

BE1000E-1

HYDRAULIC EXCAVATOR

- Efficient Hydraulic System
- Closed Loop Swing System
- Aesthetically Improved Cabin
- Optimized Service & Maintainability Index
- Powerful Induction Motor
- Effort-Free Operation
- Maximum Working Performance
- High Total Reliability and Durability
- Easy Maintenance
- Operator Comfort



BACKHOE :

Power : 400 kW Electric Motor

Operating mass : 95000 kg

Bucket capacity : 3.1 m³ - 5.55 m³

LOADING SHOVEL :

Power : 400 kW Electric Motor

Operating mass : 98000 kg

Bucket capacity : 4.5 m³ - 7.0 m³



BE1000E-1 HYDRAULIC EXCAVATOR

Salient Features :

Efficient hydraulic system for increased productivity :

Three pump hydraulic system with independent closed loop swing function not only assures smooth compound work equipment movements and travel but also shortens the cycle time.

Powerful economical motor :

3.3 kV or 6.6 kV, 4 pole, 3 phase, 50 Hz TEFV squirrel cage induction motor delivers 400 kW to assure high operational economy.

Effort free operation :

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

Maximum working performance :

Wide working range and large undercarriage assures stable operation for maximum working performance.

Easy maintenance :

Centralised monitoring systems within the operator's cab allows fast daily checks and also keeps the operator constantly informed of any abnormality during operation.

Operator comfort :

Specially designed cab provides plenty of work space and excellent visibility.

Maximum downtime :

Automatic lubrication system supplies optimum amount of grease to vital hinge pins and swing circle bearings reducing failures and downtime.

Safety :

Automatic fire detection and suppression system prevents fire accidents and hence minimizes loss of valuable resources.



MOTOR

CROMPTON GREAVES / KEC / Any other reputed make.

3.3 kV or 6.6 kV, 4 pole, 3 phase, 50 Hz, TEFV squirrel cage induction motor having class F insulation. The motor develops 400 kW @ 1483 rpm.



HYDRAULIC SYSTEM

Unique three-pump system and independent closed loop swing function assure smooth compound movements of the work equipment. The hydraulic system is proportional positive flow control system for implement circuit and closed loop swing system for swing circuit with electronic load limiting control for all three pumps for efficient use of engine power. This system also reduces hydraulic loss during operation, resulting in lower power consumption. Oil to air hydraulic oil cooler maintains optimum heat balance of hydraulic oil.

Hydraulic pumps

- Two variable-capacity tandem pumps power the boom arm bucket and travel circuits.
Capacity (discharge flow) at rated rpm - 2x548ℓ/min
- One variable-capacity piston pump powers the swing closed loop circuit.
Capacity (discharge flow) at rated rpm - 1 x 353ℓ/min
- Tandem gear pump powers the pilot + PTO lub circuit.
Capacity (discharge flow) at rated rpm - 1 x (43+21) ℓ/min

Hydraulic Motors :

Travel : Four variable displacement axial piston motors with built-in counter balance valve for overrun protection and an externally fitted mechanical parking brake of spring applied and hydraulically released wet multiple disc type for braking. (Two for each track)

Swing : Two fixed displacement axial piston motors with flushing valves for closed loop swing system and an externally fitted swing holding brake of spring applied and hydraulically released wet multiple disc type.

Control Valves : High flow capacity eight spool type two numbers for minimum pressure drop for rated flow.

Relief valve settings

Implement circuits	: 31.39 MPa (320 kg/cm ²)
Travel circuits	: 31.39 MPa (320 kg/cm ²)
Swing circuits	: 29.43 MPa (300 kg/cm ²)
Pilot circuits	: 3.43 MPa (35 kg/cm ²)

Hydraulic cylinders : (backhoe)

Cylinder	Numbers	Bore x Stroke (in mm)
Boom	2	225 x 2200
Arm	1	250 x 2015
Bucket	1	225 x 1630

Hydraulic cylinders : (Loading shovel)

Cylinder	Numbers	Bore x stroke (in mm)
Boom	2	225 x 1805
Arm	2	180 x 1765
Bucket	2	200 x 1530
Bottom dump	2	140 x 435



STEERING

Steering / travel controls are actuated with either hand levers or foot pedals. Pushing both levers (or pedals) makes the machine to move forward. Pulling them back makes the machine to move backward. Steering one lever (or pedal) in neutral and the other in forward enables the machine to make a pivot turn. Pushing one forward while pulling the other backward makes the machine counter-rotate on the spot.

STANDARD EQUIPMENT

Counter wight	Reclining seat
24 V electric horn (front)	Magazine box
Two modes selection with	Ash tray
Electronic load limiting control	Rubber mat
Track roller guards	Rear view mirror
Wet disc parking brake	Cabin fan
Swing holding brake	Wind shield wiper
Tool box	Portable fire extinguisher
Warming indicators	and cabin lamp
High mount steel cabin	Centralised lubrication
including tinted glass	Vandalism protection
windows	Halogen flood Lights
	On-load isolator & Metering panel

OPTIONAL ACCESSORIES

Low mount steel cab	Track shoe - 810 mm and 1010 mm
Heater	Front Wind shield guard
Air conditioner	Automatic fire suppression system
Seat belt	Wind shield washer
Falling object protective	40 kVa transformer with outlet for
Structure (FOPS)	welding transformer.
Field switch	
Trailing cable	



DRIVES

Type	Full hydrostatic 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	: 608 kN (62,000 kgf)
Max. travel speeds	
High	: 0.83 m/sec (3.0 km/h)
Low	: 0.58 m/sec (2.1 km/h)



BRAKES

Hydraulic lock type brakes. Each travel motor is equipped with a brake valve. When the travel/steering levers are positioned in neutral, the brake is automatically applied. When the brakes are applied, the brake valve softens shocks and also serves to regulate speeds when making descent. Wet, multiple disc type parking brakes which are hydraulically interconnected with travel/steering lever are also automatically actuated on the final-drive shaft.



SWING SYSTEM

Two fixed displacement piston motors power the closed loop swing system through two swing machineries with spur and planetary reduction gears. An externally fitted wet multiple disc type swing holding brake in the swing motor is automatically applied after 3.5-4.0 sec. when the control lever is positioned in neutral, with swing in Auto mode and always release in release mode and applied always when parking brake is in ON. Single-row shear type ball bearings with induction hardened internal gears are built-in in the swing circle.

Swing speed : 3.94 r/min
Tail Swing radius : 4650 mm



UNDER CARRIAGE

Job proven undercarriage with long track and wide track gauge. Centre frame is mounted on the track frames and secured with bolts. Sealed and lubricated rollers and idlers. Hydraulic track tension adjusters with cushion cylinders, assembled track-type tractor shoes with double grousers

Shoe width : 710 mm
Grouser height : 20 mm
No. of shoes 9 (each side) : 51
No. of track rollers (each side) : 8
No. of carrier rollers (each side) : 3
Ground pressure (Backhoe) : 120.00 kPa (1.22 kg/cm²)
Ground pressure (Loading shovel) : 123.56 kPa (1.26 kg/cm²)



OPERATING MASS (approx.)

Loading Shovel :
Operating mass including 5100 mm boom, 3800 mm arm, 6.1 m³ standard bucket, operator, lubricant, Control panel and the standard accessories 98,0000 kg.

Backhoe :
Operating mass including 9250 mm boom, 3415 mm, arm 4.3m³ standard bucket, operator, lubricant, Control panel and the standard accessories 95,0000 kg.



CONTROL PANEL

Vacuum contractor panel meant for DOL starting having the following protection.

- 1.) Unbalance
- 2.) Overload
- 3.) Earth leakage
- 4.) Thermal
- 5.) Single or reverse phase
- 6.) Stalling
- 7.) Short circuit protection by HRC fuses



BUCKET RANGE

EXCAVATOR	Loading Shovel				Backhoe						
	4.5	5.5	6.1	7.0	3.1	3.7	4.3	5.0	5.4	5.55	
Bucket Capacity m³											
Heaped (SAE/ISO)	4.5	5.5	6.1	7.0	3.1	3.7	4.3	5.0	5.4	5.55	
Struck	3.6	4.1	4.7	5.6	2.3	2.7	3.2	3.6	4.2	4.5	
Bucket width (mm)											
Without side cutters	2320	2410	2650	2650	1410	1700	1890	2085	2100	1940	
With side cutters					1580	1870	2060	2255	2270	----	
Bucket mass (with teeth in kg)											
Without side cutters	6450	8250	8350	8650	3100	3600	3800	3911	4350	5270	
With Side cutters					3300	3800	4000	4111	4550	----	
No. of bucket teeth	6	6	6	6	4	4	5	5	5	5	
Bucket type & uses	Bottom dump Material with density around 2.5t/m ³	Bottom dump Rock	Bottom dump Standard Heavy duty	Bottom dump Light material	Narrow	Narrow	Standard heavy duty	Light duty	wide	coal	

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



SERVICE REFILL CAPACITY

Final Drive (each side)	: 55 ℓ
Swing drive (each side)	: 13 ℓ
Hydraulic Tank	: 650 ℓ
Pump Drive (P.T.O.)	: 15 ℓ
Total Hydraulic System	: 1200 ℓ



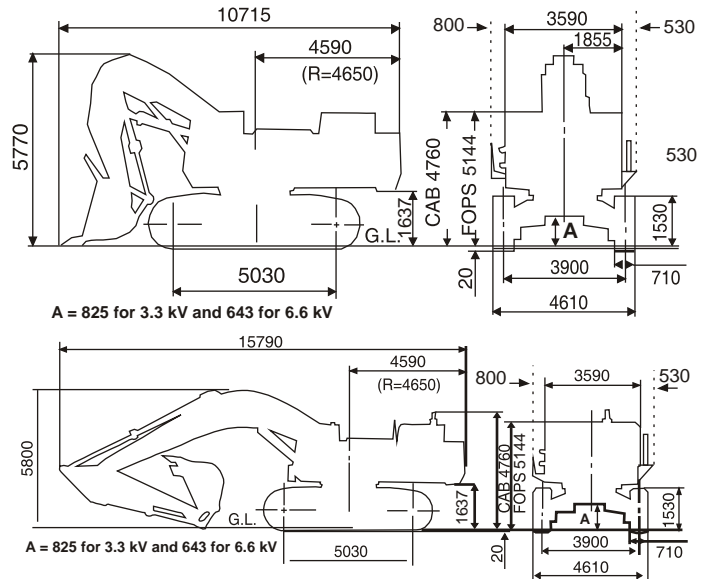
FILTER SYSTEMS

Hydraulic : One suction filter, four pressure line filters and four main return line filters and one motor drain filter. One filter for pilot system, one for closed loop swing and one for PTO lubrication system.



METERS INDICATORS / ALARMS

Hydraulic oil filter clogging	Hydraulic oil level
Hydraulic oil temperature	Voltmeter
Ammeter	Buzzer
Service meter	



WORKING RANGE

EXCAVATOR	Shovel (Fig.1)		Backhoe (Fig.2)			
	5.1m	7.9m Short	9.25m Std.			
Boom	5.1m	7.9m Short	9.25m Std.			
Arm	3.8m	3.4m Std.	3.4m Std.	4.6m	5.7m Long	
Bucket	6.1m ³					
A. Max. cutting / digging height (m)	12.170	12.7	13.4	13.1	13.80	
B. Max. dumping height (m)	8.780	8.4	9.1	9.0	9.5	
C. Max. digging depth (m)	3.910	7.9	9.3	10.4	11.5	
D. Level crowding distance (m) / Max. vertical wall digging depth	4.720					
E. Max. digging reach at G.L. (m)	10.950	6.2	7.4	7.6	9.2	
F. Max. digging reach (m)	11.380	13.5	15.0	15.9	17.00	
G. Min. reach on ground / Max. digging depth of cut at 2.44 m level	6.125	7.8	9.16	10.3	11.40	
H. Reach at max. dumping height	6.350					
I. Max. bucket throat opening	1.815					
Bucket digging force (kg)	58,500	34,000	34,000	29000	24500	
Arm crowding force (kg)	56,000	37,000	37,000	37000	30500	

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