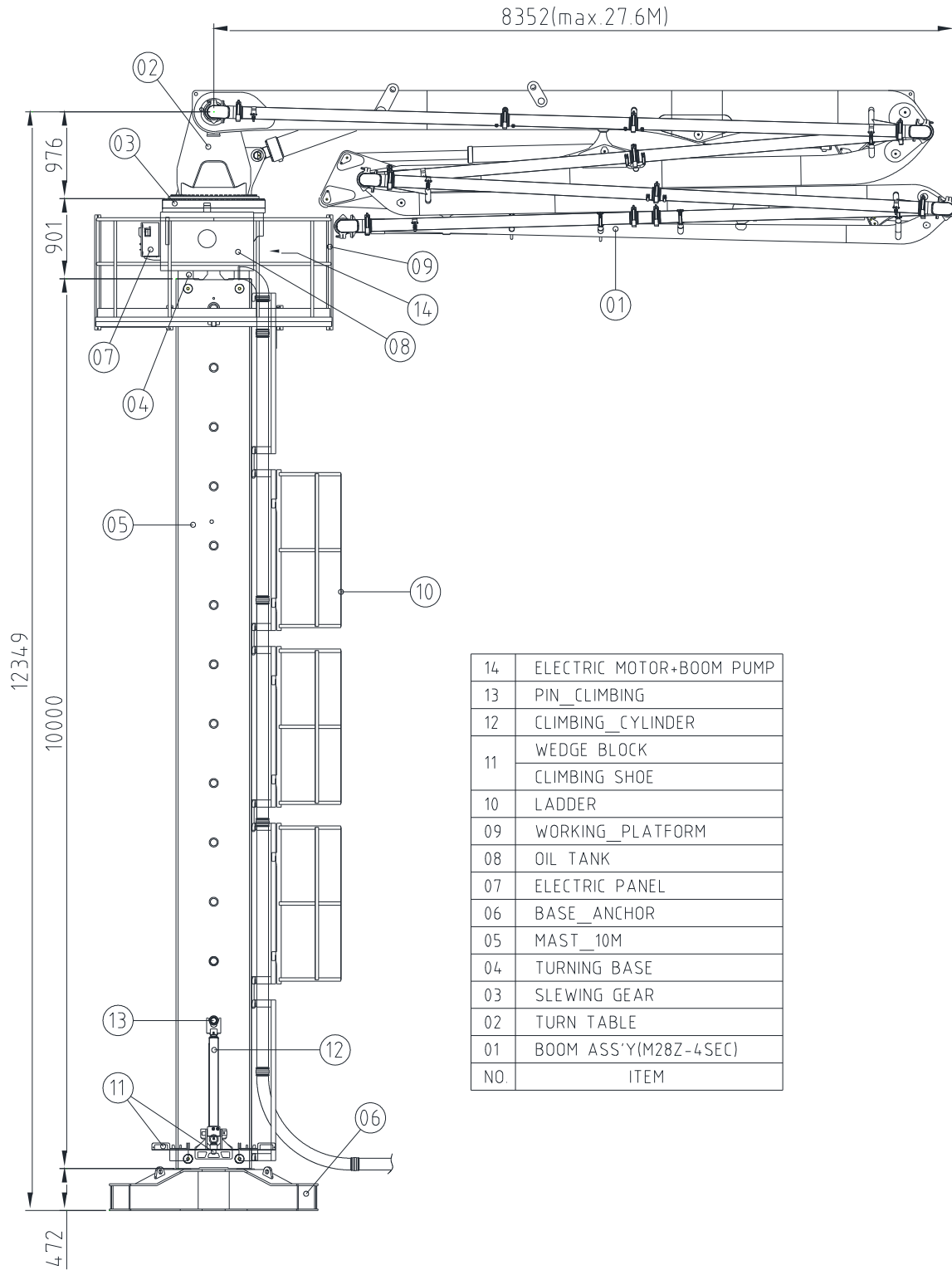


## KB-M28Z

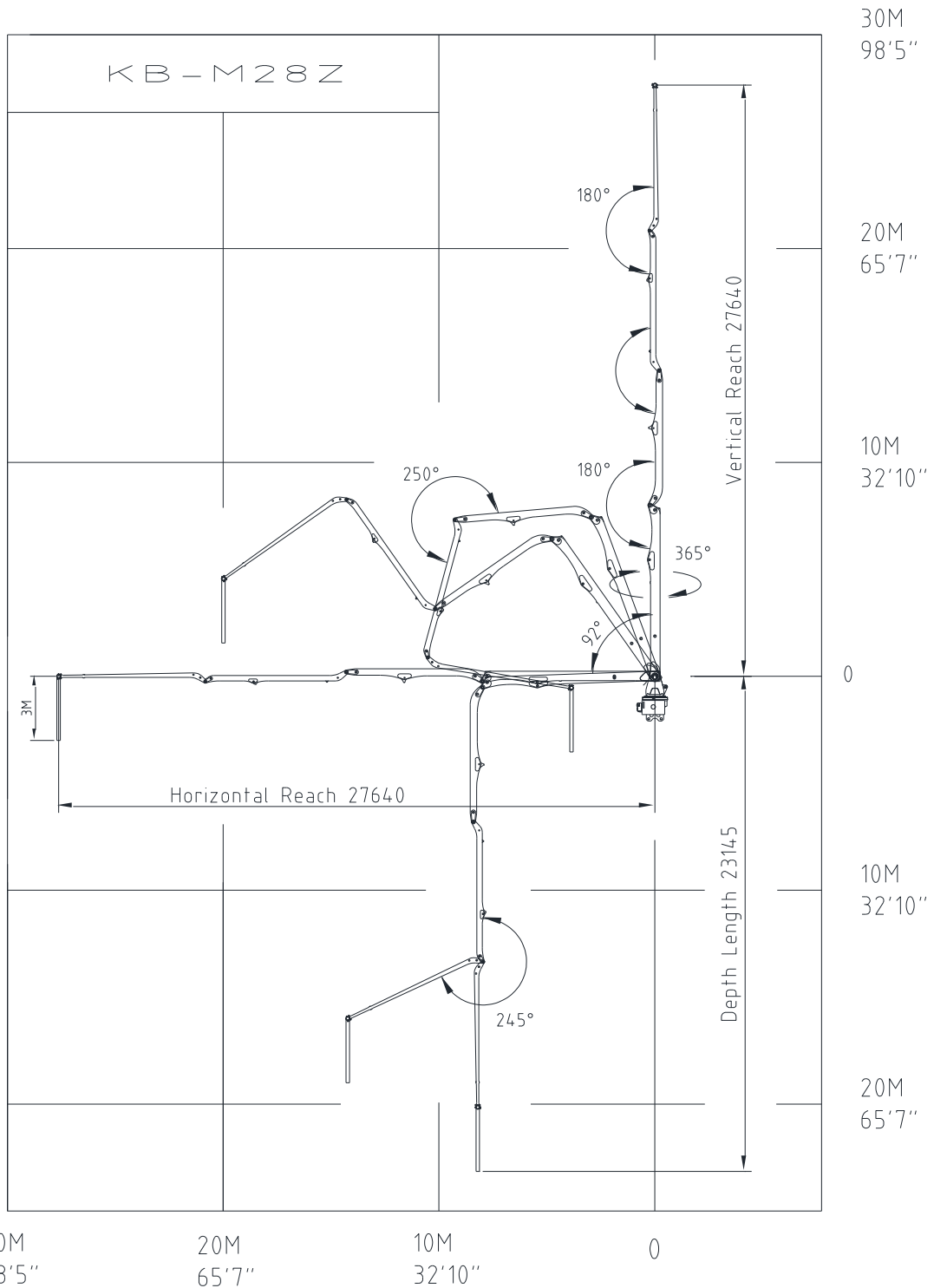
## Placing Boom System \_ Layout



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(M28Z-4SEC)
NO.	ITEM

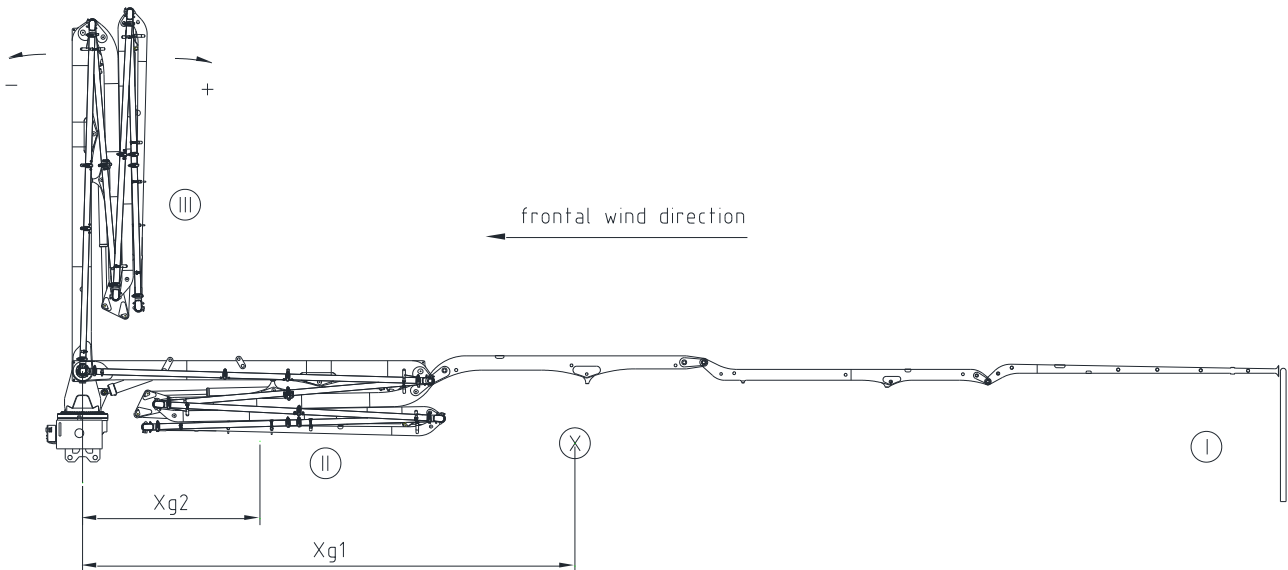
## KB-M28Z

## Placing Boom System Working \_ Working diagram



## KB-M28Z

## Placing Boom System Technical data



### MOMENT [kNm]

Position of boom	Moment(boom side) → +
I with concrete in pipe-line	→ 774 kNm
II without concrete in pipe-line	→ 235 kNm
III without concrete in pipe-line	→ 25.8 kNm

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

In operation	7,500 kg	Out of operation	6,700 kg
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### Wind-exposed areas [m<sup>2</sup>]

Position of boom	Wind-exposed area	Center of gravity distance	remark
I	12.3 m <sup>2</sup> boom-side	Xg1 = 9.0 m	Wind surface perpendicular to frontal wind
II	12.3 m <sup>2</sup> boom-side	Xg2 = 4.0 m	
I/II	3.6 m <sup>2</sup>	Ys = 0.4 m	Exposed area in frontal wind
III	10.9 m <sup>2</sup>	Ys = 4.8 m	

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

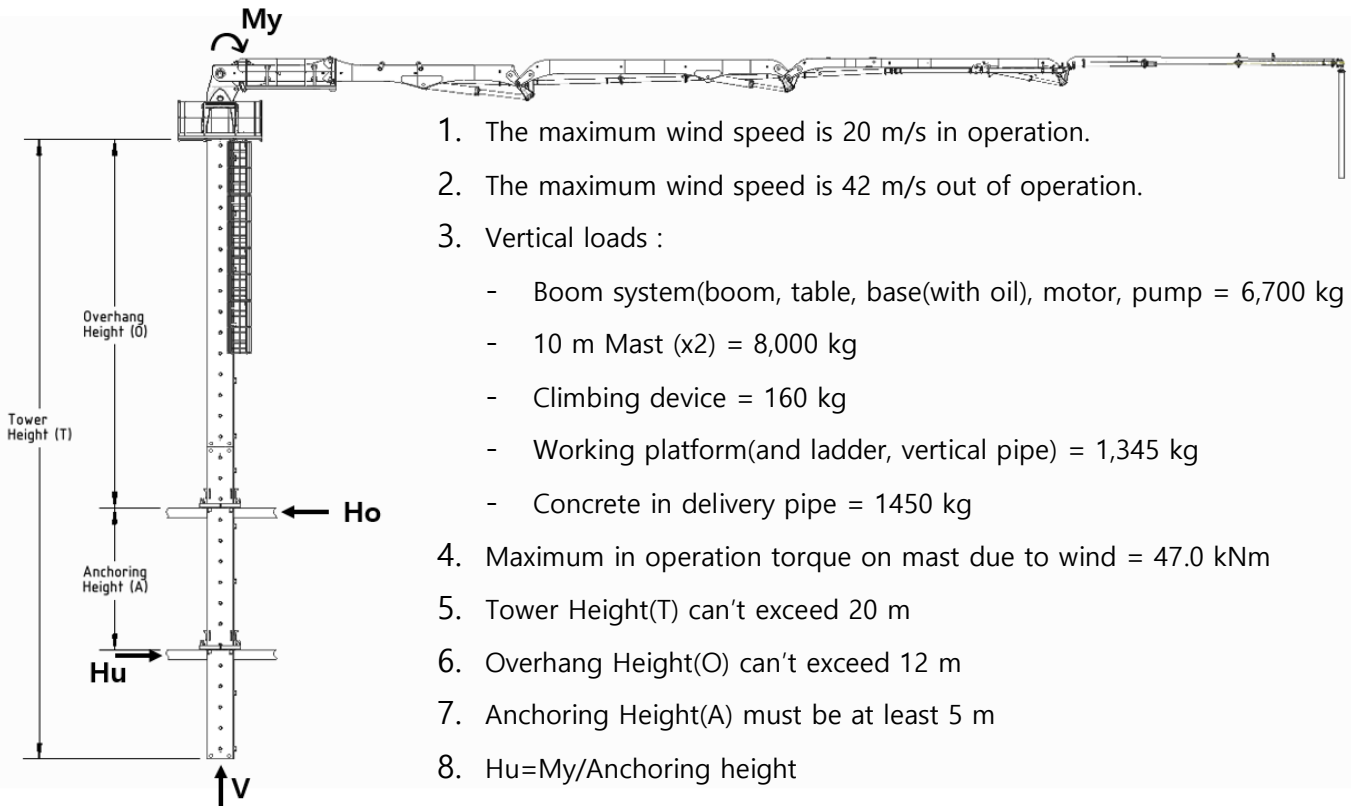
Absolute altitude [m]	0~8	8~20	20~100	Above 100
W [N/m <sup>2</sup> ]	800	1,280	1,760	2,080

$$F = W \times A$$

F : wind force	W : lateral thrust due to wind	A : wind surface area
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## KB-M28Z

## 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 = 6,700 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 = 47.0 kNm
5. Tower Height(T) can't exceed 20 m
6. Overhang Height(O) can't exceed 12 m
7. Anchoring Height(A) must be at least 5 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]	195	169	150	136	126	117	110	104	99	95	91

### Maximum Anchoring load out of operation

Overhang Height [m]	6	6.5	7	7.5	8	8.5	9	9.5	10	11	12
$H_o$ [kN]	112	118	123	129	134	140	146	152	158	171	184

### Maximum Vertical load in operation

Tower Height [m]	6	8	10	12	14	16	18	20
V [kN]	124.5	142.2	139.3	160.2	166.0	175.0	192.7	189.8

### Maximum Vertical load out of operation

Tower Height [m]	6	8	10	12	14	16	18	20
V [kN]	114.0	131.0	127.5	147.8	152.9	161.3	178.3	174.8

### Maximum loads in operation

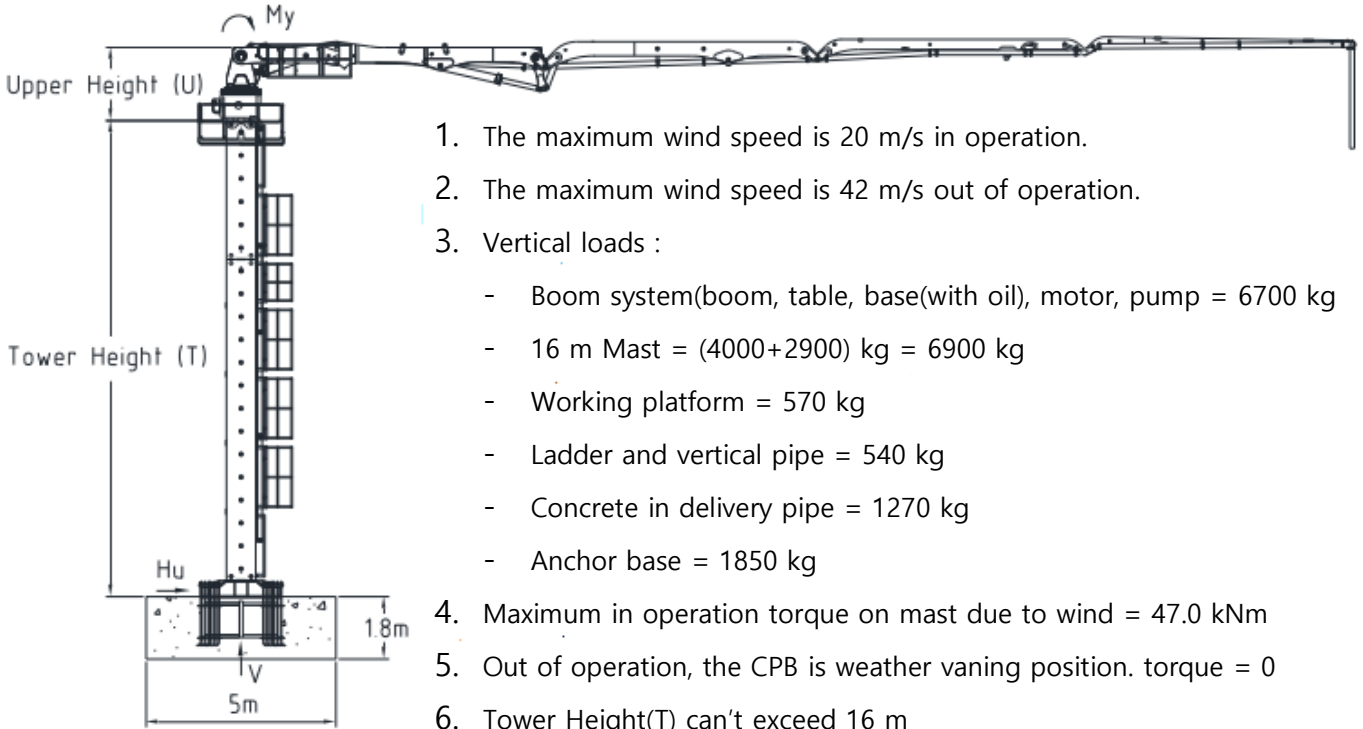
Overhang Height [m]	6	6.5	7	7.5	8	8.5	9	9.5	10	10.5	11	11.5	12
Overturn Moment [kNm]	793	795	798	801	803	806	809	812	816	819	822	826	830

### 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]	383	407	432	458	484	511	539	567	596	625	656	687	718

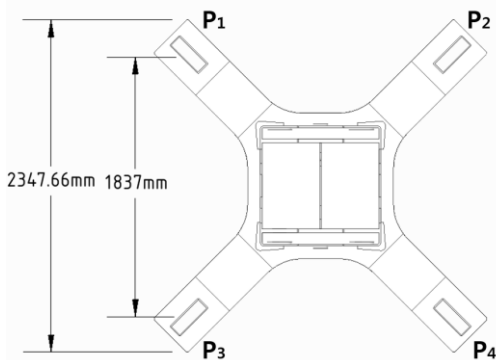
## KB-M28Z

## 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 = 6700 kg
  - 16 m Mast = (4000+2900) kg = 6900 kg
  - Working platform = 570 kg
  - Ladder and vertical pipe = 540 kg
  - Concrete in delivery pipe = 1270 kg
  - Anchor base = 1850 kg
4. Maximum in operation torque on mast due to wind = 47.0 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]	133.7	142.7	160.4	157.6	178.4	184.2	193.2
Overturn Moment [kNm]	784.9	793.1	803.3	815.6	829.9	846.2	864.6
Horizontal load [kN]	26.6	27.1	27.7	28.2	28.7	29.2	29.7
Maximum loads out of operation	Tower Height [m]						
	4	6	8	10	12	14	16
Total vertical load [kN]	123.8	132.2	149.2	145.7	166.0	171.1	179.5
Overturn Moment [kNm]	281.3	371.7	472.8	584.5	707.0	840.1	983.8
Horizontal load [kN]	10.5	13.2	15.8	18.5	21.1	23.8	26.4

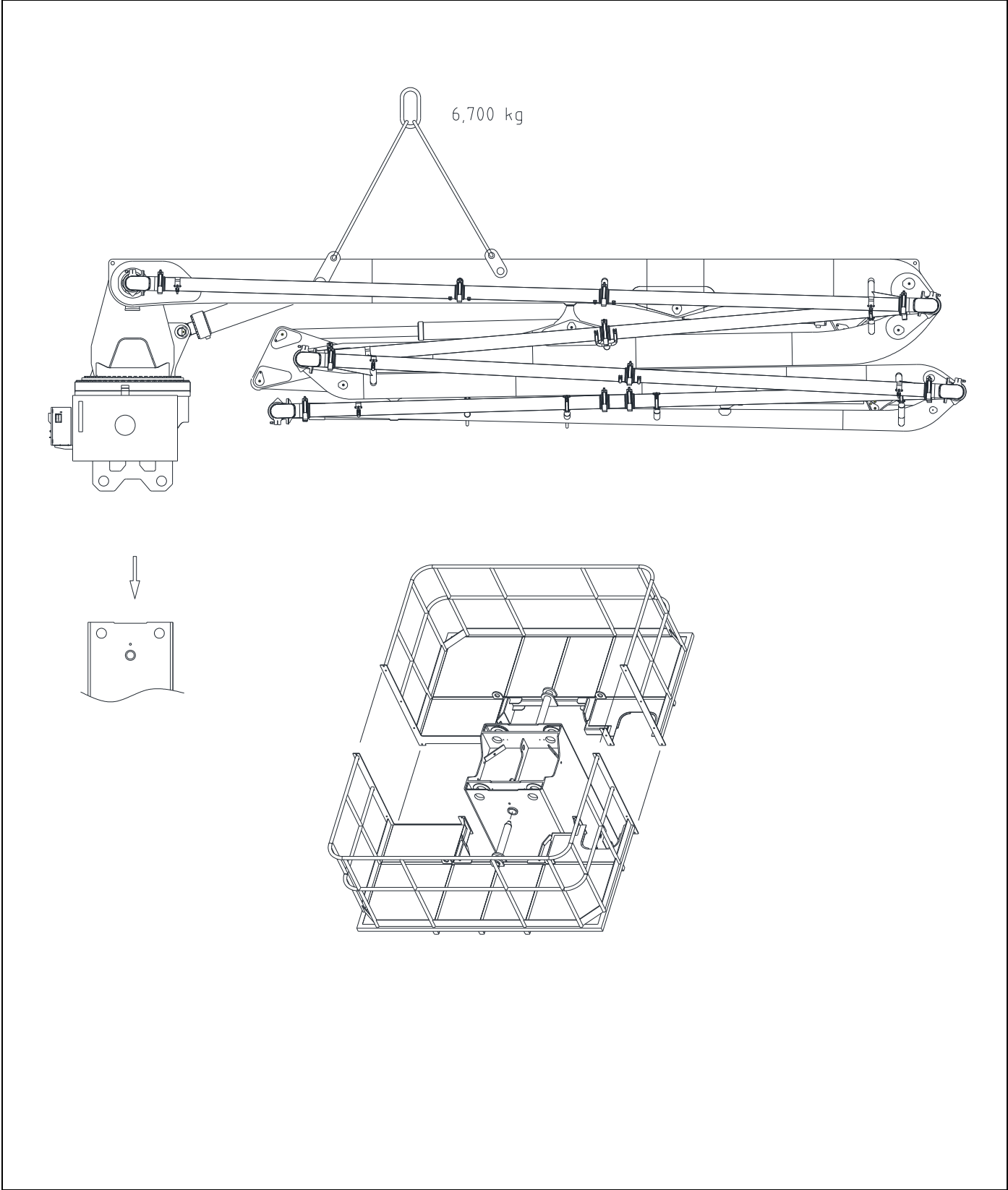


	Corner loads at max load condition			
	P1	P2	P3	P4
Max Load [kN]	-339.4	-58.1	106.8	464.6

- Negative loads are tension load.

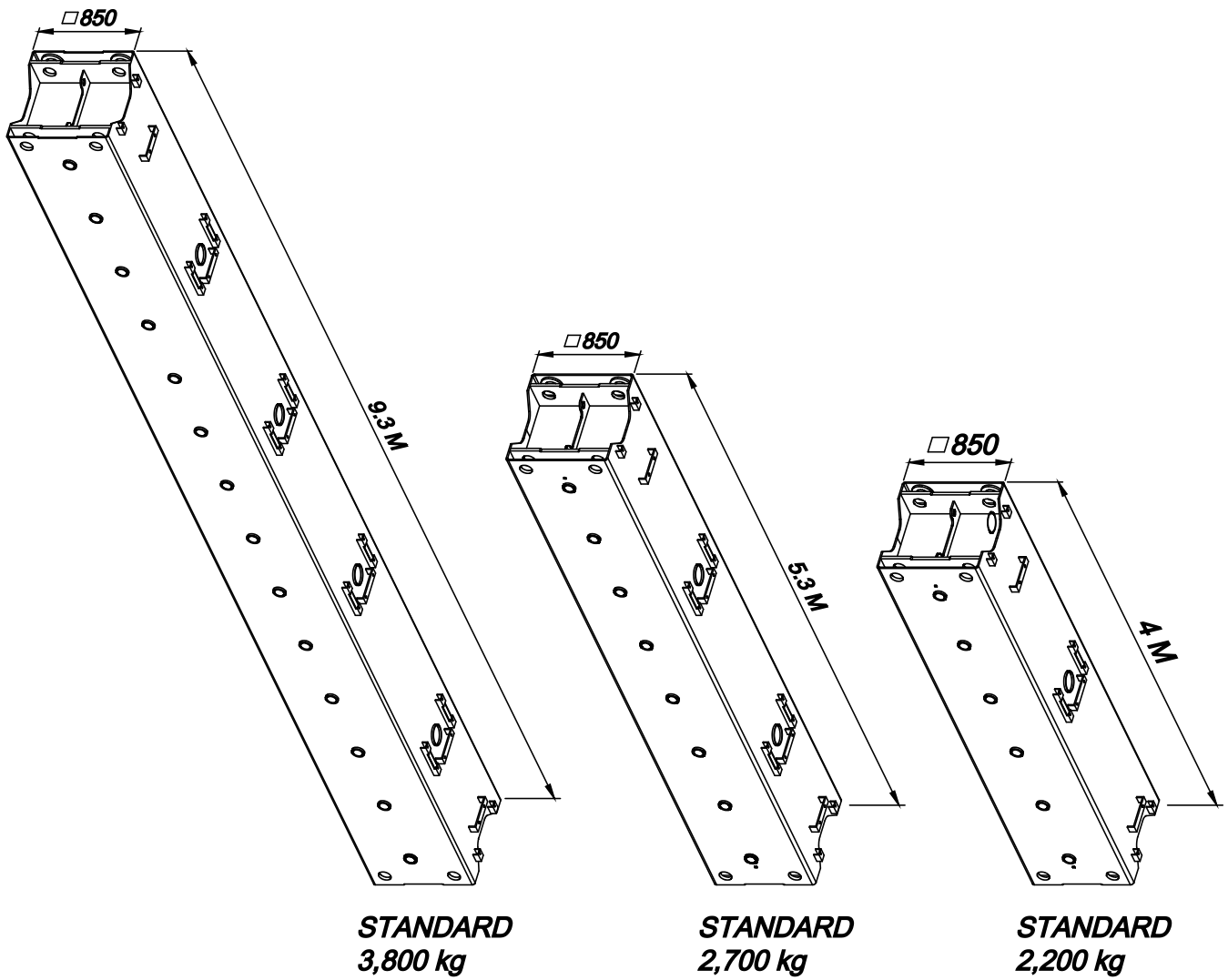
## KB-M28Z

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



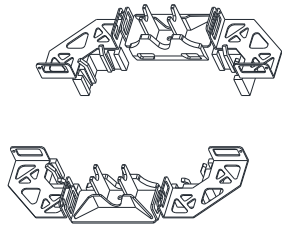
## KB-M28Z

### PLACING BOOM SYSTEM ----- [ MAST ]

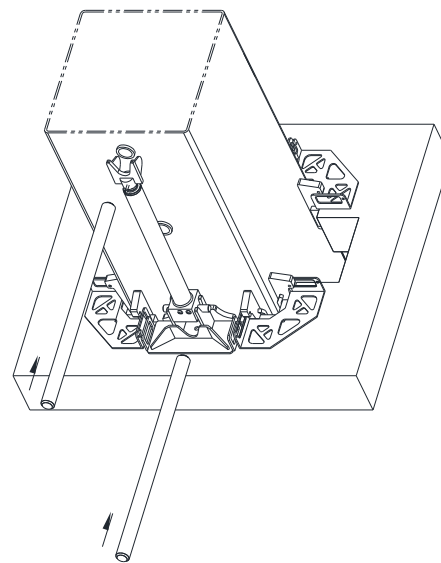
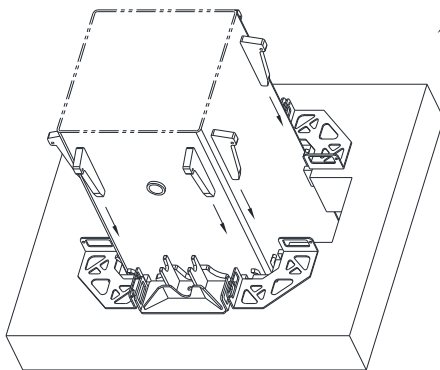
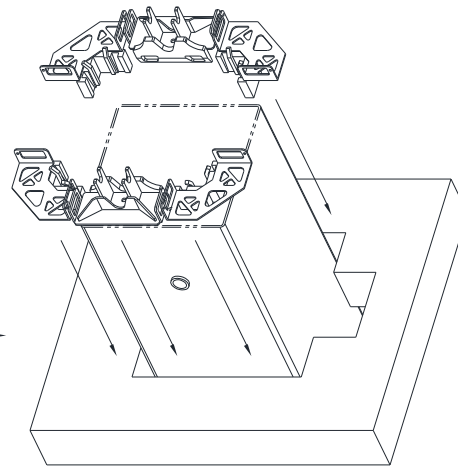
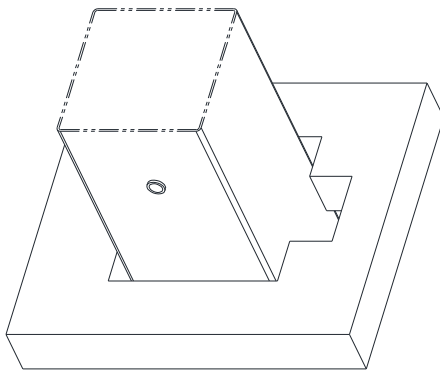
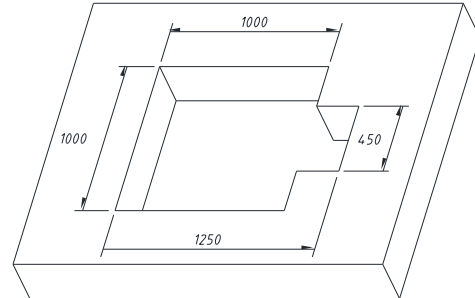


## KB-M28Z

### PLACING BOOM SYSTEM ----- [ FRAME \_ CLIMBING, CLIMBING\_CYLINDER ]

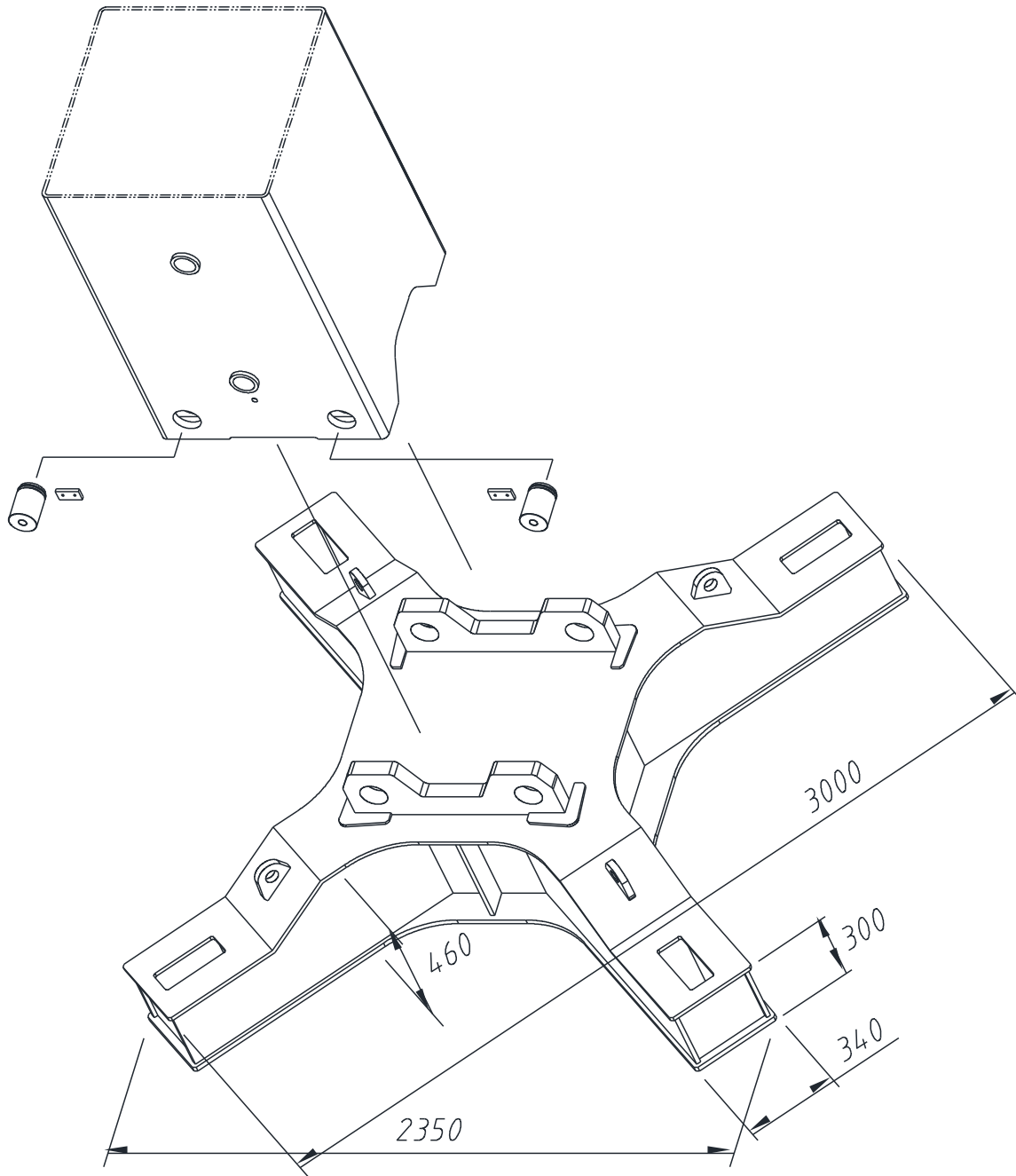


WEDGE BLOCK  
CLIMBING SHOE  
TOTAL : 160 kg



## KB-M28Z

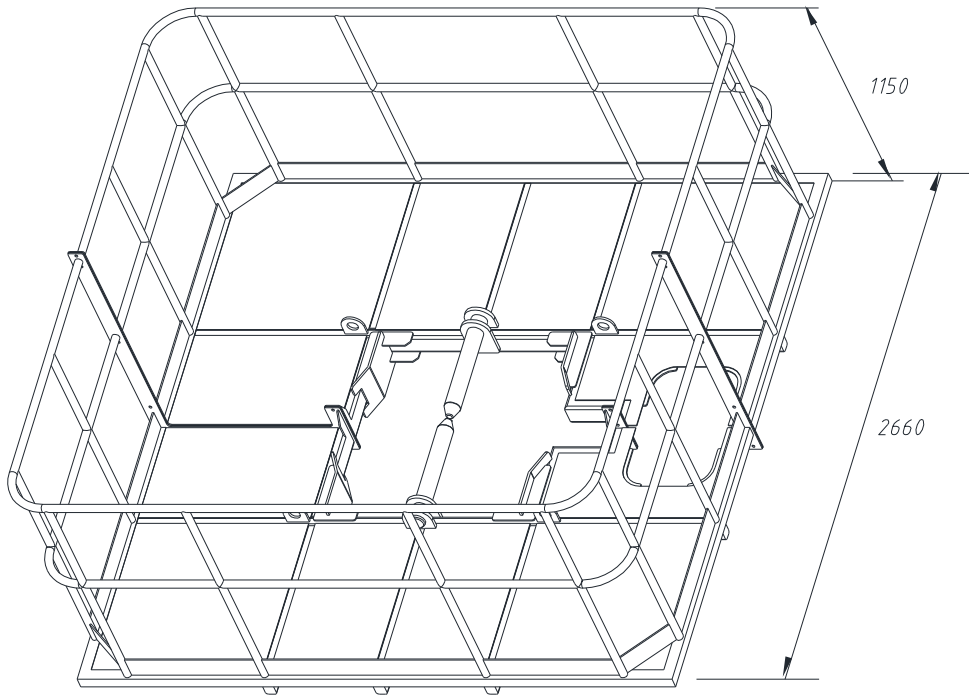
### PLACING BOOM SYSTEM ----- [ BASE\_ANCHOR ]



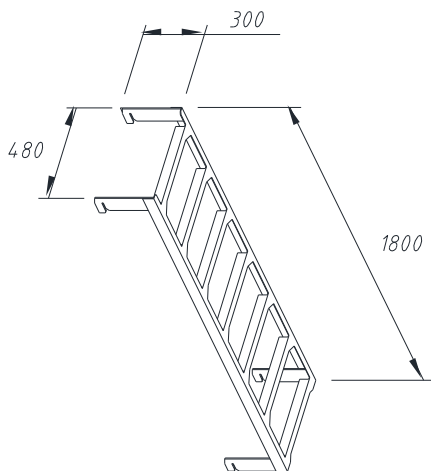
BASE ANCHOR  
1,850 kg

## KB-M28Z

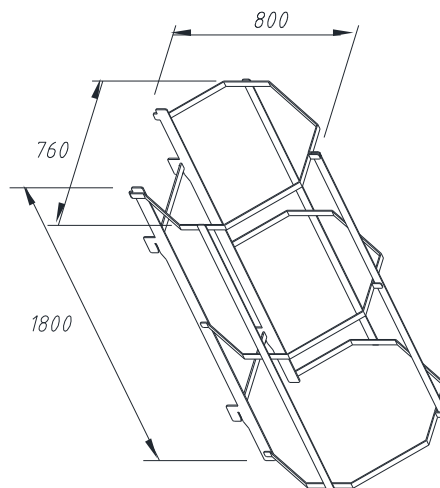
### PLACING BOOM SYSTEM ----- [ WORKING PLATFORM & LADDER ]



*WORKING PLATFORM*  
570 kg



*LADDER STD - 2m*  
15 kg



*PROTECTOR FOR LADDER - 2m*  
25 kg

## KB-M28Z TYPE

