KOBELCO

HEAVY DUTY BASE MACHINES FOR FOUNDATION WORK

BM800
BM1200
BM1600

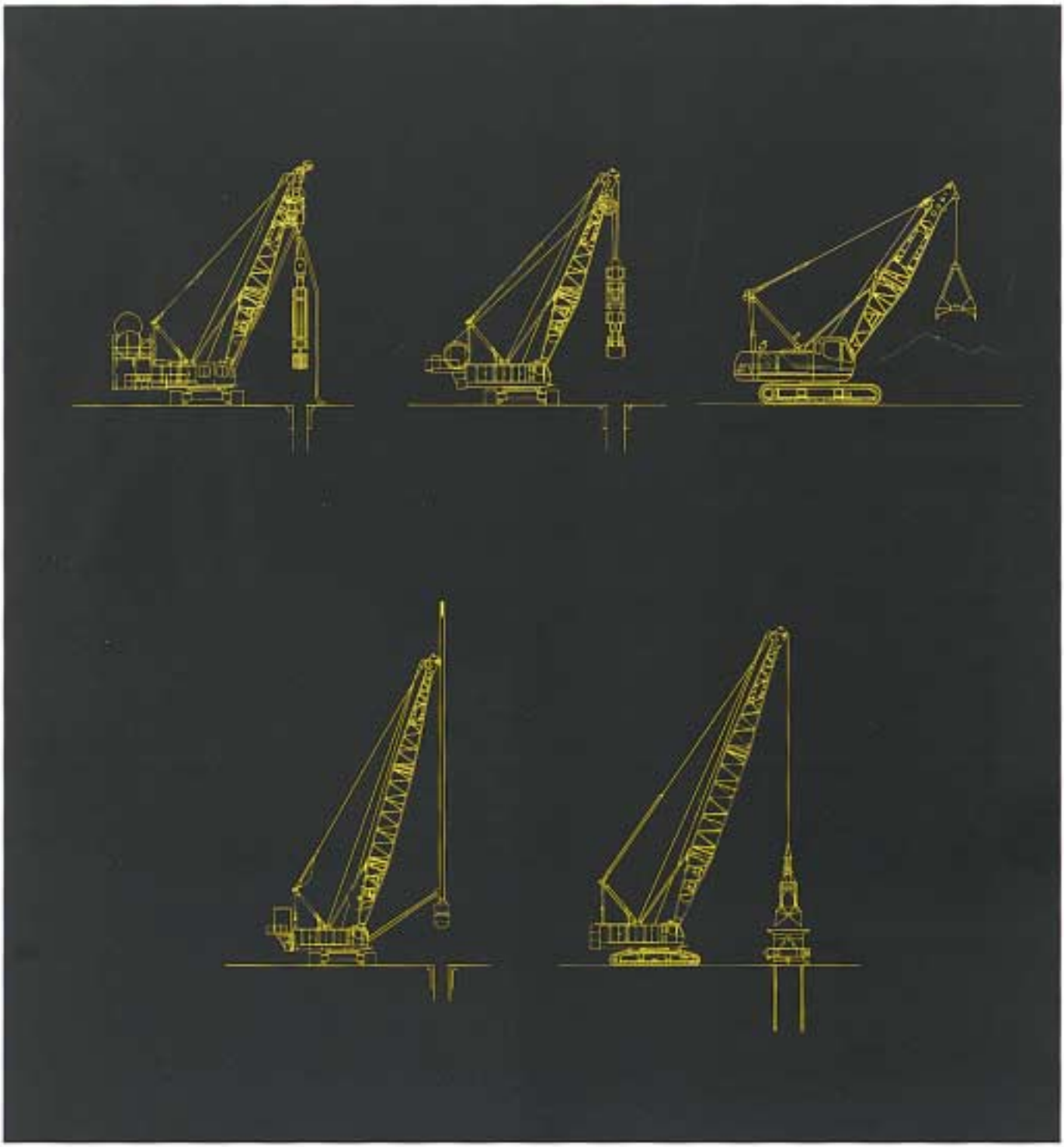
KOBE STEEL, LTD.

HEAVY DUTY BASE MACHINES FOR FOUNDATION WORK

Crawler cranes are being used more and more as base machines for foundation work in urban redevelopment and other large scale projects. Foundation work requires good winch capability, rather than the lifting capability important in crawler cranes used for building construction. These base machines must also exhibit a performance that matches the special characteristics of foundation work processes, such as diaphragm wall digging or cast-in-place pile insertion.

KOBELCO's newly developed BM Series of base machines for foundation work are equipped with all these features, and in addition have the same work capability, easy controls and safety features of our 7000 Series crawler cranes, popular for building construction and foundation mixing work. Hydraulic outlets are provided on the lower carriage to power attachments such as a vibro-rod for casing operations. Use of an outlet does not obstruct 360° swing of the upper carriage or prevent other crane operations.

A further hydraulic outlet is provided on the upper carriage for the bucket cylinder of the hydraulic diaphragm wall bucket. These outlets remove the need for a separate power unit, making these machines economic to run and more maneuverable on site.



STUNNING POWER, FINE PRECISION

KOBELCO BM Series Heavy Duty Base Machines are all-purpose base machines that can handle a wide range of civil-engineering jobs. Durable, stable and strong, they meet the increasingly diverse and demanding needs of present-day foundation work.

Strong enough for the most punishing jobs:

- Large, powerful, uniform tandem load hoist drums
- Powerful brake drum with heat-radiating fins ensures safe, jerk-free performance during continuous operation
- Maintenance-free sealed wet-type disk brakes used for boom hoisting and lowering, swing and travel.
- Independent swing pump provides powerful and fast swing during simultaneous attachment operation.
- Fast hook and boom hoisting speeds ensure reduced cycle times on construction projects.
- Tough frame construction delivers durable, reliable performance.
- Thicker steel plate and a larger cross section lower stress level and make main frame more durable

A more reliable degree of safety:

- Electronic monitor continuously checks machine functions and alerts the operator of potential problems.
- Free-fall interlock and individual lever locks remove danger of accidental lever operation
- Swing flashers enhance safety of all personnel on site
- Lever lock for all operating levers must be engaged to exit cab
- Slip-proof steps and center guards provided as standard equipment on the lower frame.
- Door-activated cab interior light makes safer nighttime entry and exit from cab
- Large toolbox, and hydraulic ports provided as standard equipment.

Mega-power combined with precision control:

- A mechatronic-micro control system allows precise diaphragm wall construction with a multi-axle rotary excavator.(BM1200 and BM1600)
- Automatic constant speed mode lowers excavator at constant speed regardless of changes in ground resistance.(BM1200 and BM1600)
- Automatic constant load mode prevents damage to cutters in hard ground.(BM1200 and BM1600)

Greater comfort for the man in the cab:

- Completely independent rubber cab mounts dampen vibrations; interior lining of knit fabric effectively cuts down noise level in cab
- Sliding door with excellent seal enhances air conditioner effectiveness
- Wide visibility window with washers, intermittent wiper, and a roller blind
- Fully adjustable upholstered seat, drinks cup holder etc.

Onsite maneuverability:

- Low center of gravity keeps the machine stable when lifting over the side.
- Smooth, powerful crawler extension
- Straight-propel travel system keeps the machine on track during simultaneous attachment or swing operation.
- Travel motors are mounted within the shoe width to protect them from shocks and debris.
- Strong traction force
- Independent travel system permits differential steering, skid steering, and counter rotation.

Easy to transport:

- Translifter with vertical and horizontal cylinders, and gantry cylinder, for easy assembly/disassembly ready for transportation
- Counterweight in sections can be transported by truck

Strongest line-pull. Largest drums. Greatest line-speed.

BIG ENGINE ENSURES SUPER POWER

KOBELCO Heavy Duty Base Machines are powered by a powerful and fuel-efficient direct-injected diesel engine. Ample power reduced stress to both the engine itself and the hydraulic system and also ensures long and dependable service.

LARGE-CAPACITY DRUMS ACCOMMODATE FOUNDATION WORK

Heavy Duty Base Machines are equipped with large-capacity front and rear drums, each powered by a pair of two-speed hydraulic motors that can provide either high line speed or high torque as the job demands.

POWERFUL DRIVE

Big engine, big winch and big drums combine to provide a strong line-pull usually associated with cranes one class higher.

HYDRAULIC OUTLET

Hydraulic outlets are installed on both upper and lower carriage to accommodate the power needs of a range of foundation work attachments.

Model	No. of Out let	Oil Flow (max.) liters/min	Oil Pressure (max.) kg/cm²
BM800	1	320	280
	2	420	280
	3	31	175
BM1200 BM1600	1	300	300
	2	300	300
	3	35	175

Ready to take on any bucket or crane operation

PRECISE FULL HYDRAULIC CONTROL

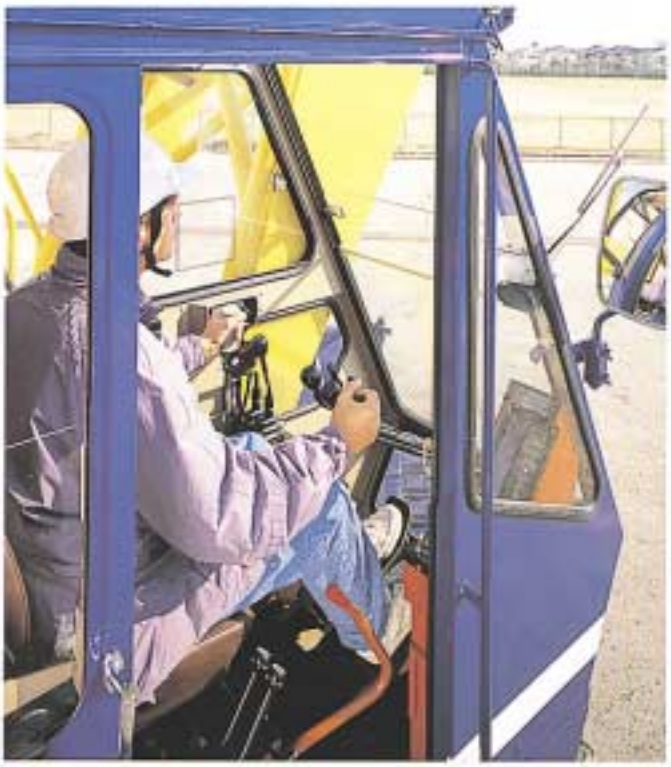
The full hydraulic system provides positive, precise control over each function. Accurate, dependable control in direct proportion to lever movement gurantees steady positioning when handling extremely heavy loads. The large-capacity variable displacement pumps make possible a wide range of line speeds.

FOUNDATION WORK

Continuous bucket work places special demands on the winch drums, brakes, and swing. To ensure efficient operation without downtimes, Heavy Duty Base Machines feature large capacity brake drums with heat-radiating fins and a powerful swing mechanism. Control is light and smooth to prevent operator fatigue. Sensitive engine control is also assured by an electric throttle with a twist grip that rotates just 120° to maintain comfortable wrist movement.

TOUGH, MAINTENANCE-FREE DURABILITY

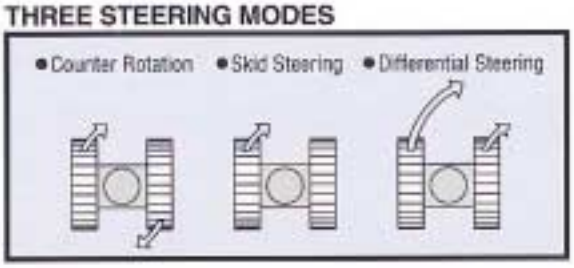
Careful attention has been paid to every detail of design. The permanently lubricated boom point, boom idler, gantry sheaves, and equalizer sheaves keep maintenance requirements to minimum. Routine checks can be conducted easily with the help of seven fully-opening compartment doors (BM 1200/BM 1600: eleven doors) that provide ready access to the engine and hydraulic compartments. The cast iron rollers and idler sprockets are also lubricated and sealed for long, trouble-free service.



ONSITE MANEUVERABILITY

- Strong traction force
- Independent travel system permits differential steering, skid steering, and counter rotation.
- Travel motors are mounted within the shoe width to protect them from shocks and debris.(BM800)
- Straight-propel travel system keeps the machine on track during simultaneous attachment or swing operation.

THREE STEERING MODES



FOR A RANGE OF DEGREES OF SAFETY

FUNCTION LOCKING MECHANISMS

- The engine won't start when the system is in free-fall mode
- Free-fall interlock eliminates accidental activation of free-fall
- Drum lock switches apply locking pawls to the ratchets of the load hoist drums.
- Function lock lever helps prevent accidental operation when the operator leaves the cab.
- Travel levers can be locked mechanically
- Swing lock pin is provided for transportation.
- Load hoist levers can be locked in neutral position simply by inserting a lock pin.
- Free-fall toggle switch must be pulled up and switched on before free-fall can be activated.

SAFETY ENHANCING FEATURES

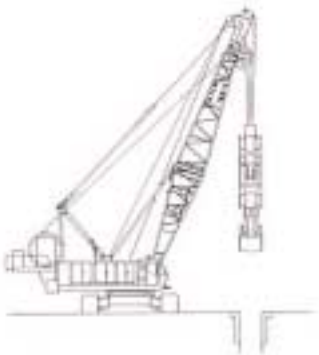
- Warning lamp signals when the free-fall mode is selected.
- Conterbalance valves in the boom hoist and load hoist circuits prevent the load from falling in case of a hydraulic oil leak.
- Boom overhoist shut-off device
- Hook overhoist prevention system
- Boom angle indicator
- Optional load moment indicator
- Monitor continuously checks 12 machine functions and alerts the operator to potential problems.
- Swing flashers and buzzer alert onsite workers when the swing circuit is engaged.
- Slip-proof steps provided as standard on the upper deck.
- Disk brake for boom winch is engaged automatically when the boom hoist lever is in neutral.
- Rear lights for night-time operation

APPLICATIONS

HYDRAULIC DIAPHRAGM WALL BUCKET

MODEL	Gross Weight (BUCKET + CONTENT)	Wall Width (max.)
BM800	20 ton	1,000 mm
BM1200	30 ton	1,500 mm

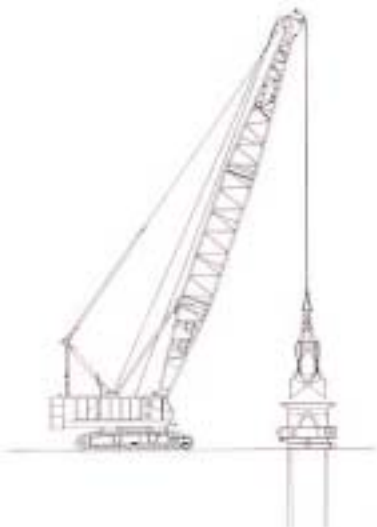
- Power Lowering
- 4 parts of line



CASING OSCILLATOR CASING ROTATOR

MODEL	Rated Line Pull	Hole Dia. (max.)
BM800	10 ton	2,000 mm
BM1200	15 ton	2,500 mm
BM1600	15 ton	3,000 mm

- Power Lowering
- Single line



KELLY TYPE

MODEL	Gross Weight (KELLY + CONTENT)	Wall Width (max.)
BM800	15 ton	1,000 mm
BM1200	20 ton	2,000 mm

- Power Lowering
- 2 parts of line

TRENCHING MILL

MODEL	Trenching Mill (BUCKET + CONTENTS)	Wall Width (max.)
BM800	25 ton	1,200 mm
BM1200	35 ton	2,400 mm
BM1600	48 ton	3,200 mm

CLAMSHELL

MODEL	Bucket Capacity	Rated Load	Boom Length
BM800	1.6 m³ - 3.0 m³	12.5 ton	12.19 m - 24.38 m
BM1200 BM1600	2.5 m³ - 5.0 m³	15.0 ton	18.29 m - 36.58 m

MATERIAL HANDLING IN FOUNDATION FIELDS

- Vibro-Rod
- Vibro-Hammer
- Lifting Magnet
- Hanging Leader

SPECIFICATIONS

MODEL		BM800		BM1200	BM1600
		Standard	Heavy-duty		
LINE PULL					
Line pull at 1st layer (main)	(ton)	20	25	32	
Line pull at 1st layer (aux.)	(ton)	20	25	32	
Rated line pull (main)	(ton)	12.5	12.5	15	
Rated line pull (aux.)	(ton)	12.5	12.5	15	
WINCH					
Type		Hydraulic		Hydraulic	
Clutches		Internally expanding band		Internally expanding band	
Brakes		Externally contracting band		Externally contracting band	
Drums (P.C.D. x wide)	mm	594x606		672x785	
Rope capacity (1st layer)	m	37		49	
Rope capacity (max.)	m	324		570	
WIRE ROPES					
Main & aux. hoist	mm(dia.)	28		32	
Boom hoist	mm(dia.)	18		20	
Guy-line	mm(dia.)	32		28x4	
LINE SPEED					
Main hook hoist	(m/min)	100/60/50/30	80/50/40/25	100/54/50/27	100/54/50/27
Main hook lowering	(m/min)	100/60/50/30	80/50/40/25	100/54/50/27	100/54/50/27
Aux.hook hoist	(m/min)	100/60/50/30	80/50/40/25	100/54/50/27	100/54/50/27
Aux.hook lowering	(m/min)	100/60/50/30	80/50/40/25	100/54/50/27	100/54/50/27
Boom hoist	(m/min)	50	50	54	2x25
Boom lowering	(m/min)	50	50	54	2x25
POWER PLANT					
Engine (standard)		Cummins NTA855-C450		Cummins KTA19-C600	
Power output	(PS/rpm)	420/2000		608/2100	
Engine (Option)		Mitsubishi 6D22C		Mitsubishi 8DC9TC	
Power output	(PS/rpm)	294/2000		405/2000	
HYDRAULIC OUTLETS					
Power outlet	(PS)	240	210	210	Not available
LIFTING CAPACITY					
Max.lifting capacity	(ton x m)	90 x 3.7		100 x 5.5	150 x 5.0
Basic boom length	(m)	12.19		18.29	18.29
Max.boom length	(m)	57.91		73.15	82.3
SWING & TRAVEL					
Swing speed	(rpm)	2.7		2.5	2.2
Travel speed	(km/h)	1.4/0.9		1.6/0.8	1.6/0.8
WEIGHT					
Operating weight (approx.)	(ton)	84.0		115.0	160.0
Ground pressure	(kg/cm^2)	0.80		0.75	0.98
Gradeability	(%)	40		40	30

Note: Due to our policy of continual product improvements all designs and specifications are subject to change without advace notice.

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