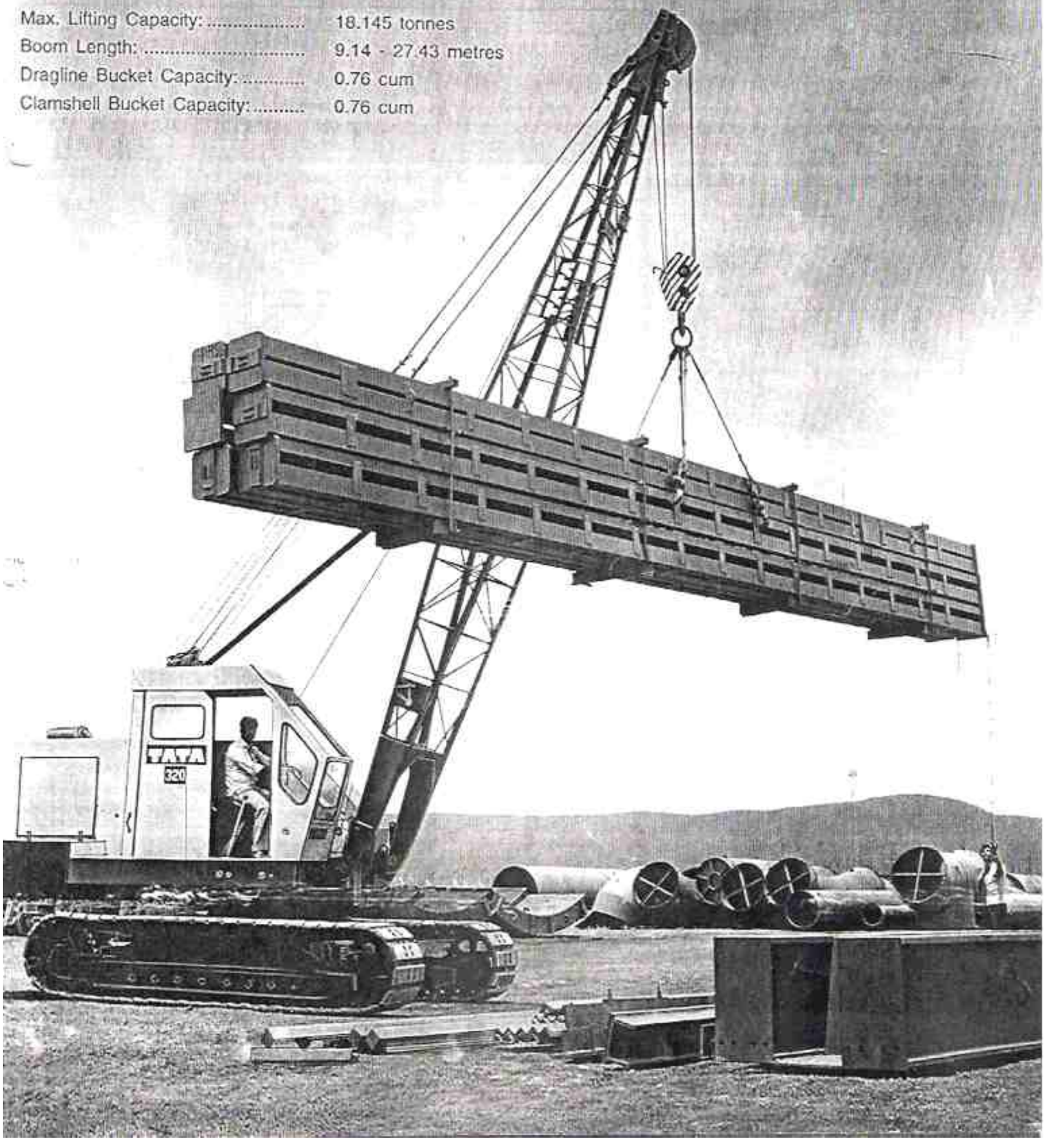
TATA 320

CRANE • CLAMSHELL • DRAGLINE

Max. Lifting Capacity:	18.145 tonnes
Boom Length:	9.14 - 27.43 metres
Dragline Bucket Capacity:	0.76 cum
Clamshell Bucket Capacity:	0.76 cum



SUPERSTRUCTURE

ENGINE

Make	TATA
Model	697 NA
Type	Water-Cooled, 4 cycle, 6 cylinder, inline direct injection chamber type diesel engine
Rated Horse Power	100 HP net at flywheel @ 2800 RPM
Throttle	Hand drip control standard.
Transmission	TATA GBS-40 Gear box, 4 speed, 2nd Gear-normal operating speed.

Engine Model 697 NA is supplied as standard on Clamshell / Dragline / Magnet

MAIN AND OPERATING DRUMS

Drums opposite each other mounted on antifriction bearings on single drum shaft.

Clutches (main drums): Band type, internal expanding.

Brakes (main drums): Band type, external contracting.

BOOM HOIST ASSEMBLY

Independent planetary gear type, with external ratchet and ...omatic brake provided for raising and lowering boom under power and locking boom. Drum mounted on antifriction bearings.

Boom hoist line speed (raising)	57.5 mpm
Boom hoist line speed (lowering)	27.3 mpm

R.H. Drum: Required only when machine operating as Clamshell, Dragline or with Jib attachment. Also suggested for other applications. Consult Telco if required.

SWING MECHANISM

Swing rollers: 28 rollers in live roller circle.

Swing Gear: Internal cut teeth.

Slewing clutches: 2 shoe type, internal expanding.

Rotating speed: 4.45 rpm.

Swing brake: Mechanical, friction type.

REVOLVING FRAME

Gantry: Fixed type, low gantry.

Counterweight: Placed inside at rear of machine.

Working weight: 21775 kgs. (Including block) Counterweight of 5445 kgs. included in weight.

Type of fastening to lower: 5 adjustable hook rollers. 2 double rear, 1 front.

SAFETY DEVICES

Safety Devices - Standard on crane, Optional on other attachment

Boom angle and safe load indicators

Hook overhoist Alarm

Boom overhoist Alarm

Boom clutch kickout assembly

Telescope type boom backstop

UNDERCARRIAGE

Crawler drive: Spring loaded double acting propel and steering brakes release automatically under engine power when travelling and set automatically when propelling power is not applied. Independent travel (standard)

Tractor type crawlers, standard: Automatic spring ...sted track tension. 10 lower rollers in each frame, with double rolling surfaces ..... Dia. 178 mm

Steering mechanism: Sliding jaw clutches, one on each side control application of propelling power to each crawler. When either side is disengaged, propel brake on ... remains set, thus locking that crawler.

Crawler shoes	: Cast flat, total ...	100
Available in widths of	: Standard	610 mm
	Optional	762 mm
Travel speed:	Normal	1.82 kmph
	in low gear	0.97 kmph
	in high gear	5.24 kmph

SERVICE REFILL CAPACITY

	Liters
Fuel tank	151.0
Cooling system	11.0
Engine oil	14.0

BOOM

Maximum Rated Load ..... 18145 kg
at 3.05 m operating radius

Basic Boom Length ..... 9.14 m
(in two sections)

Boom Upper .... 4.57 m
Boom Lower .... 4.57 m

Operating Weight ..... 21775 kg
(Equipped with 18145 kg capacity hook and 5445 kg counter weight)

Boom Inserts ..... 1.5 m Optional
3.0 m Optional
6.0 m Optional

Boom: Angle lattice alloy steel construction.

Basic length (open throat and bolt connected in two equal sections) ..... 9.14 m

With 2 offset boom point sheaves on bronze sleeve bearings of bottom diameter 406 mm, 8 part boom hoist reeving (standard)

Hook block: ..... 18145 kgs.
2 sheave with swivel hook for 4 part hoist line (standard)

Power controlled load lowering: Planetary device for lowering load under power (standard for crane)

JIB

Angle lattice alloy steel construction,
Three jib lengths are available (optional).

..... 4.57 m
..... 6.10 m
..... 7.62 m

OPTIONAL EQUIPMENT

— Jib assembly with R H Drum
— Auto Light combination
— H. D. Boom (30' Max) for Granite and other applications
— R. H. Drum
— Cable guard single / double roller

MAXIMUM JIB RATINGS			
Offset angle jib to boom under full load	4.57 m jib	6.10 m jib	7.62 m jib
	kgs.	kgs.	kgs.
10°	4535	3630	3150
20°	3630	3150	2495
30° (max)	3175	2270	2040

Jib ratings at any radius from centre of rotation are the same as crane ratings shown in table for main boom when operated at the radius, but should not exceed maximum jib ratings shown. Maximum jib operating radius not to exceed length of main boom on which it is being used.

DRUM SHAFT ASSEMBLY				
** Lifting crane drums pitch dia	Cable dia.	Max cable capacity	* Line pulls	* Line speeds
L.H. 352 mm	16 mm	165.51 m	8412 kgs.	50.1 m/min.
R.H. 352 mm	16 mm	155.14 m	8412 kgs.	50.1 m/min.

* Line pulls and line speeds based on single line in normal operating (2nd) gear. To fit job requirements, line pull & line speed can be varied by shifting into other gears

** L.H. smooth drum with planetary lowering device, R.H. grooved drum.

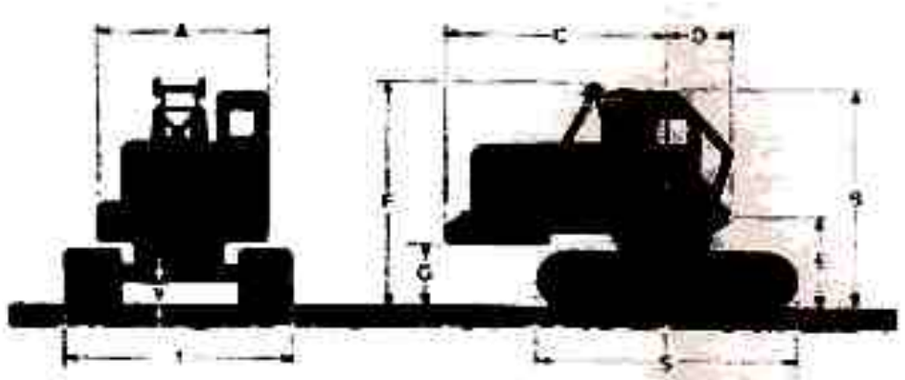
HOIST REEVING				
No. of parts of line	1	2	3	4
Max. load — kgs.	4535	9070	13610	18145

GROUND PRESSURES		
Shoe width	610 mm	762 mm
Ground pressure	0.52 kg/sq. cm.	0.43 kg/sq. cm.

MAXIMUM BOOM LENGTHS MACHINE CAN LIFT OFF GROUND		
	Boom over side	Boom over end
Boom only	27.43 m	27.43 m
Boom & Jib	27.43 + 7.62	27.43 + 7.62

BASIC SPECIFICATIONS

GENERAL DIMENSIONS



A —	Width of upper structure	2.59 m
B —	Height to top of cab	3.32 m
C —	Radius of rear end	3.30 m
D —	Centre of rotation to boom foot pin	1.07 m
E —	Height from ground to boom foot pin	1.48 m
F —	Clearance height over gantry	3.43 m
G —	Counterweight ground clearance	987 mm
S —	Overall lengh of crawlers	4.23 m
	Centre to centre of sprockets	3.35 m
T —	Overall width of crawlers with shoes	3.05 m
	Shoe width standard (flat shoe)	610 mm
Y —	Ground clearance of carbody (lowest point)	413 mm

RATED CRANE LOADS IN KGS. — OVER SIDE AND OVER END WORK AREAS

Operating radius m.	9.14 m boom*		12.19 m boom		15.24 m boom		18.29 m boom		21.34 m boom		24.38 m boom		27.43 m boom	
	Over side	Over end	Over side	Over end	Over side	Over end	Over side	Over end	Over side	Over end	Over side	Over end	Over side	Over end
3.05	18145	18145	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
3.66	13925	18145	13880	18010	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
4.57	9935	13425	9890	13335	9800	13290	.....	.....	.....	.....	.....	.....	.....	.....
6.1	6670	8665	6575	6575	6530	8525	6440	8435	6395	8390	6305	8355	.....	.....
7.62	4945	6305	4855	6215	4810	6170	4715	6125	4670	6035	4580	5985	4535	5670
9.14	4015	4945	3945	4855	3900	4810	3810	4715	3765	4670	3675	4580	3630	4535
10.67	.....	.....	3200	4060	3150	4015	3060	3945	3015	3880	2950	3810	2880	3740
12.19	.....	.....	2695	3380	2610	3335	2540	3245	2470	3200	2405	3130	2335	3060
13.72	.....	.....	.....	.....	2225	2835	2130	2745	2085	2700	1995	2610	1950	2450
15.24	When boom is equipped with jib, main hook rating must be reduced by 445 kgs. to compensate for jib attachment weight.				1905	2425	1835	2360	1770	2290	1700	2225	1635	1996
18.29					.....	.....	1385	1790	1315	1745	1245	1655	1180	1520
21.34					.....	.....	.....	.....	1000	1360	930	1270	860	1225
24.38					.....	.....	.....	.....	.....	.....	705	1000	635	930

Notes:

Backstops recommended for all boom lengths. At radii and boom lengths where no ratings are shown on plate, operation is not intended or approved. Ratings are based upon freely suspended loads and machine standing on firm, level, uniformly supporting surface. Safe loads depend upon ground conditions, boom length, radius of operation, and proper handling, all of which must be taken into account by the user.

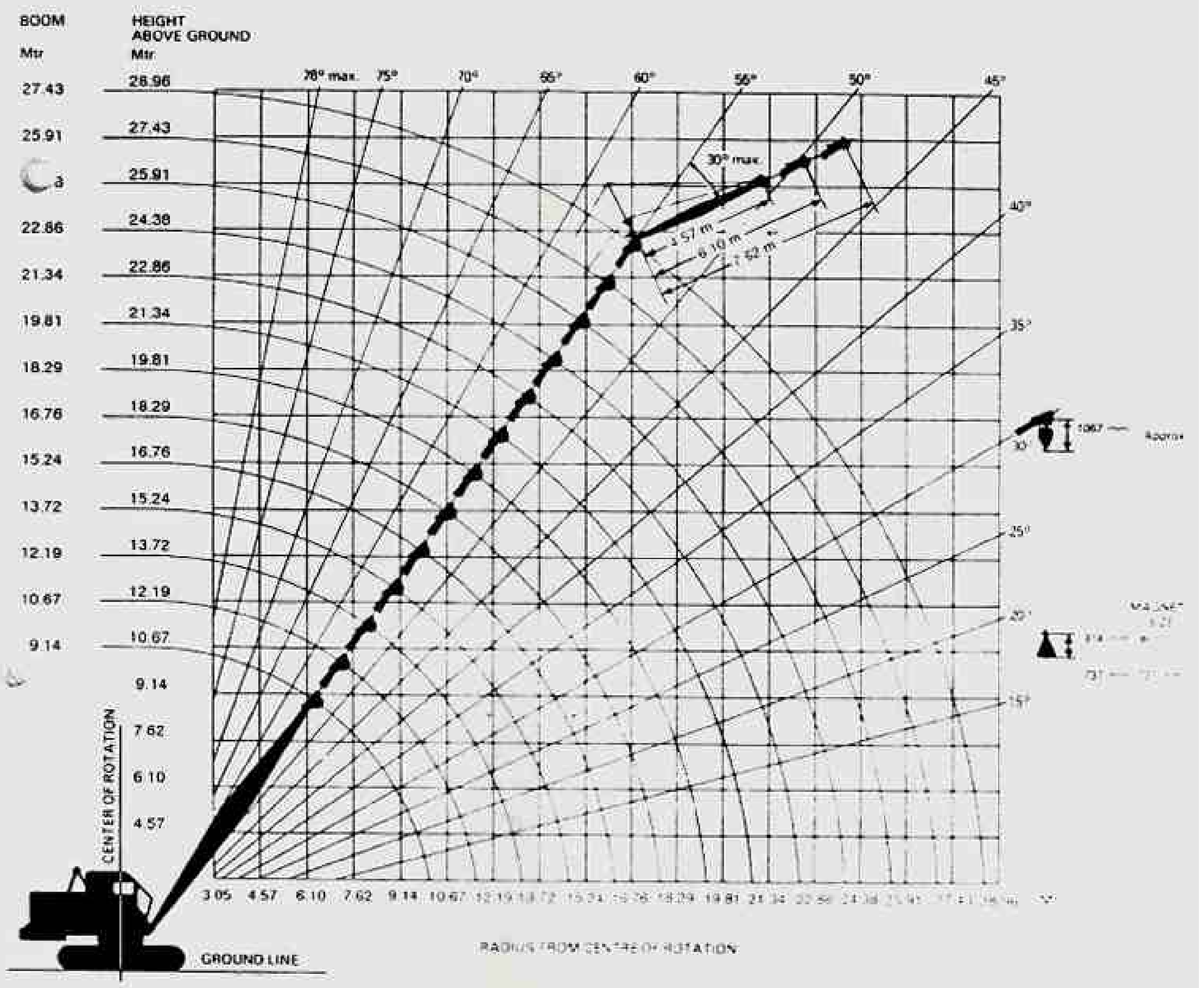
Operating radius is horizontal distance from the centreline of rotation to a vertical line through the gravity centre of the load. Capacities shown are with 5445 kgs. counterweight and do not exceed 75% of tipping loads. The crane ratings include weight of hook block, slings and all other load handling accessories. Deduct 454 kgs from main hook rating when boom is equipped with jib. Locate jib backstay anchor to bottom of boom base section for all boom lengths.

* Heavy duty boom is available for basic (9.14 m) length for special applications like ship breaking and granite handling. The capacity remains the same as the standard boom.

Many superior features of TATA 320 make it an automatic choice of many customers in India and Abroad.

The features also include

- Planetary load lowering
- Hydraulic controls
- Pawl and ratchet mechanism
- Simultaneous swing and propel
- 4 speed transmission


BOOM
Mtr
HEIGHT
ABOVE GROUND
Mtr
27.43
25.91
22.86
21.34
19.81
18.29
16.76
15.24
13.72
12.19
10.67
9.14
7.62
6.10
4.57
26.96
27.43
25.91
24.38
22.86
21.34
19.81
18.29
16.76
15.24
13.72
12.19
10.67
9.14
7.62
6.10
4.57
78° max.
75°
70°
65°
60°
55°
50°
45°
30° max.
40°
35°
30°
25°
20°
15°
3.57 m
6.10 m
7.62 m
3.05
4.57
6.10
7.62
9.14
10.67
CENTER OF ROTATION
GROUND LINE
RADIUS FROM CENTRE OF ROTATION

RATED LIFTING CAPACITIES [KATO NK-450]

Operating Radius in m.	OVER SIDE AND OVER REAR WITH OUTRIGGERS						WITHOUT OUTRIGGERS
	11.0M BOOM	16.5M BOOM	22.0M BOOM	27.0M BOOM	31.0M BOOM	35.0M BOOM	11.00M BOOM
3.0.	45.00.						8.00.
3.5.	40.00.	24.00.					6.40.
4.0.	36.40.	24.00.	20.00.				5.10.
5.0.	29.50.	24.00.	20.00.	16.00.			3.40.
5.9.	24.00.	24.00.	20.00.	16.00.	12.00.		2.40.
6.3.	22.25.	21.40.	20.00.	16.00.	12.00.	8.00.	2.30.
6.6.	21.50.	20.00.	20.00.	16.00.	12.00.	8.00.	1.85.
7.0.	19.20.	18.70.	18.00.	16.00.	12.00.	8.00.	1.60.
7.2.	18.10.	17.75.	17.25.	16.00.	12.00.	8.00.	1.45.
7.8.	15.70.	15.50.	15.20.	14.10.	12.00.	8.00.	1.00.
8.2.	14.40.	14.05.	14.05.	13.30.	12.00.	8.00.	
9.0.	11.90.	11.60.	11.25.	11.15.	10.65.	8.00.	
10..		09.40.	09.25.	09.15.	09.60.	8.00.	
10.70.		08.10.	08.10.	08.00.	08.45.	8.00.	
11.00.		07.65.	07.65.	07.55.	08.00.	7.70.	
12.00.		06.40.	06.40.	06.35.	07.00.	6.85.	
13.00.		05.40.	05.40.	05.35.	06.10.	6.05.	
14.00.		04.55.	04.55.	04.45.	05.30.	5.35.	
15.00.			03.75.	03.75.	04.35.	4.55.	
16.00.			03.15.	03.15.	03.60.	4.05.	
18.00.			02.20.	02.20.	02.60.	2.95.	
20.00.			01.40.	01.40.	01.88.	2.18.	
22.00.				00.80.	01.25.	1.55.	
23.00.					00.95.	1.25.	
24.00.					00.70.	1.00.	
25.00.						0.80.	
26.00.						0.55.	

BOOM ANGLE IN DEGREE	OVER SIDE AND OVER REAR WITH OUTRIGGERS			
	35.M + 6 8.5M JIB OFFSET 5 deg		35M + 13.5M JIB OFFSET 5 deg	
	WORKING RADIUS (M)		WORKING RADIUS (M)	
80	9.1	4	10.8	3.2
77	11	4	13	3.2
76.3	11.5	4	13.6	3.05
76	11.8	3.95	13.8	2.95
75	12.5	3.75	14.8	2.75
74	13.3	3.55	15.7	2.55
72	14.6	3.15	17.2	2.3
70	16.1	2.7	18.8	2.1
68	17.4	2.35	20.5	1.9
66	18.8	1.95	21.5	1.75
64	20.1	1.6	23.3	1.65
62	21.5	1.3	24.8	1.35
60	22.65	1.1	26	1.15
58	23.9	0.9	27.3	0.9
56	25.1	0.75	28	0.7
54	26.5	0.6		
52.6	27	0.55		

in metric ton

GENERAL DATA

MODEL	NK-450
CARRIER MODEL	MITSUBISHII K352L
TOTAL LENGTH mm	13050
TOTAL WIDTH mm	2750
TOTAL HEIGHT mm	3800
ENGINE	
Model	MITSUBISHI 8DC20A
Max. Output PS/rpm	265/2500
Max. Torque kg-m/rpm	89/1200
GROSS WEIGHT Kg	Approx. 38,000
FRONT Kg	Approx. 15,000
REAR Kg	Approx. 23,000
WHEEL BASE mm	5250
TREAD FRONT mm	2240
TREAD REAR mm	2055
MAX. SPEED Km/h	70
MIN. SPEED (at max. engine torque) Km/h	2.4
TURNING RADIUS m	11.5
GRADEABILITY (%)	26
DRIVE SYSTEM	8x4
CLUTCH TYPE	Dry single disc
TRANSMISSION SYSTEM	Synchromesh & Constantmesh
TIRE FRONT	12.00-20-18PRx4
REAR	12.00-20-18PRx8
FUEL TANK CAPACITY	300 Lt.
STEERING TYPE	Ball nut with power assist
ELECTRICAL SYSTEM	24V starting, lighting, instrumental light, beam headlight, tail and stop-light, windshield wiper, horn and turn signal.

- *MACHINE is subject to the user's specifications and any chassis having proper capacity and dimension are applicable.*
- *We reserve the right to make specification or equipment changes without notice.*