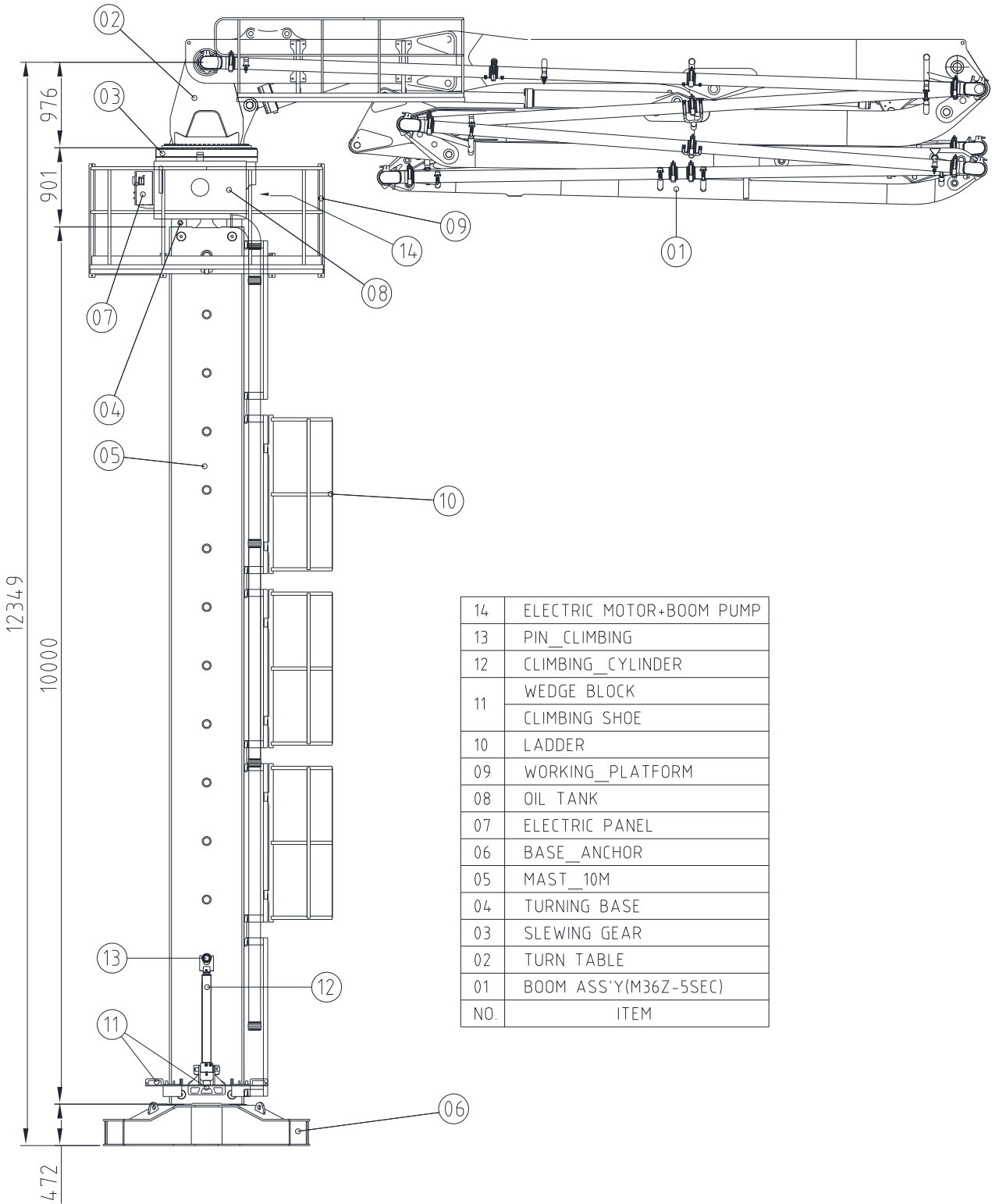


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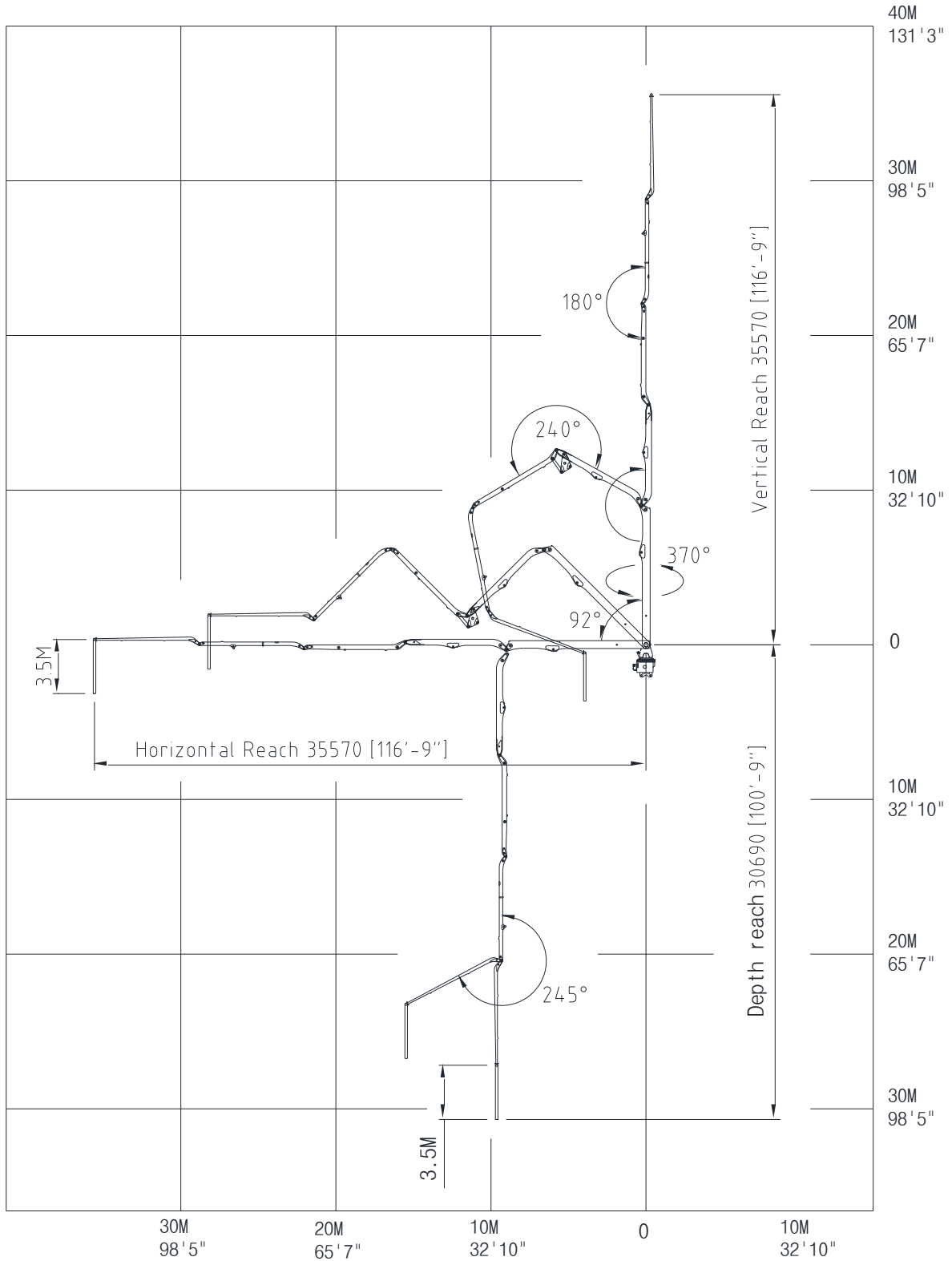
Placing Boom System _ Layout



14	ELECTRIC MOTOR+BOOM PUMP
13	PIN_CLIMBING
12	CLIMBING_CYLINDER
11	WEDGE BLOCK CLIMBING SHOE
10	LADDER
09	WORKING_PLATFORM
08	OIL TANK
07	ELECTRIC PANEL
06	BASE_ANCHOR
05	MAST_10M
04	TURNING BASE
03	SLEWING GEAR
02	TURN TABLE
01	BOOM ASS'Y(M36Z-5SEC)
NO.	ITEM

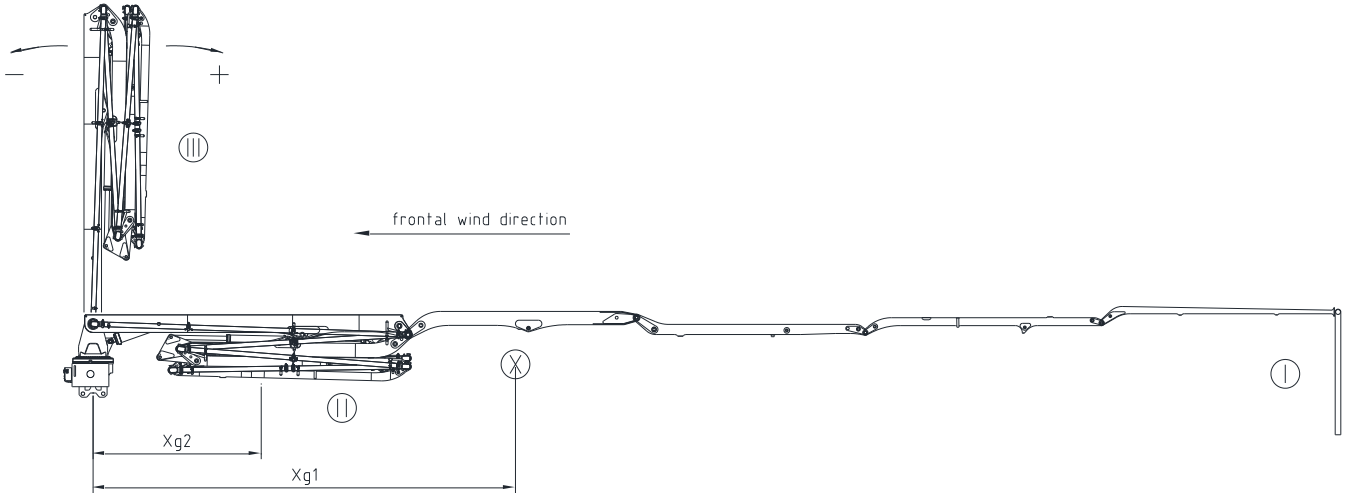
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Placing Boom System Working _ Working diagram



KB-M36Z

Placing Boom System Technical data



MOMENT [kNm]

Position of boom	Moment(boom side) → +
I with concrete in pipe-line	→ 1,094 kNm
II without concrete in pipe-line	→ 298 kNm
III without concrete in pipe-line	→ 36 kNm

Total weight [kg]– boom, table, base(with oil), motor, pump, (+concrete)

In operation	10,257 kg	Out of operation	9,210 kg
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Wind-exposed areas [m²]

Position of boom	Wind-exposed area	Center of gravity distance	remark
I	21.4 m ² boom-side	Xg1 = 11.2 m	Wind surface perpendicular to frontal wind
II	21.4 m ² boom-side	Xg2 = 4.5 m	
I/II	5.8 m ²	Ys = 0.6 m	Exposed area in frontal wind
III	16.5 m ²	Ys = 5.4 m	

Comment : lateral thrust due to wind is calculated according to DIN 1055

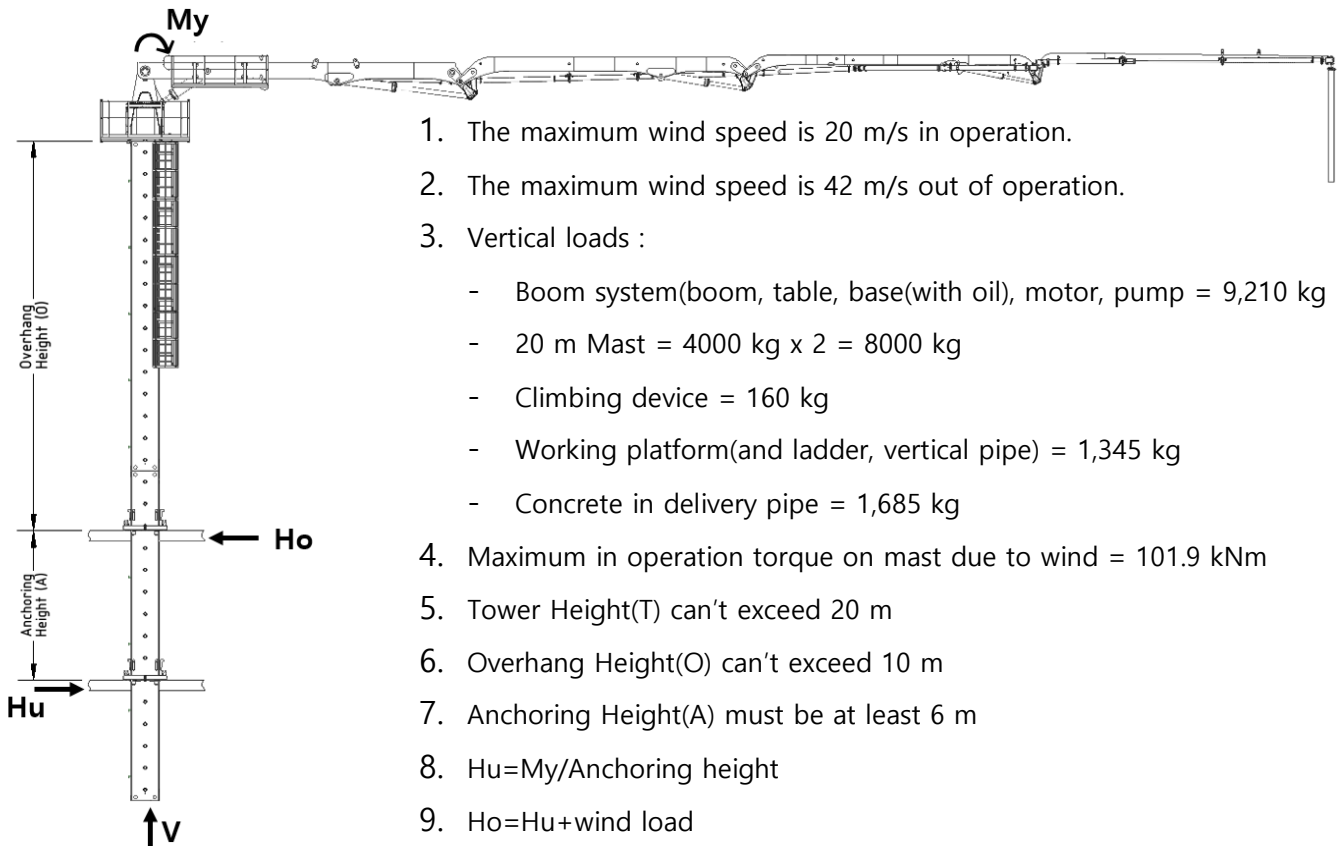
Absolute altitude [m]	0~8	8~20	20~100	Above 100
W [N/m ²]	800	1,280	1,760	2,080

$$F = W \times A$$

F : wind force	W : lateral thrust due to wind	A : wind surface area
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Placing Boom System Technical data (Floor type)



1. The maximum wind speed is 20 m/s in operation.
2. The maximum wind speed is 42 m/s out of operation.
3. Vertical loads :
 - Boom system(boom, table, base(with oil), motor, pump = 9,210 kg
 - 20 m Mast = 4000 kg x 2 = 8000 kg
 - Climbing device = 160 kg
 - Working platform(and ladder, vertical pipe) = 1,345 kg
 - Concrete in delivery pipe = 1,685 kg
4. Maximum in operation torque on mast due to wind = 101.9 kNm
5. Tower Height(T) can't exceed 20 m
6. Overhang Height(O) can't exceed 10 m
7. Anchoring Height(A) must be at least 6 m
8. $H_u = M_y / \text{Anchoring height}$
9. $H_o = H_u + \text{wind load}$

Maximum Anchoring load in operation

Anchoring Height [m]	6	7	8	9	10	11	12	13	14	15	16
H_o [kN]	268	242	222	207	195	185	176	169	163	158	153

Maximum Anchoring load out of operation

Overhang Height [m]	6	6.5	7	7.5	8	8.5	9	9.5	10	-	-
H_o [kN]	165	172	179	186	193	200	207	215	222	-	-

Maximum Vertical load in operation

Tower Height [m]	6	8	10	12	14	16	18	20
V [kN]	154.3	171.9	169.1	190.0	195.7	204.8	222.4	219.6

Maximum Vertical load out of operation

Tower Height [m]	6	8	10	12	14	16	18	20
V [kN]	141.1	158.1	154.6	174.8	180.0	188.4	205.4	201.9

Maximum loads in operation

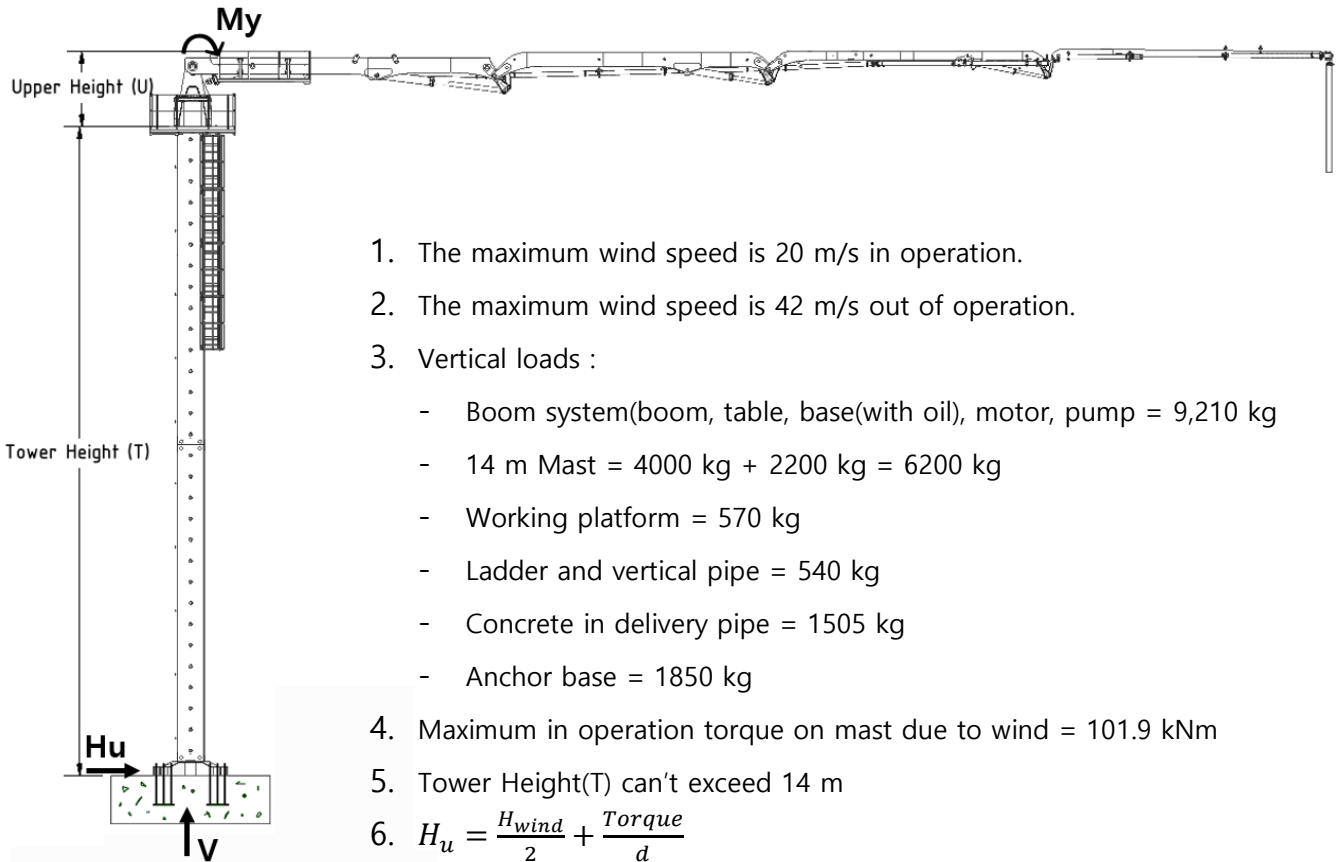
Overhang Height [m]	6	6.5	7	7.5	8	8.5	9	9.5	10
Overturn Moment [kNm]	1119.5	1122.3	1125.3	1128.3	1131.5	1134.9	1138.4	11142	1149.5

Maximum loads out of operation

Overhang Height [m]	6	6.5	7	7.5	8	8.5	9	9.5	10
Overturn Moment [kNm]	593.0	625.9	659.4	693.6	728.5	764.1	800.3	837.2	874.8

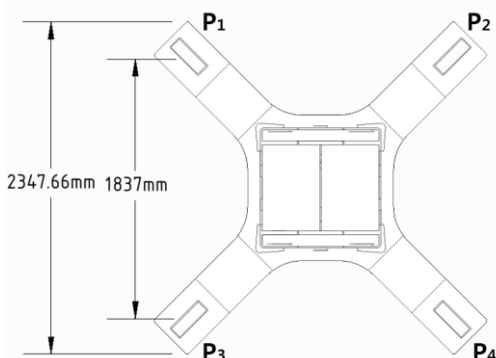
KB-M36Z

Placing Boom System Technical data (Anchor type)



1. The maximum wind speed is 20 m/s in operation.
2. The maximum wind speed is 42 m/s out of operation.
3. Vertical loads :
 - Boom system(boom, table, base(with oil), motor, pump = 9,210 kg
 - 14 m Mast = 4000 kg + 2200 kg = 6200 kg
 - Working platform = 570 kg
 - Ladder and vertical pipe = 540 kg
 - Concrete in delivery pipe = 1505 kg
 - Anchor base = 1850 kg
4. Maximum in operation torque on mast due to wind = 101.9 kNm
5. Tower Height(T) can't exceed 14 m
6. $H_u = \frac{H_{wind}}{2} + \frac{Torque}{d}$

Maximum loads in operation	Tower Height [m]					
	4	6	8	10	12	14
Total vertical load [kN]	163.5	172.5	190.1	187.3	208.2	214.0
Overturn Moment [kNm]	1109.4	1119.5	1131.5	1145.7	1161.8	1180.1
Horizontal load [kN]	56.5	57.0	57.5	58.0	58.5	59.0
Maximum loads out of operation	Tower Height [m]					
	4	6	8	10	12	14
Total vertical load [kN]	150.9	159.3	176.3	172.8	193.1	198.2
Overturn Moment [kNm]	446.3	571.1	706.7	852.9	1009.8	1177.3
Horizontal load [kN]	13.1	15.7	18.4	21.0	23.7	26.4

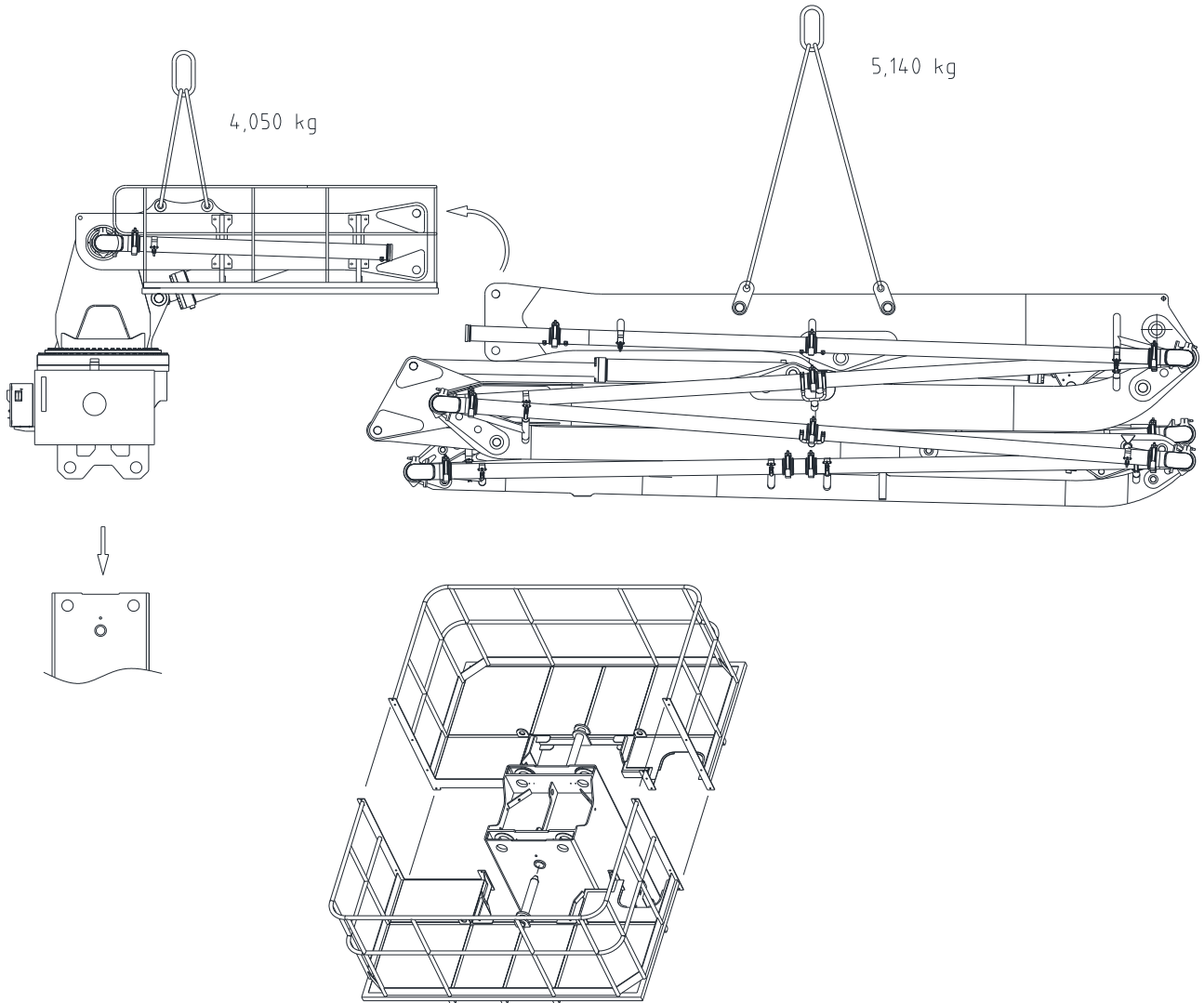


	Corner loads at max load condition			
	P1	P2	P3	P4
Max Load [kN]	-475.0	-82.2	185.2	551.8

- Negative loads are tension load.

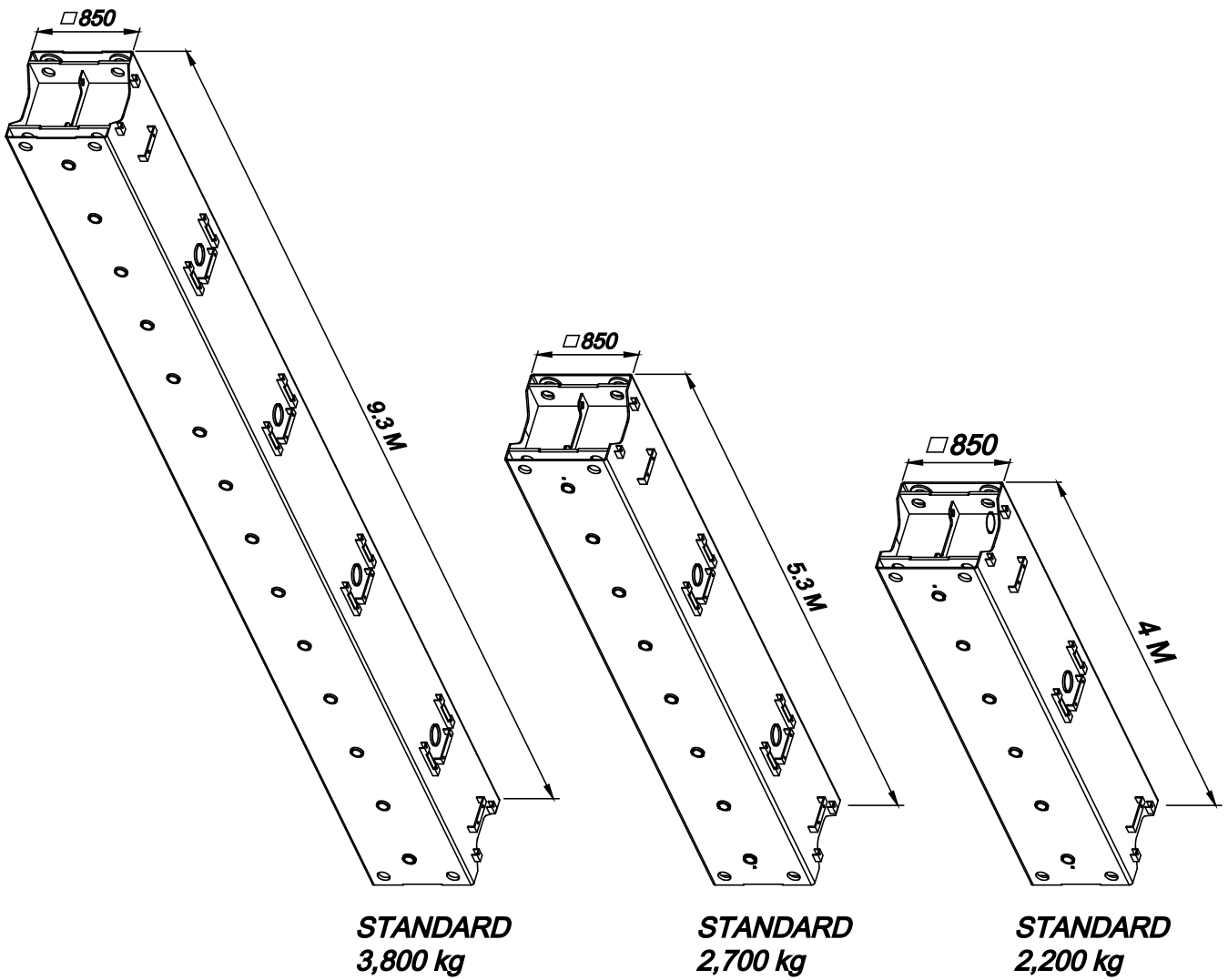
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PLACING BOOM SYSTEM ----- [BOOM ASS'Y & UPPER PARTS]



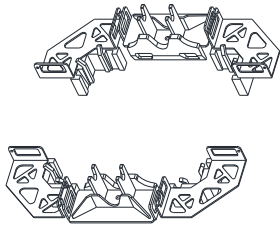
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PLACING BOOM SYSTEM ----- [MAST]

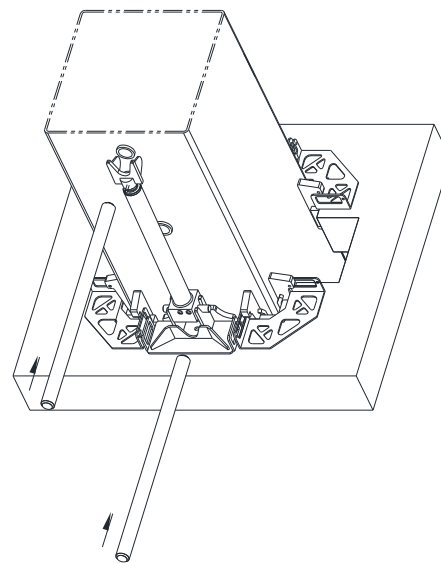
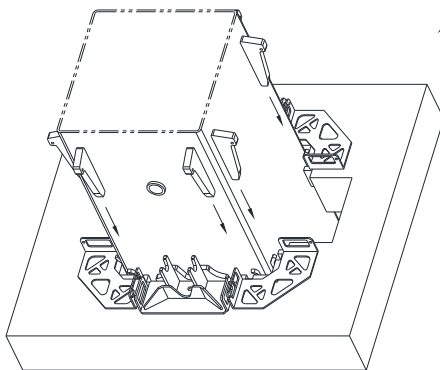
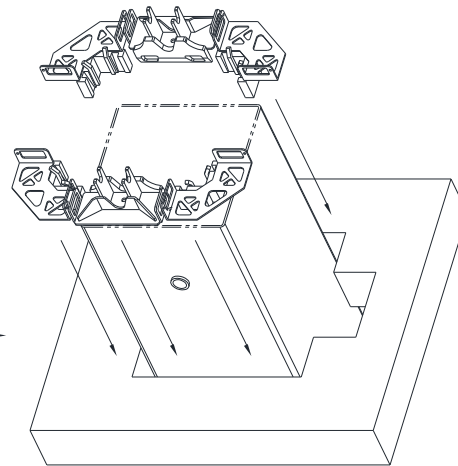
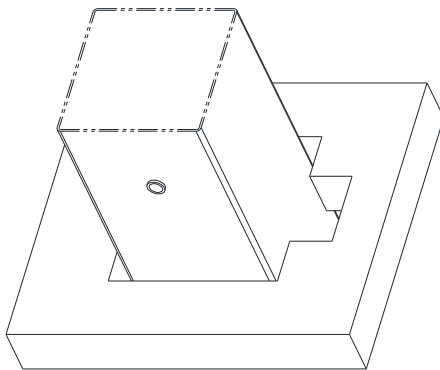
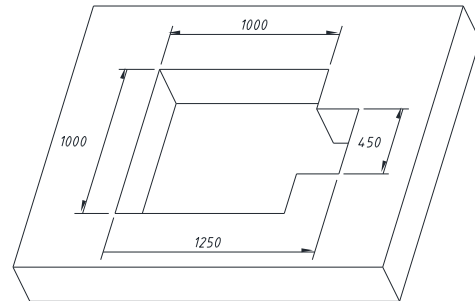


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PLACING BOOM SYSTEM ----- [FRAME _ CLIMBING, CLIMBING_CYLINDER]

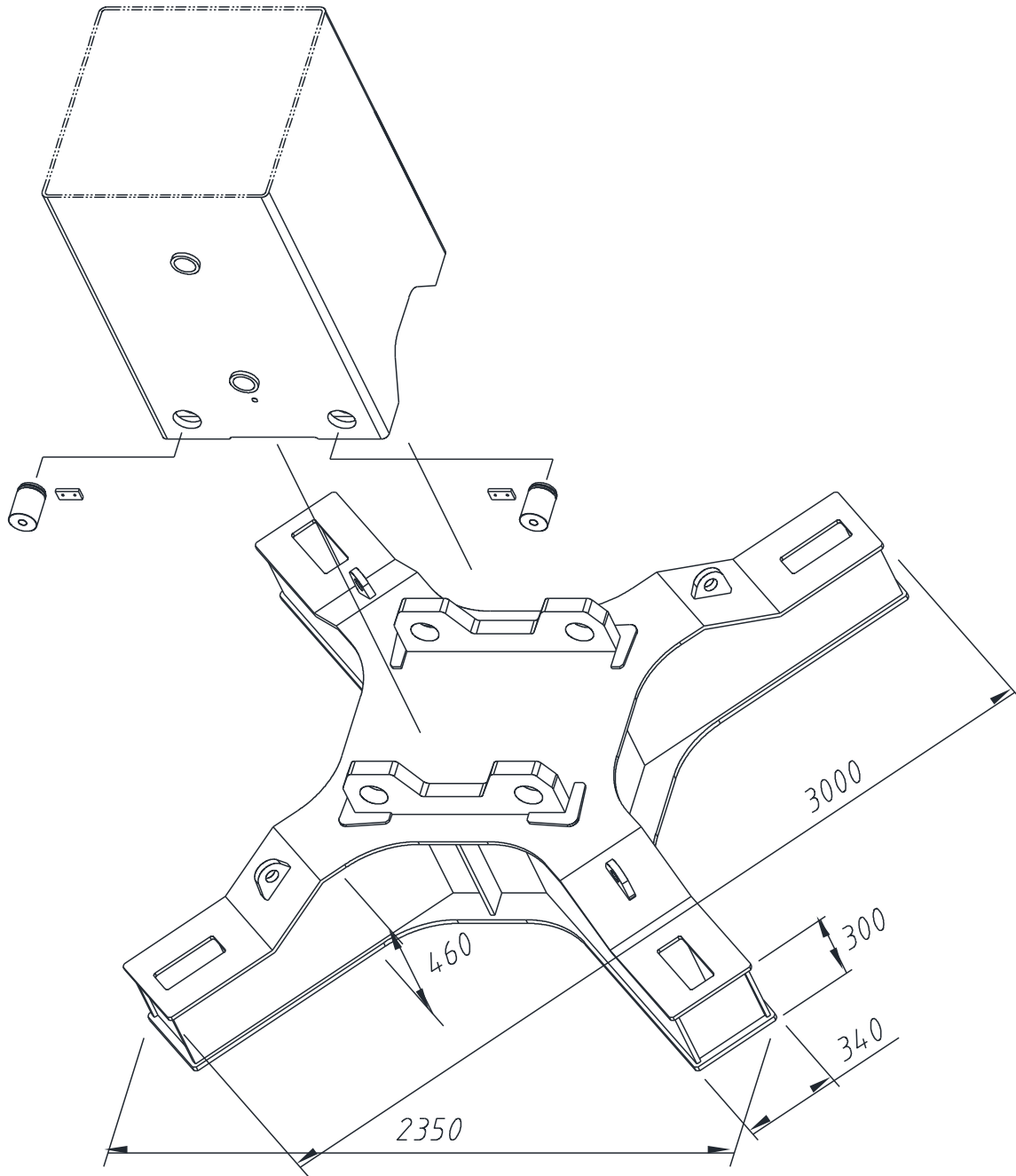


WEDGE BLOCK
CLIMBING SHOE
TOTAL : 160 kg



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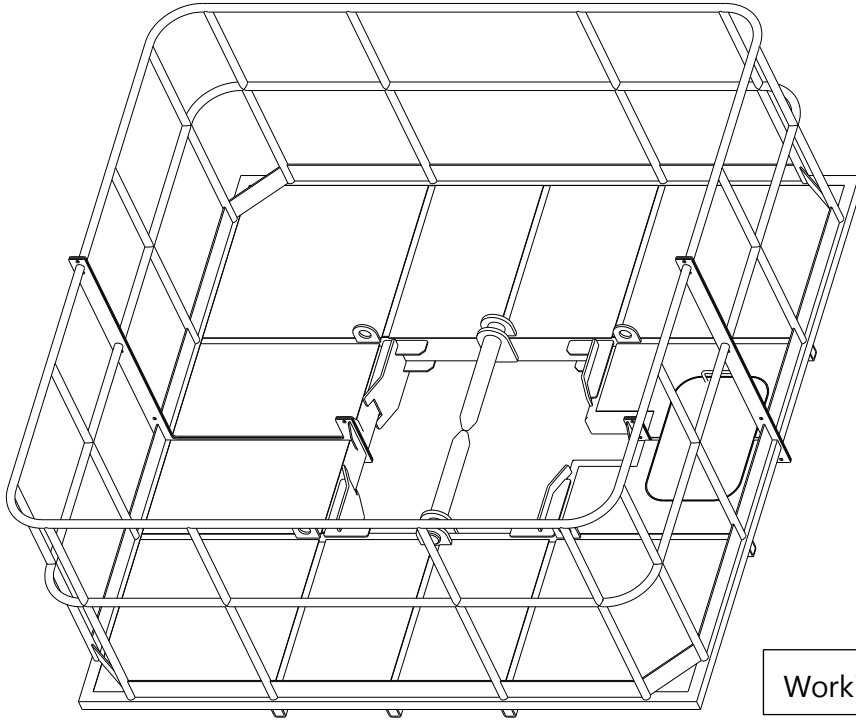
PLACING BOOM SYSTEM ----- [BASE_ANCHOR]



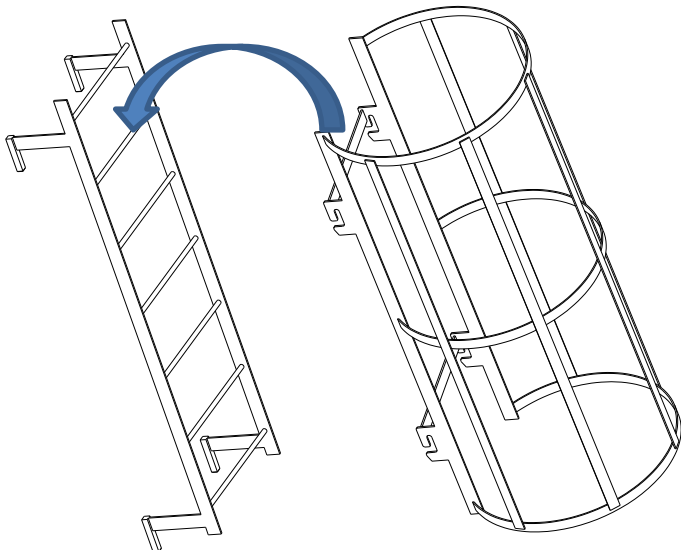
BASE ANCHOR
1,850 kg

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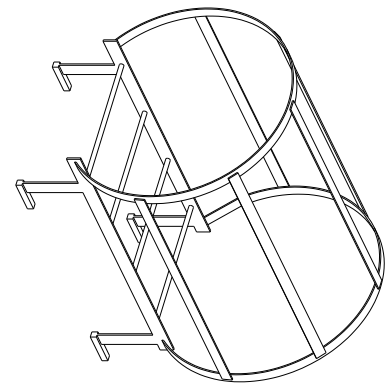
PLACING BOOM SYSTEM ----- [WORKING PLATFORM & LADDER]



Working platform : 570 KG

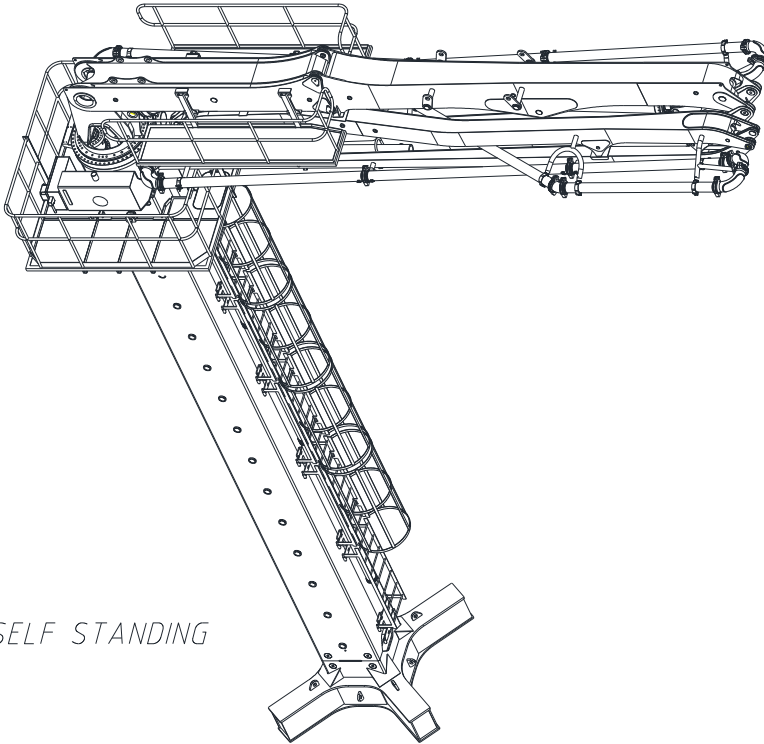


Ladder(STD) : 20kg+30kg = 50kg

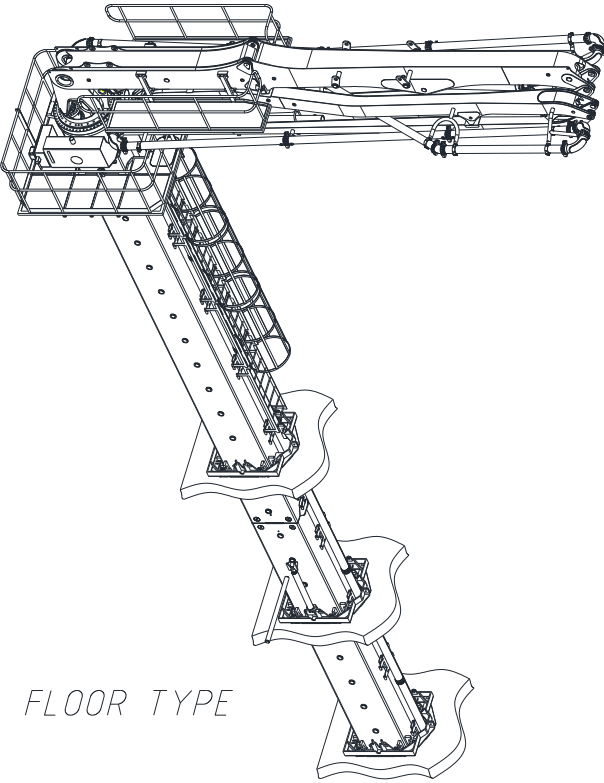


Ladder(OPT): 25kg

KB-M36Z TYPE



SELF STANDING



FLOOR TYPE