

BE700

HYDRAULIC EXCAVATOR

- Efficient Hydraulic System Design
- Powerful, Economical Engine
- Effort-free operation
- Maximum Working Performance
- High Total Reliability and Durability
- Easy Maintenance
- Operator Comfort



LOADING SHOVEL

Bucket Capacity	: 4.5 m ³ STD
(SAE Heaped)	: (3.1, 3.8, 4.2, 5.0m ³ Optional)

BACKHOE

Bucket Capacity	: 4.0 m ³ STD
(SAE Heaped)	(2.4, 2.8, 3.3, 3.5, 4.5m ³ Optional)



BE700 HYDRAULIC EXCAVATOR

Salient Features :

Efficient Hydraulic System Design:

Three pump hydraulic systems which consists of independently controlled variable capacity axial piston pumps for implements and closed loop swing, not only assures smooth compound movements of the work equipment, but also shortens cycle time. The open center load sensing, two loop positive control hydraulic system makes optimum use of engine power output, there by reducing hydraulic loss during operations.

Powerful, Economical Engine :

BEML BSA6D140-1 diesel engine delivers 415 HP. A direct injection combustion system and the power-efficient Positive control hydraulic system make the BE700 a real miser when it comes to fuel consumption.

Effort-free operation :

Work equipment controls are simple and feather-touch due to the hydraulically assisted control system.

Maximum Working Performance :

Three mode selection system viz. Electronic Standard and Medium-duty modes S&L for high excavation efficiency and non electronic mode M for light-duty operations. Swing holding brake facilitates smooth lifting operation on an incline. The positive control and closed loop swing system gives maximum hydraulic efficiency. The auto boom float and regeneration reduces the fuel consumption and avoid cavitations. The Boom, Arm and Bucket merge circuits and smooth compound travel and work equipment movement boosts productivity. Wide working range and larger undercarriage assures stable operation for maximum working performance.

High Total Reliability and Durability :

Grease bathed swing pinion, sealed hinge pins on all joint section, floating seals on all rollers, tough undercarriages use job-proven bulldozer components. The BEML quality controls system is a real winner of the reliable and durable BE700.

Easy Maintenance :

With a centralized monitoring system within the operator's cab, the operator can instantly check machine conditions. The top cover of the machine cab can be opened easily with the aid of a torsion bar, allowing quick access to internal components. Centralized grease points for the work equipment makes lubrication easy with grease gun.

Operator Comfort :

Newly designed operator's compartment offers ample work space and excellent visibility.

ENGINE

Make	BEML
Model	BSA6D140-1
Type	Diesel, 4-stroke, Water cooled Turbo charged, After cooled Direct injection
No. of cylinders	6
Bore & Stroke	ø140 x 165 mm
Displacement	15, 246 cc
Net power	309 kW (415 FHP) @ 1800 rpm
Max. torque	184 kg - m @ 1400 rpm
Electricals	
Alternator	24 V, 100 V
Starting Motor	24 V, 7.5 kW
Battery	2 x 12 V, 200 Ah

HYDRAULIC SYSTEM

Hydraulic pump

Type	Implements	Swing	Pilot + PTO lub.
	Variable Capacity piston pumps with positive controls	Variable Capacity piston pump for closed loop	Tandem gear pump
Capacity	2x420 lpm	1x390 lpm	1x50+1x28 lpm

Hydraulic Motors

Travel	4 nos. axial piston variable displacement motors with counter balance valve (two each side)
Swing	1 no. axial piston fixed displacement motor with flushing valve for closed loop.
Control valves	Main control valve one number with 8 spools of 32 dia. and single spool valve with carry over port for optional attachment.

Operating pressure

Implements	320 kg/cm ² (31.38 MPa)
Travel circuits	275 kg/cm ² (26.96 MPa)
Swing circuit	300 kg/cm ² (29.42 MPa)
Pilot circuit	35 kg/cm ² (3.43 MPa)

Hydraulic cylinders

Type	Attachment Qty - Bore x Rod -stroke in mm	
	Backhoe	Loading shovel
Boom	2-ø200 x ø140-1892	2-ø180 x ø 120-1490
Arm	1-ø200 x ø140-2250	1-ø225 x ø 160-1530
Bucket	1-ø180 x ø130-1540	2-ø180 x ø 130-1300
BTD Dump----		2-ø140 x ø 90-335

STANDARD EQUIPMENT

Starting motor, Alternator, Dry type air cleaner, PPC hydraulic controls, OLSS hydraulic system with positive control, 610mm double grouser shoes, hydraulic track adjusters with shock absorbing cylinders.

Fully hydrostatic drive, suction fan, batteries, front light, bolt on sprocket, 8700 kg counter weight, all weather steel cab, (with safety glass window, lockable door, windshield wiper, electric horn, room lamp, and adjustable seat with reclining device) monitoring system, tool kit, rear view mirror, ash tray, portable fire extinguisher, cabin fan and FOPS guard.

BACKHOE : One piece Boom (7.1 m), Arm (2.87 m), Backhoe Bucket 4.0 m³ (SAE heaped)

LOADING SHOVEL : One piece Boom (4.6 m), Arm (3.4m), Bottom Dump Bucket 4.5m³ (SAE Heaped).

OPTIONAL ACCESSORIES

Front windshield protective guard, windshield washer, air conditioner, heater, Injector type auto lubrication system, vandalism protection cap, high mount cab, DCP type Auto Fire Protection system.

BACKHOE : Booms 8.4m, Arms of 3.6m, 5.1m
Bucket of 2.4m³, 2.8m³, 3.5m³, 4.5m³.

Loading Shovel : Front dump type bucket 3.1m³, 3.8m³
Bottom dump type buckets of 3.8m³, 4.2m³, 5.0m³.



STEERING

Steering activated with either hand levers or foot pedals. Independent drive to each track enables machine to make a pivot turn in either direction.

DRIVES

Fully hydro-static drive system, each track is driven by two hydraulic motors. Power is transmitted through spur gears and planetary reduction gears to the track.

Max. drawbar pull		56,000 kg
Travel speed	High	4.6 kmph
	Low	2.7 kmph
Reduction ratio		96.158
Sprocket dia		1057 mm

BRAKES

Travel / Swing Parking Brake Hydraulic lock type

Oil wet multiple disc, spring applied and released by hydraulically interconnected with travel/swing, and also automatically actuated on the drive shaft when travel/swing PPC not operated. Travel motors equipped with counter balance valve regulates speed when making descends.

SWING SYSTEM

One no. fixed displacement closed loop piston motor power the swing system through swing machinery with spur and planetary reduction gears. The wet multiple disc type swing holding brake is automatically applied after soft deceleration when the joy stick is positioned in neutral (swing brake switch in Auto mode). Single row shear type ball bearings with induction hardened built-in internal gears in the swing circle.

Swing speed	7.5 rpm
Tail swing radius	4100 mm
Reduction	376.55

UNDER CARRIAGE

Track frame

Job proven undercarriage with long track and wide track gauge. H-type Centre frame is mounted on the track frames and secured with bolts. Track gauge can be easily set for 2830mm, sealed tracks, lubricated rollers and idlers. Hydraulically track tension adjusters with cushion cylinders. Assembled track-type tractor shoes with double grousers.

Shoe width	: 610 mm
Grouser height	: 18.5 mm
No. of shoes	: 47 each side
No. of carrier rollers	: 3 each side
No. of track rollers	: 8 each side

	Backhoe	Shovel
Ground pressure	1.09 kg/cm ²	1.14 kg/cm ²

OPERATING WEIGHT

Loading Shovel :

Operating mass including 4.6 m boom, 3.4 m arm, 4.5m³ Standard Bucket, Operator, Lubricant, Coolant full fuel tank and the standard accessories.....70,000 kg.

Backhoe :

Operating mass including 7.1 m boom, 2.87 m arm, 4.0m³ (SAE heaped) Standard Bucket, Operator, Lubricant, Coolant full fuel tank and the standard accessories.....69,500 kg.

WORKING RANGE

EXCAVATOR	Loading Shovel (Figure 1)				Backhoe (Figure 2)					
	Boom 4.6m, Arm 3.4m				Boom 8.4m		Boom 7.1 m			
	Bucket sizes		Arm (m)		Arm (m)		Arm (m)			
	3.1m ³	3.8m ³	4.5m ³	5.0m ³	2.87	3.6	5.1	2.87	3.6	5.1
A. Max. cutting / digging height (m)	10.58	10.68	10.84	10.84	12.35	12.51	12.80	11.04	11.21	11.34
B. Max. dumping height (m)	7.71	7.71	7.71	7.71	8.42	8.33	8.76	7.3	7.13	7.44
C. Max. digging depth (m)	3.33	3.43	3.53	3.53	8.07	8.87	10.33	8.07	8.06	9.56
D. Level crowding distance (m) / Max. vertical digging depth	3.96	3.96	3.97	3.97	7.28	7.35	8.55	5.9	5.94	6.05
E. Max. digging reach at G.L. (m)	9.48	9.65	9.77	9.77	13.20	13.79	15.07	11.8	12.40	13.79
F. Max. digging reach (m)	9.83	10.00	10.13	10.13	13.47	13.97	15.30	12.08	12.72	14.07
Bucket digging force (kg)	44000	44000	44000	44000	30300	27385	27360	30300	27385	27360
Arm crowding force (kg)	45000	45000	45000	45000	29755	24830	18996	29755	24830	18996
Max. bucket size SAE (m ³)	Heavy	Heavy	OB	COAL	3.5	3.3	2.4	4.0	4.0	3.3
Material density (kg/m ³)	<2100	<2000	1800	<1500	1800	<1800	<1500	1800	<1800	<1500

Material and specifications are subject to change without notice, Illustrations may include optional equipment & accessories

COOLANT & LUBRICANT CAPACITY (refilling)

System	Capacity in lts
Fuel tank	740
Radiator	147
Engine	50
Final drive, each side	35
Swing drive	37
Hydraulic tank	480
Pump drive (PTO)	21

INDICATORS / ALARMS / GAUGES

INDICATORS : Radiator coolant level, engine oil level, hydraulic oil level, filter clog, engine cooling water temperature, service meter, swing parking indicator, electronic mode fault indicator etc.

ALARMS : Engine cooling water temperature, radiator coolant level, engine oil pressure.

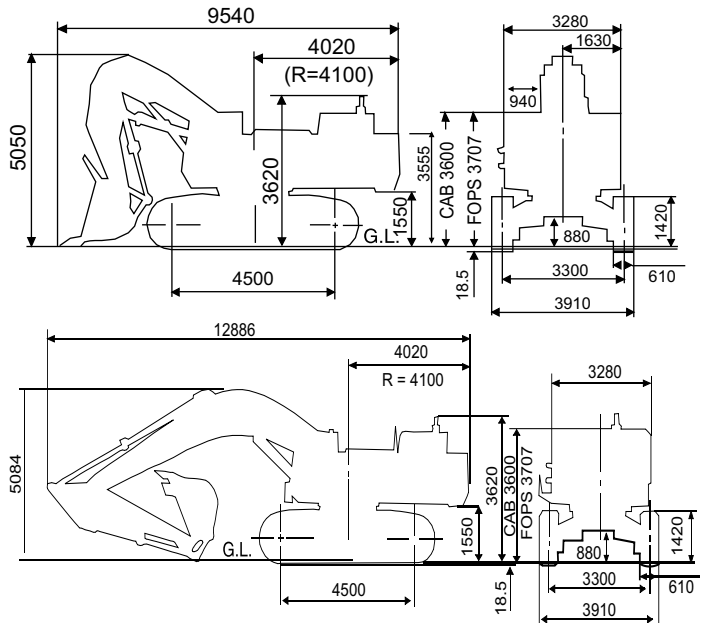
GAUGES : Fuel level gauge, hydraulic oil level sight gauge, engine cooling water temperature gauge.

CABIN

Spacious deluxe cab with tinted safety glass provided for wider working visibility.

DIMENSIONS (in meters)

	Backhoe	Loading shovel
Overall length	12.88	9.54
Overall width	3.91	3.91
Overall height	4.91	5.05
Track length on ground	4.50	4.50
Track gauge	3.30	3.30
Min. ground clearance	0.88	0.88



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