

# SC1000-2S

## 100-M ton Hyd. Crawler Crane Luffing Towercrane Att.

**SUMITOMO (S.H.I.) CONSTRUCTION MACHINERY CO., LTD.**

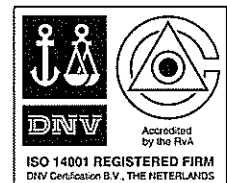
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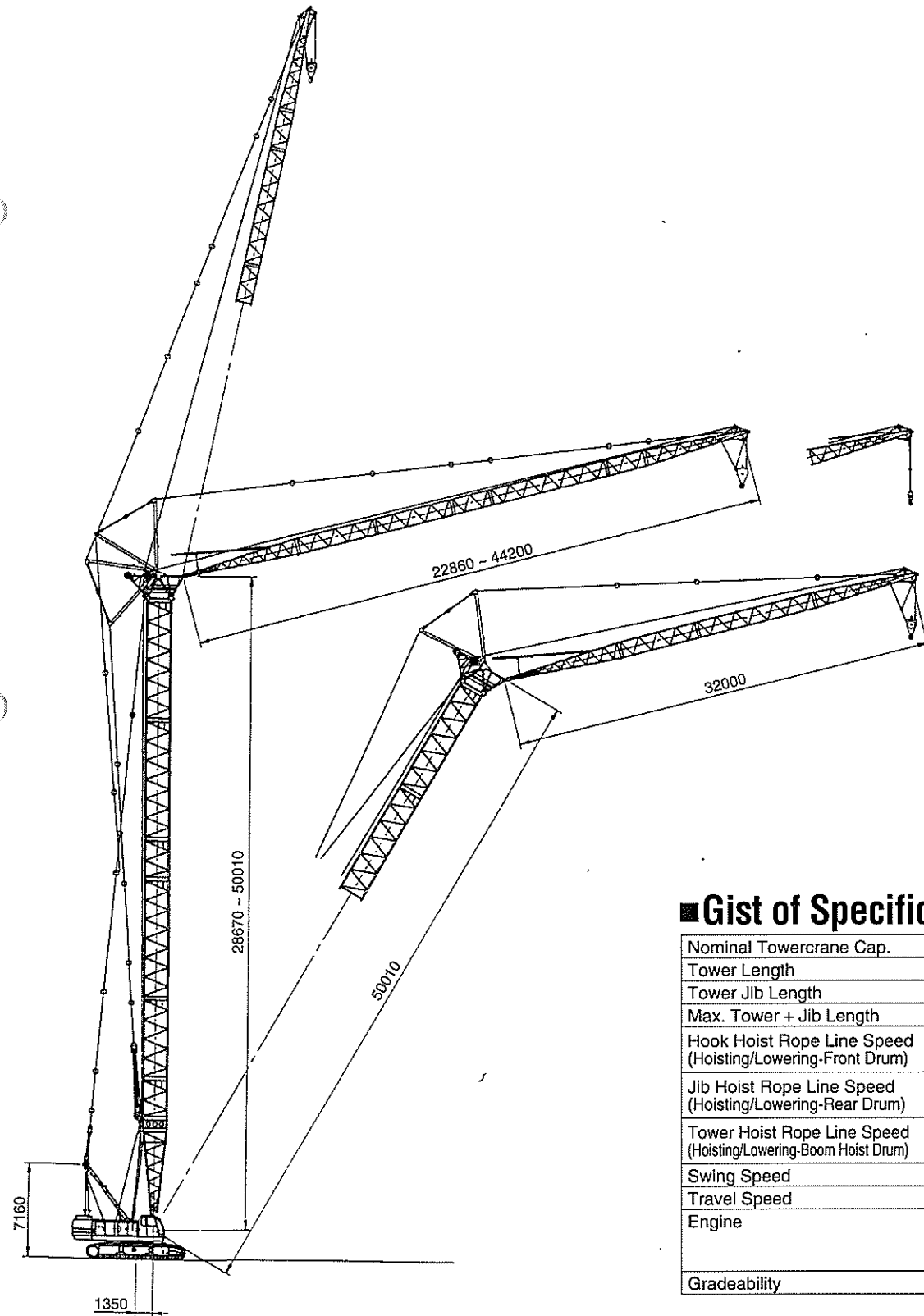
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- We are constantly improving our products and therefore reserve the right to change designs and specifications without notice.
- Units in this specification are shown under International System of Units; the figures in parenthesis are under Gravitational System of Units as old one.

Address Inquires to:



**Gist of Specification**

Nominal Towercrane Cap.	20.0 t × 14.0 m
Tower Length	28.67 m~50.01 m
Tower Jib Length	22.86 m~44.20 m
Max. Tower + Jib Length	50.01 m + 44.20 m
Hook Hoist Rope Line Speed (Hoisting/Lowering-Front Drum)	97~2.0 m/min
Jib Hoist Rope Line Speed (Hoisting/Lowering-Rear Drum)	48~2.0 m/min
Tower Hoist Rope Line Speed (Hoisting/Lowering-Boom Hoist Drum)	46~2.0 m/min
Swing Speed	2.1 min. <sup>-1</sup> <2.1 rpm>
Travel Speed	1.4/1.0 kph
Engine	Mitsubishi 6D24T 184kW/2,000min. <sup>-1</sup> <250 ps/2,000rpm>
Gradeability	17° (30%)

# Luffing Towercrane 20 metric tons

## TOWER BOOM:

- Lattice construction, round tubular main chords, alloy, hi-ten steel, with bracing of round steel tubing.
- Tower boom connections .....In-line pin connections at 1.85m deep by 1.85m wide.
- Special tower boom extensions .....0.914m and 9.15m long, lattice construction; a 0.914m special extension pins tower jib bail assembly on upper part, and just pinned next to 7.62m bottom section. A 9.15m special extension attaches expanded metal on an upper part, and just positioned at an interval of 9.15m or 12.20m from 0.914m special extension for suitably putting tower bridle assembly when erection. Available to use these special boom extensions as a liftcrane boom extension also.
- Tower boom extensions .....Available in length of 3.05m, 6.10m and 9.15m with tower boom/tower jib hoist pendants. Available to use as liftcrane boom extension.
- Tower head section .....1.85m long, lattice construction; pinned on top of tower boom. This section pins tower jib and fan-shaped post, and provides one guide sheaves for hoist cable and two guide rollers for tower jib hoist pendant ropes.
- Tower boom length .....28.67m to 50.01m; the configuration of a 50.01m tower boom as maximum is as under:  
 (1) 7.62m bottom section + (2) 0.914m special ext. × 1 pc. + (3) 3.05m ext. × 1 pc. + (4) 6.10m ext. × 1 pc. + (5) 9.15m special ext. × 1 pc. (w/expanded metal) + (6) 3.05m ext. × 1 pc. + (7) 9.15m ext. × 2 pcs. + (8) 1.85m head section.
- Tower boom luffing angle .....90° thru 60° steplessly.

### Note:

1. Bottom section of 7.62m long and boom extensions of 3.05m, 6.10m and 9.15m long as necessary to complete liftcrane boom attachment are available from those of luffing towercrane boom attachment.
2. In a case of converting luffing towercrane boom attachment of 50.01m as max. to liftcrane boom attachment of 74.07m as maximum as available, three items of one each of 6.10m and 9.15m boom extension and 10.67m tapered crane top section are only additionally required.
3. As to liftcrane capacities under the use of these two special tower boom extensions, see page 12 of this specification.

## TOWER JIB:

- Lattice construction, round tubular main chords, alloy hi-ten steel, with bracing of round steel tubing.
- Tower jib connections .....In-line pin connections at 1.20m deep by 1.27m wide.
- Basic tower jib .....Three-piece, 22.86m basic length; 9.15m bottom sections, one 6.10m tapered extension and 7.62m tower jib top section.
- Tower jib top head machinery .....Single head and one guide sheaves mounted on anti-friction bearings.
- Tower jib extensions .....Available in lengths of 3.05m, 6.10m and 9.15m with pendants. Uses also 6.10m tapered jib extension that just pinned next to 9.15m bottom section.
- Maximum tower jib length .....44.20m; a 44.20m tower jib as maximum consists of (1) 9.15m bottom section + (2) 6.10m tapered ext. × 1 pc. + (3) 3.05m ext. 2 pcs. + (4) 6.10m ext. × 1 pc. + (5) 9.15m ext. × 1 pc. + (6) 7.62m top section.
- Tower jib angle .....Available from 15° thru 75° (to ground).

## FAN-SHAPED POST:

All-welded construction; pinned to tower head section. This serves as mechanical connection for tower jib hoisting and lowering motions.

## TOWER JIB BAIL AND BRIDLE:

All-welded construction; provided with larger sheaves of a 21.4 D/d ratio on both bail and bridle for 8-part tower jib hoist rope reeving. Bail pinned on 0.914m special tower boom extensions, and bridle suspended between an 8-part tower jib hoist rope and pendant ropes connecting to tower post.

## HOOK BLOCKS:

To be selected from 30ton and 11ton hook blocks (as same as those of the HOOK BLOCKS mentioned in to "Crane 100 metric tons" of separate SC1000-2S Technical Data).

## DRUM DATA:

See DRUM DATA mentioned into page 7 of separate SC1000-2S Technical Data. In case that machine is operated under luffing towercrane attachment, rope line speed of rear main drum (as used for tower jib hoisting/lowering motion) must be changed to "48-2.0mpm" by means of rear main drum hydraulic circuit connection change.

## HOIST REEVING:

	Towercrane hoist	
No. of part line	2	1
Max. load (ton)	20.0	11.0

## CABLES:

- Front drum .....Sraf Nuflex rope with construction of "P-S(19) + 39 × P-7", spin-resistant type, 26mm dia./300m long with a 651kN (66.4t) breaking load (as same as that of liftcrane application).
- Rear drum .....Tough Super rope with construction of "IWRC 6xP-WS(31)", 26mm dia./200m long with a 557kN (56.8t) breaking load.
- Boom hoist drum .....Same as that of liftcrane application.
- Optional 3rd drum .....Same as that of liftcrane application.

## WORKING WEIGHT:

Approx. 129.0ton with 50.01m tower boom, 44.20m tower jib, 45.3ton counterweight, 1.3ton auxiliary weight, 965mm wide track shoes and 30t hook block.

## GROUND PRESSURE:

92.2kPa <0.94kg/cm<sup>2</sup>> under a 129.0ton working weight mentioned above.



### W/40.86m Tower

Jib length (m)	22.86				25.91				28.96			
Tower angle (°)	90	80	70	60	90	80	70	60	90	80	70	60
9.2	17.5											
10.0	17.5				16.0				15.0/10.8			
12.0	17.5				16.0				15.0			
14.0	17.5				16.0				15.0			
15.0	17.5				16.0				15.0			
16.0	16.8				16.0				15.0			
18.0	14.7	14.0/18.8			14.5				14.3			
20.0	13.0	13.0			12.8	12.8			12.7	12.0/21.1		
22.0	11.7	11.7			11.5	11.5			11.4	11.4		
24.0	10.3	10.6			10.4	10.4			10.3	10.3		
26.0	9.1/24.6	9.7			9.5	9.5			9.4	9.4		
28.0		8.9	8.6/29.0		8.0/27.5	8.7			8.6	8.6		
30.0		8.2	8.2			8.0	7.8/30.7		7.3	7.9		
32.0		7.7/31.6	7.6			7.4	7.4		6.7/30.4	7.3	7.2/32.3	
34.0			7.1			6.9	6.9		6.8	6.8		
36.0			6.6			6.8/34.6	6.4		6.3	6.3		
38.0			6.1	5.8/38.4			6.0		6.0/37.5	5.9		
40.0			6.0/38.4	5.5			5.6	5.3/40.4		5.5		
42.0				5.2			5.3/41.4	5.0		5.1	4.8/42.5	
44.0				4.8				4.7		4.7	4.5	
46.0				4.7/44.8				4.4		4.7/44.3	4.3	
48.0								4.2/47.7			4.0	
50.0											3.8	
52.0											3.7/50.6	
54.0												
56.0												
58.0												
60.0												
62.0												
64.0												

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### W/43.92m Tower

Jib length (m)	22.86				25.91				28.96				32.00			
Tower angle (°)	90	80	70	60	90	80	70	60	90	80	70	60	90	80	70	60
9.2	17.5															
10.0	17.5				16.0				15.0/10.8				14.0/11.6			
12.0	17.5				16.0				15.0				14.0			
14.0	17.5				16.0				15.0				14.0			
15.0	17.5				16.0				15.0				14.0			
16.0	16.7				16.0				15.0				14.0			
18.0	14.6	13.4/19.4			14.4				14.3				14.0			
20.0	12.9	12.9			12.8				12.6	11.6/21.6			12.5			
22.0	11.6	11.6			11.4	12.5/20.5			11.3	11.3			11.2	10.8/22.8		
24.0	10.3	10.5			10.3	11.4			10.2	10.2			10.1	10.1		
26.0	8.8/24.6	9.6			9.4	10.3			9.3	9.3			9.2	9.2		
28.0		8.8			7.7/27.5	9.4			8.5	8.5			8.4	8.4		
30.0		8.1	8.1/30.1			8.6	7.5/31.7		7.4	7.8			7.7	7.7		
32.0		7.5	7.5			8.0	7.4		6.7/30.4	7.2	6.9/33.3		7.1	7.1		
34.0		7.4/32.2	6.9			7.4	6.8		6.7	6.7			5.8/33.4	6.6	6.4/34.9	
36.0			6.5			6.8	6.3		6.2	6.2			6.2	6.2		
38.0			6.0	5.2/39.9		6.5/35.1	5.9		5.8	5.8			5.7	5.7		
40.0			5.7/39.5	5.2			5.5			5.4			5.3	5.3		
42.0				4.9			5.1	4.7		5.0			5.2/41.0	5.0		
44.0				4.6			5.0/42.4	4.4		4.6	4.2		4.6	4.6		
46.0				4.3				4.1		4.4/45.4	4.0		4.3	3.8		
48.0				4.2/46.3				3.9			3.7		4.0	3.6		
50.0									3.7/49.2				3.5	3.9/48.3	3.4	
52.0													3.3			3.2
54.0													3.3/52.2			3.0
56.0																2.9/55.1
58.0																
60.0																
62.0																
64.0																

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Jib length (m)	32.00				35.05				38.10			
Tower angle (°)	90	80	70	60	90	80	70	60	90	80	70	60
9.2												
10.0	14.0/11.6											
12.0	14.0				12.5/12.4				11.0/13.2			
14.0	14.0				12.5				11.0			
15.0	14.0				12.5				11.0			
16.0	14.0				12.5				11.0			
18.0	14.0				12.5				11.0			
20.0	12.6				12.4				11.0			
22.0	11.2	11.1/22.3			11.1	10.3/23.4			11.0			
24.0	10.2	10.2			10.0	10.0			10.0	9.8/24.5		
26.0	9.3	9.3			9.1	9.1			9.0	9.0		
28.0	8.5	8.5			8.4	8.4			8.3	8.3		
30.0	7.8	7.8			7.7	7.7			7.6	7.6		
32.0	7.2	7.2	7.0/33.9		7.1	7.1			7.0	7.0		
34.0	5.8/33.4	6.7	6.7		6.6	6.6	6.2/35.5		6.5	6.5		
36.0		6.2	6.2		5.4	6.1	6.1		6.1	6.1	5.8/37.1	
38.0		5.8	5.8		5.0/36.3	5.7	5.7		5.4	5.6	5.6	
40.0		5.4	5.4			5.3	5.3		4.3/39.3	5.3	5.3	
42.0		5.3/40.5	5.0			4.9	4.9			4.9	4.9	
44.0			4.7	4.3/44.5		4.7/43.4	4.6			4.6	4.6	
46.0			4.3	4.1			4.3	3.9/46.6		4.3	4.3	
48.0			4.1/47.3	3.9			4.0	3.7		4.3/46.3	4.0	3.5/48.6
50.0				3.7			3.8	3.5			3.8	3.4
52.0							3.8/50.2	3.3			3.5	3.2
54.0				3.2/53.6				3.1			3.4/53.1	3.0
56.0								2.8				2.8
58.0								2.7/56.5				2.5
60.0												2.4/59.5
62.0												
64.0												

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Jib length (m)	35.05				38.10				41.15			
Tower angle (°)	90	80	70	60	90	80	70	60	90	80	70	60
9.2												
10.0												
12.0	12.5/12.4								11.0/13.2			
14.0	12.5								11.0			
15.0	12.5								11.0			
16.0	12.5								11.0			
18.0	12.5								11.0			
20.0	12.4								11.0			
22.0	11.1	10.1/23.9							11.0			
24.0	10.0	10.0							9.9	9.4/25.1		
26.0	9.1	9.1							9.0	9.0		
28.0	8.3	8.3							8.3	8.3		
30.0	7.7	7.7							7.6	7.6		
32.0	7.1	7.1							7.0	7.0		
34.0	6.6	6.6							6.5	6.5		
36.0	5.4	6.1	6.0/36.5						6.1	6.1		
38.0	5.1/36.3	5.7	5.7						5.4	5.6	5.6/38.2	
40.0		5.3	5.3						4.4/39.3	5.3	5.3	
42.0		4.9	4.9						4.9	4.9		
44.0		4.6/43.9	4.6						4.6	4.6	3.8/42.2	
46.0			4.3						4.3	4.3		
48.0			4.0	3.4/48.1					4.2/46.9	4.0		
50.0			3.8	3.2					3.8	3.1/50.1	3.8/49.8	
52.0			3.6/51.2	3.0					3.5	2.9		3.5
54.0				2.8					3.3	2.7		3.3
56.0				2.7					3.3/54.2	2.5		3.0
58.0				2.5						2.3		2.9/57.1
60.0										2.2		2.0
62.0										2.1/61.0		1.9
64.0												1.8/63.0

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# Luffing Towercrane Working Ranges

## Notes:

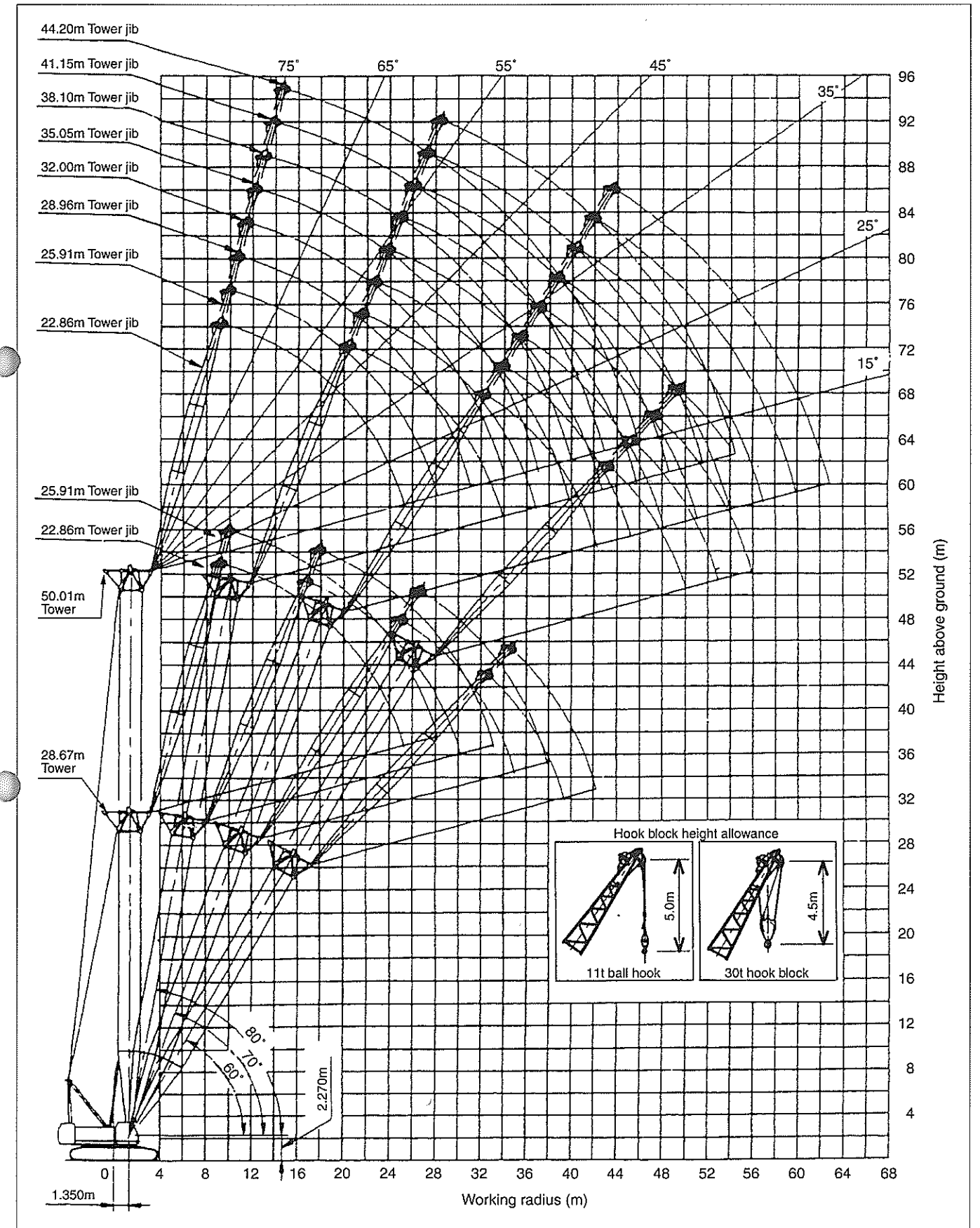
1. Capacities included in these charts are the maximum allowable, and are based on machine standing level on firm supporting surface under ideal job conditions.
2. Capacities are in metric tons, and are based on 78% of minimum tipping load, or based on the other factor of machine structural strength limitation.
3. Capacities are based on freely suspended loads and make no allowance for such factors as the effect of wind, sudden stopping of loads, supporting surface conditions, and operating speeds. Operator must reduce load ratings to take such conditions into account. Deduction from rated capacities must be made for weight of hook block, weighted ball/hook, sling, spreader bar, or other suspended gear. SUMITOMO's hook block weight is as follows:  
30t.....0.73ton    11t.....0.40ton
4. A 45.3ton counterweight and 1.3ton auxiliary weight are required.
5. All capacities are rated for 360° swing.
6. Least stable rated condition is over the side.
7. Attachment must be erected and lowered over the front of the crawler mounting.
8. Working radii shown above are at loading condition.
9. The machine can be steplessly operated at tower angle between 60 and 90 degrees safely; towercrane capacities available under any tower angle are automatically set up by a computerized automatic over-load preventing system, SUMITOMO Model SML-06.
10. The machine must be operated in accordance with correct tower boom and jib combination shown right.
11. Capacities under single part hoist line are detailed; if required, please consult us, or nearest distributor.
12. Capacities apply only to the machine as originally manufactured and normally equipped by Sumitomo (S.H.I.) Construction Machinery Co., Ltd.

## ■Combination Table

Jib length (m)	22.86	25.91	28.96	32.00	35.05	38.10	41.15	44.20
28.67	⊙	⊙	×	×	×	×	×	×
31.72	⊙	⊙	⊙	×	×	×	×	×
34.77	⊙	⊙	⊙	⊙	×	×	×	×
37.82	⊙	⊙	⊙	⊙	⊙	×	×	×
40.86	⊙	⊙	⊙	⊙	⊙	⊙	×	×
43.92	⊙	⊙	⊙	⊙	⊙	⊙	⊙	×
46.96	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
50.01	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙

## Notes:

- The meaning of symbols shown in the above table is as follows;
1. Symbol of "⊙" : Possible to luff tower between 90° thru 60°;
  2. Symbol of "⊙" : Possible to luff tower between 90° thru 70°;
  3. Symbol of "×" : Impossible to make any of tower boom and jib combination.



# Liftcrane Capacities

## ■w/0.914m & 9.15m Special Tower Boom Extensions

Boom length (m) Working radius (m)	18.30	22.25	25.30	28.35	31.40	34.44	37.49	40.54	43.59	46.63	49.68	52.73	55.78	58.83
5.0	100.0													
5.5	100.0	94.0/5.7												
6.0	94.0	93.1	83.4/6.2	74.5/6.7										
7.0	81.1	80.5	80.2	73.6	66.0/7.3	59.6/7.8								
8.0	70.7	70.5	70.3	70.2	64.9	59.2	54.2/8.3	48.7/8.9						
9.0	59.0	58.8	58.7	58.7	58.6	58.0	53.1	48.5	44.0/9.4	40.2/9.9				
10.0	50.6	50.3	50.2	50.2	50.1	49.9	49.9	47.8	43.8	40.1	33.0/10.4	33.0/11.0	29.9/11.5	
12.0	39.1	38.8	38.7	38.7	38.5	38.3	38.4	38.1	38.0	37.9	33.0	32.4	29.5	26.5
14.0	31.8	31.4	31.3	31.2	31.1	30.8	30.9	30.6	30.5	30.4	30.3	30.2	28.8	26.2
16.0	26.6	26.2	26.1	26.0	25.8	25.6	25.6	25.4	25.3	25.2	25.1	24.9	24.8	24.6
18.0	24.0/17.3	22.4	22.2	22.2	22.0	21.8	21.8	21.5	21.4	21.3	21.2	21.0	20.9	20.7
20.0		19.5	19.3	19.2	19.0	18.8	18.8	18.5	18.4	18.3	18.2	18.0	17.9	17.7
22.0		18.5/20.8	17.0	16.9	16.7	16.4	16.4	16.2	16.0	15.9	15.8	15.7	15.5	15.3
24.0			15.6/23.4	15.0	14.8	14.5	14.5	14.3	14.1	14.0	13.9	13.7	13.6	13.4
26.0				13.5	13.2	13.0	13.0	12.7	12.5	12.4	12.3	12.1	12.0	11.8
28.0				13.4/26.1	11.9	11.7	11.6	11.4	11.2	11.1	10.9	10.8	10.7	10.4
30.0					11.5/28.7	10.6	10.5	10.2	10.1	9.9	9.8	9.7	9.5	9.3
32.0						9.9/31.3	9.6	9.3	9.1	9.0	8.8	8.7	8.5	8.3
34.0							8.7	8.4	8.2	8.1	8.0	7.8	7.7	7.4
36.0								7.7	7.5	7.4	7.2	7.1	6.9	6.7
38.0								7.5/36.6	6.9	6.7	6.5	6.4	6.3	6.0
40.0									6.5/39.3	6.1	5.9	5.8	5.7	5.4
42.0										5.6/41.9	5.4	5.3	5.1	4.8
44.0											4.9	4.8	4.6	4.3
46.0											4.8/44.5	4.3	4.1	3.8
48.0												4.0/47.2	3.7	3.3
50.0													3.3/49.8	2.9
52.0														2.6
54.0														2.5/52.5

Boom length (m) Working radius (m)	61.87	64.92	67.97	71.02	74.07
12.0	22.0/12.6	22.0/13.2	20.3/13.7		
14.0	22.0	22.0	20.2	18.4/14.2	16.3/14.7
16.0	22.0	21.2	19.2	17.0	15.2
18.0	20.7	19.7	17.4	15.4	13.6
20.0	17.7	17.6	15.8	13.9	12.3
22.0	15.3	15.2	14.5	12.7	11.1
24.0	13.4	13.3	13.0	11.6	10.1
26.0	11.8	11.6	11.4	10.7	9.2
28.0	10.4	10.3	10.1	9.8	8.4
30.0	9.3	9.1	8.9	8.8	7.7
32.0	8.3	8.1	7.9	7.8	7.1
34.0	7.4	7.3	7.0	6.9	6.5
36.0	6.6	6.5	6.3	6.1	5.9
38.0	6.0	5.8	5.5	5.3	5.2
40.0	5.3	5.2	4.9	4.7	4.5
42.0	4.7	4.5	4.2	4.0	3.9
44.0	4.2	4.0	3.7	3.5	3.3
46.0	3.7	3.5	3.2	3.0	2.8
48.0	3.2	3.0	2.7	2.5	2.3
50.0	2.8	2.6	2.3		
52.0	2.4	2.2			
54.0	2.1				

(EC498107)

### Notes — Liftcrane capacities

- Capacities included in this chart are the maximum allowable, and are based on machine standing level on firm supporting surface under ideal job conditions.
- Capacities are in metric tons, and are not more than 78% of minimum tipping loads except the figures surrounded by bold lines which are based on other factor of machine structural strength limitation.
- Capacities are based on freely suspended loads and make no allowance for such factors as the effect of wind, sudden stopping of loads, supporting surface conditions, and operating speeds. Operator must reduce load ratings to take such conditions into account. Deduction from rated capacities must be made for weight of hook block, weighted ball/hook, sling, spreader bar, or other suspended gear.  
SUMITOMO's hook block weight is as follows:  
100t .....1.4ton 50t .....0.9ton 30t .....0.73ton  
11t .....0.4ton
- All capacities are rated for 360° swing.
- Least stable rated condition is over the side.
- A 45.3ton upper counterweight and 1.3ton auxiliary weight are required for all capacities on this charts.
- Attachment must be erected and lowered over the ends of the crawler mounting.
- Main boom length must not exceed 74.07m.  
Maximum fly jib length permitted—24.40m.  
Maximum boom and fly jib combination length permitted—61.87m+24.40m/64.92m+18.30m.  
Maximum boom length when mounting auxiliary short jib is 71.02m.

- Capacities when handling load off main boom head sheaves in case of mounting fly jib or auxiliary short jib on top of boom are detailed; if required, please consult us or nearest distributor.
- Capacities apply only to machine as originally manufactured and normally equipped by Sumitomo (S.H.I.) Construction machinery Co., Ltd.
- Boom configuration of max. 74.07m liftcrane boom in a case of converting luffing towercrane boom of max. 50.01m must be as follows:  
One 7.62m bottom section  
One 0.914m boom ext. (special type)  
One 3.05m boom ext. (conventional type)  
One 6.10m boom ext. (conventional type)  
One 9.15m boom ext. (special type w/expanded metal)  
One 3.05m boom ext. (conventional type)  
One 9.15m boom ext. (conventional type)  
One 9.15m boom ext. (conventional type)  
One 6.10m boom ext. (conventional type as add. boom)  
One 9.15m boom ext. (conventional type as add. boom)  
One 10.67m crane top section (as add. boom)

Total: 74.07m with 11 sections.

# Liftcrane Working Ranges

MEMO

