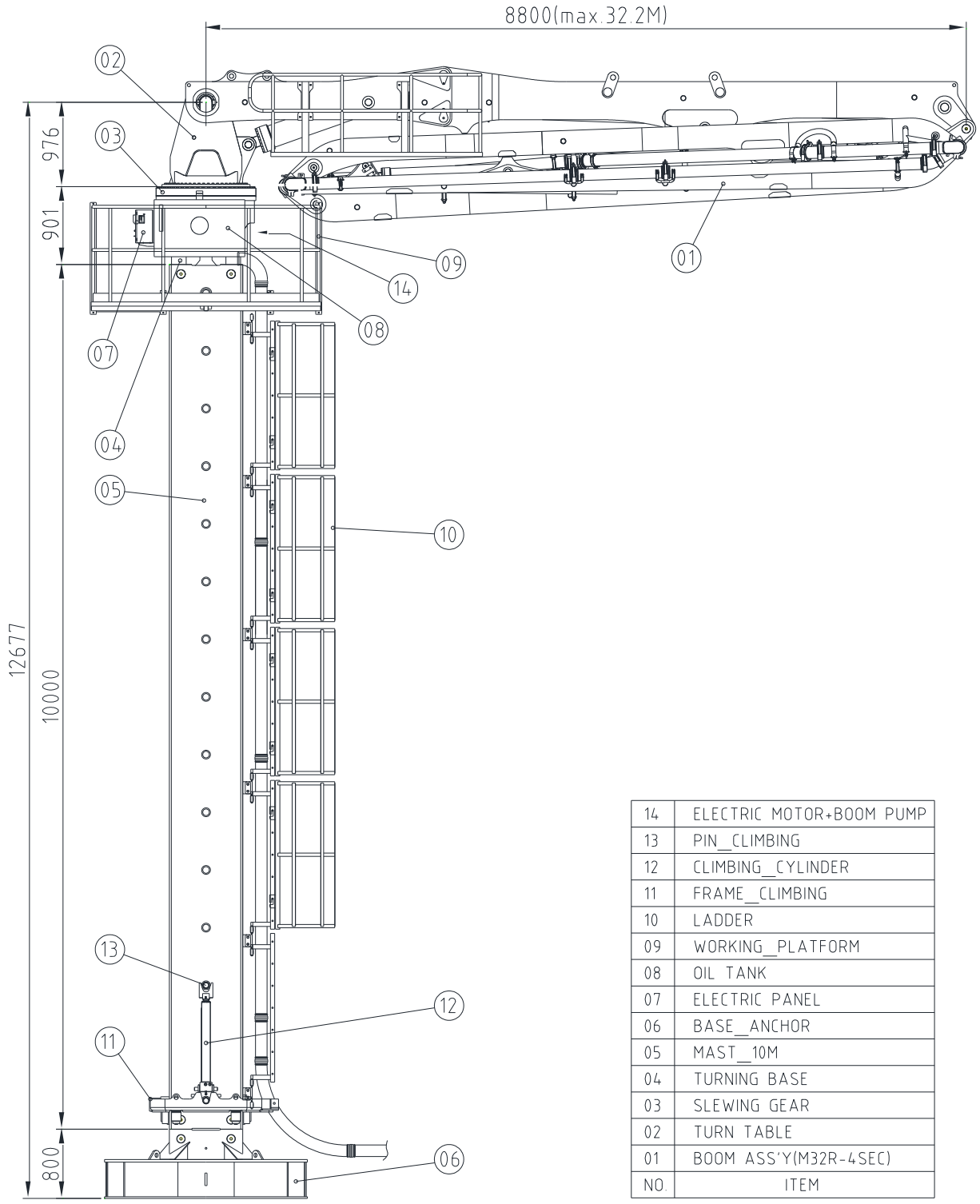
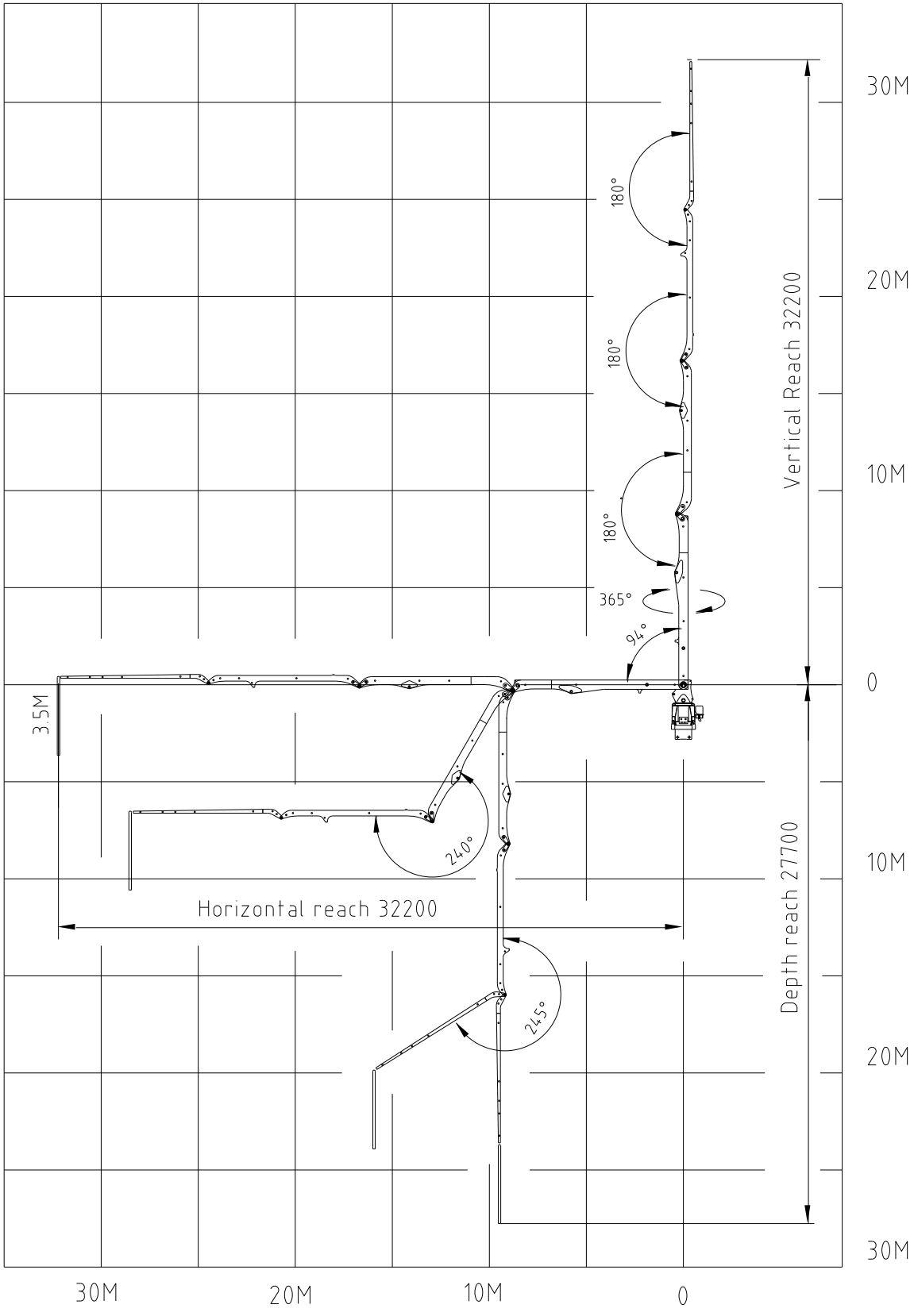
KB-M32R **Placing Boom System _ Layout**



NO.	ITEM
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(M32R-4SEC)

KB-M32R **Placing Boom System Working _ Working diagram**



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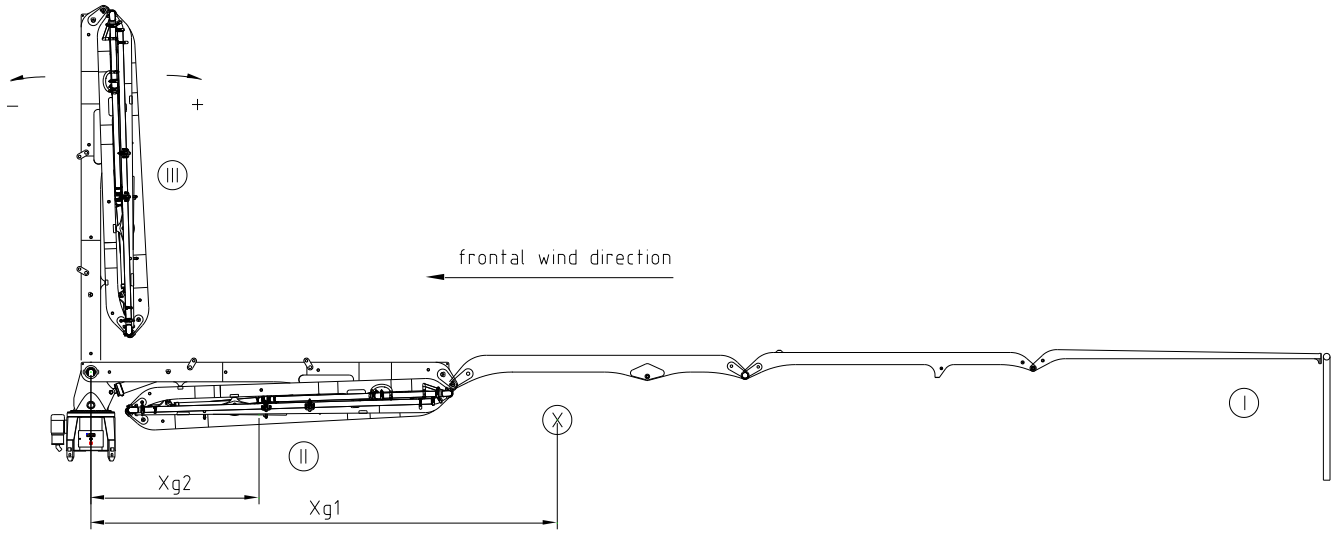
KB-M32R **Placing Boom System Technical data**



MOMENT [KNm]	
Position of boom	Moment(boom side) → +
I with concrete in pipe-line	→ 882 KNm
II without concrete in pipe-line	→ 251 KNm
III without concrete in pipe-line	→ 26.7 KNm

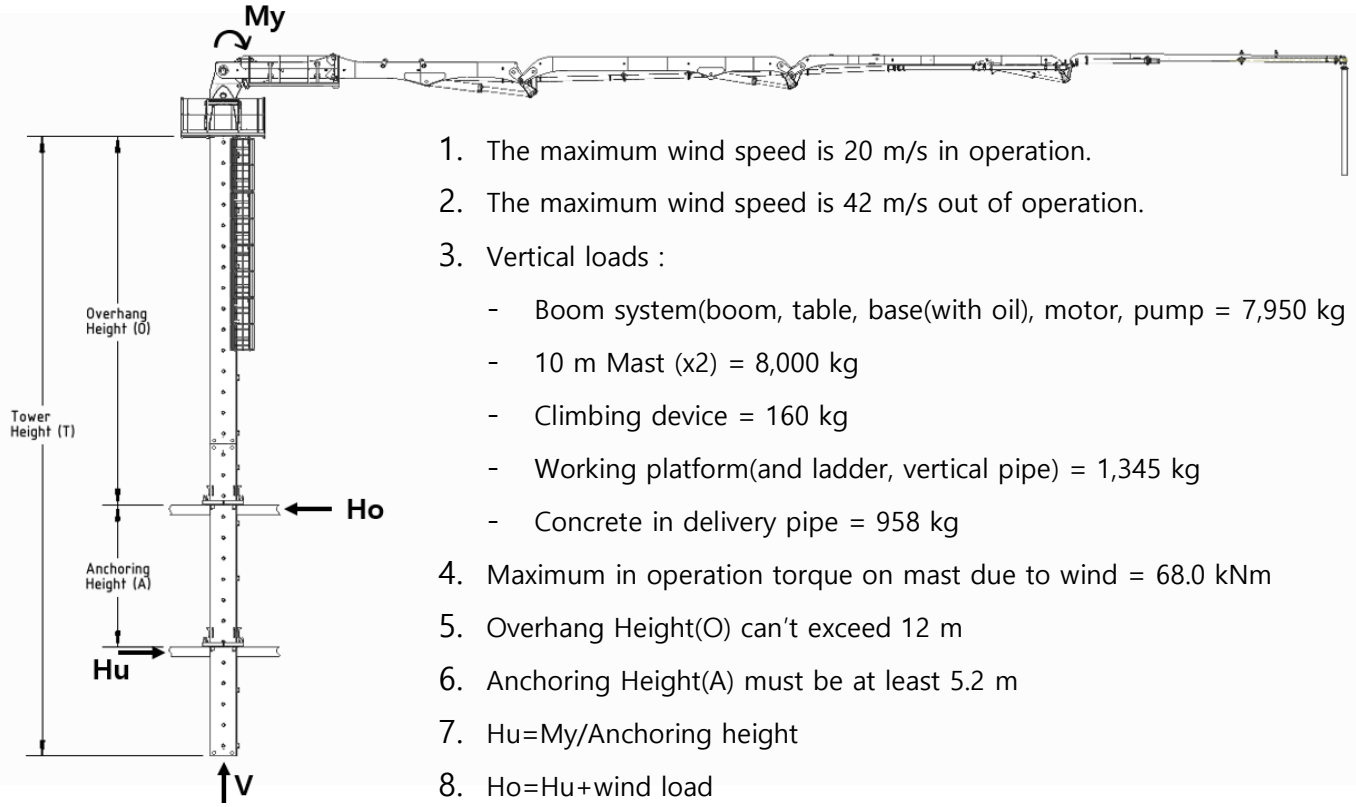
Total weight [kg]- boom, table, base(with oil), motor, pump, (+concrete)			
In operation	8,850 kg	Out of operation	7,950 kg

Wind-exposed areas [㎡]			
Position of boom	Wind-exposed area	Center of gravity distance	remark
I II	16.0 ㎡ boom-side 16.0 ㎡ boom-side	Xg1 = 10 m Xg2 = 4.1 m	Wind surface perpendicular to frontal wind
I/II III	4.3 ㎡ 15.0 ㎡	Ys = 0.4 m Ys = 5.0 m	Exposed area in frontal wind

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/㎡]	800	1,280	1,760	2,080

F = W × A		
F : wind force	W : lateral thrust due to wind	A : wind surface area

KB-M32R Placing Boom System Technical data (Floor type)



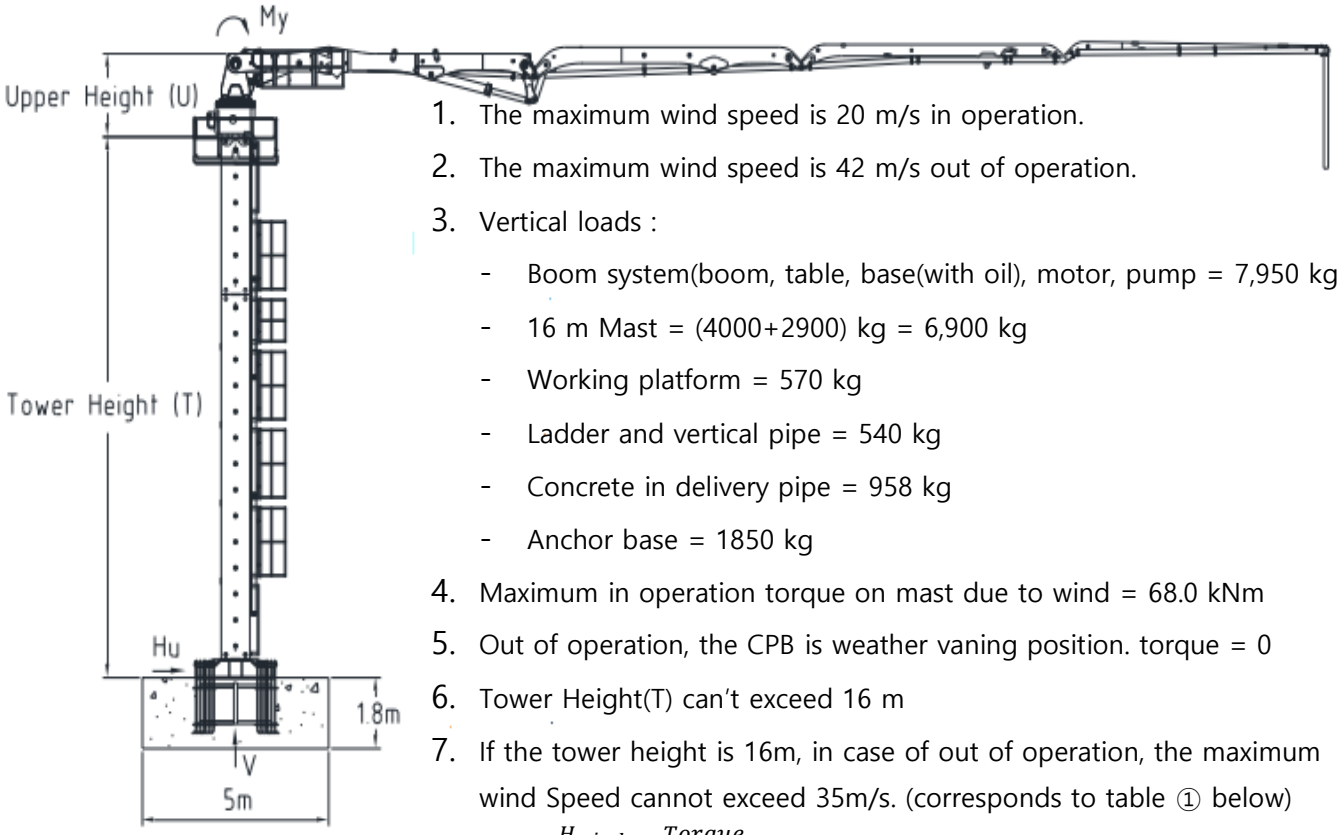
1. The maximum wind speed is 20 m/s in operation.
2. The maximum wind speed is 42 m/s out of operation.
3. Vertical loads :
   - Boom system(boom, table, base(with oil), motor, pump = 7,950 kg
   - 10 m Mast (x2) = 8,000 kg
   - Climbing device = 160 kg
   - Working platform(and ladder, vertical pipe) = 1,345 kg
   - Concrete in delivery pipe = 958 kg
4. Maximum in operation torque on mast due to wind = 68.0 kNm
5. Overhang Height(O) can't exceed 12 m
6. Anchoring Height(A) must be at least 5.2 m
7. Hu=My/Anchoring height
8. Ho=Hu+wind load

Maximum Anchoring load in operation												
Anchoring Height [m]	5.2	6	7	8	9	10	11	12	13	14	15	16
H_o [kN]	227	204	183	167	155	145	137	130	125	120	116	112
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]	97	119	143	156	169	176	182	189	196	211	226	

Maximum Vertical load in operation								
Tower Height [m]	6	8	10	12	14	16	18	20
V [kN]	139.1	156.7	153.9	174.8	180.6	189.6	207.2	204.4
Maximum Vertical load out of operation								
Tower Height [m]	6	8	10	12	14	16	18	20
V [kN]	127.5	144.5	141.0	161.2	166.4	174.8	191.8	188.3

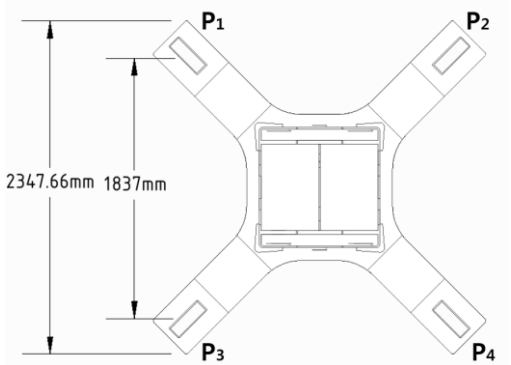
Maximum loads in operation													
Overhang Height [m]	6	6.5	7	7.5	8	8.5	9	9.5	10	10.5	11	11.5	12
Overturn Moment [kNm]	903	906	908	911	914	917	920	923	927	930	934	938	942
Maximum loads out of operation													
Overhang Height [m]	6	6.5	7	7.5	8	8.5	9	9.5	10	10.5	11	11.5	12
Overturn Moment [kNm]	503	533	563	594	626	658	691	725	759	794	830	866	903

KB-M32R 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 = 7,950 kg
   - 16 m Mast = (4000+2900) kg = 6,900 kg
   - Working platform = 570 kg
   - Ladder and vertical pipe = 540 kg
   - Concrete in delivery pipe = 958 kg
   - Anchor base = 1850 kg
4. Maximum in operation torque on mast due to wind = 68.0 kNm
5. Out of operation, the CPB is weather vaning position. torque = 0
6. Tower Height(T) can't exceed 16 m
7. If the tower height is 16m, in case of out of operation, the maximum wind Speed cannot exceed 35m/s. (corresponds to table ① below)
8. $H_u = \frac{H_{wind}}{2} + \frac{Torque}{d}$

Maximum loads in operation	Tower Height [m]						①
	4	6	8	10	12	14	16
Total vertical load [kN]	148.3	157.3	175.0	172.1	193.0	198.8	207.8
Overturn Moment [kNm]	894.3	903.1	913.9	926.8	941.7	958.7	977.7
Horizontal load [kN]	38.0	38.5	39.1	39.6	40.1	40.6	41.1
Maximum loads out of operation	Tower Height [m]						
	4	6	8	10	12	14	16
Total vertical load [kN]	137.3	145.7	162.7	159.2	179.5	184.6	193.0
Overturn Moment [kNm]	377.3	489.1	611.7	744.9	888.7	1043.2	929.3
Horizontal load [kN]	12.5	15.1	17.8	20.4	23.1	25.7	28.4



	Corner loads at max load condition			
	P1	P2	P3	P4
Max Load [kN]	−422.8	−63.9	112.9	491.2

- Negative loads are tension load.

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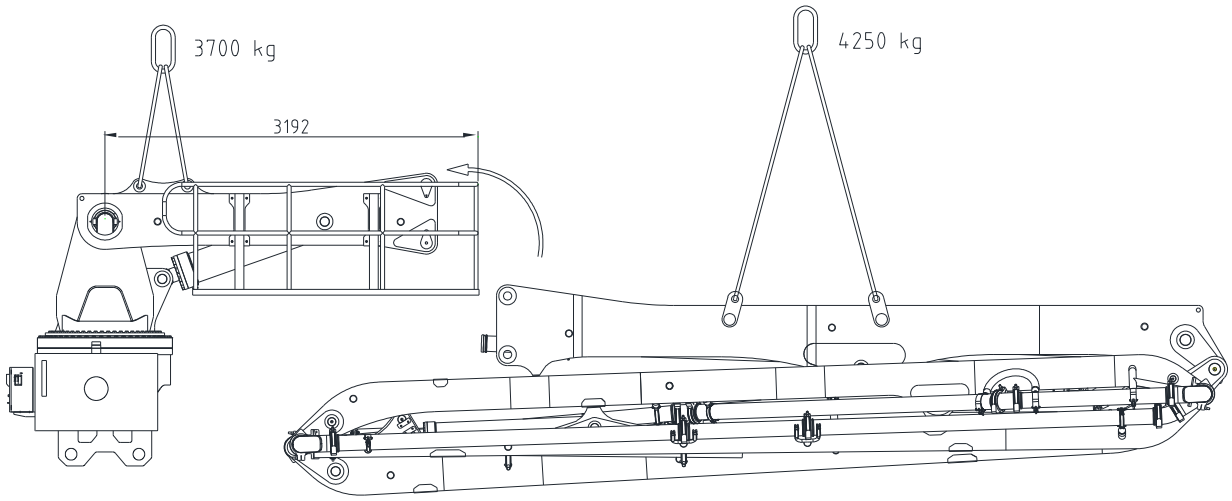
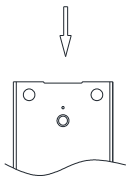
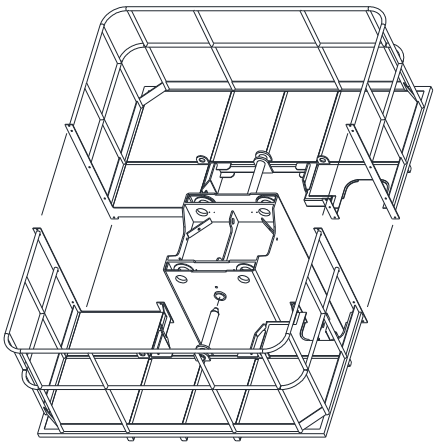
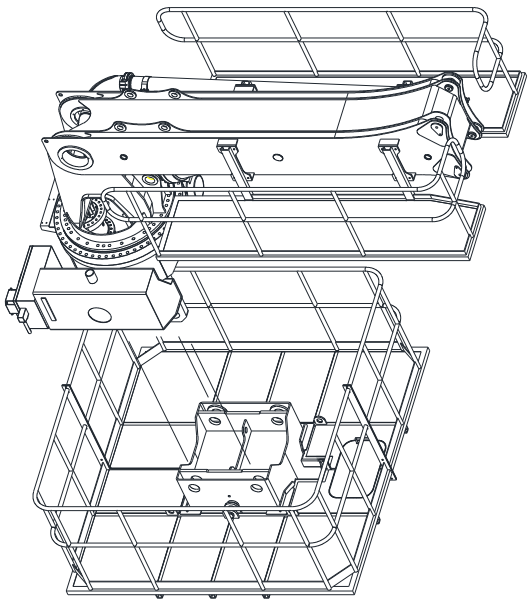
PLACING BOOM SYSTEM ----- [BOOM ASS'Y & UPPER PARTS]









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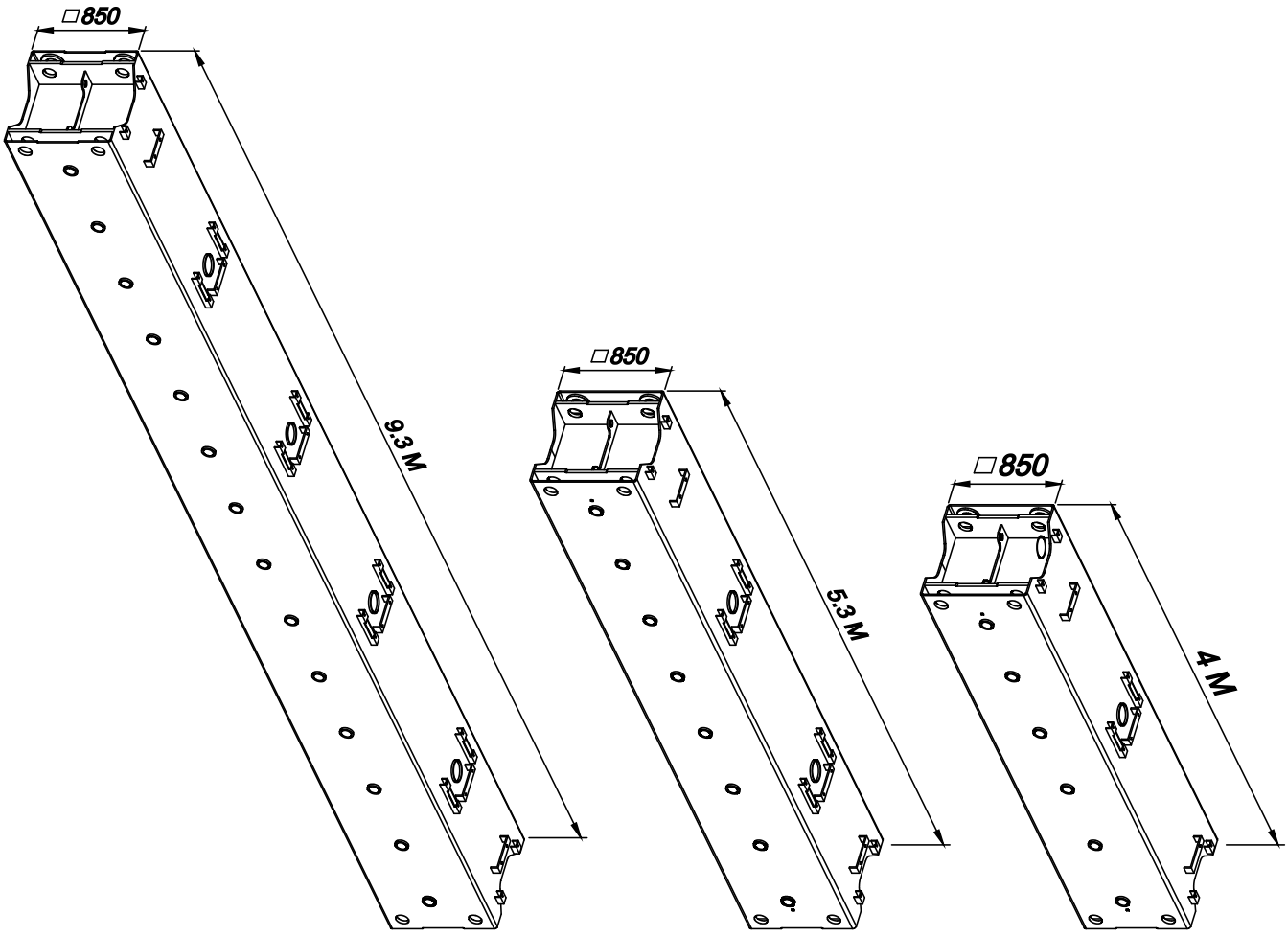
PLACING BOOM SYSTEM ----- [MAST]



STANDARD
3,800 kg

STANDARD
2,700 kg

STANDARD
2,200 kg

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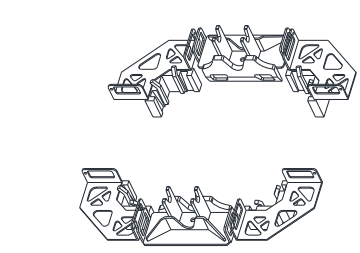
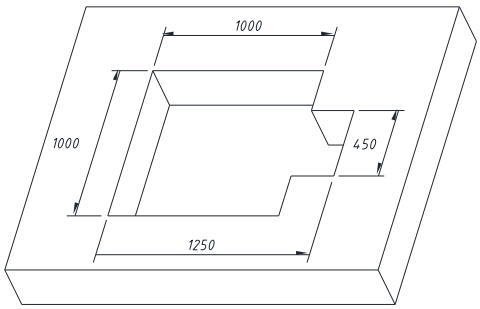
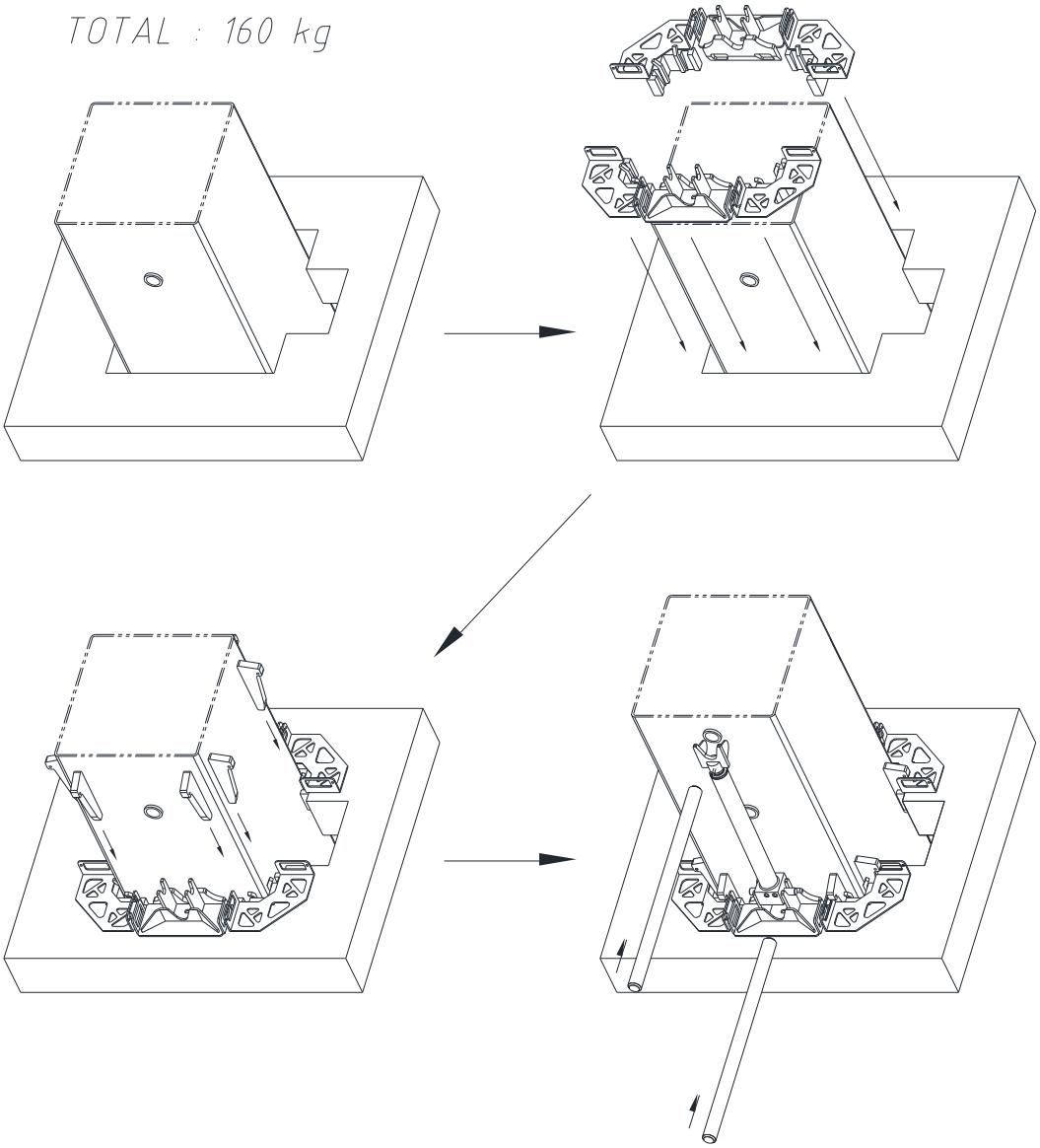
PLACING BOOM SYSTEM ----- [FRAME _ CLIMBING, CLIMBING_CYLINDER]



WEDGE BLOCK
CLIMBING SHOE
TOTAL : 160 kg





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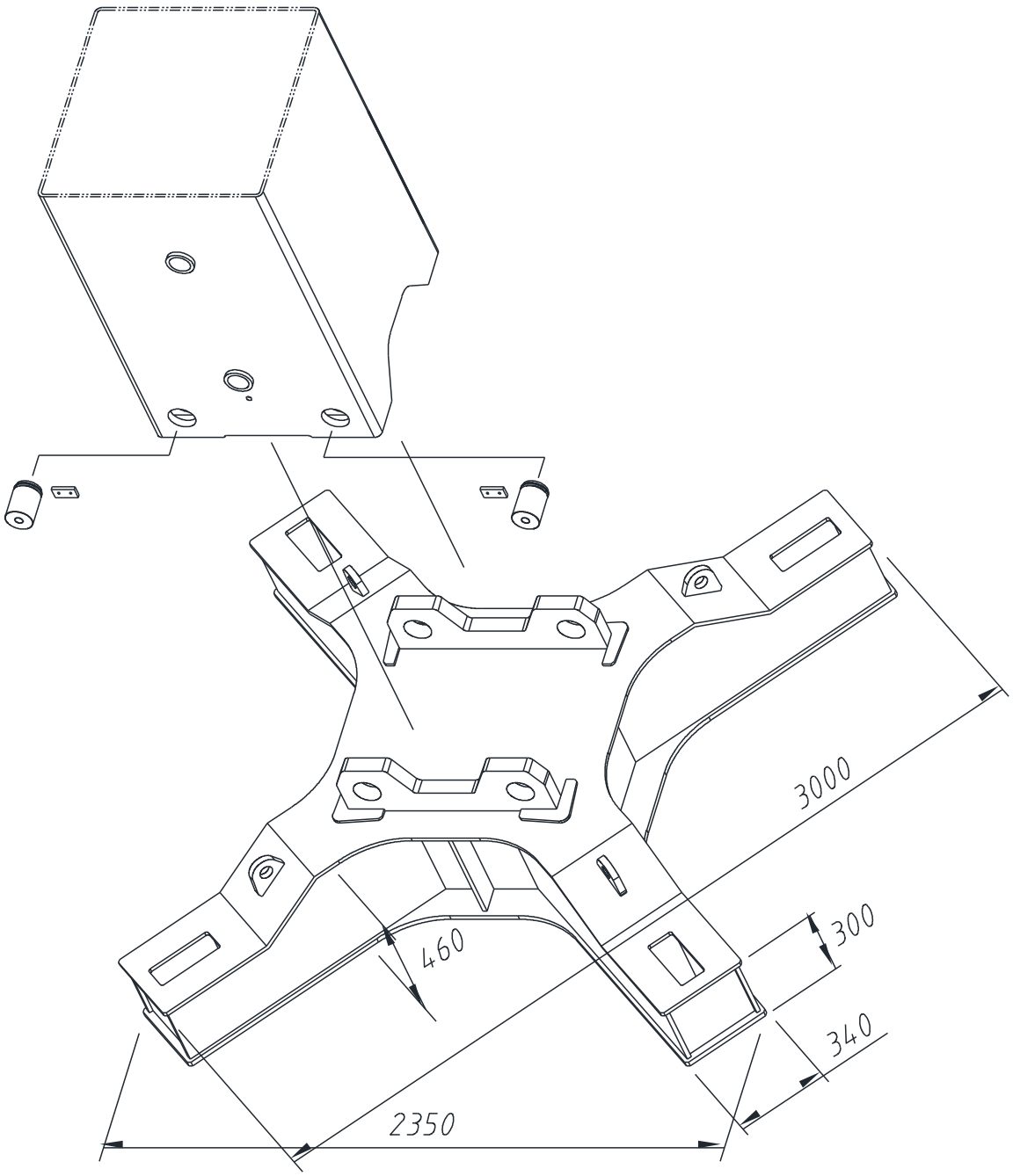
PLACING BOOM SYSTEM ----- [BASE_ANCHOR]



BASE ANCHOR
1,850 kg

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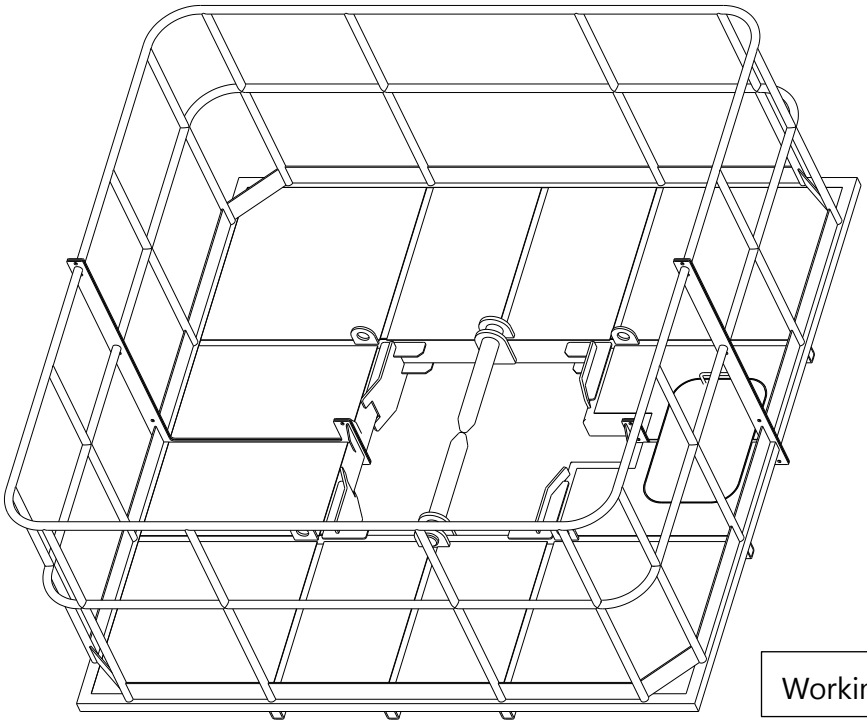
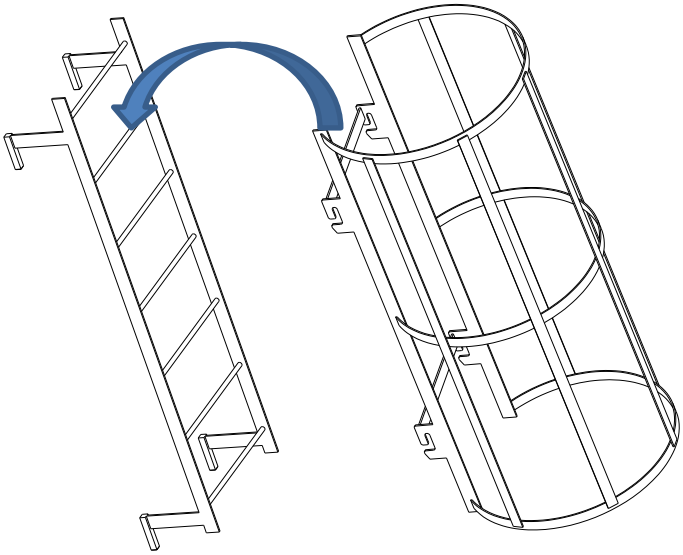
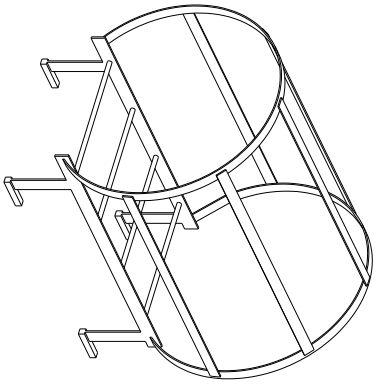
PLACING BOOM SYSTEM ----- [WORKING PLATFORM & LADDER]



Working platform : 570 KG



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



Ladder(OPT): 25kg

KB-M32R TYPE