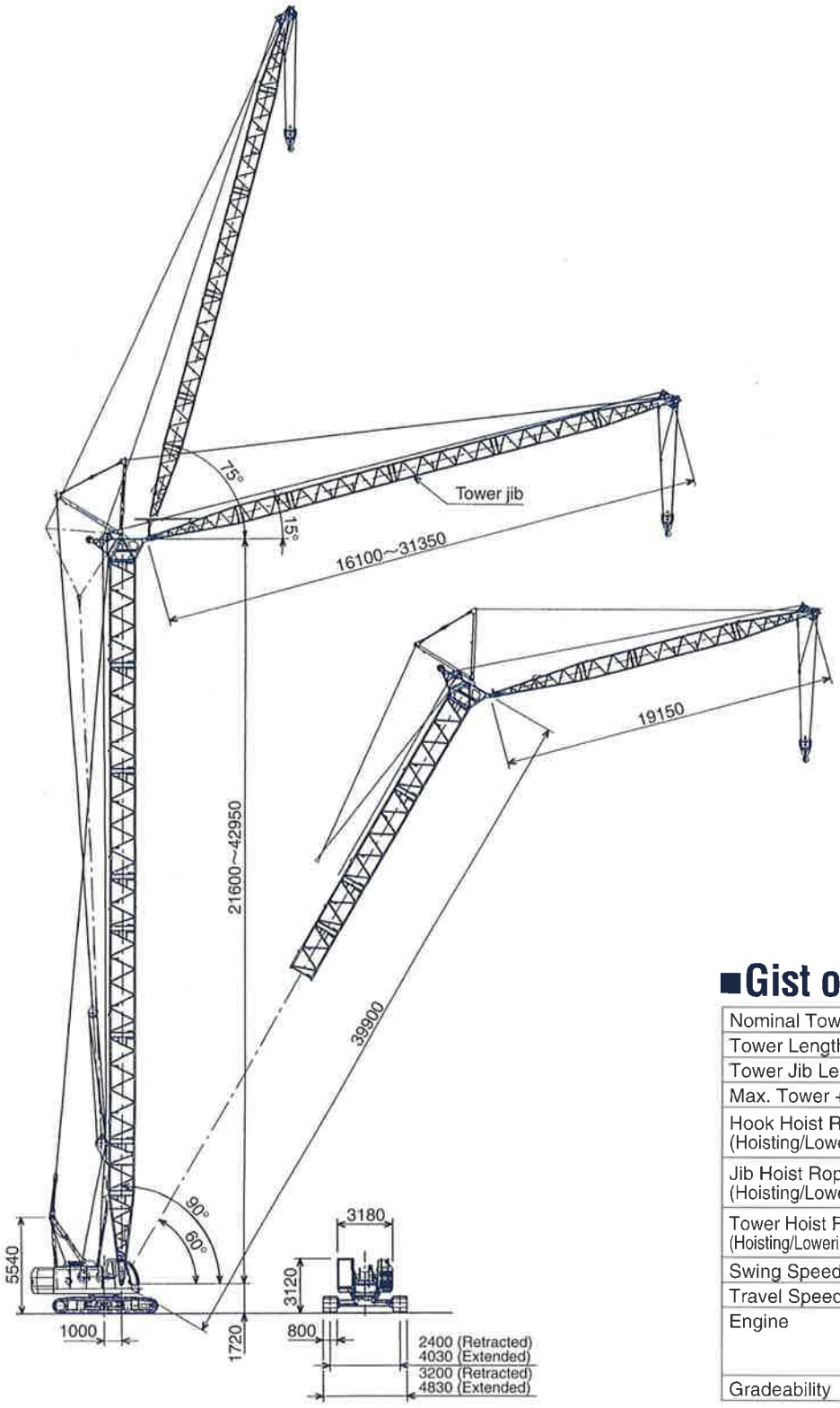
SUMITOMO

SC 700-3

70-M ton Hyd. Crawler Crane Luffing Towercrane Att.



■Gist of Specification

Nominal Towercrane Cap.	13.0 t × 12.0 m
Tower Length	21.60 m~42.95 m
Tower Jib Length	16.10 m~31.35 m
Max. Tower + Jib Length	42.95 m + 31.35 m
Hook Hoist Rope Line Speed (Hoisting/Lowering-Front Drum)	120~2.0 m/min
Jib Hoist Rope Line Speed (Hoisting/Lowering-Rear Drum)	40~2.0 m/min
Tower Hoist Rope Line Speed (Hoisting/Lowering-Boom Hoist Drum)	60~3.0 m/min
Swing Speed	3.0 $min.^{-1}$〈3.0 rpm〉
Travel Speed	1.5/1.0 kph
Engine	Mitsubishi 6D24T 184kW/2,000$min.^{-1}$ 〈250 ps/2,000rpm〉
Gradeability	22° (40%)

(EC698070-C)

2nd Edition

Luffing Towercrane 13 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 1.38m deep by 1.38m wide.

Special tower boom extension ····· 3.05m long, lattice construction; mounts tower jib bail assembly on upper part, and just pinned next to 5.2m bottom section. Available to use as liftcrane boom extension.

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 ····· 1.15m 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 ····· 21.60m to 42.95m; the configuration of a 42.95m tower boom as maximum is as under:
(1) 5.20m bottom section + (2) 3.05m special boom ext. + (3) 6.10m ext. × 2 pcs. + (4) 3.05m ext. × 2 pcs. + (5) 6.10m ext. × 1 pc. + (6) 9.15m ext. × 1 pc. + (7) 1.15m head section.

Tower boom luffing angle ····· 90° thru 60° steplessly.

Note:
Bottom section of 5.2m long and boom extensions of 3.05m, 6.10m and 9.15m long as necessary to complete luffing towercrane boom attachment are available from those of liftcrane boom attachment.

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 1m deep by 1m wide.

Basic tower jib ····· Four-piece, 16.10m basic length; 5.5m bottom sections, one 6.10m extension and 4.5m 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 and 6.10m with pendants.

Maximum tower jib length ····· 31.35m; a 31.35m tower jib as maximum consists of (1) 5.5m bottom section + (2) 6.10m jib ext. × 1 pc. + (3) 3.05m jib ext. × 1 pc. + (4) 6.10m jib ext. × 2 pcs. + (5) 4.5m 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 mounted on 3.05m special tower boom extension, and bridle suspended between an 8-part tower jib hoist rope and pendant ropes connecting to tower post.

HOOK BLOCKS:

To be selected from 20ton and 6.6ton hook blocks (as same as those of the HOOK BLOCKS mentioned in to "Crane 70 metric tons" of separate SC700-3 Technical Data).

DRUM DATA:

See DRUM DATA mentioned into page 7 of separate SC700-3 Technical Data.

HOIST REEVING:

	Towercrane hoist	
No. of part line	2	1
Max. load (ton)	13.0	6.6

CABLES:

Front drum ····· Sraf Nuflex rope with construction of "SS19+39×7", spin-resistant type, 22.4mm dia./242m long with a 440kN(44.8t) breaking load.

Rear drum ····· Same as that of liftcrane application.

Boom hoist drum ····· Same as that of liftcrane application.

Optional 3rd drum ····· Same as that of liftcrane application.

WORKING WEIGHT:

Approx. 77.0ton with 42.95m tower boom, 31.35m tower jib, 24.8ton std. counterweight, 1.28ton side weight, 800mm wide track shoes and 20t hook block.

GROUND PRESSURE:

86.2kPa <0.88kg/cm²> under a 77.0ton working weight mentioned above.

Luffing Towercrane Capacities

■w/21.60m Tower

Jib length (m)	16.10				19.15			
Tower angle (°) / Working radius (m)	90	80	70	60	90	80	70	60
6.7	13.0							
7.0	13.0				13.0/7.5			
8.0	13.0				13.0			
9.0	13.0				13.0			
10.0	**13.0**				**13.0**			
12.0	13.0	12.5/12.3			13.0	12.5/13.4		
14.0	11.7	12.3			11.7	12.2		
16.0	10.3	10.5			10.2	10.4		
18.0	7.7/17.6	9.1	8.4/18.3		8.2	9.0	7.4/19.9	
20.0		**8.0**	**7.5**		**6.5**	**7.9**	**7.3**	
22.0		7.2/21.4	6.7	5.7/23.7	6.2/20.6	7.0	6.6	
24.0			6.0	5.6		6.3	5.9	5.0/25.8
26.0			5.7/24.9	5.0		6.1/24.3	5.3	4.9
28.0				4.6			4.9/27.9	4.5
30.0				**4.5/28.2**				**4.1**
32.0								3.9/31.2
34.0								

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■w/24.65m Tower

Jib length (m)	16.10				19.15				22.20			
Tower angle (°) / Working radius (m)	90	80	70	60	90	80	70	60	90	80	70	60
6.7	13.0											
7.0	13.0				13.0/7.5							
8.0	13.0				13.0				13.0/8.3			
9.0	13.0				13.0				13.0			
10.0	**13.0**				**13.0**				**13.0**			
12.0	13.0	12.5/12.8			13.0	12.3/13.9			13.0			
14.0	11.7	12.2			11.7	12.1			11.7	11.1/15.1		
16.0	10.3	10.4			10.2	10.2			10.2	10.2		
18.0	7.7/17.6	8.9	7.6/19.3		8.6	8.8			8.9	8.8		
20.0		**7.9**	**7.2**		**6.8**	**7.8**	**6.8/20.9**		**7.6**	**7.8**		
22.0		6.9/21.9	6.4		6.2/20.6	6.9	6.3		6.3	6.9	6.2/22.5	
24.0			5.8	5.0/25.3		6.2	5.7		5.2/23.5	6.1	5.6	
26.0			5.3	4.8		5.8/24.8	5.1	4.4/27.3		5.5	5.0	
28.0				4.3			4.7	4.2		5.1/27.8	4.5	3.9/29.3
30.0				**4.0/29.8**			**4.5/28.9**	**3.8**			**4.2**	**3.7**
32.0								3.6			3.9/31.9	3.5
34.0								3.5/32.7				3.2
36.0												3.0/35.7

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■ w/27.70m Tower

Jib length (m)	16.10				19.15				22.20				25.25			
Tower angle (°) / Working radius (m)	90	80	70	60	90	80	70	60	90	80	70	60	90	80	70	60
6.7	13.0															
7.0	13.0				13.0/7.5											
8.0	13.0				13.0				13.0/8.3							
9.0	13.0				13.0				13.0				13.0/9.1			
10.0	13.0				13.0				13.0				13.0			
12.0	13.0	12.4/13.3			13.0				13.0				13.0			
14.0	11.7	11.9			11.7	11.5/14.5			11.7	10.4/15.6			11.6			
16.0	10.3	10.1			10.2	10.0			10.2	10.0			10.1	9.5/16.7		
18.0	7.7/17.6	8.8			8.6	8.7			8.9	8.6			8.8	8.7		
20.0		7.7	7.0/20.3		6.8	7.6			7.6	7.6			7.7	7.6		
22.0		6.9	6.2		6.2/20.6	6.8	6.1		6.3	6.7	5.6/23.6		6.7	6.7		
24.0		6.6/22.4	5.6			6.1	5.5		5.2/23.5	6.0	5.4		5.7	5.9	5.0/25.2	
26.0			5.1	4.4/26.8		5.6/25.4	4.9			5.5	4.9		4.7	5.4	4.8	
28.0			4.8/27.0	4.1			4.5	3.9/28.8		5.0	4.5		4.4/26.5	4.8	4.3	
30.0				3.7			4.1	3.7		4.9/28.3	4.1	3.4/30.9		4.4	3.9	
32.0				3.6/31.3				3.4			3.7	3.3		4.2/31.2	3.6	3.1/32.9
34.0								3.1			3.6/32.9	3.1			3.3	3.0
36.0								3.1/34.2				2.9			3.1/35.8	2.8
38.0												2.8/37.2				2.6
40.0																2.4
42.0																2.4/40.1

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■ w/30.75m Tower

Jib length (m)	16.10				19.15				22.20				25.25				28.30			
Tower angle (°) / Working radius (m)	90	80	70	60	90	80	70	60	90	80	70	60	90	80	70	60	90	80	70	60
6.7	13.0																			
7.0	13.0				13.0/7.5															
8.0	13.0				13.0				13.0/8.3											
9.0	13.0				13.0				13.0				13.0/9.1				12.5/9.9			
10.0	13.0				13.0				13.0				13.0				12.4			
12.0	13.0	12.2/13.8			13.0				13.0				13.0				11.6			
14.0	11.7	11.9			11.7	11.0/15.0			11.7				11.6				10.8			
16.0	10.3	10.1			10.1	10.0			10.2	9.8/16.1			10.1	9.0/17.3			10.0			
18.0	7.7/17.6	8.7			8.6	8.5			8.9	8.4			8.8	8.4			8.8	8.2/18.4		
20.0		7.6	6.3/21.4		6.9	7.5			7.6	7.3			7.7	7.3			7.7	7.2		
22.0		6.8	6.0		6.2/20.6	6.7	5.7/23.0		6.3	6.6			6.7	6.6			6.8	6.4		
24.0		6.4/22.9	5.4			5.9	5.3		5.2/23.5	5.9	5.1/24.6		5.7	5.8			6.0	5.8		
26.0			4.9			5.4/25.9	4.7			5.3	4.7		4.7	5.2	4.5/26.2		5.1	5.2	4.1/27.8	
28.0			4.5	3.7/28.3			4.3			4.9	4.3		4.4/26.5	4.8	4.2		4.4	4.7	4.0	
30.0			4.5/28.1	3.5			3.9	3.4/30.4		4.7/28.8	3.9			4.4	3.8		3.8/29.4	4.2	3.7	
32.0				3.2			3.8/31.0	3.2			3.6	3.1/32.4		4.1/31.8	3.5			3.9	3.4	
34.0				3.1/32.8				3.0			3.3/33.9	2.9			3.2	2.7/34.4		3.6	3.1	
36.0								2.8/35.8				2.7			3.0	2.6		3.5/34.7	2.9	2.5/36.5
38.0												2.5			2.9/36.9	2.4			2.7	2.3
40.0												2.4/38.7				2.2			2.5/39.8	2.2
42.0																2.1/41.6				2.0
44.0																				1.9
46.0																				1.8/44.6

(EC498084)

■ w/33.80m Tower

Jib length (m)	16.10				19.15				22.20				25.25				28.30				31.35			
Tower angle (°) / Working radius (m)	90	80	70	60	90	80	70	60	90	80	70	60	90	80	70	60	90	80	70	60	90	80	70	60
6.7	13.0																							
7.0	13.0				13.0/7.5																			
8.0	13.0				13.0				13.0/8.3															
9.0	13.0				13.0				13.0				13.0/9.1				11.8/9.9							
10.0	13.0				13.0				13.0				13.0				11.7				9.4/10.7			
12.0	13.0				13.0				13.0				12.6				10.8				9.1			
14.0	11.7	11.5/14.4			11.7	10.2/15.5			11.6				11.4				10.6				8.7			
16.0	10.1	9.8			10.1	9.7			10.1	9.1/16.7			10.0	8.5/17.8			9.9				8.2			
18.0	7.7/17.6	8.5			8.6	8.4			8.8	8.2			8.8	8.3			8.8	7.8/18.9			7.8			
20.0		7.4			6.9	7.3			7.6	7.2			7.7	7.2			7.7	7.2			7.2	7.0/20.1		
22.0		6.7	5.6/22.4		6.2/20.6	6.5			6.3	6.4			6.7	6.3			6.8	6.3			6.5	6.2		
24.0		6.1/23.5	5.1			5.8	5.0		5.2/23.5	5.7	4.6/25.7		5.7	5.7			6.0	5.6			5.7	5.6		
26.0			4.7			5.2	4.6			5.2	4.5		4.7	5.1	4.2/27.3		5.1	5.1			5.0	5.0		
28.0			4.2	3.3/29.8		5.1/26.4	4.1			4.8	4.1		4.4/26.5	4.6	3.9		4.4	4.7	3.8/28.9		4.3	4.5		
30.0			4.0/29.1	3.3			3.8	3.0/31.9		4.5/29.4	3.7			4.2	3.6		3.8/29.4	4.2	3.6		3.8	4.1	3.4/30.5	
32.0				3.0			3.5	3.0			3.4	2.7/33.9		3.9	3.3			3.9	3.3		3.3	3.8	3.2	
34.0				2.8				2.8			3.2	2.7		3.8/32.3	3.1			3.6	3.0		3.2/32.3	3.5	2.9	
36.0				2.7/34.3				2.6			3.1/35.0	2.5			2.9	2.4		3.4/35.2	2.8			3.2	2.7	
38.0								2.5/37.3				2.3			2.7/37.9	2.2			2.6	2.1		3.0	2.5	
40.0												2.1				2.1			2.4	2.0		2.9/38.2	2.3	1.8
42.0												2.1/40.2				1.9			2.3/40.9	1.8			2.1	1.6
44.0																1.8/43.2				1.7			2.0/43.8	1.5
46.0																				1.5				1.4
48.0																				1.5/46.1				1.3
50.0																								1.2/49.1

(EC498084)

■ w/36.85m Tower

Jib length (m)	16.10				19.15				22.20				25.25				28.30			31.35		
Tower angle (°) / Working radius (m)	90	80	70	60	90	80	70	60	90	80	70	60	90	80	70	60	90	80	70	90	80	70
6.7	13.0																					
7.0	13.0				13.0/7.5																	
8.0	13.0				13.0				13.0/8.3													
9.0	13.0				13.0				13.0				13.0/9.1				11.6/9.9					
10.0	13.0				13.0				13.0				13.0				11.5			9.4/10.7		
12.0	13.0				13.0				12.8				12.2				10.7			9.0		
14.0	11.7	10.5/14.9			11.7				11.5				11.1				10.5			8.7		
16.0	10.0	9.6			10.1	9.5			10.1	8.6/17.2			10.0				9.8			8.2		
18.0	7.7/17.6	8.4			8.6	8.2			8.8	8.1			8.7	7.7/18.3			8.8	7.2/19.5		7.8		
20.0		7.3			6.9	7.2			7.6	7.1			7.7	7.0			7.6	6.9		7.2	6.5/20.6	
22.0		6.5	5.1/23.5		6.3/20.6	6.4			6.3	6.2			6.7	6.2			6.8	6.1		6.5	6.0	
24.0		5.9	4.9			5.7	4.6/25.1		5.2/23.5	5.6			5.7	5.5			6.0	5.5		5.7	5.4	
26.0			4.5			5.1	4.4			5.0	4.1/26.7		4.7	5.0			5.1	5.0		4.9	4.9	
28.0			4.0			4.9/26.9	4.0			4.6	3.9		4.4/26.5	4.5	3.8/28.3		4.4	4.6	3.3/29.9	4.2	4.4	
30.0			3.7	2.8/31.4			3.7			4.3/29.9	3.6			4.1	3.5		3.8/29.4	4.1	3.3	3.7	4.0	3.1/31.5
32.0			3.7/30.1	2.8			3.4	2.7/33.4			3.3			3.8	3.2			3.8	3.1	3.3	3.7	3.0
34.0				2.6			3.2/33.1	2.6			3.1	2.4/35.4		3.7/32.8	3.0			3.5	2.9	3.2/32.3	3.4	2.8
36.0				2.4/35.9				2.4			2.8	2.3			2.8	2.1/37.5		3.3/35.8	2.7		3.1	2.6
38.0								2.2				2.2			2.6	2.0			2.5		2.9	2.4
40.0								2.1/38.8				2.0			2.5/39.0	1.9			2.3		2.8/38.7	2.2
42.0												1.9/41.7							2.1/41.9			2.0
44.0																						1.9
46.0																						1.8/44.9

(EC498084)

■ w/39.90m Tower

Jib length (m)	16.10				19.15				22.20			25.25			28.30			31.35		
Tower angle (°) / Working radius (m)	90	80	70	60	90	80	70	60	90	80	70	90	80	70	90	80	70	90	80	70
6.7	13.0																			
7.0	13.0				13.0/7.5															
8.0	13.0				13.0				13.0/8.3											
9.0	13.0				13.0				13.0			12.5/9.1			10.7/9.9					
10.0	13.0				13.0				13.0			12.3			10.7			9.4/10.7		
12.0	12.9				12.9				12.4			11.9			10.6			9.0		
14.0	11.6	9.8/15.4			11.6				11.2			10.8			10.4			8.7		
16.0	10.0	9.4			10.1	8.9/16.6			10.1	8.0/17.7		9.9			9.5			8.2		
18.0	7.7/17.6	8.1			8.7	8.0			8.8	7.8		8.7	7.2/18.9		8.7			7.7		
20.0		7.2			6.9	7.0			7.6	7.0		7.7	6.8		7.6	6.5		7.2	6.1/21.1	
22.0		6.3			6.3/20.6	6.2			6.3	6.2		6.7	6.1		6.8	6.0		6.4	5.8	
24.0		5.7	4.6/24.5			5.6			5.2/23.5	5.6		5.7	5.4		6.0	5.4		5.7	5.3	
26.0		5.5/24.5	4.2			5.0	4.1/26.1			5.0	3.8/27.7	4.7	4.9		5.1	4.9		4.9	4.8	
28.0			3.8			4.7/27.5	3.8			4.6	3.7	4.4/26.5	4.5	3.4/29.4	4.4	4.4		4.2	4.3	
30.0			3.5				3.5			4.2	3.4		4.1	3.3	3.8/29.4	4.0	3.1/31.0	3.6	3.9	
32.0			3.2/31.2	2.4/32.9			3.2			4.1/30.4	3.2		3.8	3.1		3.7	3.0	3.2	3.6	2.7/32.6
34.0				2.3			3.0	2.3/34.9			2.9		3.6/33.4	2.8		3.4	2.7	3.1/32.3	3.3	2.6
36.0				2.2			3.0/34.1	2.2			2.7			2.6		3.2	2.5		3.1	2.4
38.0				2.0/37.4				2.0			2.6/37.1			2.4		3.1/36.3	2.3		2.9	2.3
40.0								1.8						2.2			2.1		2.7/39.2	2.1
42.0								1.8/40.3									2.0			1.9
44.0																	1.9/43.0			1.8
46.0																				1.6/45.9

(EC498084)

■ w/42.95m Tower

Jib length (m)	16.10			19.15			22.20			25.25			28.30			31.35		
Tower angle (°) / Working radius (m)	90	80	70	90	80	70	90	80	70	90	80	70	90	80	70	90	80	70
6.7	13.0																	
7.0	13.0			13.0/7.5														
8.0	13.0			13.0			12.5/8.3											
9.0	13.0			13.0			12.5			12.0/9.1			10.0/9.9					
10.0	13.0			13.0			12.5			11.5			10.0			8.9/10.7		
12.0	12.6			12.6			12.3			11.0			9.7			8.9		
14.0	11.4			11.3			11.1			10.4			9.6			8.5		
16.0	10.0	9.3		10.1	8.4/17.1		10.0			9.6			9.2			8.2		
18.0	7.7/17.6	8.0		8.7	7.9		8.8	7.6/18.2		8.7	6.9/19.4		8.6			7.6		
20.0		7.0		6.9	7.0		7.6	6.8		7.7	6.6		7.6	6.4/20.5		7.1	5.9/21.7	
22.0		6.3		6.3/20.6	6.1		6.3	6.0		6.7	5.9		6.8	5.8		6.4	5.7	
24.0		5.6	4.1/25.6		5.5		5.2/23.5	5.4		5.7	5.3		6.0	5.2		5.6	5.1	
26.0		5.3/25.1	4.0		5.0	3.8/27.2		4.9		4.7	4.8		5.1	4.7		4.8	4.6	
28.0			3.7		4.6	3.7		4.5	3.5/28.8	4.4/26.5	4.4		4.4	4.3		4.2	4.2	
30.0			3.4			3.4		4.1	3.3		4.0	3.1/30.4	3.8/29.4	3.9		3.6	3.8	
32.0			3.0			3.1		3.9/30.9	3.0		3.7	2.9		3.6	2.8	3.1	3.5	2.5/33.6
34.0			3.0/32.2			2.9			2.8		3.4/33.9	2.7		3.3	2.6	3.1/32.3	3.2	2.5
36.0						2.7/35.2			2.6			2.5		3.1	2.4		2.9	2.3
38.0									2.4			2.3		3.0/36.8	2.2		2.7	2.1
40.0									2.4/38.1			2.1			2.0		2.5/39.8	1.9
42.0												2.0/41.1			1.9			1.7
44.0															1.7			
46.0																		

(EC498084)

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 under crawler extended condition with 4,030mm gauge.
4. 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;
   20t·····0.40ton 6.6t·····0.26ton
5. A 24.8ton counterweight 1.9ton aux. weight (or opt. 3rd drum) and 1.28ton side weight are required.
6. All capacities are rated for 360° swing.
7. Least stable rated condition is over the side.
8. Attachment must be erected and lowered over the front of the crawler mounting.
9. Working radii shown above are at loading condition.
10. 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-10.
11. The machine must be operated in accordance with correct tower boom and jib combination shown right.
12. Capacities apply only to the machine as originally manufactured and normally equipped by Sumitomo (S.H.I.) Construction Machinery Co., Ltd.

■ Combination Table

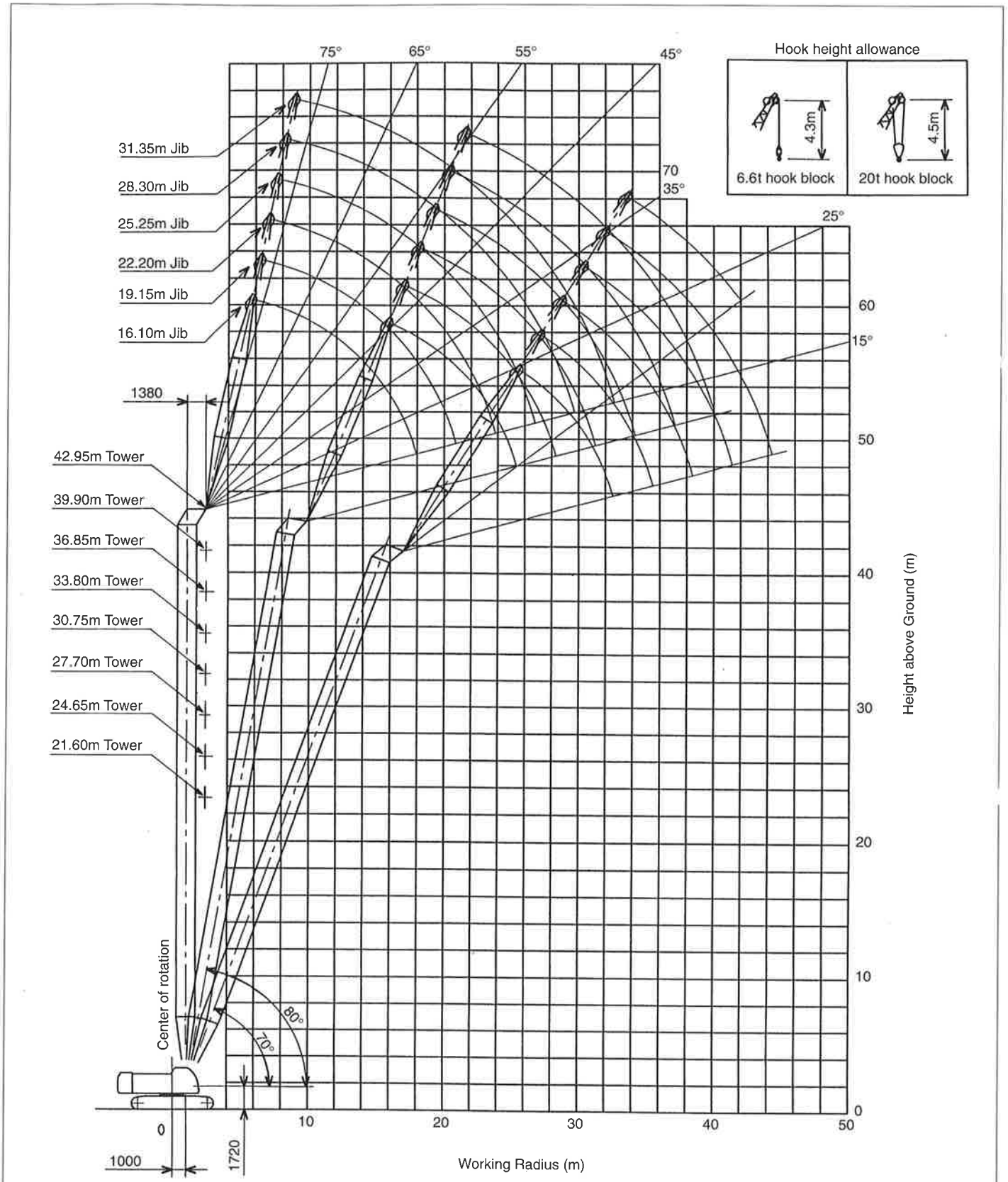
Jib length (m) / Tower length (m)	16.10	19.15	22.20	25.25	28.30	31.35
21.60	◎	◎	×	×	×	×
24.65	◎	◎	◎	×	×	×
27.70	◎	◎	◎	◎	×	×
30.75	◎	◎	◎	◎	◎	×
33.80	◎	◎	◎	◎	◎	◎
36.85	◎	◎	◎	◎	○	○
39.90	◎	◎	○	○	○	○
42.95	○	○	○	○	○	○

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.

Luffing Towercrane Working Ranges



Note: The above working range is just under max. tower boom, and jib combination i.e. 42.95m tower boom plus tower jibs from 16.10m thru 31.15m.

(EC598028)