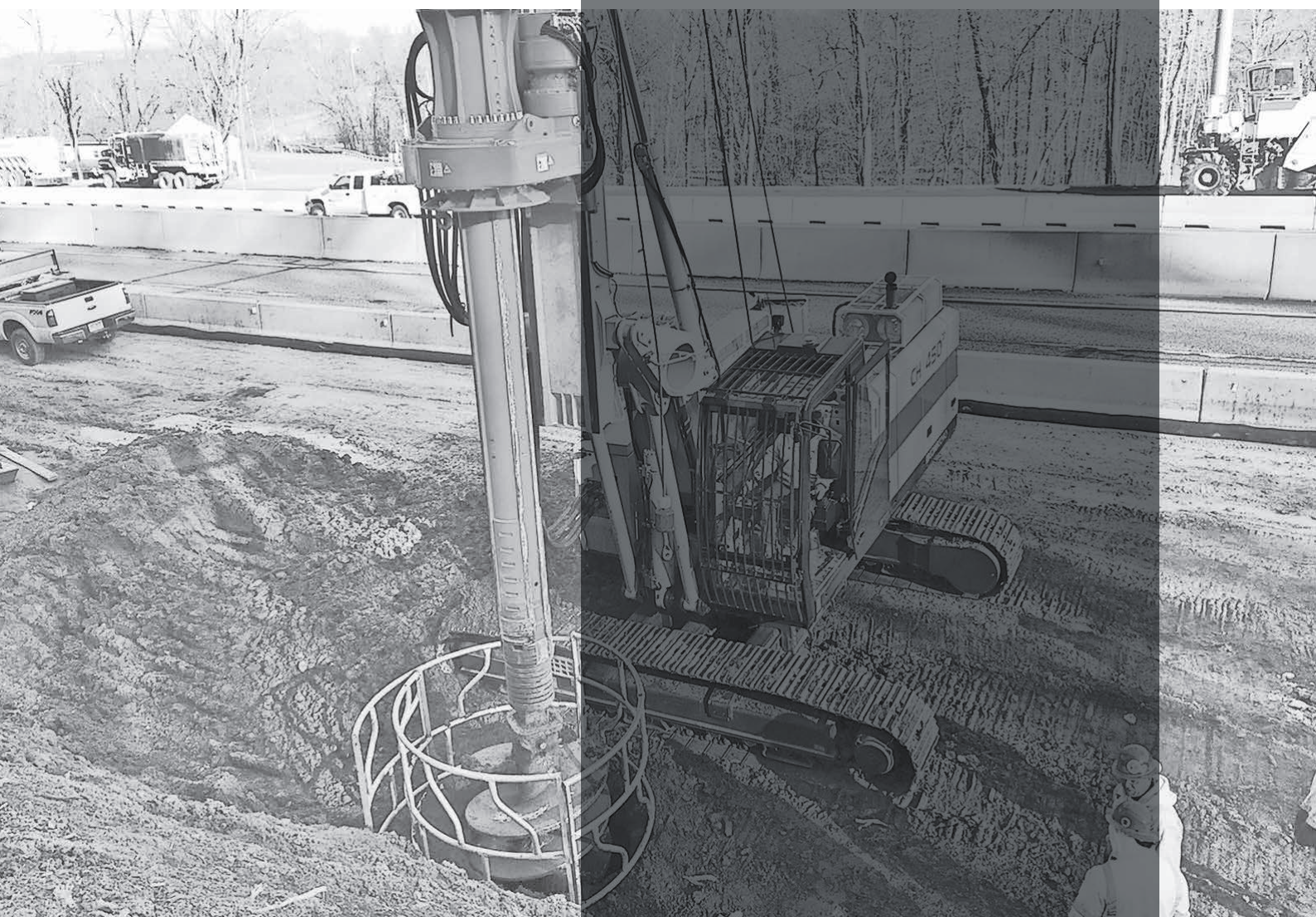


CH 450



High Tech Line

MULTIPURPOSE HYDRAULIC RIGS FOR DIFFERENT DRILLING TECHNOLOGIES.

The winning solution for job sites that require fast operating times.

Truly self-erecting. The machine is totally self-erecting, and can be transported in one piece with the kelly mounted. Once in place, the machine is easily downloaded from the truck and set up without the need for crane service. Lifting of the mast takes a few minutes and can be performed in complete safety.

Wide range of drilling methods. The CH 450 is designed to cover a wide range of methods that include bored piles, continuous flight auger (CFA piles), micropiles, displacement piles and soil mixing. The machine can be supplied in the CPD (cylinder pulldown), WPD (winch pulldown), LHR (low head room) versions and can be equipped with kelly bars with a maximum length of 12,5 to 13,5 m (CPD-WPD) and with different outer diameters, including HD (heavy duty) and XHD (extra heavy duty) bars.

BP (Bored Piles) deep uncased bored piles stabilized by drilling fluid or dry hole;

CBP (Cased Bored Piles) cased bored piles with casing driven directly by rotary head or optionally by casing oscillator powered by the base carrier;

CFA (Continuous Flight Auger) piles by means of long auger string;

DP (Displacement Piles);

SM (Soil Mixing);

LDTH (Large DTH);

MP (Micropiles).





Technical Data

Undercarriage		
Type	Variable gauge, telescoping side frames	
Removable tracks	No	
Track shoe width	600 mm / 23" ⁵ / ₈	800 mm / 31" ¹ / ₂
Track shoe type	Triple grouser	
Overall width (retracted side frames)	2.550 mm / 8' 4" ¹ / ₂	2.950 mm / 9' 8" ¹ / ₄
Overall width (extended side frames)	4.000 mm / 13' 1" ¹ / ₂	4.200 mm / 13' 9" ¹ / ₄
Overall length	4.925 mm / 16' 2"	
Centre idler to centre sprocket	4.100 mm / 13' 5" ¹ / ₂	
Upperframe		
Width	2.550 mm / 8' 4" ¹ / ₂	
Operators' cabin	TOPS & FOPS-1 certified, 980 mm (3' 3") wide	
Control system type	CAN-BUS	
User interface	12" Touch Screen	
Tail swing radius	3.865 mm / 12' 8"	
Diesel engine	High Tech Line	
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) / 2.000 rpm	
Displacement	6.700 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 82 dB (A)	
Sound Power level (2000/14/EC - EN 16228-1, Annex B)	LW _A 108 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 - 15" ¹ / ₂	
Max length (self-mounting) CPD - WPD	12,5 - 13,5 m / 41' - 44' 3"	
Max pull down force	200 kN / 45,000 lbs ⁽¹⁾	
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 / $\frac{11}{16}$ "	
Rope layers	3	4
Useful rope length with 1 / 2 / 3 / 4 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	3.005 - 3.800 mm / 9' 10" - 12' 6"	
Max pile diameter, CPD (Cylinder pull down)	1.500 / 1.800 ^[2] - 2.000 mm / 4' 11" / 5' 11" ^[2] - 6' 7" ^[3]	
Max pile diameter, WPD (Winch pull down)	1.300 - 2.000 mm / 4' 3" - 6' 7" ^[4]	
Max pile depth friction kelly CPD - WPD	56,6 - 62,9 m / 185' 8" - 206' 4" ^[5]	
Max pile depth locking kelly CPD - WPD	45,1 - 50,4 m / 148' - 165' 4" ^[5]	
Operating weight w/o tool, CPD	40.100 / 41.300 ^[2] - 43.100 kg / 88,400 / 91,050 ^[2] - 95,000 lbs ^[6]	
Operating weight w/o tool, WPD	44.800 kg / 98,800 lbs ^[6]	

Notes

[1] 368 mm (14" $\frac{1}{2}$) Kelly bar, locking type

[2] LHR version

[3] tool in front of mast - below mast

[4] with - without bottom mast element

[5] using self-mounting kelly bar

[6] c/w 4 x 9 m (4 x 29'6") long 368 mm (14" $\frac{1}{2}$) 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 (FOPS-1 certified)

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

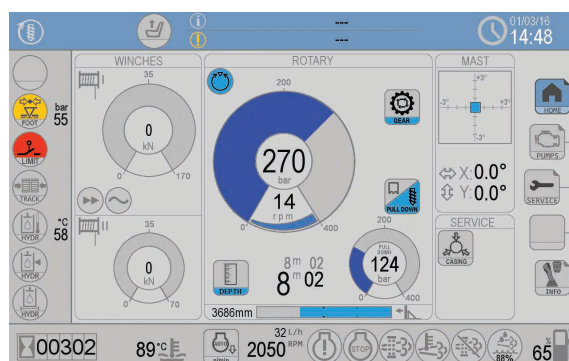
Kelly Bars

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

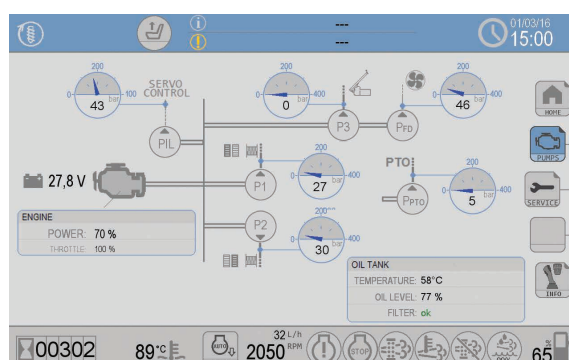


Kelly bar sizes	Outer diameter
L (light)	355 mm / 14"
HD (Heavy Duty)	368 mm / 14 1/2"
XHD (Extra Heavy Duty)	394 mm / 15 1/2"

CCS Comacchio Controlling System



CCS: Home page



CCS: Pumps page

Optional equipment

Removable tracks

Biodegradable oil

Freefall auxiliary winch

Central lubrication system

Swivel for auxiliary rope

Main and aux winch load cell

Videocamera set

Vibrator device

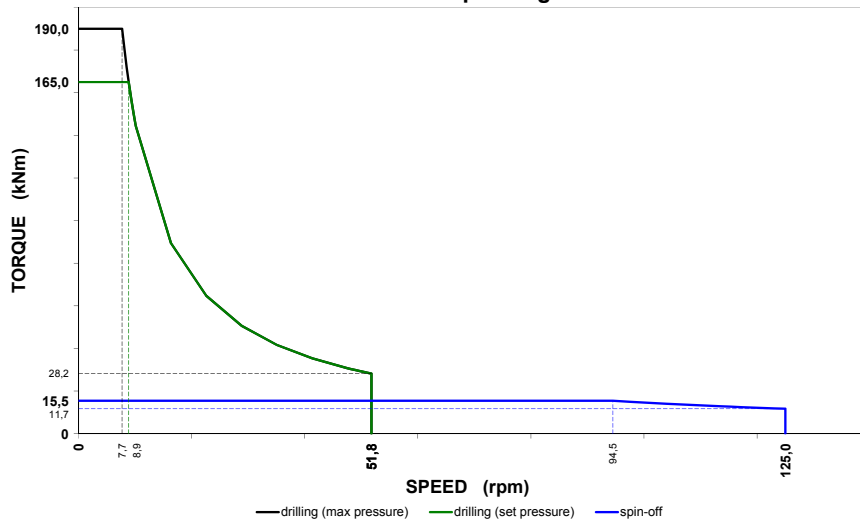
Washing kit

Welding equipment & generator

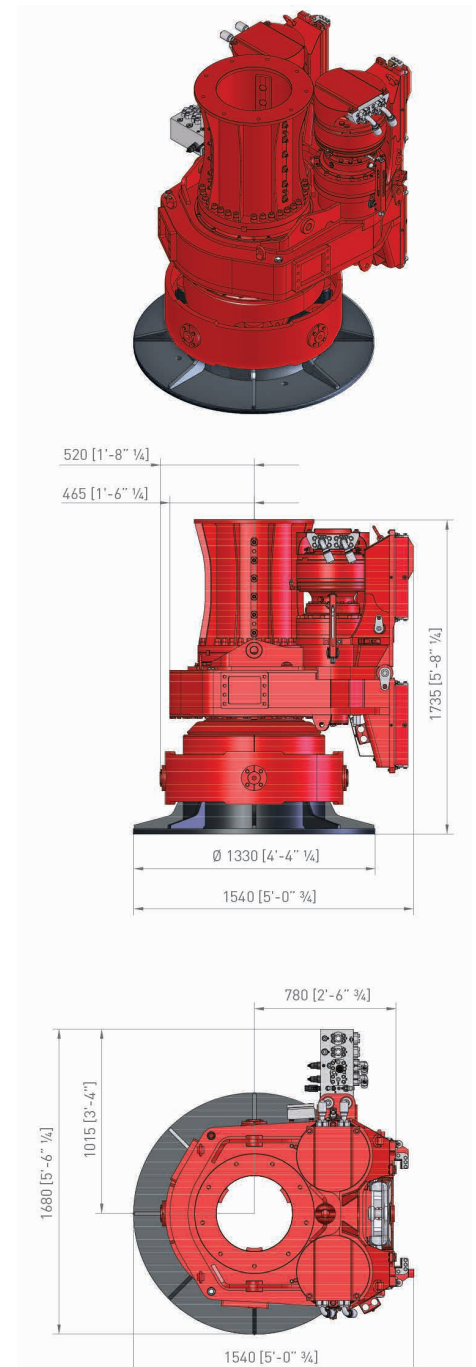
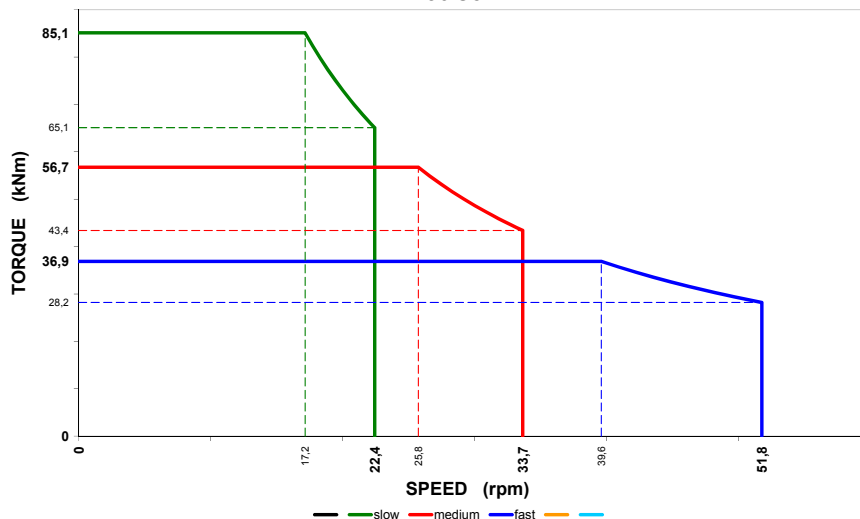
Rotary Head

Overall dimensions

CH 450 - Torque Diagram



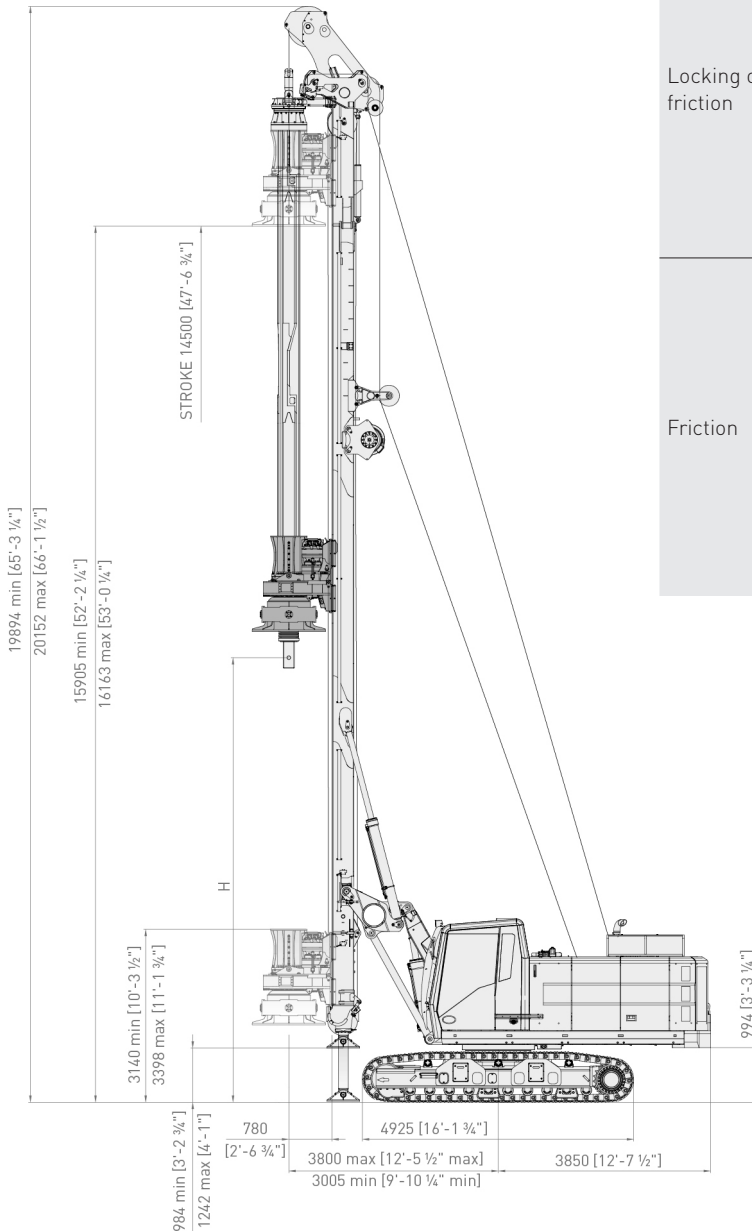
CH 450 soil mix



Rotary table	
Nominal max torque	190 kNm / 140,000 lbf-ft at 33 MPa / 4,800 psi
Max torque	165 kN / 121,700 lbf-ft at 28,5 MPa / 4,130 psi
Max drilling speed	51 rpm
Hydraulic power	155 kW / 208 HP
Spin-off speed	125 rpm
Replaceable drive sleeve	Yes
Replaceable drive keys	Yes

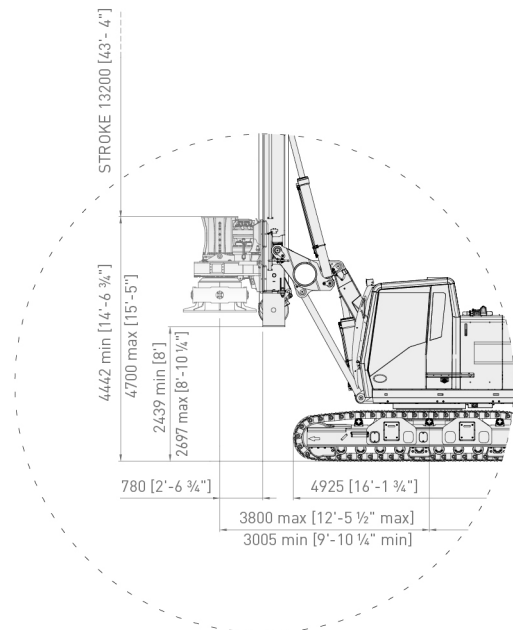
CH 450 - WPD

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 12,5	46,40	4,55	152' 2"	14' 11"
	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 12,5	57,90	4,55	189' 11"	14' 11"
	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



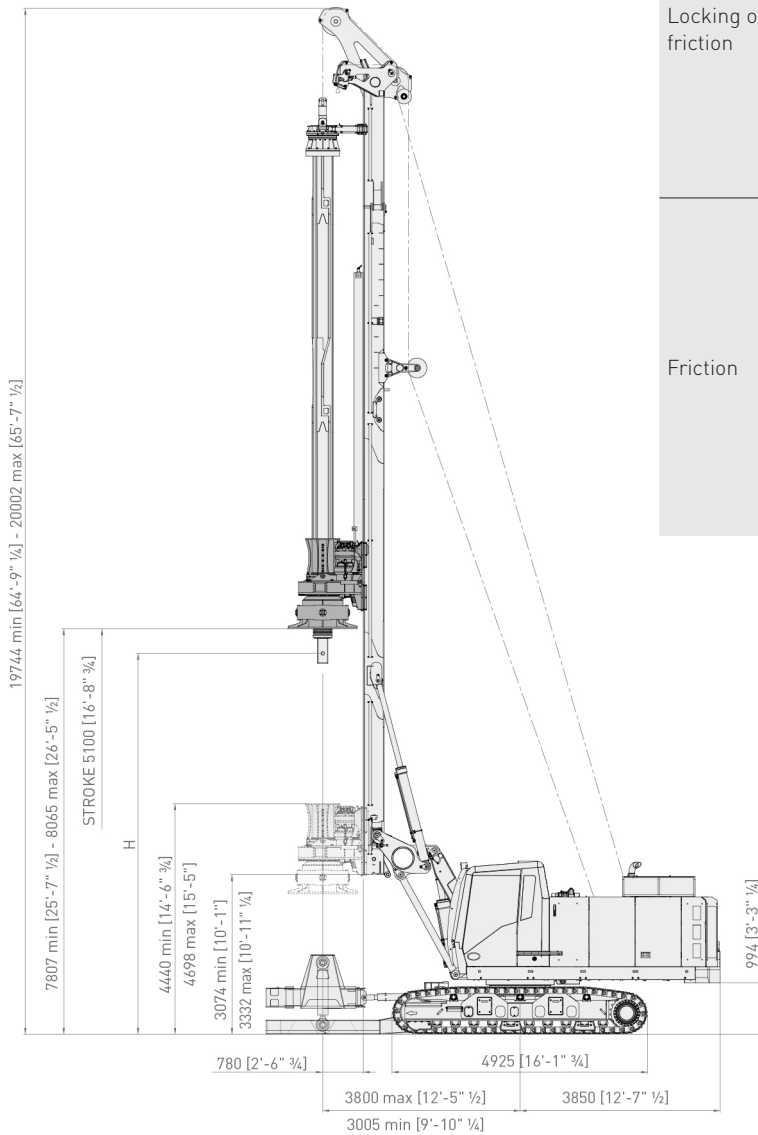
WPD (Winch Pull Down)	
Stroke c/w mast foot	14.500 mm / 47' 7"
Stroke c/w lower reeving box	13.200 mm / 43' 4"
Max pull up force	240 kN / 53,950 lbs
Max pull down force	240 kN / 53,950 lbs
Crowd Speed	36 m/min / 118 ft/min
Max pile diameter, WPD (Winch pull down)	1.300 - 2.000 mm / 4' 3" - 6' 7" ⁽⁴⁾

Notes

(4) with - without bottom mast element

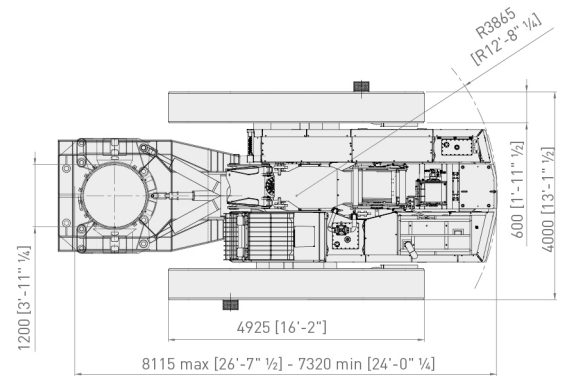
CH 450 - CPD

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 12,5	45,10	4,55	147' 11"	14' 11"
	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 12,5	56,60	4,55	185' 8"	14' 11"
	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	5.100 mm / 16' 9"
Max pull up force	226 kN / 50,800 lbs
Max pull down force	204 kN / 45,860 lbs
Crowd Speed	20 - 21 ^[7] m/min / 65' 7" - 68' 11" ^[7] ft/min
Max pile diameter, CPD (Cylinder pull down)	1.500 / 1.800 ^[2] - 2.000 mm / 4' 11" / 5' 11" ^[2] - 6' 7" ^[3]

Notes

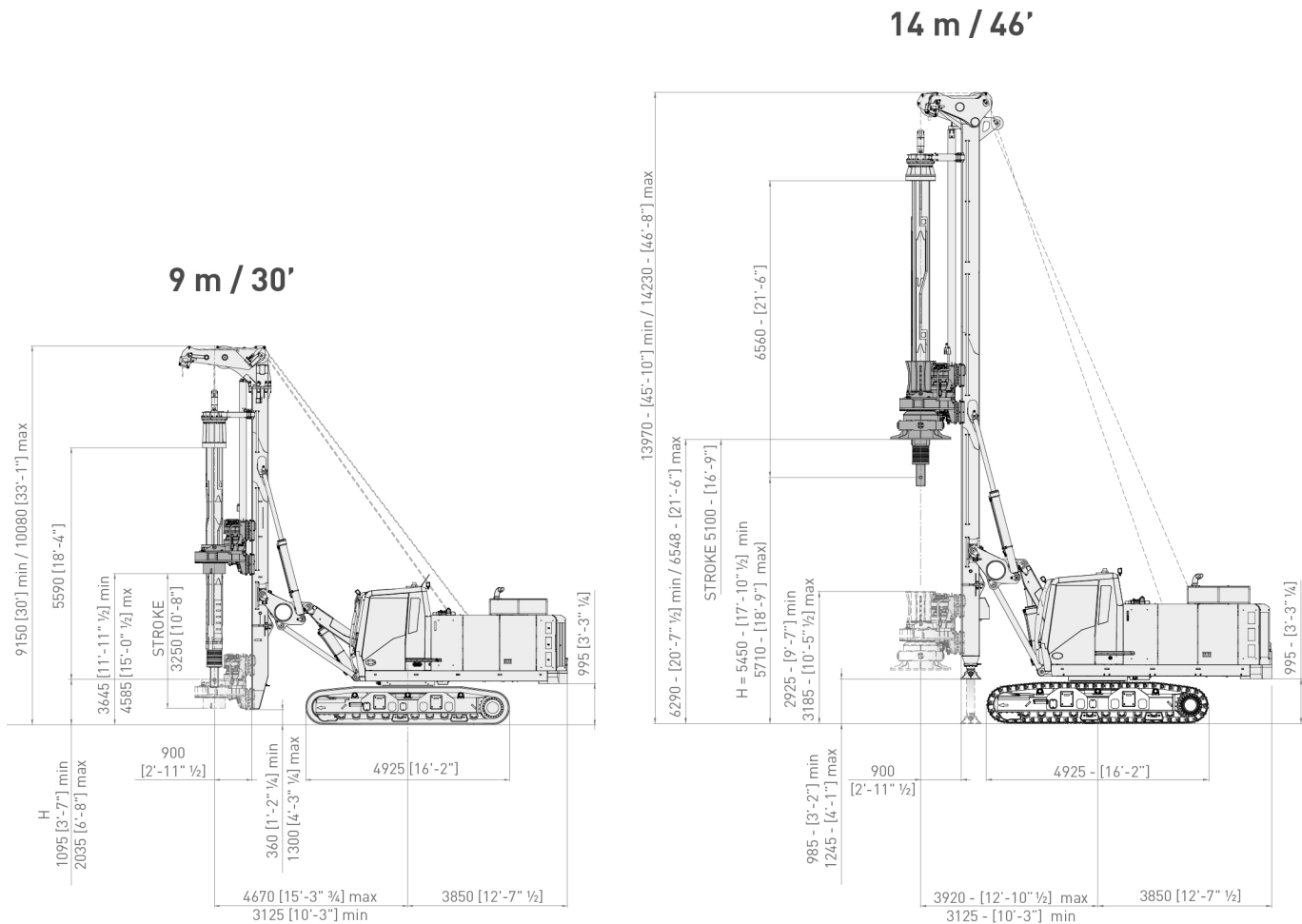
[2] LHR version

[3] tool in front of mast - below mast

[7] speed up

CH 450 - LHR

Overall dimensions



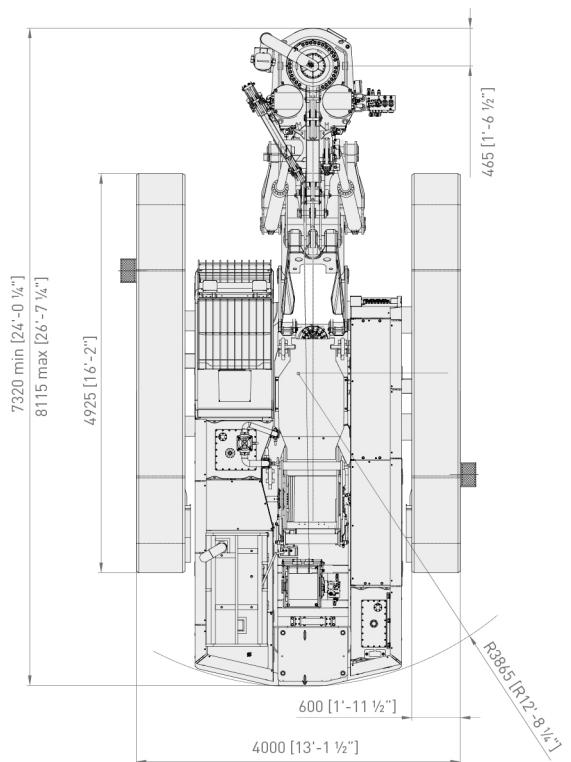
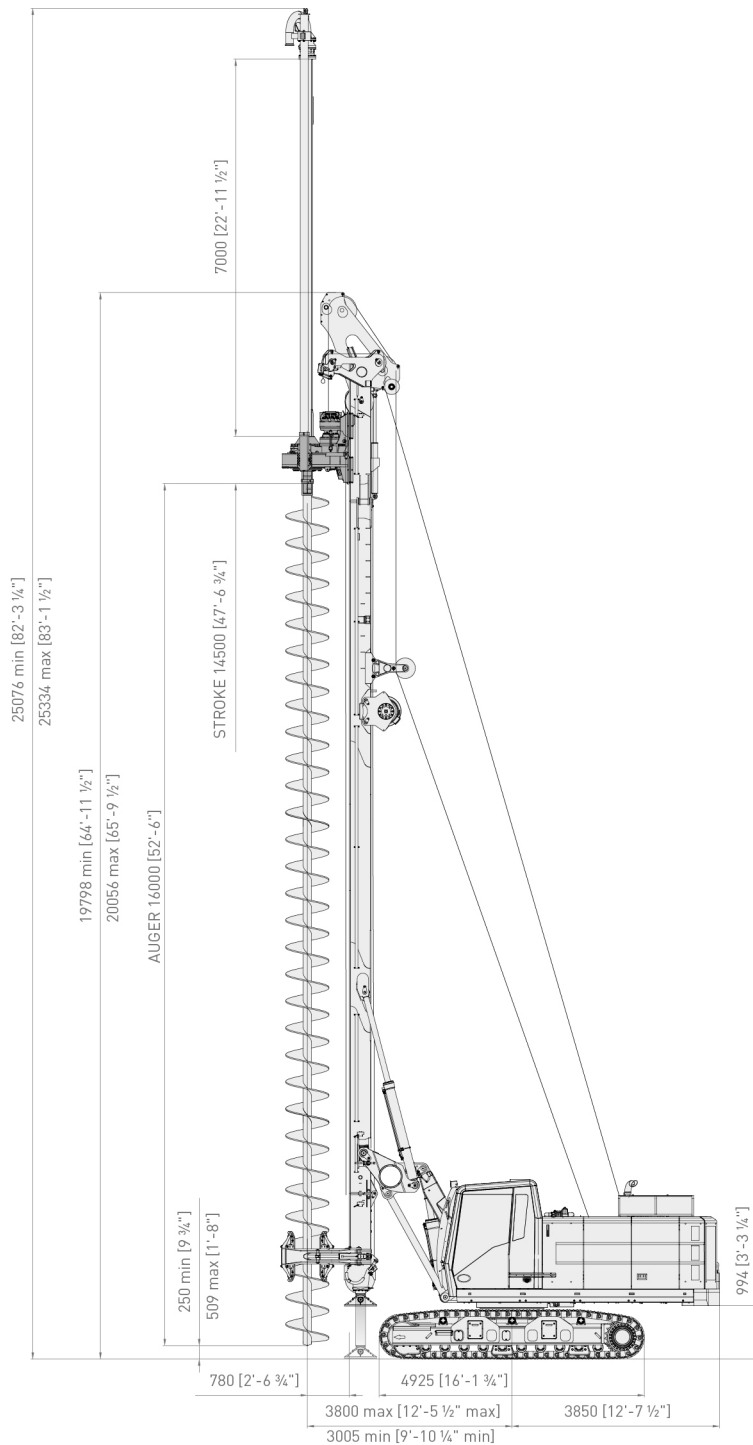
LHR (Low Head Room)	9 m / 30'	14 m / 46'
Min. height	9.150 mm / 30'	13.970 mm / 45' 10"
Max kelly bar length	5,5 m / 18'	8,0 m / 26' 3"
Pull down cylinder stroke	3,250 m / 10' 8"	5,10 m / 16' 9"
Max pile diameter	1.800 mm / 5' 11"	
Max pile depth c/w 4-element kelly bar	18,80 m / 61' 8" ^[8]	28,80 m / 94' 6" ^[9]
Max pile depth w/ 5x8.0 kelly	23,15 m / 75' 11" ^[8]	35,80 m / 117' 5" ^[9]

Note

[8] Tools height 1 m [3' 3"]

[9] Tools height 1,85 m [6' 11"]

Overall dimensions

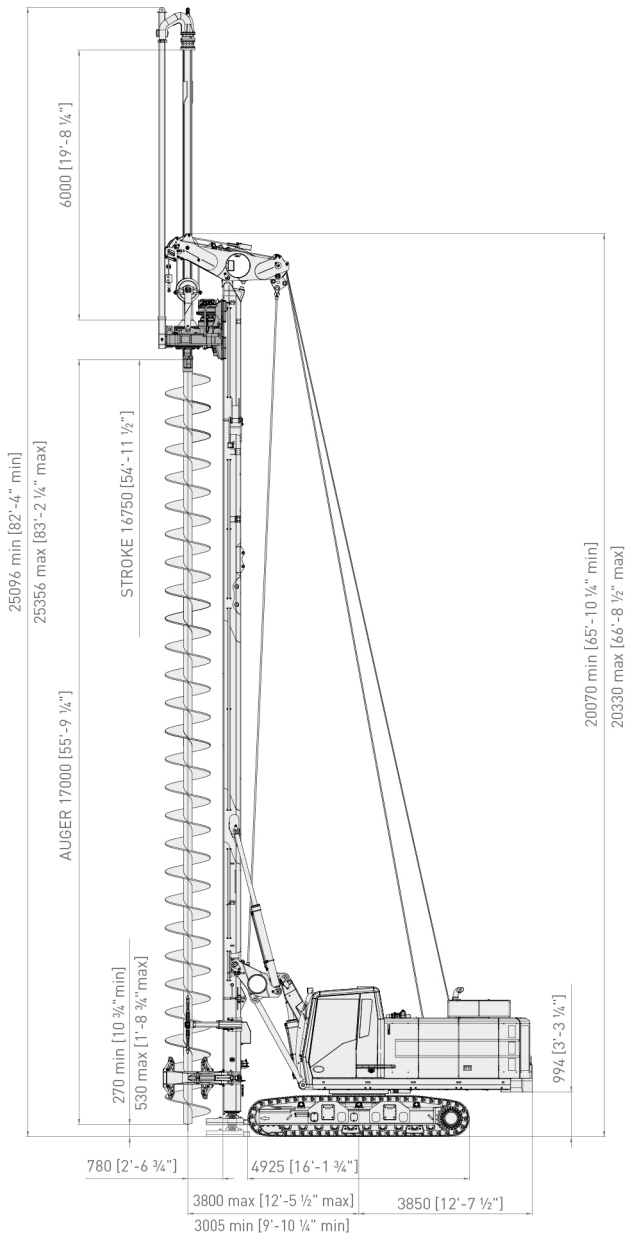


CFA/WPD (Quick Conversion CFA)	
Max pile diameter	1.000 mm / 3' 3"
Max length of augers	16 m / 52' 6"
Max length of auger extension	7 m / 23'
Max pile depth	14 + 7 = 21 m / 46' + 23' = 69'
Extraction force	330 kN / 74,200 lbs
Crowd force on auger	140 kN / 31,470 lbs

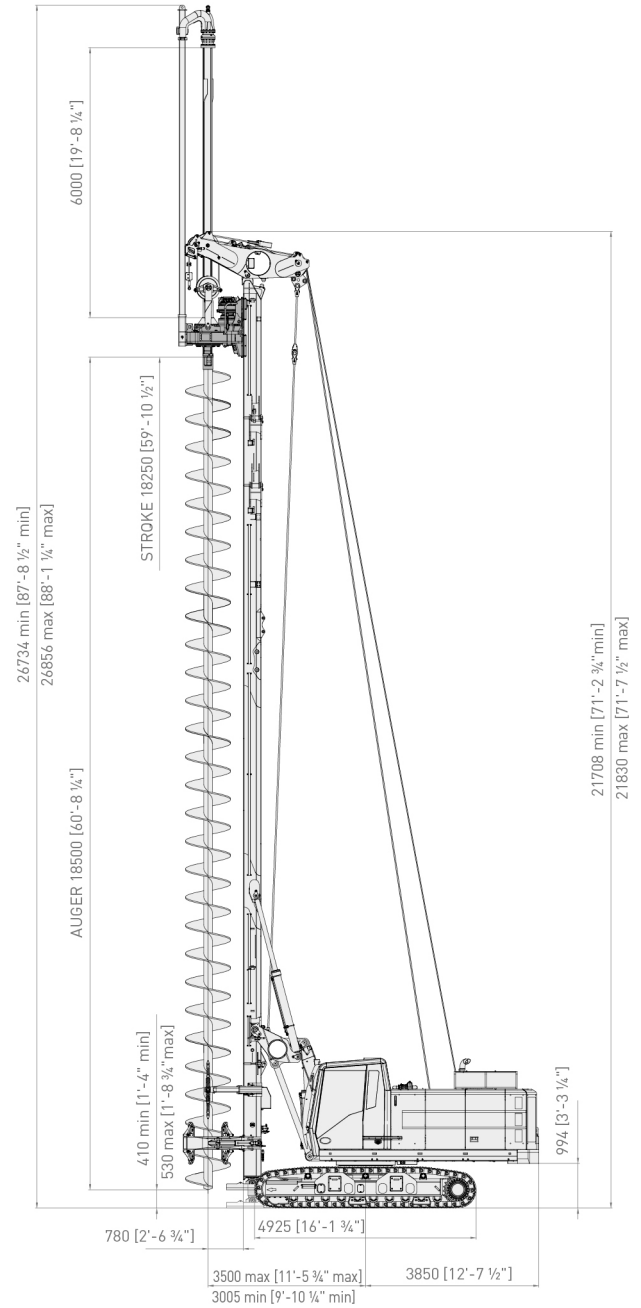
CH 450 - CFA

Overall dimensions

T4



T4 XL

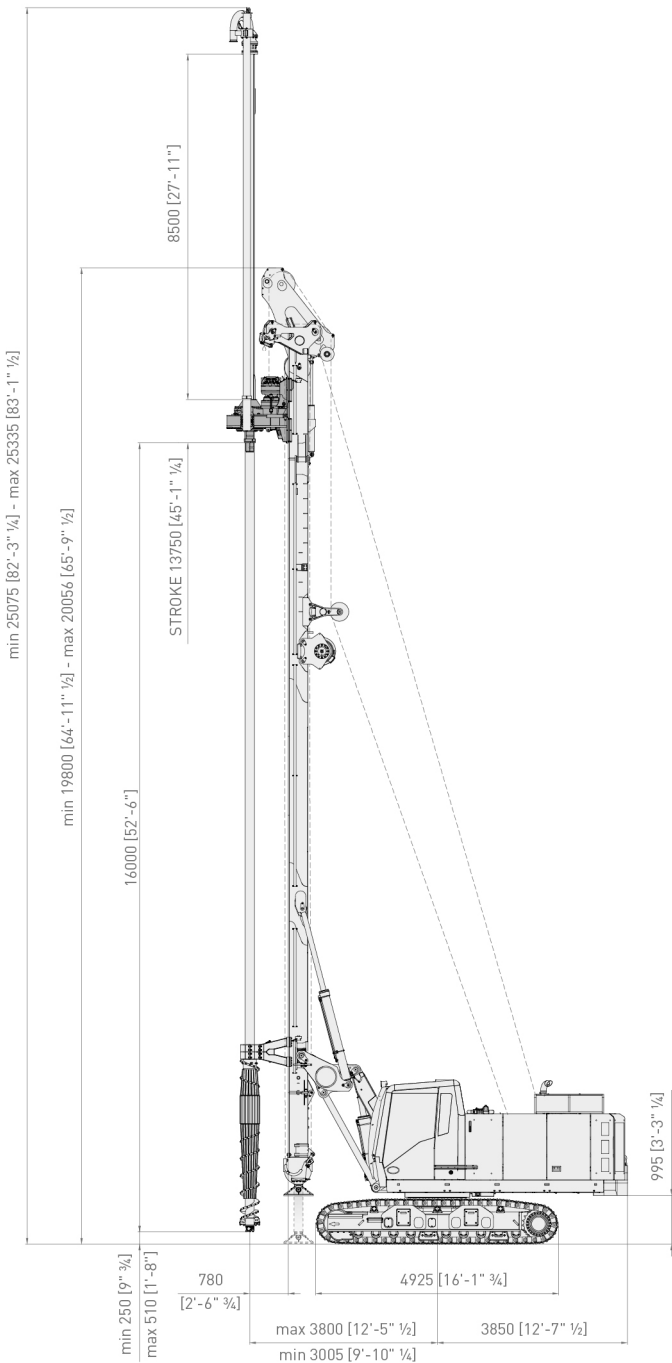


CFA (Continuous Flight Auger)	T4	T4 XL
Max pile diameter	1.000 mm / 3' 3"	
Max length of augers	17 m / 55' 9"	18,5 m / 60' 8"
Max length of auger extension	6 m / 19' 8"	
Max pile depth	16,5 + 6 = 22,5 m 54' 2" + 19' 8" = 73' 10"	18 + 6 = 24 m 59' 1" + 19' 8" = 78' 9"
Extraction force	480 kN / 107,900 lbs	
Crowd force on auger	45 kN / 10,200 lbs	

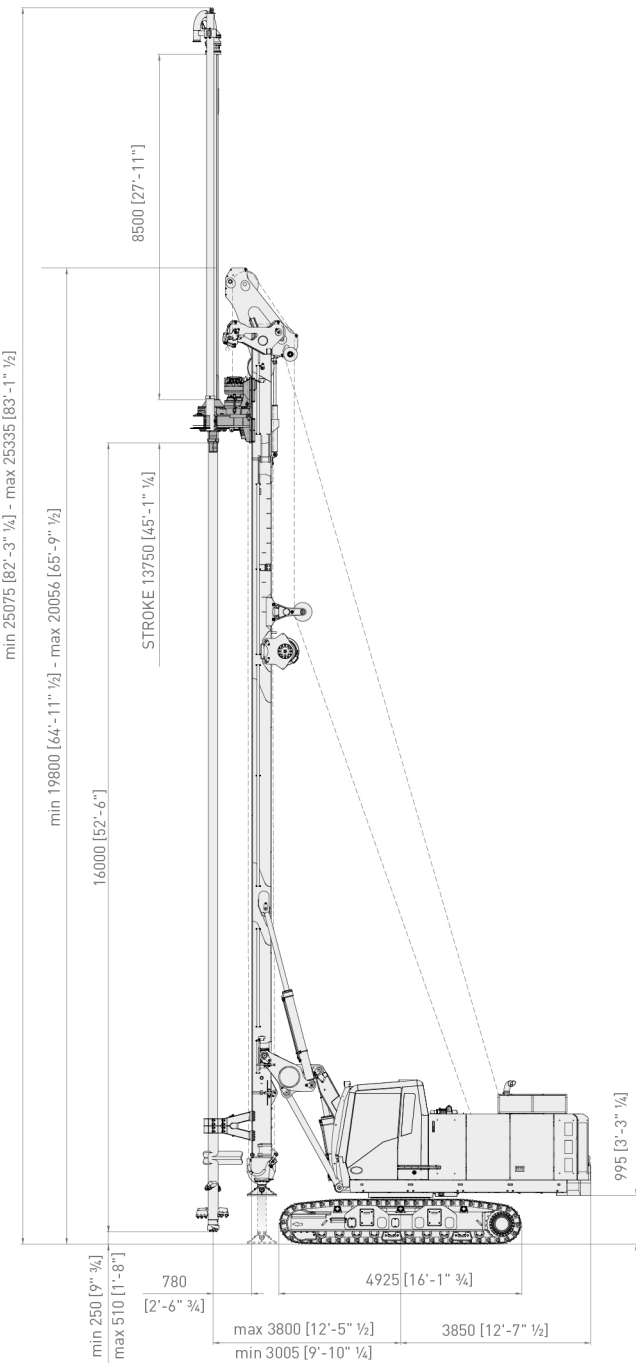
CH 450 - DP / SM

Overall dimensions

DP



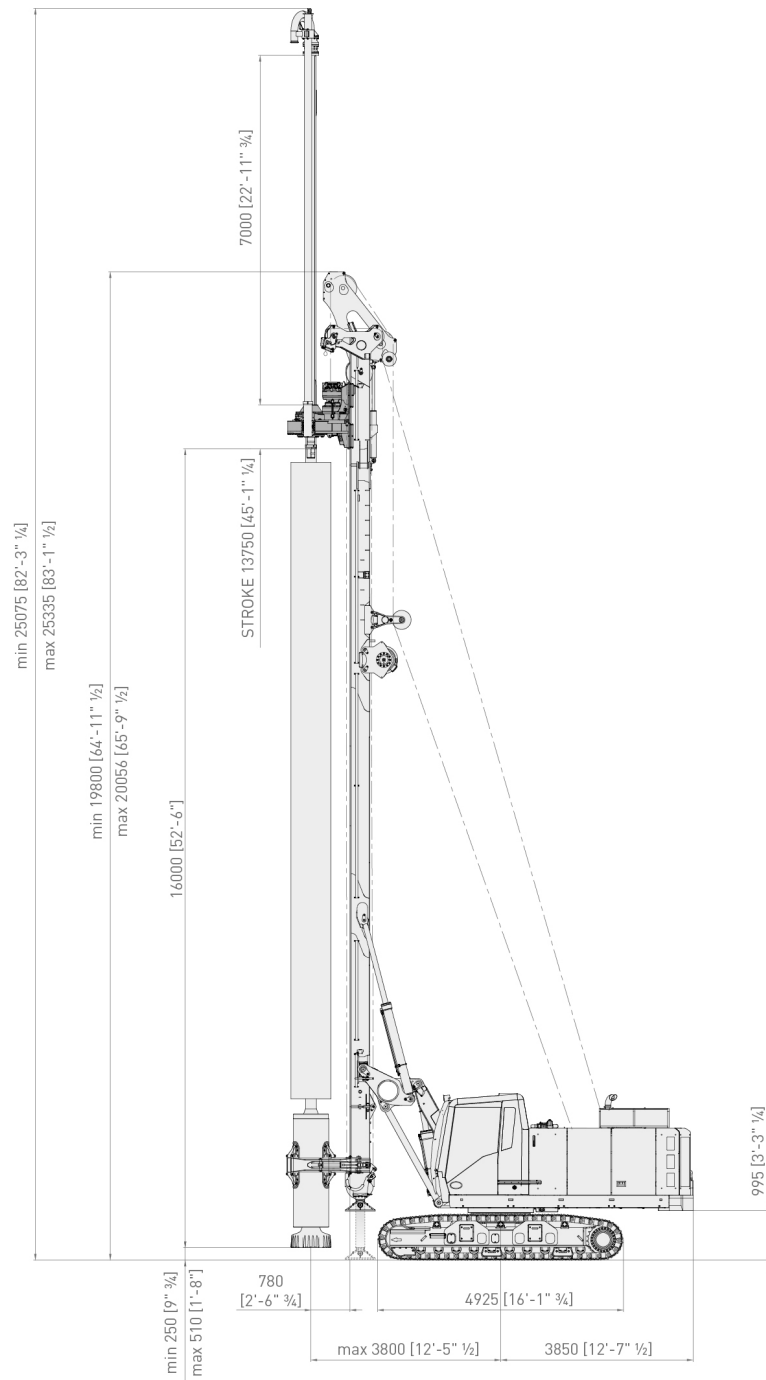
SM



WPD (Winch Pull Down) / DP-SM	DP (Displacemnt Piles)	SM (Soil Mixing)
Max diameter	450 mm / 18"	
Max drill string length	16 m / 52' 6"	
Max length of string extension	7 m / 23'	
Max depth	13,5 + 8,5 = 22 m / 44'3'' + 27'11" = 72'2"	
Max pull down force	240 kN / 53,954 lbs	

CH 450 - LDTH

Overall dimensions



LDTH (Large Down the Hole Hammer)

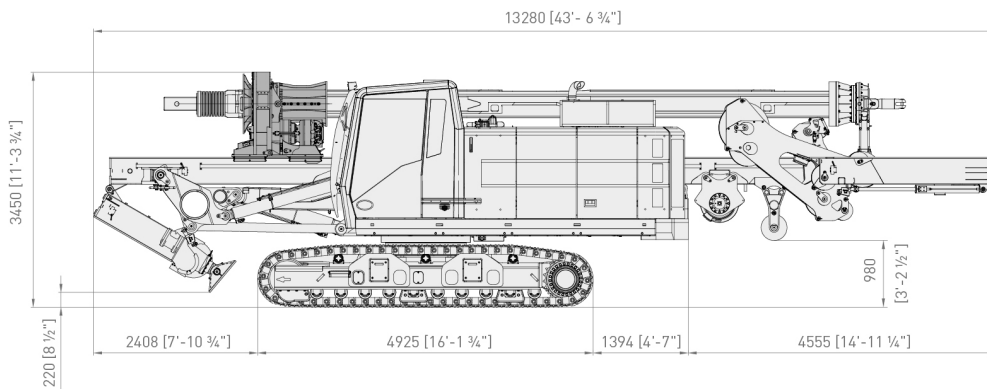
Max pile diameter	1.000 mm / 3' 3"
Stroke c/w mast foot	14,5 m / 47' 7"
Max pile depth	Approx. 50 - 60 m / 164' - 196' ⁽¹⁰⁾
Extraction force	330 kN / 74,200 lbs

Notes

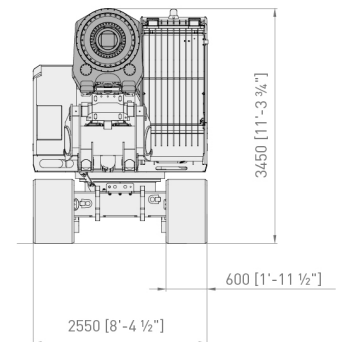
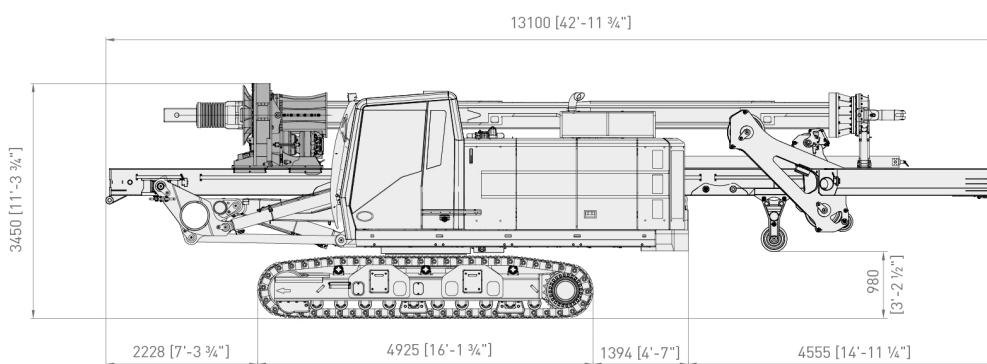
(10) max depth is upon drill string weight

Overall dimensions

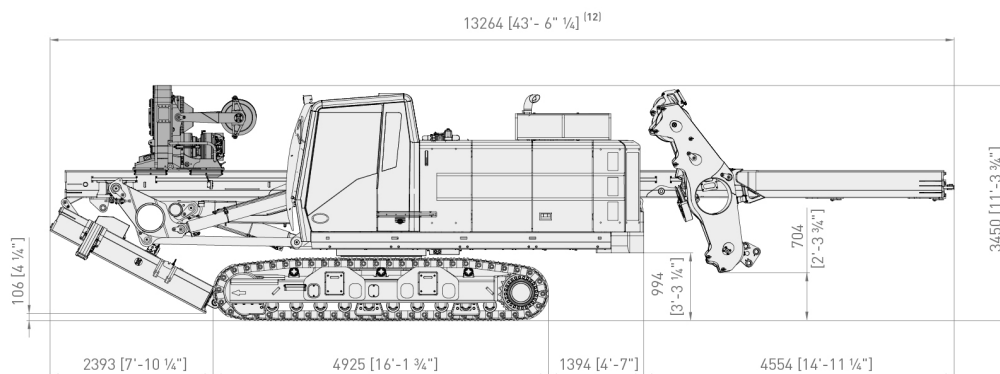
WPD



CPD



CFA T4



Weights and dimensions	
Transport width	2.550 mm / 8' 4 1/2"
Transport height	3.450 mm / 11' 4"
Transport length CPD - WPD	13.100 - 13.280 mm / 43' - 43' 7" ⁽¹¹⁾
Transport weight CPD	43.100 kg / 95,000 lbs ⁽⁶⁾
Transport weight WPD	44.800 kg / 98,800 lbs ⁽⁶⁾

Note

⁽⁶⁾ c/w 4 x 9 m [4 x 29'6"] long 368 mm [14 1/2"] dia. Kelly bar; rotary c/w bucket opening flange

⁽¹¹⁾ Kelly <11 m [36' 1"]

⁽¹²⁾ 14764 [48' 5 1/4"] CFA T4 XL

www.comacchio.com



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