



**SR-80**

Hydraulic  
Rotary Rig

LDP RCDS  
CFA DW  
CAP  
DP  
TJ

Hydraulic Rotary Rig **SR-80**

**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

- Counterweight with a self-handling system (service crane not required).
- Crawlers can be retracted to respect wide transport requirements.
- Removable tracks to reduce transport weight.

## 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.

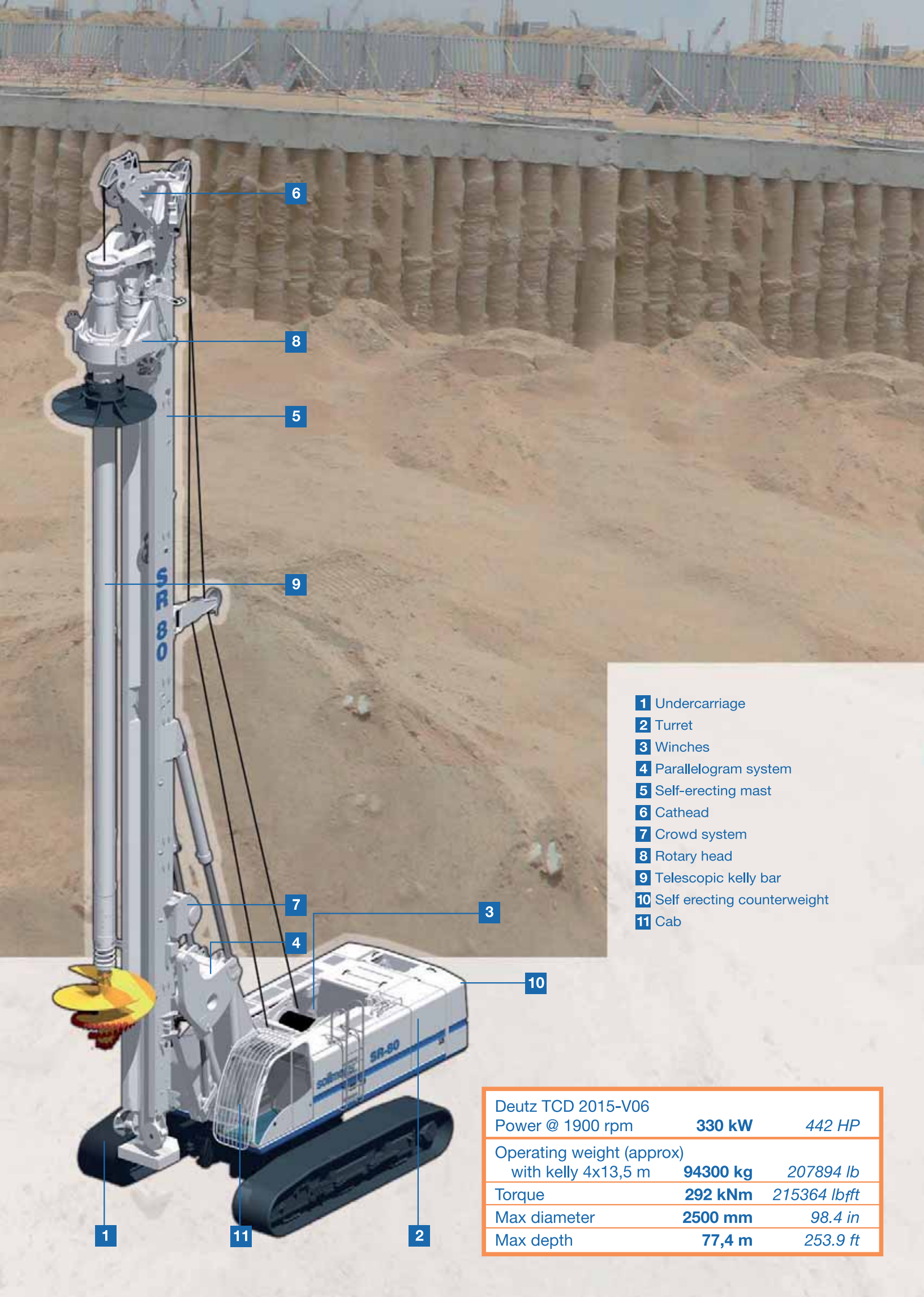
## Ergonomic design

The cab is designed to be spacious, quiet and comfortable for the operator, assuring high productivity throughout the working day. Controls are conveniently located for easy operation.

## 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** Self erecting counterweight
- 11** Cab

<b>Deutz TCD 2015-V06</b>		
Power @ 1900 rpm	<b>330 kW</b>	<b>442 HP</b>
Operating weight (approx) with kelly 4x13,5 m	<b>94300 kg</b>	<b>207894 lb</b>
Torque	<b>292 kNm</b>	<b>215364 lbfft</b>
Max diameter	<b>2500 mm</b>	<b>98.4 in</b>
Max depth	<b>77,4 m</b>	<b>253.9 ft</b>

# LDP - KELLY DRILLING SYSTEM

## Crowd Winch Version

The hydraulic drilling rig SR-80 has been specially designed to suit the following applications:

- **cased bored piles** with casing driven directly by rotary head or optionally 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;
- **CAP (Cased Auger Piles) piles** with double rotary system;
- **DP (Displacement Piles)** *on demand*;
- **TJ (Turbojet)** - column soil consolidation *on demand*;
- **Soil-mixing** - column soil consolidation *on demand*;
- **RCDS (Reverse Circulation Drilling System)** *on demand*;
- **DW** it can be converted into **Diaphragm Wall base machine** to work with an **hydraulic grab**.



## DMS - Drilling Mate System

The SR-80 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 system includes:

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

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

*The following additional optional features are available:*

- automatic turret swinging for bored hole centering

- automatic mast vertical alignment
- recording of operating data on memory card
- DMS PC software package to analyze and print production data and job site daily reports
- DMS MANAGER for remote control, transmission of process and operating data, tele assistance.

**DMS**  
DRILLING MATE SYSTEM









# LDP - KELLY DRILLING SYSTEM

## Crowd Cylinder Version





## TECHNICAL DATA

	Crowd cylinder		Crowd winch		
<b>Overall height</b>	<b>22765 mm</b>	896.2 in	<b>22765 mm</b>	896.2 in	
<b>Operating weight</b> (approx) with kelly 4x13.5	<b>90400 kg</b>	199295 lb	<b>94300 kg</b>	207894 lb	
	<b>Rotary Drive - Spin-off type</b>				
	-Torque (nominal)	<b>272 kNm</b>	200613 lb <sub>f</sub> ft	<b>272 kNm</b>	200613 lb <sub>f</sub> ft
	-Speed of rotation (max)	<b>24,9 rpm</b>	24.9 rpm	<b>24,9 rpm</b>	24.9 rpm
	-Spin-off speed	<b>117 rpm</b>	117 rpm	<b>117 rpm</b>	117 rpm
	<b>Rotary Drive - Shifting gear type</b>				
	-Torque (nominal)	<b>292 kNm</b>	215364 lb <sub>f</sub> ft	<b>292 kNm</b>	215364 lb <sub>f</sub> ft
	-Speed of rotation (max)	<b>50,6 rpm</b>	50.6 rpm	<b>50,6 rpm</b>	50.6 rpm
	-Spinoff speed	<b>107 rpm</b>	107 rpm	<b>107 rpm</b>	107 rpm
	<b>Crowd system</b>				
	-Crowd force (pull down/up)	<b>201/280 kN</b>	45186/62945 lb <sub>f</sub>	<b>350/350 kN</b>	78682/78682 lb <sub>f</sub>
	-Stroke (kelly system)	<b>6500 mm</b>	256 in	<b>15555 mm</b>	612 in
	-Stroke (CFA system)	<b>21650 mm</b>	852 in	<b>15790 mm</b>	622 in
	-Speed (down/up)	<b>4,5/10 m/min</b>	14.7/32.8 ft/min	<b>8,4/18,8 m/min</b>	27.5/61.6 ft/min
	-Fast speed (down/up)	<b>11,4/10 m/min</b>	37.4/32.8 ft/min	<b>18,8/18,8 m/min</b>	61.6/61.6 ft/min
	<b>Main winch SW-280</b>				
		<b>controlled descent</b>	<i>controlled descent</i>	<b>controlled descent</b>	<i>controlled descent</i>
	-Line pull (1st layer) effective/nominal	<b>235/280 kN</b>	52829/62945 lb <sub>f</sub>	<b>235/280 kN</b>	52829/62945 lb <sub>f</sub>
	-Rope diameter/length	<b>30 mm/159 m</b>	1.18 in / 521 ft	<b>30 mm/159 m</b>	1.18 in / 521 ft
			<b>76m/min</b>	249.3 ft/min	
	<b>Auxiliary winch SF-240</b>				
		<b>free fall</b>	<i>free fall</i>	<b>free fall</b>	<i>free fall</i>
	-Line pull (1st layer) effective/nominal	<b>198/235 kN</b>	44511/52899 lb <sub>f</sub>	<b>198/235 kN</b>	44511/52899 lb <sub>f</sub>
	-Rope diameter/length	<b>30 mm/156 m</b>	1.18 in / 511 ft	<b>30 mm/156 m</b>	1.18 in / 511 ft
			<b>76 m/min</b>	249.3 ft/min	
	<b>Auxiliary winch SW-140</b>				
		<b>controlled descent</b>	<i>controlled descent</i>	<b>controlled descent</b>	<i>controlled descent</i>
	-Line pull (1st layer) effective/nominal	<b>122/145 kN</b>	27426 /32597 lb <sub>f</sub>	<b>122/145 kN</b>	27426 /32597 lb <sub>f</sub>
	-Rope diameter	<b>26 mm</b>	1.02 in	<b>26 mm</b>	1.02 in
			<b>86 m/min</b>	282.1 ft/min	
	<b>Auxiliary winch SF-140</b>				
		<b>free fall</b>	<i>free fall</i>	<b>free fall</b>	<i>free fall</i>
	-Line pull (1st layer) effective/nominal	<b>123/147 kN</b>	27651/33046 lb <sub>f</sub>	<b>123/147 kN</b>	27651/33046 lb <sub>f</sub>
	-Rope diameter/length	<b>26 mm</b>	1.02 in	<b>26 mm</b>	1.02 in
			<b>122 m/min</b>	400.2 ft/min	
	<b>Mast inclination</b>				
	-Backward/forward/lateral	<b>10/4/3 °</b>	10/4/3 °	<b>10/4/3 °</b>	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 and auxiliary winch with special grooving
- Hoist limit switch on main and auxiliary winches
- Swivel for main rope
- Crowd in fast or slow mode
- Pivoted anchor points for main rope

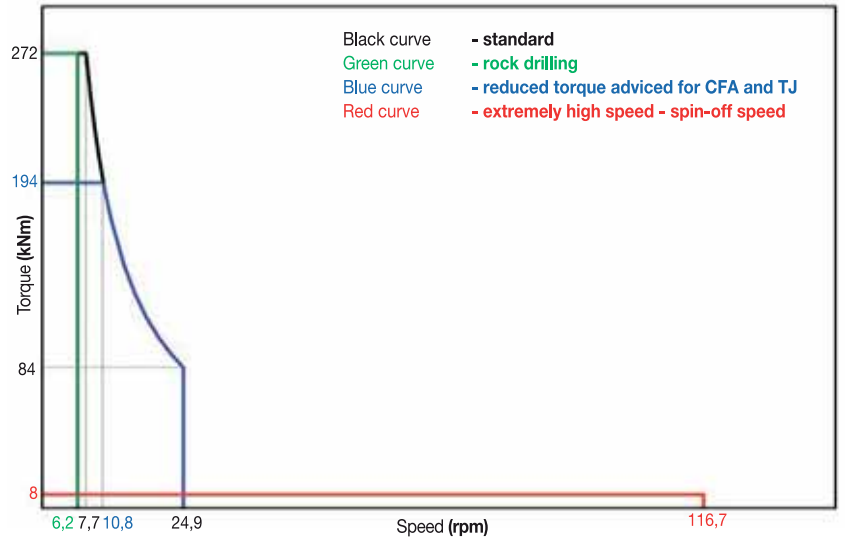
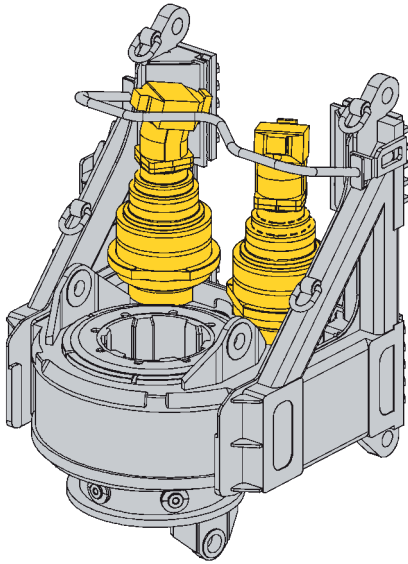
#### Measuring and control equipment

- PLC processor for all electrically actuated functions
- DMS system electronic monitoring and visualization system  
Display of fault messages as plain text
- 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
- Crowd pressure setting

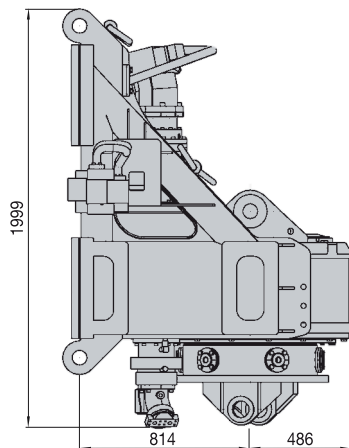
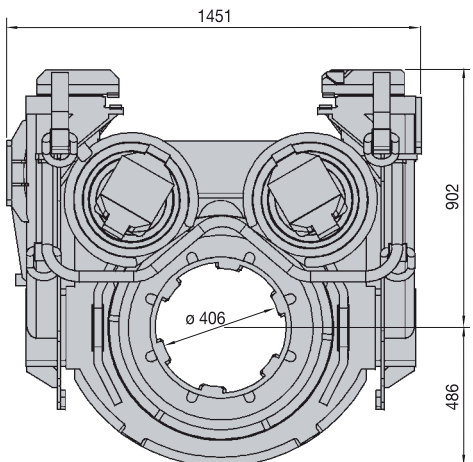
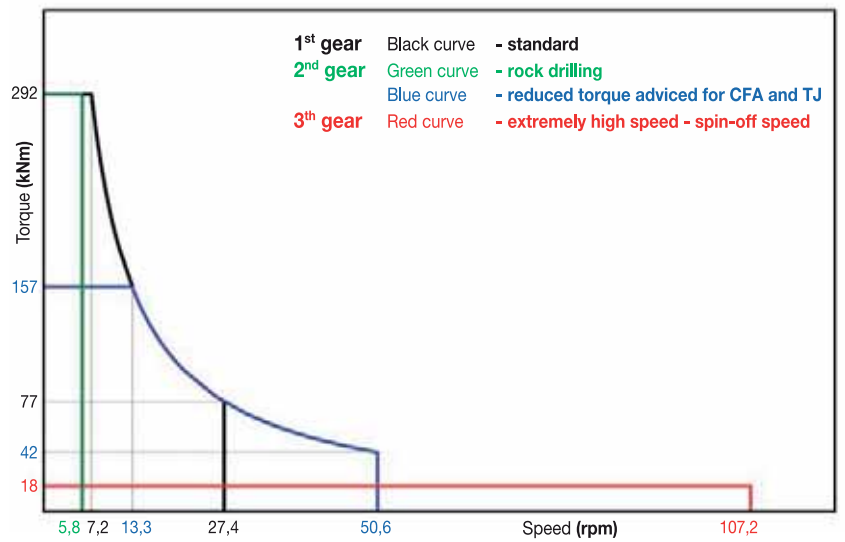
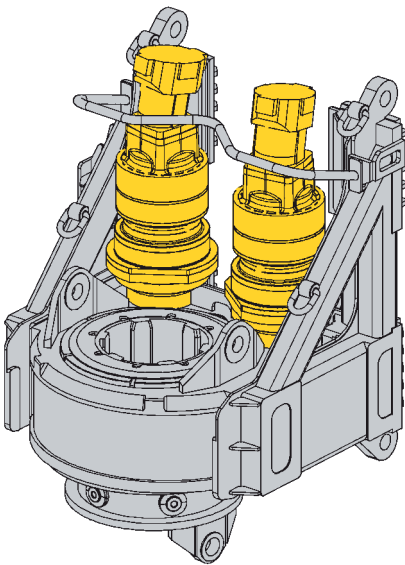


# TECHNICAL DATA - ROTARY DRIVE

## Rotary RD-270






## Rotary RD-290 G



Rotary	Weight	
Crowd cylinder version	5200 kg	11464 lbs
Crowd winch version	5700 kg	12566 lbs

## TECHNICAL DATA - BASE CARRIER



	<b>Engine</b>	<b>Deutz TCD2015-V06</b>	<i>Deutz TCD2015-V06</i>
	-Rated output ISO 3046-I	<b>330kW @ 1900 rpm</b>	<i>442 HP @ 1900 rpm</i>
	-Engine conforms to Exhaust emission Standard	<b>EU stage III, EPA CARB Tier 3</b>	<i>EU stage III, EPA CARB Tier 3</i>
	-Diesel tank capacity	<b>565 l</b>	<i>149.2 US gal</i>
	-Sound pressure level in cabin (EN791 Annex A)	<b>80 dB (A)</b>	<i>80 dB (A)</i>
	-Sound power level (2000/14EG u. EN791, Annex A)	<b>110 dB (A)</b>	<i>110 dB (A)</i>
	<b>Hydraulic system*</b>		
	-Hydraulic power output (measured at inlet to rotary drive)	<b>220 kW</b>	<i>295 HP</i>
	-Hydraulic pressure	<b>300 bar</b>	<i>4786 psi</i>
	-Flow rates (main circuits)	<b>2 x 304 l/min</b>	<i>2 x 80.3 US gal/min</i>
	-Hydraulic oil tank capacity	<b>800 l</b>	<i>211 US gal</i>
	<b>Undercarriage*</b> (retractable crawler frames)		
	-Crawler type	<b>D7F</b>	<i>D7F</i>
	-Overall width (removed side frames)	<b>2810 mm</b>	<i>110.6 in</i>
	-Overall width of crawlers (retracted/extended)	<b>3200/4700 mm</b>	<i>125.9/185 in</i>
	-Width of triple grouser track shoes	<b>900 mm</b>	<i>35.4 in</i>
	-Overall length of crawlers	<b>5680 mm</b>	<i>223.6 in</i>
	-Traction force effective/nominal	<b>561.3/668.2 kN</b>	<i>126138/150215 lb<sub>f</sub></i>
	-Travel speed	<b>1,9 km/h</b>	<i>1.18 mph</i>

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

### Standard equipment

- Oscillator attachment
- Emergency mode of operation for engine
- Engine diagnostic system
- Diagnostic panel for hydraulic functions
- Removable counterweight
- Removable crawler side frames
- Transport securing lugs on crawler units
- Access ladder on upper carriage
- On-board lighting set
- On-board tool set
- Electric refuelling pump
- High-comfort operator's cab (*width: 950 mm*)
- Protective roof grate (*FOPS compliant*)
- Air conditioning system
- Radio and CD player

### Optional equipment

- Base carrier**
  - Biodegradable oil
  - Pressurized air conditioning system
- Drilling Equipment**
  - Freefall main winch
  - Freefall auxiliary winch
  - Swivel for auxiliary rope
  - Central lubrication system
  - Videocamera attachment
- Alternative equipment options**
  - Wider triple grouser track shoes

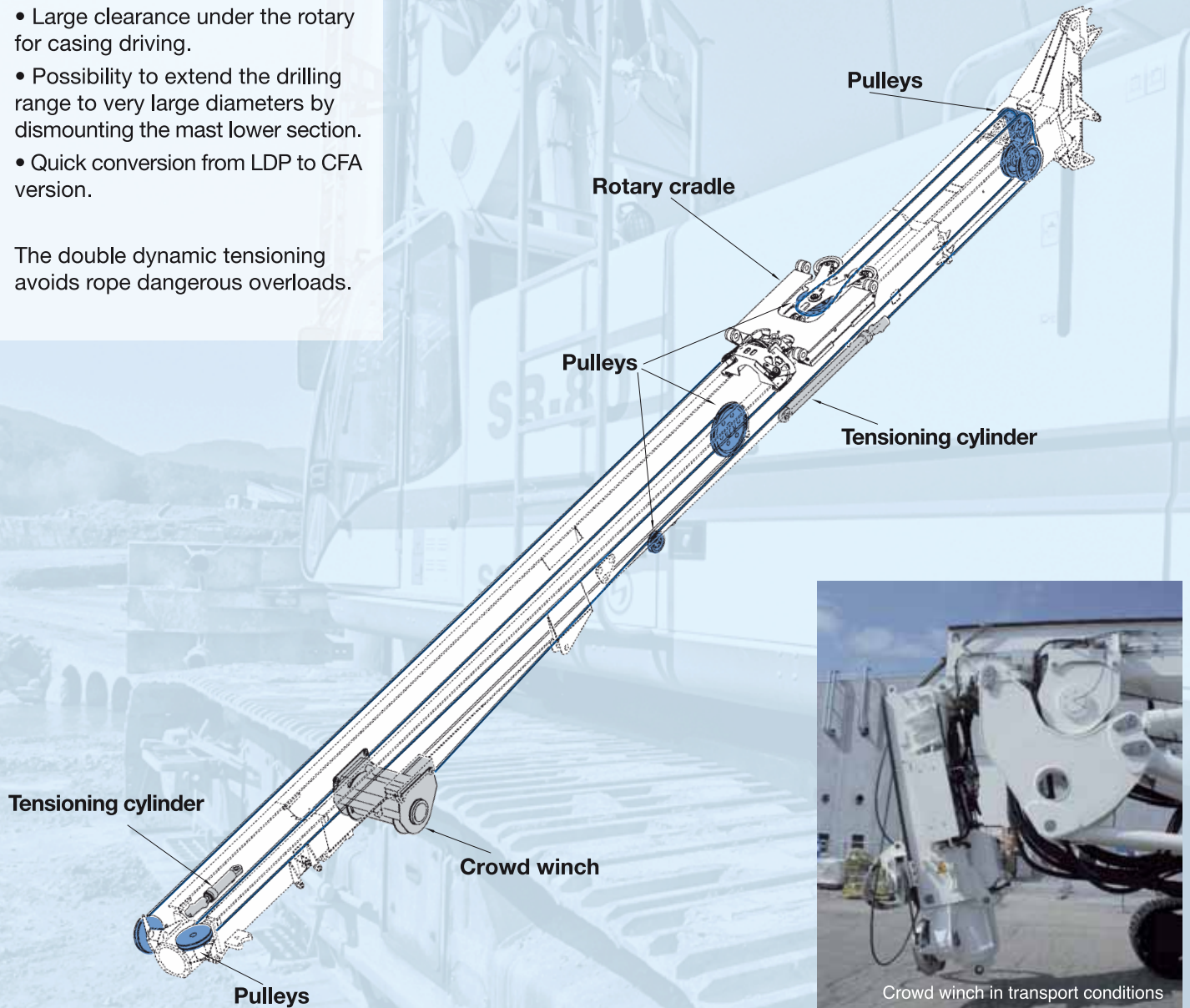


## FOCUS - CROWD WINCH SYSTEM

The crowd winch system allows the best versatility of use:

- Large clearance under the rotary for casing driving.
- Possibility to extend the drilling range to very large diameters by dismantling the mast lower section.
- Quick conversion from LDP to CFA version.

The double dynamic tensioning avoids rope dangerous overloads.

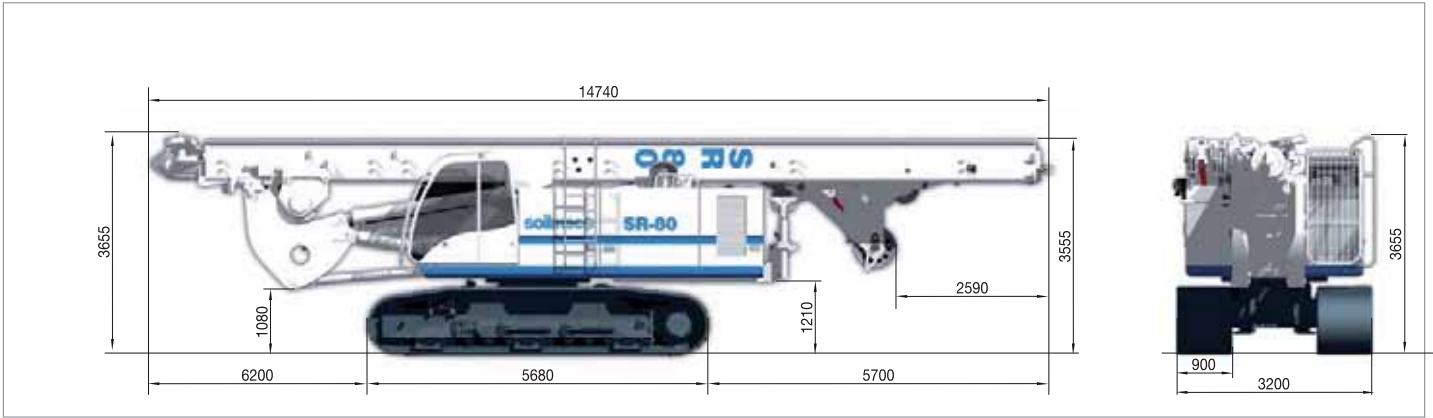


## FOCUS - Self-handling counterweight system

The rig is equipped with an autonomous counterweight assembling system which is based on hydraulic cylinders allowing the lifting and the proper adjustment of the counterweight before the final stop. Easy and comfortable lever-operated controls placed on the rig side allow working with maximum visibility and safety.

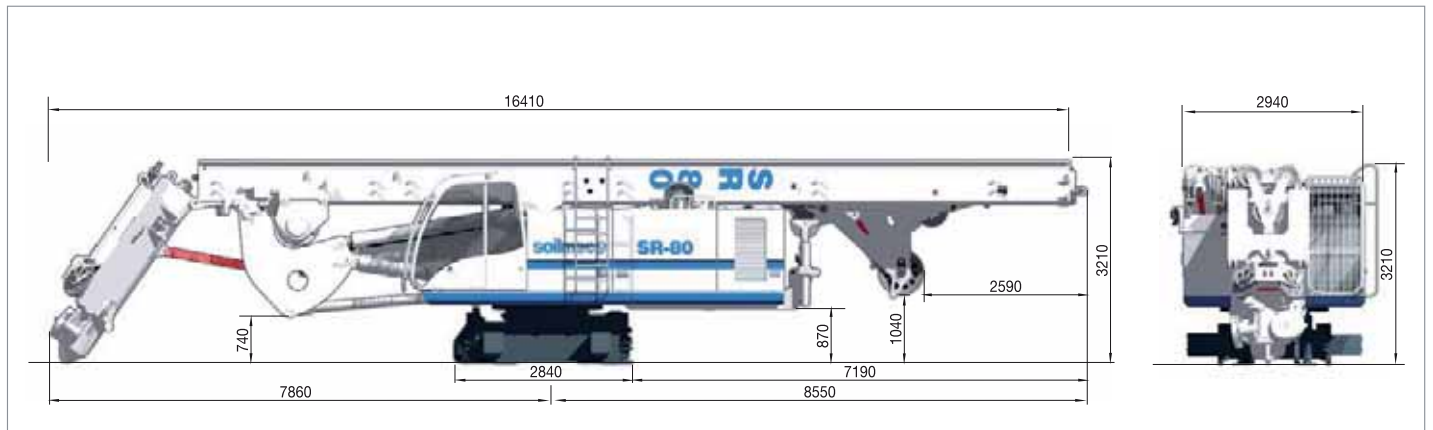


# TRANSPORT DATA



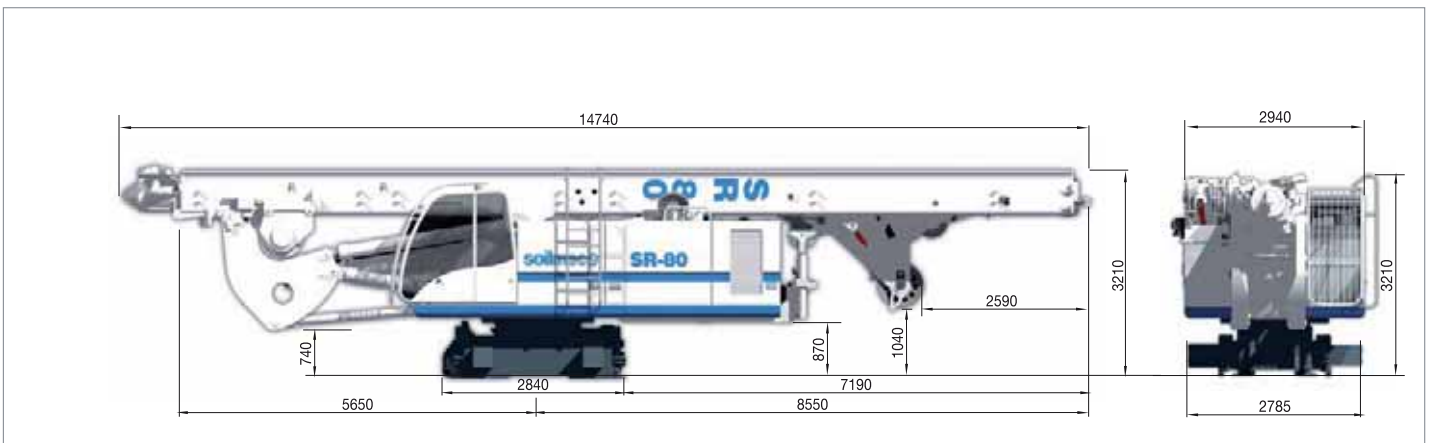
**Transport w/o lower mast element**

Weight **64773 kg** 142799 lb



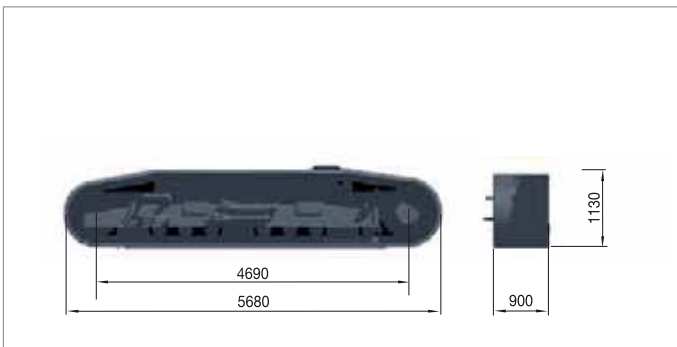
**Transport w/o side frames**

Weight **52500 kg** 115741 lb

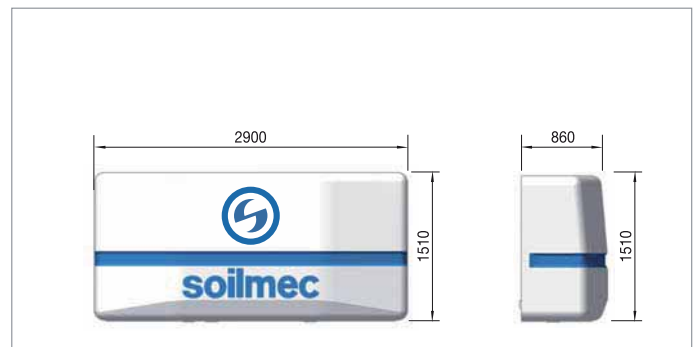


**Transport w/o lower mast element and side frames**

Weight **48773 kg** 107525 lb



**Side frames** Weight **8000 kg** 17636 lb



**Counterweight** Weight **10500 kg** 23148 lb



# 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

DMS is a standard device on all Soilmec machines. Its main characteristics are:

- interface with Diesel engine
- programmed rig maintenance schedule
- troubleshooting - helping the operator to locate the fault
- production and operation data storage on CF card or USB flash drive for their processing on DMS PC
- connection to modem (GPRS, EDGE or SATELLITE) to send out alarms/data to customer/ Soilmec Control Center (DMS Manager) or to an e-mail address.

Technologies currently available on DMS:

- **LDP / CFA / DP / RCDS**
- **CAP / CSP**
- **GRAB**
- **HYDROMILL**
- **JET / DRILLING / ANCHORS**
- **TTM1-TTM2 / SOILMIXING**

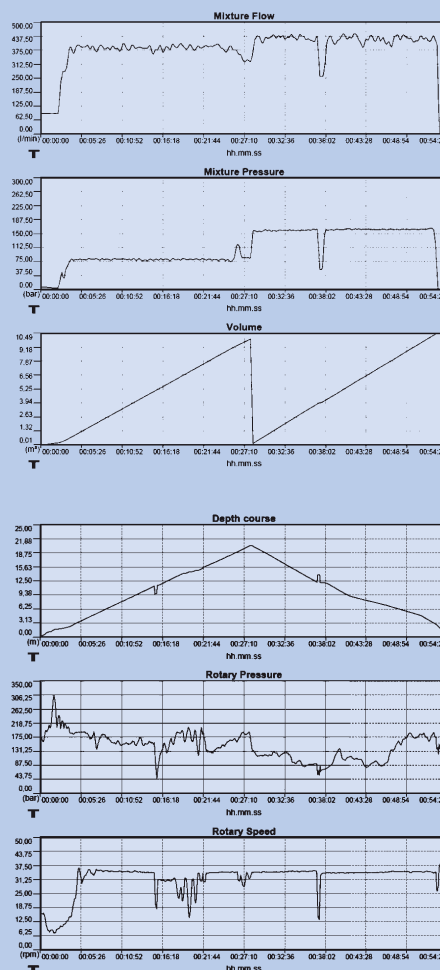
According to technology, DMS can also be complemented with:

- DPS (Drilling Positioning System) to measure drilling tool vertical deviation
- APS (Automatic Positioning System) for rig pile spotting

### DMS PC

DMS software enables "visualization and processing" of data either stored on CF/USB flash drive or received remotely via radio/GPS/wifi/satellite.

With the use of DMS PC daily and production reports are easily available.



### DMS MANAGER

Enables full remote control of the machine operations and processing of drilling data sent by modem (wifi/satellite/GPRS).

DMS MANAGER allows to fully use the DMS potential for a truly comprehensive service to customer/jobsite.



### SPARE PART ONLINE CENTER (SPOC)

The innovative technical web site of Soilmec S.p.A. has been published with the aim to give Soilmec Dealer Network **continuous updated information** regarding products and equipments, for a better interaction with the Customers. Infact, SPOC offers the following online features:

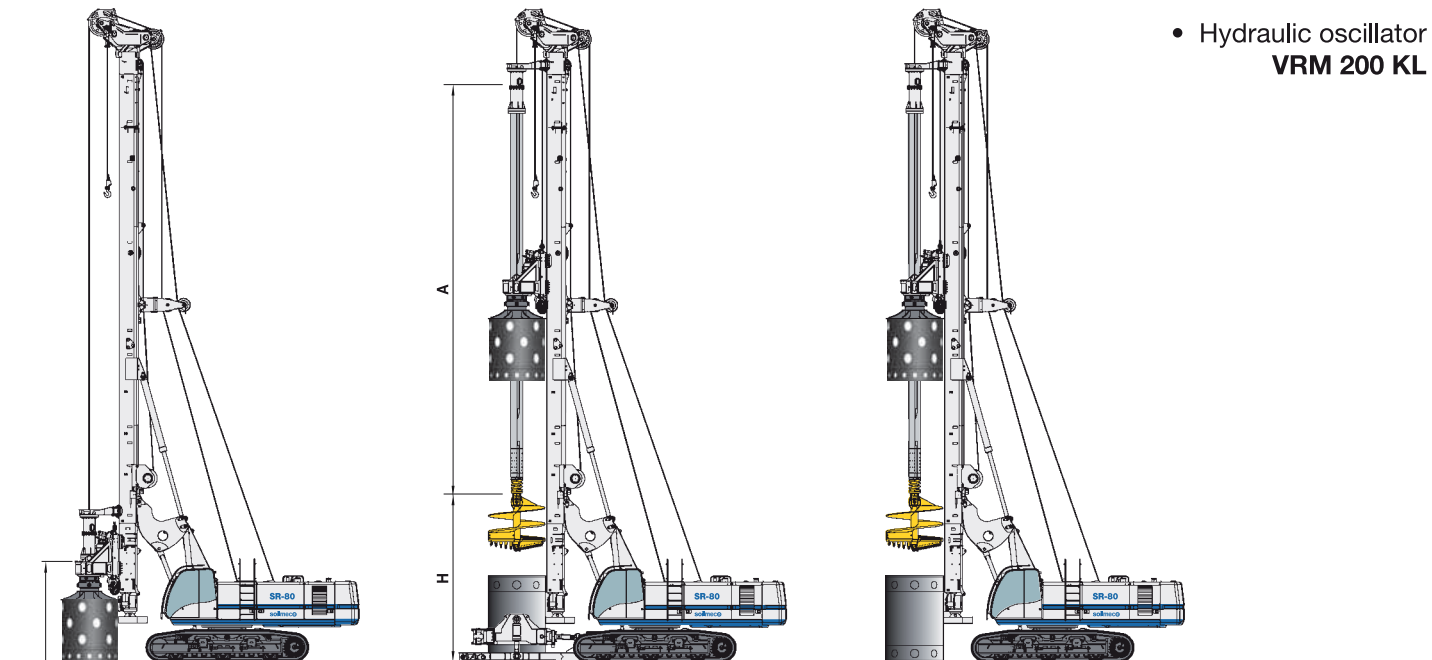
- consultation and downloading of rig documentation, e.g. user and maintenance manuals electrical / hydraulic drawings, DMS manuals, technical documentation, etc
- placement and management of purchase orders for spare parts
- real time availability of components of spare parts.

# APPLICATIONS

## LDP - Kelly Drilling System

### Optional equipment:

- Hydraulic oscillator  
VRM 200 KL



Drilling Depths	A		B		Weight	CYLINDER				WINCH			
	m	ft	m	ft		H	T	H	T	H	T		
<b>Mechanical locking kelly bar</b>													
KB 3x9	9,9 m	32.5 ft	24,6 m	80.7 ft	4100 kg 9039 lb	8,4 m	27,6 ft	23,0 m	75.5 ft	10,3 m	33,8 ft	22,7 m	74.5 ft
KB 3x13,5	14,6 m	47.8 ft	38,6 m	126.6 ft	5700 kg 12566 lb	5,7 m	18,5 ft	37,0 m	121.4 ft	5,7 m	18,5 ft	36,7 m	120.4 ft
KB 4x10,5	11,4 m	37.5 ft	38,6 m	126.6 ft	5800 kg 12787 lb	8,4 m	27,6 ft	37,0 m	121.4 ft	8,8 m	28,7 ft	36,7 m	120.4 ft
KB 4x11,5	12,5 m	41.1 ft	42,6 m	139.8 ft	6300 kg 13889 lb	7,7 m	25,1 ft	41,0 m	134.5 ft	7,7 m	25,1 ft	40,7 m	133.5 ft
KB 4x13,5	14,6 m	47.8 ft	50,9 m	167.0 ft	7300 kg 16093 lb	5,7 m	18,5 ft	49,3 m	161.7 ft	5,7 m	18,5 ft	49,0 m	160.8 ft
KB 4x15,5	16,6 m	54.4 ft	59,4 m	194.9 ft	8200 kg 18078 lb	3,6 m	11,8 ft	57,8 m	189.6 ft	3,6 m	11,8 ft	57,5 m	188.6 ft
KB 4x16,5	17,7 m	58.1 ft	63,6 m	208.7 ft	8700 kg 19180 lb	2,5 m	8,2 ft	62,0 m	203.4 ft	2,5 m	8,2 ft	61,7 m	202.4 ft
<b>Friction kelly bar</b>													
KF 4x10,5	11,4 m	37.5 ft	38,6 m	126.6 ft	5800 kg 12787 lb	8,4 m	27,6 ft	37,0 m	121.4 ft	8,8 m	28,7 ft	36,7 m	120.4 ft
KF 4x11,5	12,5 m	41.1 ft	42,6 m	139.8 ft	6300 kg 13889 lb	7,7 m	25,1 ft	41,0 m	134.5 ft	7,7 m	25,1 ft	40,7 m	133.5 ft
KF 4x13,5	14,6 m	47.8 ft	50,9 m	167.0 ft	7300 kg 16093 lb	5,7 m	18,5 ft	49,3 m	161.7 ft	5,7 m	18,5 ft	49,0 m	160.8 ft
KF 4x15,5	16,6 m	54.4 ft	59,4 m	194.9 ft	8200 kg 18078 lb	3,6 m	11,8 ft	57,8 m	189.6 ft	3,6 m	11,8 ft	57,5 m	188.6 ft
KF 4x16,5	17,7 m	58.1 ft	63,6 m	208.7 ft	8700 kg 19180 lb	2,5 m	8,2 ft	62,0 m	203.4 ft	2,5 m	8,2 ft	61,7 m	202.4 ft
KF 5x10,5	11,3 m	37.1 ft	47,7 m	156.5 ft	6100 kg 13448 lb	8,4 m	27,6 ft	46,1 m	151.2 ft	8,9 m	29,2 ft	45,8 m	150.3 ft
KF 5x11,5	12,4 m	40.8 ft	53,1 m	174.2 ft	6600 kg 14550 lb	7,8 m	25,4 ft	51,5 m	169.0 ft	7,8 m	25,4 ft	51,2 m	168.0 ft
KF 5x13,5	14,4 m	47.4 ft	63,5 m	208.3 ft	7600 kg 16755 lb	5,8 m	18,9 ft	61,9 m	203.1 ft	5,8 m	18,9 ft	61,6 m	202.1 ft
KF 5x15,5	16,7 m	54.6 ft	73,8 m	242.1 ft	8500 kg 18739 lb	3,6 m	11,6 ft	72,2 m	236.9 ft	3,6 m	11,6 ft	71,9 m	235.9 ft
KF 5x16,5	17,6 m	57.7 ft	79,0 m	259.2 ft	9000 kg 19841 lb	2,7 m	8,7 ft	77,4 m	253.9 ft	2,7 m	8,7 ft	77,1 m	253.0 ft

Drilling Diameters	CYLINDER		WINCH	
Uncased	2000 (2500) mm	78.7 (98.4) in	2000 (2.500) mm	78.7 (98.4) in
Cased	2000 mm	78.7 in	2.000 mm	78.7 in

( ) removing the mast bottom section

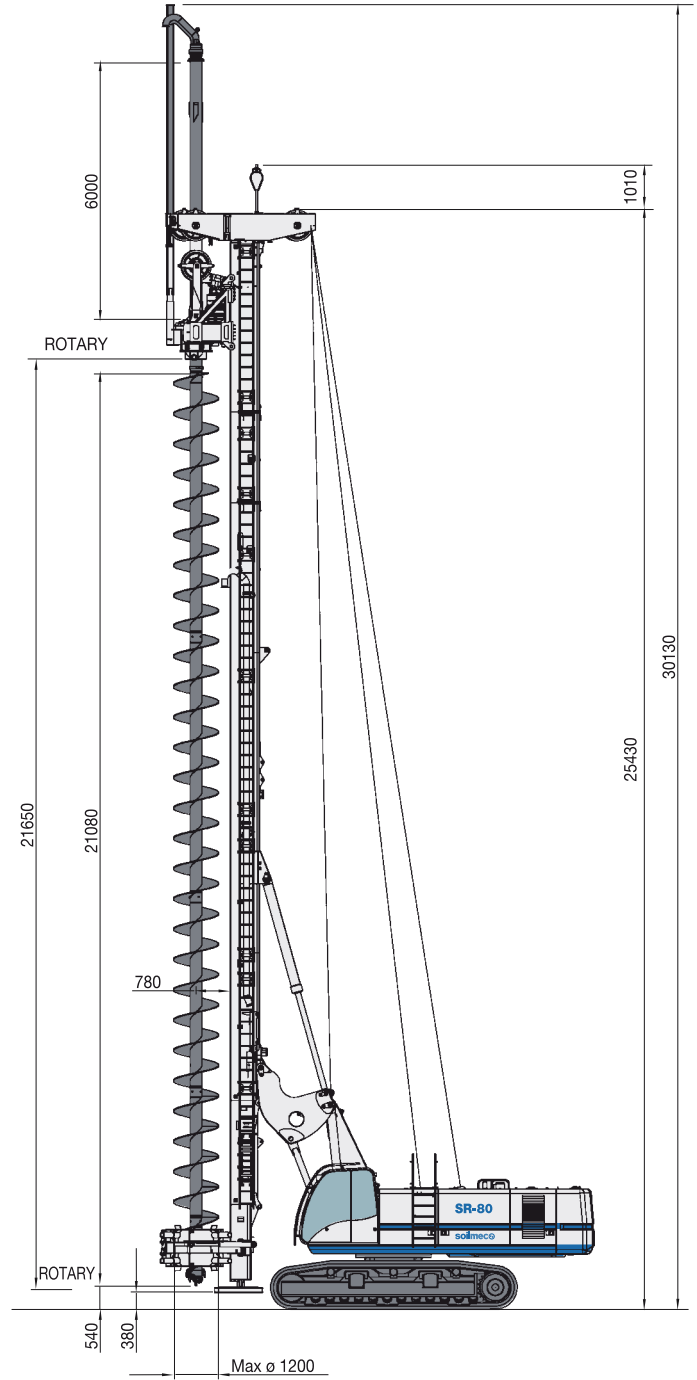
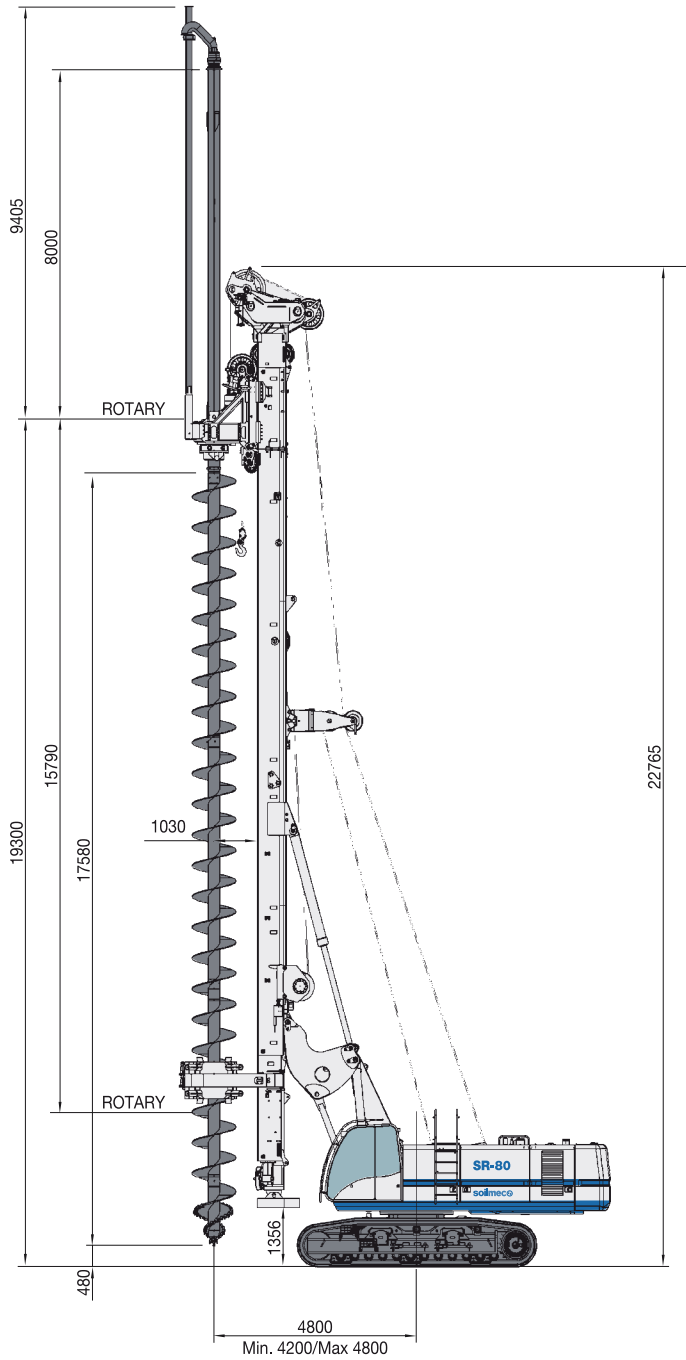


# APPLICATIONS

## CFA - Continuous Flight Auger

**Quick Conversion Model  
combined line pull**

**Traditional CFA  
4-part line pull**

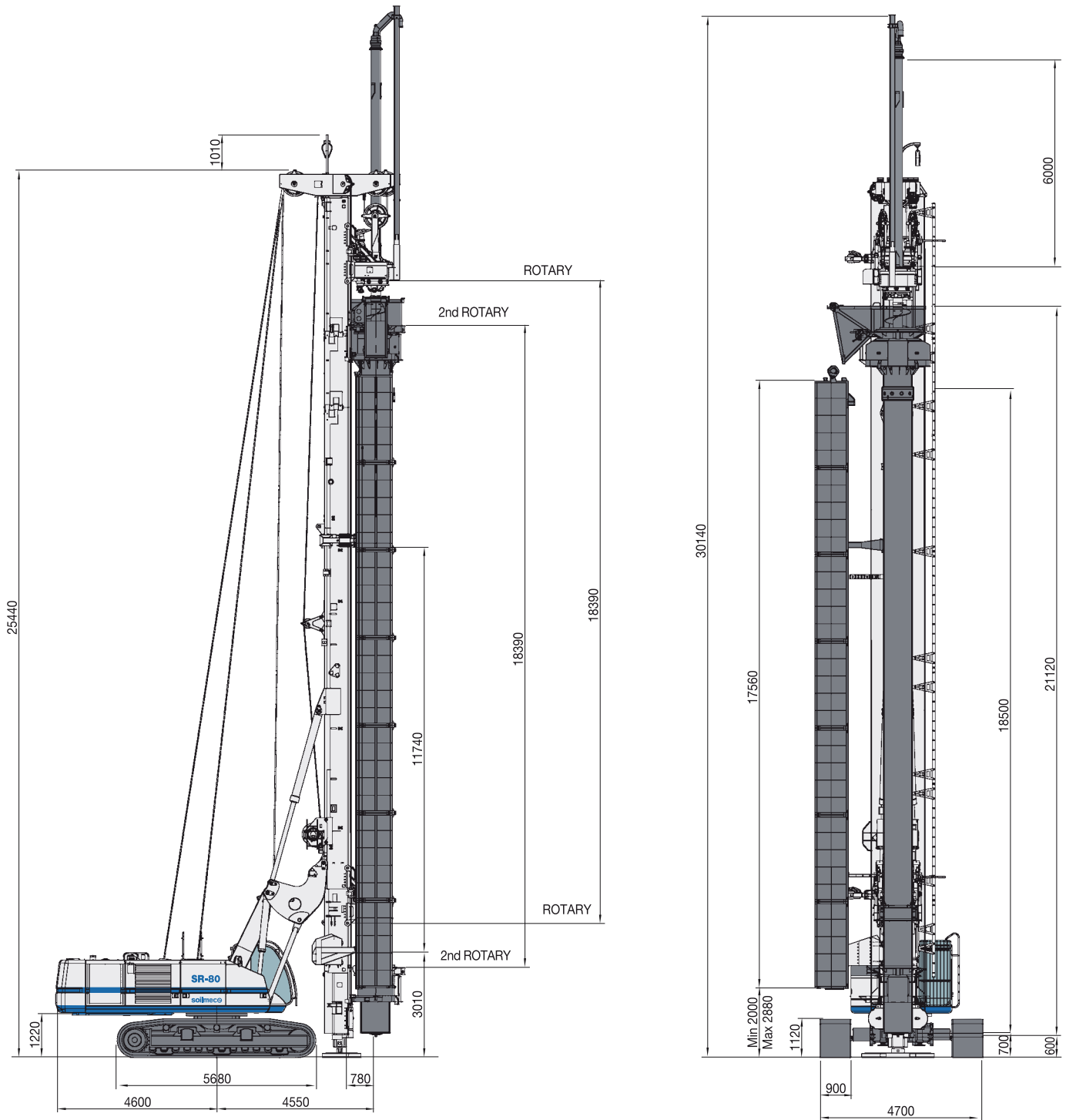


	combined line pull		4-part line pull	
Kelly extension	8 m	26.3 ft	6 m	19.6 ft
Drilling depth with auger cleaner	22 m (14+8)	72.2 ft (45.9+26.3)	25,5 m (19,5+6)	83.6 ft (63.9+19.7)
Drilling depth without auger cleaner	23,5 m (15,5+8)	77.1 ft (50.8+26.3)	27 m (21+6)	88.6 ft (68.9+19.7)
Max drilling diameter	1200 mm	47.2 in	1200 mm	47.2 in
Max extraction force	740 kN	166356 lb <sub>f</sub>	740 kN	166356 lb <sub>f</sub>
Max crowd force	320 kN	71938 lb <sub>f</sub>	370 kN*	83188 lb <sub>f</sub> *
Continuous flight auger length including starter auger	17500 mm	689 in	21000 mm	827 in
Operating weight (approx. w/o augers)	86500 kg	214948 lb	190700 kg	186289 lb

\* Option: max depth reduced by 1.5 m

# APPLICATIONS

## CAP - Cased Auger Piles

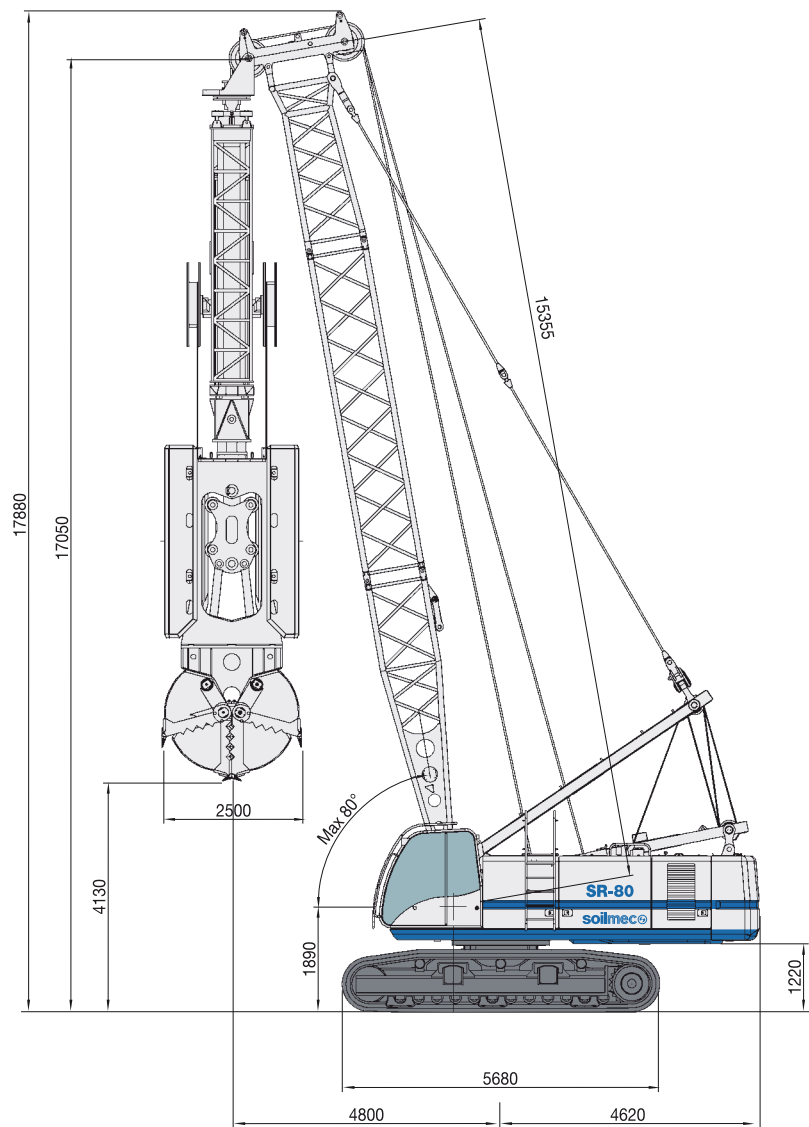


Rotary drive for casing	<b>189 kNm</b>	<b>119483 lb<sub>f</sub> ft</b>
Max speed of casing rotary	<b>6,1 rpm</b>	<b>6.1 rpm</b>
Max drilling diameter	<b>800 mm</b>	<b>31.5 in</b>
Max pile depth	<b>23,5 m</b>	<b>77.1 ft</b>
Max cased depth	<b>17,5 m</b>	<b>57.4 ft</b>
Casing extraction force	<b>370 kN</b>	<b>83188 lb<sub>f</sub></b>
Relative movement between rotaries	<b>18860 mm</b>	<b>742.5 in</b>
Operating weight (w/o auger, w/o casing)	<b>91500 kg</b>	<b>201720 lb</b>



# APPLICATIONS

## HYDRAULIC GRAB - DIAPHRAGM WALL



### DIAPHRAGM WALL

Grab type	<b>BH-12</b>	
Grab weight (c/w kelly) approx	<b>16000 kg</b>	<b>35270 lbs</b>
Panel thickness	<b>500-1000 mm</b>	<b>19.6-39.3 in</b>
Panel width	<b>2000-3000 mm</b>	<b>78.7-118.1 in</b>
Max diaphragm depth	<b>70 m</b>	<b>229.6 ft</b>



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