

# BAUER BG 33 H

## Rotary Drilling Rig

Base Carrier BT 85

PremiumLine



## Experience for you!

*“100 years of drilling,  
4 decades of building machines,  
and still down to the earth”*

Prof. Thomas 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 Premium Line stands 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 on construction sites with underpasses or underneath low bridges



**BG 15 H  
BT 40**

**BG 18 H  
BT 50**

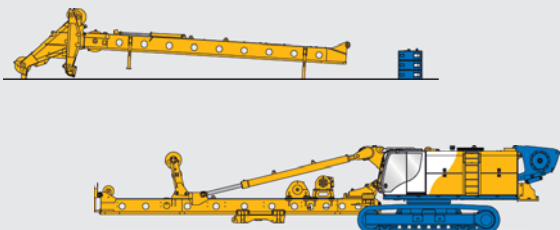
**BG 20 H  
BT 60**

**BG 23 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



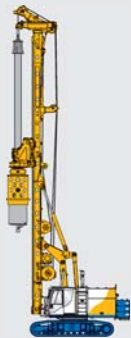
**BG 28  
BS 80**

**BG 36  
BS 95**

**BG 45  
BS 95**

## The Rotary Drilling Rig BG 33 H PremiumLine (BT 85)

Max. drilling diameter:	2,500 mm
Max. drilling depth:	68.4 m
Max. torque:	342 kNm
Max. height:	27.4 m
Engine:	CAT C 13 – Stage III A/Tier 3 – Stage IV/Tier 4 final 354 kW @ 1,850 rpm



**BG 28 H  
BT 75**



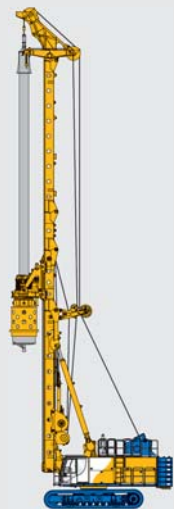
**BG 28 H  
BT 85**



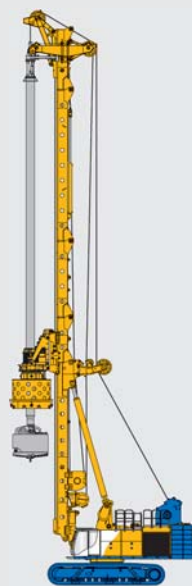
**BG 33 H  
BT 85**



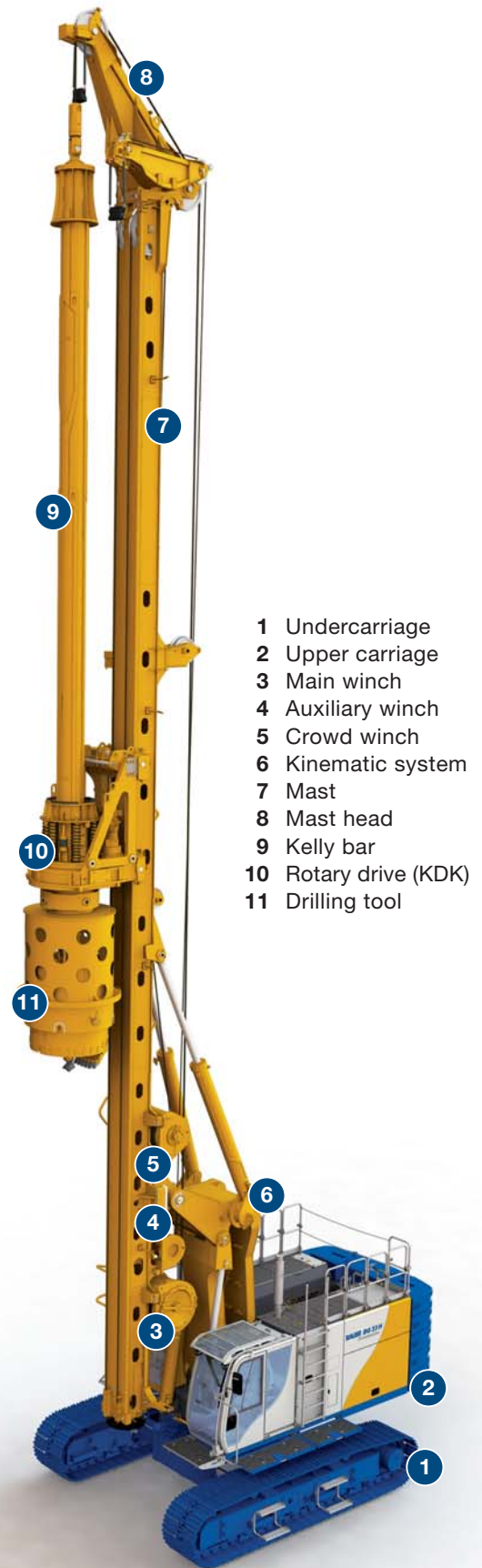
**BG 36 H  
BS 95**



**BG 55  
BS 115**



**BG 72  
BT 180**



- 1 Undercarriage
- 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 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 engine CAT C 13**

- Conforming Exhaust Emission standard Stage III A / Tier 3 or Stage IV / Tier 4 final
- Diesel particulate filter in Exhaust Emission standard Stage IV / Tier 4 final
- Low noise emission
- Worldwide CAT-service partners



**Flexible mast concept**

- Upper mast extension 2 m (hydraulically foldable and lockable)
  - Simple and secure attachment, no working at heights unsecured
  - Reduced transport length
- Lattice mast extension
- Vario-masthead
  - Masthead for drill axis 1,100 expandable to 1,400 mm
  - Increased stroke for Kelly bars when using an upper kelly guide
  - Tilttable main jib for single-pass processes and for optimized transport



- 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



#### Variable stackable counterweight elements

- Constant tail radius (irrespective of number of counterweights)
- Low weight of individual elements (4.9 t or 2.5 t)
- Flexible arrangement for various applications
- Mounting and demounting possible with the drilling rig
- Transport of the machine possible without removing counterweights



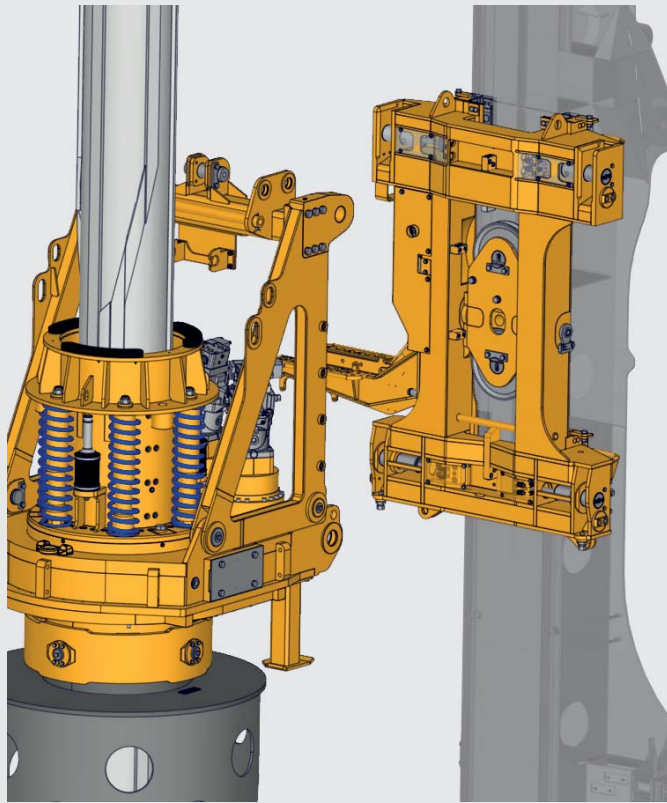
#### Safety equipment

- 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)
- 2 rear view cameras

#### 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





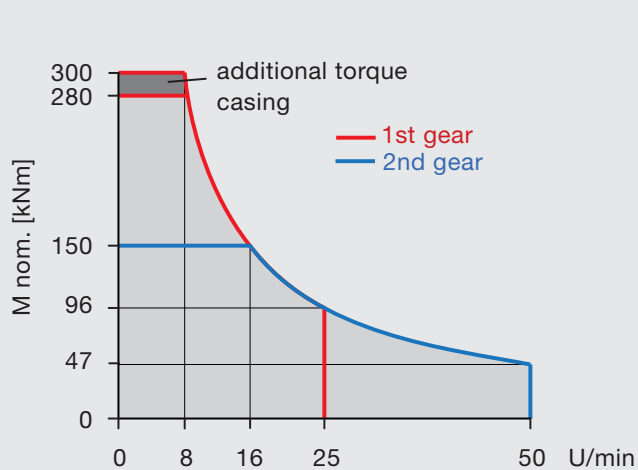
#### Rotary drive

- Optional single gear drive KDK 300 K, KDK 340 K or multi gear drive KDK 300 S
- Max. torque 342 kNm
- Max. speed 50 rpm

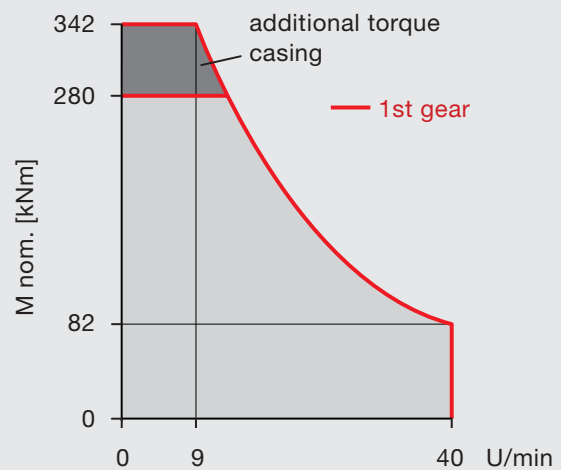
#### Hydraulically operated pin connection on the crowd sledge

- Pin connection controlled via the remote control
- Simple and secure attachment of the rotary drive, no working at heights unsecured

#### KDK 300 S



#### KDK 340 K







**Kelly Drilling**



**Cased Kelly Drilling**  
Casing Installation with BTM



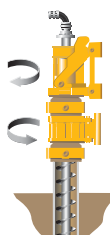
**Cased Kelly Drilling**  
Casing Installation with Oscillator



**CFA**  
Continuous Flight  
Auger Method



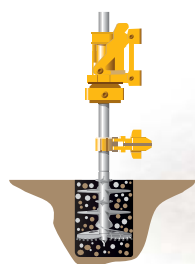
**FDP**  
Full Displacement Piling  
(Standard or Lost Bit)



**CCFA**  
Cased CFA with KDK + BTM /  
Double Rotary System



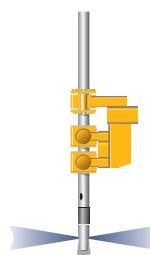
**Pile Driving**  
with Hydraulic Hammer  
or Pileco Diesel Hammer



**SCM**  
Single Column Mixing



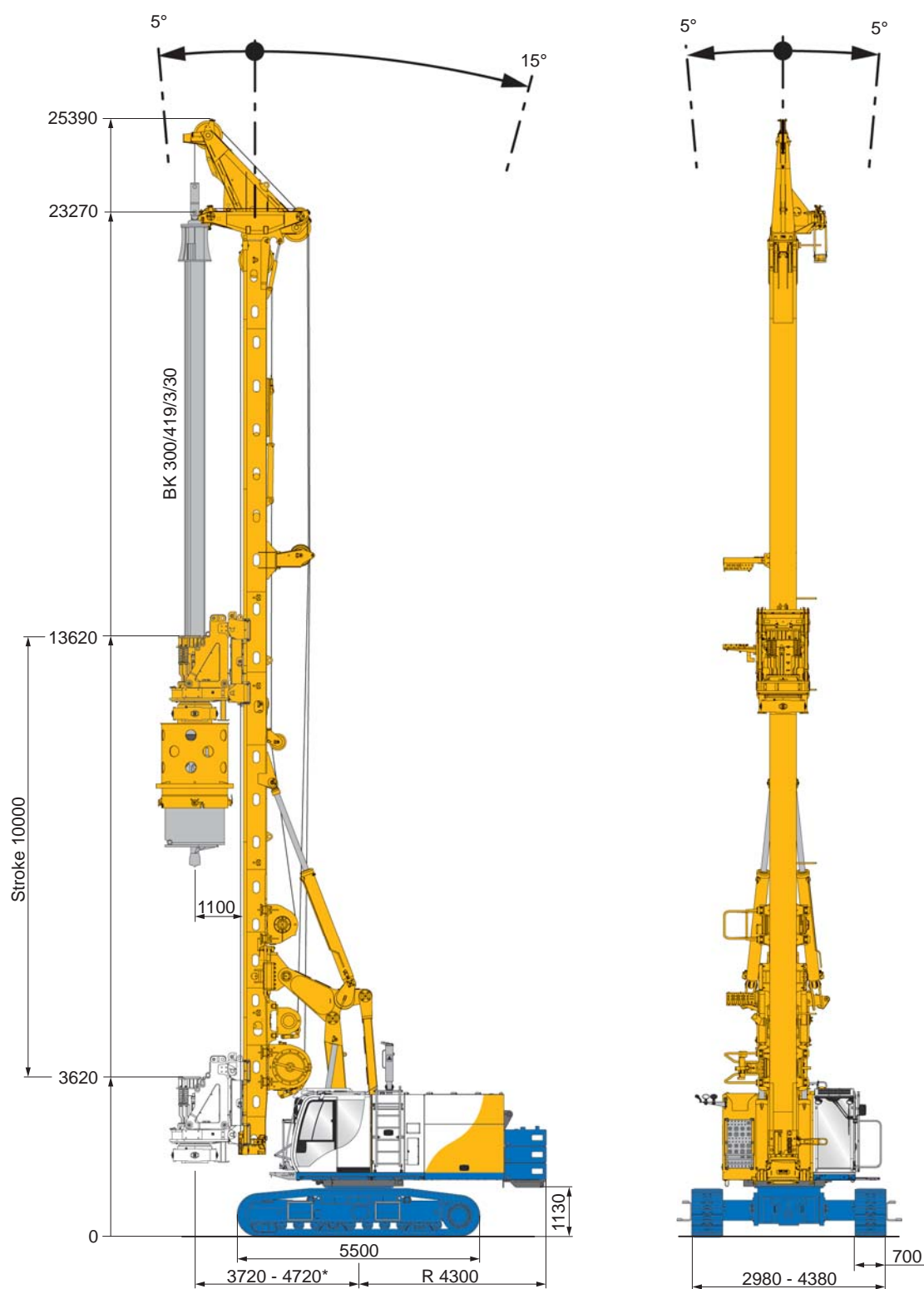
**CSM**  
Cutter-Soil-Mixing



**HDI**  
Jet Grouting



**TR**  
Vibrator



**Operating weight 98.0 t**  
(as shown)

\* depending on equipment

Rotary drive	KDK 300 K	KDK 300 S	KDK 340 K
Torque (nominal) for casing operation at 350 bar	294 kNm	300 kNm	342 kNm
Torque (nominal) for drilling at 350 bar	281 kNm	280 kNm	280 kNm
Max. speed of rotation	30 rpm	50 rpm	40 rpm
Crowd winch			
Max. sledge stroke with 2 m mast extension		20,400 mm	
Crowded force push and pull, effective / nominal		330 / 423 kN	
Rope diameter		24 mm	
Speed (down / up)		8.5 m/min	
Fast speed (down / up)		32 m/min	
Main winch		M6 / L3 / T5	
Line pull (1 <sup>st</sup> layer) effective / nominal		250 / 317 kN	
Rope diameter		32 mm	
Line speed (max.)		80 m/min	
Auxiliary winch		M6 / L3 / T5	
Line pull (1 <sup>st</sup> layer) effective / nominal	80 / 100 kN		100 / 125 kN
Rope diameter		20 mm	
Line speed (max.)		55 m/min	
Base carrier (EEP)		BT 85	
Engine		CAT C 13	
Rated output ISO 3046-1		354 kW @ 1,850 rpm	
Exhaust emission EEC 97/68 EC standard acc. to EPA/CARB	Stage III A Tier 3		Stage IV Tier 4 final
Diesel tank capacity / AdBlue Tank	730 / – l		730 / 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 and EN 16228, Annex B)		LW <sub>A</sub> 112 dB (A)	
Hydraulic pressure		350 bar	
Hydraulic oil tank capacity		650 l	
Flow rates	2 x 320 + 1 x 565 + 1 x 215 l/min		
Undercarriage	UW 80	UW 100	
Crawler type		B 7	
Traction force effective / nominal	520 / 630 kN		730 / 860 kN



## Base carrier BT 85

### Standard

- Removable counterweight elements
- 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
- 2 rear view cameras
- Integrated service platform
- Central lubrication system
- LED spotlights
- Climatronic

### Optional

- Counterweight, variably adjustable
- Foldable guardrails on the upper level
- Integrated service platform (electrically retractable/extendable)
- High-pressure cleaner with water tank
- Compressor 1,000 l/min
- Electric generator 13 kVA
- Bio-degradable hydraulic oil
- Arctic kit / Arctic kit plus
- Cab space heater with automatic timer
- Additional camera (at customized location)
- Rear support unit, **Fig. A**
- Front screen guard
- Sun blind small or large
- Remote control Basic, **Fig. B**
- Remote control Multi

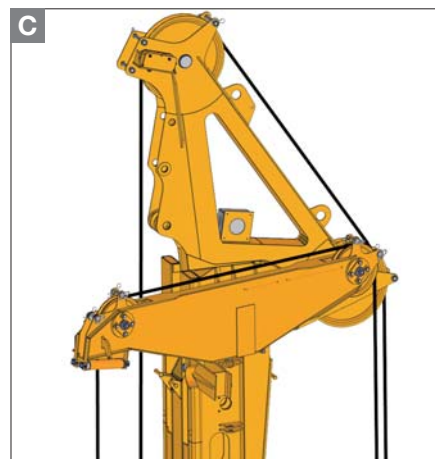
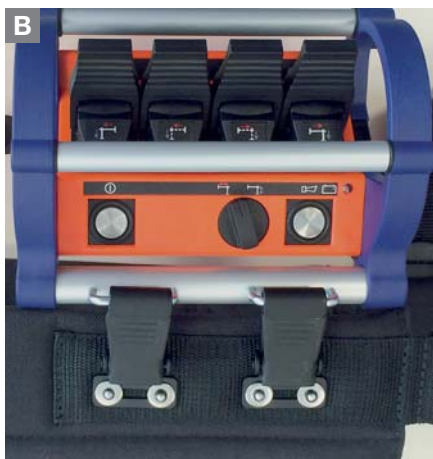
## Drilling rig attachment

### Standard

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

### Optional

- Vario-masthead, **Fig. C**
- Upper Kelly guide
- Extension of drill axis to 1,400 mm
- Hydraulically operated pin connection on the crowd sledge for easy mounting and removal of the rotary drive
- Mast support unit
- Mast extension 2 m, hydraulically foldable and lockable
- Lattice mast extension
- Swivel for auxiliary rope
- Additional auxiliary winch 20 kN
- Attachment of casing oscillator up to BV 1500 for UW 80 or BV 2000 for UW 100, **Fig. D**
  - Powered by on-board hydraulics of the base carrier
  - Controlled from operator's cab
  - Weight of drilling rig can be activated through mechanical fixing
- Attachment of automatic casing drive adapter
- Sling for counterweight handling
- Auger cleaner attachment for Kelly system
- Passenger hoist system with lift cage, **Fig. E**



## Rotary drive

### Standard

- Rotary drive KDK 300 K (single-gear drive)
- Selectable modes of operation
- Kelly drive adapter for outer Kelly tube 419 mm
- Integrated Kelly damping system
- Exchangeable Kelly drive adapter
- Cardanic joint
- Quick-release hydraulic couplers
- Transport supports
- Lifting gear

### Optional

- Rotary drive KDK 300 S (multi-gear)
- Rotary drive KDK 340 K (single-gear drive)
- Kelly equipment for outer Kelly tube 394 mm
- Torque multiplier BTM 720 K for Kelly drilling
  - Torque 420 kNm (nominal)
  - Increase of torque for casing installation
  - Easy attachment
  - Separate sledge
  - Connection to rotary drive with cardan joint
- Torque multiplier BTM 400 for CCFA

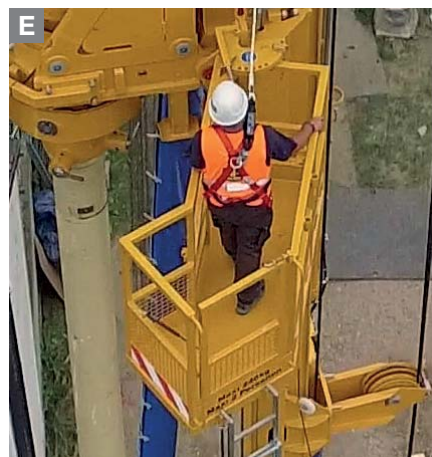
## Measuring and control system

### 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)
- 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



### 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 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

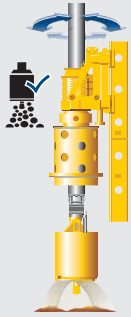
#### WEB-BGM

- 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

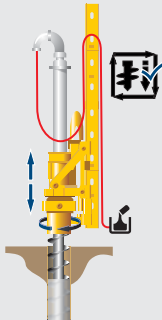
- Standardized reports for the documentation of drilling progress and verification of performance and quality





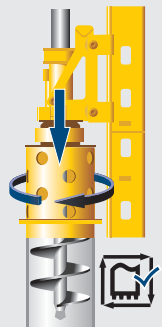
### One-directional and bi-directional spoil discharge assistant

Automatic emptying of spoil via an alternating or shocking slewing rotation of the rotary drive. Infinitely variable adjustment of the shaking or shocking frequency via B-Drive.



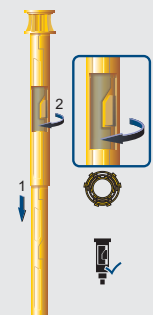
### Automatic drilling and extraction control for Single-Pass processes

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.



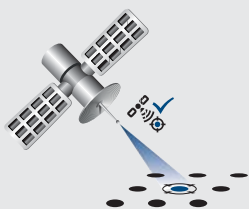
### Kelly drilling assistant

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.



### Kelly visualization

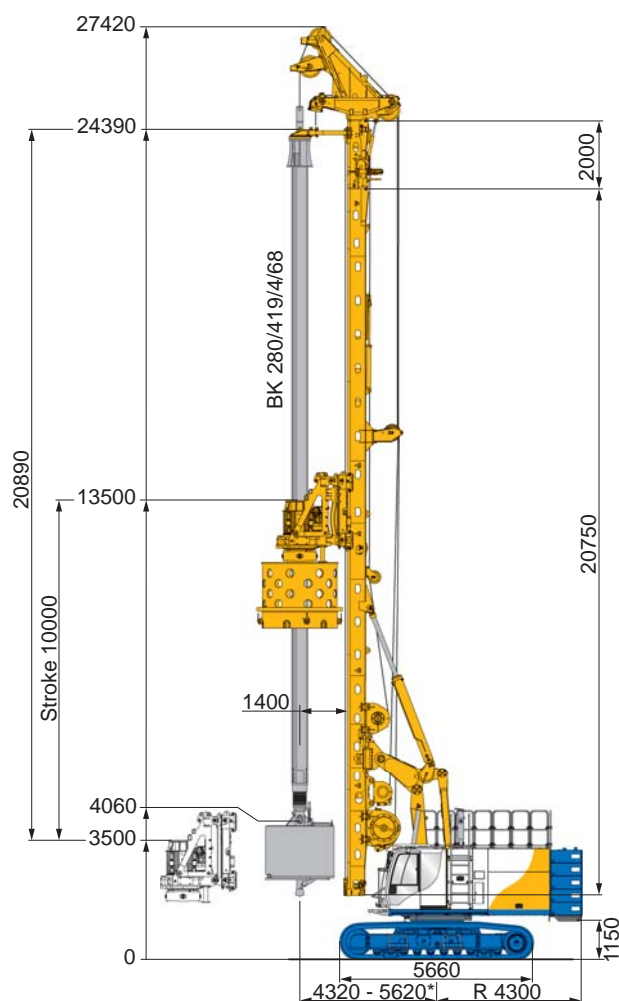
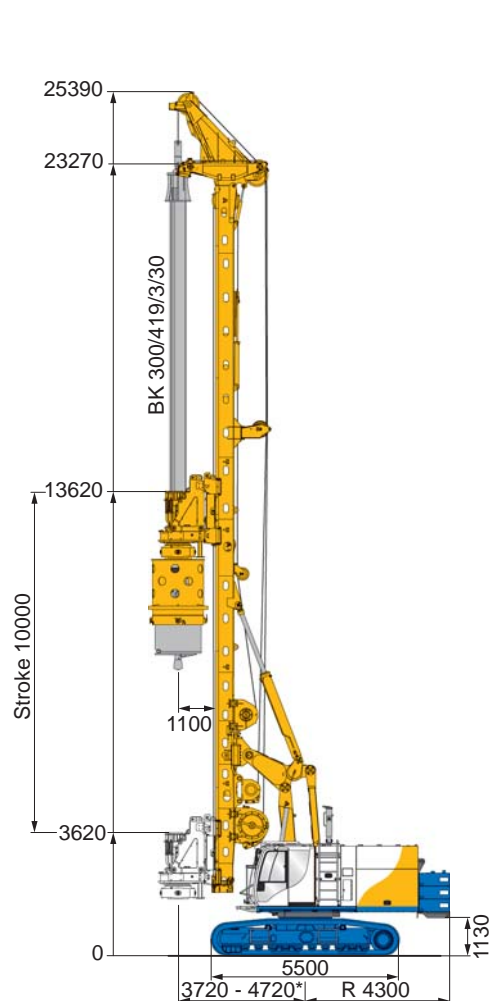
Display of the locking recesses, as well as representation of the controlled extension and retraction of the Kelly bar on the B-Tronic system. The rapid approach of the locking position results in a considerably enhanced drilling performance. In addition, the level of wear that the Kelly bar and drive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



### Satellite-based positioning

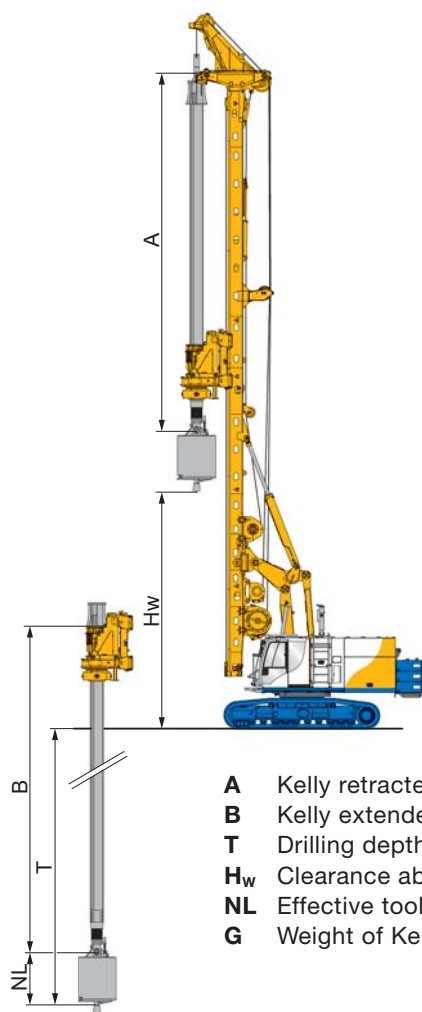
The BAUER-Assistant Positioning System (B-APS) allows the position of a bored pile to be located extremely accurately. Documentation is provided for the nominal and actual coordinates, as well as the corresponding accuracy of each bored pile. Manual marking of the piles is no longer required.

Numerous other assistance systems are available in our portfolio.



	Basic version	Upgraded version
Undercarriage	UW 80	UW 100
Rotary drive	KDK 300 K/S	KDK 340 K
Mast extension	without	2 m
Upper Kelly guide	without	with
Drill axis	1,100 mm	1,400 mm
Max. drilling diameter		
uncased	1,900 mm	2,500 mm
cased	1,600 mm	2,200 mm
Operating weight, approx.	98 t	124 t
with Kelly	BK 300 / 419 / 3 / 30	BK 280 / 419 / 4 / 68
with casing drive adapter	Ø 1,500	Ø 2,200
with bucket	Ø 1,350	Ø 2,000
with counterweight	14.7 t	24.5 t

\* depending on configuration



- A** Kelly retracted
- B** Kelly extended
- T** Drilling depth
- H<sub>w</sub>** Clearance above ground
- NL** Effective tool length
- G** Weight of Kelly

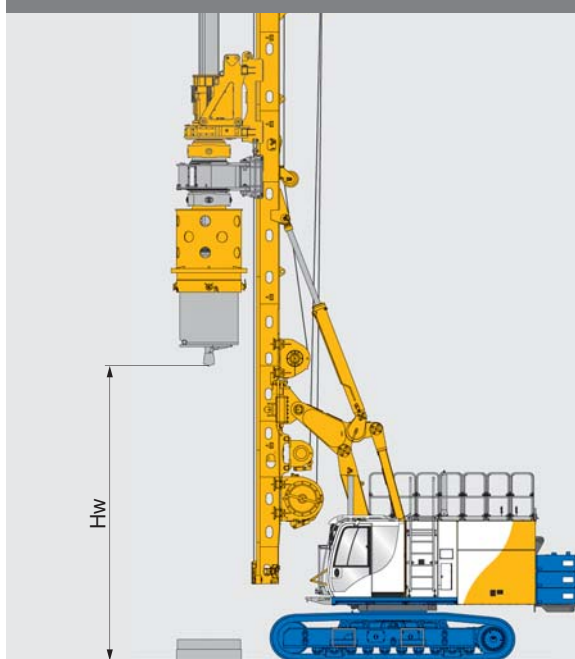
#### Drilling depths – uncased Kelly drilling, drill axis 1,100 mm

				without mast extension		2.0 m mast extension	
3-part Kelly	A (m)	B (m)	G (kg)	H <sub>w</sub> (m)	T (m)	H <sub>w</sub> (m)	T (m)
BK300/419/3/24	10.72	26.39	5,450	8.86	24.6	8.86	24.6
BK300/419/3/27	11.72	29.39	5,850	8.86	27.6	8.86	27.6
BK300/419/3/30	12.72	32.39	6,300	8.33	30.6	8.86	30.6
BK300/419/3/33	13.72	35.39	6,700	7.33	33.6	8.86	33.6
BK300/419/3/36	14.72	38.39	7,100	6.33	36.6	8.33	36.6
BK300/419/3/39	15.72	41.39	7,550	5.33	39.6	7.33	39.6
4-part Kelly							
BK280/419/4/32	11.33	34.21	7,000	8.86	32.4	8.86	32.4
BK280/419/4/36	12.33	38.21	8,300	8.71	36.4	8.86	36.4
BK280/419/4/40	13.33	42.21	8,900	7.71	40.4	8.86	40.4
BK280/419/4/44	14.33	46.21	9,550	6.71	44.4	8.71	44.4
BK280/419/4/48	15.33	50.21	10,200	5.71	48.4	7.71	48.4
BK280/419/4/52	16.33	54.21	10,800	4.71	52.4	6.71	52.4
BK280/419/4/64	19.33	66.21	12,650	1.71	64.4	3.71	64.4
BK280/419/4/68	20.33	70.21	13,300	0.71	68.4	2.71	68.4

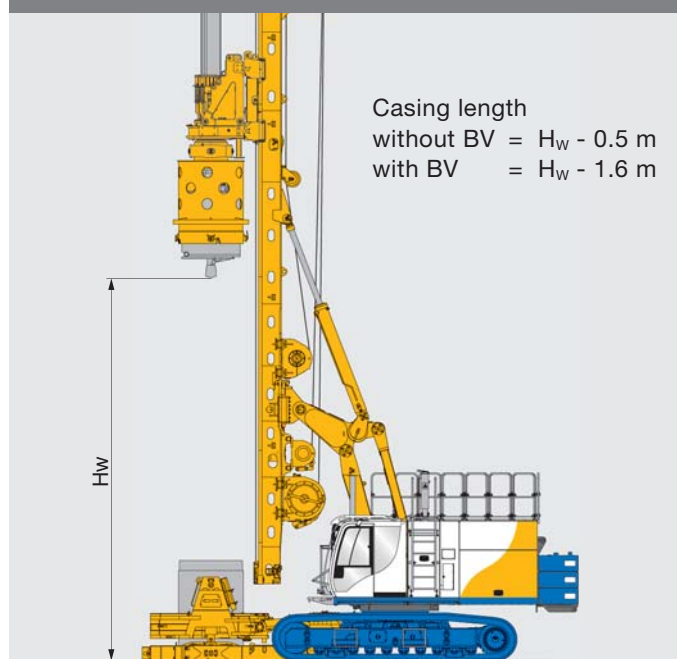
Drilling data have been determined with an effective tool length of NL = 1.9 m and with the mast at a minimum operating radius. These data only apply for the use of Bauer tools.

Other drilling depths, borehole diameters and Kelly versions are available on request.

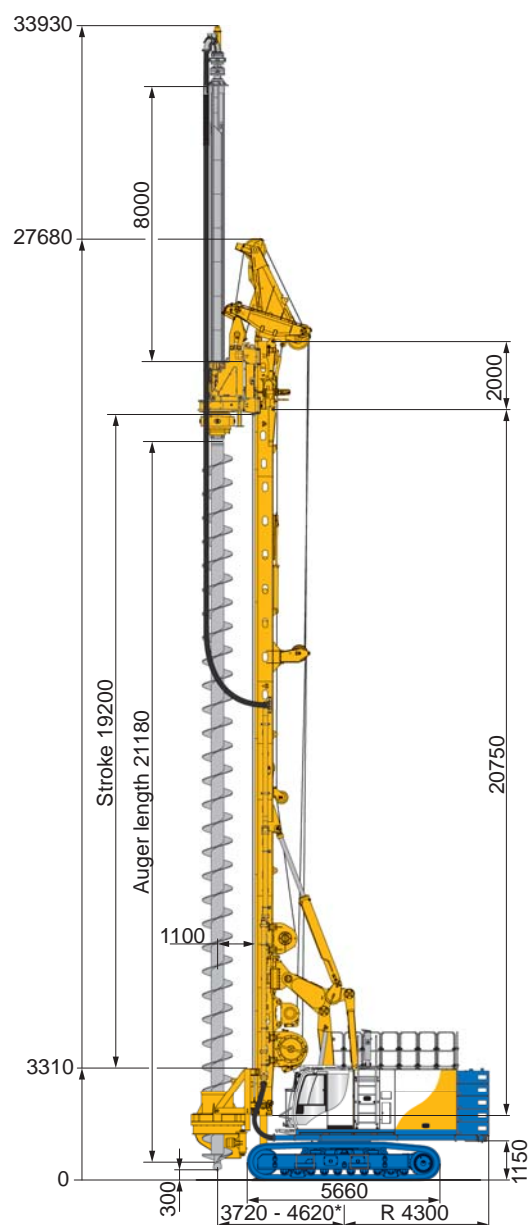
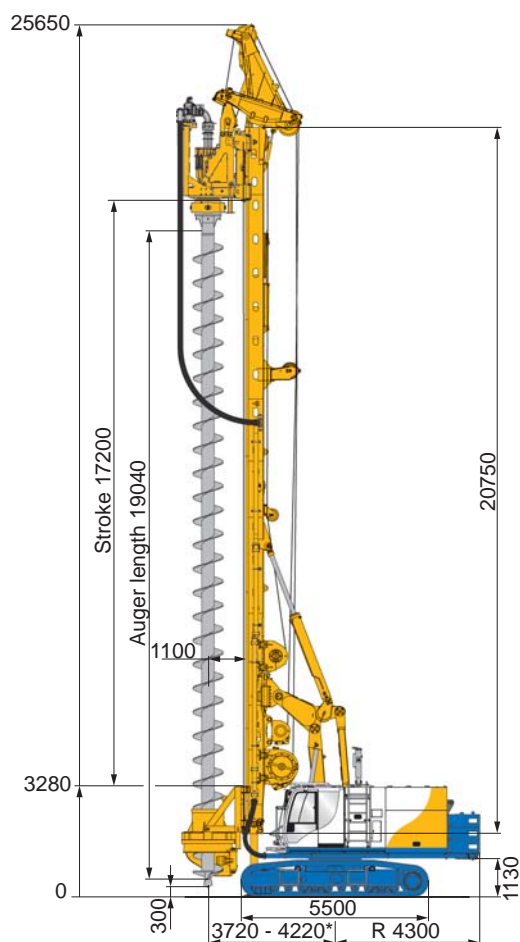
#### Torque multiplier BTM 720



#### Kelly drilling with casing oscillator up to BV 1500 (UW 80) or BV 2000 (UW 100)

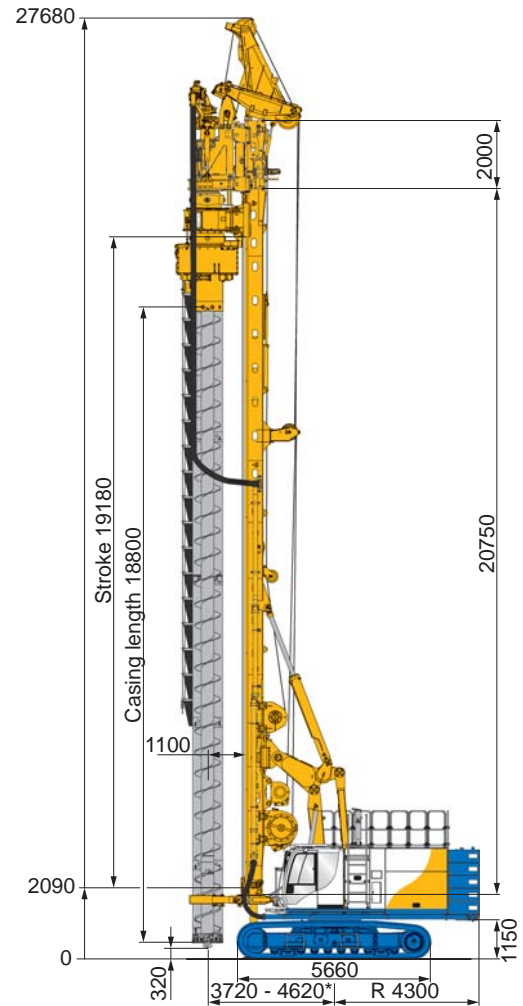
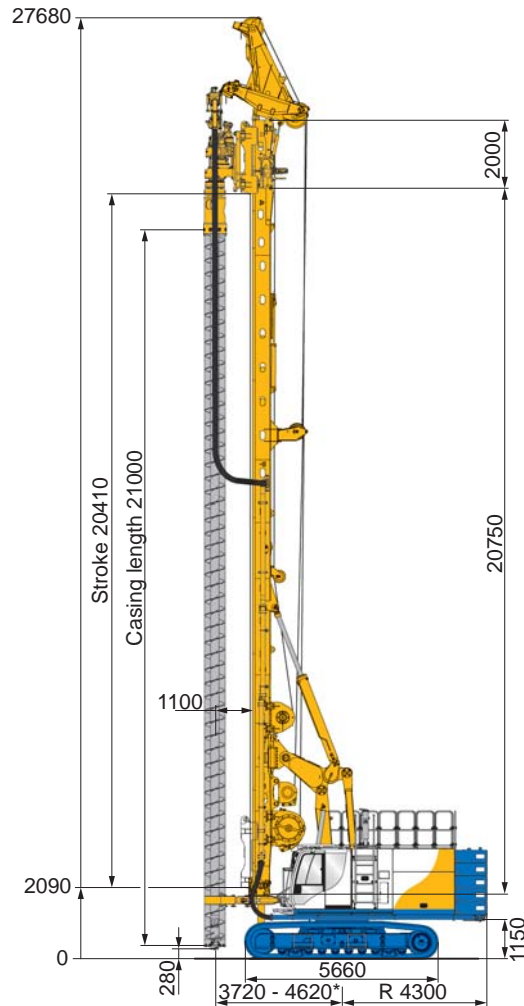






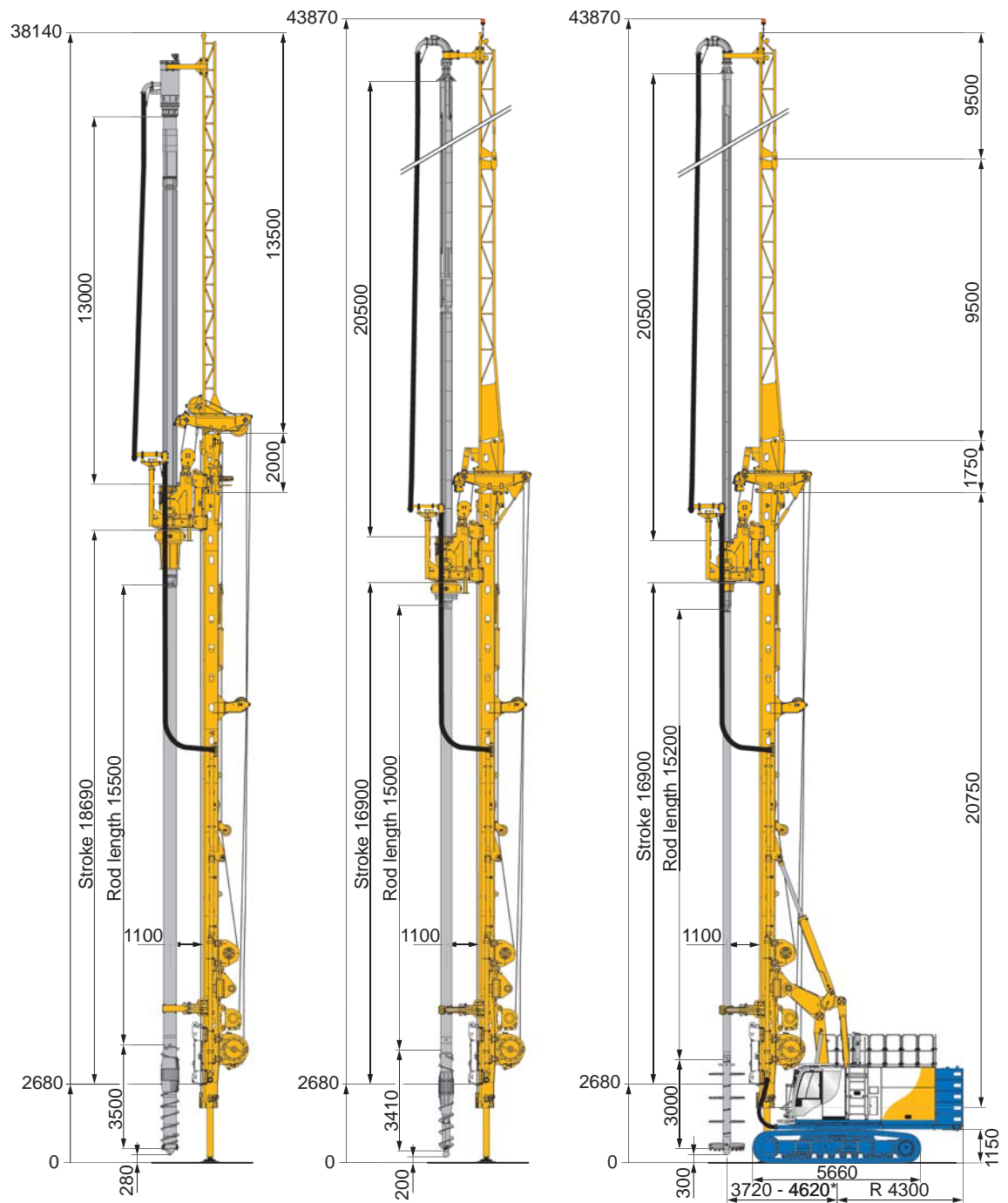
	Basic version	Upgraded version
Undercarriage	UW 80	UW 100
Mast extension	without	2 m
Kelly extension	without	8 m
Max. drilling diameter	880 mm	1,200 mm
Max. drilling depth with auger cleaner	16.9 m	26.9 m
Max. extraction force with main -and crowd winch (effective)	830 kN	830 kN
with counterweight *	14.7 t	14.9 t

\* depending on equipment



	FoW drilling		CCFA drilling
	DKS 50 / 140	DKS 100 / 200	with BTM 400
Torque Auger	50 kNm	100 kNm	200 kNm
Casing	140 kNm	200 kNm	400 kNm
Undercarriage	UW 80	UW 100	UW 100
Mast extension	2 m	2 m	2 m
Max. drilling diameter	610 mm	750 mm	880 mm
Max. drilling depth	20 m	20 m	18.8 m
Max. extraction force with main -and crowd winch (effective)	500 kN	530 kN	830 kN
with counterweight *	14.9 t	14.9 t	24.5 t
Ejection system	without	optional	standard

\* depending on equipment

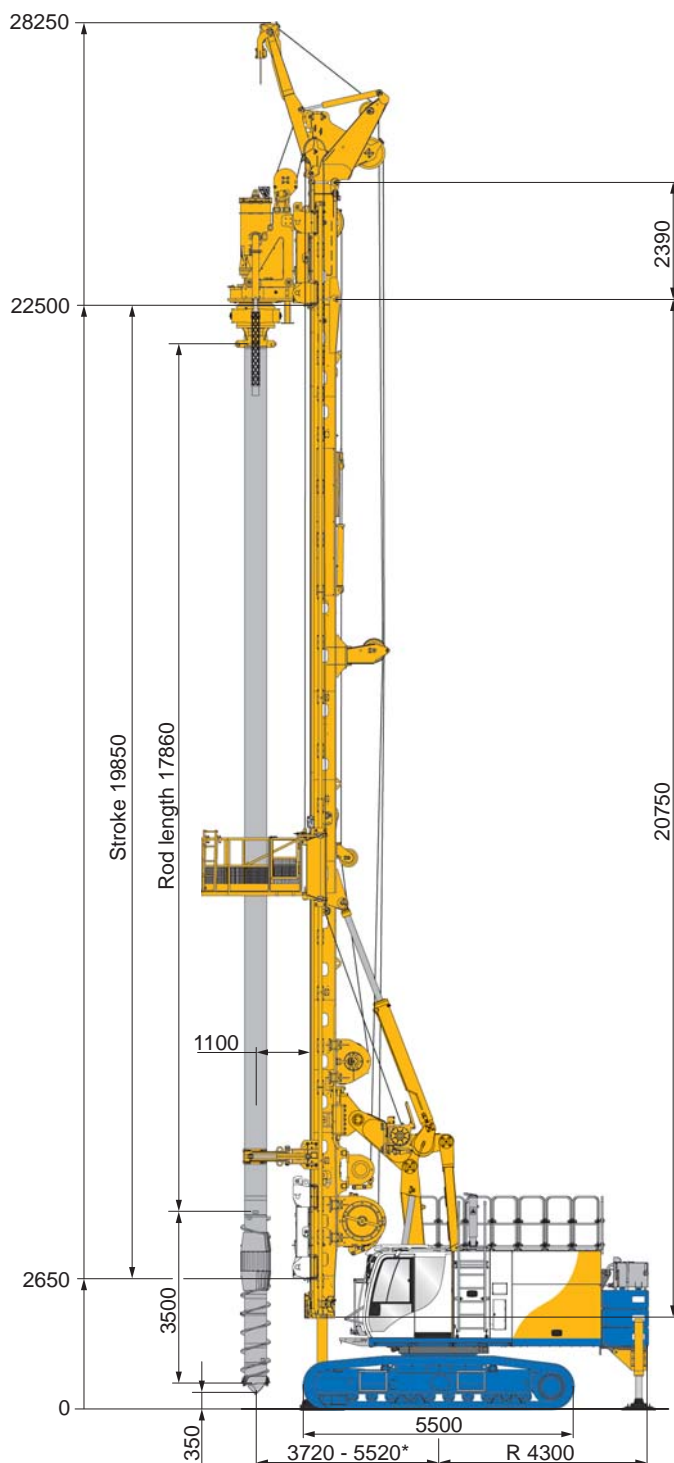


	FDP Lost-bit drilling	FDP drilling	SCM mixing
Mast extension	2 m	-	-
Kelly extension	13 m	20.5 m	20.5 m
Max. drilling diameter FDP	620 mm	620 mm	-
Max. mixing diameter SCM	-	-	2,500 mm **
Max. drilling depth	31.4 m	37.4 m	-
Panel depth	-	-	37.4 m
Max. extraction force with main -and crowd winch, effective	830 kN	830 kN	830 kN
with counterweight *	14.7 t	14.7 t	14.9 t

\* depending on equipment

\*\* operation only possible with restrictions





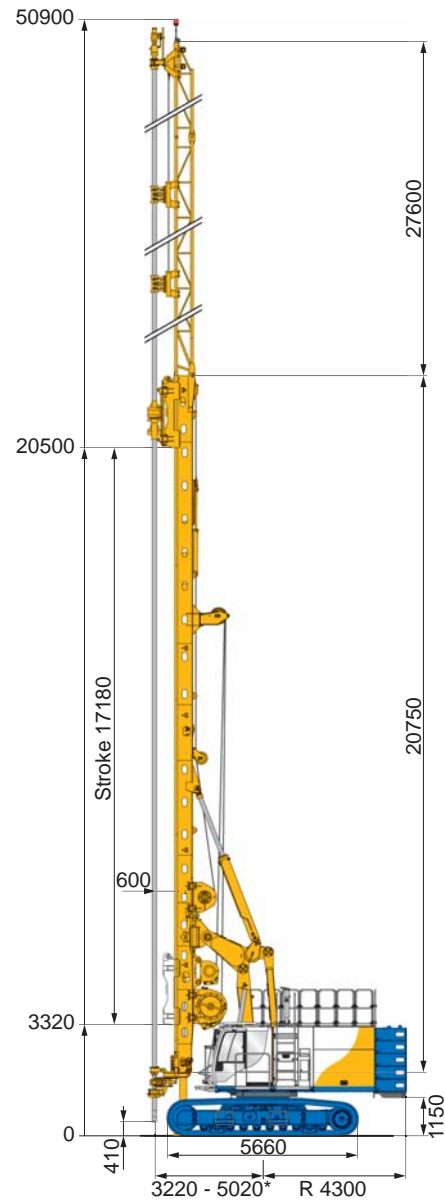
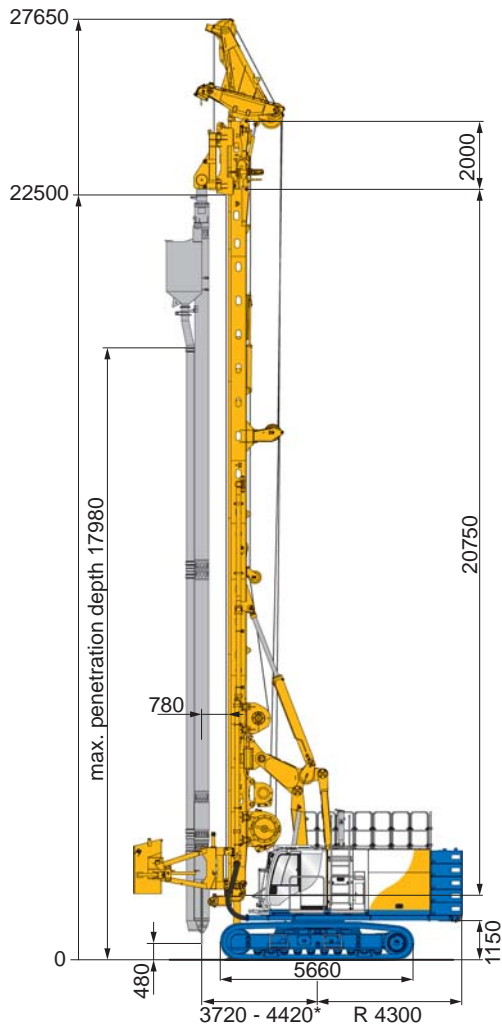
## Highlights of Handling Package for FDP Lost-Bit:

- Special mast head with auxiliary rope boom, which can be swivelled hydraulically in the drill axis
- Mast-guided passenger hoist system with swivelling transport platform
- Concrete funnel with camera system and cleaning system on the rotary drive for depressurized concreting in FDP mode
- High-pressure cleaner with water tank integrated in the base carrier
- Hydraulic upper carriage support for stabilizing and lifting the machine
- Extra wide fl at track shoes on the under-carriage
- Advanced EEP hydraulic system for full parallel operation of drilling and auxiliary functions
- Large horizontal movement enables a smooth and trouble-free swivel motion

**Operating weight 86.4 t**  
(as shown)

FDP Lost-bit drilling Handling Package	
Max. drilling diameter	620 mm
Max. drilling depth	18.4 m
Max. extraction force with main -and crowd winch, effective	830 kN
with counterweight *	14.7 t

\* depending on equipment



Vibro Displacement (VD)		
Vibrating	TR 17	TR 75
Max. penetration depth	18.1 m	17.9 m
Pressure with crowd winch (effective)	110 kN	110 kN
Extraction force with crowd winch (effective)	330 kN	330 kN
with counterweight *	14.9 t	14.9 t

Upgraded version Jet grouting	
Length of lattice mast	27.6 m
Rod diameter	89 - 133 mm
Max. jetting depth	40.8 m
Rotary drive	KDK 10 S
Max. extraction force with crowd winch (effective)	330 kN
with counterweight *	14.9 t

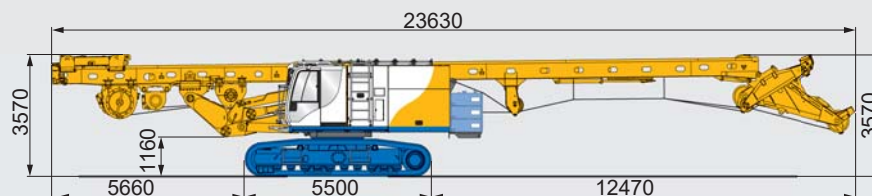
\* depending on equipment

**G** = Weight  
**B** = Width

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

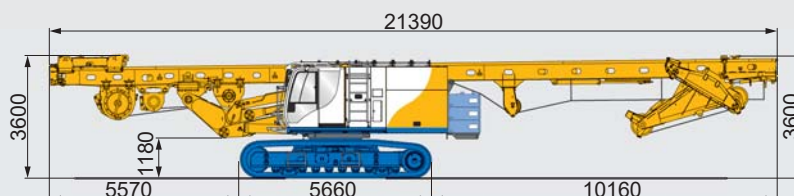
## Transport with standard mast and UW 80

**G = 67.2 t**

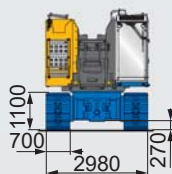


## Transport with standard mast 2 m, mast extension UW 100 and 14.7 t counterweight

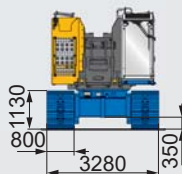
**G = 84.8 t**



### Base carrier with UW 80



### Base carrier with UW 100



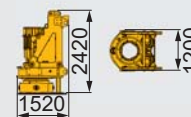
### Counterweight \*

**Weight = 2.5 / 4.9 t**  
**Width = 3,000 mm**



### Rotary drive

**Weight =**  
**5.2 t (KDK 300 K)**  
**5.5 t (KDK 300 S)**  
**6.7 t (KDK 340 K)**



	UW 80	UW 100
<b>Transport weight</b>		
Standard mast without counterweight	67.2 t	68.9 t
Standard mast with 14.7 t counterweight	81.9 t	83.6 t
with 2 m mast extension, without counterweight	68.4 t	70.1 t
with 2 m mast extension, with 14.7 t counterweight	83.1 t	84.8 t
<b>Width of crawlers retracted/extended</b>		
Track shoes 700 mm	3,000 – 4,400 mm	–
Track shoes 800 mm	3,300 – 4,500 mm	3,300 – 4,500 mm
Track shoes 900 mm	3,400 – 4,600 mm	3,400 – 4,600 mm

\* depending on application



# BAUER Service



Global Network



Service



Equipment



Training

## International Service Hotline

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Design developments and process improvements may require the specification and materials to be updated and changed without prior notice or liability. Illustrations may include optional equipment and not show all possible configurations. These and the technical data are provided as indicative information only, with any errors and misprints reserved.

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