



SR-50

Hydraulic
Rotary Rig

LDP
CFA
BFS
DP

Hydraulic Rotary Rig **SR-50**

soilmeco 
Drilling and Foundation Equipment

Rotary

Soilmec rotaries are designed and manufactured to meet the need for increased production and performance on various applications, with the added benefit of increased component life and reliability.

Ease of transport and quick assembly

- Crawlers can be retracted to respect transport requirements.

Compact powerful engine

Soilmec installs large displacement engines, providing exceptional performance and reliability.

- High performance, availability and reliability by using tried-and-tested technology with high power-to-volume-ratio.
- The modern electronic injection system ensures low fuel consumption and therefore low operating costs.
- Low noise emissions, smooth running characteristics and durability.
- Meets exhaust emission regulations 2004/26/EU, Step III A and US-EPA Tier 3.

DMS control system

DMS is an innovative system, developed by Soilmec, which controls and monitors the operation of the machine. For ease of operation the system is controlled by a touch screen located in the cab. The system main function, is to enable the machine to perform different functions more efficiently. A dedicated power module electronic control system ensures the main pumps and Diesel engine to work at their most effective and productive levels.

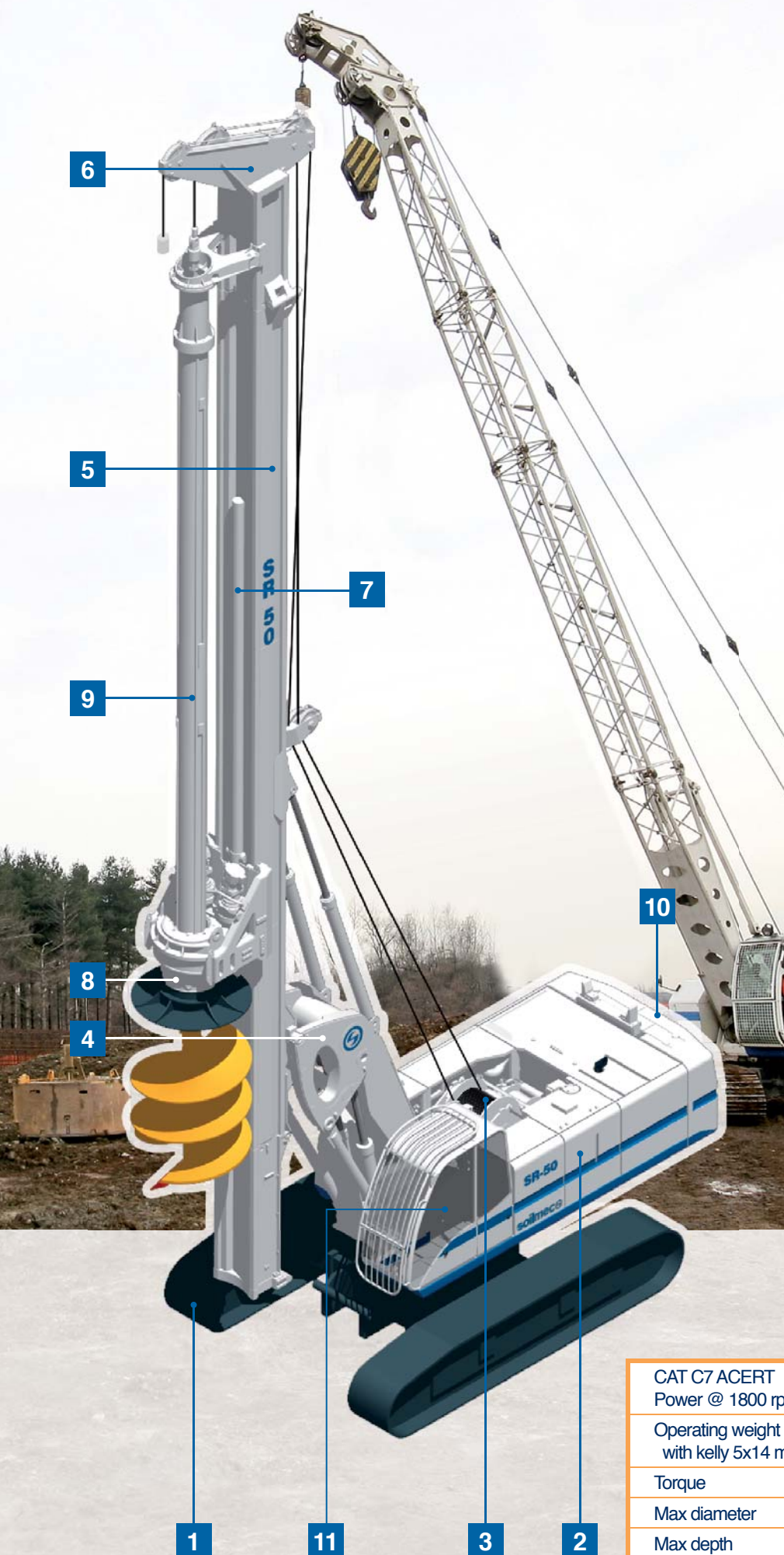
Ergonomic design

The cab is designed to be spacious, quiet and comfortable for the operator, assuring high productivity throughout the working day.

The Soilmec advantage

- A real multifunctional machine, designed from scratch to give you the best drilling solution.
- Long life expectancy with a high residual value.
- Best price/performance ratio.
- Built with the customer in mind.





- 1** Undercarriage
- 2** Turret
- 3** Winches
- 4** Parallelogram system
- 5** Self erecting mast
- 6** Cathead
- 7** Crowd system
- 8** Rotary head
- 9** Telescopic kelly bar
- 10** Counterweight
- 11** Cab

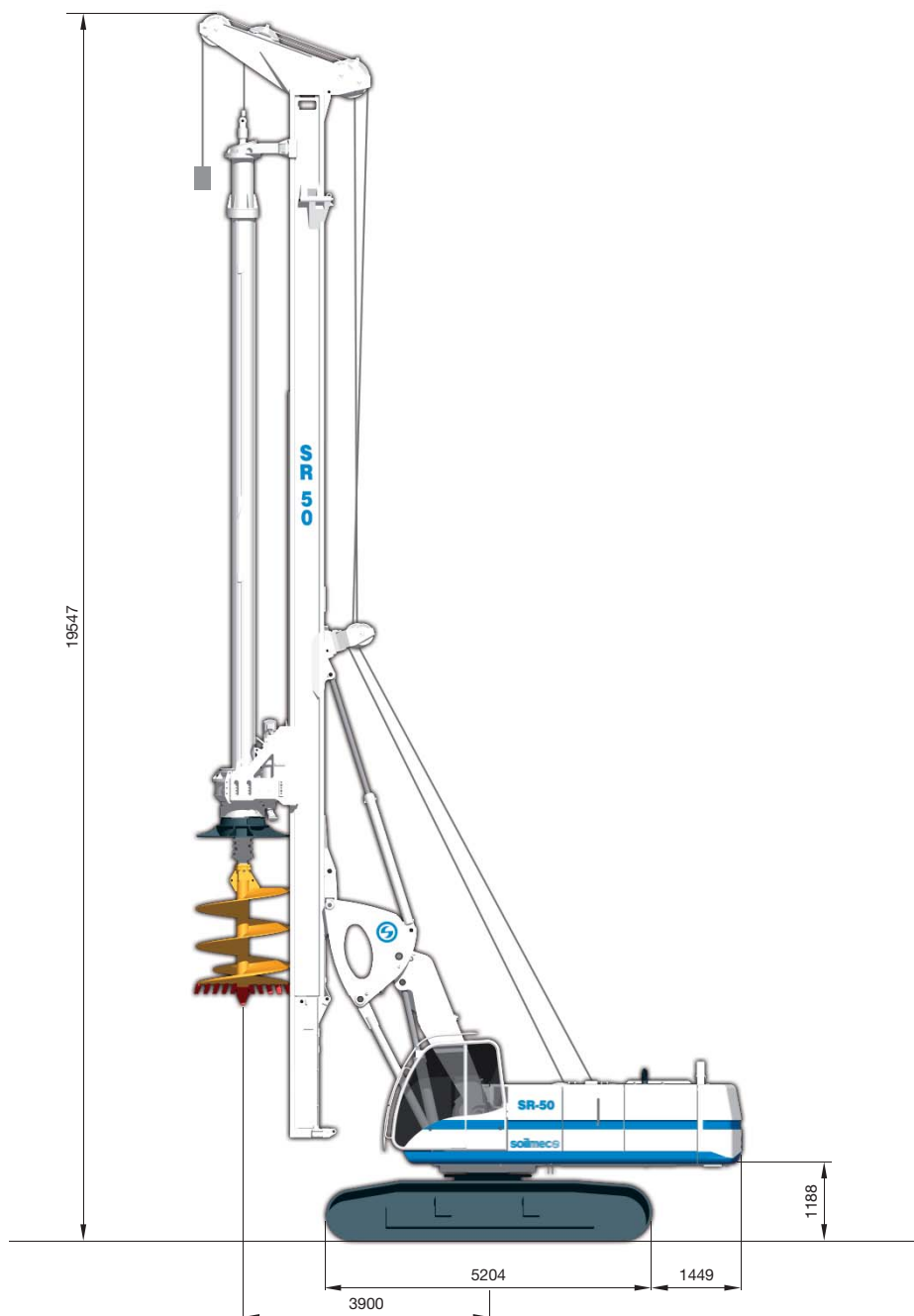
CAT C7 ACERT		
Power @ 1800 rpm	210 kW	<i>281 HP</i>
Operating weight (approx) with kelly 5x14 m	55300 kg	<i>121914 lb</i>
Torque	180 kNm	<i>132759 lbf*ft</i>
Max diameter	2000 mm	<i>79 in</i>
Max depth	63 m	<i>206.7 ft</i>

LDP - KELLY DRILLING SYSTEM

Crowd Cylinder Version - D. 406 mm

The hydraulic drilling rig SR-50 has been specially designed for suiting the following applications:

- **cased bored** piles with casing driven directly by rotary head and by casing oscillator powered by the base carrier itself;
- **deep uncased bored piles** stabilized by drilling fluid or dry hole;
- **CFA (Continuous Flight Auger)** piles by means of long auger string;
- **BFS (Bottom Feed System)** for dry bottom feed stone column installation;
- **DP (Displacement Piles)** *on demand*.



DMS - Drilling Mate System

The SR-50 in kelly version is equipped with the DRILLING MATE SYSTEM (DMS) on 12" touch screen to monitor and control the operating parameters. The standard DMS equipment is composed of:

- **PLC** controller for all electrically actuated functions
- fault checking and reporting
- monitor unit designed to display:

- engine information and diagnostic capability
- pump pressures
- mast verticality
- drilling depth
- rotary speed and pressure
- crowd pressure
- graphics drilling charts.

The following additional optional features are available:

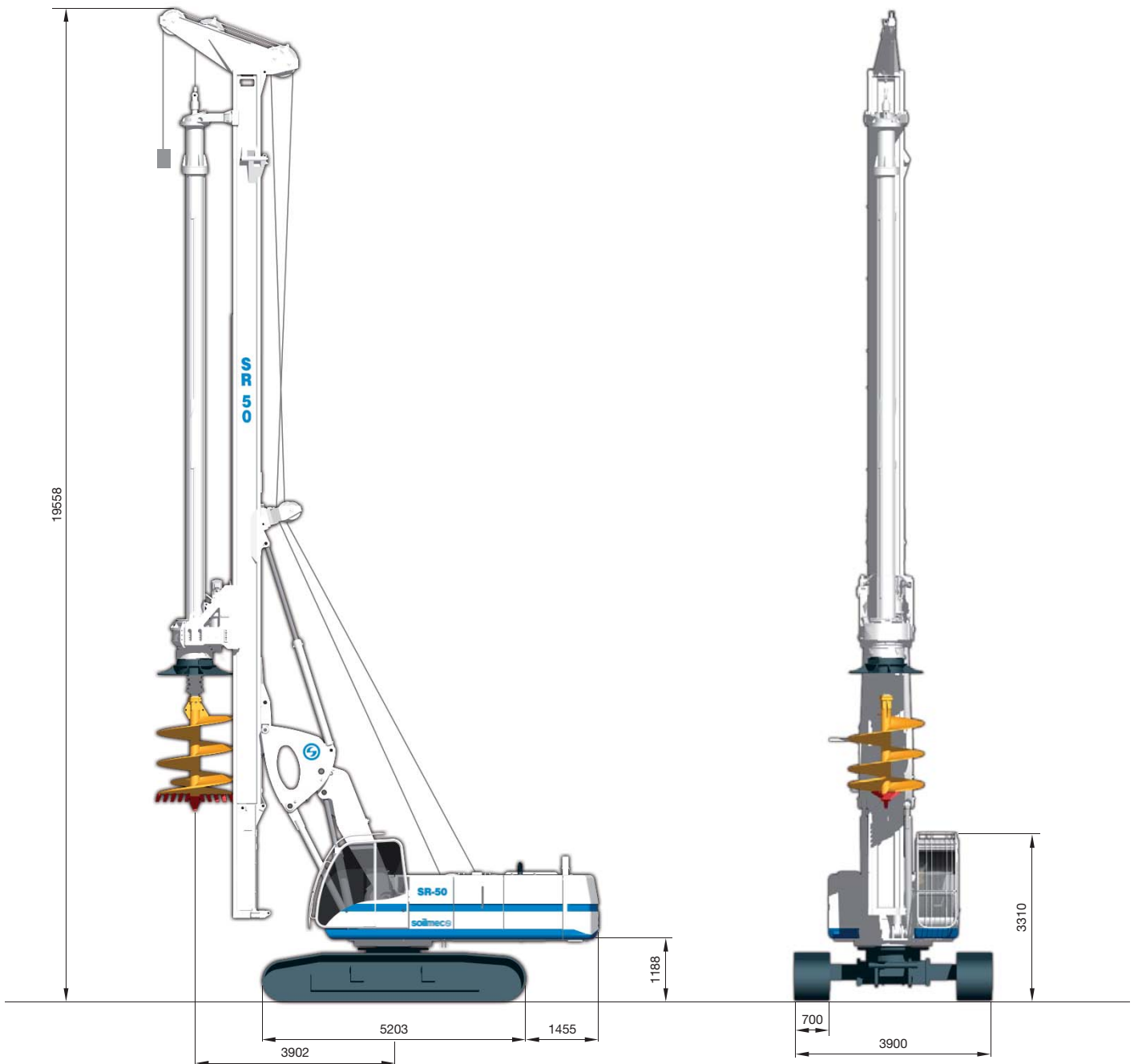
- automatic turret hole centering
- automatic mast vertical alignment

- operating data storage on memory card
- DMS PC software package for production data analysis and job site daily reporting
- DMS MANAGER for remote control and transmission of process and operating data and tele assistance.







DMS
DRILLING MATE SYSTEM

LDP - KELLY DRILLING SYSTEM

Crowd Cylinder Version - D. 355 mm



TECHNICAL DATA

	Crowd Cylinder D. 406 mm		Crowd Cylinder D. 355 mm		
	Overall height	19558 mm	770 in	19558 mm	770 in
	Operating weight (approx) with kelly 4x12	54000 kg	119048 lb	52000 kg	114639 lb
	Rotary Drive - Single gear version				
	- Torque	180 kNm	132759 lbf*ft	161 kNm	118746 lbf*ft
	- Speed of rotation (max)	29 rpm	29.0 rpm	27 rpm	27 rpm
	- Spinoff speed	154 rpm	154.0 rpm	169 rpm	169 rpm
	Rotary Drive - Multi gear version				
	- Torque	-	-	161 kNm	118746 lbf*ft
	- Speed of rotation (max)	-	-	48 rpm	48 rpm
	- Spinoff speed	-	-	101 rpm	101 rpm
	Crowd system				
	- Crowd force pull down	122 kN	27426 lbf	122 kN	27426 lbf
	- Crowd force pull up	220 kN	49457 lbf	220 kN	49457 lbf
	- Stroke (kelly system)	5100 mm	201 in	5100 mm	201 in
	- Stroke (CFA system)	15400 mm	606 in	15250 mm	600 in
	- Speed down	6,0 m/min	19.7 ft/min	6,0 m/min	19.7 ft/min
	- Speed up	15,0 m/min	49.2 ft/min	15,0 m/min	49.2 ft/min
	- Fast speed up	15,0 m/min	49.2 ft/min	15,0 m/min	49.2 ft/min
	- Fast speed down	12,7 m/min	41.7 ft/min	12,7 m/min	41.7 ft/min
	Main winch	controlled descent	controlled descent	controlled descent	controlled descent
	- Line pull (1st layer)	185 kN	41589 lbf	185 kN	41589 lbf
	- Rope diameter/length	24 mm/112 m	1.0 in/368 ft	24 mm/112 m	1.0 in/368 ft
	- Line speed (max.)	63 m/min	207 ft/min	63 m/min	207 ft/min
	Auxiliary winch	controlled descent	controlled descent	controlled descent	controlled descent
	- Line pull (1st layer)	75 kN	16860 lbf	75 kN	16860 lbf
	- Rope diameter	18 mm	0.71 in	18 mm	0.71 in
	- Line speed (max.)	62 m/min	203 ft/min	62 m/min	203 ft/min
	Mast inclination				
	- Backward / Forward / Lateral	10 ° / 4 ° / 3 °	10 ° / 4 ° / 3 °	10 ° / 4 ° / 3 °	10 ° / 4 ° / 3 °

Soilmec integrates high quality level components: Gearmatic, Hydromatic, Lohmann, Rothe erde, Trasmital, Zollern.

Standard Equipment

- Rotary drive spin-off type
- Main winch controlled descend type
- Main winch drum special grooving
- Hoist limit switch on main and auxiliary winches
- Swivel for main rope
- Crowd in fast or slow mode

Measuring and control equipment

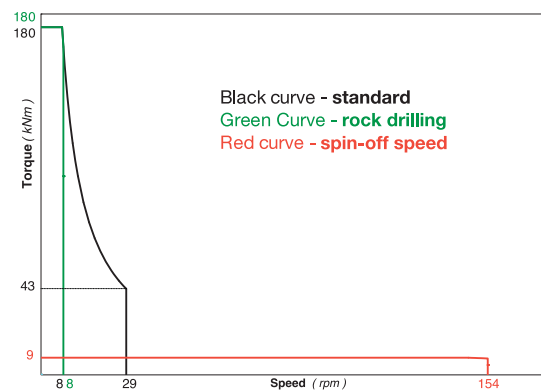
- PLC processor for all electrically actuated functions
- DMS system electronic monitoring and visualization system
- Mast inclination measurement on X/Y axes (digital/analog display)
- Automatic vertical alignment of mast
- Depth measuring device on main winch
- Speed measuring device on rotary



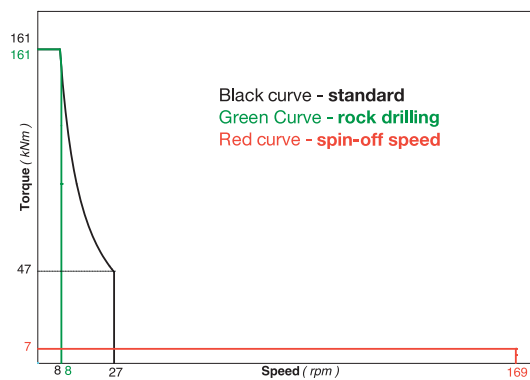
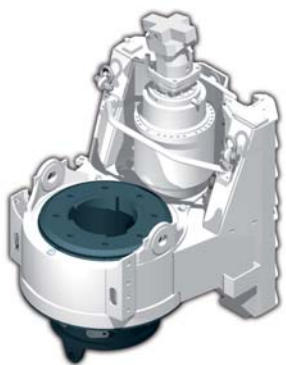
Large diameter drilling

TECHNICAL DATA - ROTARY DRIVE

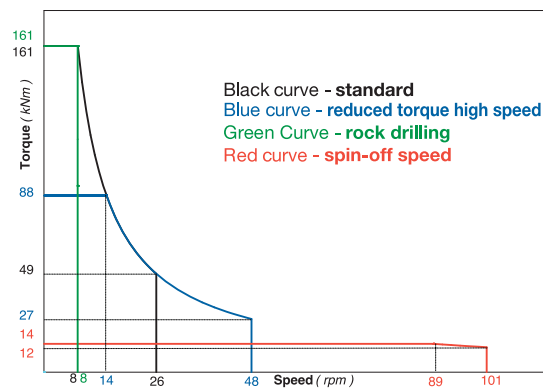
Rotary RD-170 ø 406



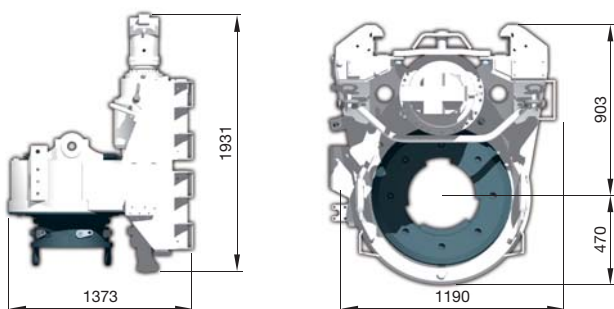
Rotary RD-160 ø 355



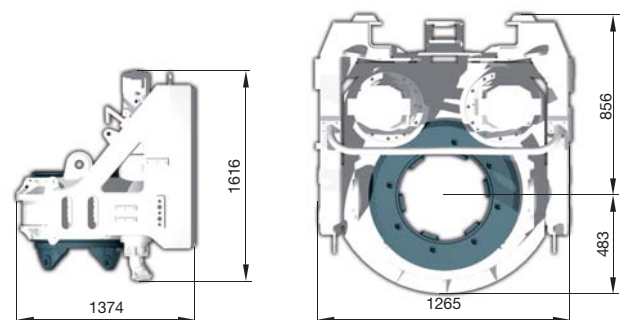
Rotary RD-160 G ø 355



RD-160 ø 355



RD-170 ø 406



Rotary	Weight	Weight
Single gear version diam. 355	3300 kg	7275 lbs
Multi gear version diam. 355	3400 kg	7495 lbs

Rotary	Weight	Weight
Single gear version diam. 406	3800 kg	8377 lbs

TECHNICAL DATA - BASE CARRIER



	Engine	CATERPILLAR C7 ACERT	CATERPILLAR C7 ACERT
	- Rated output ISO 3046-I	210 kW @ 1800 rpm	281 HP @ 1800 rpm
	- Engine conforms to Exhaust emission Standard	EU stage III A, EPA CARB Tier 3	EU stage III A, EPA CARB Tier 3
	- Diesel tank capacity	400 l	106 US gal
	- Sound pressure level in cabin (EN791 Annex A)	80 dB (A)	80 dB (A)
	- Sound power level (2000/14EG u. EN791, Annex A)	109 dB (A)	109 dB (A)
	Hydraulic system		
	- Hydraulic pressure	350 bar	5076 psi
	- Flow rates (main circuits)	2x 230 l/min	2x 61 US gal/min
	- Hydraulic oil tank capacity	446 l	116 US gal
	Undercarriage (retractable crawler frames)		
	- Crawler type	D5	D5
	- Overall width of crawlers retracted/extended	2500/3900 mm	99/153 in
	- Width of triple grouser track shoes	700 mm	28 in
	- Overall length of crawlers	5200 mm	205 in
	- Traction force	410 kN	92171 lbf
	- Travel speed	2,3 km/h	1,4 mph

* Soilmec integrates high quality level components: Berco, Rexroth, Trasmital.



Continuous flight auger version



Crowd cylinder version

Standard equipment

- Engine emergency operation mode
- Engine diagnostic system
- Diagnostic panel for hydraulic functions
- Transport securing rods on crawler units
- Access ladder on uppercarriage
- On-board lighting set
- On-board tool set
- Electric refuelling pump
- High-comfort operator's cab (width: 850 mm)
- Protective roof grate (FOPS compliant)
- Air conditioning system
- Radio and CD player

Optional equipment

Base carrier

- Bio-degradable oil
- Pressurized air conditioning system

Drilling Equipment

- Swivel for auxiliary rope
- Central lubrication system
- Videocamera set

DMS

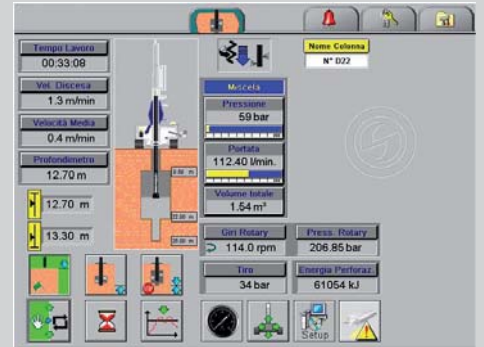
DRILLING MATE SYSTEM

Soilmec innovative DMS - Drilling Mate System - has been designed to incorporate:

- CAN OPEN bus system
- colour touch screen suitable for the drilling field

DMS consists of 3 items:

- **DMS**
- **DMS PC**
- **DMS MANAGER**



DMS Drilling Mate System

For jet grouting works monitoring, Soilmec micro drilling rigs are provided (on demand) with DMS-jet which is an optional package including sensors to be fitted on the rig, PLC and touch screen.

The system follows the main process parameters:

- drilling depth
- drilling head revolution speed
- drilling head torque
- crowd force
- extraction force
- drilling energy
- feed speed
- hoist speed
- grout pressure
- grout delivery
- air pressure
- air delivery
- working time
- drilling mast position

During the treatment, most significant data are displayed on monitor allowing the driller to operate and follow the consolidation job. For each column, complete data are stored on a USB key. They also can be sent (on driver request) by e-mail in the form of attached file, through the DMS modem, (GSM/GPRS EDGE) to customer office.

DMS send also alarms concerning groups involved in the process.

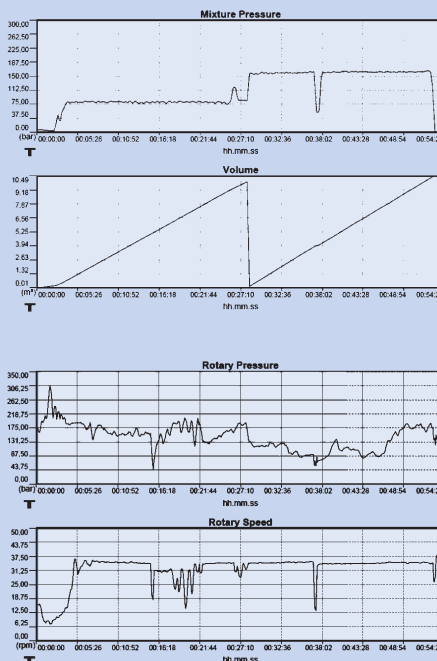
Data are raw and machine language formatted, they have therefore to be converted for PC use.

DMS PC

DMS PC is soilmec specific software to be installed on customer's PC for raw data conversion. It allows the customer to read, edit and compute the treatment data by means of the most usual softwares.

DMS PC allows editing daily production reports under the form of diagrams and daily report, to document compliance of execution works with job specifications.

DMS PC allows also establishing statistical analysis to follow day by day the job site return.



DMS Manager

A system designed for surveying a machines fleet. It includes a dedicated server and software. It enables access to, through internet, permanent contact with the rig, receiving in real time, alarms as well as production data sent by the machines (GPRS modem, satellite).



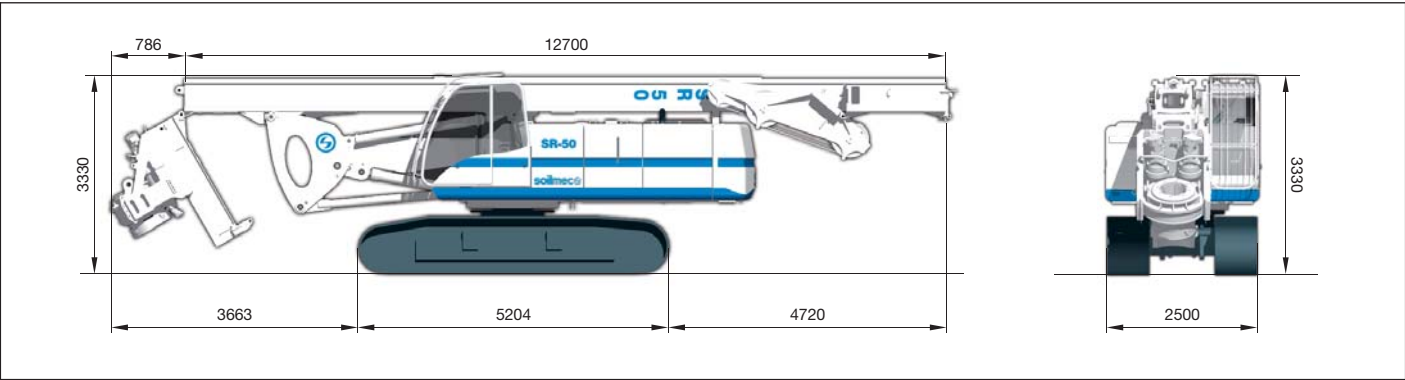
Spare Part Online Center (SPOC)

Although not specifically engineered for DMS, the package enhances the instrumentation since customers can optimize the management of their rigs.

In fact this online system offers:

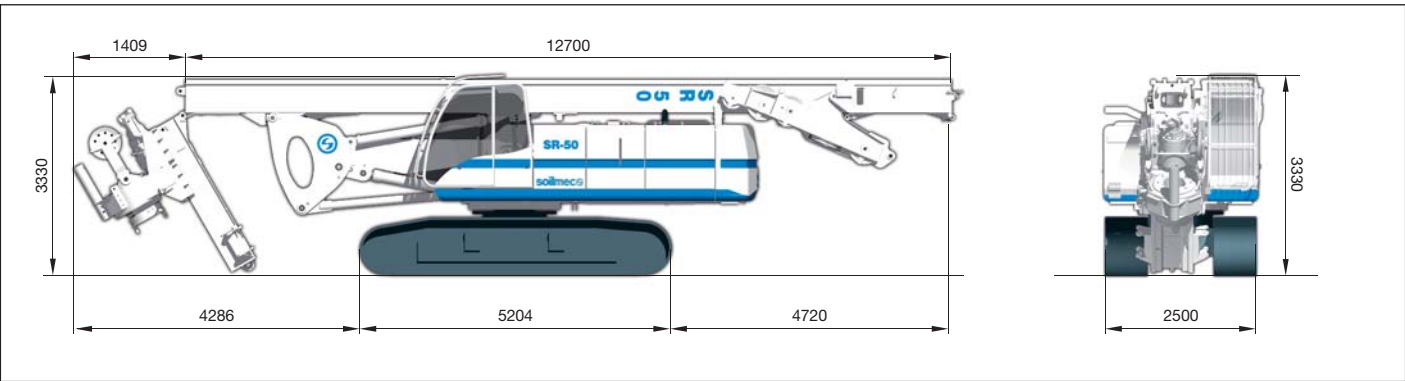
- consultation and downloading of rig documentation, e.g. user and maintenance manuals electrical/hydraulic drawings, DMS manuals, technical documentation, etc.
- placement and management of purchase orders for spare parts.
- real time availability of components of spare parts.

TRANSPORT DATA



Transport LDP version

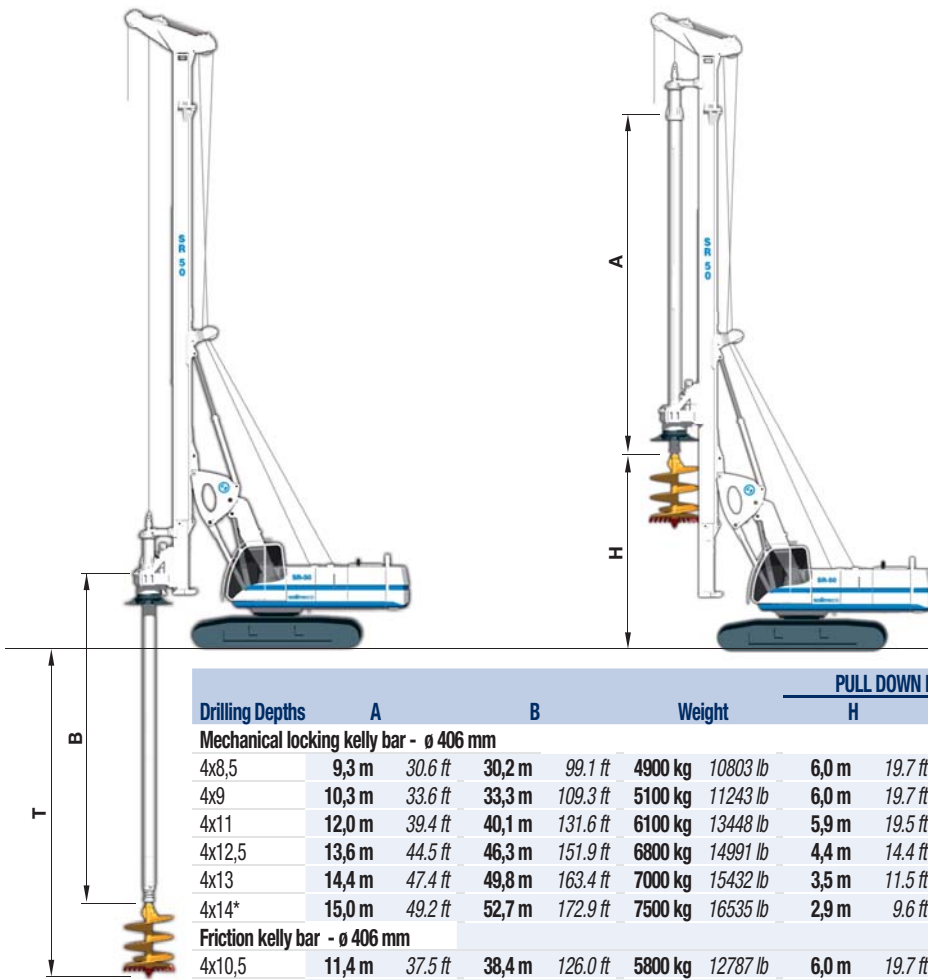
Weight 46000 kg 101512 lb



Transport CFA version

Weight 47400 kg 104500 lb





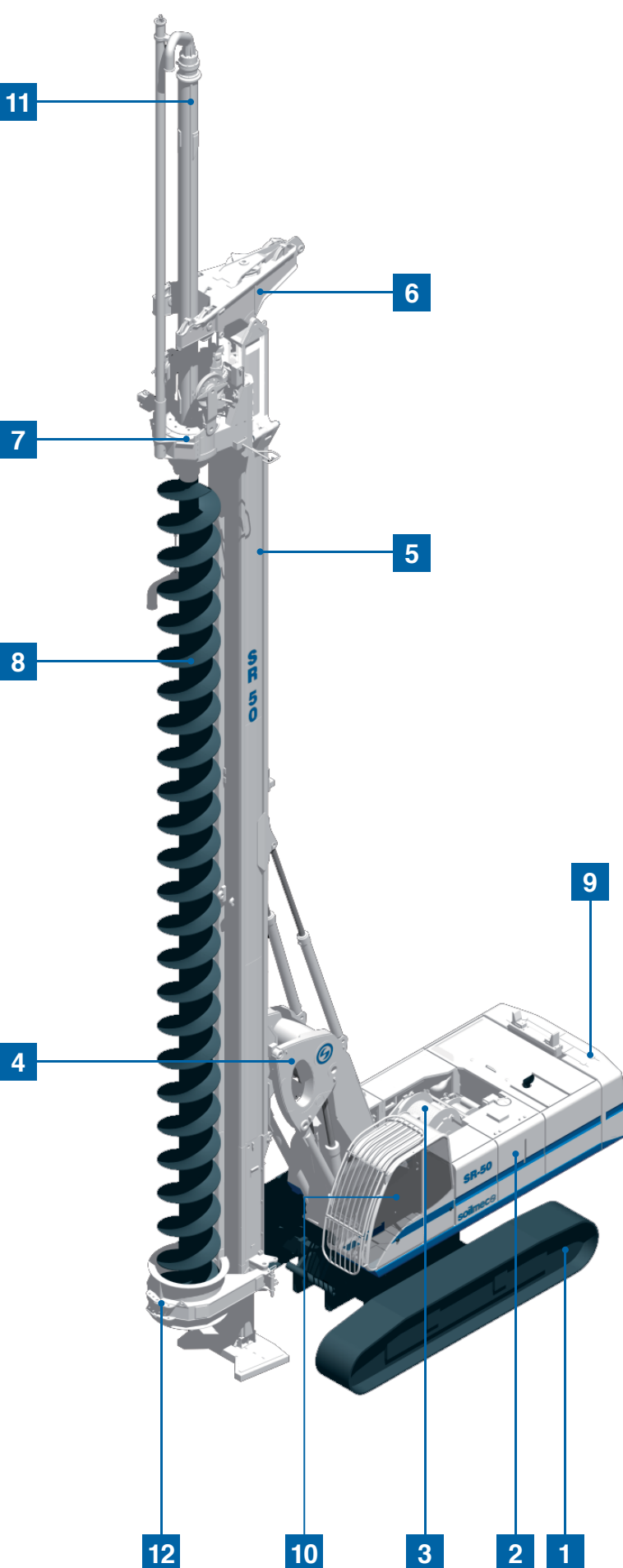
Drilling Depths		A		B		Weight		PULL DOWN IN LOW POSITION				PULL DOWN IN HIGH POSITION			
								H		T		H		T	
Mechanical locking kelly bar - ø 406 mm															
4x8,5	9,3 m	30.6 ft	30,2 m	99.1 ft	4900 kg	10803 lb	6,0 m	19.7 ft	29,3 m	96.0 ft	8,1 m	26.6 ft	27,2 m	89.1 ft	
4x9	10,3 m	33.6 ft	33,3 m	109.3 ft	5100 kg	11243 lb	6,0 m	19.7 ft	32,4 m	106.2 ft	7,7 m	25.2 ft	30,3 m	99.3 ft	
4x11	12,0 m	39.4 ft	40,1 m	131.6 ft	6100 kg	13448 lb	5,9 m	19.5 ft	39,2 m	128.5 ft	5,9 m	19.5 ft	37,1 m	121.6 ft	
4x12,5	13,6 m	44.5 ft	46,3 m	151.9 ft	6800 kg	14991 lb	4,4 m	14.4 ft	45,4 m	148.8 ft	-	-	-	-	
4x13	14,4 m	47.4 ft	49,8 m	163.4 ft	7000 kg	15432 lb	3,5 m	11.5 ft	48,9 m	160.3 ft	-	-	-	-	
4x14*	15,0 m	49.2 ft	52,7 m	172.9 ft	7500 kg	16535 lb	2,9 m	9.6 ft	51,8 m	169.8 ft	-	-	-	-	
Friction kelly bar - ø 406 mm															
4x10,5	11,4 m	37.5 ft	38,4 m	126.0 ft	5800 kg	12787 lb	6,0 m	19.7 ft	37,5 m	122.9 ft	6,5 m	21.4 ft	35,4 m	116.0 ft	
4x11	12,3 m	39.4 ft	40,8 m	127.0 ft	6100 kg	12787 lb	5,7 m	19.5 ft	39,9 m	123.9 ft	5,7 m	18.6 ft	37,8 m	123.9 ft	
4x11,5	12,8 m	42.0 ft	42,8 m	140.4 ft	6300 kg	13889 lb	5,2 m	16.9 ft	41,9 m	137.3 ft	5,2 m	16.9 ft	39,8 m	130.4 ft	
4x13,5	14,6 m	47.8 ft	51,1 m	167.6 ft	7300 kg	16094 lb	3,4 m	11.1 ft	50,2 m	164.6 ft	-	-	-	-	
5x10,5*	11,3 m	37.1 ft	47,7 m	156.5 ft	6100 kg	13448 lb	6,0 m	19.7 ft	46,8 m	153.4 ft	6,6 m	21.8 ft	44,7 m	146.5 ft	
5x11*	12,0 m	39.4 ft	50,0 m	164.0 ft	6400 kg	14109 lb	5,9 m	19.5 ft	49,1 m	161.0 ft	5,9 m	19.5 ft	47,0 m	154.0 ft	
5x11,5*	12,4 m	40.8 ft	53,1 m	174.2 ft	6600 kg	14550 lb	5,5 m	18.1 ft	52,2 m	171.1 ft	5,5 m	18.1 ft	50,1 m	164.2 ft	
5x12*	13,0 m	42.7 ft	55,0 m	180.4 ft	6800 kg	14991 lb	4,9 m	16.2 ft	54,1 m	177.4 ft	4,9 m	16.2 ft	52,0 m	170.5 ft	
4x13*	14,4 m	47.3 ft	62,2 m	204.1 ft	7300 kg	16094 lb	3,5 m	11.6 ft	61,3 m	201.0 ft	-	-	-	-	
5x13,5*	14,4 m	47.4 ft	63,5 m	208.3 ft	7600 kg	16755 lb	3,5 m	11.5 ft	62,6 m	205.2 ft	-	-	-	-	
5x14*	14,8 m	48.7 ft	63,8 m	209.3 ft	7600 kg	16755 lb	3,1 m	10.2 ft	62,9 m	206.2 ft	-	-	-	-	
Mechanical locking kelly bar - ø 355 mm															
3x8	9,1 m	29.9 ft	22,5 m	73.8 ft	3100 kg	6834 lb	6,0 m	19.7 ft	21,6 m	70.7 ft	8,1 m	26.6 ft	19,5 m	63.8 ft	
4x6	6,7 m	21.9 ft	20,0 m	65.6 ft	2500 kg	5512 lb	6,0 m	19.7 ft	19,1 m	62.5 ft	8,1 m	26.6 ft	17,0 m	55.6 ft	
4x8	9,4 m	30.7 ft	30,2 m	99.1 ft	3100 kg	6834 lb	6,0 m	19.7 ft	29,3 m	96.0 ft	8,1 m	26.6 ft	27,2 m	89.1 ft	
4x9	10,2 m	33.4 ft	33,2 m	108.9 ft	3400 kg	7496 lb	6,0 m	19.7 ft	32,3 m	105.8 ft	7,8 m	25.5 ft	30,2 m	98.9 ft	
4x10,5	11,8 m	38.7 ft	39,8 m	130.6 ft	3900 kg	8598 lb	6,0 m	19.7 ft	38,9 m	127.5 ft	6,2 m	20.2 ft	36,8 m	120.6 ft	
4x12	13,4 m	43.8 ft	46,0 m	150.9 ft	4300 kg	9480 lb	4,6 m	15.1 ft	45,1 m	147.8 ft	-	-	-	-	
4x13	14,0 m	45.9 ft	49,5 m	162.4 ft	4600 kg	10141 lb	4,0 m	13.0 ft	48,6 m	159.3 ft	-	-	-	-	
Friction kelly bar- ø 355 mm															
4x9	10,0 m	32.8 ft	33,5 m	109.9 ft	3100 kg	6834 lb	6,0 m	19.7 ft	32,6 m	106.8 ft	8,0 m	26.1 ft	30,5 m	99.9 ft	
4x11	11,6 m	38.2 ft	40,1 m	131.6 ft	4000 kg	8818 lb	6,0 m	19.7 ft	39,2 m	128.5 ft	6,3 m	20.7 ft	37,1 m	121.6 ft	
4x12	12,9 m	42.2 ft	46,0 m	150.9 ft	4600 kg	10141 lb	5,1 m	16.7 ft	45,1 m	147.8 ft	5,1 m	16.7 ft	43,0 m	140.9 ft	
5x8,5*	9,6 m	31.6 ft	39,8 m	130.6 ft	3900 kg	8598 lb	6,0 m	19.7 ft	38,9 m	127.5 ft	8,1 m	26.6 ft	36,8 m	120.6 ft	
5x9*	10,0 m	32.8 ft	41,3 m	135.5 ft	4100 kg	9039 lb	6,0 m	19.7 ft	40,4 m	132.4 ft	8,0 m	26.1 ft	38,3 m	125.5 ft	
5x9,5*	10,4 m	34.1 ft	43,6 m	143.0 ft	4300 kg	9480 lb	6,0 m	19.7 ft	42,7 m	140.0 ft	7,6 m	24.8 ft	40,6 m	133.1 ft	
5x10*	11,0 m	36.1 ft	46,6 m	152.9 ft	4400 kg	9700 lb	6,0 m	19.7 ft	45,7 m	149.8 ft	7,0 m	22.8 ft	43,6 m	142.9 ft	
5x11*	11,6 m	38.2 ft	49,7 m	163.1 ft	4800 kg	10582 lb	6,0 m	19.7 ft	48,8 m	160.0 ft	6,3 m	20.7 ft	46,7 m	153.1 ft	
5x12*	12,9 m	42.2 ft	56,0 m	183.7 ft	5200 kg	11464 lb	5,1 m	16.7 ft	55,1 m	180.6 ft	5,1 m	16.7 ft	53,0 m	173.7 ft	
5x13*	14,0 m	45.8 ft	61,4 m	201.4 ft	5500 kg	12125 lb	4,0 m	13.1 ft	60,5 m	198.4 ft	-	-	-	-	

* rotary torque
to be reset

Drilling Diameters	CYLINDER	
Uncased	1500 (2000) mm	78.7 (98.4) in
Cased	1300 mm	78.7 in

APPLICATION

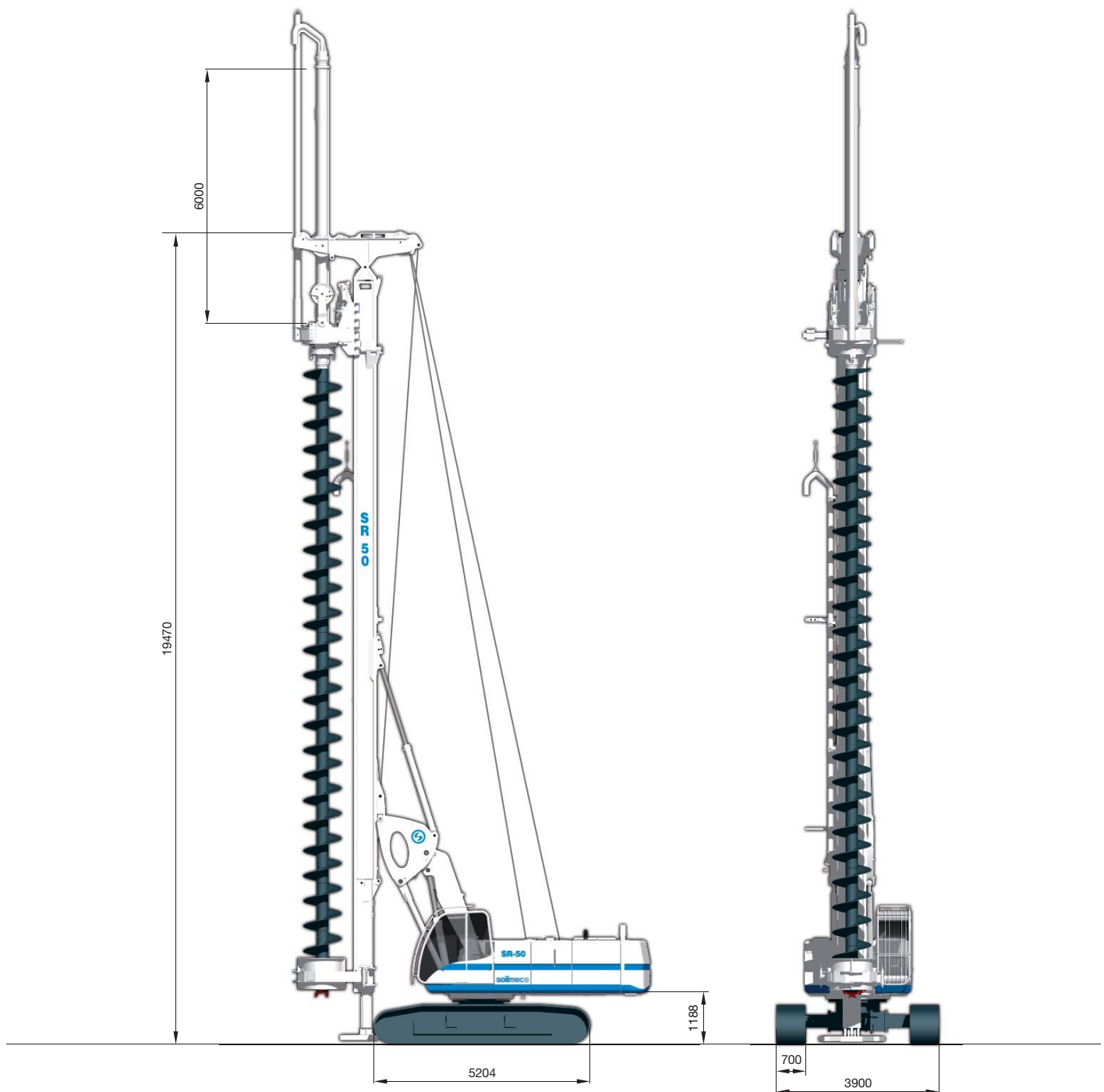
CFA - Continuous Flight Auger



The **CFA** method is appreciated because it is:

- a quick and cost effective method
- free of vibration and relatively quiet
- easily adaptable to varying ground conditions.

- 1 Undercarriage
- 2 Turret
- 3 Winches
- 4 Parellelogram system
- 5 Self erecting mast
- 6 Cathead
- 7 Rotary head
- 8 Auger
- 9 Counterweight
- 10 Cab
- 11 Auger extension
- 12 Openable lower guide

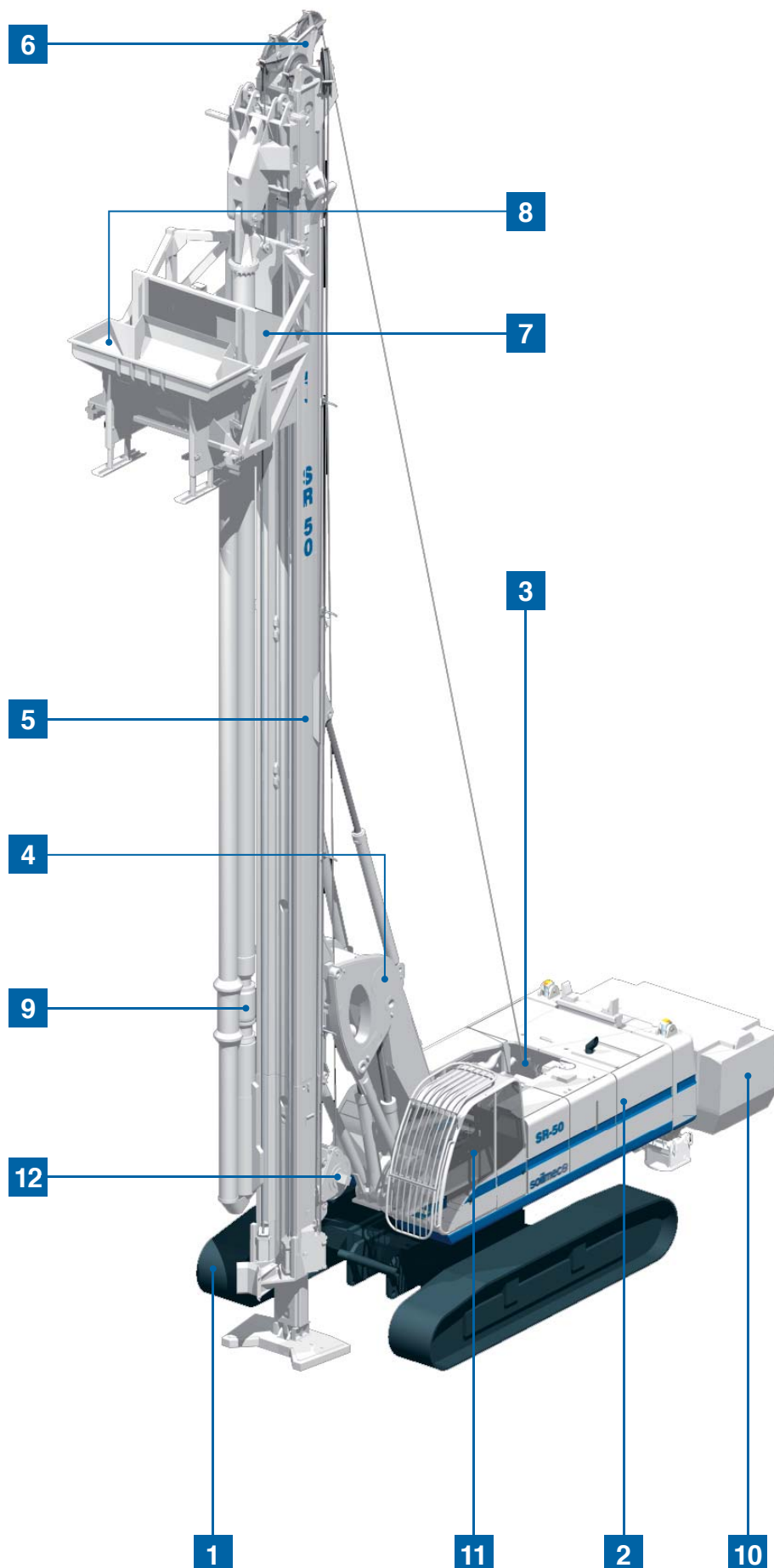


	4-part line pull - ø 406 mm		4-part line pull - ø 355 mm	
Max extraction force (nominal)	520 kN	116898.6 lbf	520 kN	116898.6 lbf
Max crowd force* (nominal)	90 kN	20232 lbf	90 kN	20232 lbf
Auger extension (Short)	0,0 m	0.0 ft	3,0 m	9.8 ft
Drilling depth with auger cleaner	13,8 m	45.3 ft	16,8 m (13,8+3)	55.1 ft (45.3+9.8)
Drilling depth without auger cleaner	15,0 m	49.2 ft	18,0 m (15+3)	59.1 ft (49.2+9.8)
Max drilling diameter	1000 mm	39.4 in	1000 mm	39.4 in
Auger extension (Long)	4,5 m	14.8 ft	6,0 m	19.7 ft
Drilling depth with auger cleaner	18,3 m (13,8+4,5)	60.0 ft (45.3+14.8)	18,8 m (13,8+6)	61.7 ft (45.3+19.7)
Drilling depth without auger cleaner	19,5 m (15+4,5)	64.0 ft (49.2+14.8)	21,0 m (15+6)	68.9 ft (49.2+19.7)
Max drilling diameter	750 mm	29.6 in	750 mm	29.6 in
Continuous flight auger length including starter auger	15600 mm	614.6 in	15800 mm	622.5 in
Operating weight (approx. w/o augers)	51500 kg	113537 lb	50900 kg	112214 lb

* with additional winch

APPLICATION

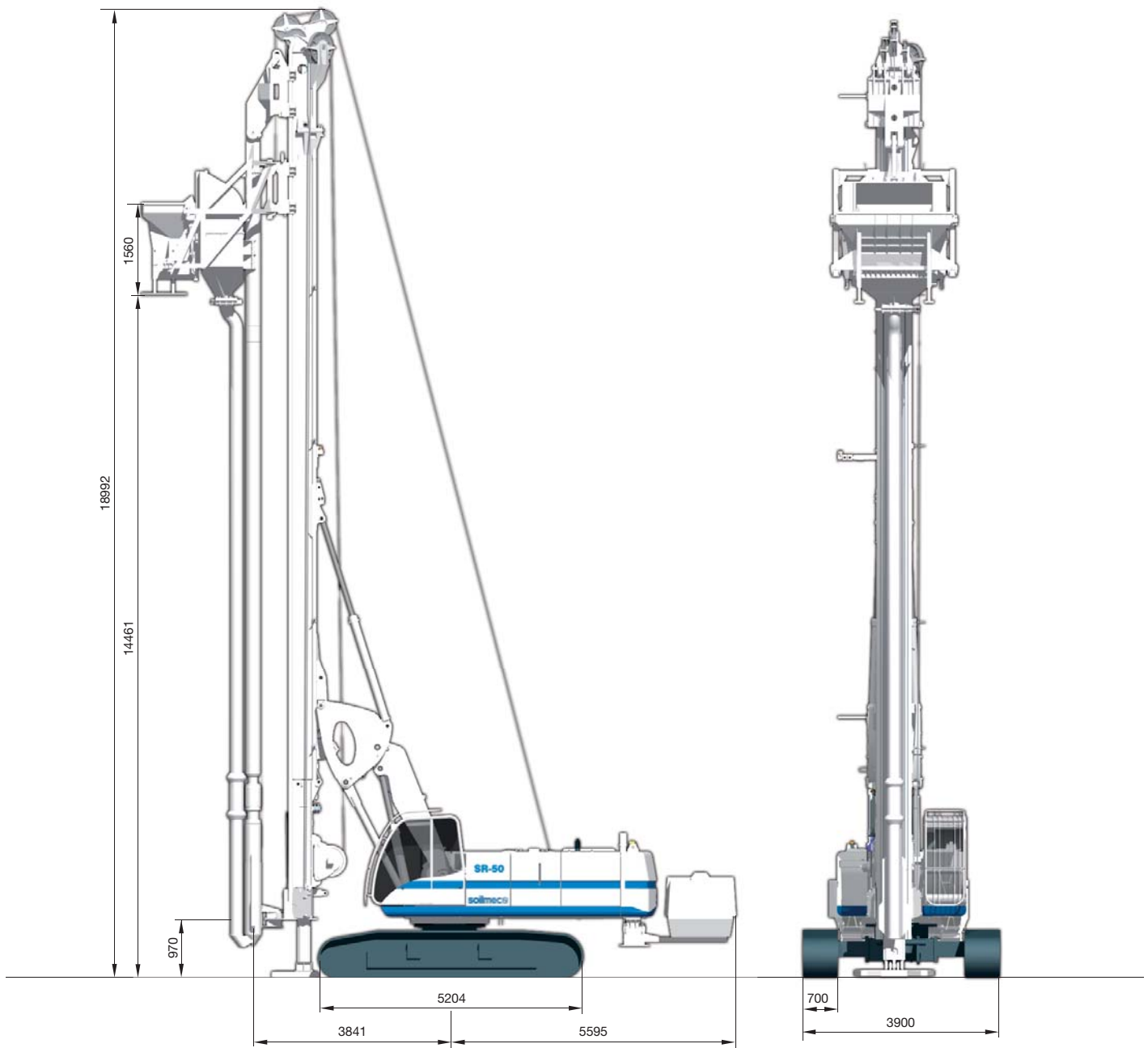
BFS - Bottom Feed System



BFS is the **SR-50** configuration dedicated to carry out stone columns using bottom-feed method.

Soilmec vibro-treatment system offers the most cost effective and efficient method suitable for soft soils.

- 1 Undercarriage
- 2 Turret
- 3 Main winch
- 4 Parellelogram system
- 5 Self erecting mast
- 6 Cathead
- 7 Stone tank
- 8 Stone filling hopper
- 9 Vibrator string
- 10 Air compressor
- 11 Cab
- 12 Crowd system



Deep vibrator max penetration	12 m	39.4 ft
Eccentric moment	1,8 kgm	13.02 lbf*ft
Max centrifugal force	181 kN	40690 lbf
Max rotation speed and frequency	3000 rpm - 50 Hz	3000 rpm - 50 Hz
Winch crowd stroke	14000 mm	551 in
Pull down/up force on casing (nominal)	180 kN	51032 lbf
Air compressor delivery rated (ISO 1217)	10,5 m³/min	2774 gpm



SOILMEC distributes machinery and structures all over the world, supported by SOILMEC subsidiary companies and dealers.
The complete Soilmec network list is available on the webpage www.soilmec.it