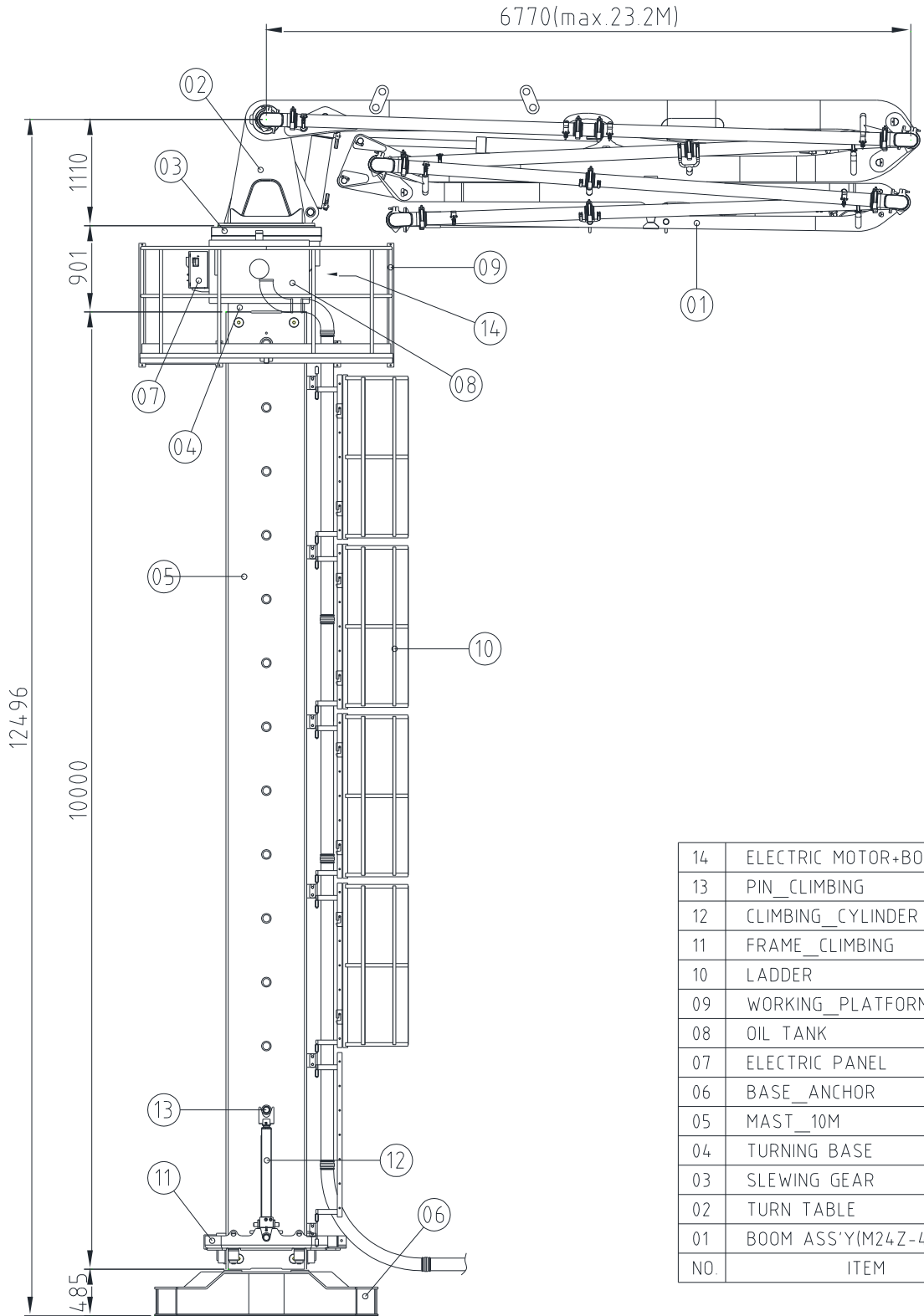


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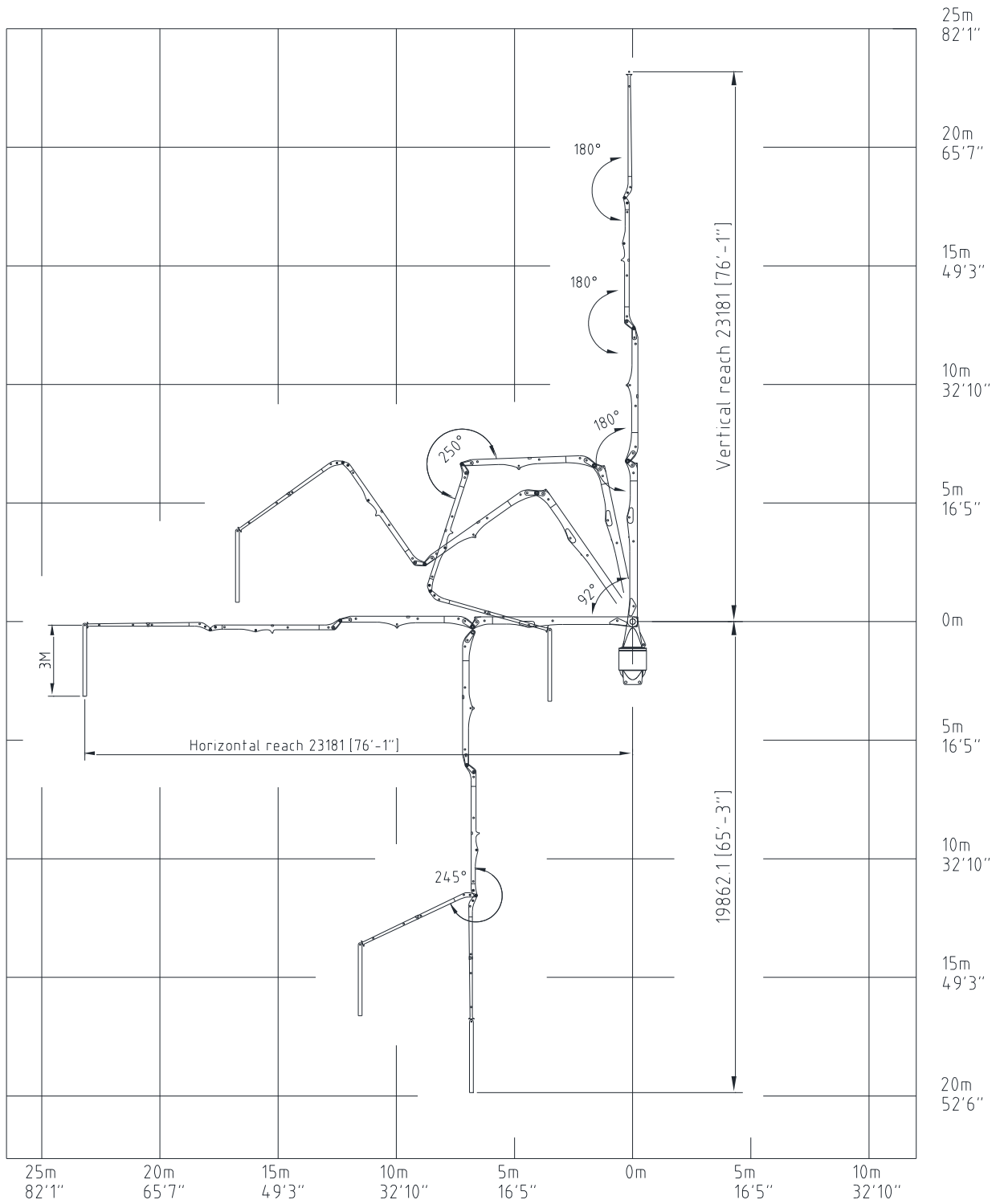
Placing Boom System _ Layout



14	ELECTRIC MOTOR+BOOM PUMP
13	PIN_CLIMBING
12	CLIMBING_CYLINDER
11	FRAME_CLIMBING
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(M24Z-4SEC)
NO.	ITEM

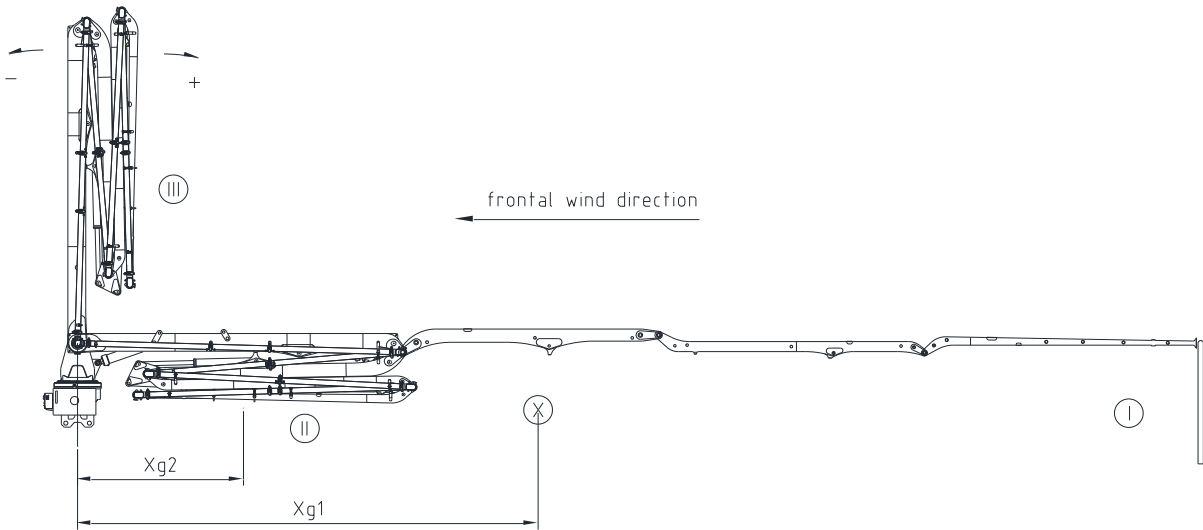
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Placing Boom System Working _ Working diagram



KB-M24Z

Placing Boom System Technical data



MOMENT [kNm]

Position of boom	Moment(boom side) → +
I with concrete in pipe-line	→ 480 kNm
II without concrete in pipe-line	→ 125 kNm
III without concrete in pipe-line	→ 14.4 kNm

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

In operation	5,800 kg	Out of operation	5,150 kg
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Wind-exposed areas [m²]

Position of boom	Wind-exposed area	Center of gravity distance	remark
I	9.2 m ² boom-side	Xg1 = 7.9 m	Wind surface perpendicular to frontal wind
II	9.2 m ² boom-side	Xg2 = 2.7 m	
I/II	2.0 m ²	Ys = 0.4 m	Exposed area in frontal wind
III	7.8 m ²	Ys = 4.0 m	

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

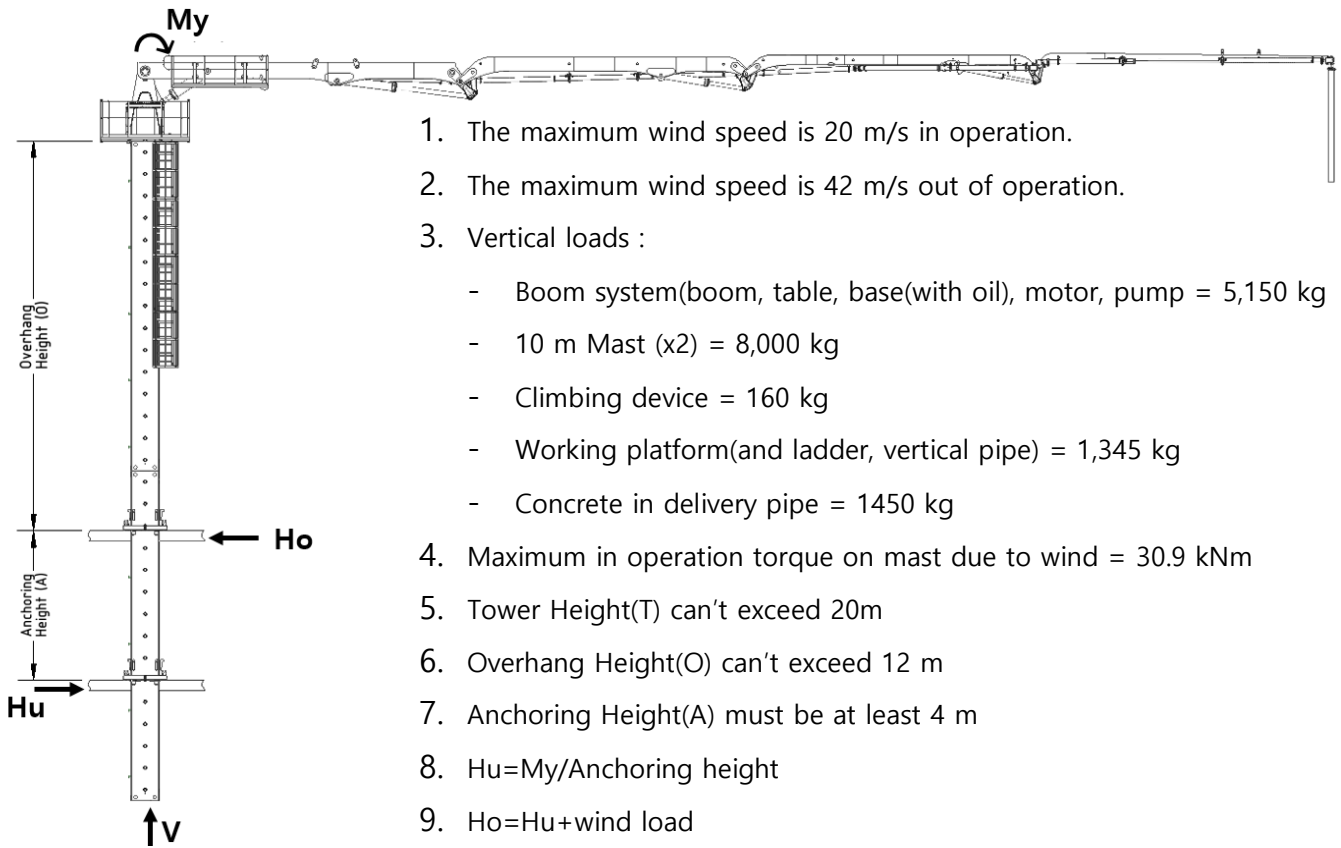
Absolute altitude [m]	0~8	8~20	20~100	Above 100
W [N/m ²]	800	1,280	1,760	2,080

$$F = W \times A$$

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 = 5,150 kg
 - 10 m Mast (x2) = 8,000 kg
 - Climbing device = 160 kg
 - Working platform(and ladder, vertical pipe) = 1,345 kg
 - Concrete in delivery pipe = 1450 kg
4. Maximum in operation torque on mast due to wind = 30.9 kNm
5. Tower Height(T) can't exceed 20m
6. Overhang Height(O) can't exceed 12 m
7. Anchoring Height(A) must be at least 4 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]	5	6	7	8	9	10	11	12	13	14	15
H_o [kN]	123	107	95	86	80	74	70	66	63	60	58

Maximum Anchoring load out of operation

Overhang Height [m]	2	4	6	7	8	8.5	9	9.5	10	11	12
H_o [kN]	50	65	86	91	100	105	110	116	121	132	143

Maximum Vertical load in operation

Tower Height [m]	6	8	10	12	14	16	18	20
V [kN]	106.2	123.8	121.0	141.9	147.6	156.7	174.3	171.5

Maximum Vertical load out of operation

Tower Height [m]	6	8	10	12	14	16	18	20
V [kN]	97.2	114.3	110.8	131.0	136.2	144.6	161.6	158.1

Maximum loads in operation

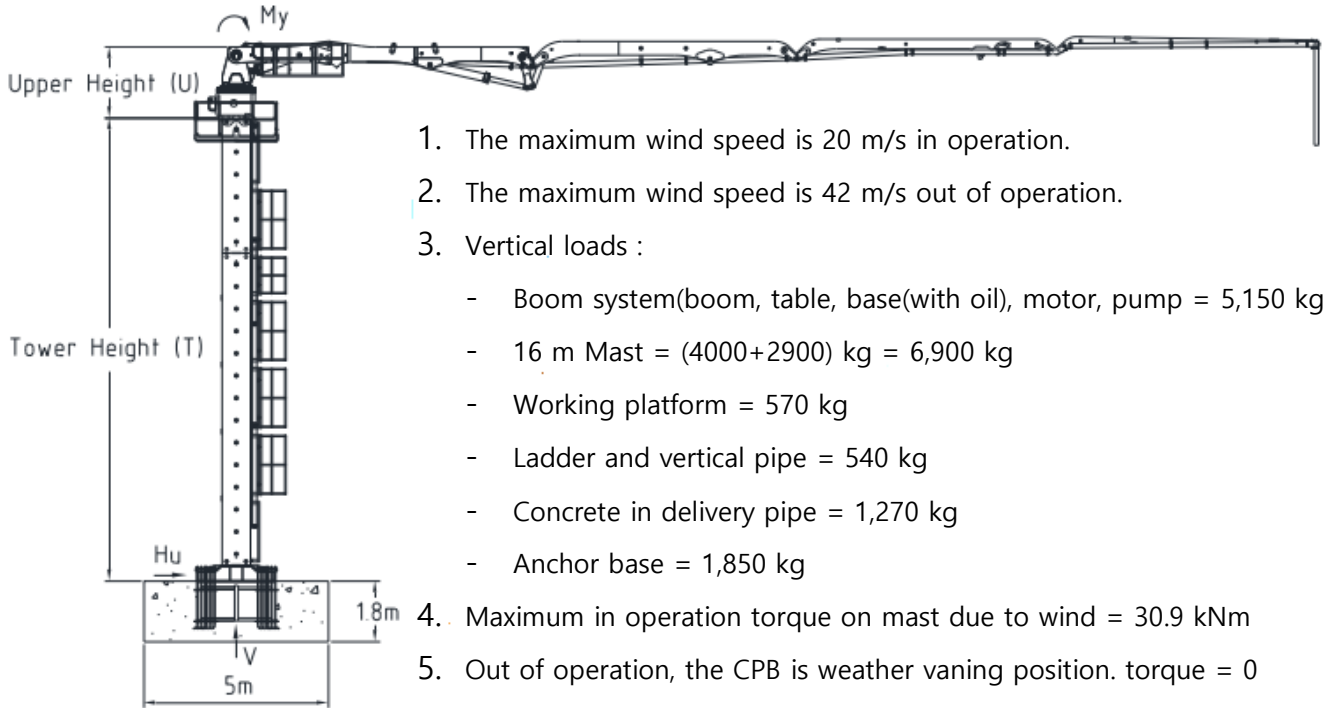
Overhang Height [m]	6	6.5	7	7.5	8	8.5	9	9.5	10	10.5	11	11.5	12
Overturn Moment [kNm]	495	497	499	501	503	506	509	511	514	517	521	524	527

Maximum loads out of operation

Overhang Height [m]	6	6.5	7	7.5	8	8.5	9	9.5	10	10.5	11	11.5	12
Overturn Moment [kNm]	263	282	302	322	343	365	387	410	434	459	484	509	536

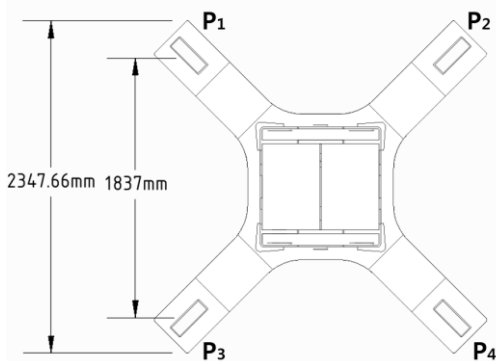
KB-M24Z

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) = 5,150 kg
 - 16 m Mast = (4000+2900) kg = 6,900 kg
 - Working platform = 570 kg
 - Ladder and vertical pipe = 540 kg
 - Concrete in delivery pipe = 1,270 kg
 - Anchor base = 1,850 kg
4. Maximum in operation torque on mast due to wind = 30.9 kNm
5. Out of operation, the CPB is weather vaning position. torque = 0
6. Tower Height (T) can't exceed 16 m
7. $H_u = \frac{H_{wind}}{2} + \frac{Torque}{d}$

Maximum loads in operation	Tower Height [m]						
	4	6	8	10	12	14	16
Total vertical load [kN]	115.4	124.4	142.1	139.2	160.1	165.9	174.9
Overturm Moment [kNm]	448.1	494.9	503.7	514.6	527.6	542.6	559.6
Horizontal load [kN]	17.8	18.3	18.9	19.4	19.9	20.4	20.9
Maximum loads out of operation	Tower Height [m]						
	4	6	8	10	12	14	16
Total vertical load [kN]	107.1	115.5	132.5	129.0	149.3	154.4	162.8
Overturm Moment [kNm]	192.5	262.3	342.7	433.8	535.5	647.8	770.8
Horizontal load [kN]	9.0	11.7	14.3	17.0	19.7	22.3	25.0

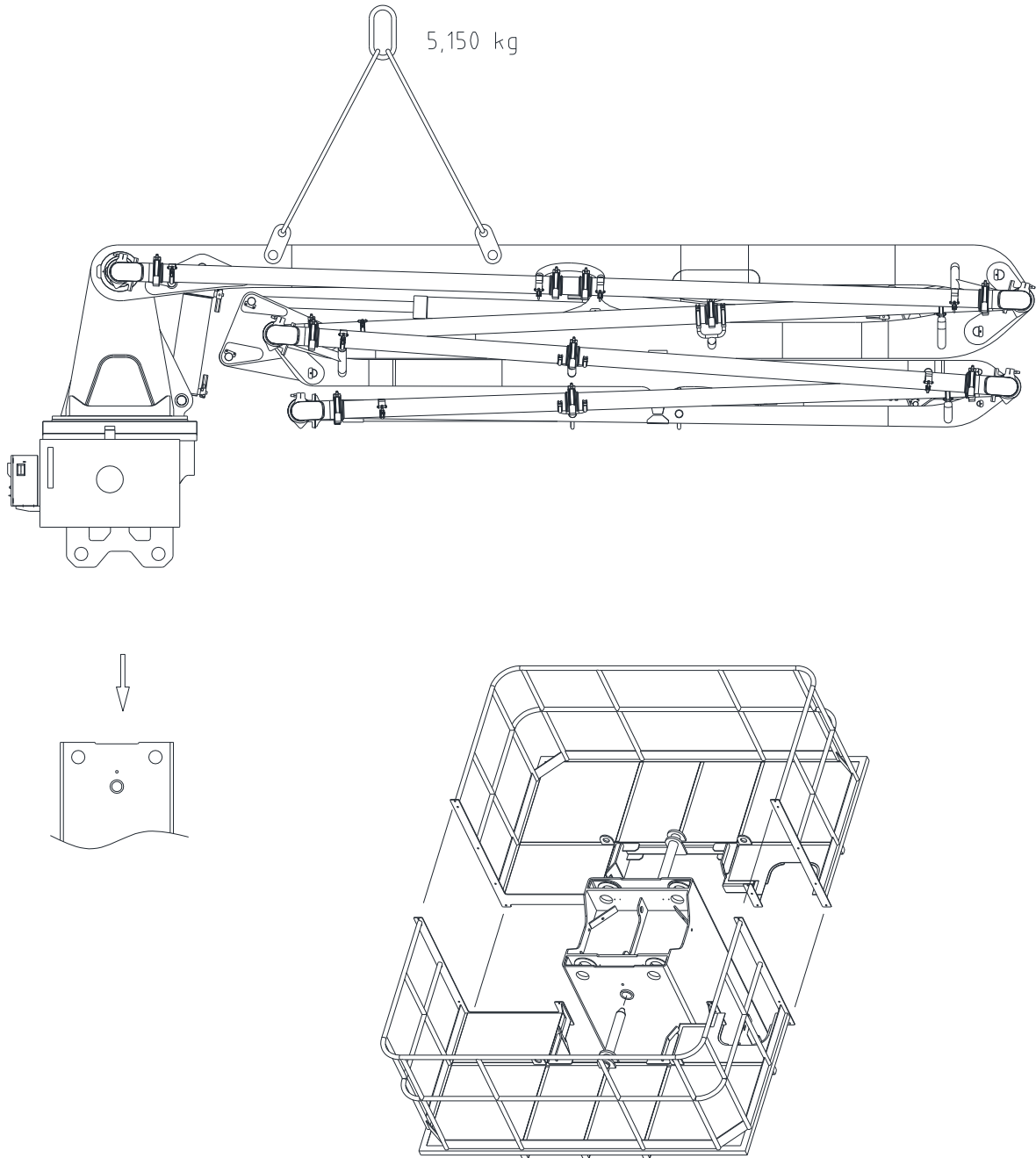


	Corner loads at max load condition			
	P1	P2	P3	P4
Max Load [kN]	-318.1	-39.3	84.9	369.6

- Negative loads are tension load.

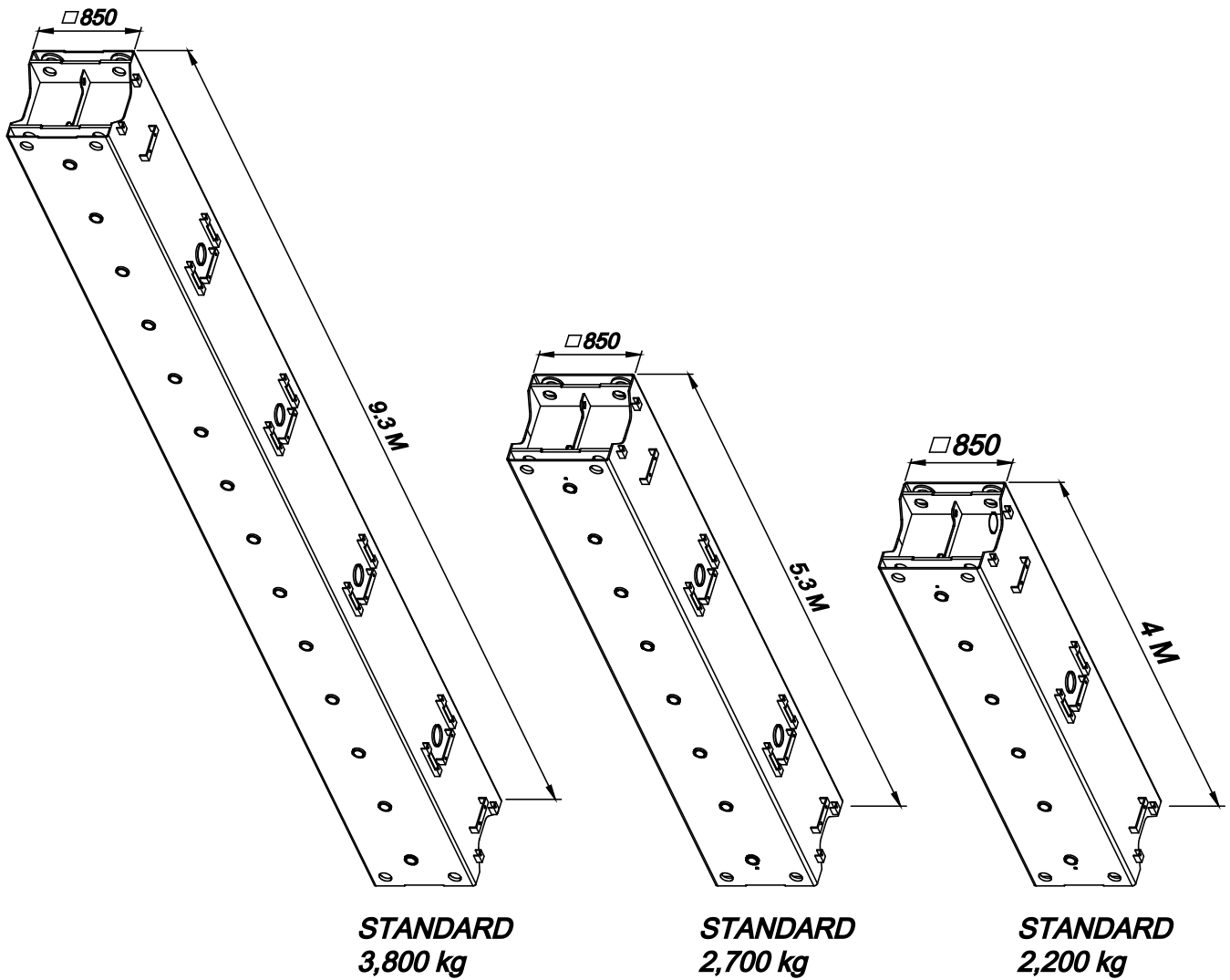
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PLACING BOOM SYSTEM ----- [BOOM ASS'Y & UPPER PARTS]



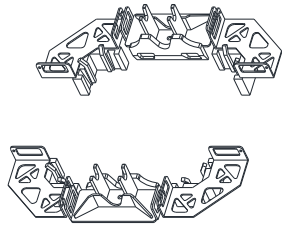
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PLACING BOOM SYSTEM ----- [MAST]

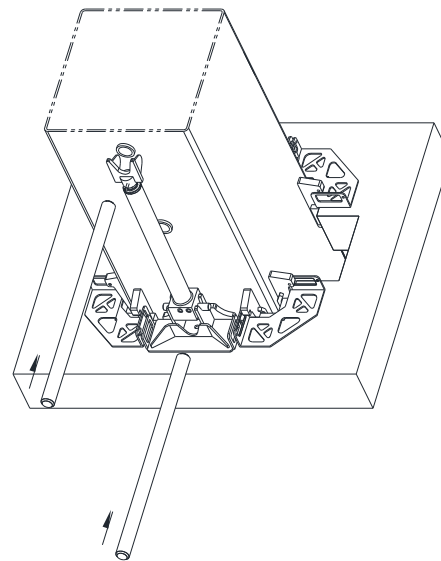
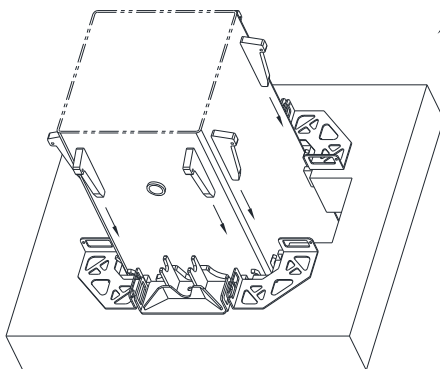
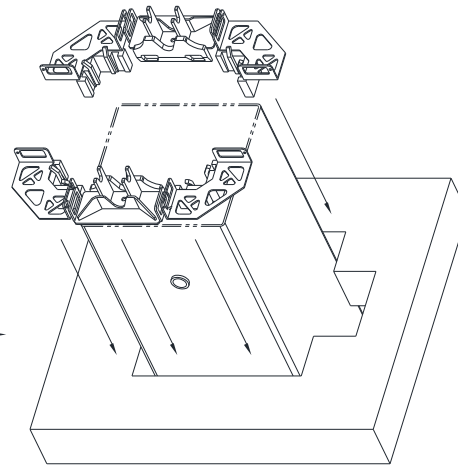
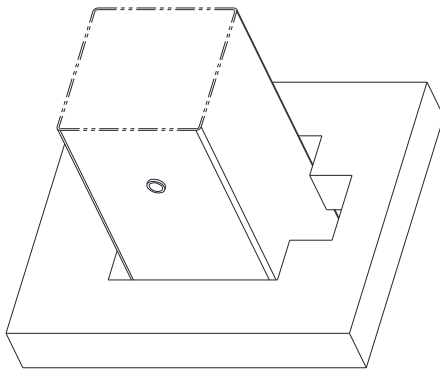
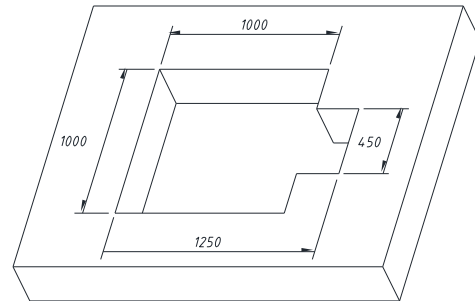


KB-M24Z

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

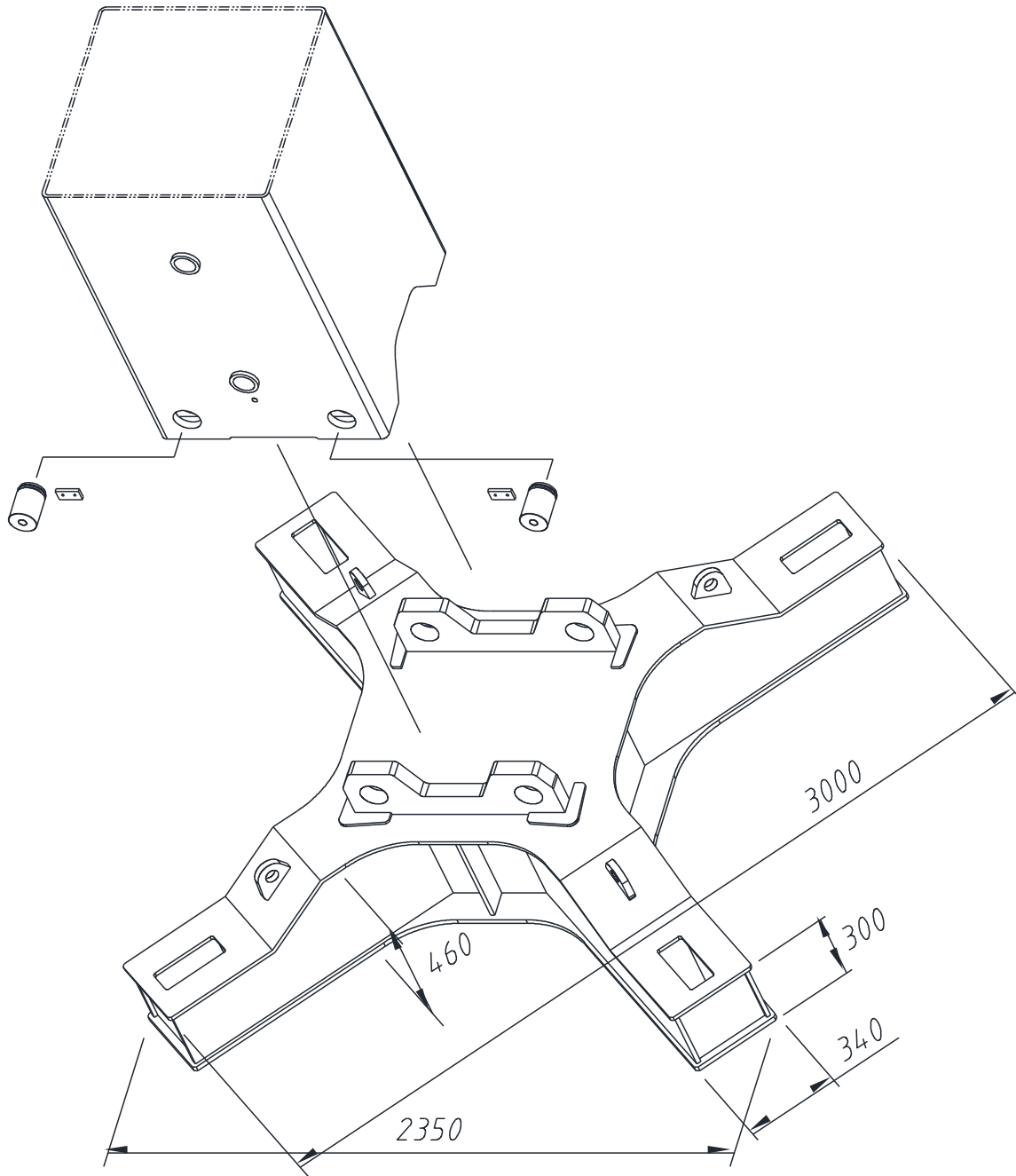


WEDGE BLOCK
CLIMBING SHOE
TOTAL : 160 kg



KB-M24Z

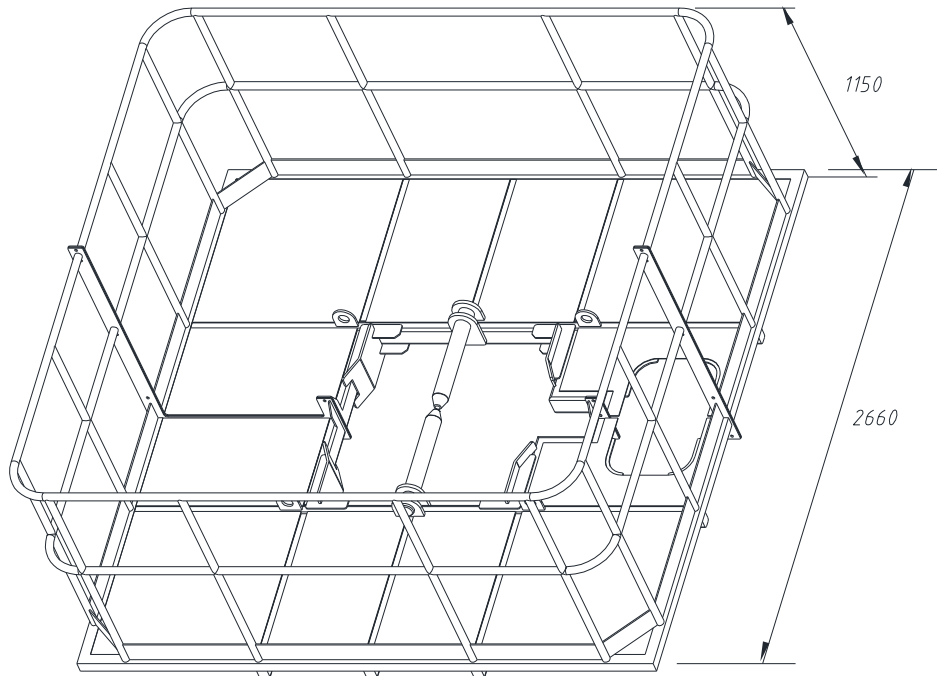
PLACING BOOM SYSTEM ----- [BASE_ANCHOR]



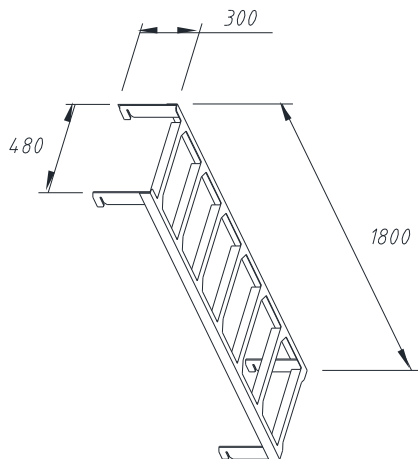
BASE ANCHOR
1,850 kg

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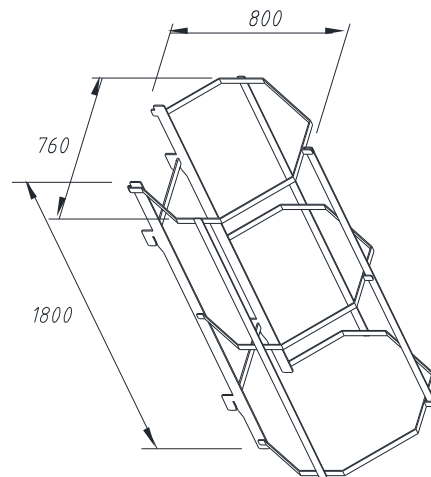
PLACING BOOM SYSTEM ----- [WORKING PLATFORM & LADDER]



WORKING PLATFORM
570 kg

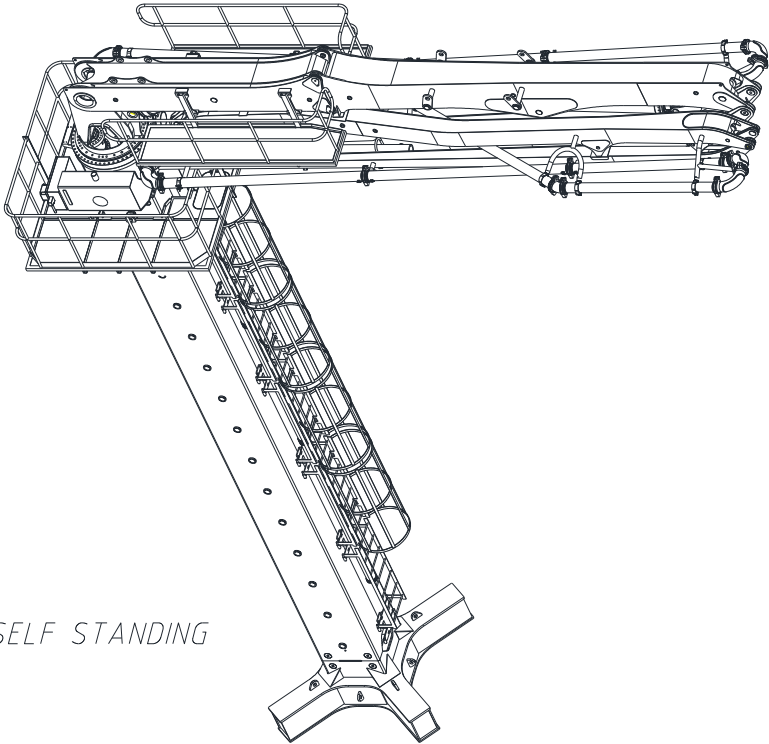


LADDER STD - 2m
15 kg

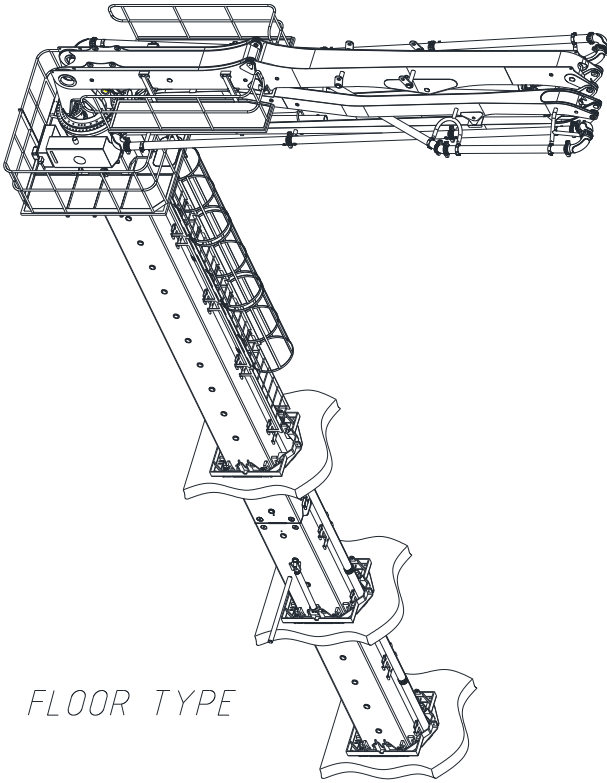


PROTECTOR FOR LADDER - 2m
25 kg

KB-M24Z TYPE



SELF STANDING



FLOOR TYPE