

# BAUER BG 23 H

## Rotary Drilling Rig

Base Carrier BT 65

PremiumLine



## Experience for you!

*“Technology market leader and pioneer for innovations, at the same time down-to-earth with responsibility towards society and environment - that’s our goal.”*

Prof. Dr. Sebastian Bauer

We could start by telling you about Sebastian Bauer, who founded a copper forge in the German town of Schrobenhausen some 200 years ago. We could then move on to how his workshop prospered and developed to a leading construction company for specialist foundation engineering. The story would continue to the mid 20<sup>th</sup> century, when innovation and the drive for perfection prompted Bauer to develop and build their own high-quality and high-performance machinery.

And it still wouldn’t end in the 21<sup>st</sup> century, Bauer now family-run in the seventh generation and meanwhile a globally operating group with more than 100 branches and subsidiaries operating in the fields of special foundation engineering (Bauer Spezialtiefbau), in manufacturing of foundation equipment (Bauer Maschinen) and focusing on products and services in the fields of water, energy, mineral resources and environmental technology (Bauer Resources).

But we think what really matters about us and to our customers is this: We are a strong partner with face and values, we are down to earth, and we are dedicated to perfection in everything we touch.



**1790**

Foundation as a copper forge in Schrobenhausen, Germany



**1928**

Well drilling in Bavaria, Germany



**1958**

Invention of the ground anchor by Dr.-Ing. K.H. Bauer



**1976**

First hydraulic rotary drill rig BAUER BG 7



**1984**

First diaphragm wall trench cutter BC 30

## More than machines: Competent consulting

*Quality is not an act,  
it is a habit.*

Of the thousands of machines Bauer Maschinen has built since production started in the 1970's with the first rotary drill rig BG 7, many of them are still in operation all over the world – in Siberia as well as in the desert. State of the art technology developed end-to-end by our inhouse engineers and full machine tests prior to delivery are one side of the coin. Bauer Maschinen can serve any customer need with the most comprehensive product portfolio.

The other side is project-specific consulting by highly trained experts, with a focus on your special requirements.

- **Quality and experience in specialist foundation engineering**
- **Global operation – local contacts in over 70 countries**
- **Reliability in technology, service**
- **Customized solutions**
- **On-site support over entire machine service life**



**1980's**

Start of international equipment sales



**2001**

Bauer Maschinen established as independent company within the BAUER Group



**2006**

Stock market launch of BAUER AG, directed by Prof. Thomas Bauer



**2011**

Introduction of BG ValueLine and BG PremiumLine



**2014**

With EEP Bauer sets new standards for efficiency



The BG PremiumLine stands, for the one part, for very modern Kelly drilling rigs and on the other hand for multifunction equipment for a variety of foundation construction systems. The selection between two model ranges allows an optimum choice for differing project or transportation requirements.

Specific highlights of the BG PremiumLine are:

- High safety standards
- Environmental sustainability, economic efficiency and performance
- Easy to transport and short rigging time
- High quality standard
- Long lifetime and excellent resale value

## The H-Model Line

**Special features of the H-model line are:**

- Fast loading onto transport vehicles
- Easy rigging on-site due to compact design
- Rapid shifting to new working positions at construction sites with underpasses or below low bridges



**BG 23 H  
BT 65**



**BG 23 H  
BT 75**

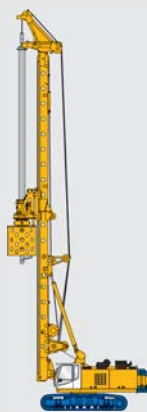
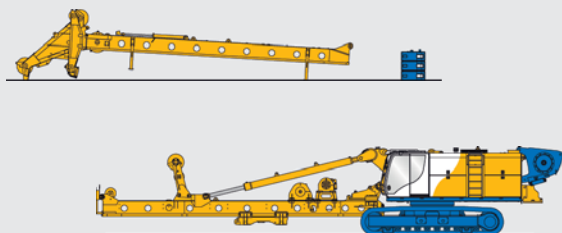


**BG 28 H  
BT 75**

## The V-Model Line

**Special features of the V-model line are:**

- Big borehole diameters
- Large drilling depths
- Extended service intervals and power transmission with low vibrations due to the robust design of the kinematic system



**BG 28  
BS 80**



**BG 33  
BT 85**



**BG 36  
BS 95**



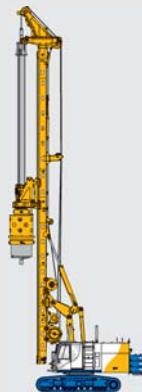
**BG 45  
BS 95**

## The Rotary Drilling Rig BG 23 H PremiumLine (BT 65)

Max. drilling diameter:	1,500 mm
Max. drilling depth:	55.1 m
Max. torque:	235 kNm
Max. height:	22.2 m
Engine:	CAT C 7.1 Stage III A / Tier 3
	186 kW @ 1,850 U/min
	CAT C 7.1 Stage V/Tier 4 final
	225 kW @ 1,850 U/min



**BG 28 H**  
**BT 85**



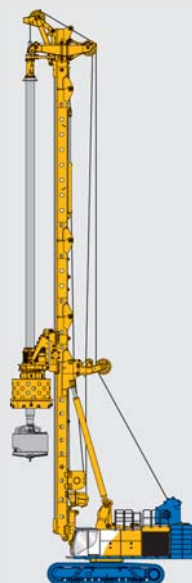
**BG 33 H**  
**BT 85**



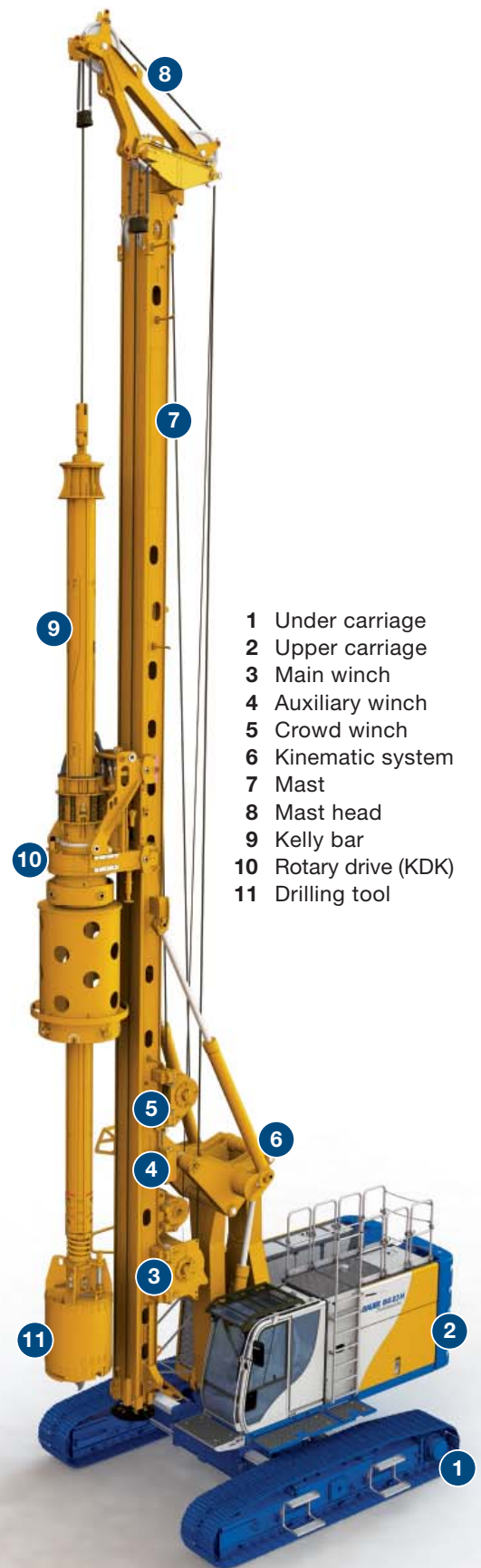
**BG 36 H**  
**BS 95**



**BG 55**  
**BS 115**



**BG 72**  
**BT 180**



- 1 Under carriage
- 2 Upper carriage
- 3 Main winch
- 4 Auxiliary winch
- 5 Crowd winch
- 6 Kinematic system
- 7 Mast
- 8 Mast head
- 9 Kelly bar
- 10 Rotary drive (KDK)
- 11 Drilling tool

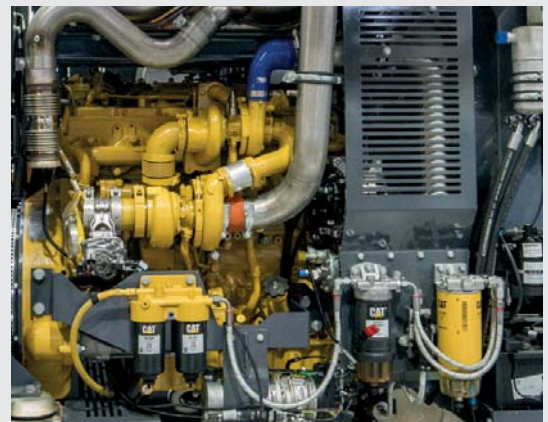


**Modern, ergonomic operator's cab**

- FOPS compliant with additional protective roof guard
- Premium operator seat, air-sprung and heatable
- Joystick controls with high functionality
- B-Drive for multi-functional potentiometer input

**Powerful CAT engines**

- C 7.1 (186 kW, Stage III A / Tier 3) or C 7.1 (225 kW, Stage V / Tier 4 final)
- Diesel particulate filter in exhaust emission standard Tier 4 final
- Low noise emission
- Worldwide CAT service partners



**Safety equipment**

- Integrated service platforms in the upper carriage for easy and safe maintenance work
- Retractable grating on side of cab
- Guardrails on the upper level (foldable for transport)
- Rear view cameras



**Energy-Efficient  
PowerEEP**

- Reduction of fuel consumption by up to 30%
- Increased productivity through improved efficiency
- Significantly reduced noise levels
- Tried and proven suitability for practical application
- Optimized parallel operation of main and auxiliary consumers

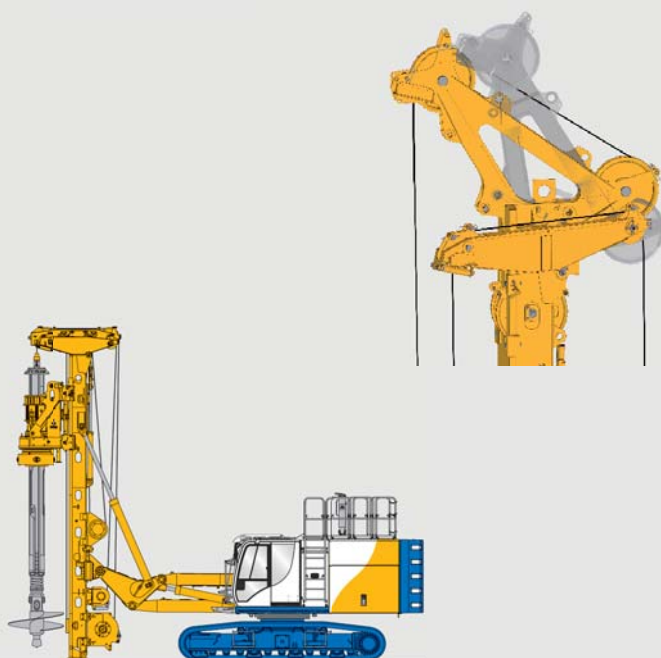
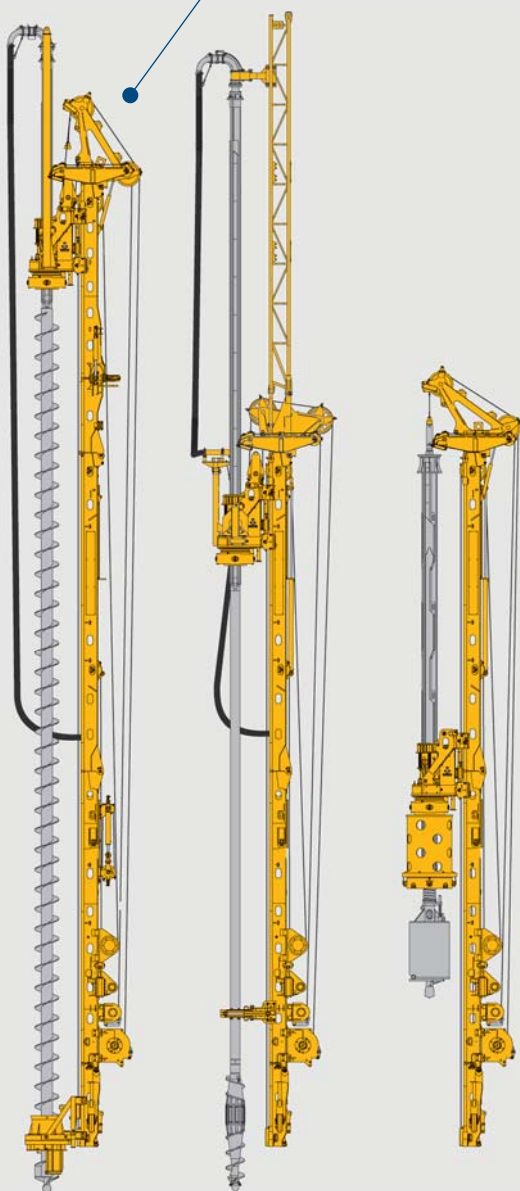




**Single Pass SPEX  
Extreme**

#### Flexible mast concept

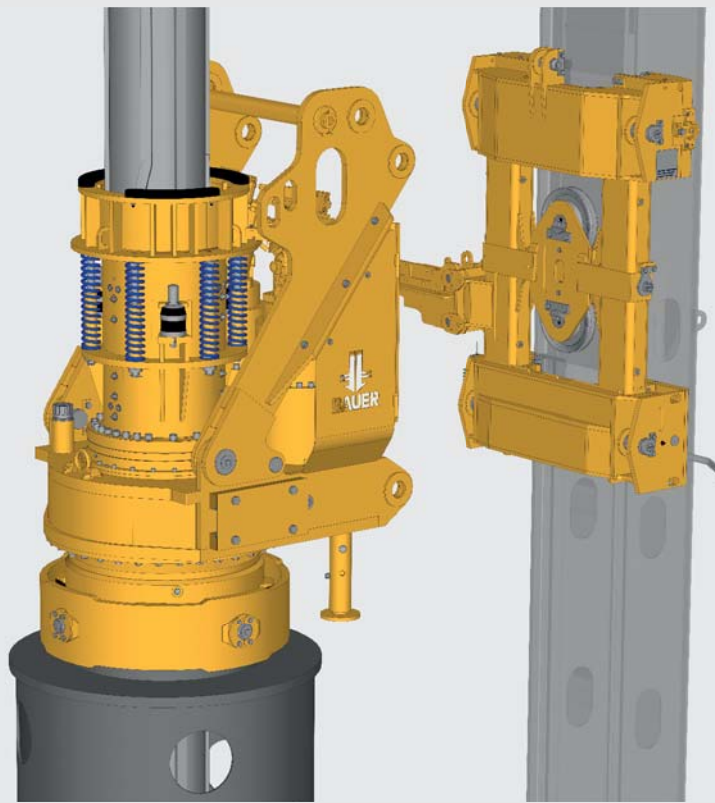
- Multi-sectional mast
  - Low-head version
  - Giant drill version
  - Extension package Single Pass Extreme (SPEX)  
For further details please refer to page 21
  - Optimized transport length
- Lattice mast extension
- Vario-mast head
  - Mast head for drill axis 900 mm
  - Increased stroke for Kelly bars when using an upper Kelly guide
  - Tiltable main jib for single-pass processes and optimized transport



#### Remote control for rigging the machine

- The remote control can be used to perform numerous rigging functions outside the danger zone, such as moving the drilling rig, telescoping the undercarriage, etc.
  - Operation within sight of the controlled rigging functions
  - Rugged and compact wireless remote control multi with LCD screen
  - Lockable storage box for the remote control can be accessed from the ground





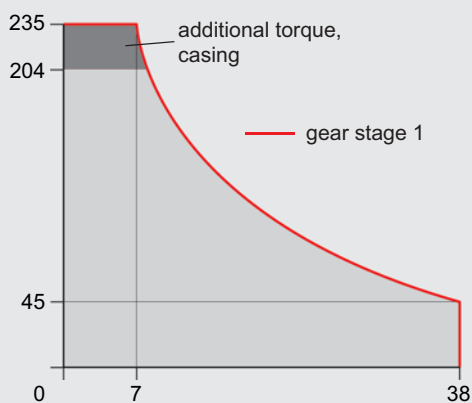
**Rotary drive KDK 235**

- Optional single gear drive KDK 235 K or multi gear drive KDK 235 S
- Max. torque 235 kNm
- Max. speed 64 rpm
- Various modes of operation, partially selectable speed of rotation and torque

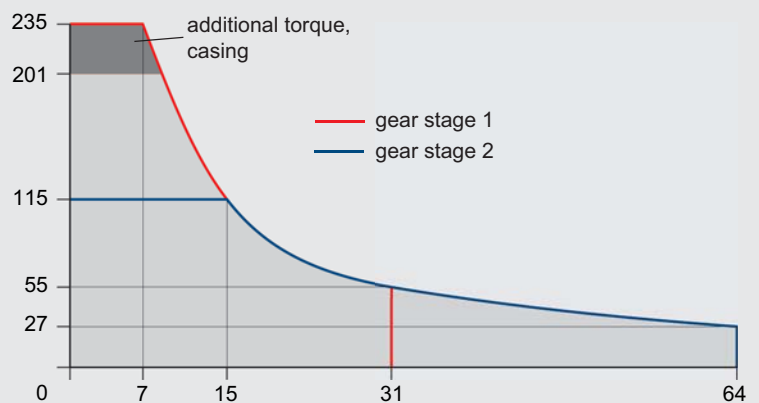
**Kelly set-up with a long Kelly guide and integrated shock absorbing spring system with Kelly visualization**

- Enhanced drilling performance
- High operation comfort
- Reduction of wear on Kelly bars and drive keys

**KDK 235 K**



**KDK 235 S**







**Kelly Drilling**



**Cased Kelly Drilling**  
Installation with Oscillator



**CFA**  
Continuous Flight  
Auger Method



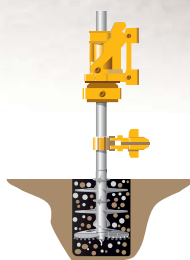
**FDP**  
Full Displacement Piling  
(Standard or Lost Bit)



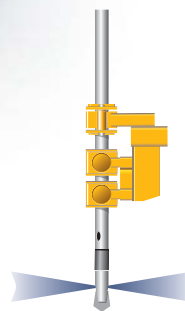
**FoW**  
Front of Wall



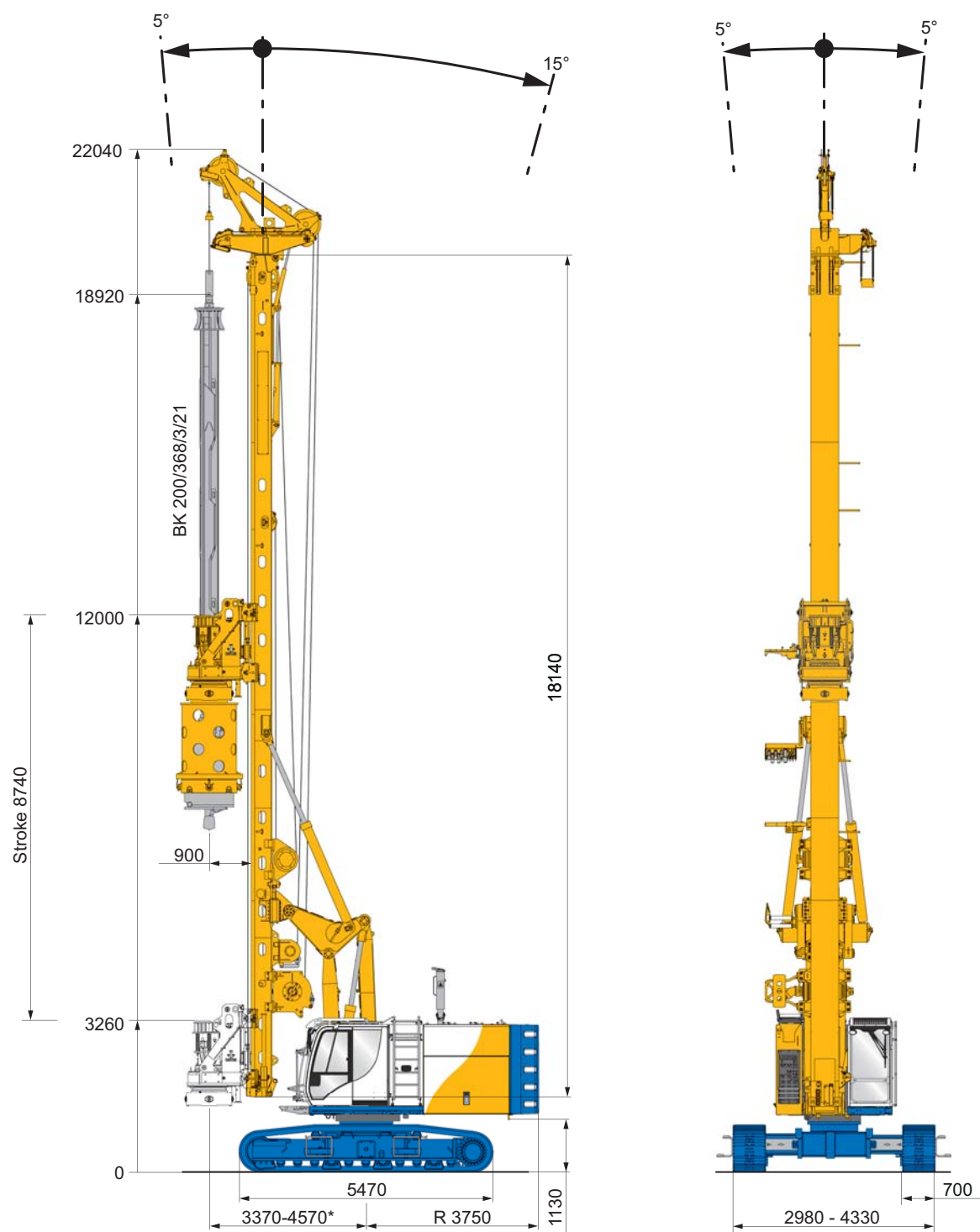
**TR**  
Deep Vibrator



**SCM**  
Single Column Mixing



**HDI**  
Jet Grouting



**Operating weight 69.7 t**  
(as shown)

\* depending on equipment

Rotary drive	KDK 235 K	KDK 235 S
Torque (nominal) for casing operation at 350 bar	235 kNm	235 kNm
Torque (nominal) for drilling at 350 bar	204 kNm	201 kNm
Max. speed of rotation	38 rpm	64 rpm
Crowd winch		
Winch classification	M6 / L3 / T5	
Max. sledge stroke	15,580 mm	
Crowd force push and pull, effective/nominal	260 / 333 kN	
Rope diameter	22 mm	
Speed (down/up)	10.5 m/min	
Fast speed (down/up)	29.5 m/min	
Main winch		
Winch classification	M6 / L3 / T5	
Line pull (1st layer) effective/nominal	170 / 210 kN	
Rope diameter	26 mm	
Max. line speed	84 m/min	
Auxiliary winch (selectable)		
Line pull (1st layer) effective/nominal	M6 / L3 / T5	
Line pull (1st layer) effective/nominal	55 / 70 kN	65 / 80 kN
Rope diameter	15 mm	
Max. line speed	62 m/min	
Base carrier (EEP)		
	BT 65	
Engine	CAT C 7.1	CAT C 7.1
Rated output ISO 3046-1	186 kW @ 1,850 rpm	225 kW @ 1,850 rpm
Exhaust emission EEC 97/68 EC	Stage III A	Stage V
EPA/CARB	Tier 3	Tier 4 final
Diesel tank capacity / AdBlue Tank	540 / – l	540 / 34.5 l
Sound pressure level in the cabin (EN 16228, Annex B)	LP <sub>A</sub> 80 dB (A)	
Sound power level (2000/14/EC u. EN 16228, Annex B)	LW <sub>A</sub> 108 dB (A)	
Hydraulic pressure	350 bar	
Hydraulic oil tank capacity	450 l	
Flow rates	2 x 220 + 1 x 280 + 1 x 135 l/min	
Under carriage		
	UW 60	
Crawler type	B 60	
Traction force effective/nominal	450 / 530 kN	



## Base carrier BT 65

### Standard

- Protective roof guard
- Radio with MP3, USB and Bluetooth hands-free kit
- Grating in front of cab
- Retractable grating on side of cab
- Electric refuelling pump
- Energy-Efficient Power (EEP)
- Premium operator seat
- Rear view cameras
- Integrated service platform
- Central lubrication system
- LED spotlights
- Climatronic

### Optional

- Guardrails on the upper level (foldable for transport)
- Compressor 1,000 l/min
- Electric generator 13 kVA
- Bio-degradable hydraulic oil
- Cab space heater with automatic timer
- Arctic kit
- Additional camera (at customer specific location)
- Front screen guard
- Weather protection
- Remote control basic, **Fig. A**
- Remote control multi
- Tool holders in front of the operator's cabin, **Fig. B**

## Drilling rig attachment

### Standard

- Main winch with hydraulic free-fall control
- Swivel for main rope
- Mast head (foldable for transport)
- Vario-mast head
- Pivoted anchor point for main and auxiliary rope

### Optional

- Upper Kelly guide
- Mast support unit
- Multi-sectional mast for Low-Head and Giant Drill applications
- Extension package Single Pass Extreme (SPEX)
- Lattice mast extension
- Swivel for auxiliary rope
- Additional auxiliary winch 20 kN
- Attachment of casing oscillator up to BV 1300
  - Powered by on-board hydraulics of the base carrier
  - Controlled from operator's cab
- Attachment of automatic casing drive adapter
- Concrete line attachment



## Rotary drive

### Standard

- Rotary drive KDK 235 K (single-gear drive)
- Selectable modes of operation
- Kelly drive adapter for outer Kelly tube 368 mm
- Integrated Kelly damping system
- Exchangeable Kelly drive adapter
- Cardanic joint
- Quick-release hydraulic couplers
- Transport supports
- Lifting gear

### Optional

- Rotary drive KDK 235 S (multi-gear)

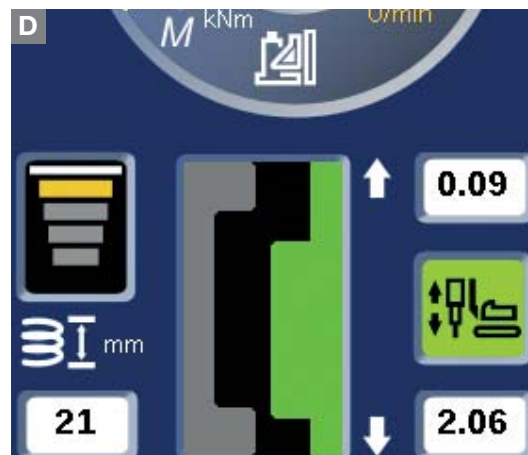
## Measuring and control system

### Standard

- PLC processor for all electrically actuated functions
- Automatic mast alignment with memory-recall
- Depth measuring device on main winch
- Distance measuring device on crowd winch
- Main winch with electronic load sensing
- Slack rope prevention
- Automatic swivel alignment function
- Hoist limit switch for main and auxiliary winch
- Auxiliary winch with hydraulic load sensing
- Crowd stroke monitoring
- Crowd speed control
- Speed measuring control for rotary drive (KDK)
- Kelly visualization, **Fig. D**
- Hold-back control
- Electronic mast reach limiter
- Casing length monitoring

### Optional

- Electronic load sensing for auxiliary winch
- Recording of concrete pressure and volume for Single-Pass processes
- Software modules for further applications
- Adaptive Kelly speed assistant
- Automatic drilling and extraction control for Single-Pass processes
- Pre-installation for BAUER Concrete Link, **Fig. C**
- BAUER Enhanced CAN Interface (BECI)



### B-Tronic

The BAUER B-Tronic system allows completion of construction tasks in a reliable and accurate manner, even under extreme operating conditions.

- The high-resolution touchscreen display ensures excellent user-friendliness
- The display can be optimally adapted to the operating situation and the amount of light present by changing the brightness level, the color scheme and the day / night mode
- The main parameters such as pump pressure, torque and drilling depths can be viewed at a glance



### B-Drive

The B-Drive is a central operating and visualization system

- B-Drive combines adjustable potentiometer values on one display
- Ergonomic positioning of the display on the right column of the operator's cab

### Tablet

The tablet is the multi-functional tool for the Bauer machine

- Online access to the customer portal, handbooks, equipment management systems and much more
- Standard internet connection via the DTR module, which is located in the machine
- The operator's screen can be mirrored live on the tablet to track the operating process



### Device networking

#### DTR module

- The DTR module allows equipment and production data to be made available to a wide variety of users

#### WEB-BGM

- WEB-BGM is a software used to retrieve equipment data and establish the locations of various machines, even if you are not on site

#### B-Report

- Standardized reports for the documentation of drilling progress and verification of performance and quality

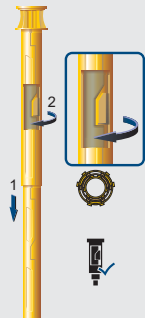




### Adaptive Kelly speed assistant

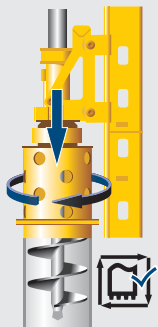
The assistant raises and lowers the Kelly bar safely and quickly and allows an easy operation. The automatic control of the speed of the main winch reduces the speed at the transition points of the Kelly sections.

This provides maximum safety with minimum wear. The permanent monitoring of the parameters prevents a locked Kelly bar from being raised or lowered accidentally and thus causing damage.



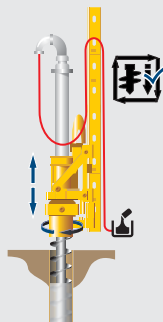
### Kelly visualization

Display of the locking recesses, as well as representation of the controlled extension and retraction of the Kelly bar on the B-Tronic system. The rapid approach of the locking position results in a considerably enhanced drilling performance. In addition, the level of wear that the Kelly bar and drive keys are subject to is significantly reduced.



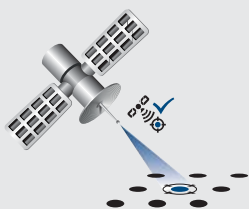
### Kelly drilling assistant

Saves the current crowd speed and the speed of the rotary drive. It enhances drilling performance with simultaneous hands-free operation. Drilling parameters can be adjusted during the automated drilling procedure.



### Automatic drilling and extraction control for Single-Pass processes

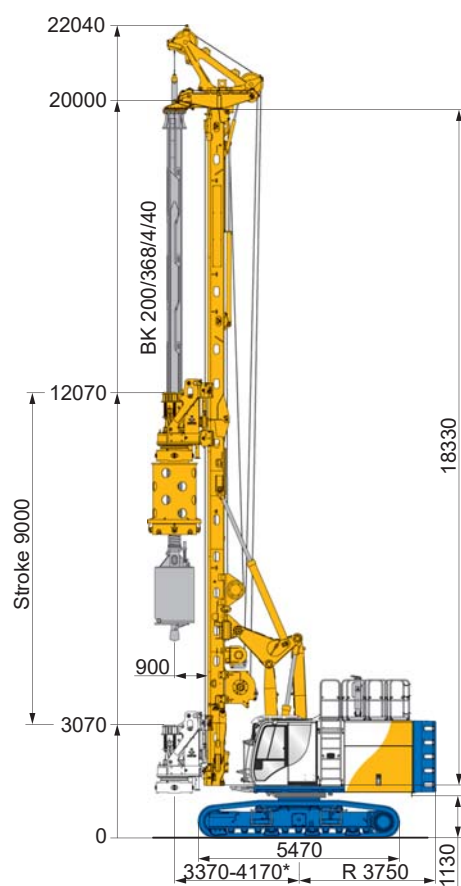
The system controls the drilling and / or extraction speed of the crowd system and enables hands-free operation. This ensures the production of a high-quality pile while simultaneously minimizing the amount of concrete.



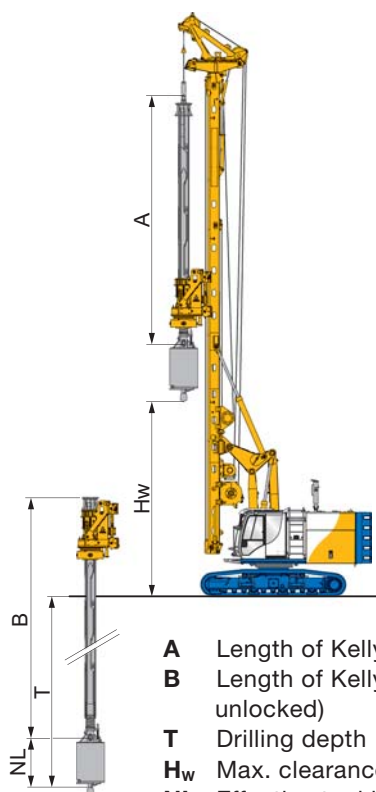
### Satellite-based positioning

The BAUER Assistant Positioning System (B-APS) allows the position of a bored pile to be located extremely accurately. Documentation is provided for the nominal and actual coordinates, as well as the corresponding accuracy of each bored pile. Manual marking of the piles is no longer required.

Numerous other assistance systems are available in our portfolio.



\* depending on equipment



- A** Length of Kelly bar (retracted)
- B** Length of Kelly bar (extended, unlocked)
- T** Drilling depth
- H<sub>w</sub>** Max. clearance to drilling tool
- NL** Effective tool length
- G** Weight of Kelly bar

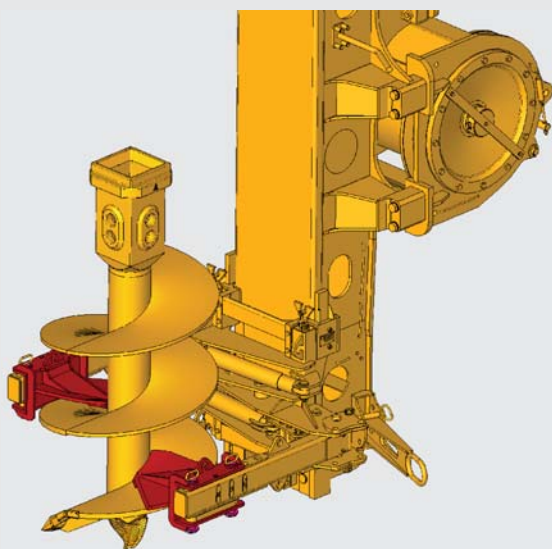
#### Drilling depth – uncased Kelly drilling, drill axis 900 mm

3-part Kelly bar	A (m)	B (m)	G (kg)	H <sub>w</sub> (m)	T (m)
BK200/368/3/18	8.4	20.4	3,300	7.4	20.4
BK200/368/3/21	9.4	23.4	3,600	7.4	23.4
BK200/368/3/24	10.4	26.4	3,900	7.4	26.4
BK200/368/3/27	11.4	29.4	4,200	6.4	29.4
BK200/368/3/30	12.4	32.4	4,500	5.4	32.4
BK200/368/3/33	13.4	35.4	4,800	4.4	35.4
4-part Kelly bar					
BK200/368/4/28	9.5	31.1	5,100	7.4	31.1
BK200/368/4/32	10.5	35.1	5,600	7.3	35.1
BK200/368/4/36	11.5	39.1	6,100	6.3	39.1
BK200/368/4/40	12.5	43.1	6,600	5.3	43.1
BK200/368/4/48	14.5	51.1	7,600	3.3	51.1
BK200/368/4/52	15.5	55.1	8,100	2.3	55.1

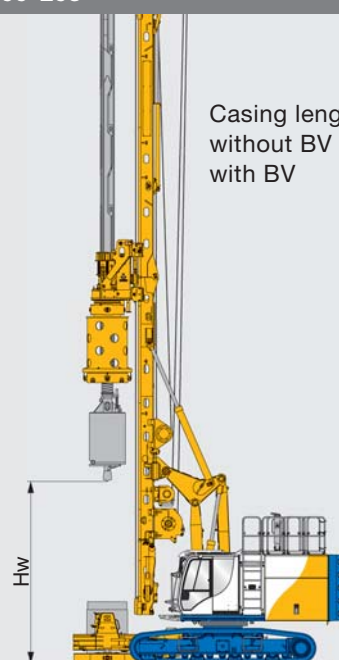
Drilling data as shown are based on tool length NL = 1.9 m, minimum horizontal mast reach and using Bauer attachment. Drilling depth is increased by 0.28 m when using maximum horizontal mast reach.

*Further drilling depths, diameters and other Kelly types on request.*

#### Auger cleaner for Kelly drilling application drilling diameter 520 – 1,060 mm

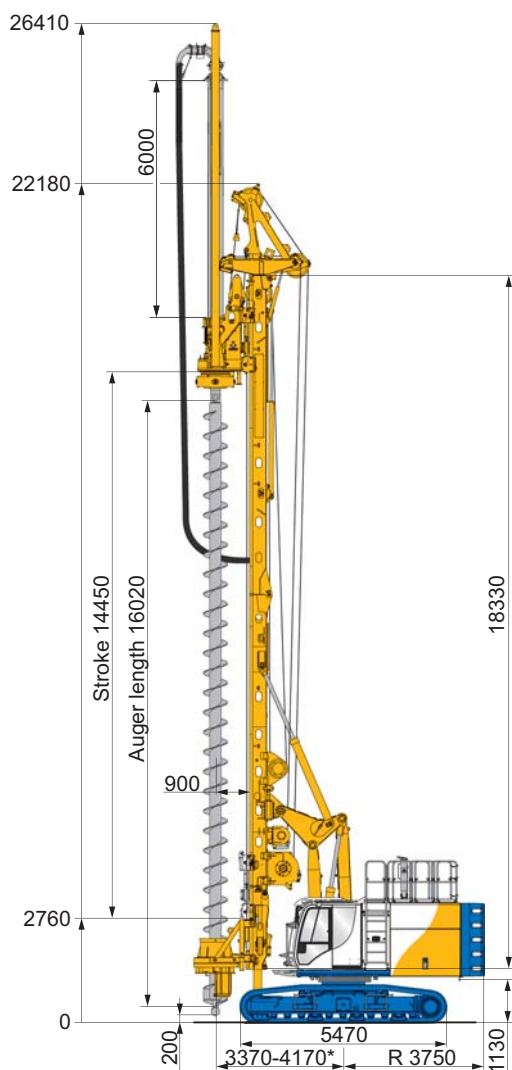
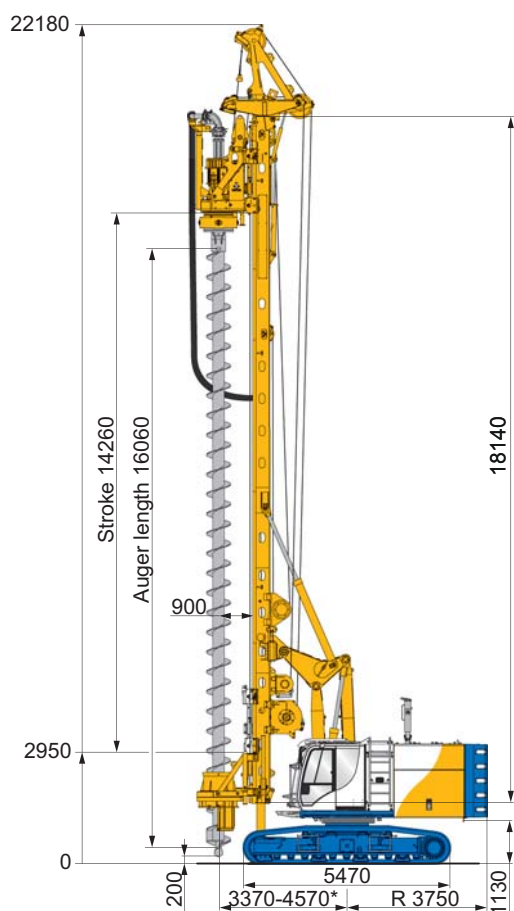


#### Kelly drilling with casing oscillator up to BV 1300-L03



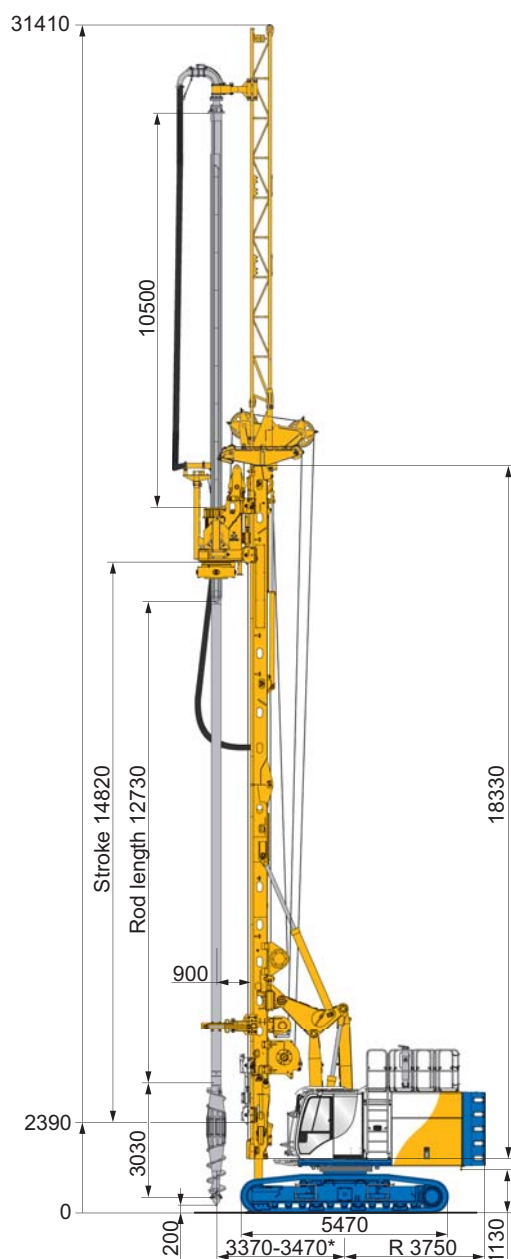
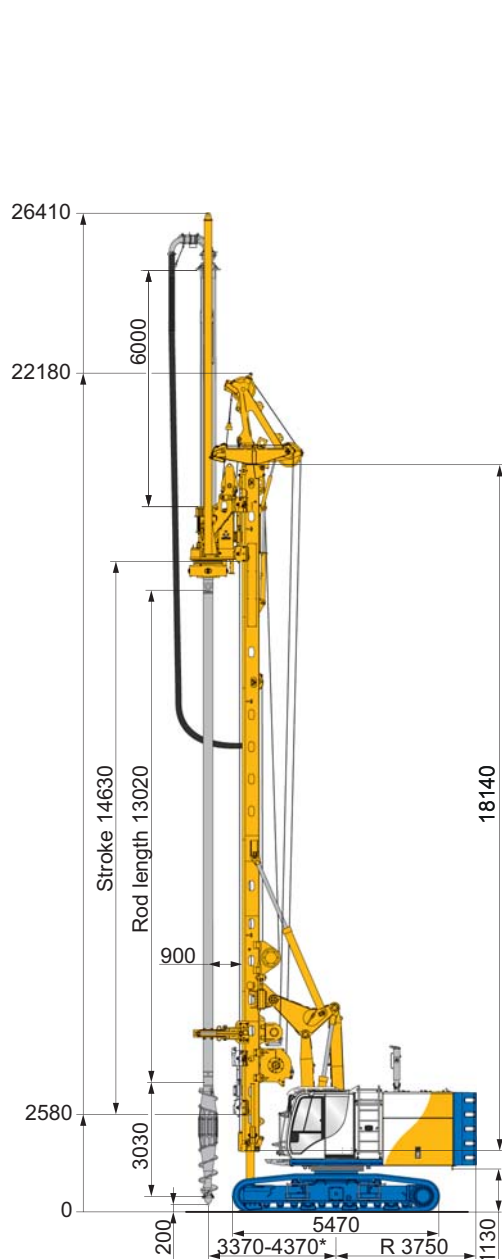
Casing lengths  
without BV = H<sub>w</sub> - 0.5 m  
with BV = H<sub>w</sub> - 1.6 m





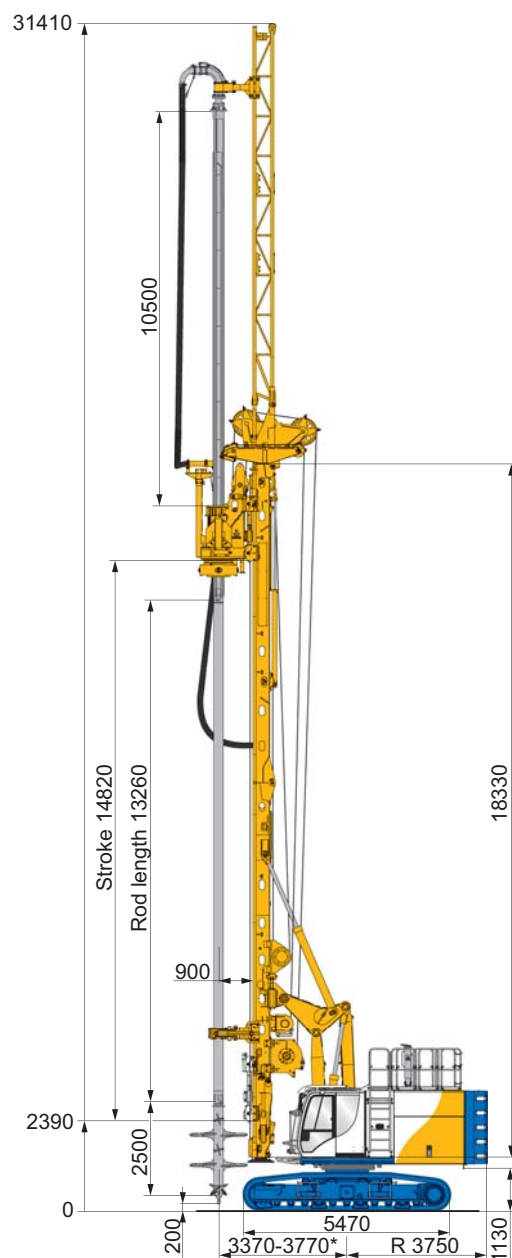
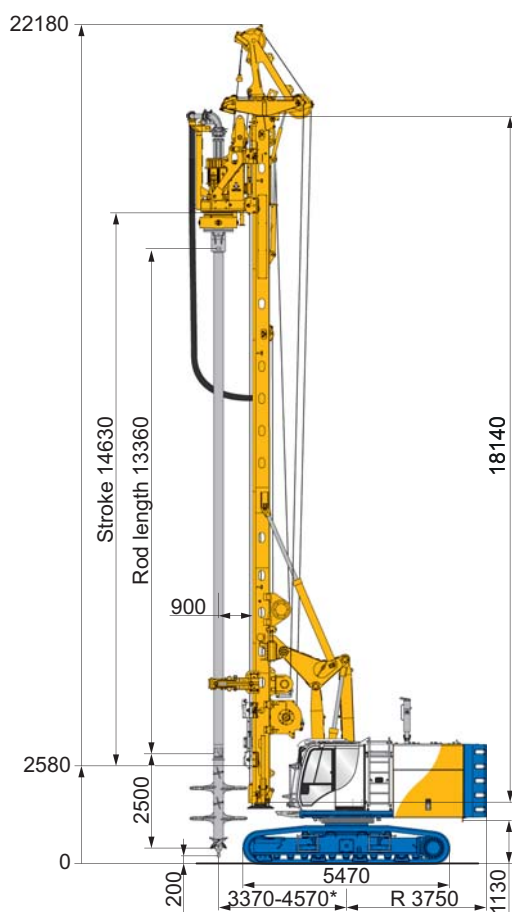
	Basic version	Upgraded version
Mast	Single section mast	Multi section mast
Kelly extension	without	6.0 m
Max. drilling depth	750 mm	750 mm
Drilling depth with auger cleaner	13.8 m	20.0 m
Max. extraction force with main and crowd winch (effective)	600 kN	600 kN
With counterweight	10.0 t	10.0 t

\* depending on equipment



	FDP drilling Basic version	FDP drilling Upgraded version
Mast	Single section mast	Multi section mast
Kelly extension	6.0 m	10.5 m
Max. drilling diameter	510 mm	510 mm
Max. drilling depth	20.2 m	24.9 m
Max. extraction force with main and crowd winch (effective)	600 kN	600 kN
With counterweight	10.0 t	10.0 t

\* depending on equipment



	SCM mixing Basic version	SCM mixing Upgraded version
Mast	Single section mast	Multi section mast
Kelly extension	without	10.5 m
Max. mixing diameter	1,500 mm	1,500 mm
Max. mixing depth	14.2 m	24.9 m
Max. extraction force with main and crowd winch (effective) *	600 kN	600 kN
With counterweight	10.0 t	10.0 t

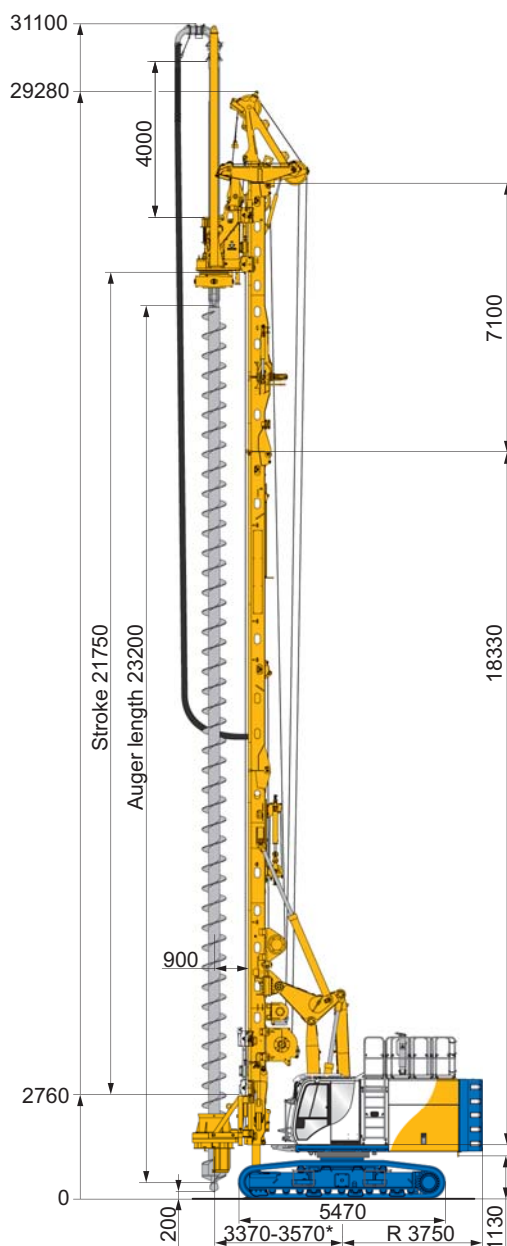
\* depending on equipment





**Highlights Extension Package Single Pass Extreme (SPEX)**

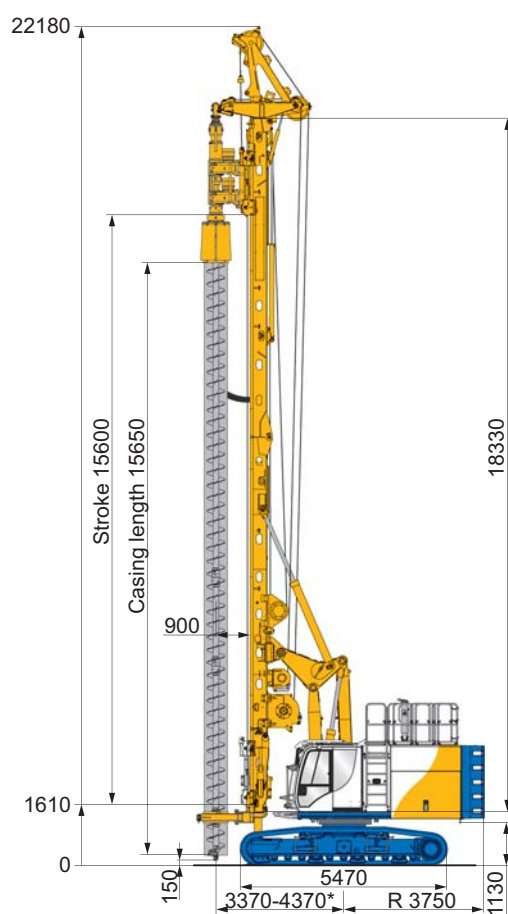
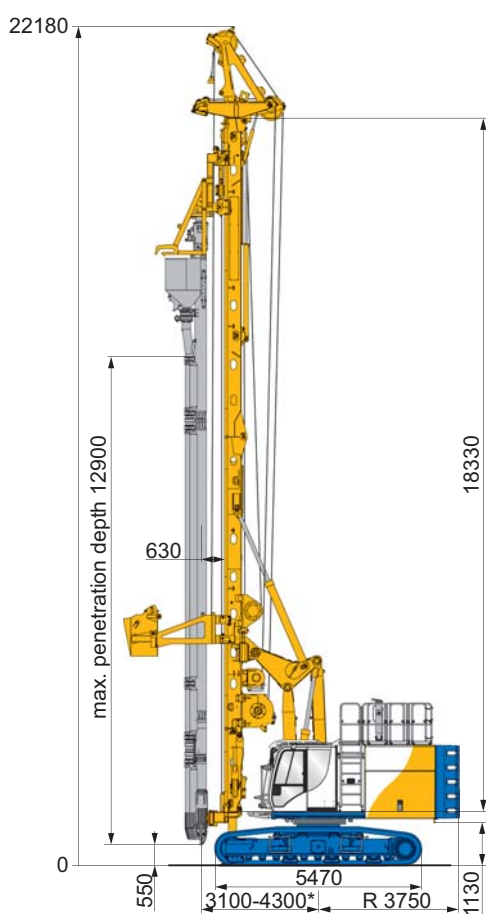
- Expansion of the active feed by 7.1 m due to installation of an upper mast extension
- Further 4 m drilling depth, achievable due to following up with the Kelly extension
- Easy conversion of the feed system to single tensile force
- Low investment costs due to the expansion of the standard equipment
- Compact transport dimensions due to the hydraulically foldable and lockable mast extension
- Optionally, the Remote Control Multi can be used to fold the mast extension
- Can be used in CFA, FDP and SCM mode



Extension Package Single Pass Extreme (SPEX)			
	CFA drilling	FDP drilling	SCM mixing
Mast	Multi section mast	Multi section mast	Multi section mast
Kelly extension	4.0 m	4.0 m	4.0 m **
Max. drilling / mixing diameter	750 mm	510 mm	1,500 mm
Drilling depth with auger cleaner and casing guidance			
without Kelly extension	21.3 m	21.7 m	21.3 m
with Kelly extension	25.3 m	25.7 m	25.3 m
Max. extraction force with main and crowd winch (effective) *	470 kN	470 kN	470 kN
With counterweight		10.0 t	

\* depending on equipment

\*\* not recommended



Vibro Displacement (VD) Vibrator TR 17		FoW drilling DKS 40/60	
Max. penetration depth	12.9 m	Torque auger / casing	40/60 kNm
Pressure with crowd winch (effective)	110 kN	Max. drilling diameter	610 mm
Max. extraction force with main and crowd winch (effective)	260 kN	Max. drilling depth	15.3 m
With counterweight	10.0 t	Max. extraction force with main and crowd winch (effective)	450 kN
		With counterweight	10.0 t

\* depending on equipment

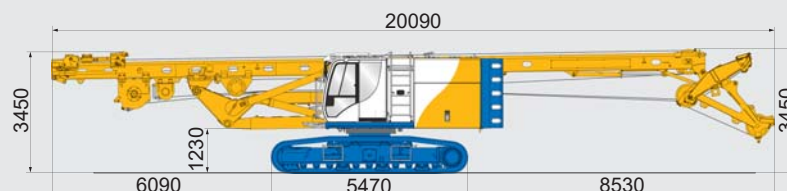
**G** = Weight  
**B** = Width, overall

Weights shown are approximate values;  
optional equipment may change the overall  
weight and dimensions.

## With single section mast

**G = 56.6 t with 10.0 t counterweight without base sledge**

**G = 57.6 t with 10.0 t counterweight with base sledge**



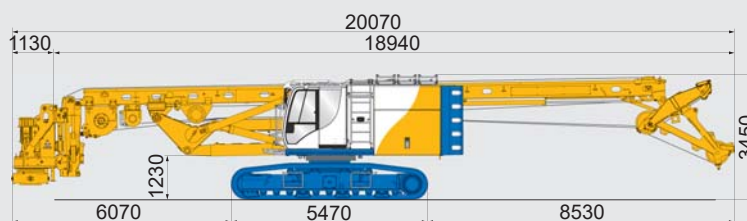
## With multi section mast

**G = 57.7 t with 10.0 t counterweight without base sledge**

**G = 58.7 t with 10.0 t counterweight with base sledge**



**G = 63.2 t with 10.0 t counterweight and rotary drive**



## Extension Package Single Pass Extreme (SPEX)

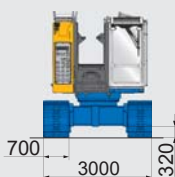
**G = 60.9 t with 10.0 t counterweight without base sledge**

**G = 61. t with 10.0 t counterweight with base sledge**

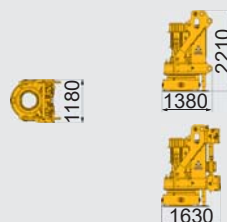


## Base carrier BT 65

**B = 3.000 mm**

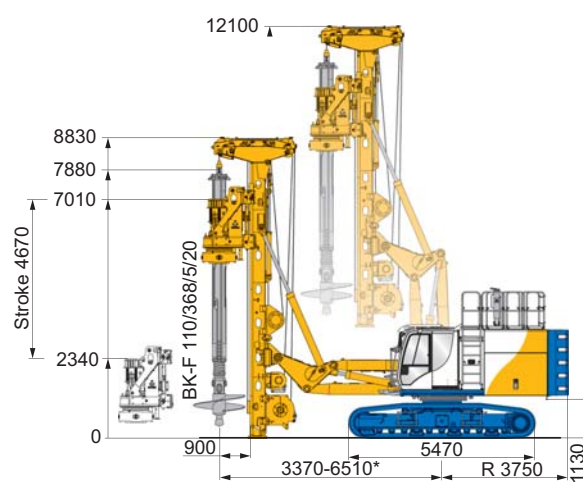
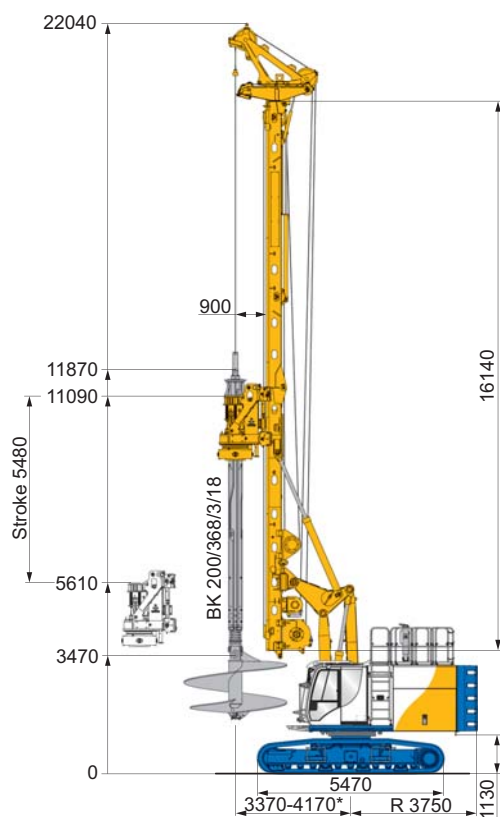


## Rotary drive



**without base sledge**  
**G = 4.3 t (KDK 235 K)**  
**4.6 t (KDK 235 S)**

**with base sledge**  
**G = 5.3 t (KDK 235 K)**  
**5.6 t (KDK 235 S)**



Giant Drill		Low Headroom System	
Lower mast section	without	Lower mast section	without
Max. drilling diameter uncased	3,000 mm	Max. drilling diameter uncased	1,500 mm
cased	-	cased	1,200 mm
		Max. drilling depth with Kelly BK-F 110/368/5/20	19.6 m



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