

CH 36

SELF-ERECTING
HYDRAULIC PILING RIG



THE MULTIPURPOSE PILING RIG



The **CH 36** is a piling machine designed for the most demanding projects. With a maximum power of 405 kW (543 HP) and an operating weight of 100 tons, this machine guarantees **exceptional performance** and is a highly **adaptable and versatile solution** that can cover a wide variety of projects with minimal changes. The **CH 36** has been engineered with a view to optimising performance, its main features including:

	POWER & EFFICIENCY	<ul style="list-style-type: none"> The latest generation hydraulic system, developed by Comacchio utilizing state-of-the-art electronic control systems, ensures high levels of productivity thanks to the innovative CR 36 rotary head, capable of developing a maximum torque of 360 kNm (265,500 lbf-ft), and allows to reduce fuel consumption
	VERSATILITY	<ul style="list-style-type: none"> Designed to perform multiple technologies, including BP, CFA, DP and SM, the CH 36 is suitable for a wide range of applications, from foundation construction to ground improvement
	HIGH PERFORMANCE	<ul style="list-style-type: none"> In its Bored Pile pile configuration the CH 36 can be used to construct piles up to a diameter of 2500 mm (8' 2") and a depth of 86 m (282'), offering the ideal solution for large and complex projects
	REDUCED NOISE & EXHAUST EMISSIONS	<ul style="list-style-type: none"> Thanks to the unique design incorporating advanced and sustainable solutions, the CH 36 guarantees a low environmental impact, reducing noise and emissions to a minimum
	EASY TRANSPORT & SET-UP	<ul style="list-style-type: none"> The machine can be easily disassembled into modules to facilitate transport and reduce logistics costs and is equipped with a hydraulic system for counterweight lifting to ensure safer and faster rigging and de-rigging operations



TECHNOLOGIES



The **unique design** of the **CH 36** adapts to a wide range of drilling technologies that include:

	BP (Bored Piles)	BP - Uncased Kelly Piles excavated by dry method or stabilized by fluid overpressure				
		CBP - Kelly Piles with Casing installation by rotary drive or optionally by hydraulic casing oscillator				
			m.s.	i.s.	BP	CBP
		Max. pile diameter	mm	ft-in	2.500 ¹	2.000 ^{1/2} 6' 7" ^{1/2}
		Max. pile depth	mm	ft-in	86.800 ^{3/4}	86.800 ^{3/4} 284' 9" ^{3/4}
NOTES	1 - w/o bottom mast element		2 - Depending on the twister			
	3 - c/w 7.650 mm (25'1") mast extension		4 - Using self-mounting 5-elements kelly bar			
	CFA (Continuous Flight Auger)	CFA - Piles that are drilled uncased by the use of a continuous hollow auger stem				
			m.s.	i.s.	CFA	
		Max. pile diameter	mm	ft-in	1.200	3' 11"
		Max. pile depth (QCFA/WS)	mm	ft-in	27.700 ¹	90' 11" ¹
		NOTE	1 - c/w 7.650 mm (25'1") mast extension			
	DP (Displacement Piles)	DP - Piles installed without soil removal by advancing a special tool into the ground that causes the soil to be displaced radially and vertically				
			m.s.	i.s.	DP	
		Max. pile diameter	mm	ft-in	600	2'
		Max. pile depth	mm	ft-in	33.700 ¹	110' 7" ¹
		NOTE	1 - c/w 7.650 mm (25'1") mast extension			
	SM (Soil Mixing)	SM - Piles constructed by mixing and partly replacing the existing soils with grout using a soil mixing tool				
			m.s.	i.s.	SM	
		Max. pile diameter	mm	ft-in	2.500 ¹	8' 2" ¹
		Max. pile depth	mm	ft-in	34.200 ²	112' 2" ²
		NOTES	1 - According to the soil conditions		2 - c/w 7.650 mm (25'1") mast extension	

TECHNICAL DATA



UNDERCARRIAGE		m.s.	i.s.				
Type	-	Variable gauge, telescoping side frames					
Removable tracks	-	Yes					
Track shoe width	mm	ft-in	800	2' 7" 1/2	900	2' 11" 1/2	
Track shoe type	-	Triple grouser					
Overall width (retracted side frames)	mm	ft-in	2.980	9' 9"	3.150	10' 4"	
Overall width (extended side frames)	mm	ft-in	4,680	15' 4"	4.850	15' 11"	
Overall length	mm	ft-in	6,040	19' 10"			
Centre idler to centre sprocket	mm	ft-in	5,110	16' 9"			
UPPERFRAME		m.s.	i.s.				
Width	mm	ft-in	3.000	9' 10"			
Operators' cabin	-	TOPS & FOPS-1 certified, 965 mm (3' 2") wide					
Control system type	-	CAN-BUS					
User interface	-	12" Touch Screen					
Tail swing radius	mm	ft-in	4.310	14' 1"			
DIESEL ENGINE		m.s.	i.s.	High Tech Line			
Make and model	-	Volvo D13					
Emission certification	-	EU stage IIIA / US EPA Tier 3			EU stage V / US EPA Tier 4f		
Power rating (1.700 rpm)	kW	hp	345	463	345 - 405	463 - 543	
Aspiration	-	Turbocharged and charge air cooled					
Displacement	cc	in ³	12.780	780			
Fuel tank	l	gal	735	194			
Sound pressure level in cabin (EN 16228-1, Annex B)	-	L _{pA} 82 dB (A)					
Sound Power level (2000/14/EC - EN 16228-1, Annex B)	-	L _{WA} 108 dB (A)					
HYDRAULIC SYSTEM		m.s.	i.s.				
Main pumps flow	l/min	gal/min	2 x 345	2 x 91.1			
Service pump flow	l/min	gal/min	180	47.5			
Hydraulic oil tank capacity	l	gal	960	253.6			
MAIN WINCH		m.s.	i.s.				
Type	-	Controlled descent					
1 st layer line pull	kN	lbs	300	67,440			
1 st layer rope speed	mm/min	ft/min	80.000	262'			
Rope diameter	mm	in	30	1 3/16"			
Rope layers	-	2					
FEM classification	-	M6 - L3 - T5					
SERVICE WINCH		m.s.	i.s.				
Type	-	Controlled descent					
1 st layer line pull	kN	lbs	133	29,900			
1 st layer rope speed	mm/min	ft/min	64.000	210'			
Rope diameter	mm	in	20	3/4"			
Rope layers	-	3					
FEM classification	-	M5-L2-T5					

INNOVATIVE KELLY BAR SYSTEM



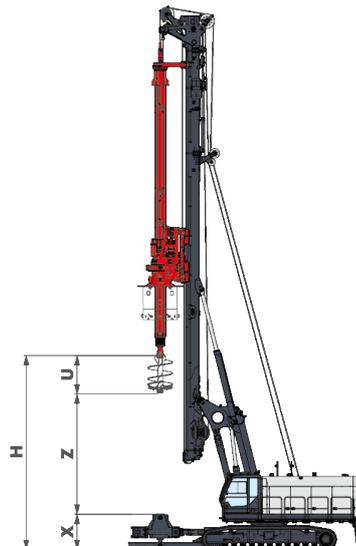
Two bar sizes are **available with minor changes** on the rotary head.

KELLY BAR SIZES	m.s.	i.s.	Outer diameter	
	Standard	mm	in	445
Optional (reduced torque)	mm	in	419	16 1/2"



X (approx.)	mm	ft-in	1.500	4' 11"
U (approx.)	mm	ft-in	1.500	4' 11"

$$Z = H - X - U$$

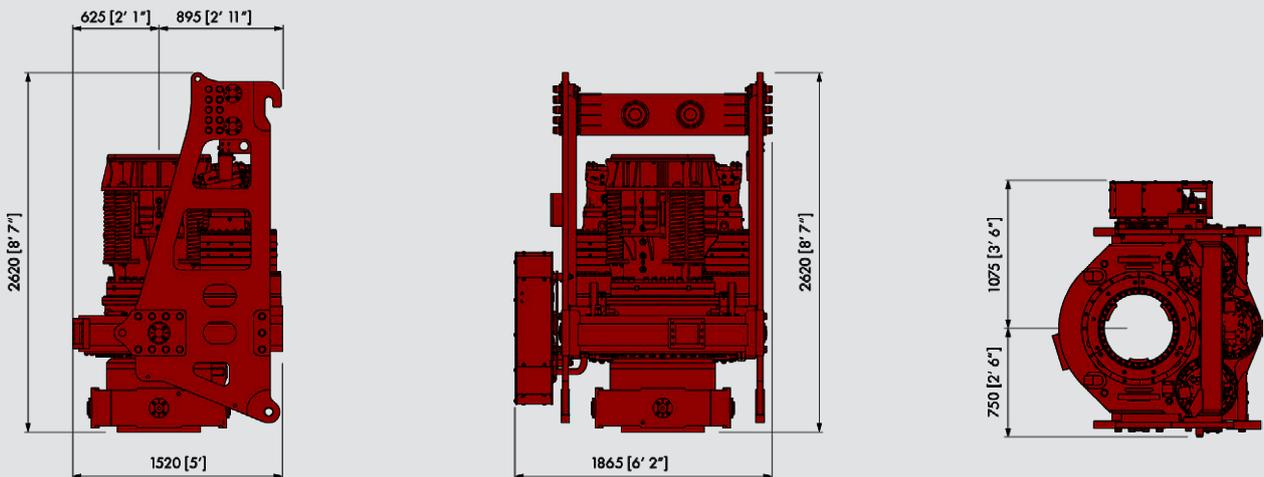
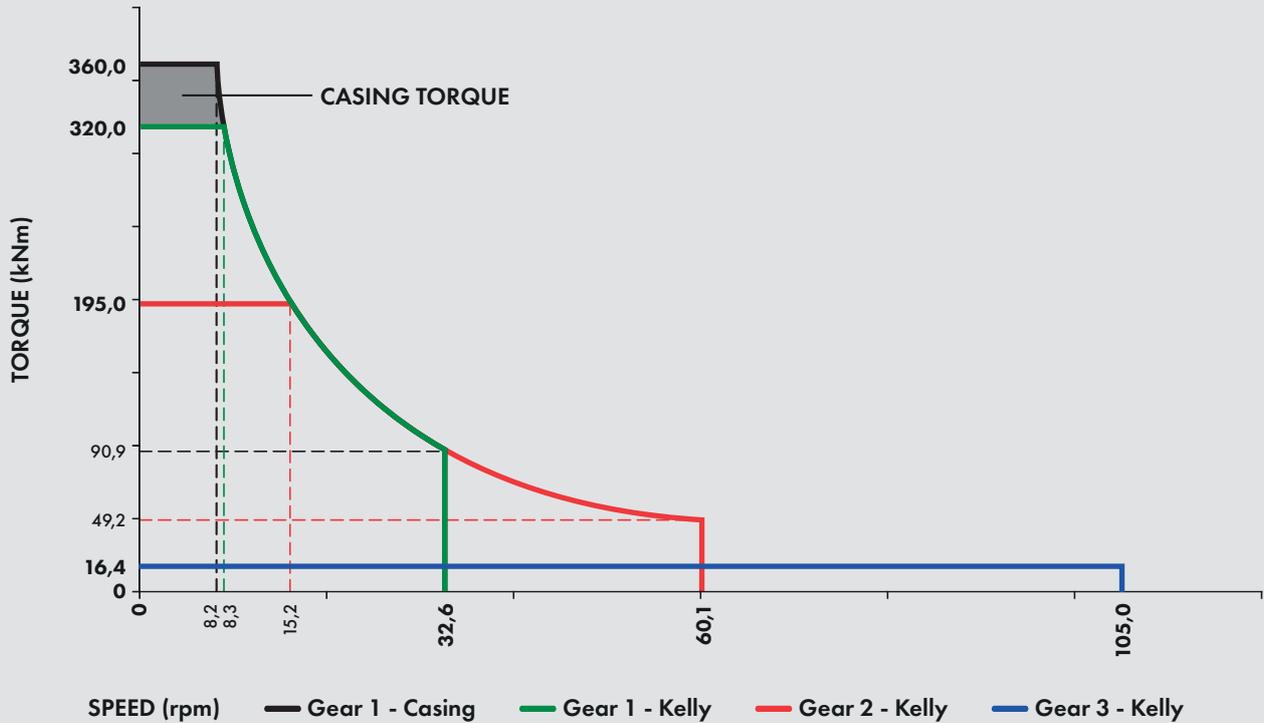


DEPTH	N.	KELLY BARS			WS (Winch System)					
		Length		Weight ¹	Depth ^{2/3}		H ⁴		H ⁵	
		mm	ft-in		ton	mm	ft-in	mm	ft-in	mm
Locking or friction (320 kNm)	3	12.000	39' 4"	7,35	31.400	103'	8.750	28' 8"	11.750	38' 7"
	3	13.500	44' 3"	8,2	35.600	116' 10"	7.250	23' 9"	10.250	33' 8"
	3	15.000	49' 3"	9	39.800	130' 7"	5.750	18' 10"	8.750	28' 8"
	3	16.500	54' 2"	9,85	44.000	144' 4"	4.250	13' 11"	7.250	23' 9"
	3	18.000	59' 1"	10,65	48.200	158' 2"	2.750	9'	5.750	18' 10"
	3	19.500	64'	11,5	52.400	171' 11"	1.250	4' 1"	4.250	13' 11"
Locking or friction (320 kNm)	4	12.000	39' 4"	9,15	41.900	137' 6"	8.750	28' 8"	11.750	38' 7"
	4	13.500	44' 3"	10,2	47.500	155' 10"	7.250	23' 9"	10.250	33' 8"
	4	15.000	49' 3"	11,2	53.000	173' 11"	5.750	18' 10"	8.750	28' 8"
	4	16.500	54' 2"	12,2	58.600	192' 3"	4.250	13' 11"	7.250	23' 9"
	4	18.000	59' 1"	13,25	64.100	210' 4"	2.750	9'	5.750	18' 10"
	4	19.500	64'	14,25	69.700	228' 8"	1.250	4' 1"	4.250	13' 11"
Friction (180 kNm)	5	12.000	39' 4"	8,55	52.300	171' 7"	8.750	28' 8"	11.750	38' 7"
	5	13.500	44' 3"	9,5	59.200	194' 3"	7.250	23' 9"	10.250	33' 8"
	5	15.000	49' 3"	10,45	66.100	216' 10"	5.750	18' 10"	8.750	28' 8"
	5	16.500	54' 2"	11,45	73.000	239' 6"	4.250	13' 11"	7.250	23' 9"
	5	18.000	59' 1"	12,4	79.900	262' 2"	2.750	9'	5.750	18' 10"
	5	19.500	64'	13,35	86.800	284' 9"	1.250	4' 1"	4.250	13' 11"

NOTES	1 - Weight refers to Ø 445 mm (17 1/2") Standard version	2 - Tool height 1.500 mm (4' 11")
	3 - Depth to be reduced by 2.400 mm (7' 10") in case mast foot is not installed	
	4 - Mast extension length 4.650 mm (15' 3")	5 - Mast extension length 7.650 mm (25' 1")

CR 36 ROTARY HEAD

KELLY - TORQUE DIAGRAM

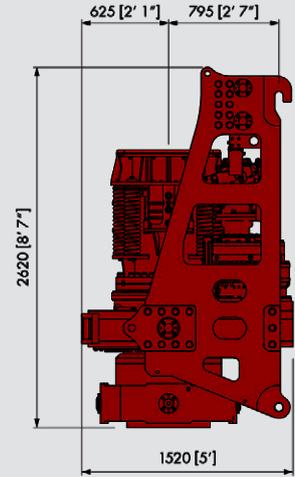
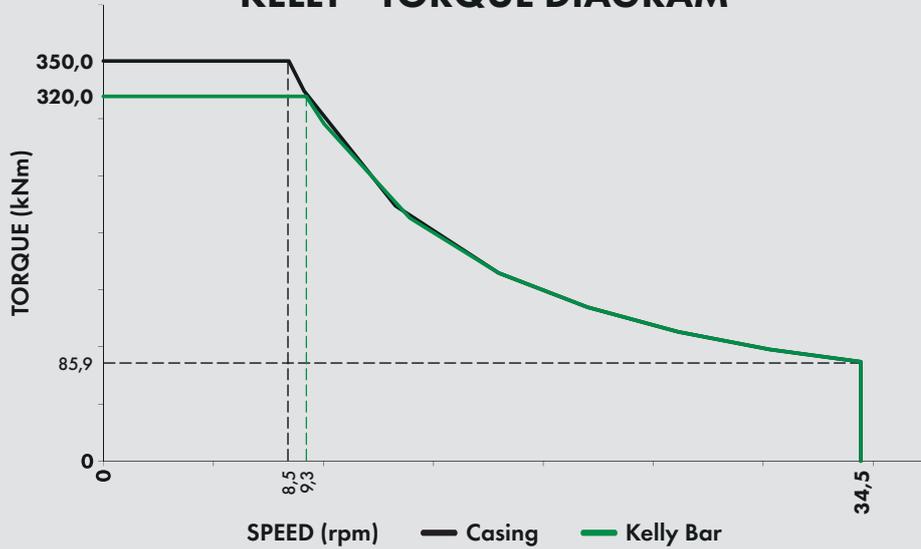


ROTARY HEAD	m.s.	i.s.	CR 36	
Max. torque Casing	kNm	lbf-ft	360 at 32 MPa	265,500 at 4,640 psi
Max. torque Kelly	kNm	lbf-ft	320 at 28,5 MPa	236,020 at 4,130 psi
Max. drilling speed	rpm		60	
Hydraulic power	kW	hp	310	415
Spin-off speed	rpm		105	
Replaceable drive sleeve	-		Yes	
Replaceable drive keys	-		Yes	
Weight (as shown)	kg	lbs	7.800	17,200

CR 35 ROTARY HEAD

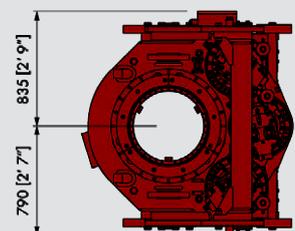
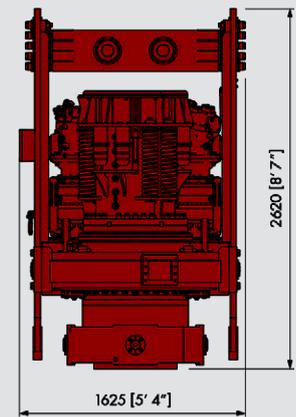
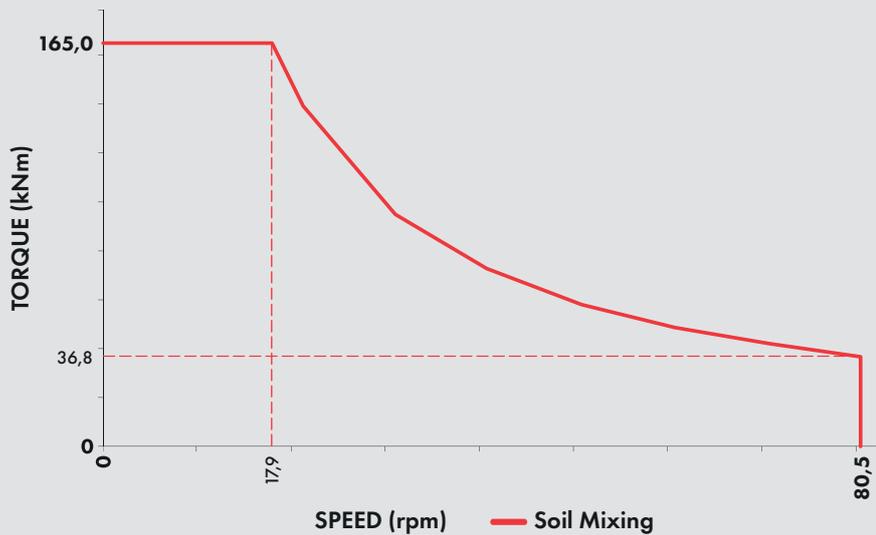


KELLY - TORQUE DIAGRAM



CR 20 ROTARY HEAD

SOIL MIXING - TORQUE DIAGRAM



ROTARY HEAD	m.s.	i.s.	CR 35		CR 20	
Max. torque Casing	kNm	lbf-ft	350 at 29 MPa	258,150 at 4,200 psi	-	-
Max. torque	kNm	lbf-ft	320 at 26,5 MPa	236,020 at 3,840 psi	165 at 32 MPa ¹	121,700 at 4,641 psi ¹
Max. drilling speed	rpm		35		80 ¹	
Hydraulic power	kW	hp	310	415	310	415
Replaceable drive sleeve	-	-	Yes		-	
Replaceable drive keys	-	-	Yes		-	
Weight (as shown)	kg	lbs	7.200	15,900	6.500	14,330

NOTE | 1 - Different torque and speed ranges are available upon request

OPTIONS AND ACCESSORIES



STANDARD EQUIPMENT	
Main winch with special grooving	Automatic lubrication kit for rotary sliding guides
Hoist and lowering limit switches on main and service winches	Transport securing lugs on crawler unit
Swivel for main and service rope	Work lights
Service rope parking point	Electric refuelling pump and hydraulic oil refill system
Mast inclination measurement on X & Y axes (digital and analog display)	Diagnostic panel for hydraulic, engine, electrical and electronic functions
Automatic vertical mast alignment	Front and top cabin protective grate (FOPS-1 certified)
Depth measuring device on main winch	Radio with bluetooth
Rotary quill with interchangeable Kelly ribs	Phone charger
Rpm measuring device on rotary	CCS Comacchio Controlling System - Touch Screen 12"
Crowd pressure setting	Adjustable spin-off and shaker tool discharge systems
Oscillator attachment brackets	Rotary auto speed management & interactive multiple gear system
Heating & air conditioning system	Tool box
Automatic stop of the main winch at the end of the hole	Diesel engine diagnostics system
360° video cameras with AI technology	Tool tray in front of cabin



OPTIONAL EQUIPMENT

Biodegradable oil	Welding equipment & generator
Cardan joint	Air compressor kit
Main and aux winch load cells	Washing kit
Jack-up system for tracks removal	Flange for casing driving
Central lubrication system	Hydraulic provision for casing oscillator
Custom painting	Casing oscillator
CFA cleaner (star, roller or brush type)	Vibrator for steel reinforcement cage
Flange for bucket opening	Data logger
Free-fall service winch	ComNect system



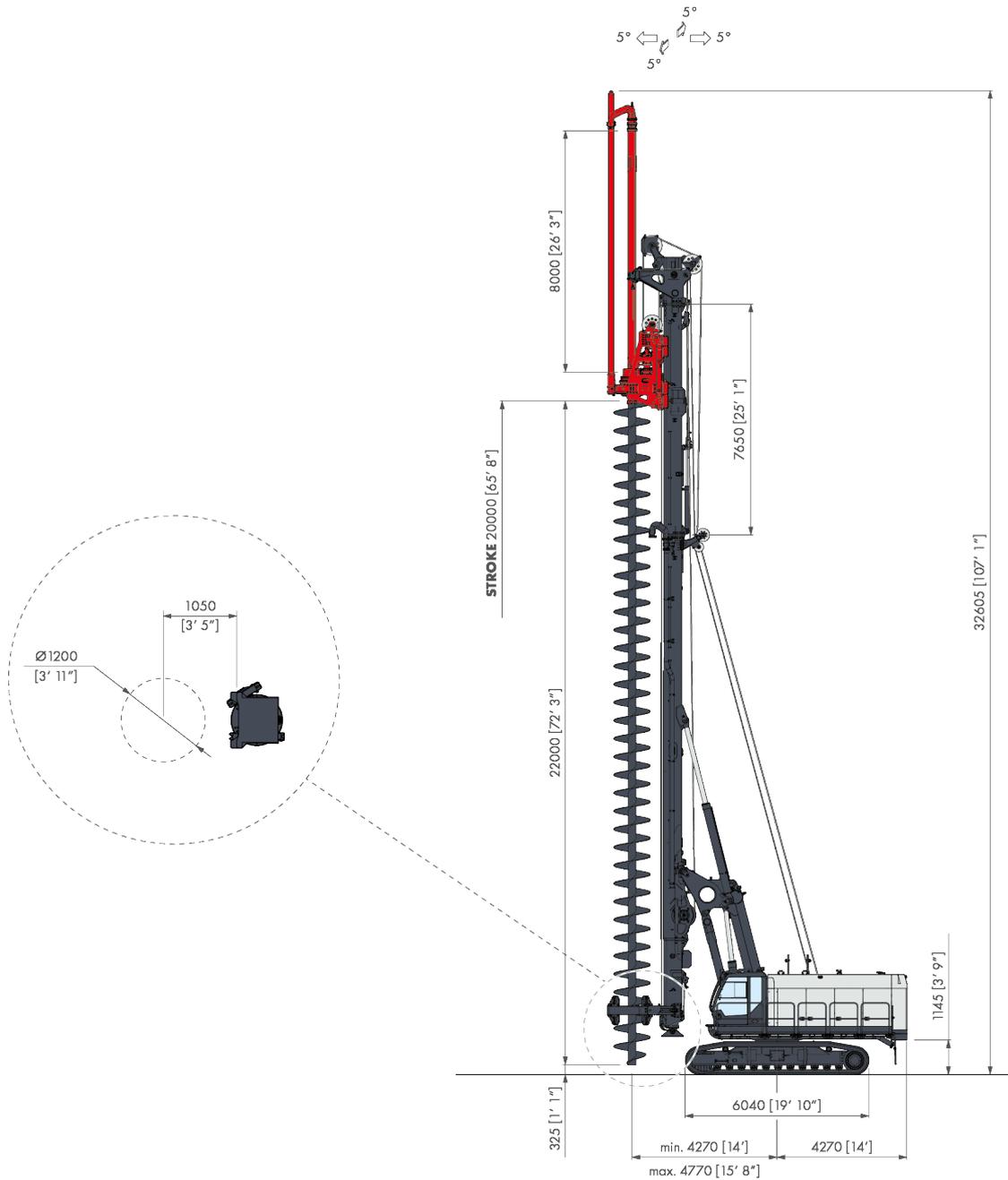
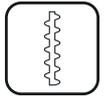
CE CONFORMITY KIT

Remote radio control for machine travel	CFA cleaner
Main and service winch load cells	Rubber strip guard on auger guide
Side walkways with handrails	

Inspired by the automotive-style fit and finish, the new **Comacchio cab** stands out for its ergonomic design and **safety features**, offering **high level of comfort** for the operator and ensuring **smooth and easy operation**.



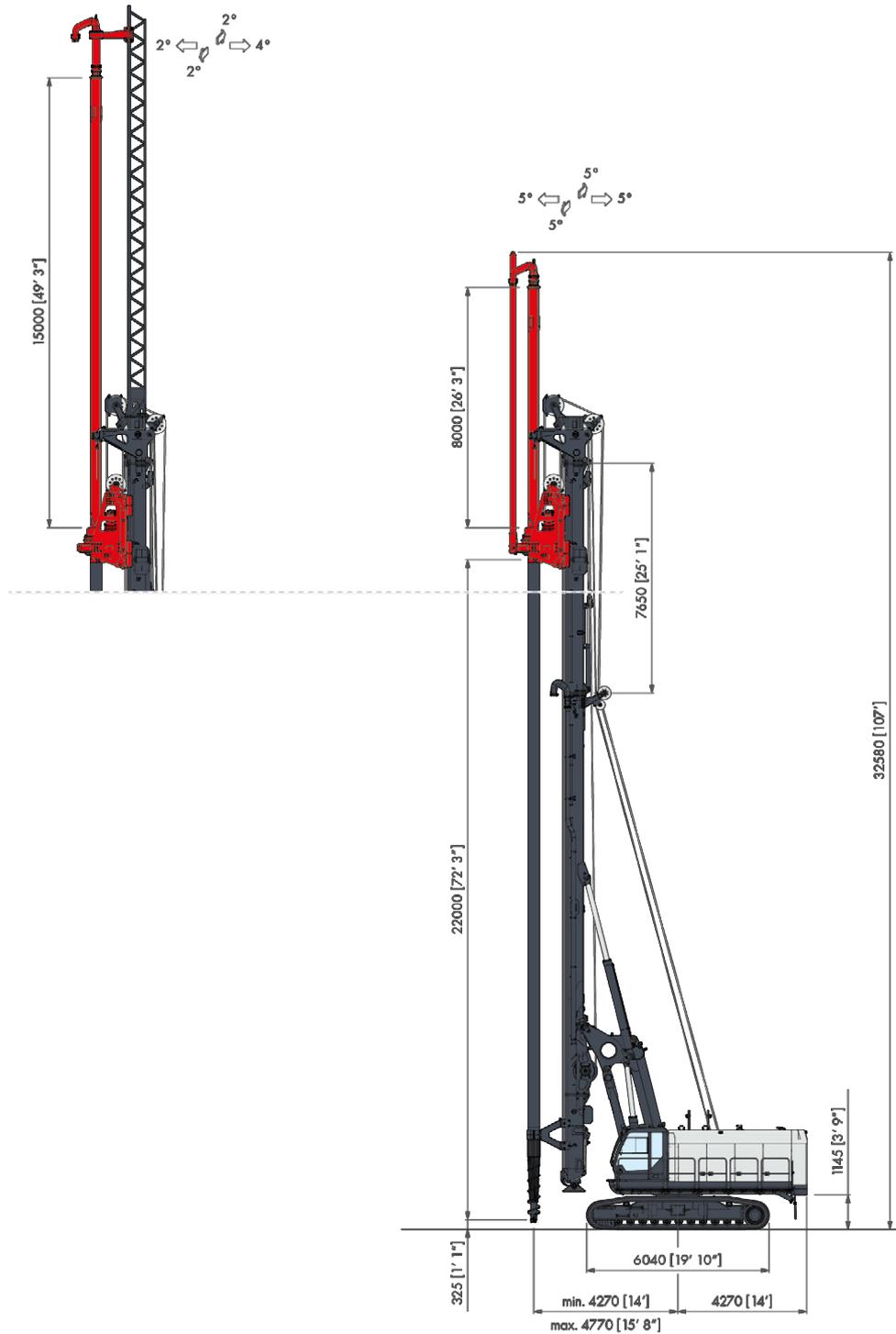
CFA/WS



CFA/WS (Quick Conversion CFA)	m.s.	i.s.	CFA (Continuous Flight Auger)	
Max. pile diameter	mm	ft-in	1.200	3' 11"
Max. length of augers	mm	ft-in	22.000 ¹	72' 2" ¹
Max. length of auger extension	mm	ft-in	8.000	26' 3"
Max. pile depth	mm	ft-in	19.700 + 8.000 = 27.700 ¹	64' 8" + 26' 3" = 90' 11" ¹
Extraction force	kN	lbs	945	212,440
Crowd force on auger	kN	lbs	300	67,440
Operating weight w/o auger	ton		96 ²	

NOTES	
1	- c/w 7.650 mm (25' 1") mast extension
2	- c/w 7.650 (25' 1") mast ext., 800 mm (2'7" 1/2) tracks, CR 35 rotary head, 8.000 (26' 3") mm auger ext.

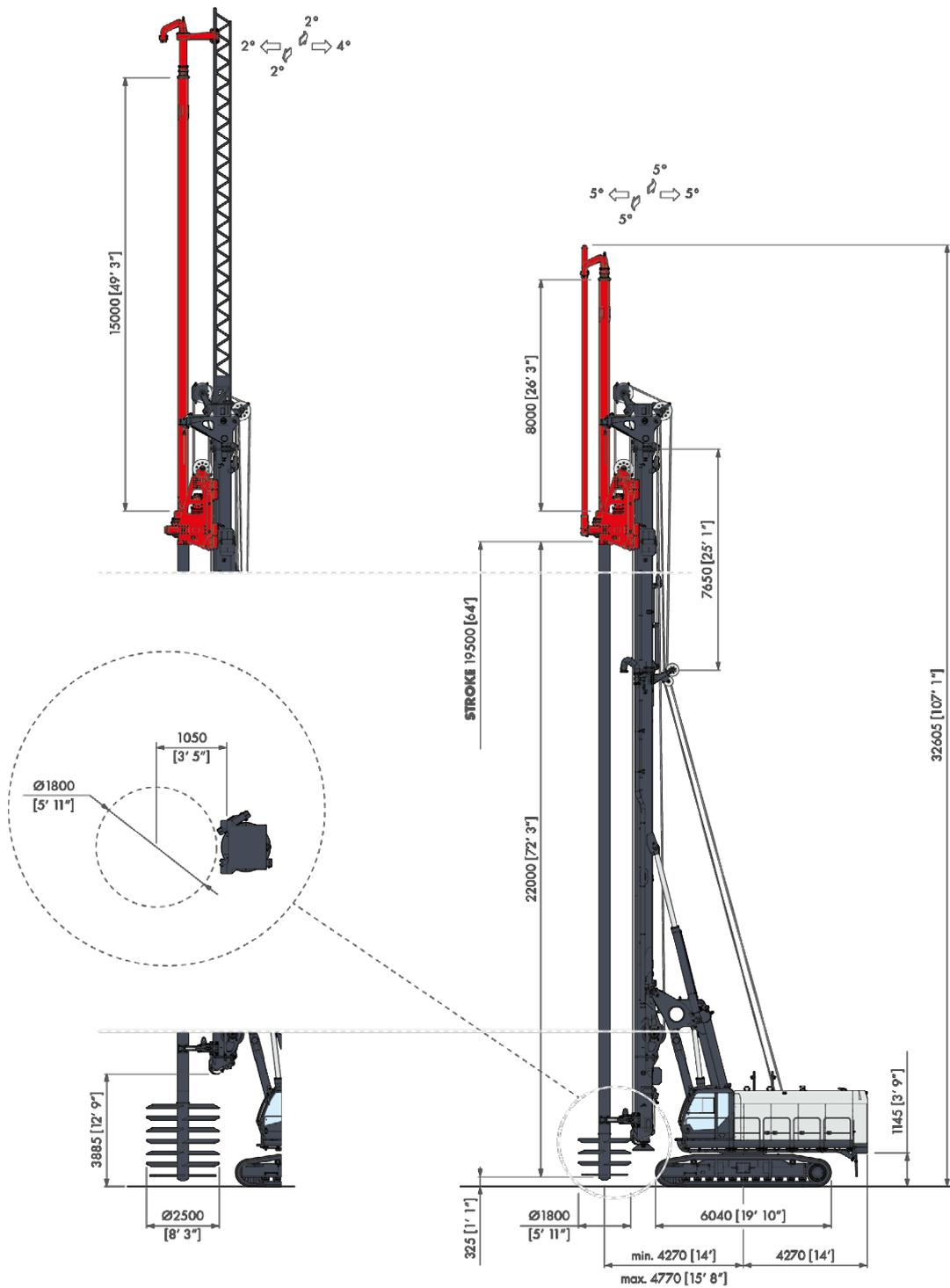
DP



WS (Winch System)	m.s.	i.s.	DP (Displacement Piles)	
Max. pile diameter	mm	in	600	2'
Max. drill string length	mm	ft-in	22.000 ¹	72' 2" ¹
Max. length of drill string extension	mm	ft-in	15.000	49' 3"
Max. pile depth	mm	ft-in	18.700 + 15.000 = 33.700 ¹	61' 4" + 49' 3" = 110' 7" ¹
Extraction force	kN	lbs	945	212,440
Max. pull down force	kN	lbs	300	67,440
Operating weight w/o tool and rods	ton		95,5 ²	

NOTES	
1	- c/w 7.650 mm (25' 1") mast extension
2	- c/w 7.650 (25' 1") mast ext., 800 mm (2'7" 1/2) tracks, CR 35 rotary head, 8.000 mm (26' 3") drill string ext.

SM



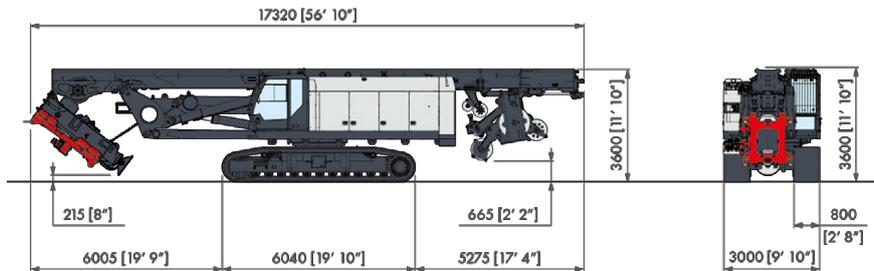
WS (Winch System)	m.s.	i.s.	SM (Soil Mixing)	
Max. pile diameter	mm	in	400 - 2.500 ¹	1' 4" - 8' 2" ¹
Max. drill string length	mm	ft-in	22.000 ²	72' 2" ²
Max. length of drill string extension	mm	ft-in	15.000	49' 3"
Max. pile depth	mm	ft-in	19.200 + 15.000 = 34.200 ²	63' + 49' 3" = 112' 3" ²
Extraction force	kN	lbs	945	212,440
Max. pull down force	kN	lbs	300	67,440
Operating weight w/o tool and rods	ton		95,5 ³	

NOTES	1 - According to the soil conditions	2 - c/w 7.650 mm (25' 1") mast extension
	3 - c/w 7.650 (25' 1") mast ext., 800 mm (2'7" 1/2) tracks, CR 20 rotary head, 8.000 mm (26' 3") drill string ext.	

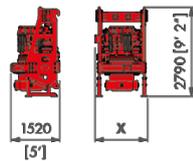
TRANSPORT DIMENSIONS



VERSION 1

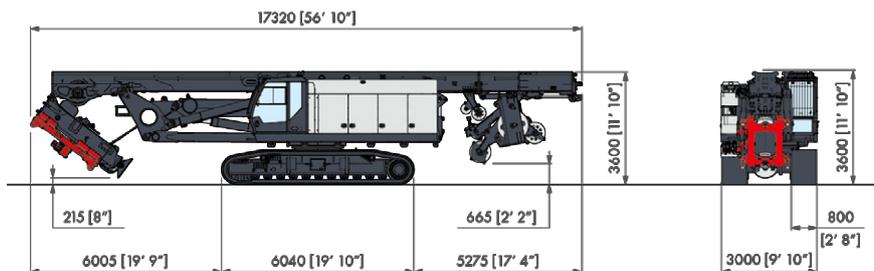


m.s.		
Transport weight	ton	85,5 ¹
NOTES 1	c/w 4.650 mm (15' 3") mast extn.	
	c/w 800 mm (2' 7" 1/2) tracks	
	c/w Counterweight	
	w/o Rotary head	

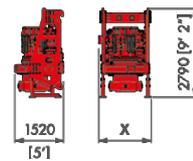


Rotary head		CR 36	CR 35	CR 20
Weight	ton	8	7,4	6,7
Width (X)	mm ft-in	1.865 6'1"	1.625 5'4"	2.070 6'9"

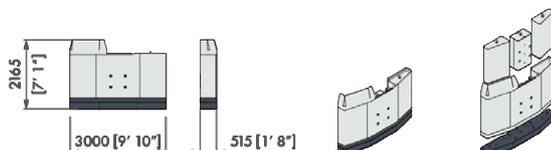
VERSION 2



m.s.		
Transport weight	ton	71,5 ²
NOTES 2	c/w 4.650 mm (15' 3") mast extn.	
	c/w 800 mm (2' 7" 1/2) tracks	
	w/o Counterweight	
	w/o Rotary head	



Rotary head		CR 36	CR 35	CR 20
Weight	ton	8	7,4	6,7
Width (X)	mm ft-in	1.865 6'1"	1.625 5'4"	2.070 6'9"

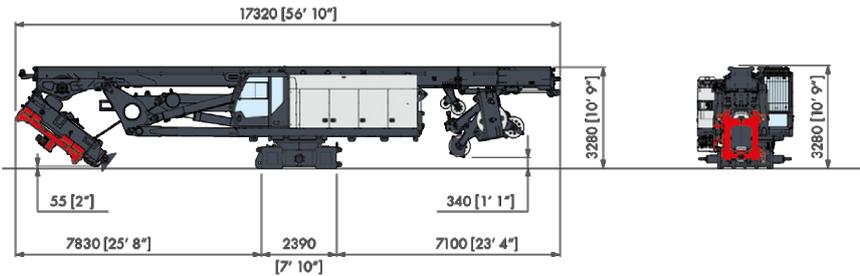


Counterweight		
Weight	ton	14

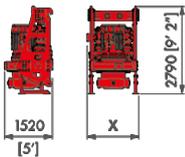
CH 36



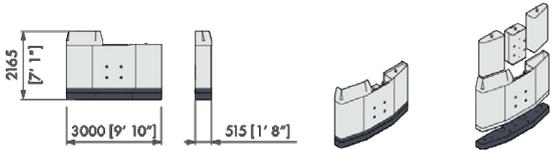
VERSION 3



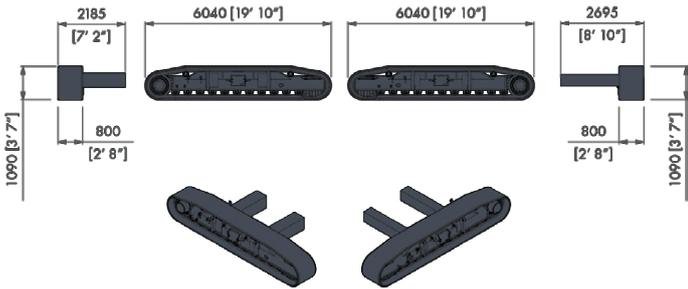
m.s.		
Min. transport weight	ton	51,5 ³
NOTES 3		
c/w 4.650 mm (15' 3") mast extn. w/o 800 mm (2' 7" 1/2) tracks w/o Counterweight w/o Rotary head		



Rotary head		CR 36	CR 35	CR 20
Weight	ton	8	7,4	6,7
Width (X)	mm ft-in	1.865 6'1"	1.625 5'4"	2.070 6'9"



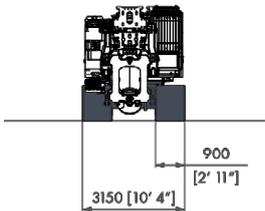
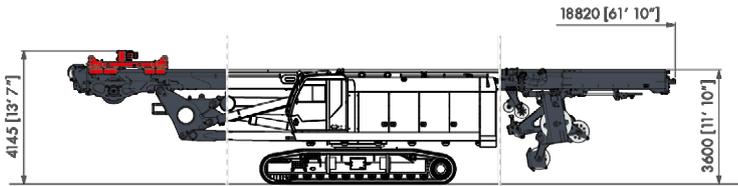
Counterweight		
Weight	ton	14



Tracks 800 mm [2' 7" 1/2]		
Weight	ton	20

Tracks 900 mm [2' 11" 1/2]		
Weight	ton	20,64

VARIAZIONI DI TRASPORTO



w/o Mast Foot		
Weight variation	ton	-1,97

c/w Mast extension 7.650 mm (25' 1")		
Weight variation	ton	+ 0,84

Tracks 900 mm [2' 11"]		
Weight variation	ton	+ 0,64



SELF-ERECTING HYDRAULIC PILING RIG



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