



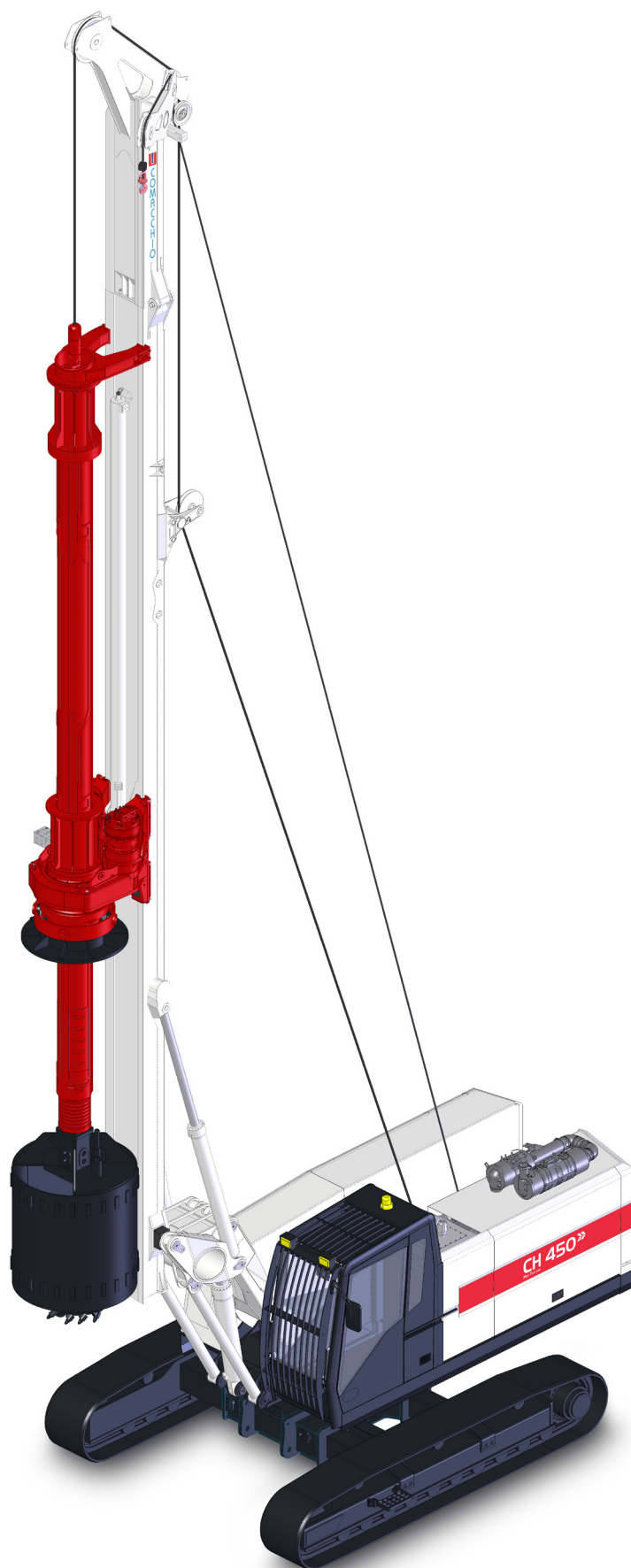
COMACCHIO

DRILLING HI-TECH

CH 450

High Tech Line

Self-Erecting Hydraulic Piling Rig



Technical Data

The **Comacchio** self-erecting rigs are available in **CPD/WPD** versions and both are designed for easy transport as well as the best drilling performance.

- **CBP** (Cased Bored Piles) cased bored piles with casing driven directly by rotary head or optionally by casing oscillator powered by the base carrier;
- **BP** (Bored Piles) deep uncased bored piles stabilized by drilling fluid or dry hole;
- **LHR** (Low Head Room) – large diameter bored piles;
- **CFA** (Continuous Flight Auger) piles by means of long auger string;
- **DP** (Displacement Piles);
- **MP** (Micropiles).

The **CH 450** is equipped with the **CCS** (Comacchio Controlling System) on 12.1 full touch screen for monitoring and control of the rig performances and operating parameters.

Technical Data

Undercarriage		
Type	Variable gauge, telescoping side frames	
Removable tracks	No	
Track shoe width	600 mm / 1,9 ft	
Track shoe type	Triple grouser	
Overall width (retracted side frames)	2.550 mm / 8,4 ft	
Overall width (extended side frames)	4.000 mm / 13,1 ft	
Overall length	4.930 mm / 16,2 ft	
Centre idler to centre sprocket	4.100 mm / 13,5 ft	
Upperframe		
Width	2.550 mm / 8,4 ft	
Operators' cabin	TOPS & FOPS-1 certified, 980 mm (3,2 ft) wide	
Control system type	CAN-BUS	
Control system interface	12" Touch Screen	
Tail swing radius	3.800 mm / 12,5 ft	
Diesel engine		
Make and model	Cummins QSB6.7	
Emission certification	EU stage IV / US EPA Tier 4f	EU stage IIIA / US EPA Tier 3
Aspiration	Turbocharged and charge air cooled	
Power rating	201 kW (269 HP) / 2.000 rpm	
Displacement	6.700 cc /408 in³	
Fuel consumption rate (100% power, rated speed)	202 g/kWh - 0,331 lb/hp-hr	222 g/kWh - 0,365 lb/hp-hr
Average fuel consumption approx.	31,5 l/hr / 8,3 gal/hr	34,5 l/hr / 9,1 gal/hr

Hydraulic system	
Main pumps flow	2 x 214 l/min / 2 x 56,5 gal/min
Third pump flow	160 l/min / 42,3 gal/min
Kelly bars	
Outer element diameter	355 - 368,3 mm ⁽¹⁾ / 398 mm / 1,1 - 1,2 ft ⁽¹⁾ / 1,3 ft
Max length (self-mounting) CPD / WPD	13,0 - 13,5 m ⁽²⁾ / 42,6 - 44,3 ft ⁽²⁾
Main winch	
Type	Controlled descent
1 st layer line pull	160 kN / 35,969 lbs
1 st layer rope speed	80 m/min / 262,5 ft/min
Rope diameter	24 mm / 0,9 in
Rope layers	2
Useful rope length with 1 / 2 / .. full layers	38 - 84 m / 124,7 - 275,6 ft
FEM classification	M6 - L3 - T5
Service winch	
Type	Free fall
1 st layer line pull	72 kN / 16,186 lbs
1 st layer rope speed	55 m/min / 180,4 ft/min 49 m/min / 160,7 ft/min
Rope diameter	18 mm / 0,7 in
Rope layers	3 4
Useful rope length with 1 / 2 / .. full layers	17 - 39 - 62 m 13 - 31 - 51 - 73 m 55,8 - 127,9 - 203,4 ft 42,6 - 101,7 - 167,3 - 239,5 ft
FEM classification	M6 - L2 - T5 M6 - L3 - T5
Bored Piles (BP)	
Drilling radius min - max	3.000 - 3.800 mm / 9,8 - 12,5 ft
Max pile diameter - CPD (Cyylinder pull down)	1.500 - 2.000 mm ⁽³⁾ / 4,9 - 6,6 ft
Max pile diameter - WPD (Winch pull down)	1.300 - 2.000 mm ⁽⁴⁾ / 4,3 - 6,6 ft
Max pile depth friction kelly CPD / WPD	59 - 62,5 m ⁽⁵⁾ / 193,6 - 205,0 ft
Max pile depth locking kelly CPD / WPD	47 / 49,5 m ⁽⁵⁾ / 154,3 - 162,4 ft
Operating weight w/o tool - CPD	41.000 kg ⁽⁶⁾ / 90,400 lbs
Operating weight w/o tool - WPD	42.500 kg ⁽⁶⁾ / 93,700 lbs

Note

(1) drive sleeve for 355.6 mm (1,2 ft) and 393.7 mm (1,3 ft) dia. kelly bars also available

(2) up to 14 m (45,9 ft) self-erecting non-self-mounting

(3) tool in front of mast / below mast

(4) with / without bottom mast element

(5) using self-mounting kelly bar

(6) c/w 4x9 m (13,1x29,5 ft) 355.6 mm (1,2 ft) dia. kelly bar

CH 450

Options and Accessories

Standard equipment

Main and auxiliary winch controlled descent type with special grooving
Hoist limit switch on main rope
Swivel for main rope
Service rope parking point
Mast inclination measurement on X/Y axes (digital/analog display)
Automatic vertical mast alignment
Depth measuring device on main winch
Speed measuring device on rotary
Main winch load cell (CE)
Crowd pressure setting
Oscillator attachment brackets
Pressurized air conditioning system
Emergency mode of operation for engine
Engine diagnostic system
Diagnostic panel for hydraulic functions
Transport securing lugs on crawler units
On board lighting set
On board tool set
Electric refuelling pump
Protective roof grate (FOPS compliant)
Air conditioning system
Radio and music player
Phone charger
CCS Comacchio Controlling System

Optional equipment

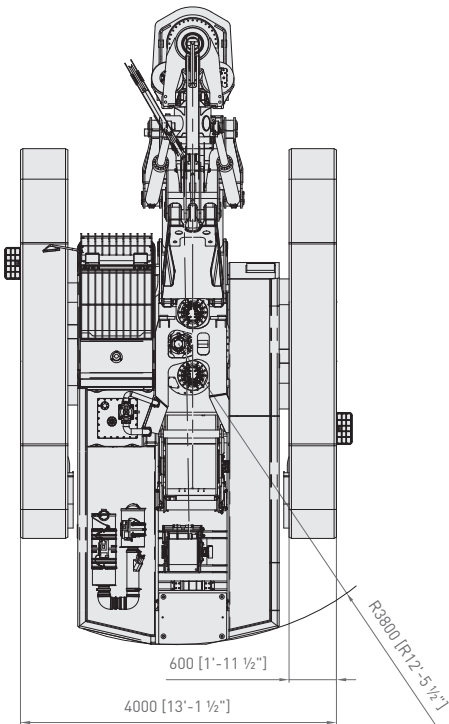
Biodegradable oil
Freefall auxiliary winch
Central lubrication system
Swivel for auxiliary rope
Videocamera set
Three kelly bar sizes in diameter
HT Line
Radio Remote Control for tramming

Kelly Bars

Comacchio developed an innovative kelly bar system. Three sizes bars are available with minor changes on the rotaty head.

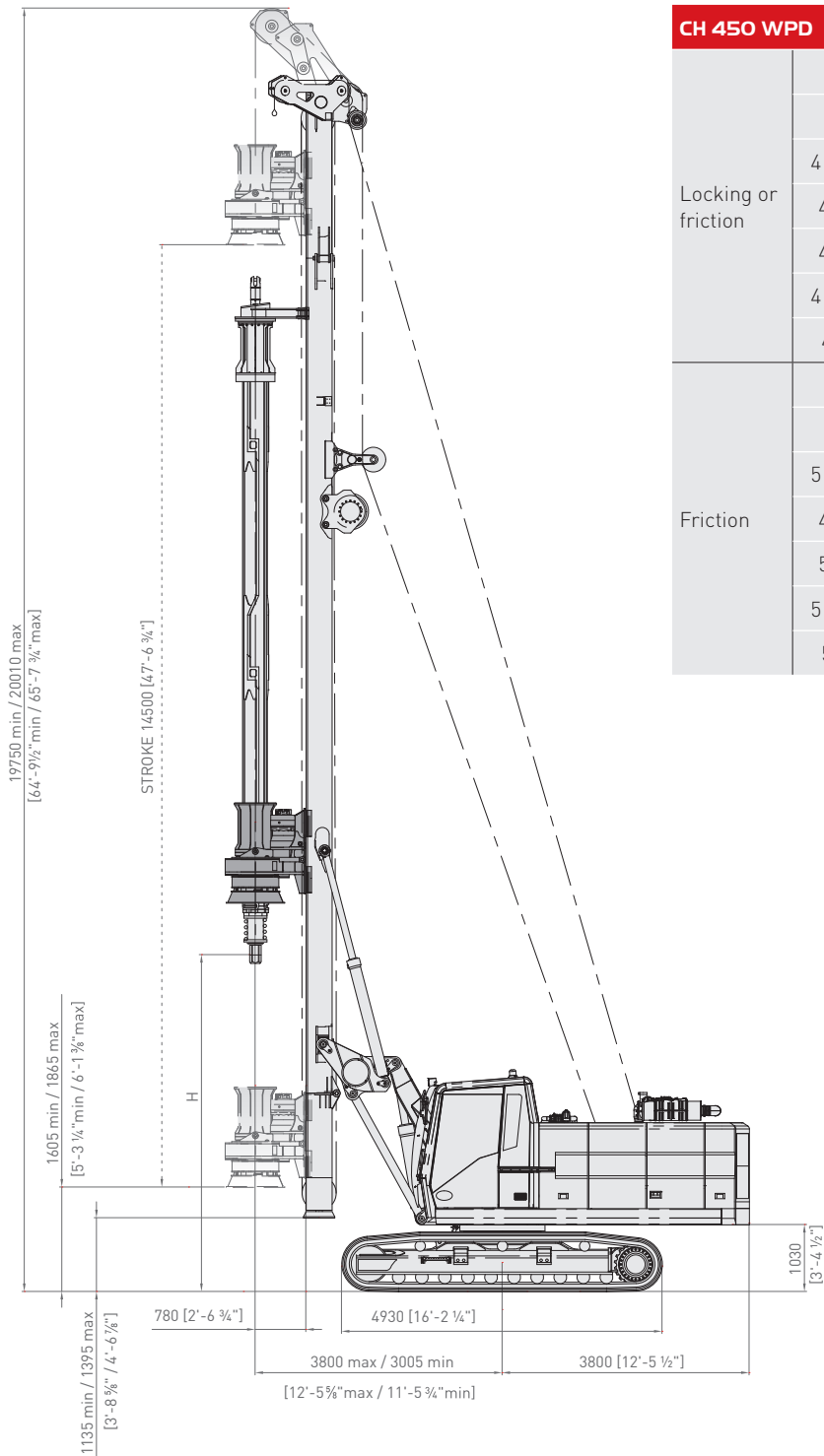


L (light) Kelly bar	355 mm / 1,1 ft OD diameter
HD (Heavy Duty) Kelly bar	368 mm / 1,2 ft OD diameter
XHD (Extra Heavy Duty) Kelly bar	394 mm / 1,3 ft OD diameter



CH 450 - WPD

Overall dimensions (mm)

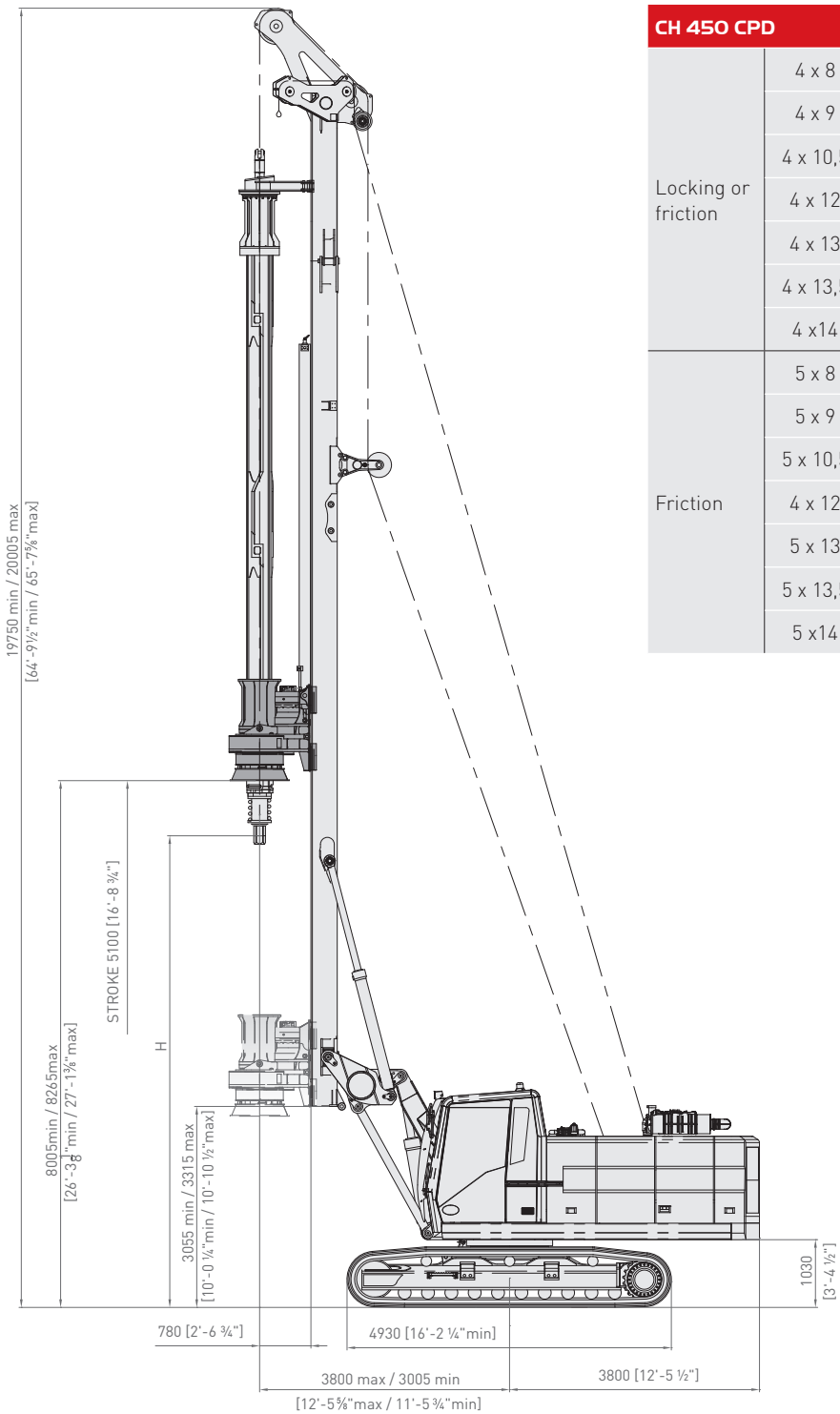


CH 450 WPD		Depth (m)	H (m)	Depth (ft-in)	H (ft-in)
Locking or friction	4 x 8	27,5	9,10	90' 3"	29' 10"
	4 x 9	31,5	8,10	103' 4"	26' 7"
	4 x 10,5	37,5	6,60	123'	21' 8"
	4 x 12	43,5	5,10	142' 9"	16' 9"
	4 x 13	47,5	4,10	155' 10"	13' 5"
	4 x 13,5	49,5	3,60	162' 5"	11' 10"
Friction	4 x14	51,5	3,10	168' 12"	10' 2"
	5 x 8	34,5	9,10	113' 2"	29' 10"
	5 x 9	39,5	8,10	129' 7"	26' 7"
	5 x 10,5	47,0	6,60	154' 2"	21' 8"
	4 x 12	54,5	5,10	178' 10"	16' 9"
	5 x 13	59,5	4,10	195' 3"	13' 5"
	5 x 13,5	62,0	3,60	203' 5"	11' 10"
	5 x14	64,5	3,10	211' 7"	10' 2"

(WPD) Winch pull down	
Stroke	14.500 mm / 47,6 ft
Max pull up force	240 kN / 53,954 lbs
Max pull down force	240 kN / 53,954 lbs
Max pull down force on kelly	140 kN / 31,473 lbs
Speed up	36 m/min / 118,1 ft/min
Speed down	36 m/min / 118,1 ft/min

CH 450 - CPD

Overall dimensions (mm)

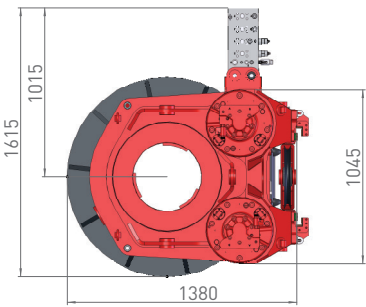
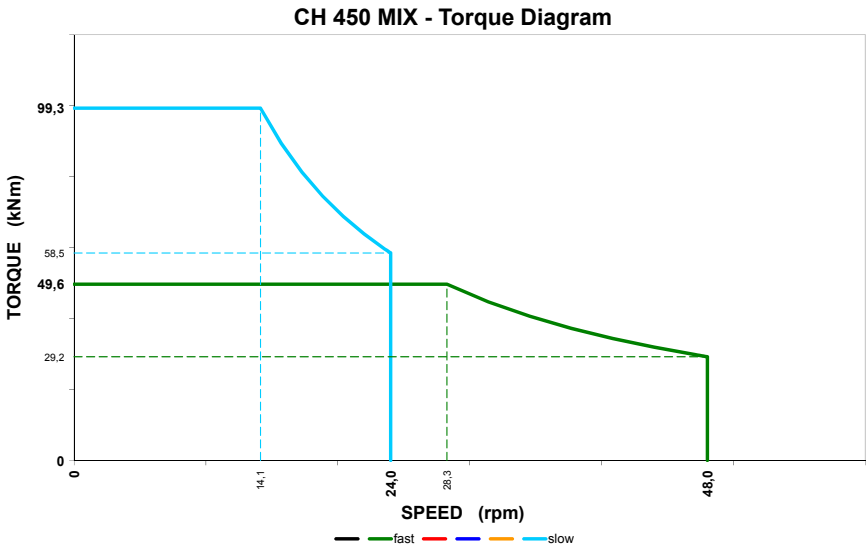
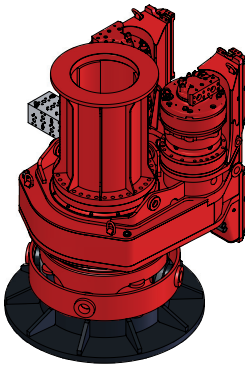
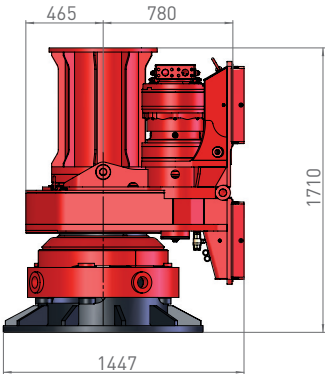
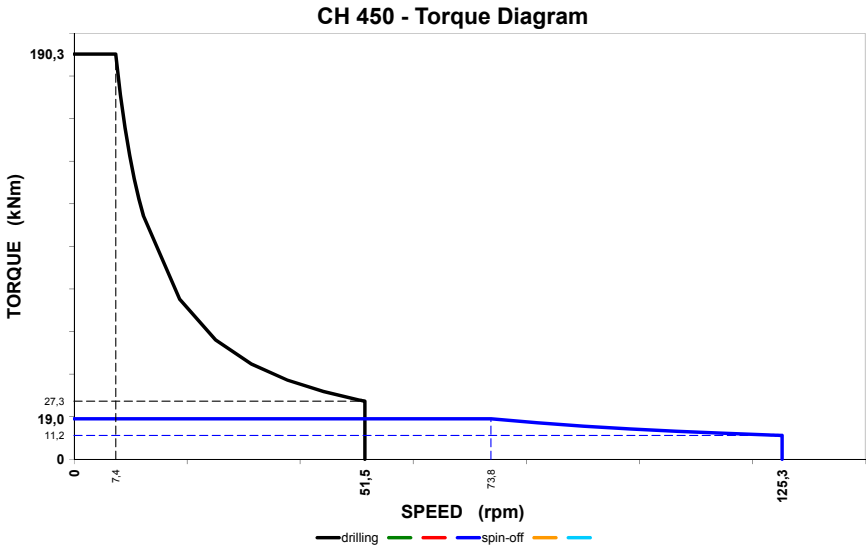


CH 450 CPD		Depth (m)	H (m)	Depth (ft-in)	H (ft-in)
Locking or friction	4 x 8	26,1	7,30	85' 8"	23' 11"
	4 x 9	30,1	7,30	98' 9"	23' 11"
	4 x 10,5	36,1	6,60	118' 5"	21' 8"
	4 x 12	42,1	5,10	138' 1"	16' 9"
	4 x 13	46,1	4,10	151' 3"	13' 5"
	4 x 13,5	48,1	3,60	157' 10"	11' 10"
	4 x 14	50,1	3,10	164' 4"	10' 2"
Friction	5 x 8	33,1	7,30	108' 7"	23' 11"
	5 x 9	38,1	7,30	125' 0"	23' 11"
	5 x 10,5	45,6	6,60	149' 7"	21' 8"
	4 x 12	53,1	5,10	174' 3"	16' 9"
	5 x 13	58,1	4,10	190' 7"	13' 5"
	5 x 13,5	60,6	3,60	198' 10"	11' 10"
	5 x 14	63,1	3,10	207'	10' 2"

(CPD) Cylinder pull down	
Stroke	5.100 mm / 16,7 ft
Max pull up force	226 kN / 50,806 lbs
Max pull down force	141 kN / 31,698 lbs
Max pull down force on kelly	141 kN / 31,698 lbs
Speed up	21 m/min / 68,9 ft/min
Speed down	20 m/min / 65,6 ft/min

Rotary Head

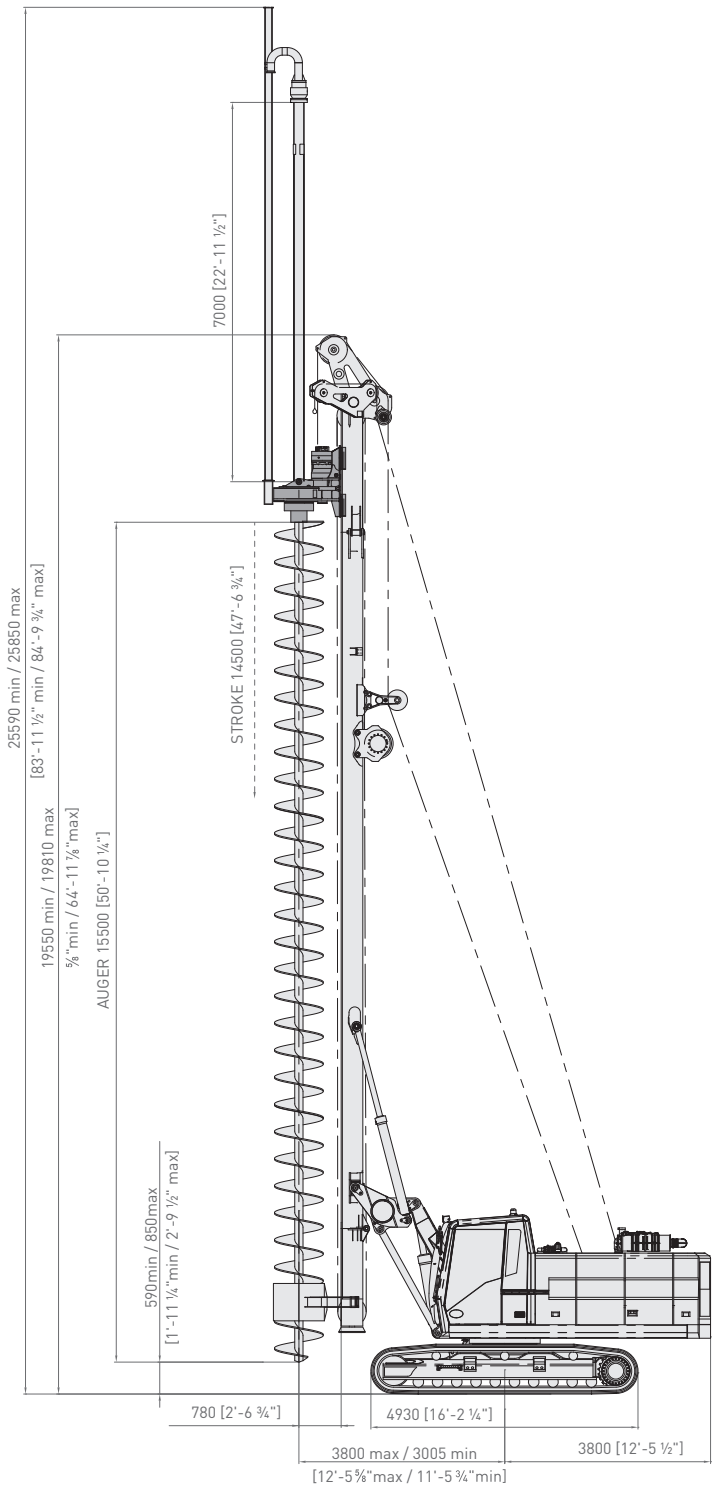
Overall dimensions (mm)



Rotary table	
Max torque	190 kNm / 14137 lbf-ft
Rated pressure	35 MPa / 5076 psi
Max drilling speed	51 rpm
Hydraulic power	147 kW / 197 HP
Spin-off speed	125 rpm
Replaceable drive sleeve	Yes

CH 450 - CFA/WPD

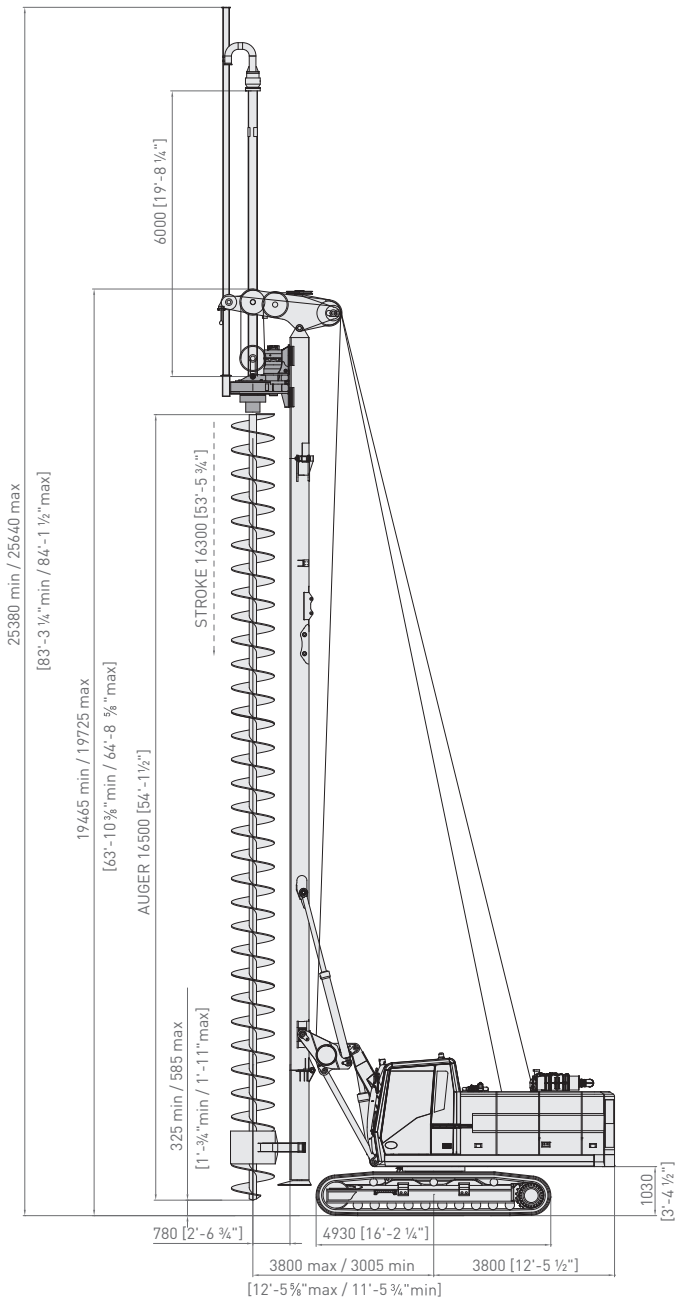
Overall dimensions (mm)



CFA/WPD (Quick Conversion CFA)	
Max pile diameter	1.000 mm / 3,3 ft
Max length of augers	15,5 m / 50,8 ft
Max length	7 m / 22,9 ft
Max pile depth	14 + 7 = 21 m / 46 + 23 = 69 ft
Max pile depth with auger	13+ 7 = 20 m / 43 + 23 = 66 ft
Extraction force	390 kN / 87,675 lbs
Crowd force on auger	140 kN / 31,473 lbss

CH 450 - CFA

Overall dimensions (mm)



(CFA) Continuous flight auger	
Max pile diameter	1.000 mm / 3,3 ft
Max length of augers	16,0 m ⁽⁷⁾ / 52,5 ft
Max length of auger extension	6,0 m / 19,7 ft
Max pile depth	15,5 + 6,0 = 21,5 m ⁽⁷⁾ / 50,8 + 19,6 = 70,4 ft
Max pile depth with auger cleaner	14,5 + 6,0 = 20,5 m / 47,5 + 19,7 = 67,2 ft
Extraction force	480 kN / 107,908 lbs
Crowd force on auger (option)	100 kN ⁽⁸⁾ / 22,480 lbs

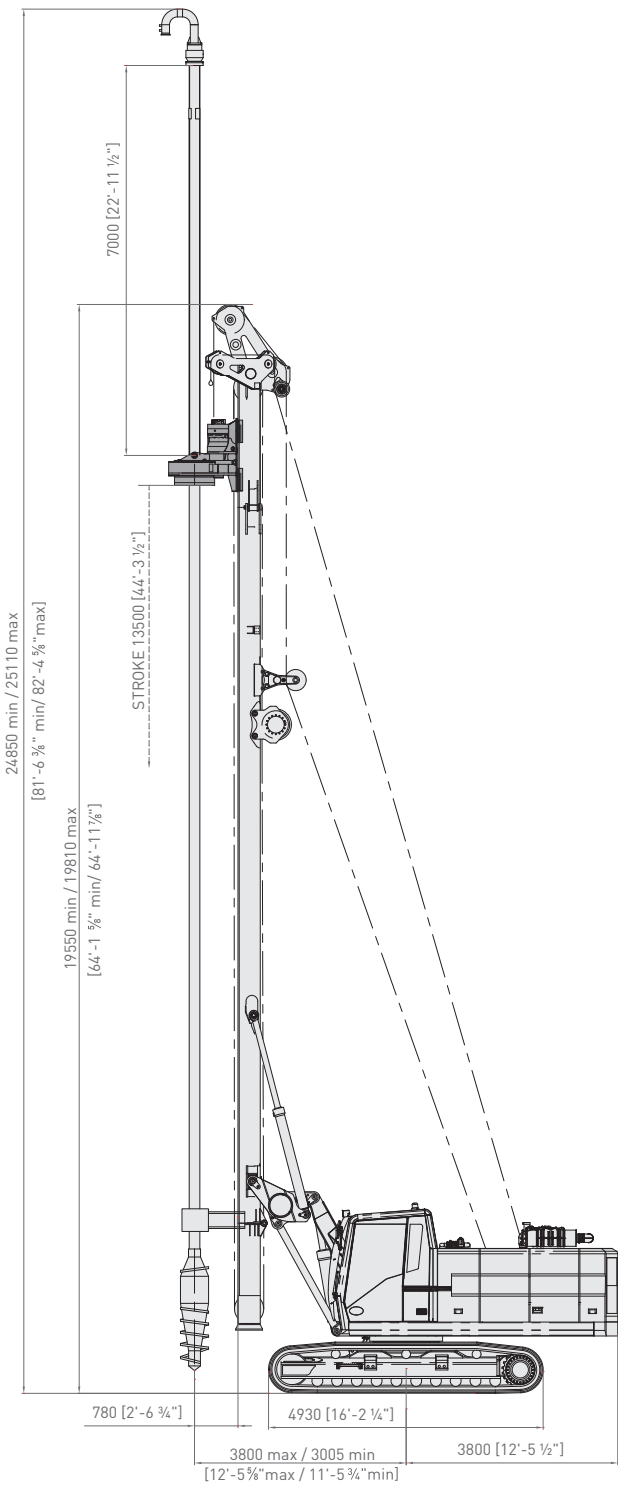
Note

(7) also available 2.5 m (8,2 ft) mast extn and add'l cwt for 18.5 m (60,7 ft) auger and 18.0+6.0 = 24.0 m (59,0+19,7 = 78,7 ft) depth

(8) depth reduced by 1.0 m (3,3 ft)

CH 450 - DP

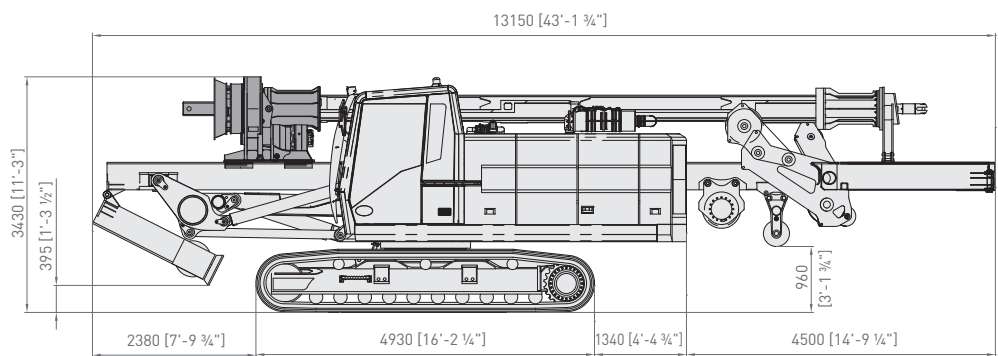
Overall dimensions (mm)



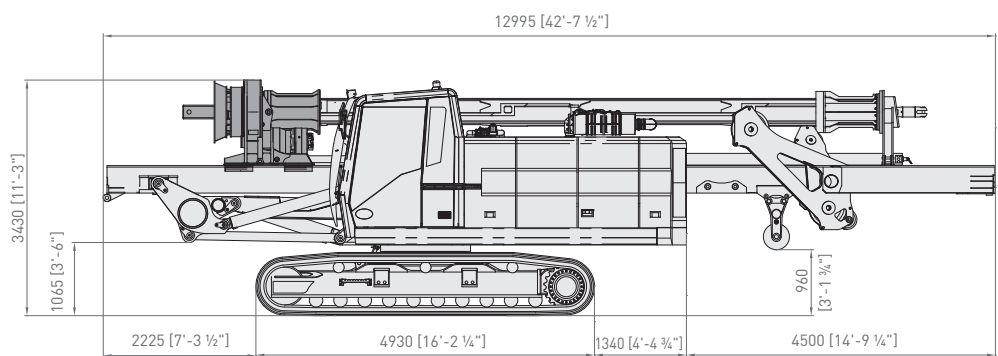
DP (Displacement Piles)	
Max diameter	350 mm / 1,2 ft
Max drill string length	15,5 m / 50,10 ft
Max length of string extension	7 m / 23 ft
Max depth	13 + 7 = 20 m / 42,8 + 23 = 65,8 ft
Max pull down force	140 kN / 31,500 lb

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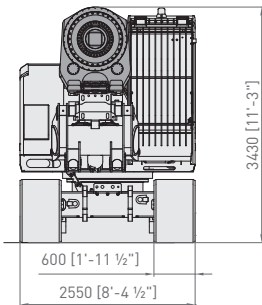
Overall dimensions (mm)



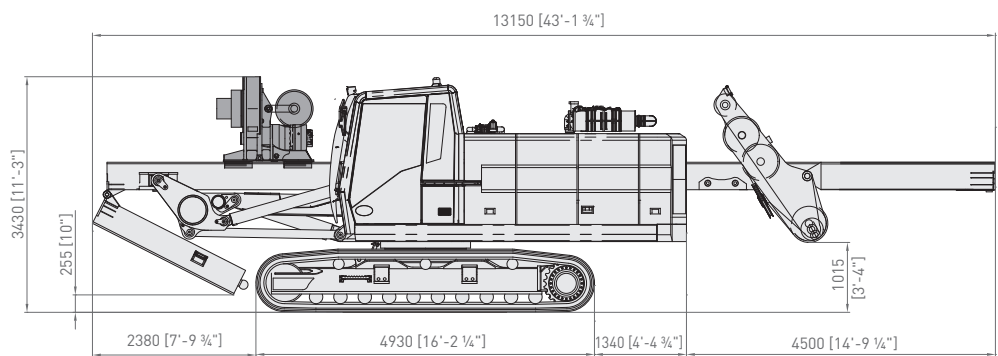
WPD



CPD



CFA



Weights and dimensions		
Transport width		2.550 mm / 8,4 ft
Transport height		3.430 mm / 11,2 ft
Transport length		12.910 mm ⁽⁹⁾ / 42,3 ft
Transport weight BP CPD	BP= Bored Piles CPD= Cylinder Pull Down	44.500 kg / 98,100 lbs
Transport weight BP WPD	BP= Bored Piles WPD= Winch Pull Down	42.500 kg / 93,700 lbs

Note BP CPD and WPD	
(9) BP CPD and WPD, kelly <11 m (36,1 ft)	



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