SUMITOMO · LINK-BELT

LS-78RS Crane 35 metric tons

(LS-78RS Crane)

We are constantly improving our products and therefore reserve the right to change designs and specifications.

SUMITOMO HEAVY INDUSTRIES, LTD.

Construction Machinery Sales
International Operations : 1, Kanda, Mitoshiro-cho, Chiyoda-ku, Tokyo, Japan

SX11-0279

Printed in Japan

SUMITOMO · LINK-BELT

LS-78RS Basic Machine

Upper Machinery

UPPER FRAME: All-welded, stress relieved, precision machined unit; machinery side housings bolted to upper frame.

TURNTABLE BEARING WITH INTEGRAL RING GEAR: Outer race is bolted to upper frame, inner race with internal ring gear is bolted to lower frame. Swing pinion meshes with internal, integral ring gear. A machined surface is provided for mounting turntable bearing.

CONTROL SYSTEM: "Speed-O-Matic" power hydraulic system that includes a gear pump to provide a constant flow of oil, an accumulator to maintain operating pressure and variable pressure control valves to regulate this pressure to all the clutches, and to release swing brake, boomhoist brake.

CLUTCHES: "Speed-O-Matic" power hydraulic actuated, internal expanding, self-adjusting 2-shoe type for all functions. Clutches are interchangeable.

DRUMS: Front and rear main, and optional third, operating drums.

Drum laggings — 2-piece, removable; bolted to brake drum which is involute splined to shaft mounted in line bores on ball bearing.

Brakes — External contracting band; mechanically foot pedal operated, with locking latch.

BOOM HOIST ASSEMBLY:

Independent boom hoist — Spur gear driven with precision boom hoisting and lowering through clutches.

Brake — Spring applied, hydraulically released band type with drum locking pawl.

SWING: 2 sets of "Speed-O-Matic" clutches transmit swing power smoothly into the swing pinion.

Brake — Two-directional, external contracting band, spring applied, power hydraulically released.

Lock — Mechanically controled lock pin drops into lock hole of lower frame.

Speed — 4.0, 1.9 r.p.m. (with 2-speed transmission)

Independent swing/travel ...Standard.

GANTRY: Retractable high gantry.

OPERATOR'S CAB: Full-vision compartment with safety glass panels, separated from upper machinery with an inside door.

COUNTERWEIGHT: Mounted on upper frame, removable, held in place by bolts.

POWER UNITS:

	Standard	Optional extra
Make & Model	Mitsubishi 6DB10C	Cat 3304T
Type	Water-cooled, 4-cycle, diesel engine	Water-cooled, 4-cycle, diesel engine
No. of cylinders	6	4
Bore & Stroke	110 x 150 mm	121 x 152 mm
Displacement	8,550 cc	6,990 cc
Rated output	105 PS/ 1,600r.p.m.	100 PS/ 1,600r.p.m.
Maximum torque	52 Kg-m/ 1,000r.p.m.	52 Kg-m/ 1,000r.p.m.
Fuel tank	235 liters	235 liters
Power take-off	Friction clutch	Friction clutch
2-speed transmission	Standard	Standard

Lower Machinery

LOWER FRAME: All-welded, stress relieved, precision machined, line bored for horizontal traction shaft.

TRACK ROLLERS: Heat treated, all rollers mounted on bushes with floating seals requiring no further lubrication.

TRACK SHOES: Heat treated, self-cleaning.

SHOE WIDTH: 610mm ---- Standard.
760, 915mm ---- Optional extra.

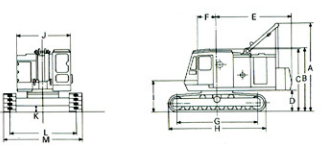
POWER HYDRAULIC STEER/TRAVEL: For travel or steer, jaw clutches of traction shaft are power hydraulically engaged with jaws on brake drums, automatically releasing spring-applied steer/digging brakes. Brakes are external contracting band type.

TRAVEL SPEED : 1.55 km/h.

SIDE FRAMES: Side frames can be extended or retracted by two power hydraulic cylinders and are removable, leaving track drive chains connected.

General Dimensions

A: Height of high gantry
raised 4.370m
lowered (for transporting) 3.245m
B: Height of low gantry 3.130m
C: Height of cab 3.090m
D: Counterweight ground clearance
(with counterweight "A", "B") 1.035m
E: Radius of rear end
(with counterweight "A", "B") 3.780m
F: Center of rotation to boom foot pin 0.940m
G: Center to center distance of tumbler 3.970m
H: Overall length of crawler 4.795m
I: Height from ground to boom foot pin 1.545m
J: Overall width of cab 2.645m
K: Ground clearance 0.320m
L: Center to center distance of crawler
(with 610 mm shoe)
side frame extended 3.250m
side frame retracted (for transporting) 2.540m
M: Overall width of crawler (with 610 mm shoe)
side frame extended 3.860m
side frame retracted (for transporting) 3.150m



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International Sales Construction Machinery Division : 1, Kanda, Mitoshiro-cho, Chiyoda-ku, Tokyo, Japan

L067-1078

Printed in Japan

SUMITOMO · LINK-BELT

LS-78RS Clamshell 0.8m³ over

CLAMSHELL BOOMS: Lattice construction; round tubular main chords, alloy, hi-ten steel, with bracing of round steel tubing.
- **Boom connections** ---- In-line pin connections.
- **Basic boom** ---- Two-piece, **9.5m** basic length; 4.5m base and 5.0m top section; 1.0m deep and 1.0m wide at connections.
- **Boom point machinery** -- Four head sheaves mounted on anti-friction bearings.
- **Boom extensions** ---- Available in 3.0m and 6.0m lengths with pendants.

MAXIMUM CLAMSHELL RATING: 4.2t.

BOOM HOIST ASSEMBLY: With power lowering clutch.
- **14-part boom hoist reeving** ---------- Standard.
- **Boom hoist line speed (raising)** ---------- @46m/min (high), @22m/min (low).
- **Boom hoist line speed (lowering)** ---------- @43m/min (high), @20m/min (low).

LINE PULL AND LINE SPEED:

Drums	Root dia.	Type	Line pull	Line speed	Cable dia.
Front (holding)	305mm	Smooth	9,500kg	@52 m/min (high) @24m/min (low)	18mm
Rear (closing)	305mm	Smooth	9,200kg	@52m/min (high) @24m/min (low)	18mm

(Available Line Pull – Not based on wire rope strength)

GANTRY: High gantry

WORKING WEIGHT AND GROUND PRESSURE:

Shoe width	Weight	Pressure
610 mm	31.4 t	0.60 kg/cm²
760 mm	32.0 t	0.49 kg/cm²
915 mm	32.4 t	0.42 kg/cm²

With basic boom and counterweight "A".

COUNTERWEIGHT: "A" (4,100 kg).

SAFETY DEVICE: Boom hoist limiting device, boom angle indicator, boom back stop.

TAGLINE WINDER: Spring-wound, drum-type mounted on boom.
- Single stage type (under ground lift, max. 10m) ------ Standard.
- Double stage type (under ground lift, max. 20m) ---- Optional extra.

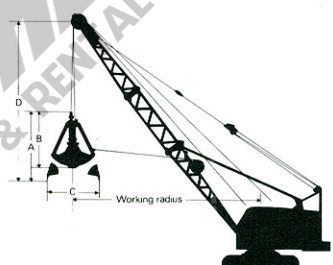
GRADEABILITY: 30% (17°)

POWER LOAD LOWERING CLUTCH:
- On front drum ---------- Standard.
- On rear drum ---------- Optional extra.

LS-78RS CLAMSHELL CAPACITIES AND WORKING RANGES:

Boom length (m)								
9.5			12.5			15.5		
Working radius (m)	Boom angle (°)	Rated load (t)	Working radius (m)	Boom angle (°)	Rated load (t)	Working radius (m)	Boom angle (°)	Rated load (t)
3.0	80.4	4.2	3.5	80.4	4.2			
4.0	74.2	4.2	4.0	78.0	4.2	4.0	80.4	4.2
5.0	67.7	4.2	5.0	73.3	4.2	5.0	76.6	4.2
6.0	60.9	4.2	6.0	68.4	4.2	6.0	72.8	4.2
7.0	53.6	4.2	7.0	63.3	4.2	7.0	68.8	4.2
8.0	45.5	4.2	8.0	58.0	4.2	8.0	64.8	4.2
9.0	36.0	4.2	9.0	52.3	4.2	9.0	60.6	4.2
			10.0	46.2	4.2	10.0	56.2	4.2
			12.0	31.1	3.4	12.0	46.6	3.35
						14.0	35.0	2.7

1. Weight of bucket (2.1t) plus load should not exceed these capacities.
2. Boom length shall not exceed 15.5m.
3. Maximum allowable heavy digging bucket size ... 0.8m³
4. Larger size bucket can be approved depending on type of material, type of bucket within limitation of rating chart.
5. Apparent specific gravity of lifting material
   - Earth ---------- 1.7~1.8 t/m³
   - Gravel ---------- 1.8~2.0 t/m³



(in meters)

A	Bucket overall height (opened)	3.32
B	Bucket overall height (closed)	2.69
C	Bucket opening width	2.50
D	Bucket clearance	4.32

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SUMITOMO · LINK-BELT

LS-78RS Dragline 0.8m³ over

DRAGLINE BOOMS: Lattice construction; round tubular main chords, alloy, hi-ten steel, with bracing of round steel tubing.
Boom connections ---- In-line pin connections.
Basic boom --- Two-piece, 9.5m basic length; 4.5m base and 5.0m open throat top section; 1.0m deep and 1.0m wide at connections.
Boom point machinery --Four head sheaves mounted on anti-friction bearings.
Boom extensions ---- Available in 3.0m and 6.0m lengths with pendants.

MAXIMUM DRAGLINE RATING: 4.5 t

BOOM HOIST ASSEMBLY: With power lowering clutch.
14-part boom hoist reeving ---------- Standard.
Boom hoist line speed (raising) ---------- @46m/min (high). @22m/min (low).
Boom hoist line speed (lowering) ---------- @43m/min (high). @20m/min (low).

LINE PULL AND LINE SPEED:

Drums	Root dia.	Type	Line pull	Line speed	Cable dia.
Front (inhaull)	305mm	Smooth	9,500kg	@52m/min (high) @24m/min (low)	20mm
Rear (hoist)	305mm	Smooth	9,200kg	@52m/min (high) @24m/min (low)	20mm

(Available Line Pull — Not based on wire rope strength)

GANTRY: High gantry.

WORKING WEIGHT AND GROUND PRESSURE:

Shoe width	Weight	Pressure
610 mm	30.7 t	0.59 kg/cm²
760 mm	31.3 t	0.48 kg/cm²
915 mm	31.7 t	0.41 kg/cm²

With basic boom and counterweight "A".

COUNTERWEIGHT: "A" (4,100 kg).

SAFETY DEVICE: Boom hoist limiting device, boom angle indicator, boom back stop.

FAIRLEAD: Full-revolving type.

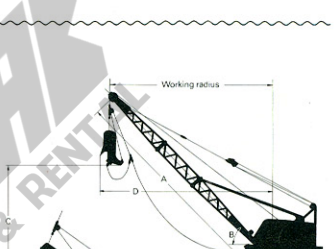
GRADEABILITY: 30% (17°)

POWER LOAD LOWERING CLUTCH:
On front drum ---------- Standard.
On rear drum ---------- Optional extra.

LS-78RS DRAGLINE CAPACITIES AND WORKING RANGES:
(in metric tons)

Boom length (m)								
9.5			12.5			15.5		
Working radius (m)	Boom angle (°)	Rated load (t)	Working radius (m)	Boom angle (°)	Rated load (t)	Working radius (m)	Boom angle (°)	Rated load (t)
5.9	61.6	4.5						
6.0	60.9	4.5						
7.0	53.6	4.5	7.4	61.2	4.5			
8.0	45.5	4.5	8.0	58.0	4.5	8.9	61.0	4.5
8.9	37.0	4.5	9.0	52.3	4.5	9.0	60.6	4.5
			10.0	46.2	4.5	10.0	56.2	4.5
			11.3	37.0	4.0	12.0	46.6	3.75
						13.8	36.3	3.05

1. Weight of bucket (1.24 t) plus load should not exceed these capacities.
2. Boom length shall not exceed 15.5m.
3. Operation with boom angle less than 35° is not recommended.
4. Maximum allowable heavy digging bucket size --- 0.8m³.
5. Larger size bucket can be approved depending on type of material, type of bucket within limitation of rating chart.
6. Apparent specific gravity of lifting material:
   Earth ---------- 1.7~1.8 t/m³
   Gravel ---------- 1.8~2.0 t/m³



(in meters)

A	Boom length	9.5			12.5			15.5		
B	Boom angle	35°	45°	60°	35°	45°	60°	35°	45°	60°
C	Max. dumping height	2.8	4.1	5.6	4.5	6.2	8.2	6.2	8.3	10.8
D	Max. dumping radius	9.7	8.6	6.7	12.1	10.8	8.2	14.6	12.9	9.7
E	Max. digging radius on G.L.	10.1	9.1	7.1	13.1	11.9	9.2	16.4	14.8	11.4
F	Max. digging depth	4.9	3.9	1.9	7.3	6.0	3.4	9.8	8.1	4.9
G	Max. digging radius	11.3	9.7	7.3	14.6	12.9	9.6	18.6	16.4	12.1

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LS-78RS CRANE CAPACITIES: Side frame extended. (in metric tons)

Working radius (m)	Boom length (m)										
	9.5	12.5	15.5	18.5	21.5	24.5	27.5	30.5	33.5	36.5	39.5
3.0	35.0										
3.2	35.0										
3.5	35.0	35.0									
4.0	27.7	27.6	27.5								
4.5	22.7	22.6	22.5	21.6/4.6							
5.0	19.2	19.1	19.0	18.9	17.8/5.2						
6.0	14.6	14.5	14.4	14.3	14.2	14.1	13.0/6.4				
7.0	11.7	11.6	11.55	11.5	11.4	11.3	11.2	11.1	9.7/7.6		
8.0	9.8	9.7	9.6	9.5	9.45	9.4	9.3	9.2	9.0	8.6/8.2	
9.0	8.4	8.3	8.2	8.1	8.0	7.9	7.8	7.7	7.6	7.5	7.4
10.0		7.3	7.2	7.1	7.0	6.9	6.8	6.7	6.65	6.5	6.4
12.0		5.7	5.6	5.5	5.4	5.3	5.25	5.2	5.1	5.0	4.9
14.0			4.7	4.6	4.5	4.4	4.3	4.2	4.1	4.0	3.9
16.0				3.8	3.7	3.6	3.5	3.4	3.3	3.2	3.15
18.0				3.45/17	3.2	3.1	3.0	2.9	2.8	2.7	2.6
20.0					2.7	2.6	2.5	2.4	2.3	2.2	2.1
22.0						2.3	2.2	2.1	2.0	1.9	1.8
24.0							1.9	1.8	1.7	1.6	1.5
26.0							1.7/25	1.5	1.4	1.3	1.2
28.0								1.3/27	1.15	1.05	0.95
30.0									0.95	0.85	0.75

(CBL00055-A)

Notes:

1. Capacities shown are in metric tons and are based on 75% of minimum tipping loads – over the side – with machine standing level on firm supporting surface under ideal job conditions. Deductions from the lifting crane capacities must be made for weight of hook block.

Kind of hook block	35t	14t (optional)	4.5t
Weight of hook block(t)	0.27	0.21	0.11

2. When operating off the main boom peak sheaves with jib on boom, the following deductions in machine lifting capacities must be made.

Jib length (m)	6.1	9.15	12.2
Weight to be deducted (t)	0.75	0.85	1.0

LS-78RS JIB CAPACITIES: (in metric tons)

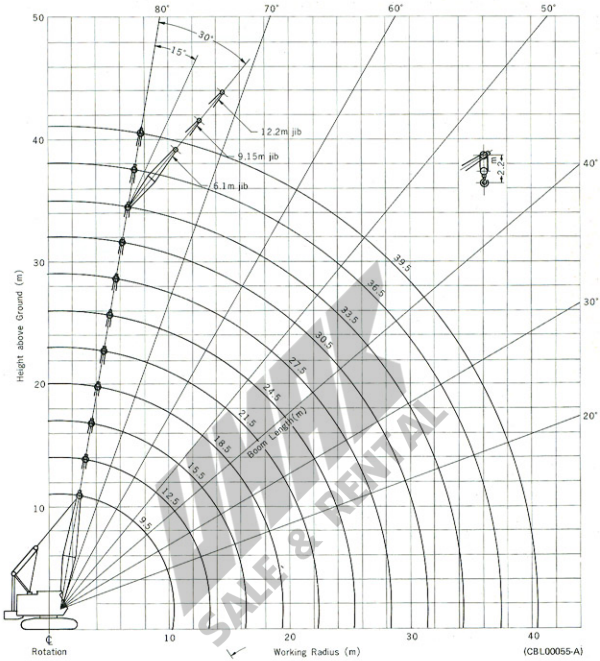
Jib length (m)	Jib angle		
	10°	20°	30°
6.1	4.5	3.6	2.8
9.15	4.0	3.1	2.2
12.2	3.6	2.7	1.8

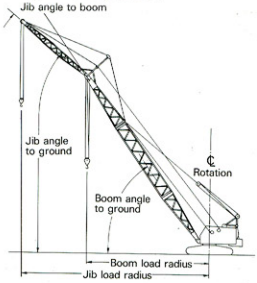
Notes:

1. The jib capacities are equal to the crane lifting capacities of the main boom on which the jib is fixed except that they are restricted by the maximum jib capacities shown above.
2. The jib angle to boom must not exceed 30° when lifting.
3. Available boom length to fix jub of all length is 21.5m to 33.5m.

Crane 35 metric tons

LS-78RS CRANE WORKING RANGES:





L068-1078

LS-78RS Crane 35 metric tons

CRANE BOOMS: Lattice construction; round tubular main chords, alloy, hi-ten steel, with bracing of round steel tubing.

- **Boom connections** ---------- In-line pin connections.
- **Basic boom** ---------- Two-piece, **9.5m** basic length: 4.5m base and 5.0m top section; 1.0m deep and 1.0m wide at connections.
- **Boom point machinery** ---------- Four head sheaves mounted on anti-friction bearings.
- **Boom extensions** ---------- Available in 3.0m, 6.0m and 9.0m lengths with pendants. Maximum boom length **39.5m.**
- **Jib** ---------- Two-piece; **6.1m** basic length with 3.05m long base and top sections, available in 3.05m jib extension.
- **Boom plus jib length** ---------- 33.5m + 6.1m.
  33.5m + 9.15m.
  33.5m + 12.2m (max.).

BOOM HOIST ASSEMBLY: With power lowering clutch.

- **14-part boom hoist reeving** ---------- Standard.
- **Boom hoist line speed (raising)** ---------- @46m/min (high).
  @22m/min (low).
- **Boom hoist line speed (lowering)** ---------- @43m/min (high).
  @20m/min (low).

LINE PULL AND LINE SPEED:

Drums	Root dia.	Type	Line pull	Line speed	Cable dia.
Front (main hoist)	305mm	Smooth	9,500kg	@52m/min(high) @24m/min (low)	20mm
Rear (aux. hoist)	305mm	Smooth	9,200kg	@52m/min(high) @24m/min (low)	20mm

(Available line pull — Not based on wire rope strength)

HOIST REEVING:

	Main hoist							Aux. hoist
No. of parts of line	7	6	5	4	3	2	1	1
Max. load (t)	35	30	25	20	15	10	5	4.5

GANTRY: High gantry.

WORKING WEIGHT AND GROUND PRESSURE:

Shoe width	Weight	Pressure
610 mm	34.6 t	0.67 kg/cm²
760 mm	35.2 t	0.54 kg/cm²
915 mm	35.6 t	0.46 kg/cm²

With basic boom and counterweight "A", "B".

COUNTERWEIGHT:

"A" (4,100kg) + "B" (5,300kg) ---------- Standard

SAFETY DEVICE: Hook over hoist alarm, boom hoist limiting device, boom angle indicator, boom back stop.

GRADEABILITY: 30% (17°)

POWER LOAD LOWERING CLUTCH:

- **On front drum** ---------- Standard.
- **On rear drum** ---------- Optional extra.

LOAD INDICATOR: Optional extra.

2-SPEED PLANETARY DRIVE: Optional extra; available for load hoist and lowering on front drum and lowering on rear drum; prorides 70% increase or 40% decrease of standard line speed.

continued

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