

# BAUER BG 45

## Rotary Drilling Rig

Base Carrier BS 95

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 at construction sites with underpasses or below 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 45 PremiumLine (BS 95)

Max. drilling diameter: 3,700 mm  
 Max. drilling depth: 100.0 m  
 Torque (nominal): 461 kNm  
 Max. height: 39.0 m  
 Engine: CAT C 15 – Stage III A/Tier 3  
 – Stage IV/Tier 4 final  
 433 kW @ 1,850 U/min



**BG 28 H  
BT 75**



**BG 28 H  
BT 85**



**BG 33 H  
BT 85**



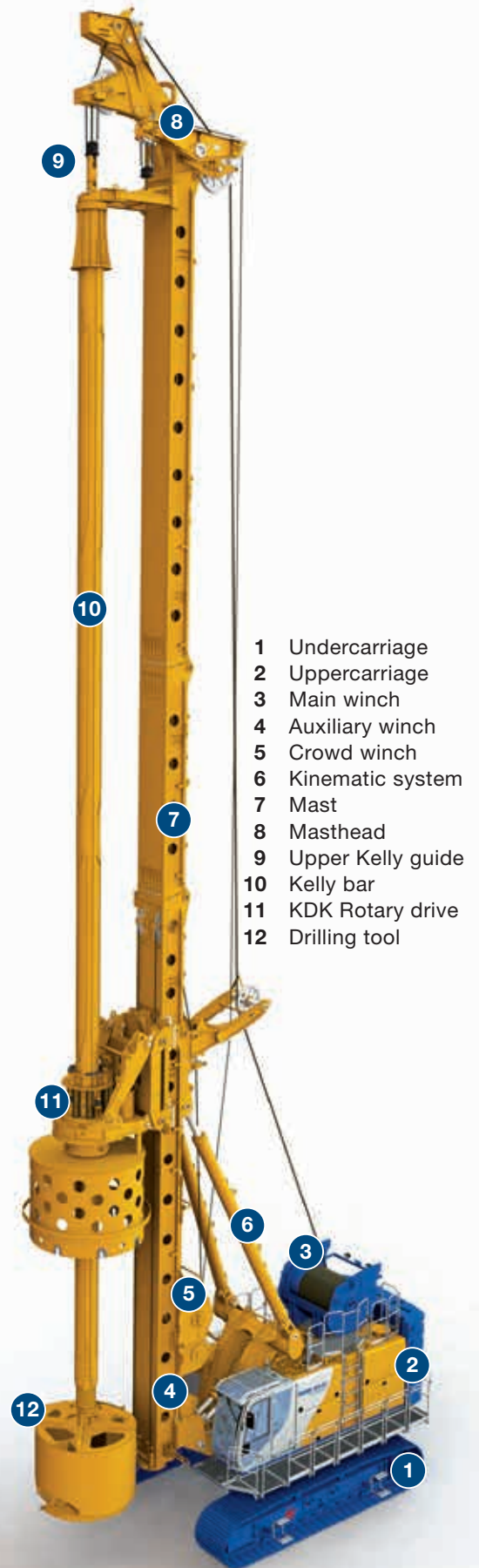
**BG 36 H  
BS 95**



**BG 55  
BS 115**



**BG 72  
BT 180**



- 1 Undercarriage
- 2 Uppercarriage
- 3 Main winch
- 4 Auxiliary winch
- 5 Crowd winch
- 6 Kinematic system
- 7 Mast
- 8 Masthead
- 9 Upper Kelly guide
- 10 Kelly bar
- 11 KDK Rotary drive
- 12 Drilling tool

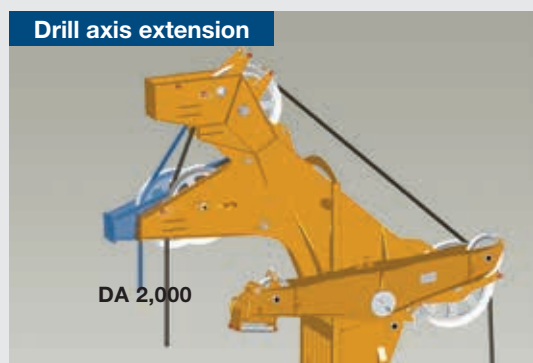
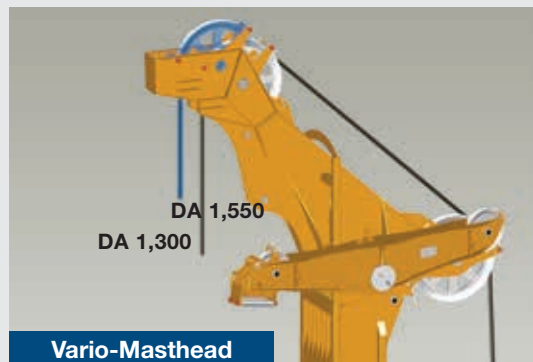
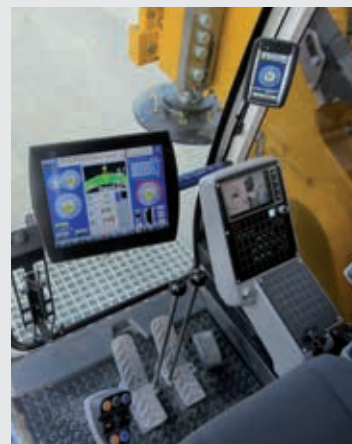


#### Remote control for rigging the machine

- 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

#### 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 combines adjustable potentiometer values on one display



#### Flexible mast concept

- Vario-masthead
  - Masthead for drill axis distance 1,300 / 1,550 mm, expandable to 1,700 / 2,000 mm
  - Increased stroke for Kelly bars when using an upper kelly guide
- Vario-crowd winch system
  - Transport possible with built-in crowd ropes (Kelly method)
  - Reduced Headroom version, min. rig height of 18.6 m possible by means of integrated Vario-mast section
- Mast extension 3 m or 5 m
  - Mast erection without auxiliary crane
  - Mast extensions can be combined with all drill axes
- Mast extension 5 + 5 m for CFA and CFA-Drilling and SCM-Mixing



**Energy-Efficient  
Power**

- 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



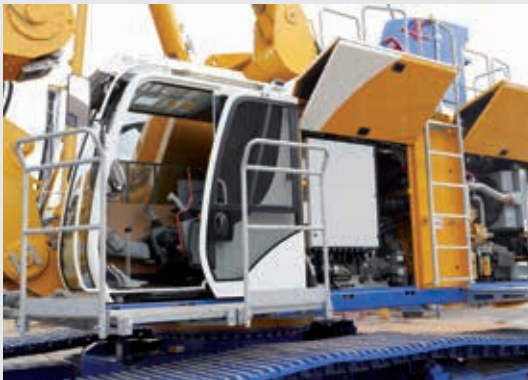


#### **Safe and easy transport**

- Mobilization kit with hydraulically operated pin connection for fast and save demounting of lower mast section
- Hydraulic locking of support trestle
- Activated by remote control multi

#### **Main winch (on uppercarriage)**

- Single layer winch for minimized rope wear
- Constant line pull
- Service-friendly winch position
- Swing down mechanism for transport



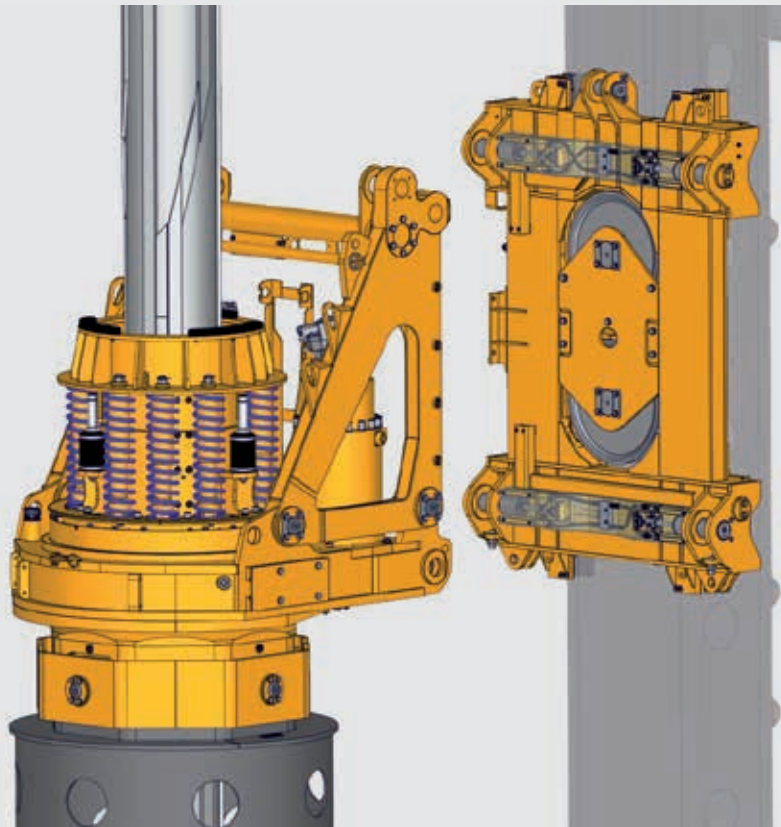
#### **Safety equipment**

- Guardrails on upper level (foldable for transport)
- Walking platform with handrail (foldable for transport)
- Upward folding service doors
- Closed circuit cameras for rear area and main winch surveillance with display on integrated screen in operator's cab

#### **Powerful engine CAT C 15**

- For Exhaust Emission Standards 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





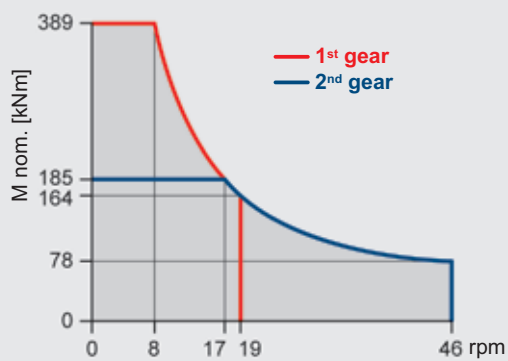
#### Rotary drive

Selection between multi gear drives  
KDK 390 S and KDK 460 S

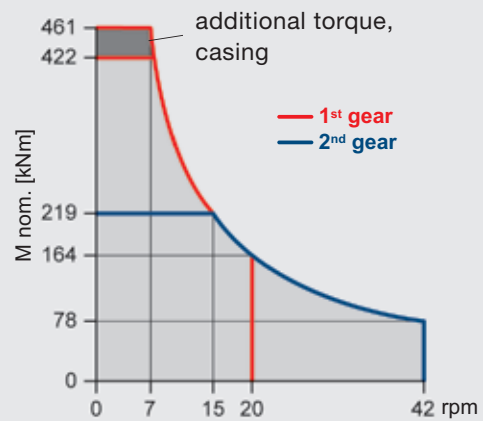
#### Hydraulically operated pin connection on the crowd sledge for KDK 460 S

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

**KDK 390 S**



**KDK 460 S**



\* Not to scale

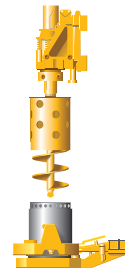




**Kelly Drilling**



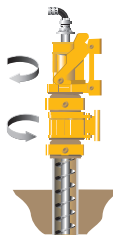
**Cased Kelly Drilling**  
Installation with BTM



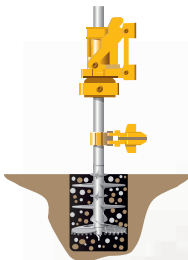
**Cased Kelly Drilling**  
Installation with oscillator



**CFA**  
Continuous Flight Auger Method



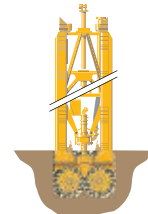
**CCFA**  
Cased CFA system  
with KDK + BTM /  
Double Rotary System



**SCM**  
Single Column Mixing



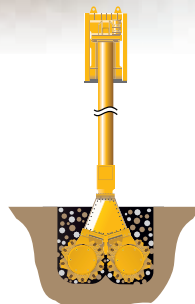
**FDP**  
Full Displacement Piling  
Standard or Lost Bit



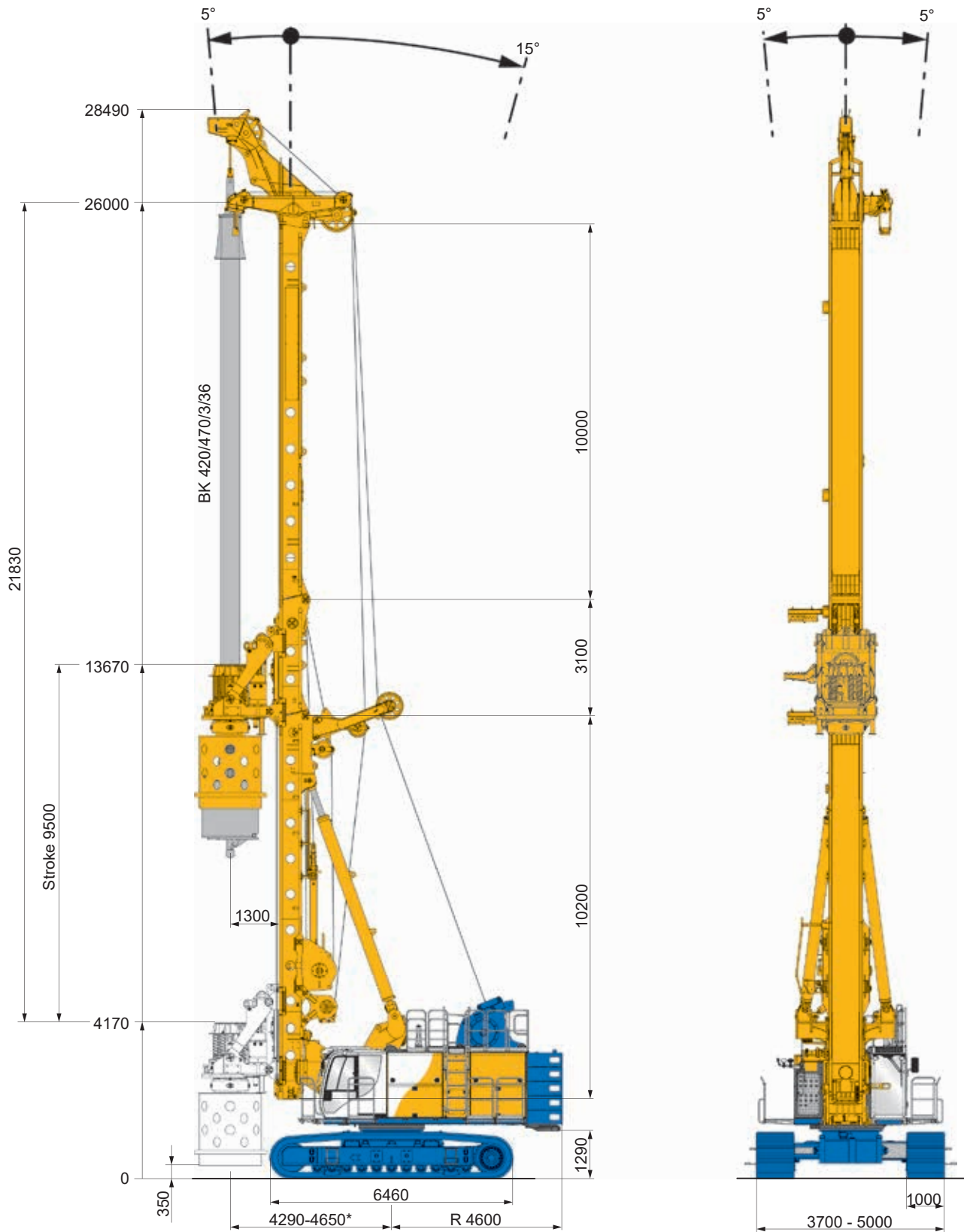
**BC**  
Trench Cutter



**TR**  
Vibrator



**CSM**  
Cutter-Soil-Mixing



Operating weight 146 t (as shown)

\* depending on equipment

Rotary drive	KDK 390 S	KDK 460 S
Torque casing (nominal) at 350 bar	389 kNm	461 kNm
Torque drilling (nominal) at 350 bar	389 kNm	422 kNm
Speed of rotation (max.)	46 rpm	42 rpm
Crowd winch system		
Max. stroke of sledge	29,500 mm	
Max. stroke of Kelly	13,500 mm	
Crowd force push and pull, effective / nominal	464 / 595 kN	
Rope diameter	28 mm	
Speed (down/up)	10.0 / 10.0 m/min	
Fast speed (down/up)	30.0 / 30.0 m/min	
Main winch	multi-layer	single-layer
Winch classification	M6 / L3 / T5	M6 / L3 / T5
Line pull (1st layer) effective / nominal	287 / 363 kN	380 / 480 kN
Rope diameter	32 mm	40 mm
Line speed (max.)	75 m/min	63 m/min
Auxiliary winch		
Winch classification	M6 / L3 / T5	M6 / L3 / T5
Line pull (1st layer) effective / nominal	100 / 127 kN	140 / 177 kN
Rope diameter	20 mm	22 mm
Line speed (max.)	55 m/min	55 m/min
Base carrier (EEP)	BS 95	
Engine	CAT C 15	
Rated output ISO 3046-1	433 kW @ 1,850 rpm	
Exhaust Emission Standard acc. to EEC 97/68EC EPA/CARB	Stage III A Tier 3	Stage IV Tier 4 final
Diesel tank capacity / AdBlue	1,000 / – l	840 / 35 l
Sound pressure level in cabin (EN 16228, Annex B)	L <sub>PA</sub> 80 dB(A)	
Sound power level (2000/14/EG and EN 16228, Annex B)	L <sub>WA</sub> 112 dB(A)	
Hydraulic pressure	350 bar	
Flow rates	2 x 430 + 1 x 565 + 1 x 215 l/min	
Hydraulic oil tank capacity	1,000 l	
Undercarriage	UW 130	
Crawler type	B8B	
Track width (retracted/extended)	2,700 / 4,000 mm	
Traction force effective / nominal	880 / 1,030 kN	
Track shoes	1,000 mm	



**Base carrier BS 95, Fig. A**

**Standard**

- Removable counterweight elements
- Removable crawler side frames
- Protective roof guard
- Radio with MP3, USB and Bluetooth c/w hands-free kit
- Platforms with handrail (on both sides and at the cabin)
- Guardrails upper level (foldable for transport)
- Cameras for rear area and main winch surveillance
- Central lubrication system
- Premium comfort seat
- Electric refueling pump
- LED spotlights
- Climatronic

**Optional**

- Counterweight variably adjustable
- Walking platform with handrail (continuous on both sides, at cabin level, optional foldable for transport)
- Compressor 1,000 l/min
- Electric generator 13 kVA
- Bio-degradable hydraulic oil
- Arctic kit
- Hydraulic system with quick-release hydraulic couplers (socket bank; undercarriage)
- Cab space heater
- Flat-track shoes
- Additional camera (at customer-specific location)
- Front screen guard
- Sun blind small or big
- Remote control basic, **Fig. C**
- Remote control multi

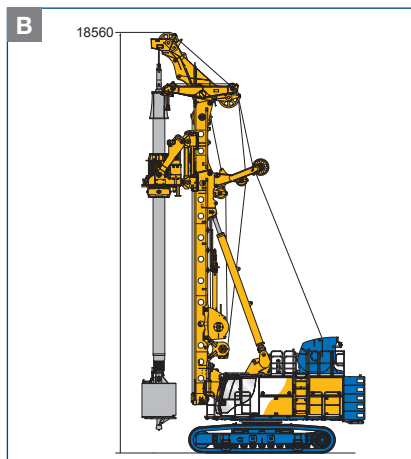
**BG attachment**

**Standard**

- Sturdy V-type mast kinematic system
- Main winch with hydraulically operated freewheeling
- Swivel for main rope
- Pivoted anchor points for main and auxiliary rope
- Boom with hydraulic cylinders for vertical and horizontal mast alignment
- Hydraulic locking for support trestle
- Flexible mast concept (Vario-mast, Vario-masthead)
- Reduced Headroom Version possible by means of Vario-mast section, **Fig. B**

**Optional**

- Upper kelly guide
- Extension of drill axis to 1,550 / 1,700 / 2,000 mm
- Mast support unit
- Mast extension 3 m / 5 m / 5 + 5 m
- Swivel for auxiliary rope
- Attachment of casing oscillator (up to BV 2000), **Fig. D**
  - Powered by on-board hydraulics of base machine
  - Controlled from operator's cab
  - Weight of drill rig can be activated through mechanical fixing
  - Possible up to 2,500 mm drilling diameter on request
  - Attachment of automatic casing drive adapter
  - Concrete line
  - Air line attachment
  - Mobilization kit
  - Hydraulically operated pin connection on the crowd sledge for KDK 460 S



## Rotary drive

### Standard

- Rotary drive KDK 390 S (multi-gear)
- Selectable modes of operation
- Kelly equipment for outer Kelly tube 470 mm
- Integrated Kelly damping system
- Exchangeable Kelly drive adapter
- Exchangeable Kelly drive keys
- Cardanic joint
- Quick-release hydraulic couplers
- Transport supports
- Lifting gear

### Optional

- Rotary drive KDK 460 S (multi-gear)
- Kelly equipment for outer Kelly tube 559 mm
- Torque multiplier BTM 720 K
  - Torque 600 kNm
  - Increasing of torque for casing installation
  - Easy attachment
  - Separate sledge
  - Connection to rotary drive with cardanic joint

## 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

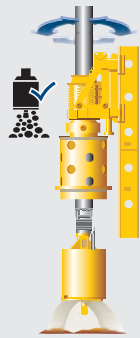
#### WEB-BGM

- 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

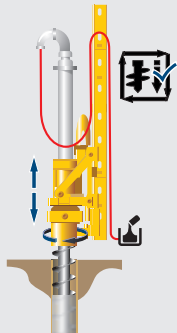
- Standardized reports for the documentation of drilling progress and verification of performance and quality





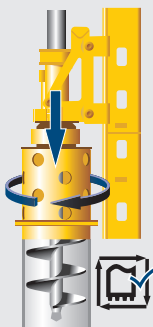
### One-directional and bi-directional spoil discharge assistant

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.



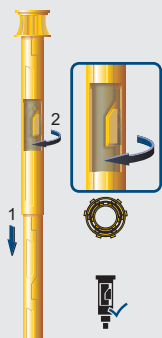
### Automatic drilling and extraction control for Single-Pass processes

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.



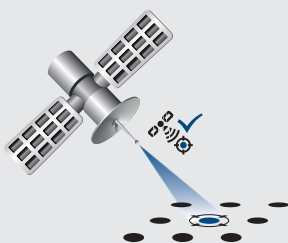
### Kelly drilling assistant

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

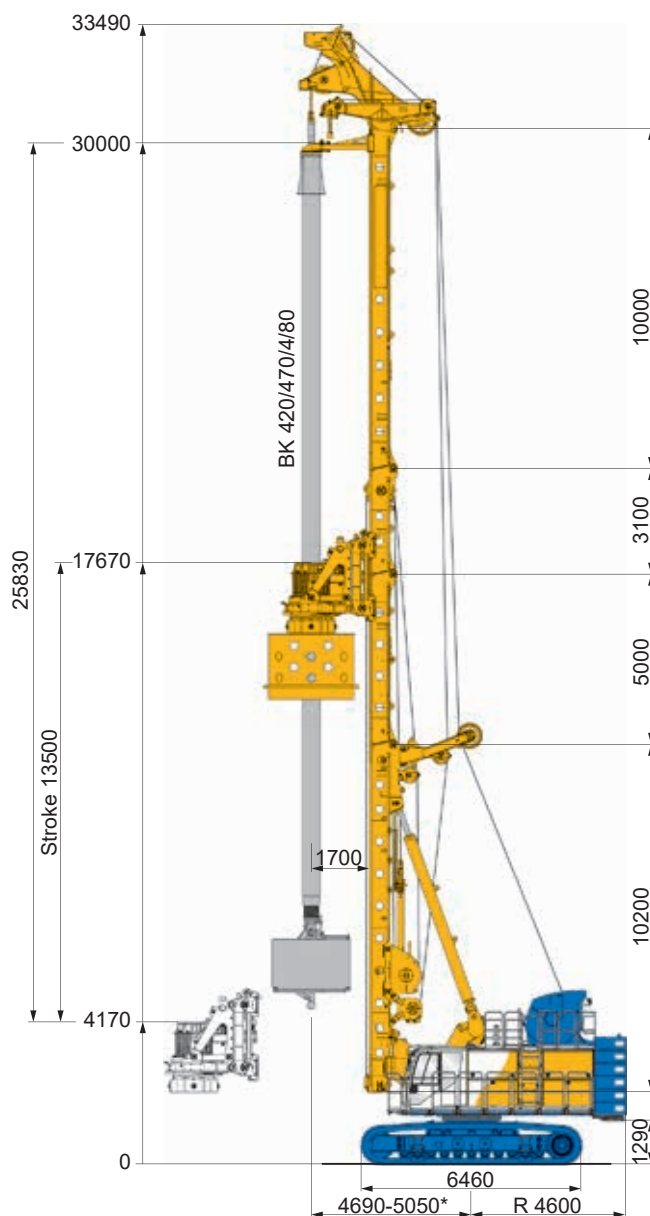
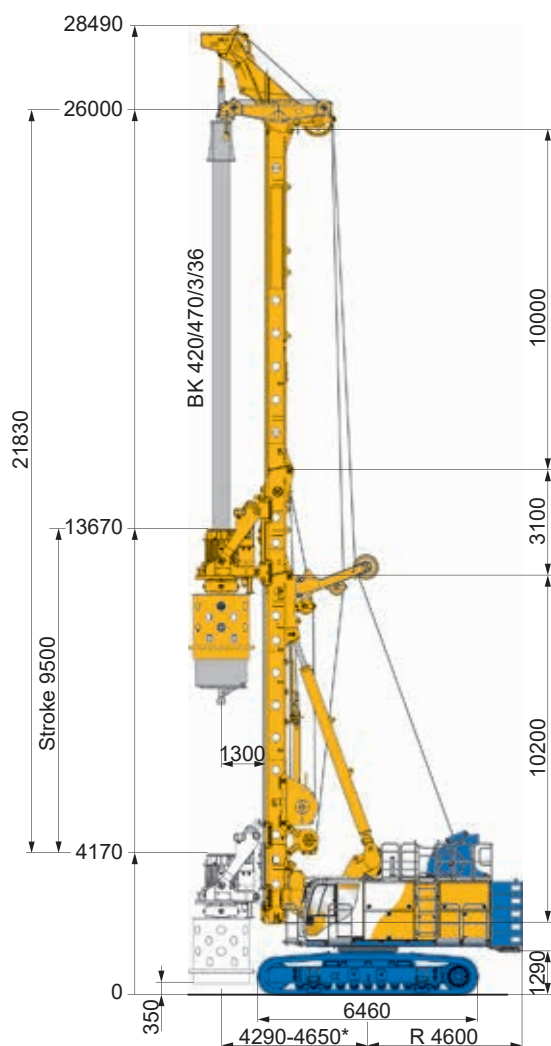
Display of the locking recesses, as well as representation of the controlled extension and retraction of the Kelly bar on the B-Tronic system. The rapid approach of the locking position results in a considerably enhanced drilling performance. In addition, the level of wear that the Kelly bar and drive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



### Satellite-based positioning

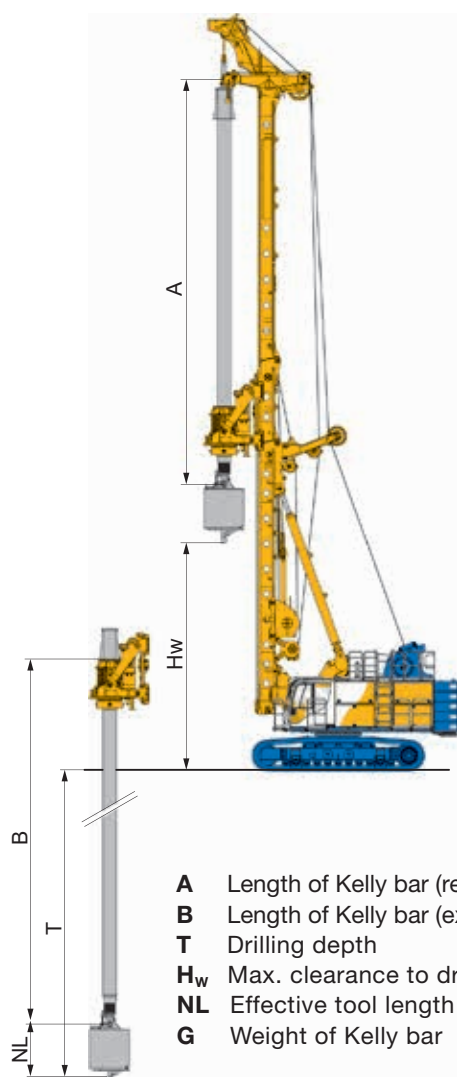
The BAUER-Assistant Positioning System (B-APS) allows the position of a bored pile to be located extremely accurately. Documentation is provided for the nominal and actual coordinates, as well as the corresponding accuracy of each bored pile. Manual marking of the piles is no longer required.

Numerous other assistance systems are available in our portfolio.



	Basic version	Upgraded version	
Rotary drive	KDK 390 S	KDK 460 S	
Main winch	287 kN	380 kN	
Mast extension	without	5 m	
Upper Kelly guide	without	with	
Drilling axis	1,300 mm	1,700 mm	2,000 mm
Max. drilling diameter			
uncased	2,300 mm	3,100 mm	3,700 mm
cased	2,000 mm	2,800 mm	3,400 mm
Operating weight	146 t	181 t	182 t
with Kelly BK 20/470/...	...3/36	...4/80	...4/68
with bucket	Ø 1,500 mm	Ø 2,320 mm	Ø 2,800 mm
with counterweight	19.7 t	29.4 t	29.4 t

\* depending on equipment



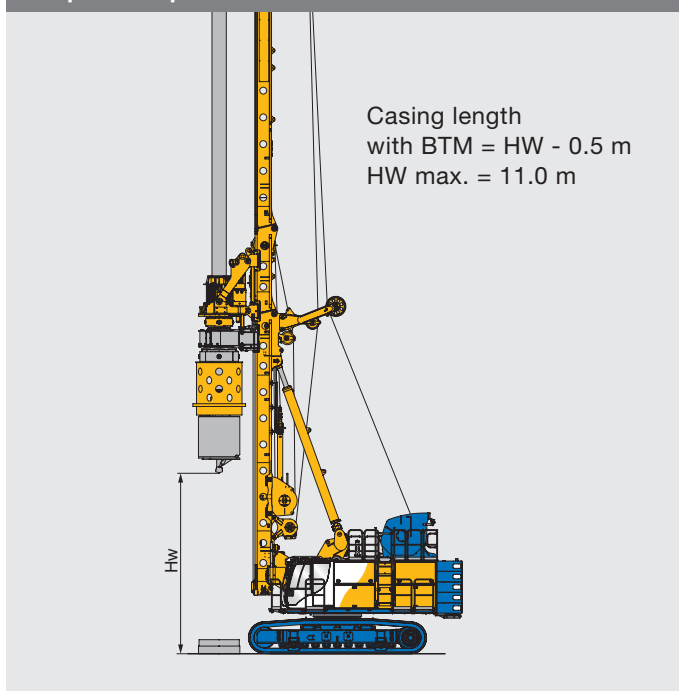
#### Drilling depth – uncased Kelly drilling

	A (m)	B (m)	G (kg)	Basic version (DA 1,300 mm)		Upgr. version (DA 1,550 mm)	
				H <sub>w</sub> (m)	T (m)	H <sub>w</sub> (m)	T (m)
<b>3-part Kelly bar</b>							
BK420/470/3/36	15.2	38.2	9,400	8.5	35.9	12.7	35.9
BK420/470/3/42	17.2	44.2	10,500	6.5	41.9	11.5	41.9
BK420/470/3/48	19.2	50.2	11,600	4.5	47.9	9.5	47.9
BK420/470/3/52	20.6	54.2	12,300	3.1	51.9	8.2	51.9
<b>4-part Kelly bar</b>							
BK420/470/4/56	17.2	57.8	14,400	6.5	55.5	11.5	55.5
BK420/470/4/64	19.2	65.8	16,000	4.5	63.5	9.5	63.5
BK420/470/4/72	21.2	73.8	17,600	2.5	71.5	7.5	71.5
BK420/470/4/80	23.2	81.8	19,200	–	–	5.5	79.5
BK420/470/4/84	24.2	85.8	20,000	–	–	4.5	83.5
BK420/470/4/88	25.2	89.8	20,800	–	–	3.5	87.5
BK420/470/4/92	26.2	93.8	21,600	–	–	2.5	91.5
BK420/470/4/94	26.7	95.8	22,100	–	–	2.2	93.5
<b>5-part Kelly bar*</b>							
BK210/470/5/80	19.0	82.6	15,300	4.8	80.3	10.0	80.3
BK210/470/5/90	21.0	92.6	16,800	2.8	90.3	8.0	90.3
BK210/470/5/95	22.0	97.6	17,600	–	–	7.0	95.3

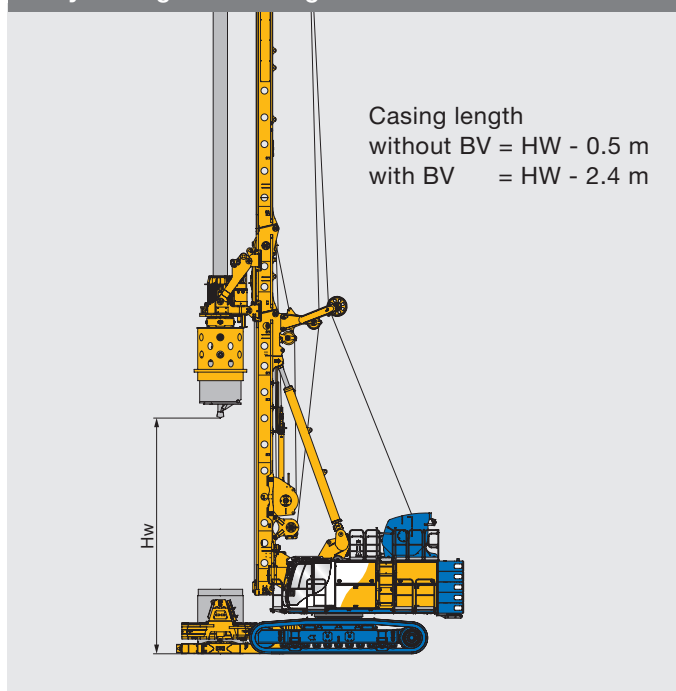
Drilling data as shown are based on tool length NL = 1.9 m, minimum horizontal mast reach and using Bauer attachment. Drilling depth is increased by 0.39 m when using maximum horizontal mast reach.

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

#### Torque multiplier BTM 720 K

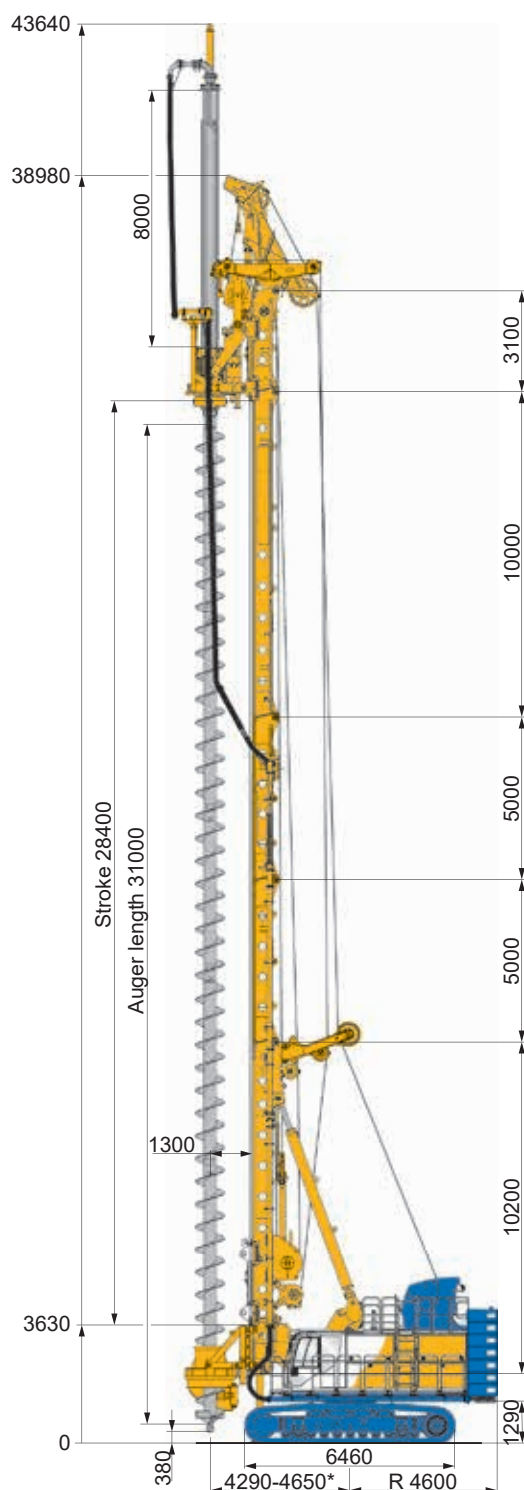
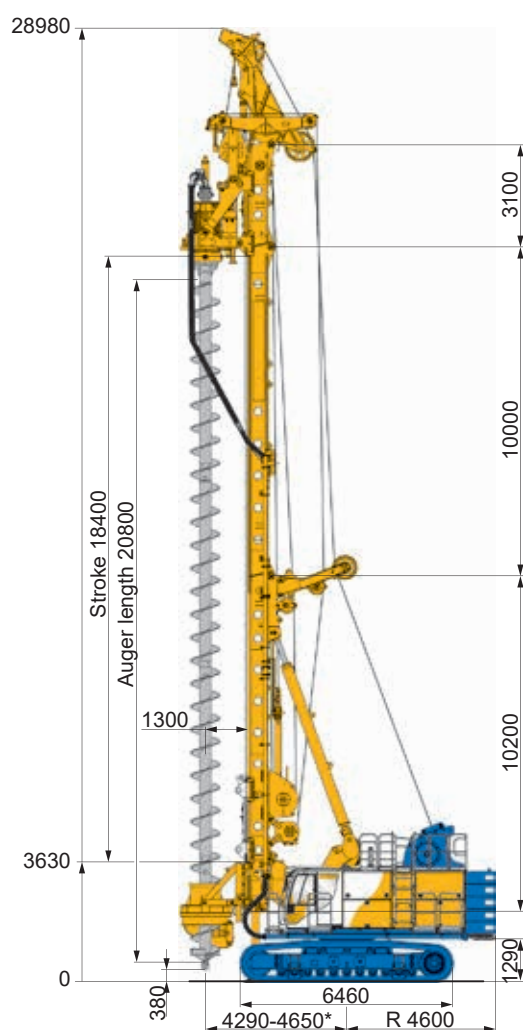


#### Kelly drilling with Casing oscillator BV 2000



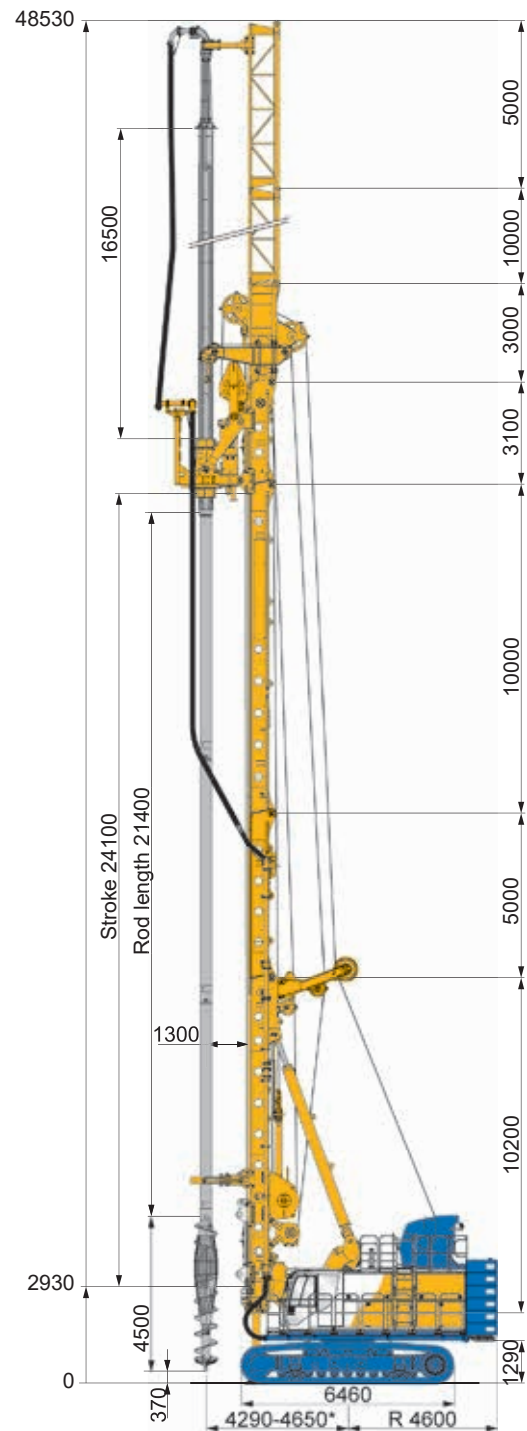
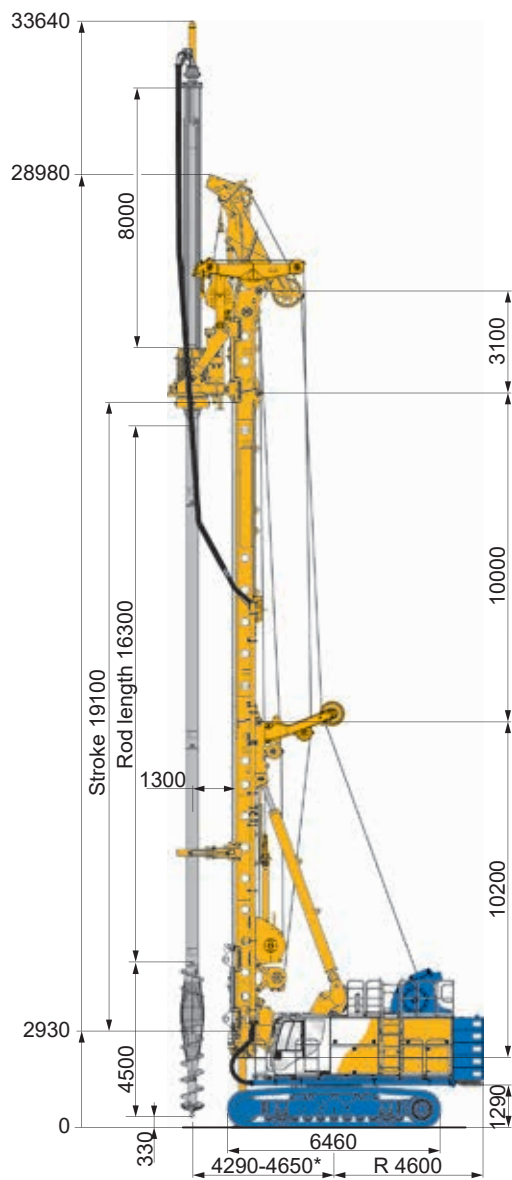
\* Reduction of torque to 210 kNm for Kelly type BK 210





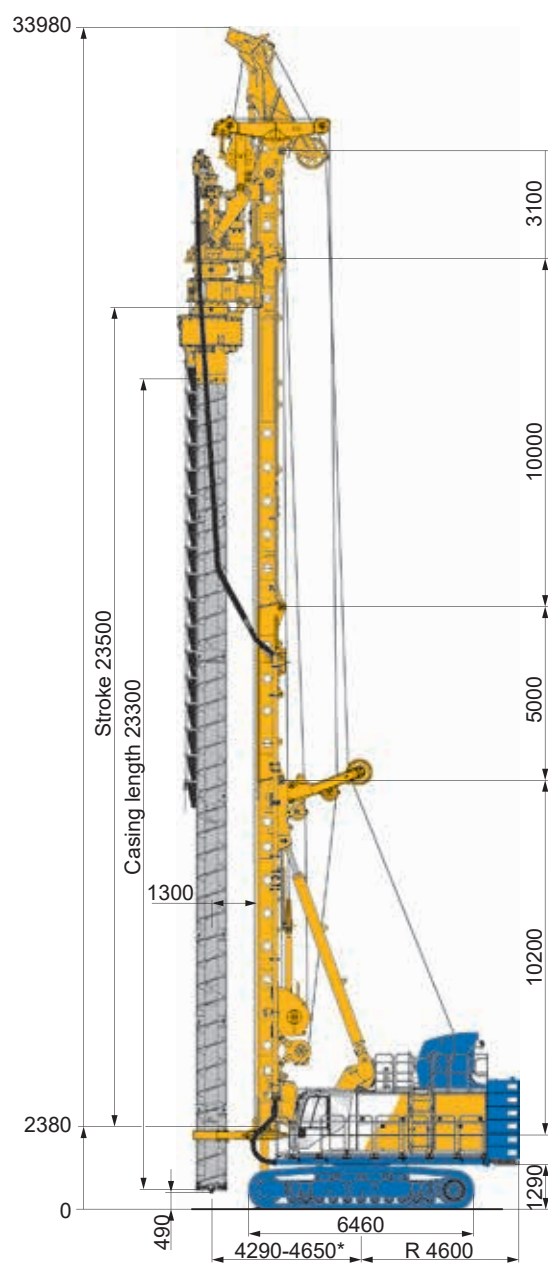
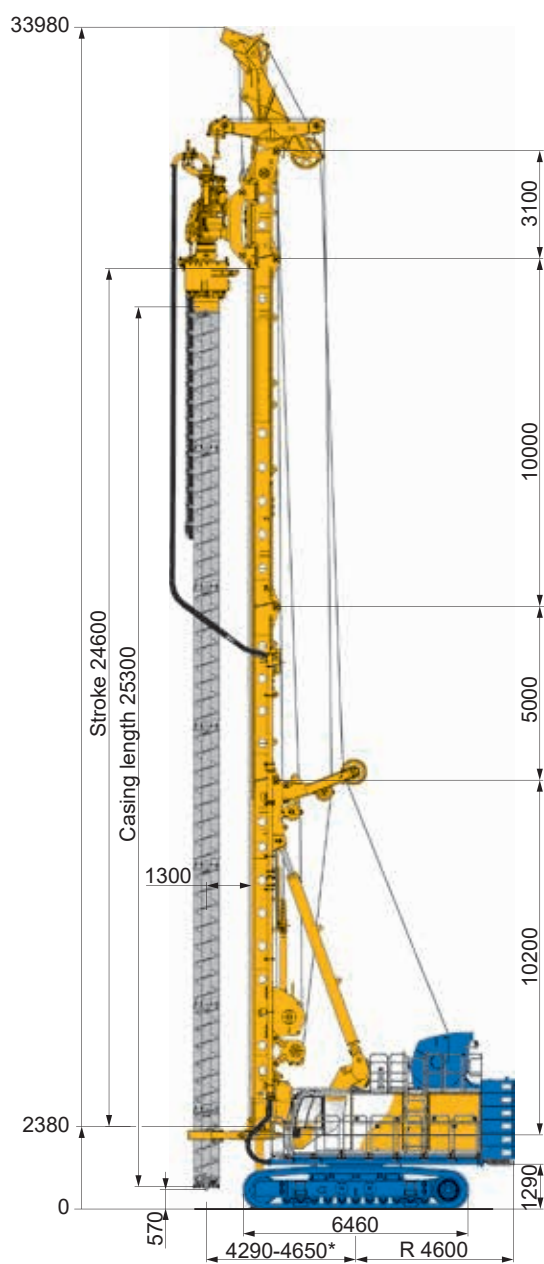
	Basic version	Upgraded version
Kelly extension	without	8.0 m
Max. drilling depth (with auger cleaner)	18.0 m	36.0 m
Max. drilling diameter	1,200 mm	1,200 mm
Max. extraction force with main- and crowd winch (effective)	1,030 kN	1,060 kN
Mast extension	without	5 + 5 m
Counterweight	22.1 t	34.3 t

\* depending on equipment



	Basic version	Upgraded version
Kelly extension	8.0 m	16.5 m
Max. drilling depth	26.7 m	40.2 m
Max. drilling diameter	710 mm	710 mm
Max. extraction force with main- and crowd winch (effective)	1,030 kN	1,060 kN
Mast extension	without	5 m
Counterweight	22.1 t	29.4 t

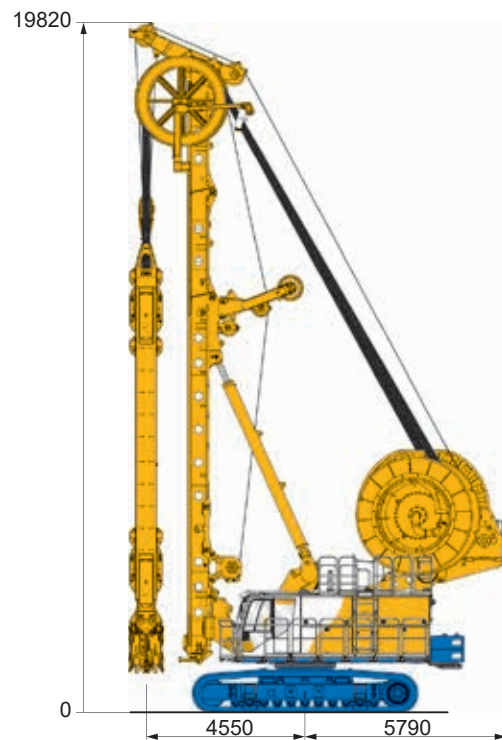
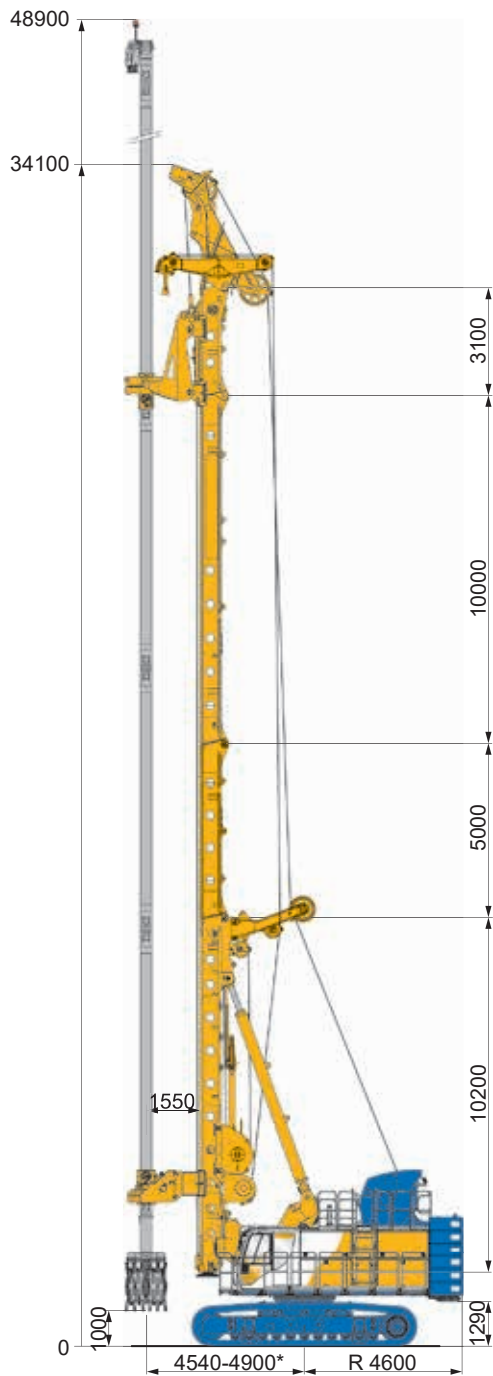
\* depending on equipment



	Upgraded version with DKS 100 / 200		Upgraded version with KDK / BTM 400	
Max. drilling depth	23.6 m	22.9 m	22.9 m	20.9 m
Max. drilling diameter	750 mm	750 mm	880 mm	1,000 mm
Max. extraction force with main- and crowd winch (effective)	840 kN	1,060 kN	1,060 kN	1,060 kN
Mast extension	5 m	5 m	5 m	3 m
Counterweight	29.4 t	29.4 t		
Spoil discharge system	Optional	Standard		
Max. torque:				
Auger (right-hand rotation)	100 kNm		200 kNm	
Casing (left-hand rotation)	200 kNm		400 kNm	

\* depending on equipment





	CSM – Cutter Soil Mixing	
Cutting/Mixing head	BCM 5	BCM 10
Panel width	1.0 m	1.2 m
Panel length	2.4 m	2.8 m
Max. panel depth	42.8 m	
Counterweight	29.4 t	

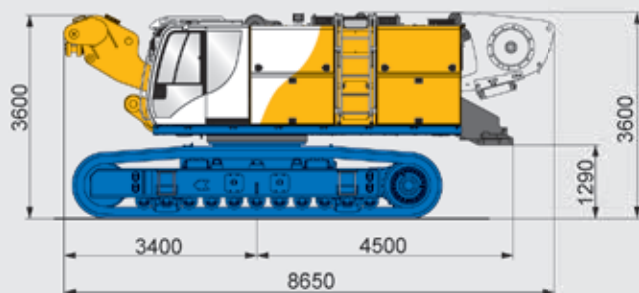
	Trench Cutter System	
Trench cutter	BC 35 / BC 40	
Max. cutting width	1.2 m	
Max. cutting depth	48 m	100 m
Hose handling system	HSS 48	HDS 100

\* depending on equipment

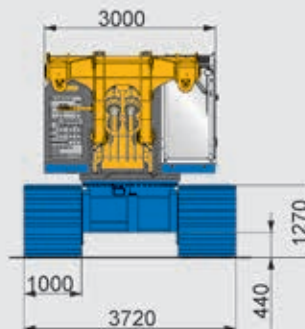
**G** = Weight  
**B** = Width, overall

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

## Base carrier

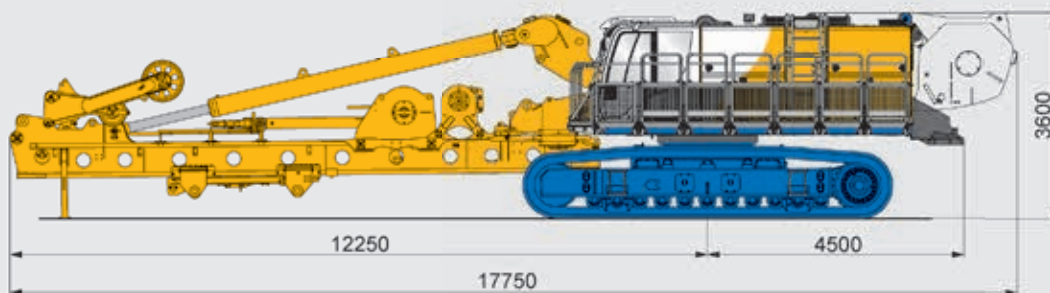


**G = 67.0 t\***      **B = 3,720 mm**



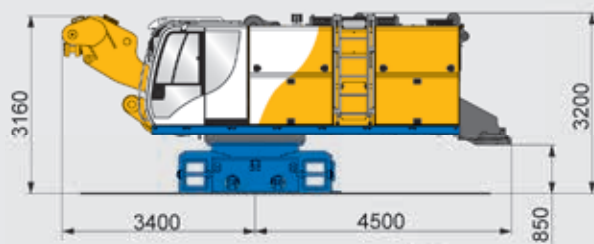
## Base carrier with lower mast section

**G = 91.0 t\***      **B = 3,720 mm**

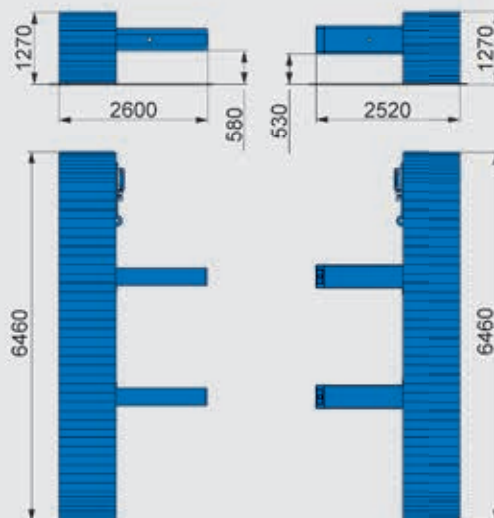
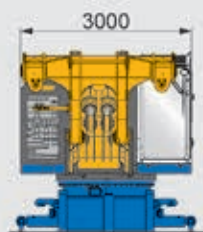


## Base carrier without crawlers

**G = 2 x 15.5 t**

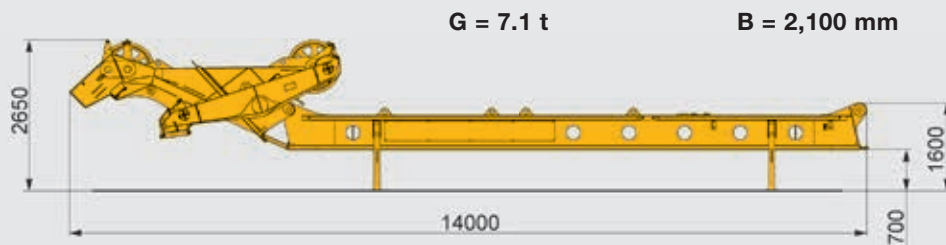


**G = 36.0 t**  
**B = 3,000 mm**

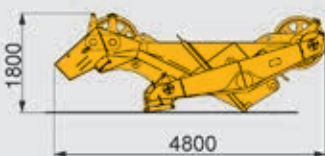


\* without main winch

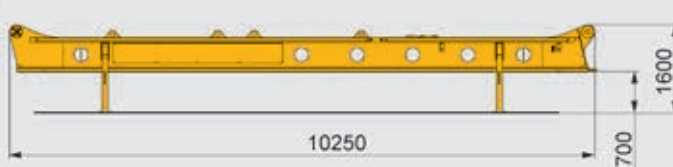
### Upper mast section with mast head



**G = 2.4 t**  
**B = 1,700 mm**

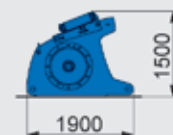


**G = 4.7 t**  
**B = 1,650 mm**



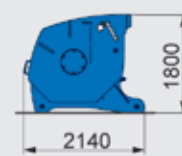
### Main winch 287 kN

**G = 3.4 t (with 95 m rope)**  
**B = 2,100 mm**



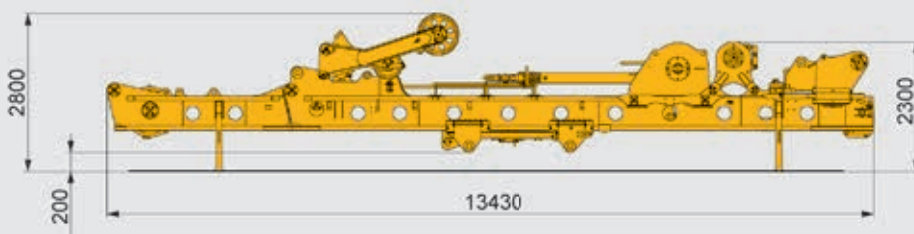
### Main winch 380 kN

**G = 7.8 t (with 140 m rope)**  
**B = 2,500 mm**

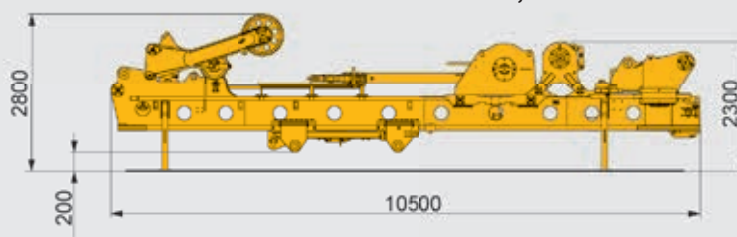


### Lower mast section with Vario-mast system

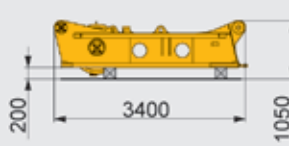
**G = 23.1 t** **B = 2,480 mm**



**G = 20.5 t** **B = 2,480 mm**

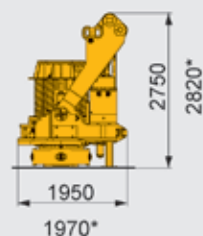


**G = 2.6 t**  
**B = 1,100 mm**



### Rotary drive

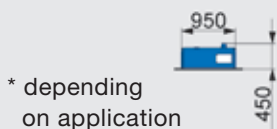
**KDK 390 S: G = 8.3 t**  
**KDK 460 S: G = 10.5 t**



\* dimensions  
KDK 460 S

### Counterweight

**G = 3 \* 4.9 t + 2 \* 2.5 t**  
**B = 3,000 mm**



### Mast extension 5 m

**G = 2.6 t**  
**B = 1,150 mm**



### Backstay cylinders

**G = 2 x 2.0 t**  
**B = 400 mm**





# BAUER Service



Global Network



Service



Equipment



Training

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