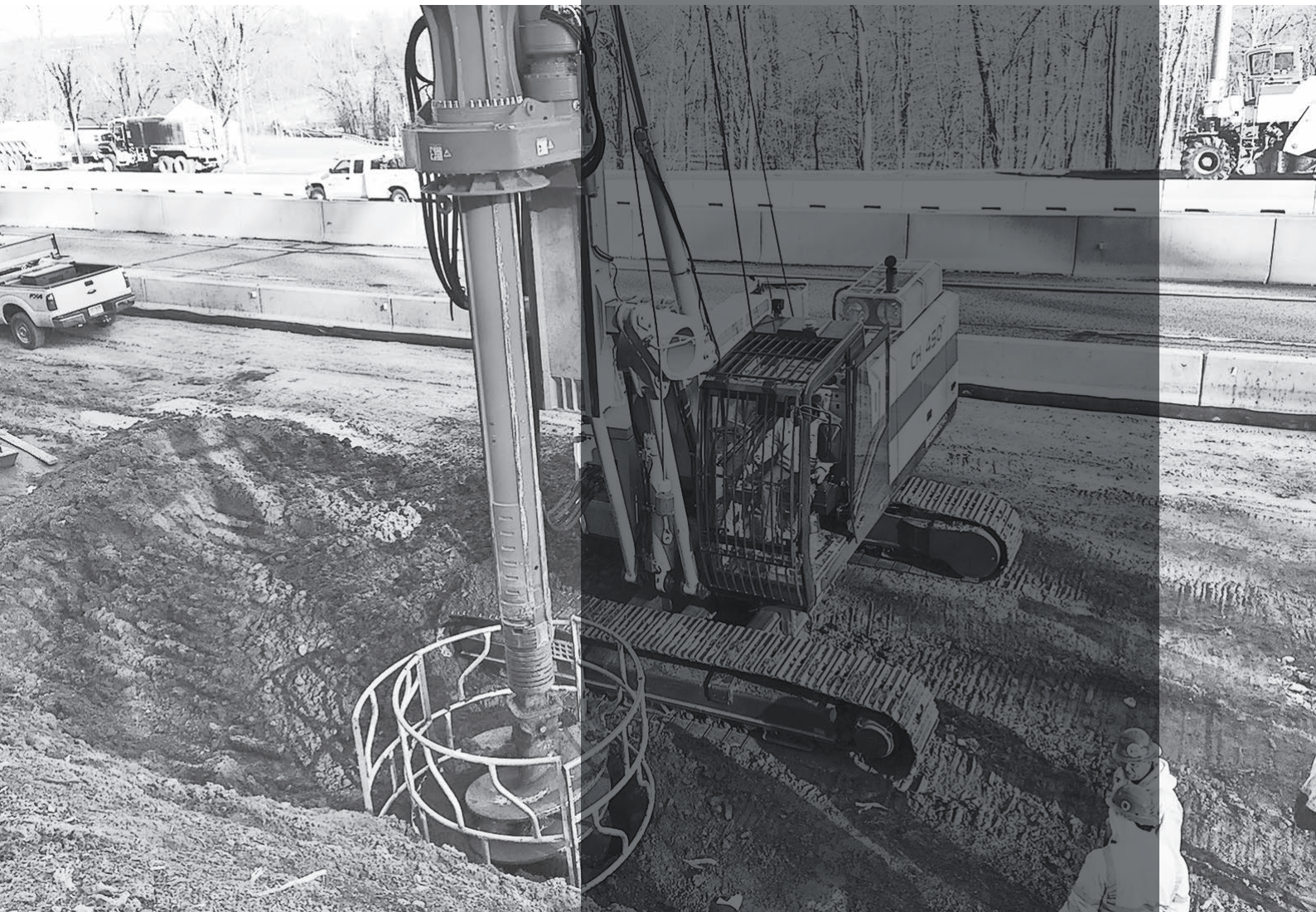


CH 450



High Tech Line



Self-Erecting Hydraulic Piling Rig

CH 450

The **Comacchio** self-erecting rigs are available in **CPD** (Cylinder Pull Down) and **WPD** (Winch Pull Down) 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) special short mast arrangement suitable for 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' full touch screen for monitoring and control of the rig performances and operating parameters.



CH 450



Technical Data

Undercarriage	
Type	Variable gauge, telescoping side frames
Removable tracks	No
Track shoe width	600 mm / 23" ⁵ / ₈
Track shoe type	Triple grouser
Overall width (retracted side frames)	2550 mm / 8' 4" ¹ / ₂
Overall width (extended side frames)	4000 mm / 13' 1" ¹ / ₂
Overall length	4925 mm / 16' 2"
Centre idler to centre sprocket	4100 mm / 13' 5" ¹ / ₂
Upperframe	
Width	2550 mm / 8' 4" ¹ / ₂
Operators' cabin	TOPS & FOPS-1 certified, 980 mm (3' 3") wide
Control system type	CAN-BUS
Control system interface	12" Touch Screen
Tail swing radius	3865 mm / 12' 8"
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 (270 HP) / 2000 rpm
Displacement	6700 cc / 408 in ³
Fuel consumption rate (100% power, rated speed)	202 g/kWh - 0.332 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
Fuel tank	500 l / 135 gal
Sound pressure level in cabin (EN 16228-1, Annex B)	LP _A 79 dB (A)
Sound Power level (2000/14/EC - EN 16228-1, Annex B)	LW _A 107 dB (A)
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 (three options available)	355 - 368 - 394 mm / 14" - 14" ¹ / ₂ - 16"
Max length (self-mounting) CPD - WPD	12.5 - 13.5 m / 41" - 44' 3"
Main winch	
Type	Controlled descent
1 st layer line pull	160 kN / 35,970 lbs
1 st layer rope speed	75 m/min / 246 ft/min
Rope diameter	24 mm / ¹⁵ / ₁₆ "
Rope layers	2
Useful rope length with 1 / 2 / .. full layers	38 - 84 m / 124' 8" - 275' 7"
FEM classification	M6 - L3 - T5

Service winch		
Type	Controlled descent	Free fall
1 st layer line pull	72 kN / 16,200 lbs	
1 st layer rope speed	55 m/min / 180' 5" ft/min	49 m/min / 161 ft/min
Rope diameter	18 mm / 11/16"	
Rope layers	3	4
Useful rope length with 1 / 2 / .. full layers	17 - 39 - 62 m 56' - 128' - 203'	13 - 31 - 51 - 73 m 42' 8" - 101' 8" - 167' 4" - 239' 6"
FEM classification	M5 - L2 - T5	M6 - L3 - T5
Bored Piles (BP)		
Drilling radius min - max	3005 - 3800 mm / 9' 10" - 12' 6"	
Max pile diameter, CPD (Cylinder pull down)	1500 - 2000 mm / 4' 11" - 6' 7" ⁽¹⁾	
Max pile diameter, WPD (Winch pull down)	1300 - 2000 mm / 4' 3" - 6' 7" ⁽²⁾	
Max pile depth friction kelly CPD - WPD	56.6 - 62.9 m / 185' 8" - 206' 4" ⁽³⁾	
Max pile depth locking kelly CPD - WPD	45.1 - 50.4 m / 148' - 165' 4" ⁽³⁾	
Operating weight w/o tool, CPD	43100 kg / 95,000 lbs ⁽⁴⁾	
Operating weight w/o tool, WPD	44800 kg / 98,800 lbs ⁽⁴⁾	

Notes

- (1) tool in front of mast - below mast
- (2) with - without bottom mast element
- (3) using self-mounting kelly bar
- (4) c/w 4x29' 6" long 14" 1/2 dia. Kelly bar; rotary c/w bucket opening flange



CH 450

Options and Accessories

Standard equipment

Main winch with special grooving

Hoist limit switch on main rope and service rope

Swivel for main rope

Service rope parking point

Mast inclination measurement on X & Y axes (digital and analog display)

Automatic vertical mast alignment

Depth measuring device on main winch

Rpm measuring device on rotary

Crowd pressure setting

Oscillator attachment brackets

Air conditioning system

Emergency mode of operation for engine

Engine diagnostic panel

Diagnostic panel for hydraulic, electrical and electronic functions

Transport securing lugs on crawler unit

On board lighting set

Electric refuelling pump and hydraulic oil refilling

Front and top cabin protective grate

Radio and music player C/W bluetooth

Phone charger

CCS Comacchio Controlling System

Spinoff and Shaker tool dump systems

Rotary auto speed management & interactive multiple gear

Optional equipment

Biodegradable oil

Freefall auxiliary winch

Central lubrication system

Swivel for auxiliary rope

Main and aux winch load cell

Videocamera set

Vibrator device

Washing kit

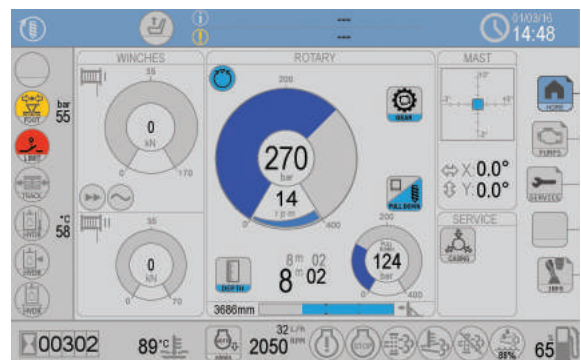
Kelly Bars

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

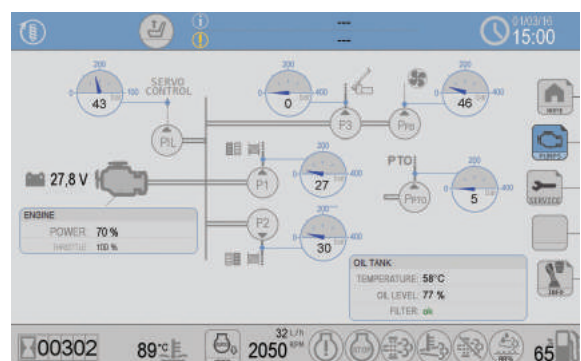


Kelly bar sizes	Outer diameter
L (light)	355 mm / 14"
HD (Heavy Duty)	368 mm / 14 1/2"
XHD (Extra Heavy Duty)	394 mm / 15 1/2"

CCS Comacchio Controlling System



CCS: Home page

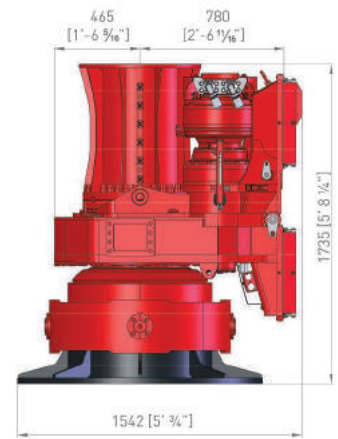
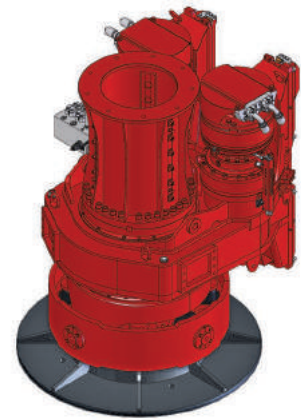
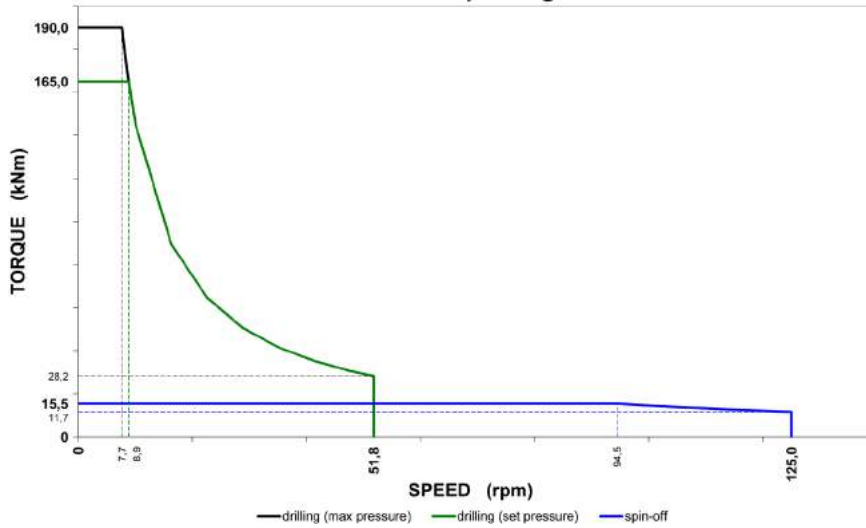


CCS: Pumps page

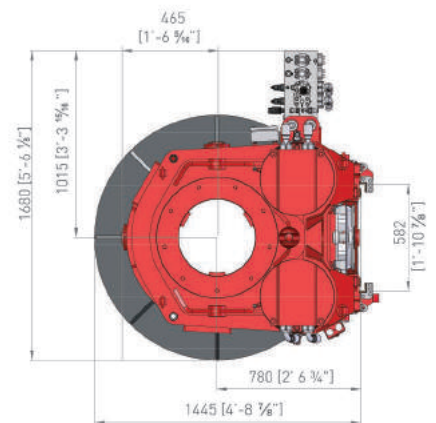
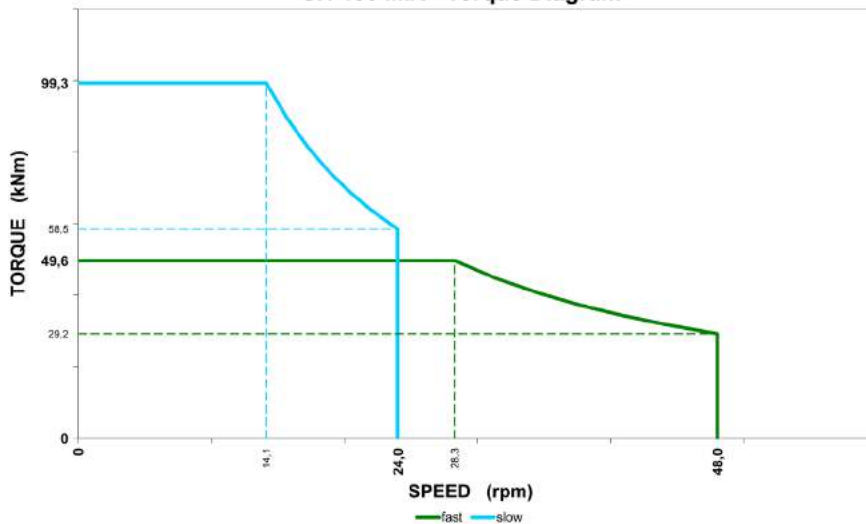
Rotary Head

Overall dimensions

CH 450 - Torque Diagram



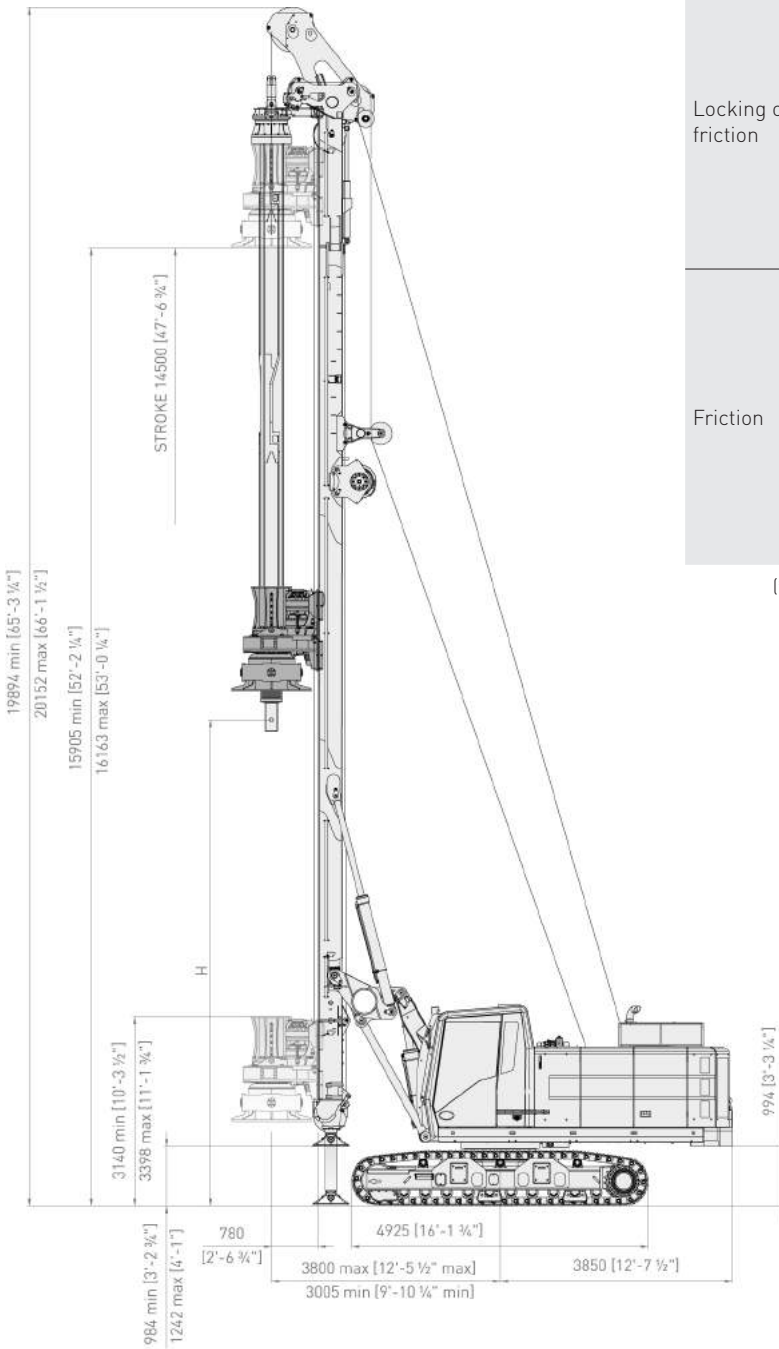
CH 450 MIX - Torque Diagram



Rotary table	
Nominal max torque	190 kNm / 140000 lbf-ft at 33 MPa / 4800 psi
Max torque	165 kNm at 28,5 MPa
Max drilling speed	51 rpm
Hydraulic power	155 kW / 208 HP
Spin-off speed	125 rpm
Replaceable drive sleeve	Yes
Replaceable drive keys	Yes

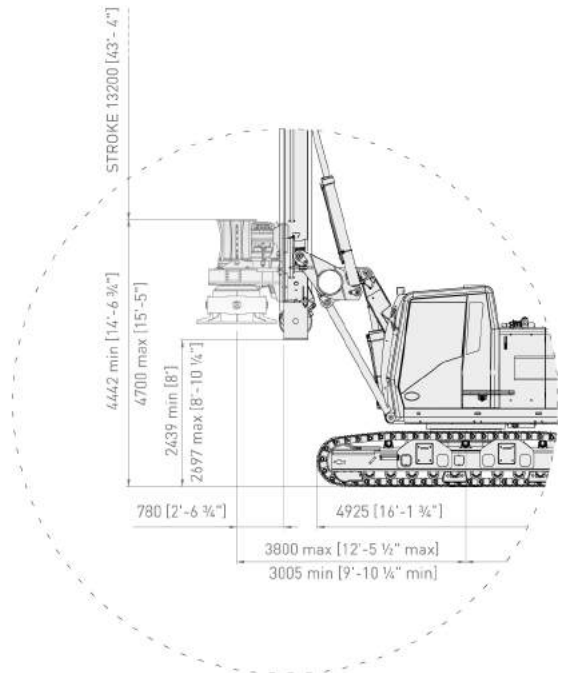
CH 450 - WPD

Overall dimensions



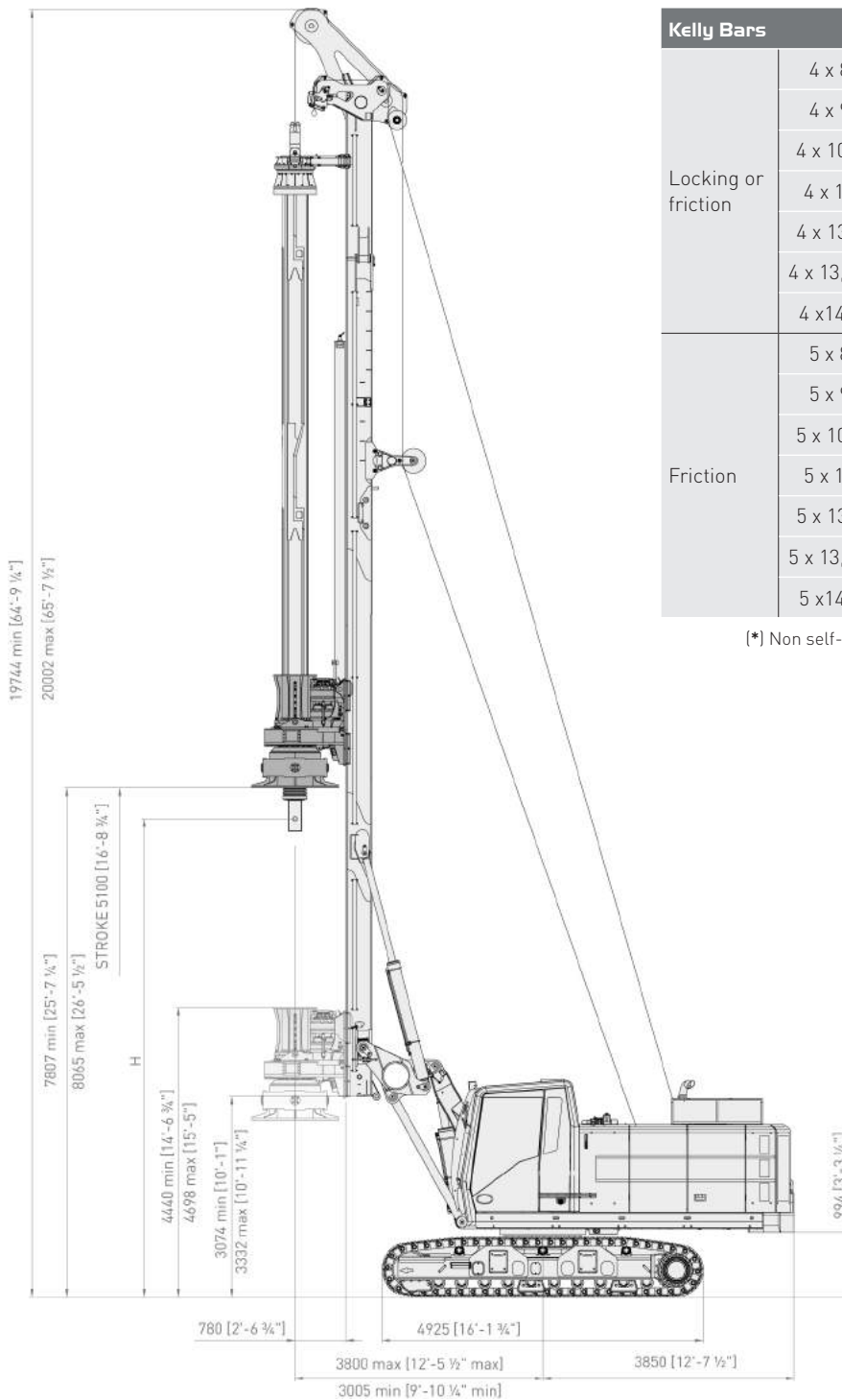
Kelly Bars	Depth (m)	H (m)	Depth (ft-in)	H (ft-in)	
Locking or friction	4 x 8	28,40	9,05	93' 2"	29' 8"
	4 x 9	32,40	8,05	106' 3"	26' 4"
	4 x 10,5	38,40	6,55	125' 11"	21' 5"
	4 x 12	44,40	5,05	145' 8"	16' 6"
	4 x 13	48,40	4,05	158' 9"	13' 3"
	4 x 13,5	50,40	3,55	165' 4"	11' 7"
4 x 14 *	52,40	3,05	171' 10"	10' 0"	
Friction	5 x 8	35,40	9,05	116' 1"	29' 8"
	5 x 9	40,40	8,05	132' 6"	26' 4"
	5 x 10,5	47,90	6,55	157' 1"	21' 5"
	5 x 12	55,40	5,05	181' 9"	16' 6"
	5 x 13	60,40	4,05	198' 1"	13' 3"
	5 x 13,5	62,90	3,55	206' 4"	11' 7"
5 x 14 *	65,40	3,05	214' 6"	10' 0"	

(*) Non self-mounting / (H) Max height of bottom kelly pin above ground



WPD (Winch Pull Down)	
Stroke c/w mast foot	14500 mm / 47' 7"
Stroke c/w lower reeving box	13200 mm / 43' 4"
Max pull up force	240 kN / 53,950 lbs
Max pull down force	240 kN / 53,950 lbs
Max pull down force on kelly	140 kN / 31,470 lbs
Speed up	36 m/min / 118 ft/min
Speed down	36 m/min / 118 ft/min

Overall dimensions



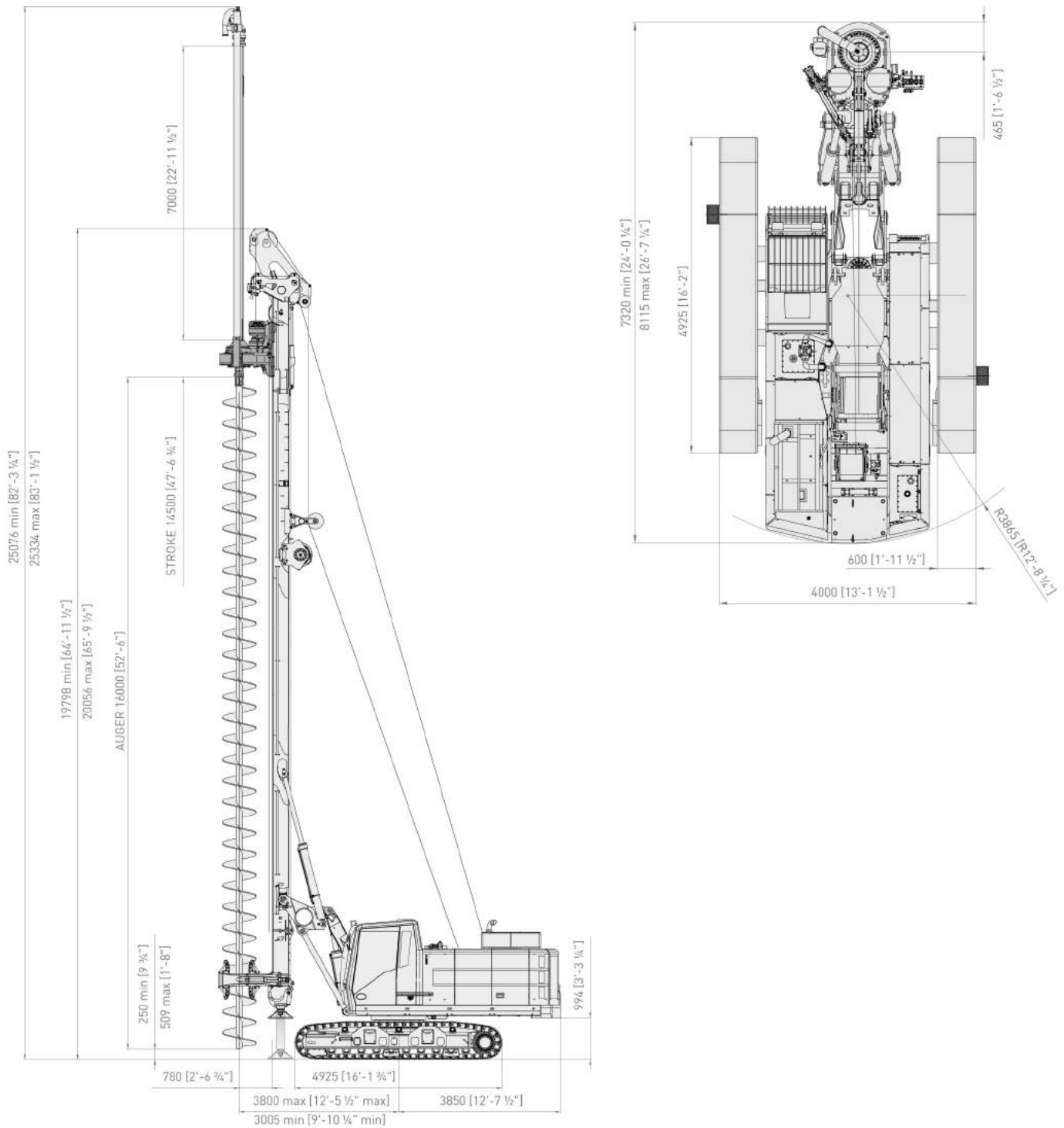
Kelly Bars	Depth (m)	H (m)	Depth (ft-in)	H (ft-in)	
Locking or friction	4 x 8	27,10	7,30	88' 10"	23' 11"
	4 x 9	31,10	7,30	102' 0"	23' 11"
	4 x 10,5	37,10	6,55	121' 8"	21' 5"
	4 x 12	43,10	5,05	141' 4"	16' 6"
	4 x 13 *	47,10	4,05	154' 6"	13' 3"
	4 x 13,5 *	49,10	3,55	161' 1"	11' 7"
4 x 14 *	51,10	3,05	167' 7"	10' 0"	
Friction	5 x 8	34,10	7,30	111' 10"	23' 11"
	5 x 9	39,10	7,30	128' 3"	23' 11"
	5 x 10,5	46,60	6,55	152' 10"	21' 5"
	5 x 12	54,10	5,05	177' 5"	16' 6"
	5 x 13 *	59,10	4,05	193' 10"	13' 3"
	5 x 13,5 *	61,60	3,55	202' 1"	11' 7"
5 x 14 *	64,10	3,05	210' 3"	10' 0"	

(*) Non self-mounting / (H) Max height of bottom kelly pin above ground

CPD (Cylinder Pull Down)	
Stroke	5100 mm / 16' 9" ft
Max pull up force	226 kN / 50,800 lbs
Max pull down force	141 kN / 31,700 lbs
Max pull down force on kelly	141 kN / 31,700 lbs
Speed up	21 m/min / 68' 11" ft/min
Speed down	20 m/min / 65' 7" ft/min

CH 450 - CFA/WPD

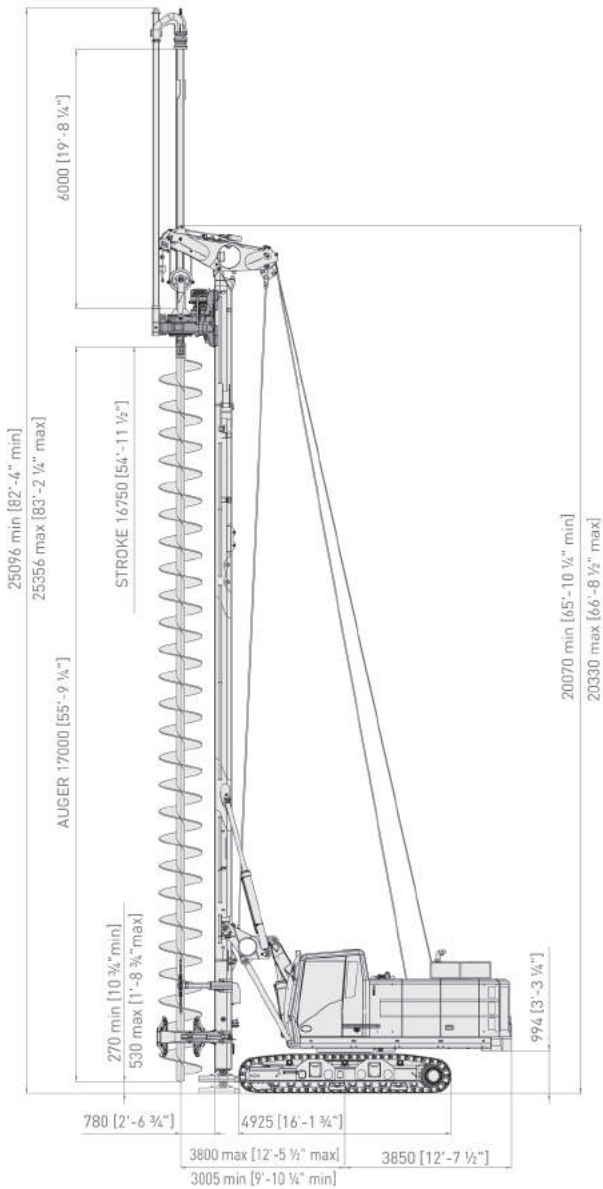
Overall dimensions



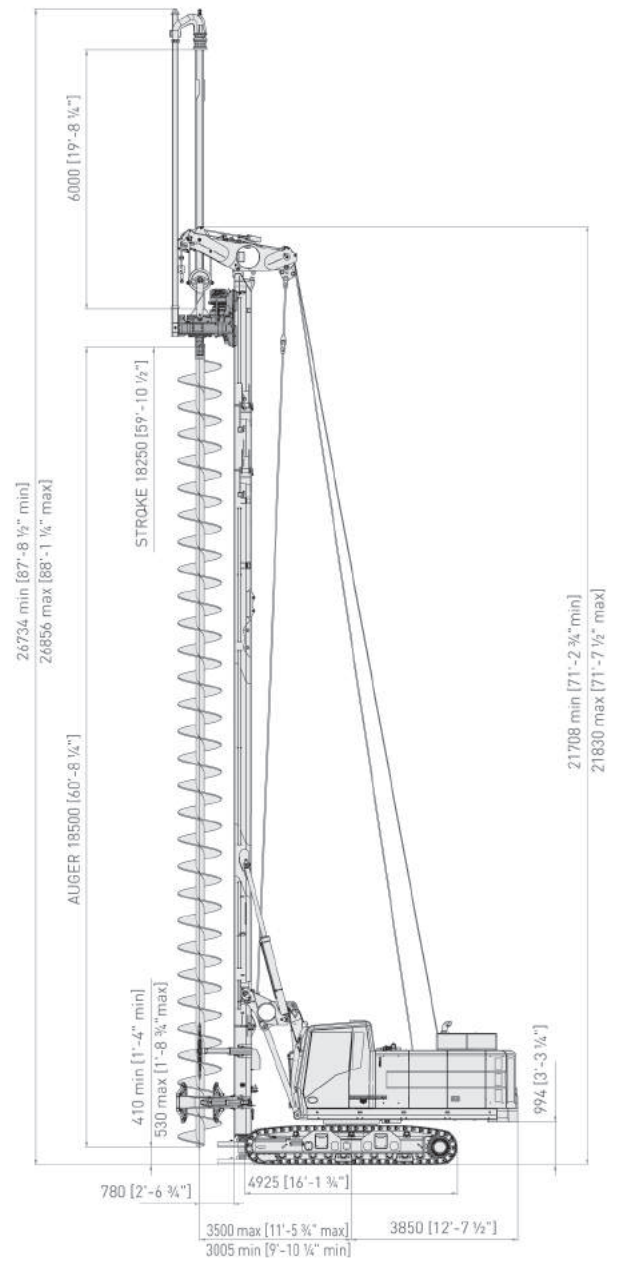
CFA/WPD (Quick Conversion CFA)

Max pile diameter	1000 mm / 3' 3"
Max length of augers	16 m / 50' 10"
Max length of auger extension	7 m / 23'
Max pile depth	14 + 7 = 21 m / 46' + 23' = 69'
Extraction force	330 kN / 74,200 lbs
Crowd force on auger	140 kN / 31,470 lbs

T4



T4 XL



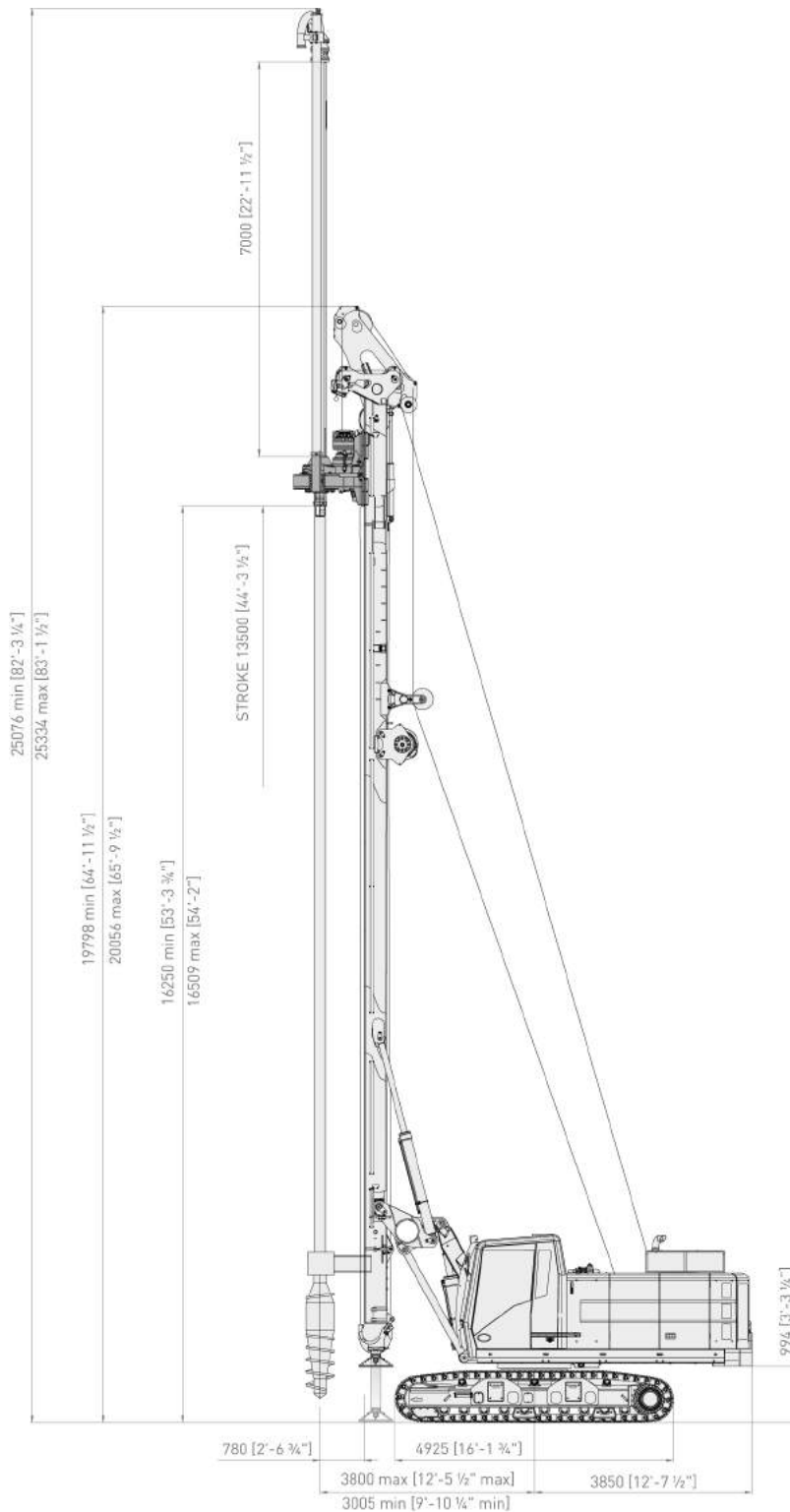
CFA (Continuous Flight Auger)	T4	T4 XL
Max pile diameter	1.000 mm / 3' 3"	
Max length of augers	17 m / 55' 9"	18.5 m / 60' 8"
Max length of auger extension	6,0 m / 19' 8"	
Max pile depth	16.5 + 6 = 22.5 m 54' 2" + 19' 8" = 73' 10"	18 + 6 = 24 m 59' 1" + 19' 8" = 78' 9"
Extraction force	480 kN / 107,900 lbs	
Crowd force on auger (option)	100 kN / 22,480 lbs ⁽⁵⁾	

Notes

(5) depth reduced by 1.0 m (3' 3 1/2")

CH 450 - DP

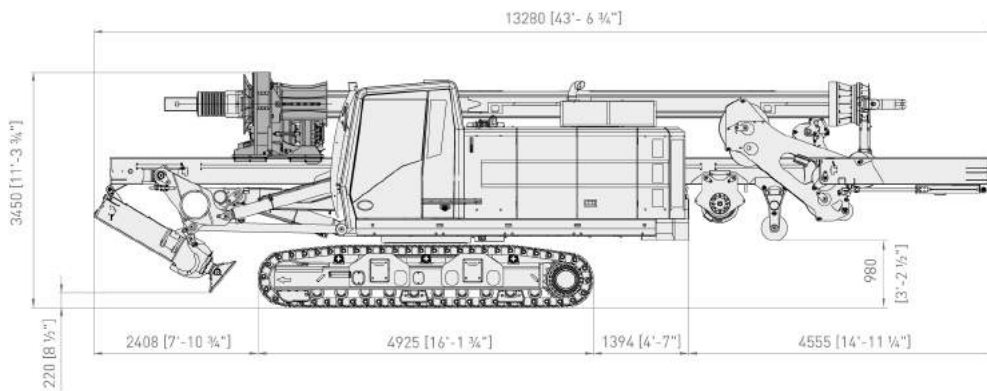
Overall dimensions



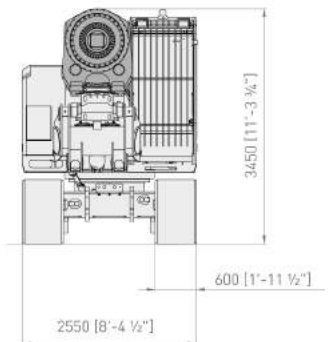
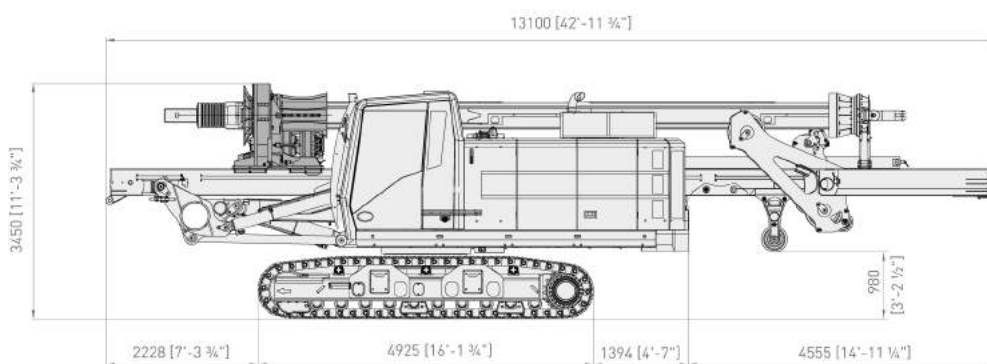
DP (Displacement Piles)

Max diameter	350 mm / 14"
Max drill string length	16.0 m / 52' 6"
Max length of string extension	7 m / 23'
Max depth	13 + 7 = 20 m / 42' 8" + 23' = 65' 8"
Max pull down force	140 kN / 31,470 lb

WPD



CPD



CFA T4



Weights and dimensions	
Transport width	2550 mm / 8' 4" 1/2
Transport height	3450 mm / 11' 4"
Transport length CPD - WPD	13100 - 13280 mm / 43' - 43' 7" ⁽⁶⁾
Transport weight CPD	43100 kg / 95,000 lbs ⁽⁴⁾
Transport weight WPD	44800 kg / 98,800 lbs ⁽⁴⁾

Notes CPD and WPD

⁽⁶⁾ Kelly <11 m [36' 1"]

⁽⁷⁾ 14764 [48' - 5" 1/4] CFA T4 XL





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