

# Diamec 6 MCR

Mobile core drilling rig

Hole diameter: A, B, N and H





# Mobile productivity

The Diamec 6 MCR (Mobile Carrier Rig) from Epiroc combines the best of two worlds – the high productivity and accuracy of a Diamec core drilling rig, with the mobility of a robust carrier designed for underground use. The Diamec 6 MCR offers unparalleled productivity in underground exploration.

## + Main benefits

**Highly mobile** which increases productivity and lowers operational costs

**Fast and safe positioning** means less time wasted between holes

**Built-in versatility** makes the Diamec MCR difficult to beat. It's available with various feed lengths, standard and deep hole feed cylinders and three different rotation heads

The rig features a state-of-the-art rotation unit with few moving parts which reduces operation costs. It also features a sealed gear box which lowers operational costs – especially when drilling up-hole. Both the rotation unit chuck and rod holder are synchronized for enhance safety. The rotation unit is available in two sizes, A-N and B-H.

Compact feed frame, with direct acting telescopic feed cylinder, gives optimal control, equal travel force in both directions and fast rod running.

The Diamec Smart 6 MCR features an easy-to-use light-weight control panel with 12" touch screen and adjustable height.

The gas spring rod holder opens hydraulically and closes with gas pressure for increased safety. If there is a loss of hydraulic pressure, the rod-holder closes instantly.



The feed is top mounted and features a turning device which improves feed position whilst drilling. Drilling with a tilted feed can increase wear on the wear-strips on the feed and wear pads on the cradle.



The boom makes possible easy, quick and precise positioning at almost any angle – including vertical up and vertical down.



Choose between two control systems – Smart or PHC. The PHC system offers rugged simplicity whilst the Smart provides a high level of automation and data logging.

The Diamec 6 MCR is fitted with a Deutz diesel engine for tramping. The operator can drive the rig independently to the drilling site and get into position before electric power is required.



The underground articulated carrier features good ground clearance. This enhances mobility and increases terrainability.



# Move fast – drill fast

Diamec rigs have an advanced, versatile and compact design. The Diamec MCR further enhances this flexible design by adding another dimension – mobility. It makes it much easier for exploration drillers to move the rig around the mine and get the job done much more quickly and effectively.



## + Highly manoeuvrable

The Diamec MCR makes the drilling setup process much faster. It also allows for easy positioning – even at the most difficult of angles. The articulated carrier allows it to bend around difficult contours whilst the highly manoeuvrable boom allows the drill to be positioned in exactly the desired location. This enables the operator to complete the hole and move to the next location quickly and efficiently.



## + Ergonomic and safe

All controls are logically placed to make life easy for the operator. The tough canopy also provides protection from falling rocks and debris. As the drill is mounted on the boom, the operator runs the rig a safe distance away from the drilling area during operations.



## + Increase productivity and lower operational costs

The Diamec Smart 6 MCR has an advanced Rig Control System so it can be operated automatically. Drilling parameters are set and monitored from the touch screen on the control panel. The automatic features, which including constant penetration rate can drastically improve bit life when compared to manual drilling. These features also reduce the risk of core blockage and hole deviation, which minimizes drilling errors and operator fatigue.



## A comprehensive service offering

Even the best equipment needs to be serviced regularly to make sure it sustains peak performance. An Epiroc service solution offers peace of mind, maximizing availability and performance throughout the lifetime of your equipment. We focus on safety, productivity and reliability.

By combining genuine parts and an Epiroc service from our certified technicians, we safeguard your productivity – wherever you are.



## + Data logging and Exploration Manager

All Diamec Smart rigs, including the Diamec Smart 6 MCR, offer added value via a standard data logging feature, Measure While Drilling (MWD) which records drilling parameters. Optional added operational data logging makes it possible to log activities directly on the rig screen. It also enables automatic logging of key functions during drilling. Rigs also create a log file for major events and warnings. The Exploration Manager software presents all this data in a comprehensive way. It provides a full overview of the drilling process. Users have the ability to analyze data, find improvements and generate various reports. Exploration Manager improves productivity, lowers operational costs and provides fast and professional fleet management.

## Technical specifications

### Core drilling hole length capacity

These figures serve as guidelines only. They are calculated with available pull/feed force, weight of drill string in water filled hole, average WOB and reserve for breaking solid core in rock with 10MPa Tensile Strength. Epiroc cannot guarantee these capacities will be reached in all working conditions due to varying factors such as ITH used, conditions of the ground and differences in operation.

Hole size	Standard				Deep hole			
	Vertical down		Vertical up		Vertical down		Vertical up	
	Metric	US	Metric	US	Metric	US	Metric	US
AO/AT	1 445 m	4 741 ft	985 m	3 232 ft	-	-	-	-
BO/BT	1 065 m	3 494 ft	600 m	1 969 ft	1 530 m	5 020 ft	920 m	3 019 ft
NO/NT	715 m	2 346 ft	340 m	1 116 ft	1 080 m	3 543 ft	575 m	1 887 ft
HO/HT	335 m	1 099 ft	155 m	509 ft	580 m	1 903 ft	310 m	1 017 ft

Wireline winch capacity is 1 300 m with 4.75 mm wire

### Rotation unit alternatives

Model	80CC A-N		110CC B-H		160CC B-H	
Rod sizes:	A-N		B-H		B-H	
Max rotation speed	1 640 rpm		1 400 rpm		1 190 rpm	
Power	Hydraulic motor		Hydraulic motor		Hydraulic motor	
	Metric	US	Metric	US	Metric	US
Max torque	1 115 Nm	882 ft lbf	1 634 Nm	1 205 ft lbf	2 390 Nm	1 762 ft lbf
Spindle (inner diameter)	78 mm	3.1"	101 mm	4"	101 mm	4"
Chuck axial holding force	100 kN	22 480 lbf	150 kN	33 729 lbf	150 kN	33 729 lb
Weight:	162 kg	357 lb	270 kg	595 lb	282 kg	622 lb

### Feed frame alternatives

Model	850		1800		1800 Deep hole	
	Metric	US	Metric	US	Metric	US
Feed stroke length	850 mm	33.5"	1 800 mm	71"	1 800 mm (71 in)	71"
Feed force / Pull force	65 kN	14 600 lbf	65 kN	14 600 lbf	89 kN	20 010 lbf
Max feed speed:	1.0 m/s	3.28 fps	1.0 m/s	3.28 fps	0.8 m/s	2.6 fps

### Rod holder

Hydraulically open / gas pressure close. The rod holder closes instantly on hydraulic pressure loss.

Max rod size:	89 mm (3.5 in)
Bore (without jaws):	102 mm (4.0 in)
Bore (without covers):	170 mm (6.7 in)
Axial holding force:	45 kN (10,120 lbf)
Axial holding force TC inserts:	90 kN (20,240 lbf)

### Wireline winch

	Metric	US
Capacity (4.75 mm wire)	1 300 m	4 265 ft
Pull min. (full drum)	4 kN	899 lbf
Pull max. (empty drum)	11.2 kN	2 523 lbf
Line speed min (empty drum)	88 m/min	287 ft/min
Line speed max (full drum)	246 m/min	806 ft/min
Weight (without wire)	120 kg	287 lb
Level wind angle	Adjustable	

### Diamec Smart 6 control system and interface

Control system type	Epiroc Rig Control System (RCS)
Display	12" touch screen
Controls	Joysticks, control knobs and foot pedal
Data logging	Internal memory
Data export	USB port

### Diamec PHC 6 control system and interface

Control system type	Pilot Hydraulic Control (PHC)
Display	Digital and analogue readouts
Controls	Joysticks and control knobs

# Technical specifications

## Power unit

Electrical power unit with two variable flow hydraulic pumps, mounted in tandem.

Electric motor	Metric	US
Power	90 kW	122 hp
RPM	1 450 rpm	1 450 rpm
Oil tank	130 l	34.4 gal
Cooler	Water type oil cooler	
<b>Main pump</b>		
Max flow	200 l/m	52.8 gpm
Max pressure	240 bar	3 481 psi
<b>Service pump</b>		
Max flow	65 l/m	17.2 gpm
Max pressure	240 bar	3 481 psi

## Optional flush pump

The flush pumps are designed for both mud and water flushing. The distribution block is prepared for mounting of accumulator, adjustable steady flow valve and other optional equipment.

Model	Trido 80H		Trido 140H	
	Metric	US	Metric	US
Flow	80 l/m	21 gpm	140 l/m	37 gpm
Pressure	50 bar	700 psi	70 bar	1 000 psi
Weight	148 kg	327 lb	230 kg	507 lb

## Carrier specifications

Wheels		Steering		Drive shafts	
Tires (boom and engine section)	8.25 x 15 XZM Michelin	Control valve	Danfoss OSPB 315 ON 150-0045	Shaft type boom shaft	Clark Hurth 112
Rims (boom and engine section)	6.50 x 15	Gear pump displacement	15.2 cm³/rev	Shaft type engine shaft	Clark Hurth 112
Tire pressure	9 bar	Gear pump max. working pressure	140 bar	Max. load, boom side	9 000 kg
Tightening torque, wheel nuts	350 Nm	Steering cylinder	VOAC 80/40-400	Max. load engine side	7 000 kg
		Steering wheel turns, lock to lock	6	Weight, boom side	275 kg
				Weight, engine side	330 kg
Transmission		Drive brake		Parking/emergency brake	
Type	Rexroth	System	Dual independent circuits. Hydraulic disc brakes in oil bath on all wheels.	System	SAHR (Spring Applied Hydraulic Released)
Engine	A6 VM 80EZ	Max. hydraulic pressure	80 +5/-0 bar	Max. hydraulic pressure	25 bar
Pump	A4V G56DA				

Diesel engine (Tier 2 equivalent)	
Model	Deutz F5L912W (DC10)
Max. power at 2 300 rpm	52 kW
Max. torque at 1 550 rpm	249 Nm
Swept volume	5.1 dm³
Idling speed	700 rpm
Cooling	air-cooled
Fuel injection	Bosch
Generator (Bosch)	35 A, 28 V
Starter motor	4 kW, 24 V
Weight	450 kg

Boom (Epiroc Boom S)	
Weight including hoses	2 000 kg
Boom extension	300 mm
Total length (retracted)	4 848 mm

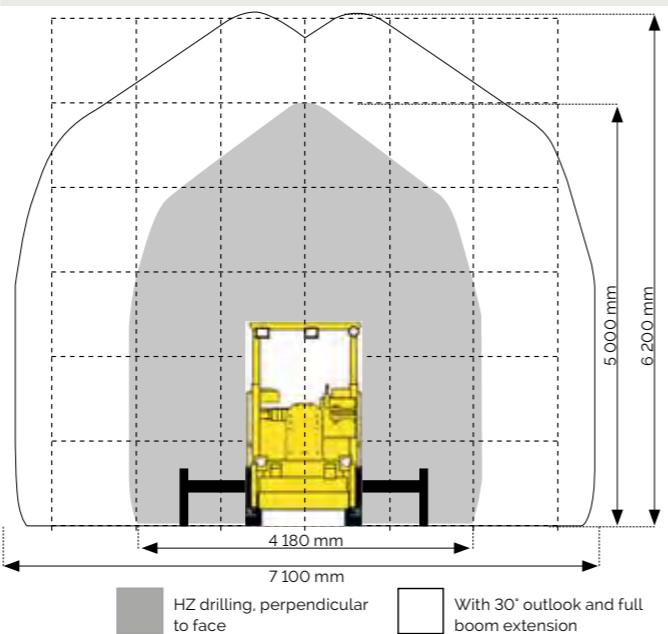
## Hydraulic system

Main pump (OP1)		Service pump (OP2)	
Model	Bosch Rexroth A10V	Model	Bosch Rexroth A10V
Size	140 cc	Size	45 cc
Stand-by pressure	25 bar	Stand-by pressure	-
Max. pressure	315 bar	Max. pressure	300 bar (normally 240 bar)
Max. flow	200 l/min	Max. flow	60 l/min (limited by setscrew)

## Additional optional equipment and accessories

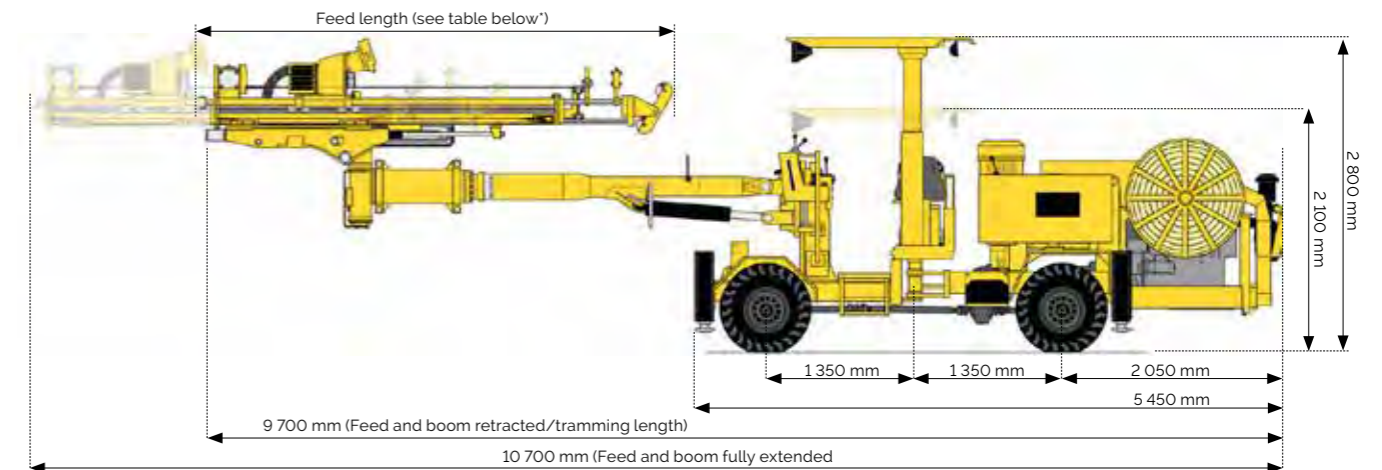
Bracing device	Device suitable for use in narrow tunnels and drifts. It allows simple anchoring of the feed frame between the floor and roof/wall of the gallery, drift or tunnel.
Water collector	The water collector seals against the rock face and allows collection of flush water.
Keyhole wall bracket	Enables anchor hole drilling in the wall or ceiling. Available for A-N.
Operational logging/Exploration Manager	Comprehensive operational data logging and analyzing tool for Diamec Smart rigs only.
Dimension kits	Steel jaw kits in a range of sizes with TC inserts for the rotation unit and rod holder.
Hydraulic test box	Hydraulic measuring and testing instrument
RCS service tool box	RCS measuring and testing instrument

## Reach and coverage



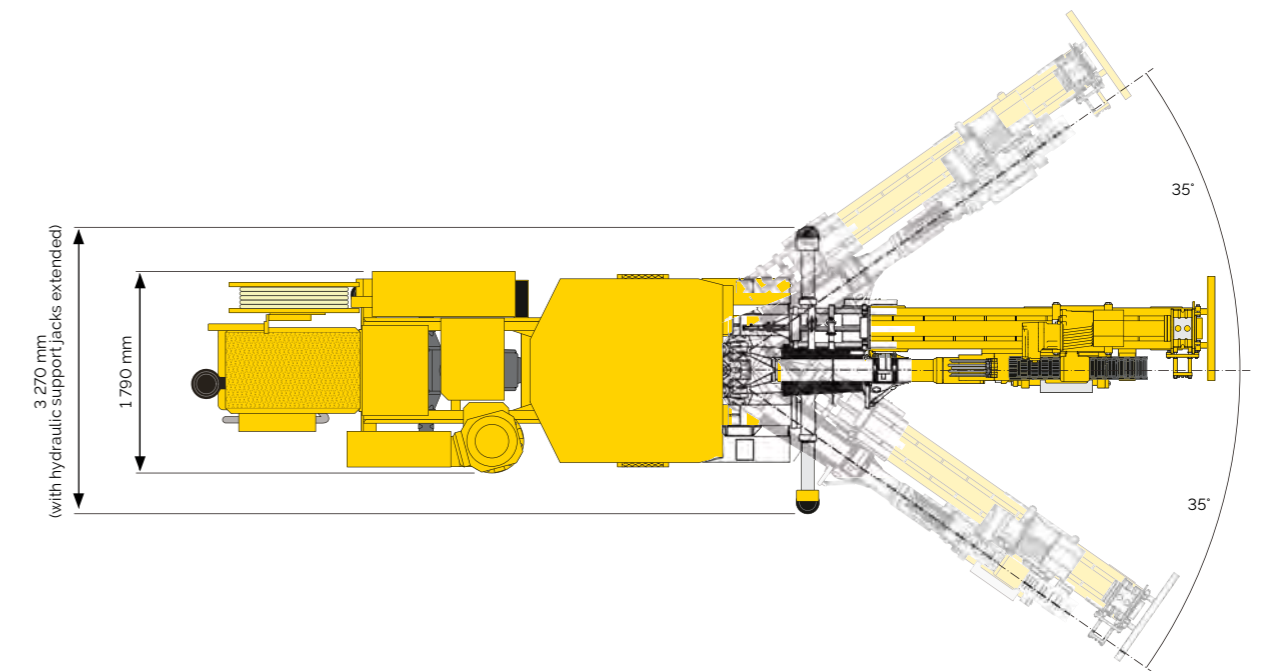
# Technical specifications

## Working dimensions in mm



## Feed length\*

Feed length combinations	Total length (top pulley and wall bracket retracted)	Top pulley extension	Wall bracket extension
Standard 1 800 mm feed stroke	3 600 mm	760 mm	930 mm
Deep hole 1 800 mm feed stroke	3 600 mm	760 mm	930 mm
Short 850 mm feed stroke	2 860 mm	760 mm	520 mm



## Weight (Figures vary depending on which optional equipment and rotation unit is fitted to the machine)

Diamec Smart 6 MCR	With 1800 deep hole feed and B-H 160cc rotation unit		Diamec PHC 6 MCR	With 1800 deep hole feed and B-H 160cc rotation unit	
	Metric	US		Metric	US
Total weight	11 860 kg	26 147 lbs	Total weight	12 010 kg	26 478 lbs





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