HITACHI

HITACHI ROTARY CASING DRIVERS

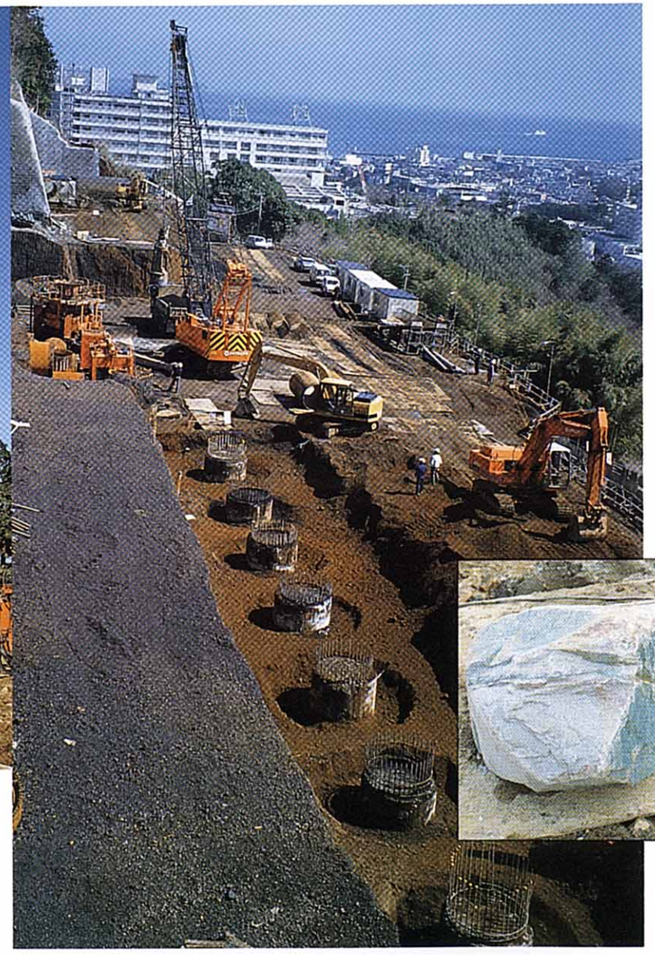
CD1500/CD2000

Completely Cased Piling Work

Hitachi All-Casing Piling Method: Technological Breakthrough in Foundation Work.

Modern foundation works have grown in scale with diversification and complexity. They need more than conventional vibratory all-casing practice. So the Hitachi Rotary Casing Drivers have been developed...for efficient penetration into bearing formations, boring into boulder stratum, removal of underground obstacles in urban redevelopments, pilings to prevent landslides, and cast-in-place pilings to sustain adjacent ground.

The CD1500, since its advent, has been playing an important part in various foundation works, recording outstanding achievements with high-precision piling work. The CD2000, a new addition, is designed and built to meet diversified needs for larger-scale civil engineering works and foundation works.



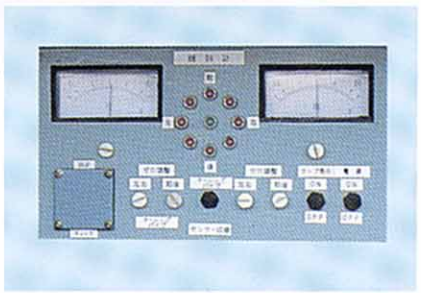
Efficient Downhole Drilling in Hard Formations:

Efficient Rockbed Drilling through Hitachi's Original Rotary Casing Bit

The Hitachi CD1500 and CD2000 Rotary Casing Drivers are the best help in tough downhole drilling. With the casing bit at the lower end of the rotary casing, hard formations, such as hardpan, boulder stratum and rockbed, can be drilled efficiently and easily, with minimum dislocation or misalignment of bored downhole.

High-Precision Downhole Drilling

The rotary casing can be well balanced and driven with thrust cylinders and guide posts arranged symmetrically at four positions. This arrangement gives high-precision drilling of downholes. What's more, the normality of the casing is always monitored by the plumb gauge, and corrected with jack cylinders if necessary.



Auxiliary Frame Securely Holds Casing Driver Unit.

The auxiliary frame makes possible high-precision drilling. Here's why. It can securely hold the casing driving unit to eliminate its dislocation and misalignment through the use of its own weight or with that of a crane. The result: no influence by the rotational reaction torque of the casing.

Auxiliary Frame Serves as an Access Platform to the Casing.

The auxiliary frame can also serve as an access platform that can be hydraulically inclined to permit a truck mixer to access the casing. So, there's no need for any other access platform. The reaction bar alone, rather than the entire auxiliary frame, is optionally available.

Compact, Modular-Structure for Easy Transport

The Hitachi Rotary Casing Driver, consisting of the casing driver unit, auxiliary frame and hydraulic power unit, employs a modular design, allowing easy disassembly/reassembly for efficient transport. The casing driver unit can be further knocked down into upper and lower sections. Transport width is a mere 3.1 m (10'2") for transport convenience.

Hardpan, Boulder Stratum and Rockbed.

Outstanding Operation in Confined Quarters and Tight Corners

Compact structure facilitates piling operation at confined job sites and tight corners. The access frame and casing driver unit are both a 3.1 m (10'2") in width, which allows piling to be located right next to the boundary of a job site.

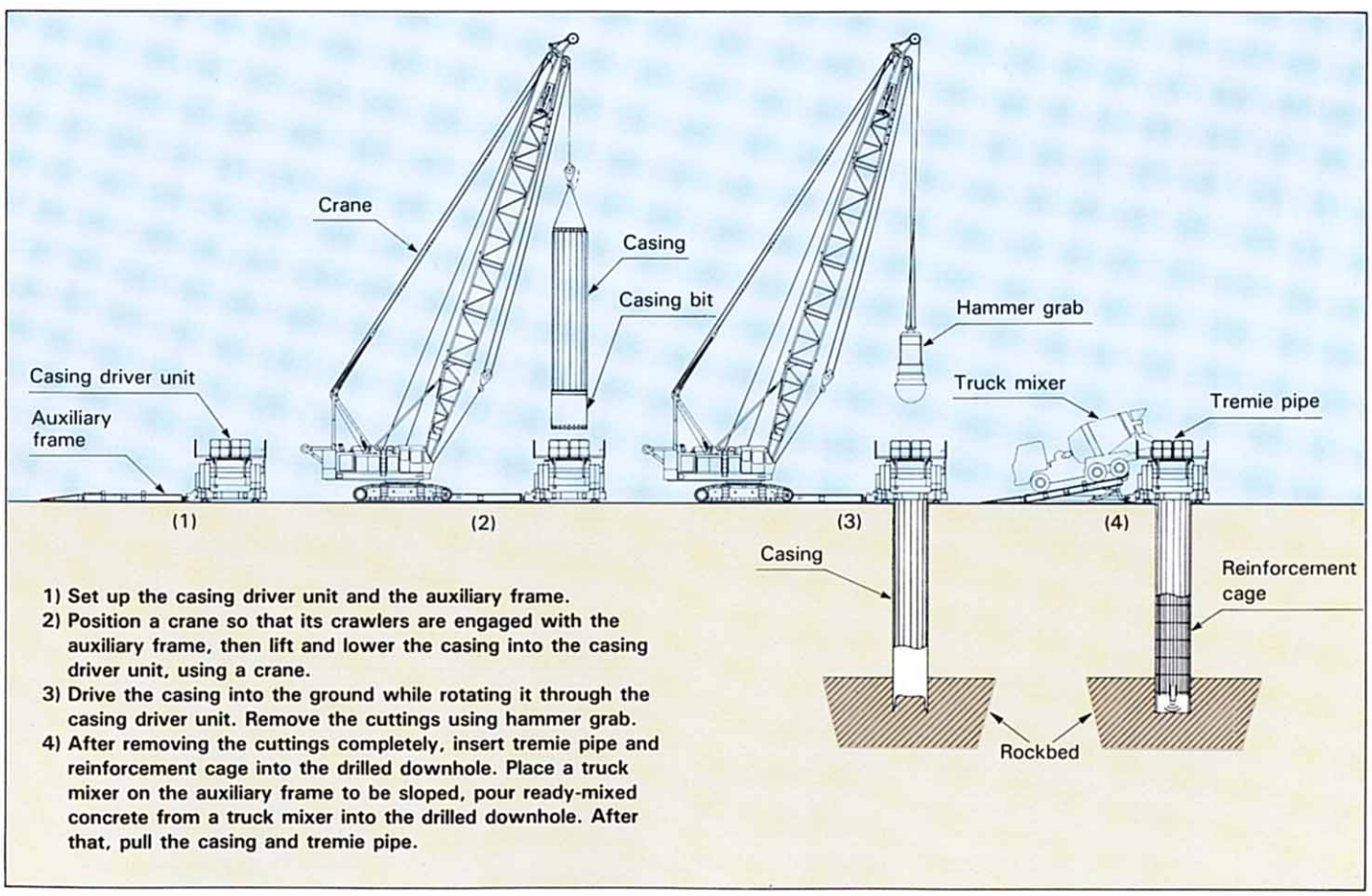
Dependable Operation

All major operations can be remote controlled while operating conditions are monitored with the help of the instrument panel located near the drilled downhole. Semi-automatic coupler for hydraulic hose and various interlocks further enhance dependable operation.

High Versatility

Hammer grab and other digging tools are applicable for efficiently removing the cuttings, depending on drilling method and ground conditions.

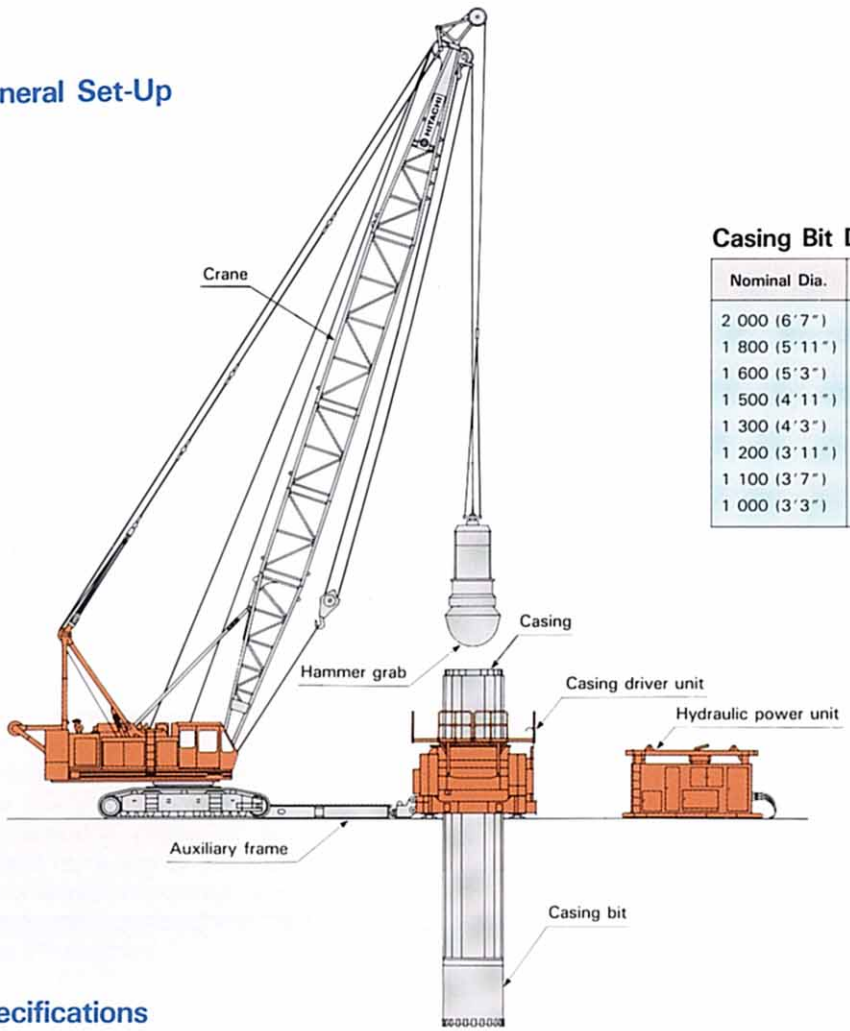
Work Procedures



1) Set up the casing driver unit and the auxiliary frame.
2) Position a crane so that its crawlers are engaged with the auxiliary frame, then lift and lower the casing into the casing driver unit, using a crane.
3) Drive the casing into the ground while rotating it through the casing driver unit. Remove the cuttings using hammer grab.
4) After removing the cuttings completely, insert tremie pipe and reinforcement cage into the drilled downhole. Place a truck mixer on the auxiliary frame to be sloped, pour ready-mixed concrete from a truck mixer into the drilled downhole. After that, pull the casing and tremie pipe.

Hitachi Technological Breakthrough. Specifications

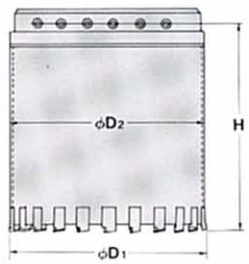
General Set-Up



Casing Bit Dimensions

Unit: mm (ft in)

Nominal Dia.	D_1	D_2	H	Weight kg (lb)
2 000 (6'7")	2 000 (6'7")	1 980 (6'6")	1 500 (4'11")	3 580 (7 890)
1 800 (5'11")	1 800 (5'11")	1 780 (5'10")	1 500 (4'11")	3 220 (7 100)
1 600 (5'3")	1 600 (5'3")	1 580 (5'2")	1 500 (4'11")	2 850 (6 285)
1 500 (4'11")	1 500 (4'11")	1 480 (4'10")	1 500 (4'11")	2 680 (5 910)
1 300 (4'3")	1 300 (4'3")	1 280 (4'2")	1 500 (4'11")	2 300 (5 070)
1 200 (3'11")	1 200 (3'11")	1 180 (3'10")	1 500 (4'11")	2 110 (4 650)
1 100 (3'7")	1 100 (3'7")	1 080 (3'7")	1 500 (4'11")	1 930 (4 255)
1 000 (3'3")	1 000 (3'3")	980 (3'3")	1 500 (4'11")	1 720 (3 790)



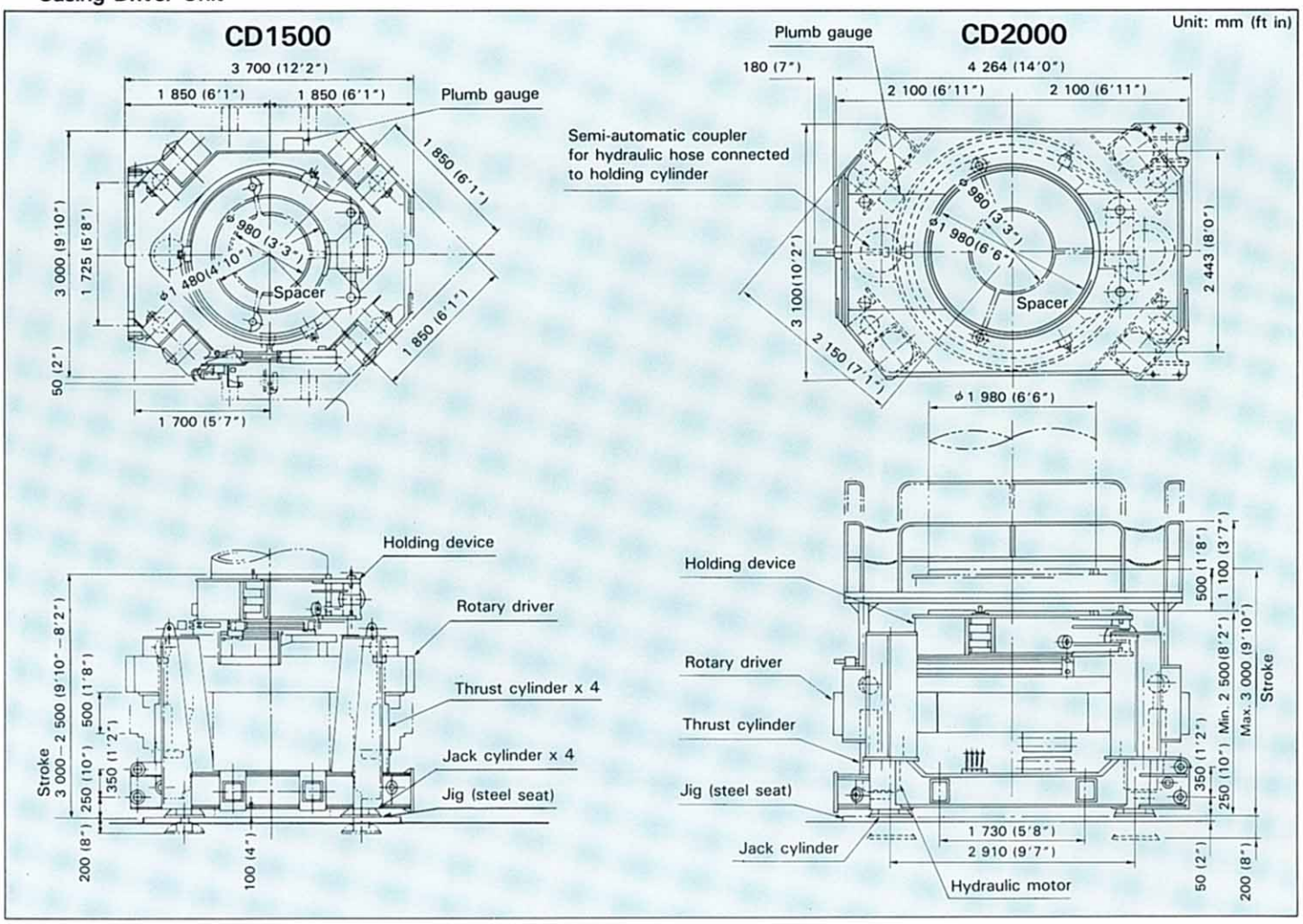
Specifications

Model				CD1500	CD2000
Casing driver unit	Casing dia.	mm (ft in)	Without spacer	1 500 (4'11")	2 000 (6'7")
			With spacer	1 000 (3'3") min.	
	Driving force		kN (kgf, lbf)	260 (26 500, 58 420)	299 (30 500, 67 240)
	Pull-out force		kN (kgf, lbf)	1 628 (166 000, 365 970)	2 128 (217 000, 478 400)
	Casing torque		kN·m (kgf·m, lbf·ft)	0–1 275 (0–130 000, 0–940 290) reversible	0–1 628 (0–166 000, 0–1 200 680) reversible, slow
					0–814 (0–83 000, 0–600 340) reversible, fast
	Casing speed		min^{-1} (rpm)	0–1.2 (0–1.2)	0–1.0 (0–1.0) slow 0–1.9 (0–1.9) fast
	Thrust cylinder stroke		mm (ft in)	500 (1'8")	
	Jack cylinder stroke		mm (ft in)	200 (8")	
	Weight (without spacer)		kg (lb)	26 500 (58 420)	30 500 (67 240)
Auxiliary frame	Auxiliary frame extension			Hydraulic	
	Auxiliary frame inclination			Hydraulic	
	Auxiliary frame inclination angle		degree	11 max.	
	Weight		kg (lb)	16 400 (36 160)	16 500 (36 380)
Hydraulic power unit	Engine	Model		Hino EM100	
		Rated horsepower kW (PS) @ min^{-1} (rpm)		110 (150) @2 000(2 000)	
	Main pump	Delivery flow	l/min (US gpm, Imp gpm)	Max. 214 × 2 (56.5 × 2, 47.1 × 2)	
		Setting pressure	MPa (kgf/cm^2, psi)	26.5 (270, 3 840)	
	1st gear pump	Delivery flow	l/min (US gpm, Imp gpm)	28.1 (7.4, 6.2)	
		Setting pressure	MPa (kgf/cm^2, psi)	26.5 (270, 3 840)	
	2nd gear pump	Delivery flow	l/min (US gpm, Imp gpm)	16.0 (4.2, 3.5)	
		Setting pressure	MPa (kgf/cm^2, psi)	13.7 (140, 1 990)	
	Weight		kg (lb)	9 000 (19 840)	9 000 (19 840)

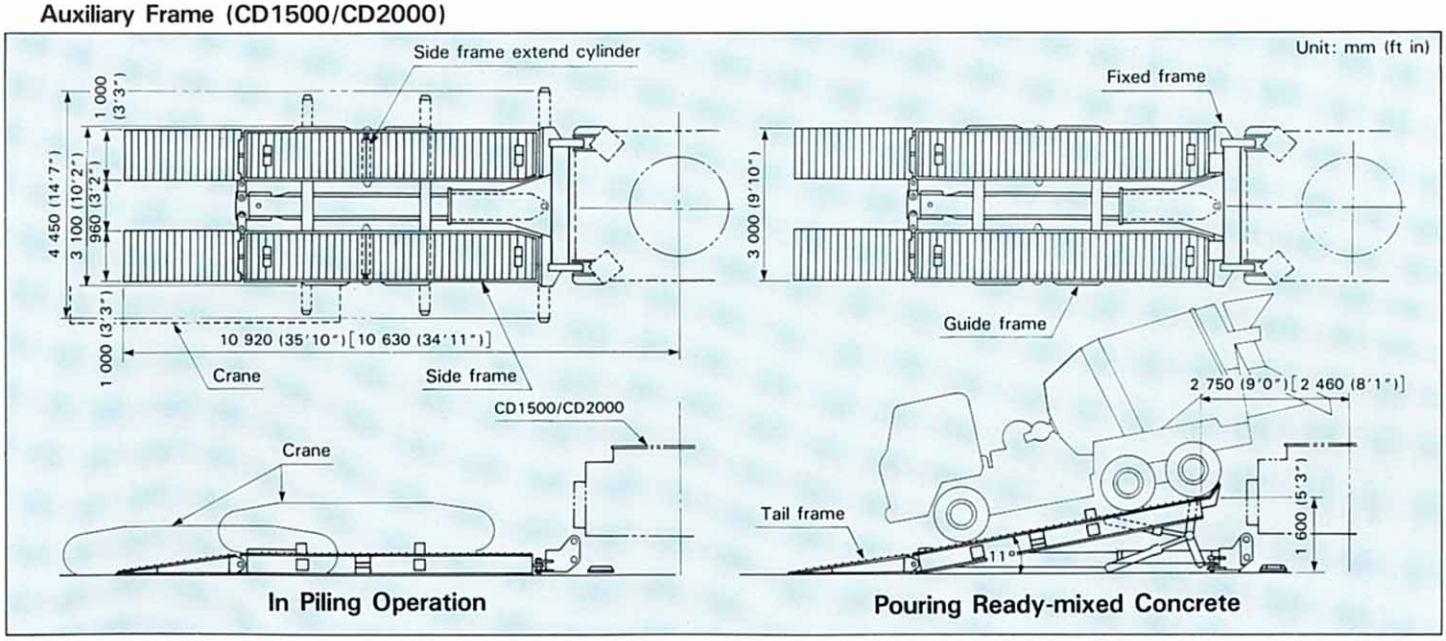
Tell It All.

Dimensions

Casing Driver Unit

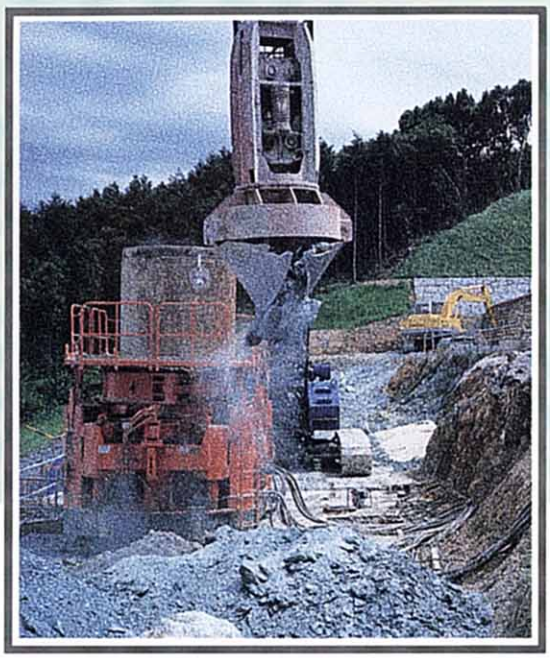


Auxiliary Frame (CD1500/CD2000)



Note: Figures in [ ] are dimensions of CD1500.

CD1500/CD2000



These specifications are subject to change without notice.

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