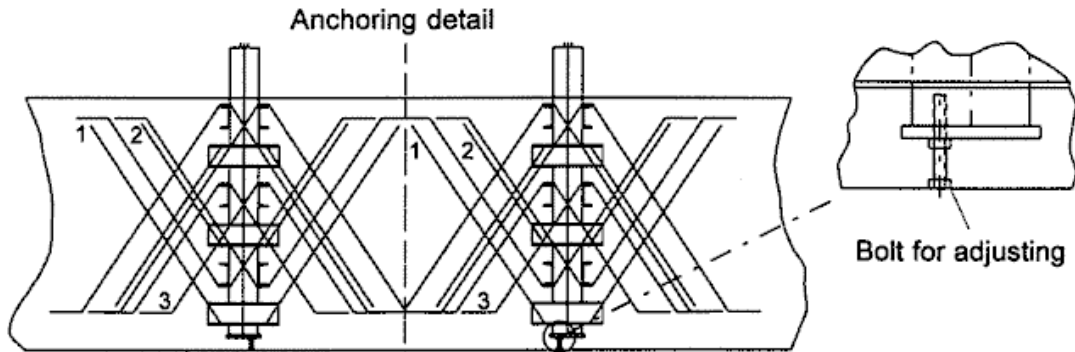
Hook height:	58,4 m
Foundation loads:	
Crane moment:	$M_x = 9166 \text{ kNm}$
Torque moment:	$M_t = 405 \text{ kNm}$
Vertical load:	$N = 1733 \text{ kN}$
Horizontal load:	$H = 61 \text{ kN}$
Ground pressure:	$p_1 = 205 \text{ kN/m}^2$



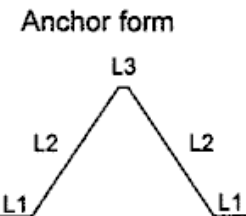
Concrete grade B 15  
Concrete compressive strength 25 N/mm<sup>2</sup>



BSt 420/500  
Tensile strength 500 N/mm<sup>2</sup>  
Yield point 420 N/mm<sup>2</sup>



Pos.:	d (mm)	L1 (cm)	L2 (cm)	L3 (cm)	l (cm)	Anchor/ f. angle	Anchor total	Σ l total (m)
1	∅ 28	20	176	8	400	8	32	128
2	∅ 28	20	143	8	334	8	32	106.9
3	∅ 28	20	109	8	266	8	32	85.1



Technical data



# BK 560-20



Version A - Crane at foundation

Jib length  $L = 70,0$  m

Foundation loading

Tower TG 23

Hook height m	Number of the tower sections	Foundation loading (kN, kNm)			Foundation size (m)		Ground pressure $P_1$ (kN/m <sup>2</sup> )
		N	$M_x$	Q	L	$h_f$	
4.4	1 x TG 23-6	1346	3892	34.8	5.60	1.60	243
10.4	2 x TG 23-6	1393	4414	37.9	5.90	1.60	236
16.4	3 x TG 23-6	1440	4942	40.9	6.20	1.60	227
22.4	4 x TG 23-6	1487	5472	44.0	6.40	1.60	230
28.4	5 x TG 23-6	1534	5999	47.1	6.70	1.60	219
34.4	6 x TG 23-6	1581	6519	50.2	6.90	1.60	218
40.4	7 x TG 23-6	1628	7026	53.2	7.10	1.60	216
46.4	8 x TG 23-6	1675	7515	56.3	7.30	1.60	212
52.4	9 x TG 23-6	1722	7981	59.4	7.40	1.60	218
58.4	10 x TG 23-6	1769	8418	62.4	7.60	1.60	211
64.4	11 x TG 23-6	1810	8821	65.2	7.70	1.60	213

## Foundation dimensions

The dimensions of the foundation depends on the stability.

Boom is out of operation free slewing.

Criterion: Gaping joint.

$$h_{f,min} = 1,6 \text{ m}$$

$$e \leq L/3$$

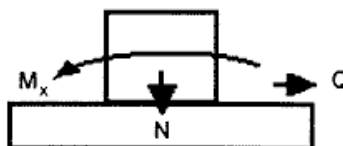
$$e = (M_x + (Q \times h_f)) / (N + G_f)$$

$$G_f = h_f \times L^2 \times 24 \text{ (kN)}$$

The permissible ground pressure must not be exceeded.

Concrete grade: B 15

Required reinforcement provided by the owner respectively by inquiry.



# BK 560-20



Foundation with TG 23  
Jib length:  $L = 70,0 \text{ m}$

Hook height: 64,4 m

Foundation loads:

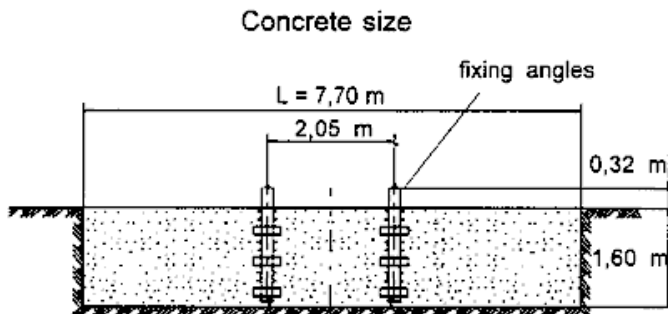
Crane moment:  $M_x = 8821 \text{ kNm}$

Torque moment:  $M_T = 405 \text{ kNm}$

Vertical load:  $N = 1810 \text{ kN}$

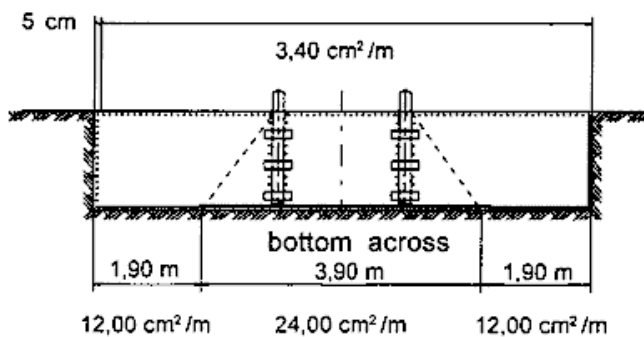
Horizontal load:  $H = 65 \text{ kN}$

Ground pressure:  $p_1 = 211 \text{ kN/m}^2$



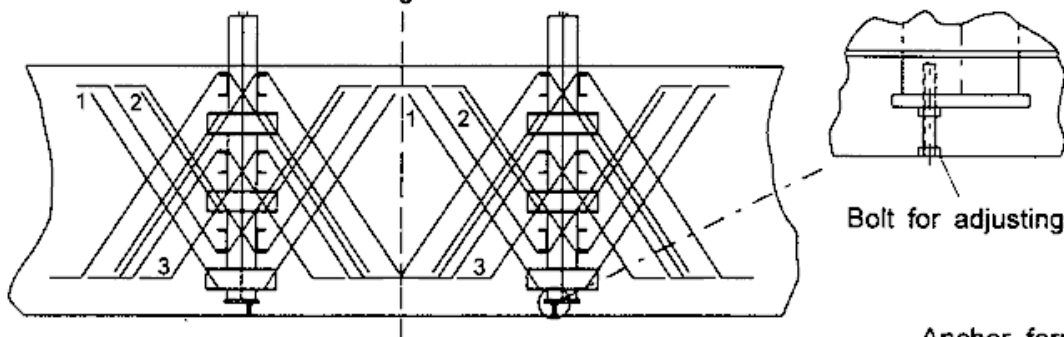
Concrete grade B 15  
Concrete compressive strength  $25 \text{ N/mm}^2$

Steel reinforcement  
top and lateral

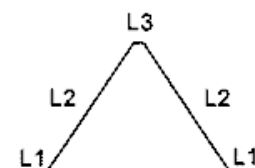


BSt 420/500  
Tensile strength  $500 \text{ N/mm}^2$   
Yield point  $420 \text{ N/mm}^2$

Anchoring detail



Anchor form



Pos.:	d (mm)	L1 (cm)	L2 (cm)	L3 (cm)	l (cm)	Anchor/ f. angle	Anchor total	$\Sigma l$ total (m)
1	$\varnothing 28$	20	176	8	400	8	32	128
2	$\varnothing 28$	20	143	8	334	8	32	106.9
3	$\varnothing 28$	20	109	8	266	8	32	85.1

Technical data

# BK 560-20



Version A - Crane at foundation  
Jib length L = 80,0 m

Foundation loading

Tower TG 23

Hook height m	Number of the tower sections	Foundation loading (kN, kNm)			Foundation size (m)		Ground pressure $P_1$ (kN/m <sup>2</sup> )
		N	$M_x$	Q	L	$h_p$	
4.4	1 x TG 23-6	1354	3331	35.3	5.20	1.60	260
10.4	2 x TG 23-6	1401	3886	38.3	5.60	1.60	242
16.4	3 x TG 23-6	1448	4451	41.4	5.90	1.60	238
22.4	4 x TG 23-6	1495	5021	44.5	6.30	1.80	219
28.4	5 x TG 23-6	1542	5592	47.5	6.60	1.60	212
34.4	6 x TG 23-6	1589	6159	50.6	6.80	1.60	214
40.4	7 x TG 23-6	1636	6717	53.7	7.00	1.80	215
46.4	8 x TG 23-6	1683	7259	56.7	7.20	1.60	213
52.4	9 x TG 23-6	1730	7781	59.8	7.40	1.60	211
58.4	10 x TG 23-6	1777	8277	62.9	7.60	1.60	206
64.4	11 x TG 23-6	1824	8740	65.9	7.70	1.60	210
70.4	12 x TG 23-6	1865	9166	68.7	7.80	1.80	213

## Foundation dimensions

The dimensions of the foundation depends on the stability.

Boom is out of operation free slewing.

Criterion: Gaping joint.

$$h_{p,\min} = 1,6 \text{ m}$$

$$e \leq L/3$$

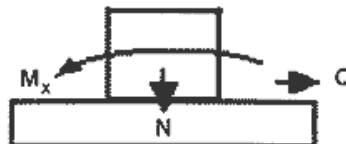
$$e = (M_x + (Q \times h_p)) / (N + G_p)$$

$$G_p = h_p \times L^2 \times 24 \text{ (kN)}$$

The permissible ground pressure must not be exceeded.

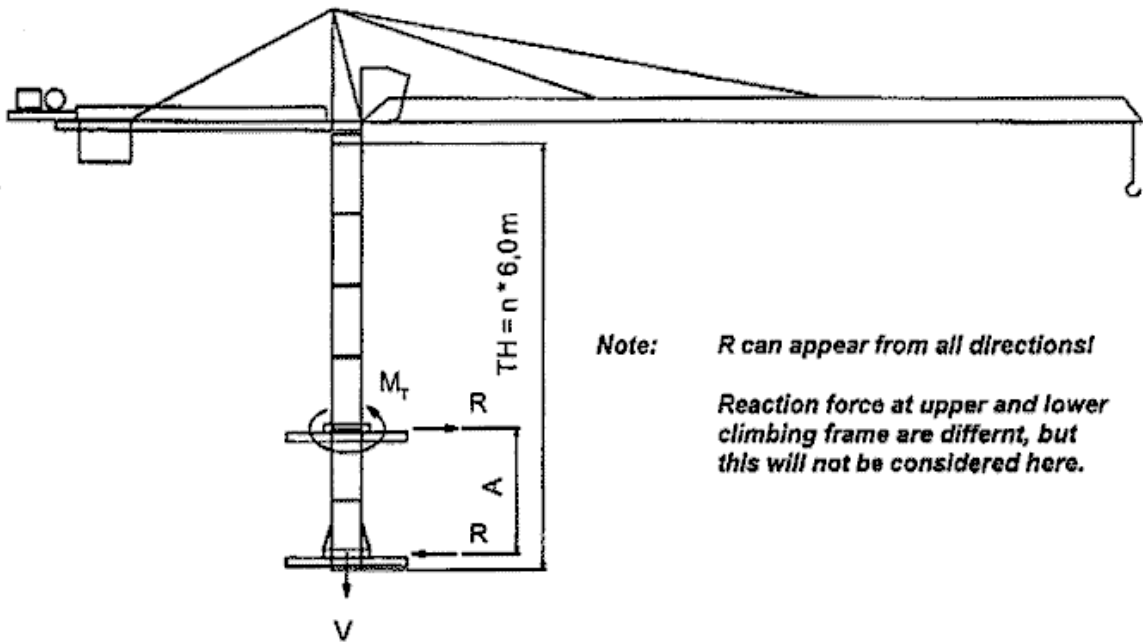
Concrete grade: B 15

Required reinforcement provided by the owner respectively by inquiry.



## System - Internal Climbing Device

Tower section with climbing device GE 23



**Note:** *R can appear from all directions!*

*Reaction force at upper and lower climbing frame are different, but this will not be considered here.*

- TH = tower height
- n = number of tower sections
- A = anchoring height; depends on "n"
- V = vertical load of entire crane
- R = reaction force at climbing frame
- $M_T$  = torque moment

## Internal Climbing Crane - Reaction Forces

Tower TG 23

Tower height (TH) 36,0 m

Field length TG 23-6 K 2,0 m  
TG 23-3 K 1,5 m

Anchoring Height A			11,7 m	13,7 m	15,7 m	17,7 m	
Jib (m)	TH	V	Reaction Forces R (In Service)				M <sub>r</sub>
L = 40	36 m	147 t	516 kN	440 kN	382 kN	337 kN	270 kNm
L = 50	36 m	154 t	520 kN	443 kN	385 kN	340 kN	405 kNm
L = 60	36 m	154 t	476 kN	405 kN	352 kN	311 kN	405 kNm
L = 70	36 m	157 t	425 kN	362 kN	315 kN	277 kN	439 kNm
L = 80	36 m	158 t	373 kN	318 kN	276 kN	243 kN	525 kNm

Anchoring Height A			11,7 m	13,7 m	15,7 m	17,7 m	
Jib (m)	TH	V	Reaction Forces R (out of Service)				M <sub>r</sub>
L = 40	36 m	94 t	348 kN	297 kN	259 kN	230 kN	0 kNm
L = 50	36 m	101 t	324 kN	277 kN	241 kN	214 kN	0 kNm
L = 60	36 m	101 t	289 kN	247 kN	215 kN	181 kN	0 kNm
L = 70	36 m	104 t	247 kN	211 kN	184 kN	164 kN	0 kNm
L = 80	36 m	104 t	205 kN	175 kN	153 kN	138 kN	0 kNm

**Note:** The upper and lower internal climbing frame have to be close to a horizontal beam with a tolerance of +/- 300 mm always. This means the admissible overhang with the standard sequence of the tower sections (s. sketch) can be 12 m, 14 m, 16 m, 18 m, a.s.o. with the above mentioned tolerances. A modification can be achieved by exchanging the sequence of the tower sections TG 23-6 K (distance between the horizontal beams 2,0 m) and TG 23-3 K (distance between the horizontal beams: 1,5 m).

Considering this possibility the admissible anchoring heights are:  
12,0 m - 13,0 m - 14,0 m - 15,0 m - 16,0 m - 17,0 m - 18,0 m - ...

Swapping one TG 23-6 K against two tower sections TG 23-3 K creates many more possibilities for difficult construction sites.

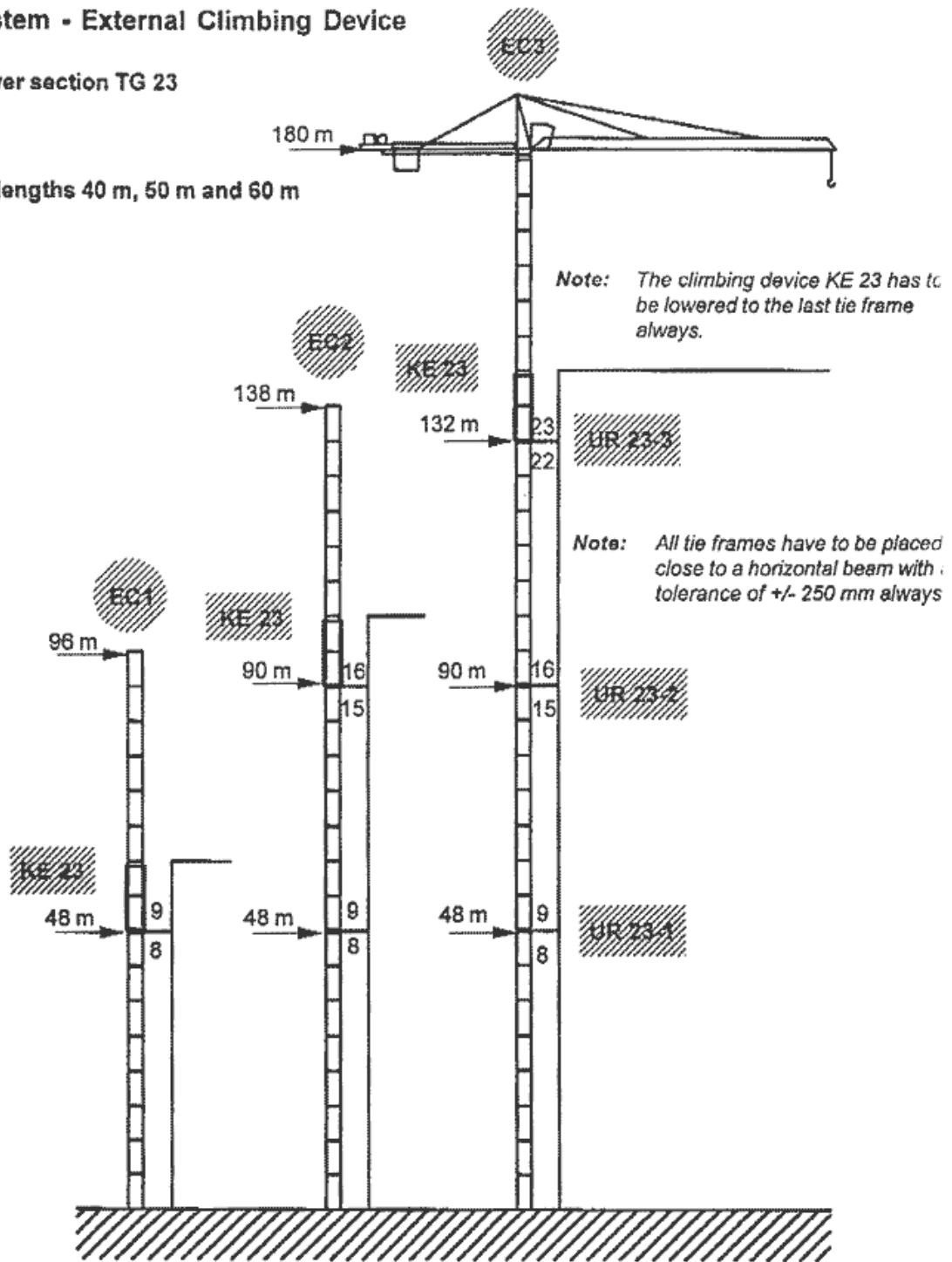
# BK 560

# POTAIN

System - External Climbing Device

Tower section TG 23

Jib lengths 40 m, 50 m and 60 m



## External Climbing Crane - Heights and Reaction Forces

Jib lengths 40 m, 50 m and 60 m

L = 40 m, 50 m and 60 m	A1	EC1	EC2	EC3
<i>Tower TG 23</i>		<i>UR 23-1</i>	<i>UR 23-2</i>	<i>UR 23-3</i>
Hook Height	58,7 m	97,0 m	139,0 m	181,0 m
Jib support height	61,6 m	99,9 m	141,9 m	183,9 m
Tower height	60,0 m	96,0 m	138,0 m	180,0 m
Position of last tie frame		48,0 m	90,0 m	132,0 m
Overhang		48,0 m	48,0 m	48,0 m
Anchoring distance		48,0 m	42,0 m	42,0 m
$R_{i.s.}$		257 kN	252 kN	252 kN
$M_T i.s.$		405 kNm	405 kNm	405 kNm
$R_{e.s.}$		338 kN	361 kN	361 kN
$M_T e.s.$		0 kNm	0 kNm	0 kNm

**Note:** *The climbing device KE 23 has to be lowered to the last tie frame always.*

*All tie frames have to be placed close to a horizontal beam with a tolerance of +/- 250 mm always.*

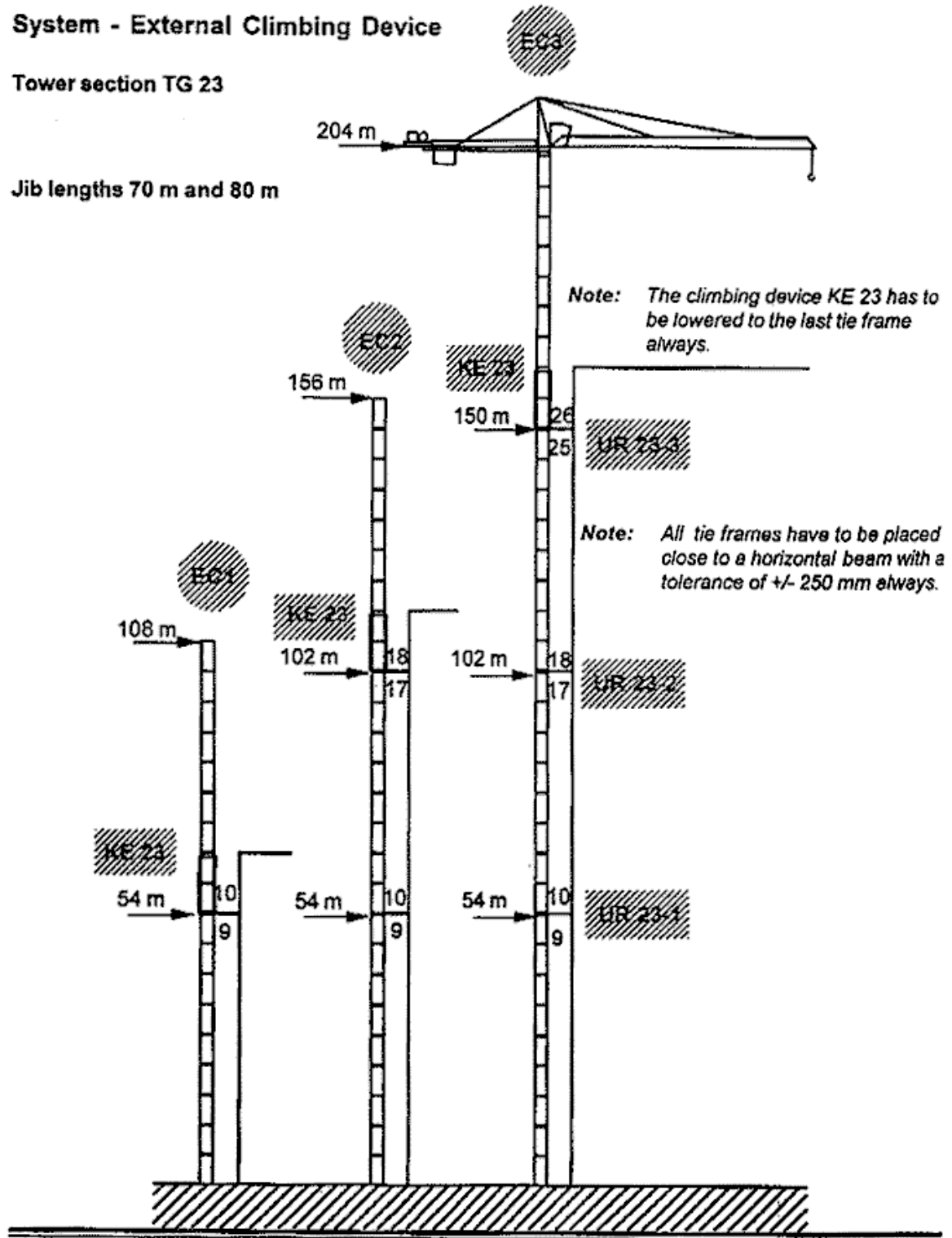
# BK 560

# POTAIN

System - External Climbing Device

Tower section TG 23

Jib lengths 70 m and 80 m





## External Climbing Crane - Heights and Reaction Forces

Jib lengths 70 m and 80 m

Jib length: L = 70m and 80 m	A1	EC1	EC2	EC3
Tower TG 23		UR 23-1	UR 23-2	UR 23-3
Hook Height	64,7 m	106,7 m	154,7 m	202,7 m
Jib support height	67,6 m	109,6 m	157,6 m	205,6 m
Tower height	66,0 m	108,0 m	156,0 m	204,0 m
Position of last tie frame		54,0 m	102,0 m	150,0 m
Overhang		54,0 m	54,0 m	54,0 m
Anchoring distance		54,0 m	48,0 m	48,0 m
$R_{i.s.}$		240 kN	235 kN	235 kN
$M_{T i.s.}$		439 kNm	439 kNm	439 kNm
$R_{o.s.}$		389 kN	425 kN	425 kN
$M_{T o.s.}$		0 kNm	0 kNm	0 kNm

**Note:** The climbing device KE 23 has to be lowered to the last tie frame always.

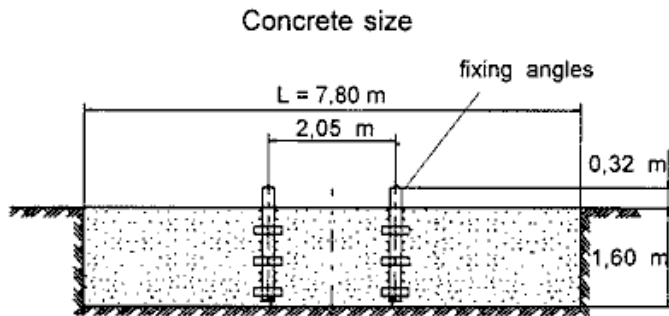
All tie frames have to be placed close to a horizontal beam with a tolerance of +/- 250 mm always.

# BK 560-20



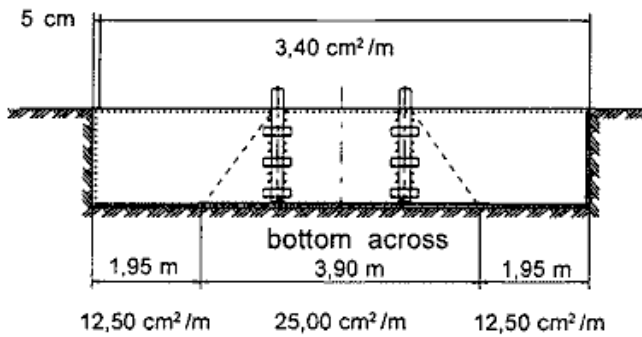
Foundation with TG 23  
Jib length:  $L = 80,0$  m

Hook height:	70,4 m
Foundation loads:	
Crane moment:	$M_x = 9166$ kNm
Torque moment:	$M_T = 405$ kNm
Vertical load:	$N = 1865$ kN
Horizontal load:	$H = 69$ kN
Ground pressure:	$p_1 = 213$ kN/m <sup>2</sup>



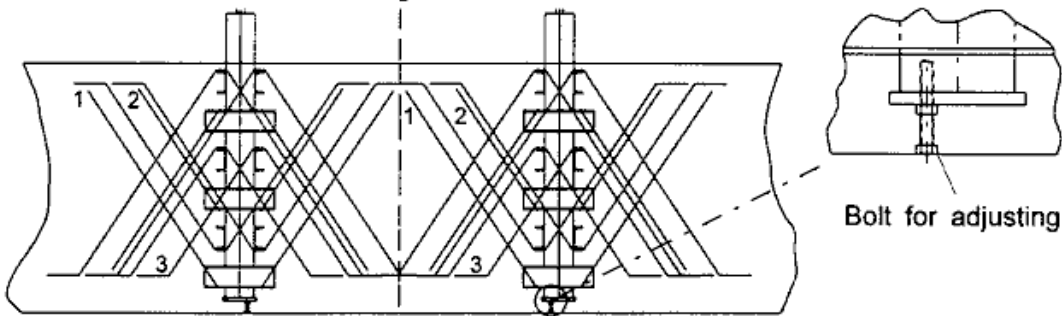
Concrete grade B 15  
Concrete compressive strength 25 N/mm<sup>2</sup>

## Steel reinforcement top and lateral

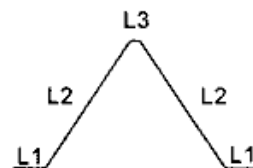


BSt 420/500  
Tensile strength 500 N/mm<sup>2</sup>  
Yield point 420 N/mm<sup>2</sup>

## Anchoring detail



## Anchor form



Pos.:	d (mm)	L1 (cm)	L2 (cm)	L3 (cm)	l (cm)	Anchor/ f. angle	Anchor total	$\Sigma$ l total (m)
1	∅ 28	20	176	8	400	8	32	128
2	∅ 28	20	143	8	334	8	32	106.9
3	∅ 28	20	109	8	266	8	32	85.1

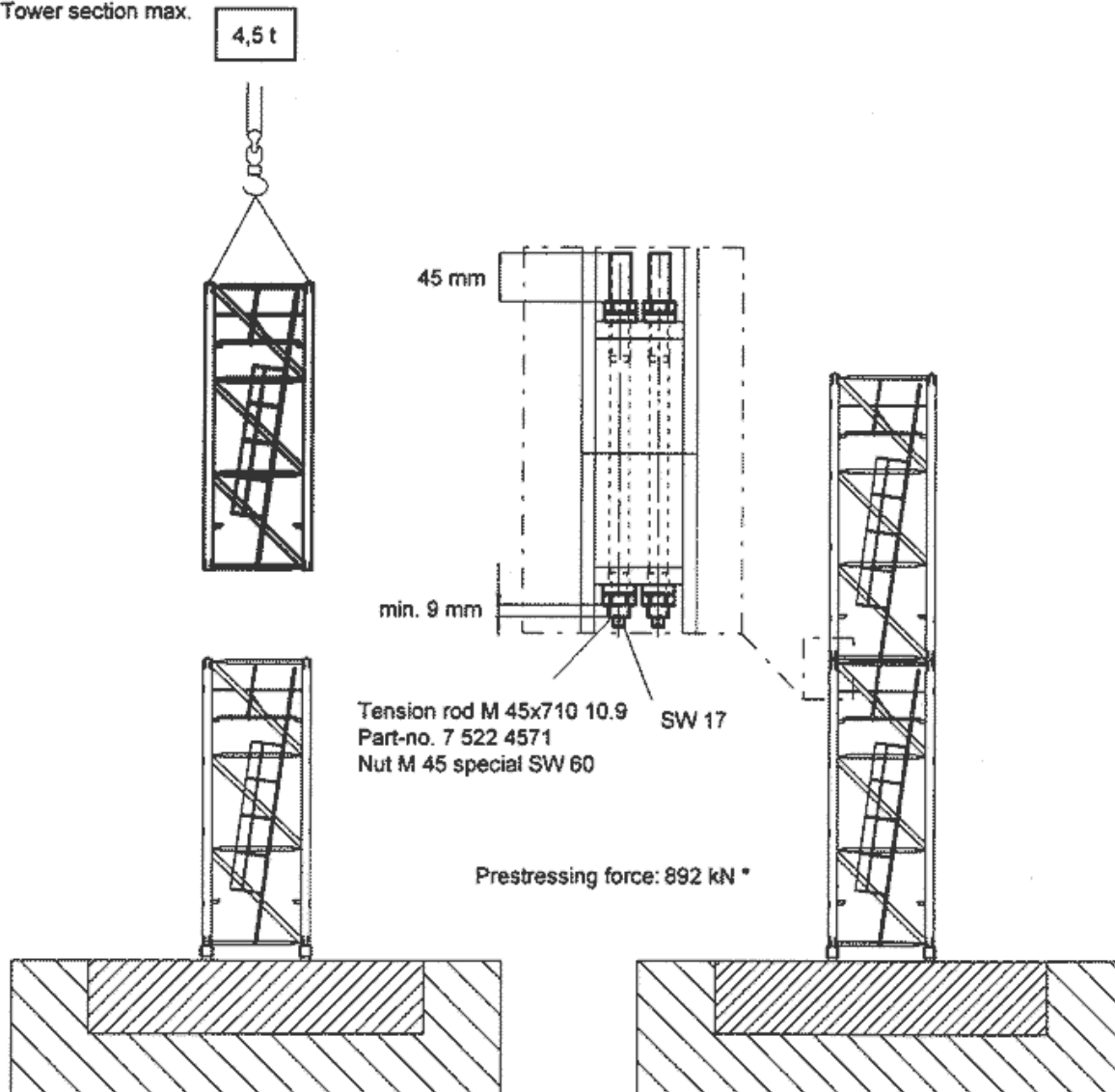
## Technical data

# BK 560

## Tower erection TG 23



Erection weight  
Tower section max.



Foundation calculation see chapter 1 "Technical data"

### \* Caution:

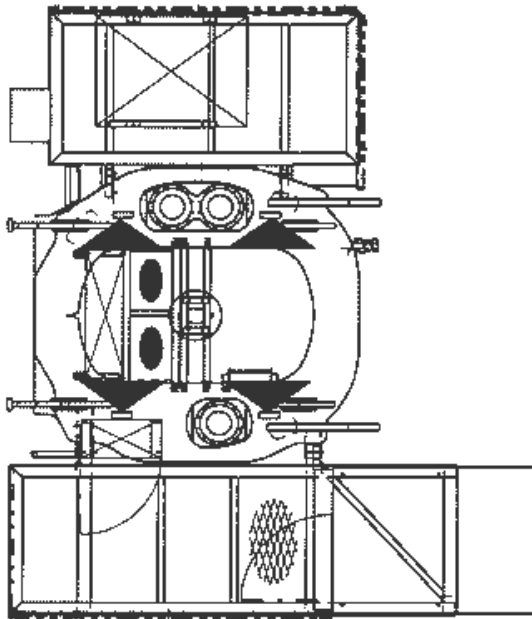
The tension rods for TG 23 must be only prestressing with the hydraulic tightener.  
It is not allowed to use torque wrench.

# BK 560-20



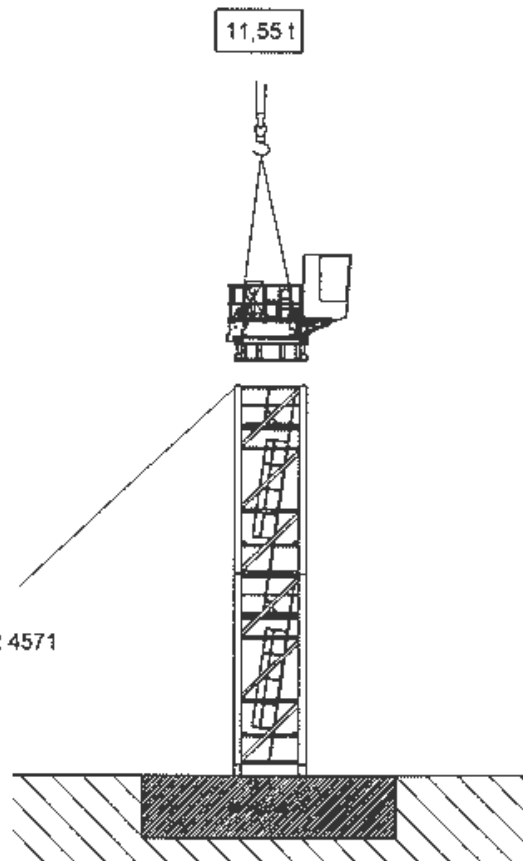
## Fixed pivot and turntable erection

### Lifting rigging connection point



### Erection weight

Fixed pivot, turntable, cabin  
and platform complete erected



Tension rod M 45x710 10.9 Part-no. 7 522 4571  
Nut M 45 special SW 60

Prestressing force: 892 kN \*

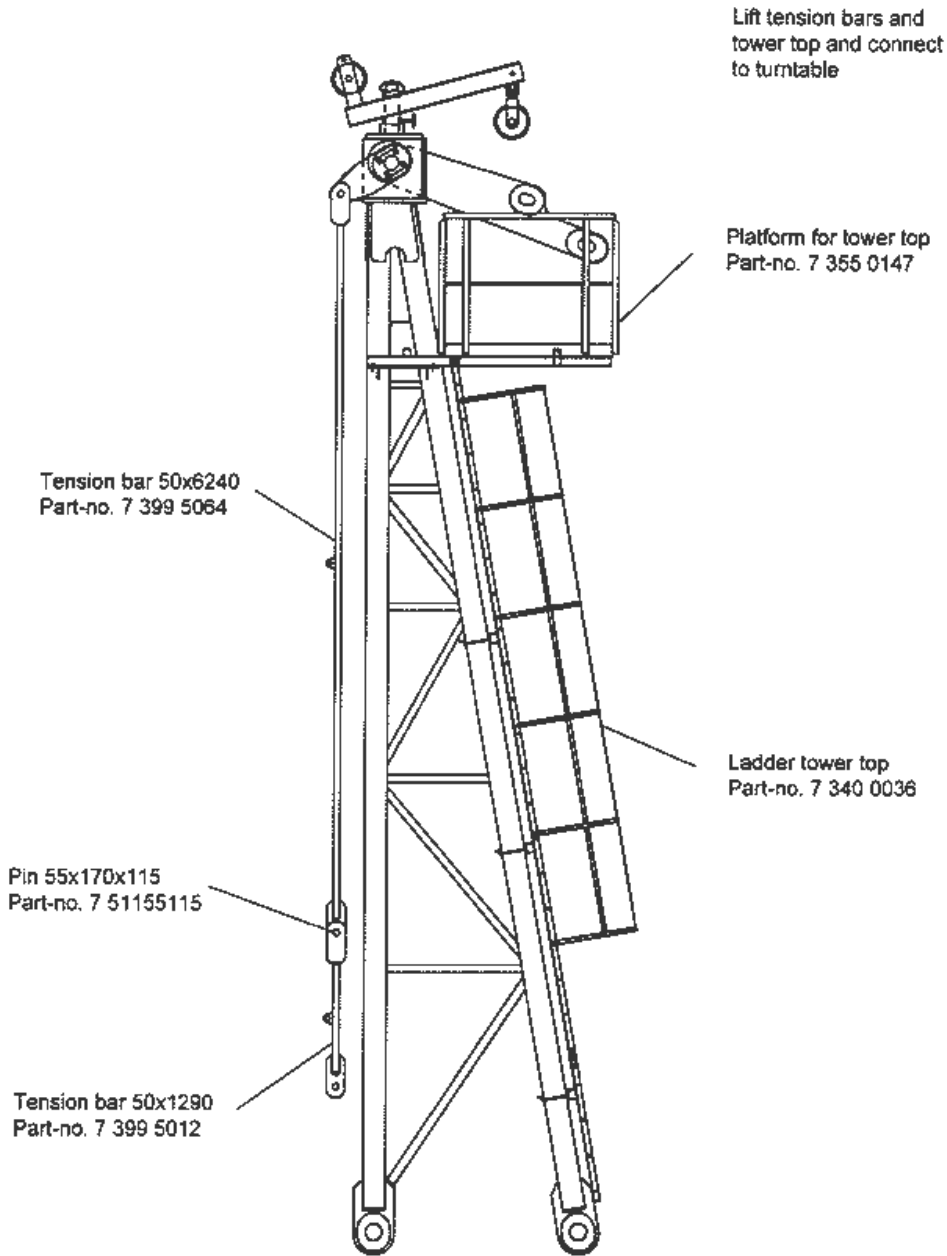
#### \* Caution:

The tension rods for TG 23 must be only  
prestressing with the hydraulic tightener.  
It is not allowed to use torque wrench.

# BK 560-20



## Tower top erection on the ground



# BK 560-20

Tower top erection

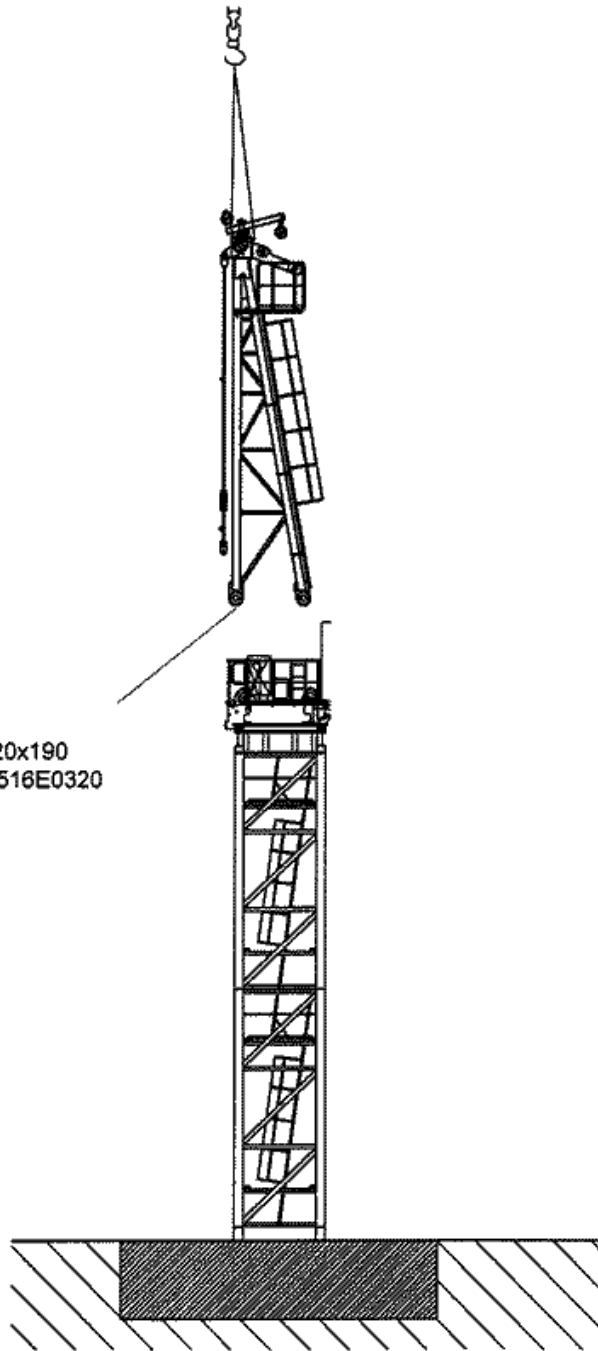


Erection weight

Tower top

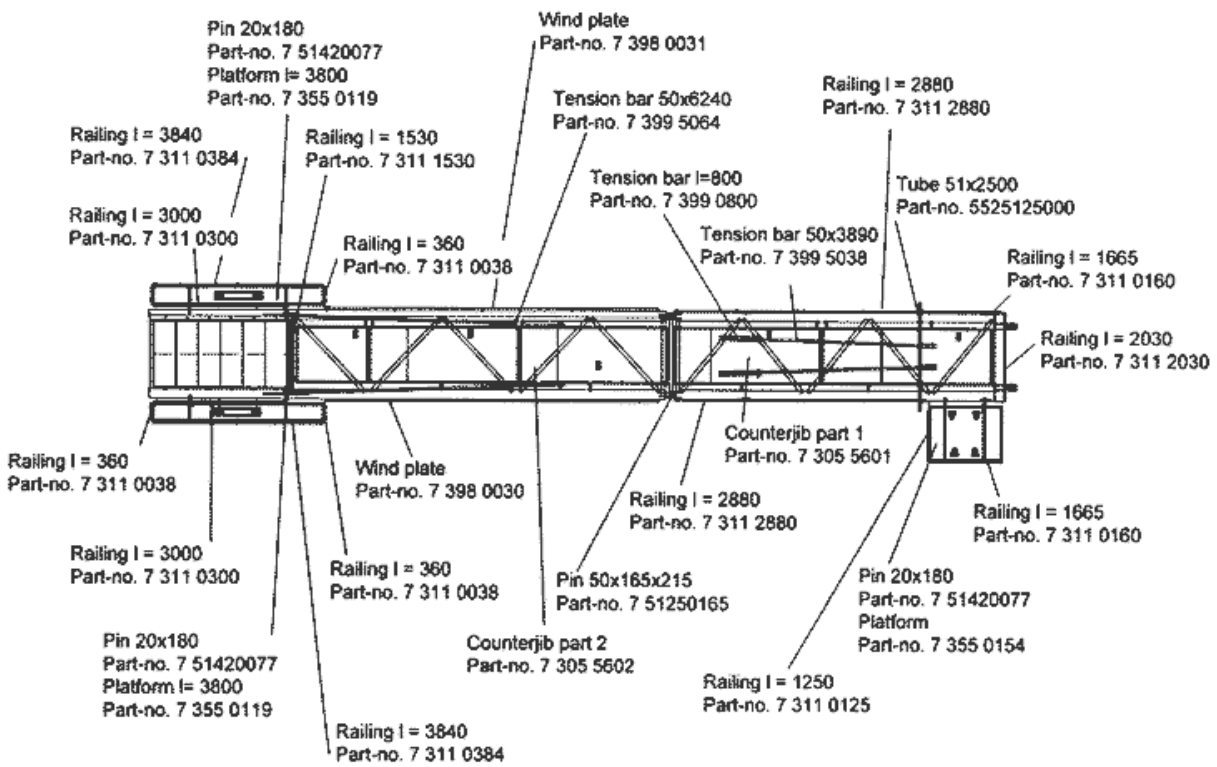
5,90 t

Pin 140x320x190  
Part-no. 7 516E0320



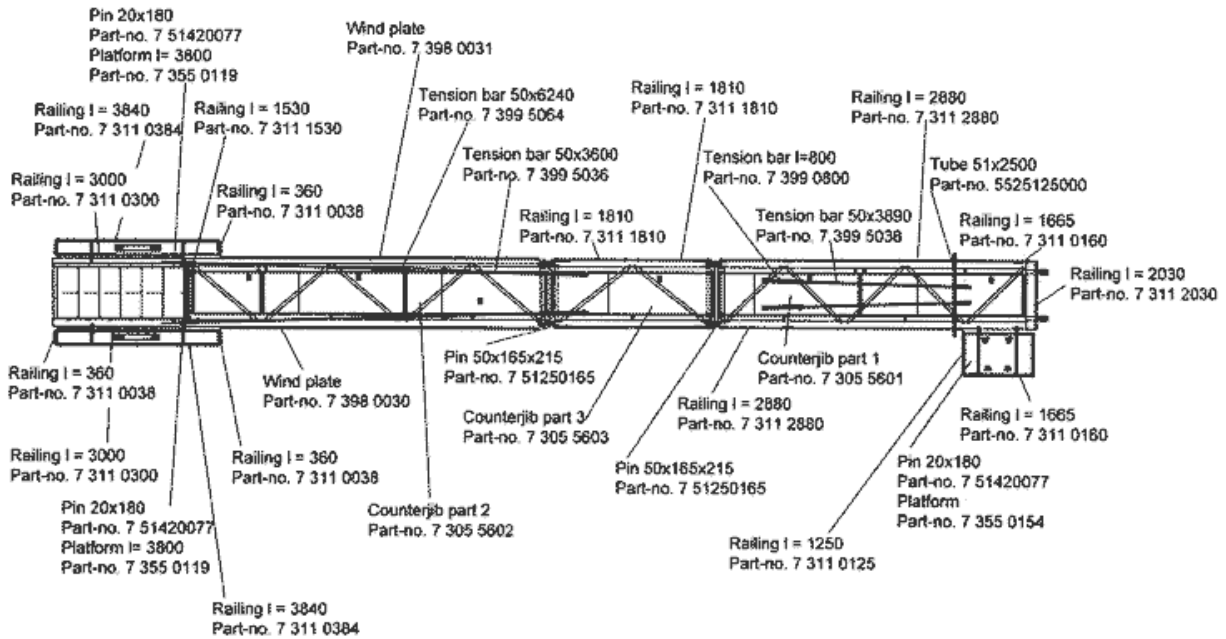
# BK 560-20

Counterjib erection on the ground for jib length 40 m and 50 m



# BK 560-20

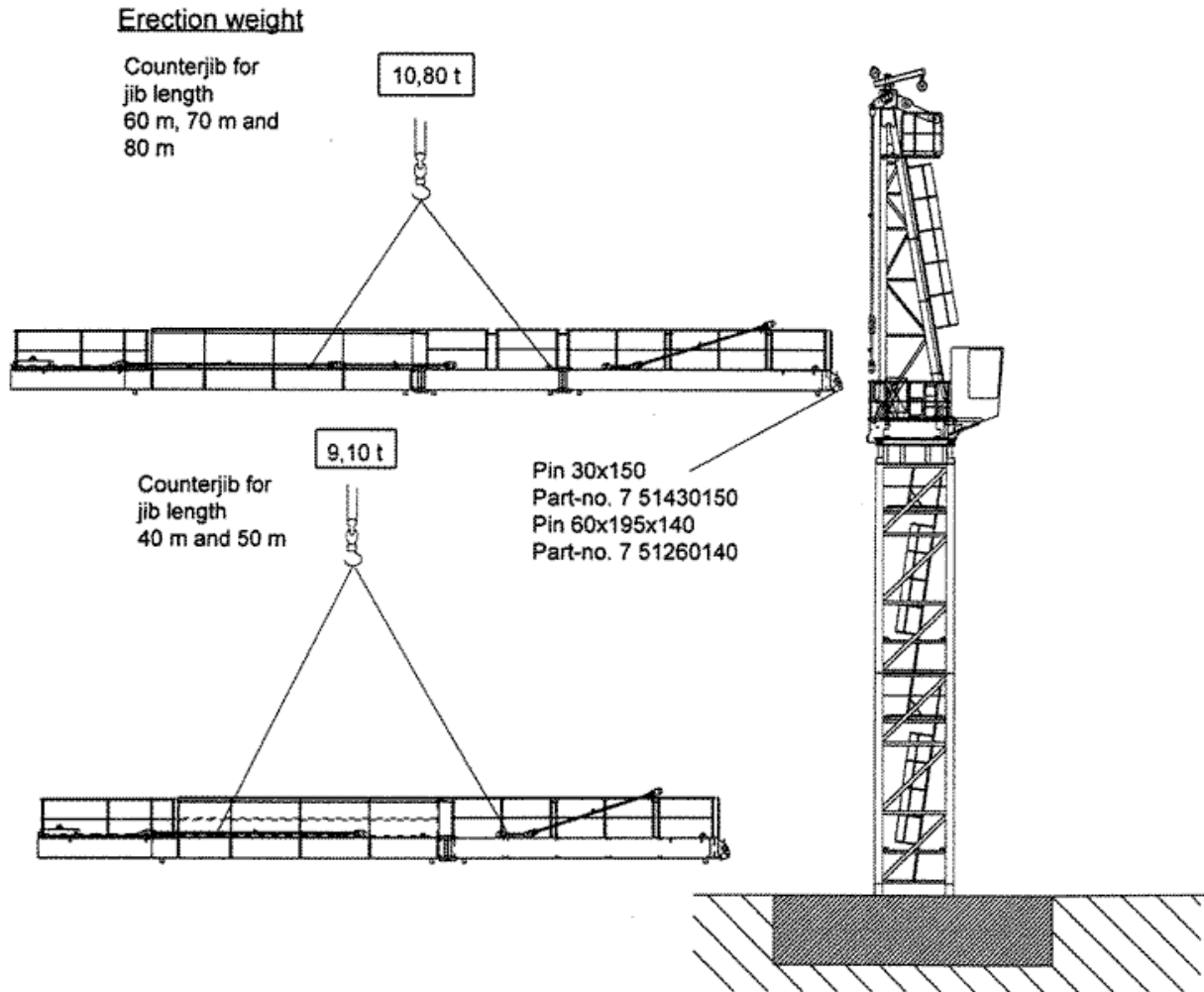
Counterjib erection on the ground for jib length 60 m, 70 m and 80 m





# BK 560-20

Counterjib erection

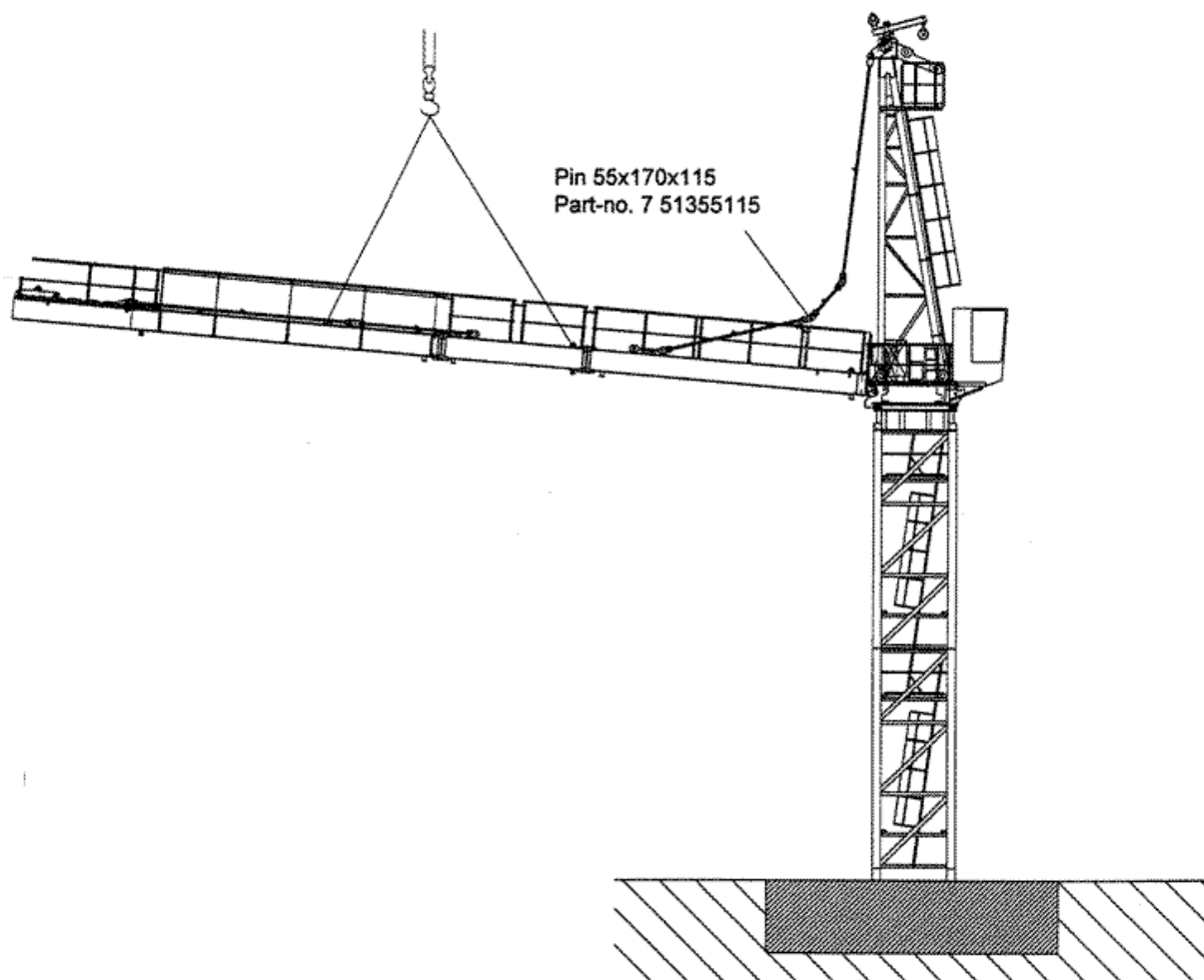


# BK 560-20

Counterjib erection



## Connection of the suspension

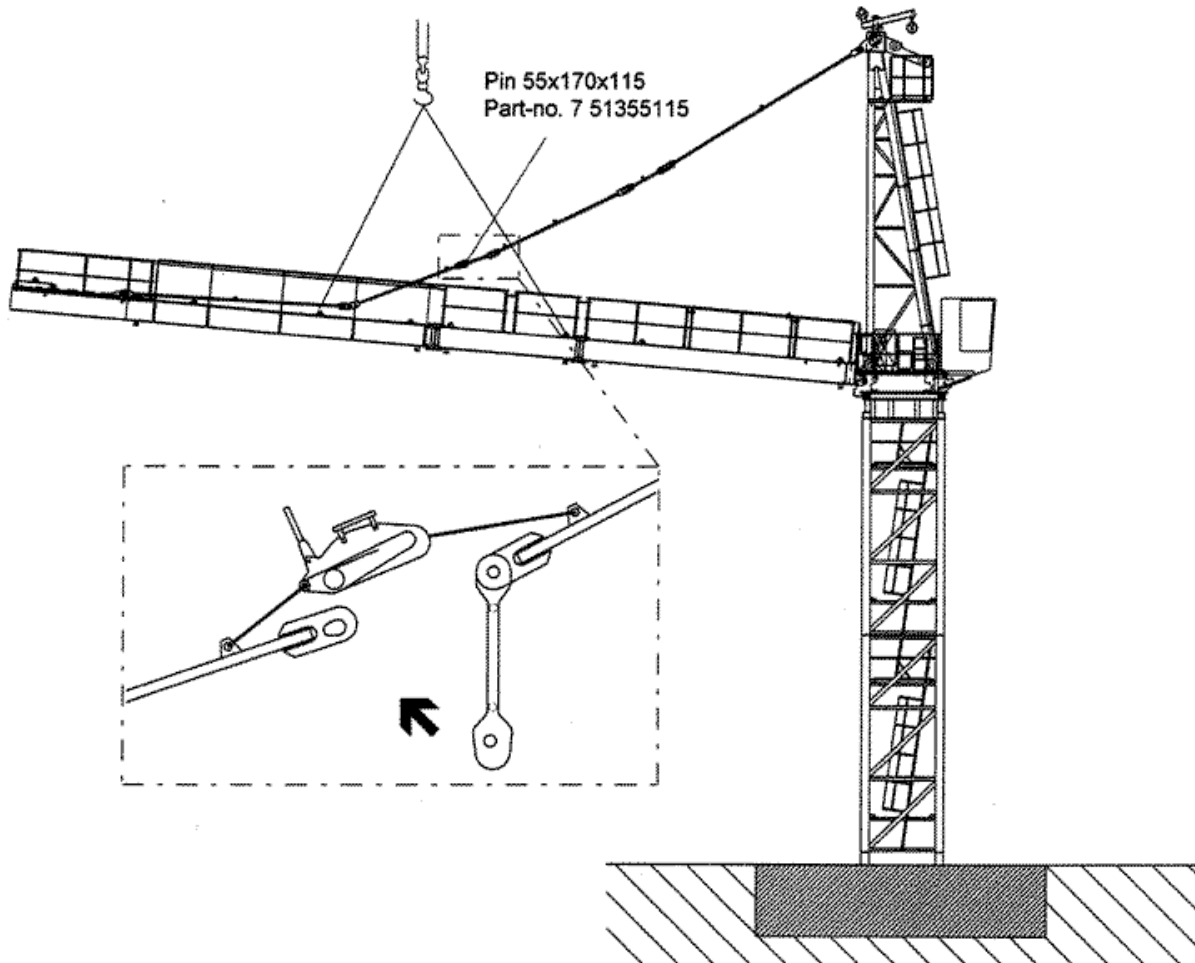


# BK 560-20

Counterjib erection



Pulling together the suspension and connect it

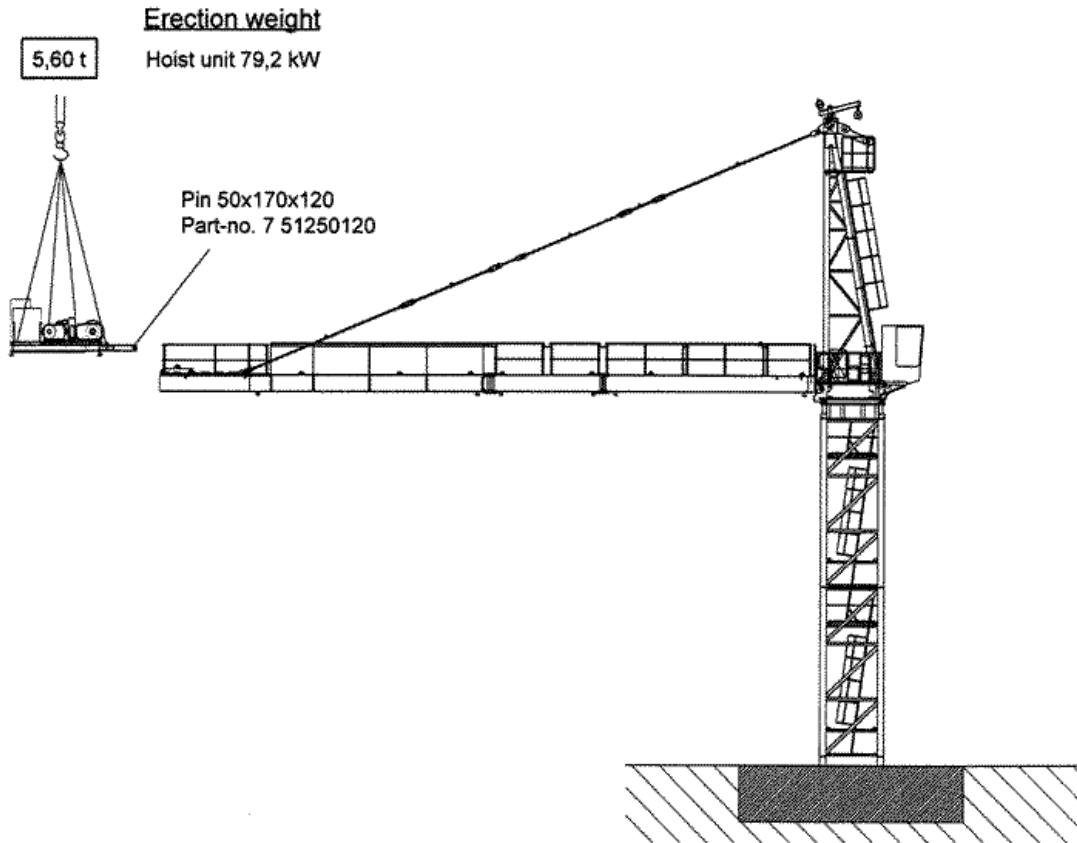


# BK 560-20

Counterjib erection



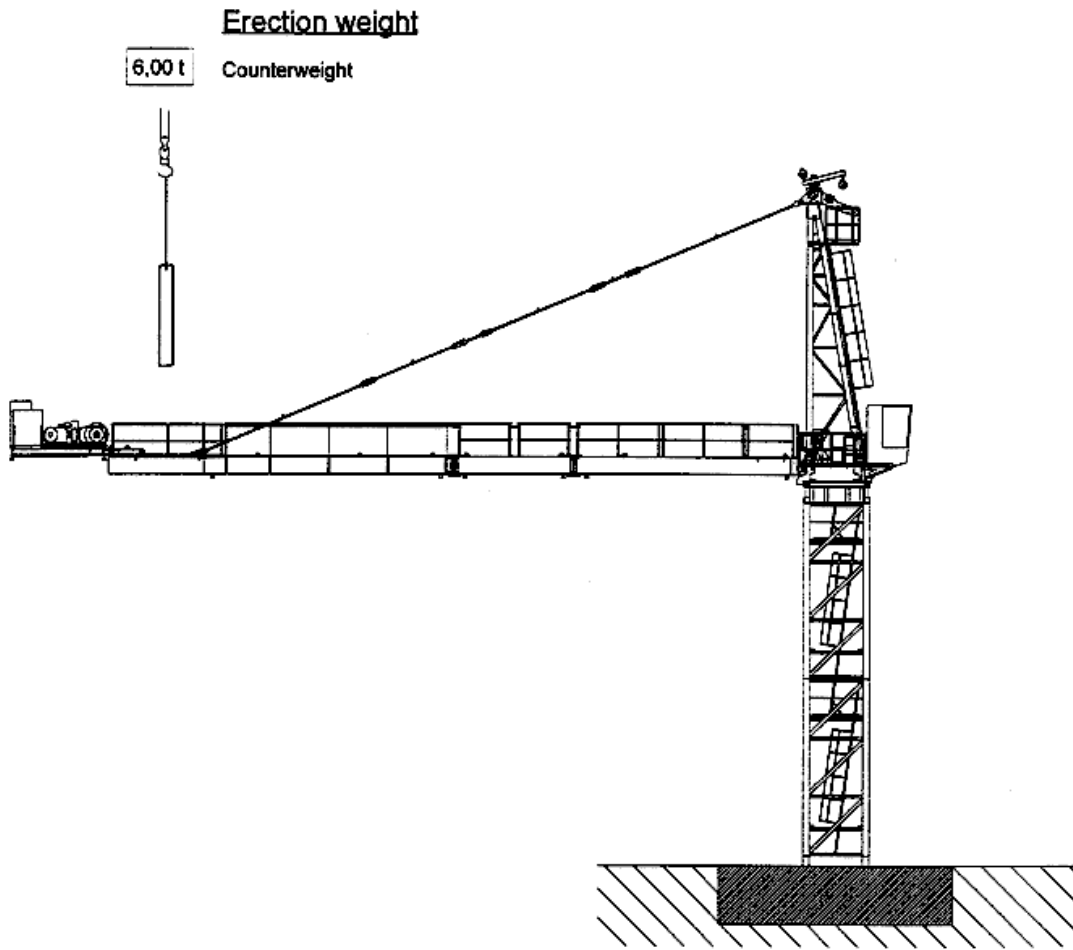
## Mounting of the hoist unit



# BK 560-20

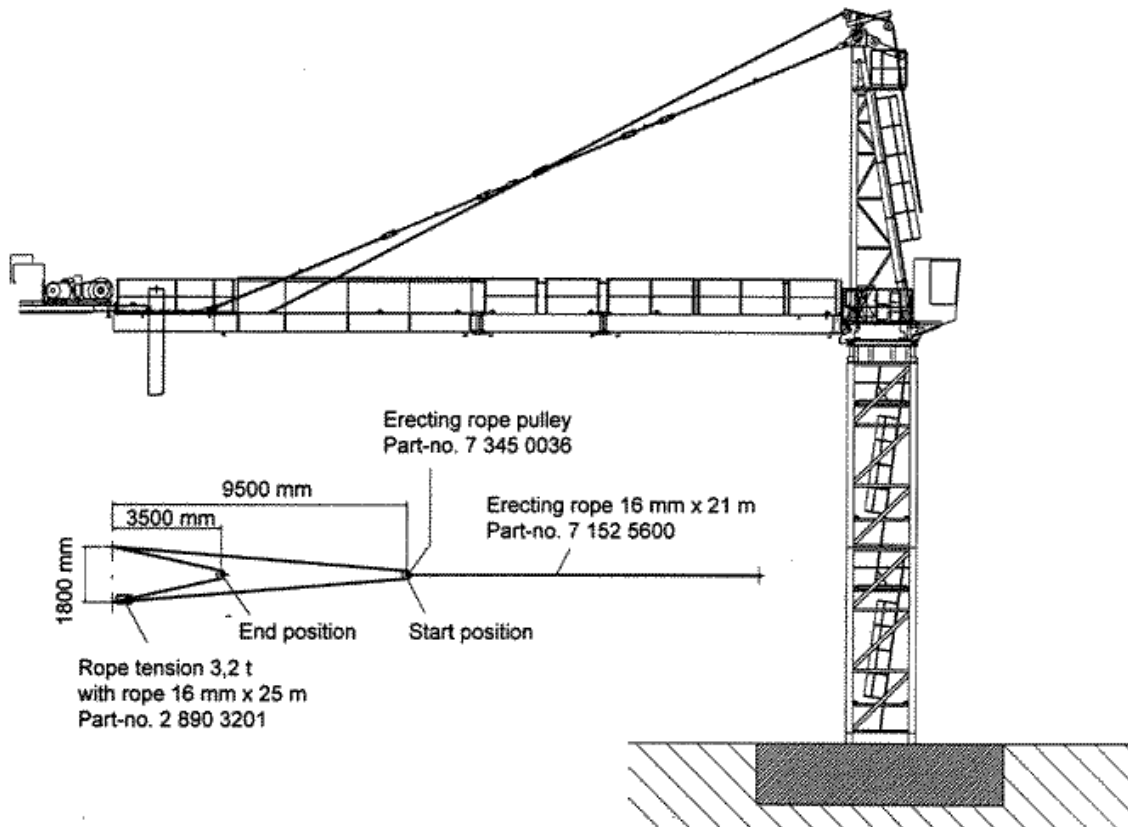


Counterweight erection



# BK 560-20

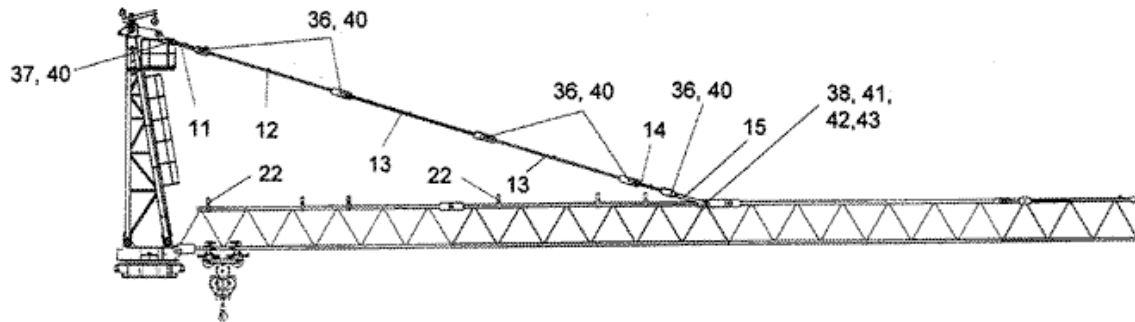
Erecting rope for the jib suspension



# BK 560-20



## Suspension arrangement 40 m

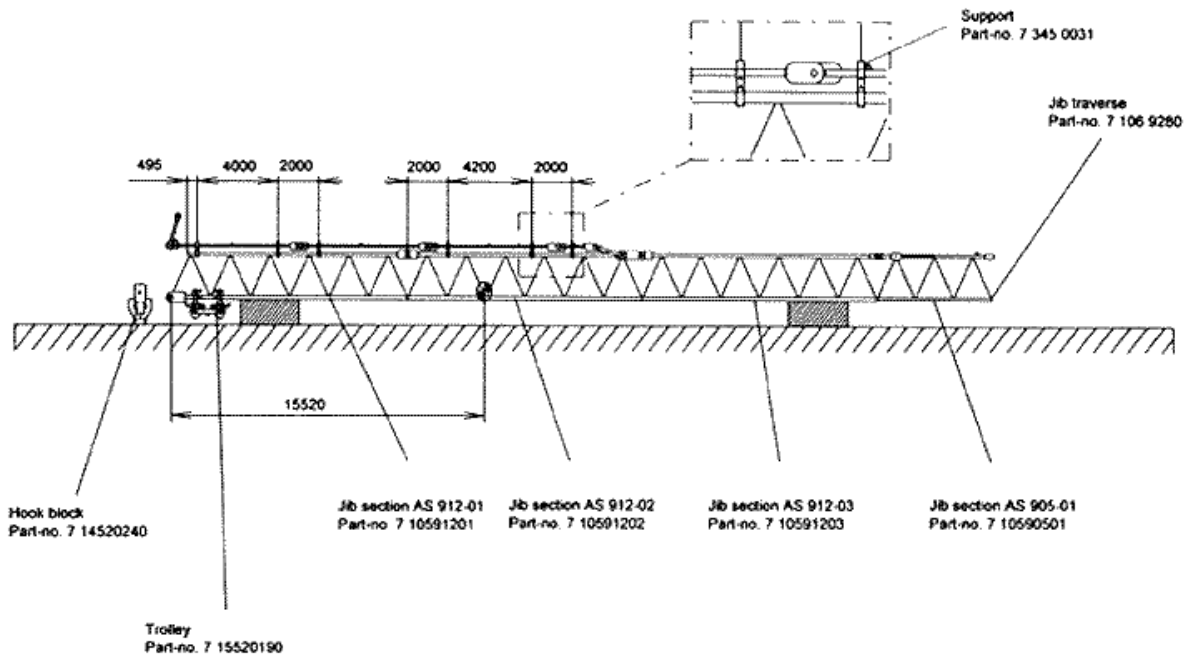


Pos.	Part-no.	Number	Weight	Weight total	Pins	Number
11	72100005	1	135,0	135,0	751190180	5
12	73998061	1	435,0	435,0		
13	73998060	2	435,0	870,0		
14	73998010	1	205,0	205,0	751290220	1
15	74610106	1	185,0	185,0	751390300	1
22	73450031	6	15,0	90,0		
36	751190180	5	10,4	52,0		
37	751290220	1	14,8	14,8		
38	751390300	1	18,3	18,3		
40	31210013	12	-	-		
41	34234100	1	0,4	0,4		
42	30611603	2	-	-		
43	31260016	2	-	-		
Additional				14,5		

Total 2020,0

# BK 560-20

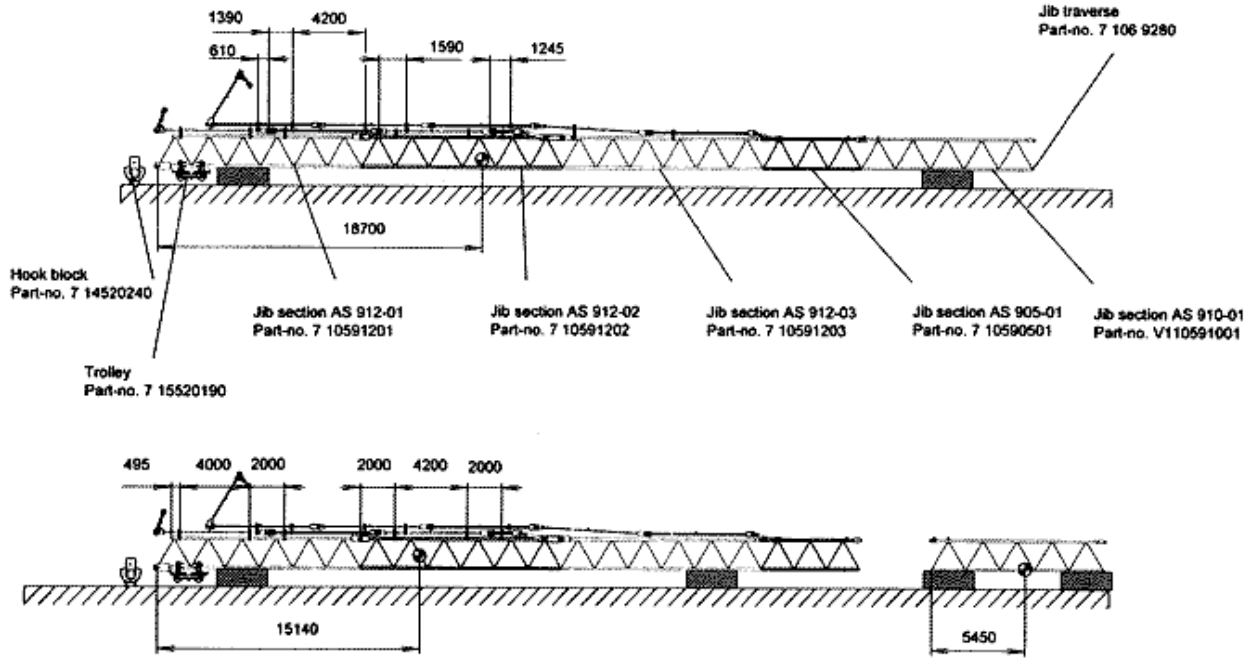
Jib erection on the ground  $L = 40,0$  m





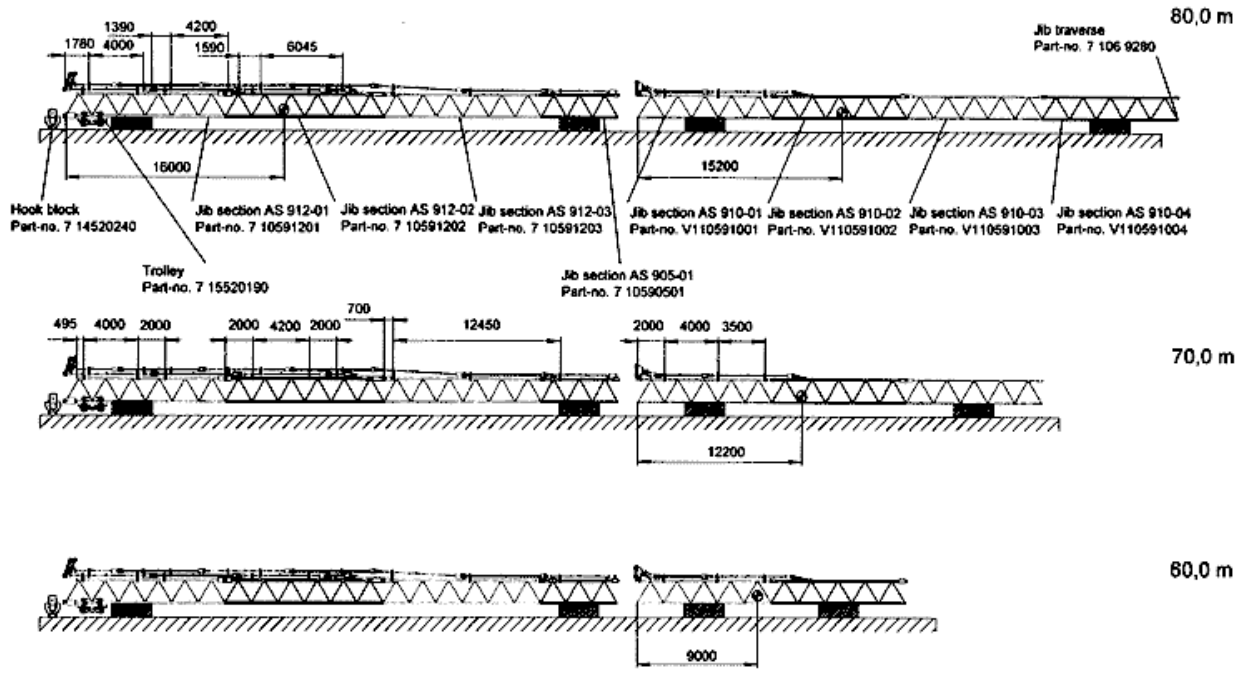
# BK 560-20

Jib erection on the ground L = 50,0 m



# BK 560-20

Jib erection on the ground L = 60,0 m, 70,0 m and 80,0 m



# BK 560-20



## Ropes, dimensions and regulations

### Rope dimensions

#### Hoist rope

**Rated diameter:** 18 mm; tolerance + 18,36 mm until 18,72 mm for a new rope  
**Construction:** nearly twistless, similar to DIN 3071 SE  
only Casar-Eurolift; contact BKT by using other makes.  
**Surface of wires:** blank (bk) or tinning (ZnK)  
**Rated strength of wires:** 1960 N/qmm  
**Minimum breaking strength:** 293,9 kN  
**Type of lay and its direction:** cross lay, right-handed (sZ) or langs-lay; right-handed (zZ)  
**Number of the carried wires in the out strand =** 126 (zZ)  
**Finish of rope ends:** both ends welded and pointed  
**Rope end fastening:** Rope joint size Gr. 5 (Demag)  
Rope wedge size Gr. 5 (Demag)  
Wire rope clips DIN 1142 S 19

#### Trolley rope

**Rated diameter:** 11 mm  
**Construction:** similar to DIN 3066  
example Casar - Spezial-Unilift  
**Type of iron:** Steel (SE)  
**Surface of wires:** blank (bk) or tinning (ZnK)  
**Tensile strength of wires:** 1770 N/qmm  
**Minimum breaking load:** 98,10 kN  
**Type of lay and its direction:** cross lay, right-handed (sZ)  
**Number of the carried wires in the out strand =** min. 56  
**Finish of rope ends:** both ends welded and pointed  
**Rope end fastening:** Rope joint size Gr. 2 (Demag)  
Rope wedge size Gr. 2 (Demag)  
Wire rope clips DIN 1142 S 13

# BK 560-20



## Rope lengths

Hoisting unit, trolley travel unit

		Data for determining the hoist rope length	Trolley rope lengths front                      behind trolley ropes	
Max. radius 40,0 m Seillänge	m	94 *	83	65
Max. radius 50,0 m Rope length	m	104 *	103	75
Max. radius 60,0 m Rope length	m	114 *	123	85
Max. radius 70,0 m Rope length	m	124 *	143	95
Max. radius 80,0 m Rope length	m	134*	163	105

To the stated hoist rope lengths twice the lengths must be taken for 2-fold hoist rope reeving and four times the length for 4-fold hoist rope reeving of the respective hook travel distance.

Hook travel + hook height = lowering depth under level of crane ground

# BK 560-20



Drawing for the trolley rope reeving

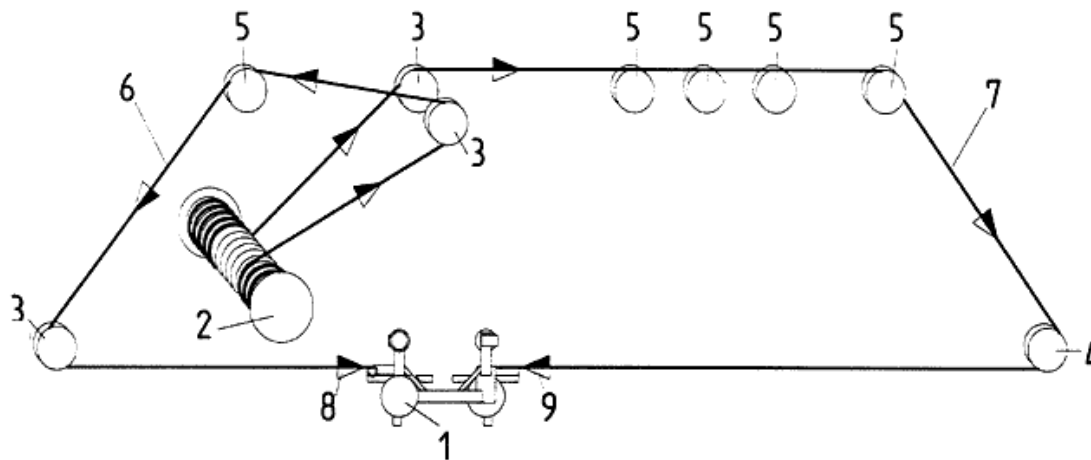
Version 1:

Jib assembled completely on the ground

- Fix the end of the back trolley rope onto the trolley drive drum and coil it. A piece of rope has to be remaining for the connection to the tension drum on the trolley car, which is beside of the stop buffer.
- The trolley ropes must be reeved in accordance with "trolley rope guiding". The one end of the trolley rope fasten at the trolley with rope joint, size 2 and wire rope clip DIN 1142 S 13 and the other end at the tightening drum with a rope clip.
- Tighten the trolley rope by rotary of the tightening drum with a annular key SW 46.

Attention!

First reeve behind trolley rope (6). The trolley must be in minimal radius. The tightening drum must be in direction to tower.



- 1 Trolley
- 2 Trolley rope drum
- 3 Rope pulleys
- 4 Turn round pulley for trolley rope on jib top
- 5 Rope support pulley
- 6 Behind trolley rope
- 7 Front trolley rope
- 8 tightening drum
- 9 Trolley rope fixing point

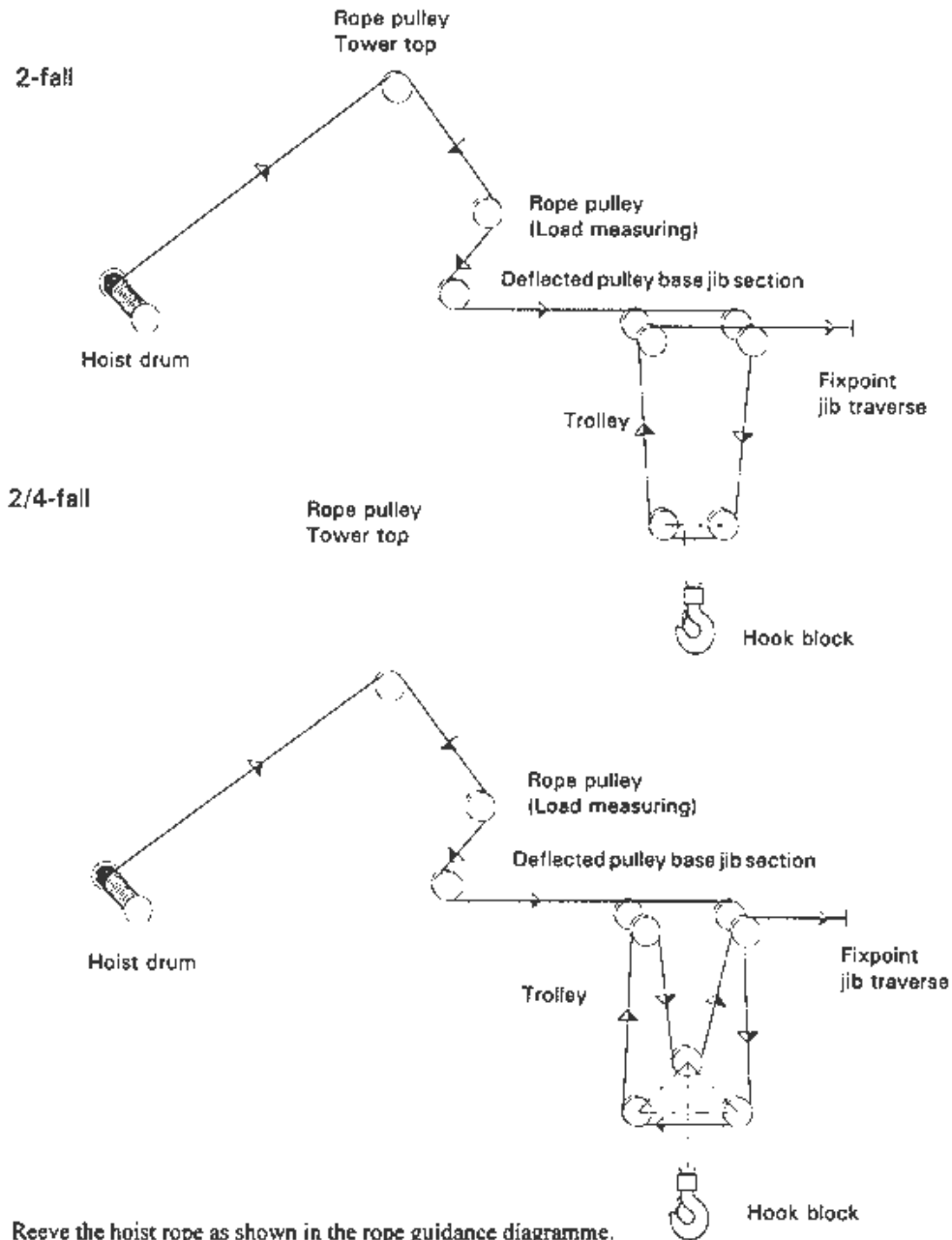
Attention!

Please observe that in rope reeving operation the rope, when runs down from the rope drum is guided on top over the rope pulley in jib section 1.

# BK 560-20



Drawing for the hoist rope reeving



Reeve the hoist rope as shown in the rope guidance diagramme.

If the rope is reeved on the erected crane, the platform with vertical adjustment must be put in its bottom position. In this way it is possible to carry out the rope-reeving from the platform.

We recommend always to reeve the rope with the crane already erected, since damage to the rope whilst pulling up the jib and pinning it on is then avoided.

# BK 560-20

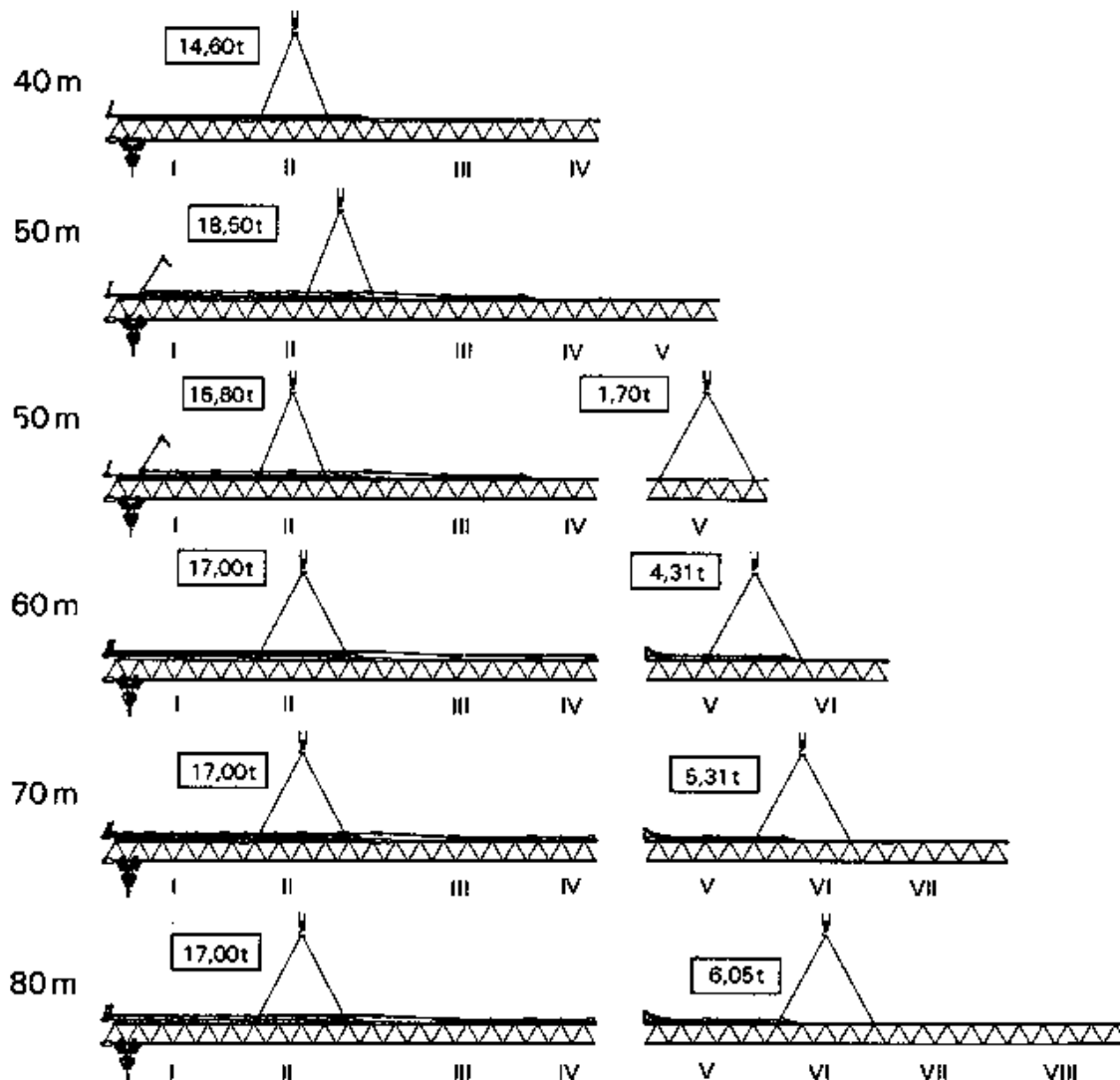


## Position of the slinging points by erection of the jib

Jib section	Length	Part-no.:
I	= 11,70 m	7 10591201
II	= 11,70 m	7 10591202
III	= 11,70 m	7 10591203
IV	= 5,70 m	7 10590501
V	= 10,00 m	V110591001
VI	= 10,00 m	V110591002
VII	= 10,00 m	V110591003
VIII	= 10,00 m	V110591004

### Caution!

Erecting jib straps are always put behind or between a diagonal joint. If this is not possible and the strap is in front of joint, the strap must be secured with a slinging rope on the next joint against sliding.



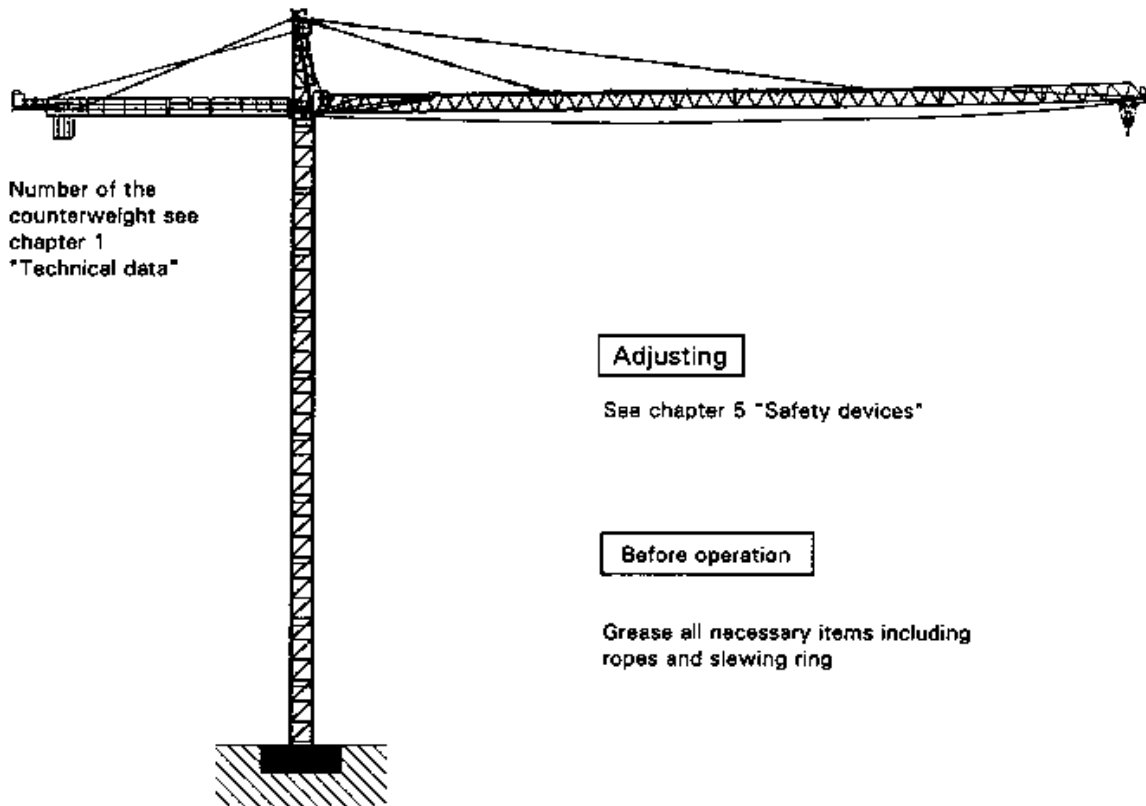
# BK 560-20

**ZEPPELIN**



Ballasting, adjusting safety devices and greasing

## Ballasting



Number of the counterweight see chapter 1 "Technical data"

## Adjusting

See chapter 5 "Safety devices"

## Before operation

Grease all necessary items including ropes and slewing ring

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Erection