

# BAUER BG 11 H

## Rotary Drilling Rig

*ValueLine*



## 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. And what is even more, our service and support extends to the full 30,000 and more working hours of each of our machines.

- **Quality and experience in specialist foundation engineering**
- **Global operation – local contacts in over 70 countries**
- **Reliability in technology, finances, 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



Regular showcasing  
of new developments  
on various exhibitions

## The BG ValueLine

*Perfection is achieved  
when there is nothing left to take away.*

Drilling uncased deep boreholes stabilized by drilling fluid, or drilling cased boreholes with installing casings by the rotary drive or by a hydraulic casing oscillator. If Kelly drilling is your task, then the BG ValueLine is our solution. The machines of the ValueLine are specifically adapted to no other purpose than Kelly drilling – and that perfectly.

You can expect superior Bauer performance and customary Bauer durability at affordable costs for acquisition and operation. How we do it? By applying cutting-edge technology, reduced to nothing less than the essentials.



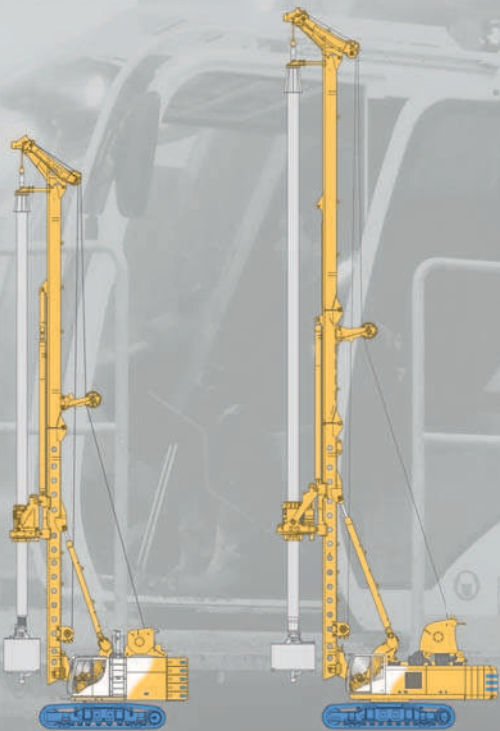
**BG 11 H  
CAT**

**BG 20 H  
BH 75**

**BG 26  
BT 70**

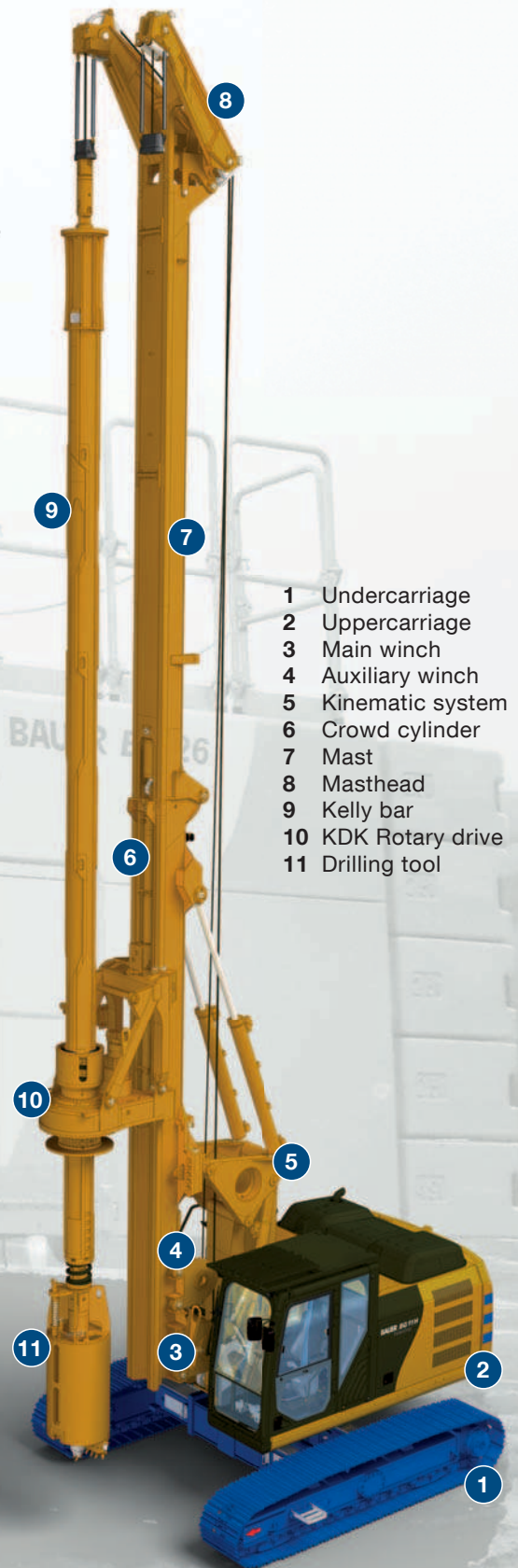
## The Rotary drilling rig BG 11 H ValueLine

**Max. drilling diameter:** 1,650 mm / 5.4 ft  
**Max. drilling depth:** 40.0 m / 131.2 ft  
**Torque:** 110 kNm / 81,130 ft-lbf  
**Engine:** CAT Tier 4 interim – C6.6 ACERT  
           CAT Tier 4 final – C7.1 ACERT  
**Power:** 122 kW @ 1,800 U/min  
           163.6 HP @ 1,800 rpm  
**Height:** 16.5 m / 54.3 ft



BG 30  
BT 80

BG 38  
BS 80



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

**KDK rotary drive:**

- Single gear drive with strong and robust design and high mechanical and hydraulic efficiency
- Protection of the rotary drive with an integrated Kelly damping system
- Adjustment to various soil conditions with 2 selectable modes of operations



**Upper Kelly guide**

- No additional limit switch necessary
- No modification of the electric installation needed
- No disassembling for transport (rathole drilling)
- Hydraulically operated



**Kinematic system**

- Bauer proven H-kinematic system with backstay cylinders and boom cylinders for best stability

**Winches**

- Superior and tested effective line pull and line speed
- Load classification M6/L3/T5 for main winch for heavy-duty, continuous operation
- A special grooving system on the main winch drum and a rope pressure roller reduce wear on the wire rope
- Pinned connection for easy mounting and dismantling of the winch on the mast
- Transparent ring for easy oil check (main winch)



**Bright color monitor**

- Electronic load sensing on main and auxiliary rope
- Indicator for position of uppercarriage

**Undercarriage**

- Solid Bauer-design for 360° drilling operating radius
- Telescopic with hydraulic cylinders
- Large footprint to resist high overturning moments
- High traction forces



- Economic operation
- Hydraulic efficiency
- Easy handling
- Easy maintenance
- High safety standard
- Ergonomic cabin design
- Long life expectancy and lasting value
- Ease of transportation and rigging



### Ergonomic cabin design

- FOPS compliant
- Bright color monitor
- Clear arrangement of instruments and displays
- Excellent visibility to drilling spot
- Ease of operation



### Uppercarriage – HSE features

- Heavy duty base frame optimized for BG attachment
- Rear view camera, beacon flash light and warning horn
- Multigrade oil for reducing fuel consumption
- Easy access to uppercarriage
- Two mast sections with pin joint for optimized transport height
- Hydraulically operated upper kelly guide
- Lower noise emission



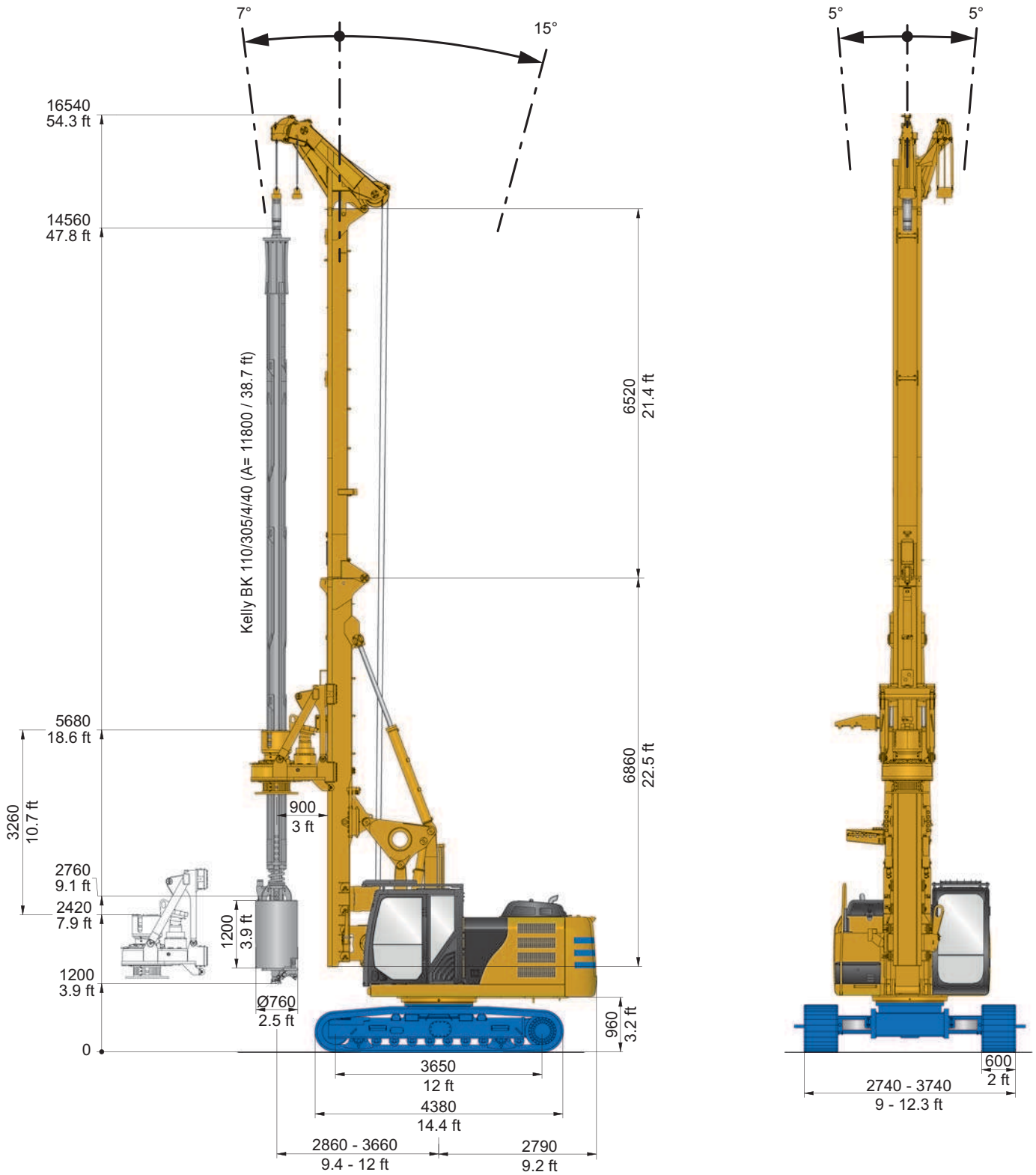
### Crowd system with crowd cylinder

- Crowd system “upside-down” installation
- Easy handling for transport without disconnecting hydraulic hoses



### Final inspection and test run

- Comprehensive Bauer testing programme
- Optimal adjustment and calibration of all components
- Heat transfer test

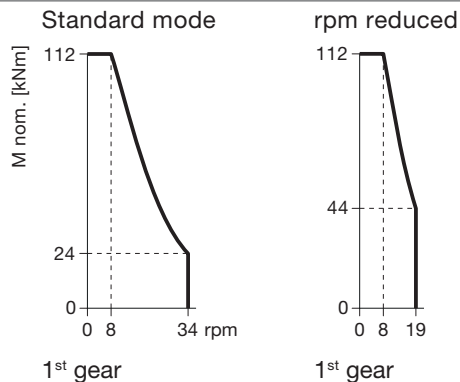


**Operating weight (as shown) 39 t 85,980 lbs**

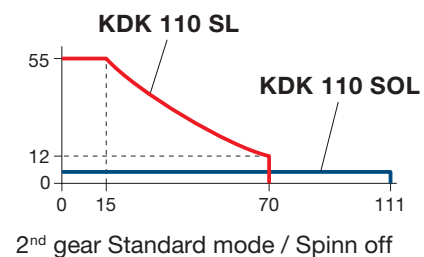


<b>Rotary drive, standard</b>	KDK 110 KL	
Torque (nominal) at 350 bar (5,076 psi)	110 kNm	81,130 ft-lbf
Speed of rotation (max.)	34 rpm	34 rpm
<b>Rotary drive, optional</b>	KDK 110 SL / SOL	
Torque (nominal) at 350 bar (5,076 psi)	112 kNm	82,610 ft-lbf
Speed of rotation (max.)	70 / 111 rpm	70 / 111 rpm

**KDK 110 KL**  
**KDK 110 SL**  
**KDK 110 SOL**



**Optional**



Not to scale

<b>Crowd cylinder</b>	M6 / L3 / T5	
Crowd force push / pull (effective)	90 / 160 kN	20,230 / 35,970 lbf
Crowd force (measured at the casing drive adapter)	125 / 120 kN	28,100 / 26,980 lbf
Speed (down/up)	6.0 / 9.0 m/min	19.7 / 29.5 ft/min
Fast speed (down/up)	17.0 / 28.0 m/min	55.8 / 91.9 ft/min
<b>Main winch</b>	M6 / L3 / T5	
Line pull (1 <sup>st</sup> layer) effective/nominal	100 / 125 kN	22,480 / 28,100 lbf
Rope diameter	20 mm	0.79 in
Line speed (max.)	80 m/min	262.5 ft/min
<b>Auxiliary winch</b>	M5 / L2 / T5	
Line pull (1 <sup>st</sup> layer) effective/nominal	43 / 54 kN	9,670 / 12,140 lbf
Rope diameter	16 mm	0.63 in
Line speed (max.)	55 m/min	180.4 ft/min
<b>Base carrier</b>	CAT 320 E                      CAT 323 F	
Engine	CAT C6.6 ACERT	CAT C7.1 ACERT
Rated output ISO 3046-1	122 kW	163.6 HP
	at 1,800 rpm	at 1,800 rpm
Engine conforms to EPA/CARB	Tier 4 interim	Tier 4 final
Diesel tank capacity / Ad Blue (DEF)	410 / - l	108.3 / 5.28 gal
Ambient air temperature (at full power) up to	40 °C	104 °F
Sound pressure level in cabin (EN 16228, Annex B)	LP <sub>A</sub> 80 dB(A)	
Sound power level (2000/14/EG and EN 16228, Annex B)	LW <sub>A</sub> 105 dB(A)	
Hydraulic power output (measured at inlet to rotary drive)	90 kW	121 HP
Hydraulic pressure	350 bar	5,080 psi
Flow rates (main circuits + auxiliary circuit)	2 x 180 / 1 x 167 l/min	2 x 47.6 / 1 x 44.1 gal/min
Hydraulic oil tank capacity	240 l	63.4 gal
Undercarriage (Retractable crawler frames)	UW 35	
Crawler type	D4D	
Traction force effective/nominal	268 / 316 kN	60,250 / 71,040 lbf

### KDK rotary drive

#### Standard

- Integrated kelly damping system
- Wear pads exchangeable without removal of rotary drive
- Exchangeable kelly drive adapter
- Exchangeable kelly drive keys
- 2 selectable modes of operation
- Trigger plate
- Uni-directional impact function on KDK

#### Optional

- Cardanic joint (for casing installation)
- KDK 110 SL (for high effective spin off), Fig. A

### Main winch

#### Standard

- Hydraulically controlled freewheeling
- Automatic rope tensioning facility
- Swivel alignment function
- Depth measuring device on main rope
- Electronic load sensing
- Winch drum with special grooving
- Transparent ring for easy oil check
- Pin connection

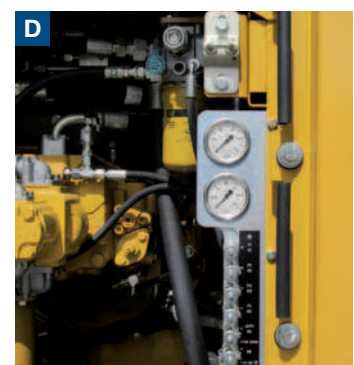
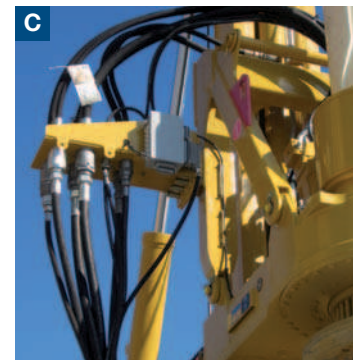
### BG attachment

#### Standard

- Bauer H-kinematic system
- Crowd cylinder upside-down
- Crowd in fast and slow mode
- Hoist limit switch on main and auxiliary winches
- Swivel for main rope
- Pivoted anchor points for main and auxiliary ropes
- Two mast sections with pin joint

#### Optional

- Auxiliary winch 65 kN / 14,610 lbf, Fig. B
- Swivel for auxiliary rope
- Central lubrication system
- Upper kelly guide (hydraulically operated)
- Bauer Service Kit (Quick-release couplers on hydraulic hoses, Fig. C, Speed measuring device on rotary drive, Diagnostic panel and manometers for hydraulic functions, Fig. D)
- Low head convertible, Fig. E



## Base carrier

### Standard

- Engine diagnostic system
- Counterweight (single-piece)  
5.4 t (11,900 lbs)
- Transport securing lugs on crawler units
- On-board lighting set
- Electric refuelling pump (diesel tank)
- Protective roof grate (FOPS compliant)
- Air conditioning system
- Radio and CD player
- Multigrade hydraulic oil
- Rear view camera

### Optional

- On board tool set
- Cold weather kit (CAT) (- 32 C°)
- Multi-piece, removable counterweight,  
9.6 t (21,160 lbs) Fig. F

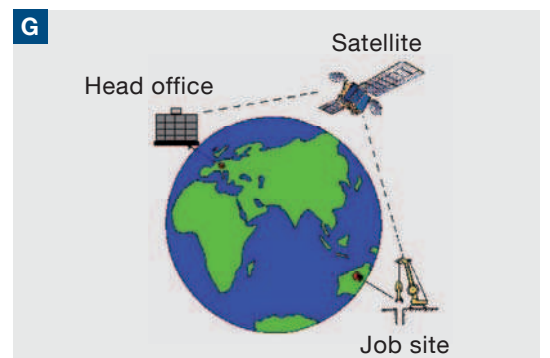
## Measuring and control equipment

### Standard

- Bright color monitor incl. integrated diagnostic capability
- Digital display of pump pressures
- Display message as plain text
- Mast inclination measurement on x/y axes (digital / analog display)
- Automatic vertical alignment of mast
- Electronic load sensing on main and auxiliary rope

### Optional

- Remote transmission of operating data,  
Fig. G



The BG 11 H ValueLine is a compact drilling rig which easily can be modified for various applications:



**Standard configuration**

**Standard configuration**

Typical basic configuration for standard uncased bored piling operations in Kelly mode. It ranges to drilling depths of 40 m (130 ft) with 4-part lockable Kelly bar and for borehole diameters up to 1,200 mm (3.9 ft). An optional casing drive adapter allows the installation of temporary casings with a maximum section length of 2.5 m (8.2 ft).

**Rathole drill configuration**

Special configuration for the construction of preparatory boreholes when constructing oil and gas wells. The BG 11 H ValueLine can construct short cellar holes with big diameter up to 3 m (10 ft), followed by drilling conductor holes, ratholes and mouseholes.

Special attention was given to the possibility of reducing the transport weight to a minimum of 34.0 t (74,960 lbs) by using a specially designed multi-piece, removable counterweight.

**Low head drill configuration**

Removing of the upper mast section enables the construction of boreholes to a maximum depth of 19 m (62.3 ft) with a minimum working height of 10 m (32.8 ft).

When extending the horizontal reach, the top of the mast can be lowered to a height of 8.9 m (29.2 ft).

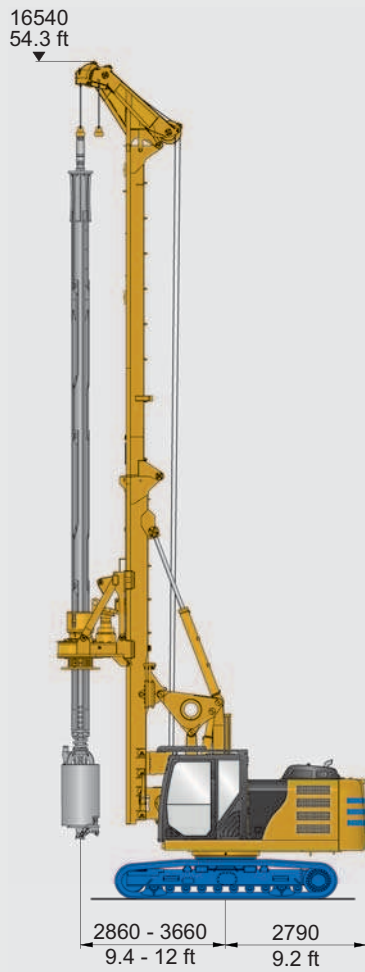


**Rathole drill configuration**

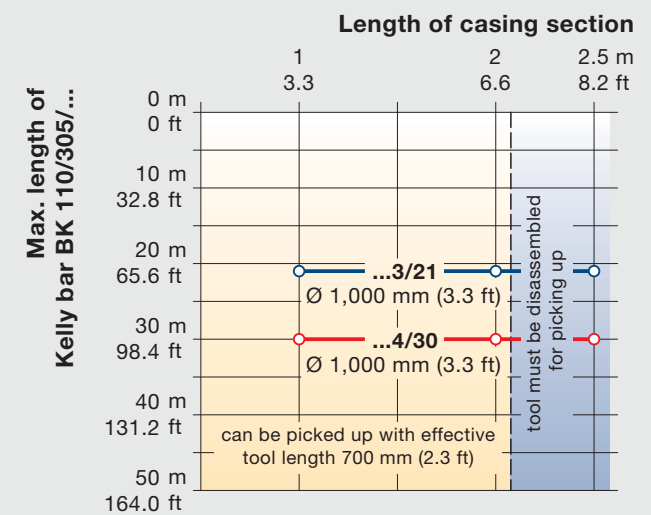
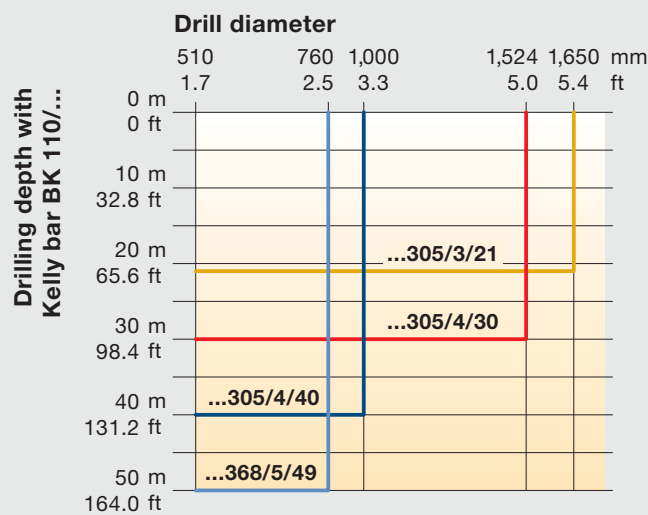
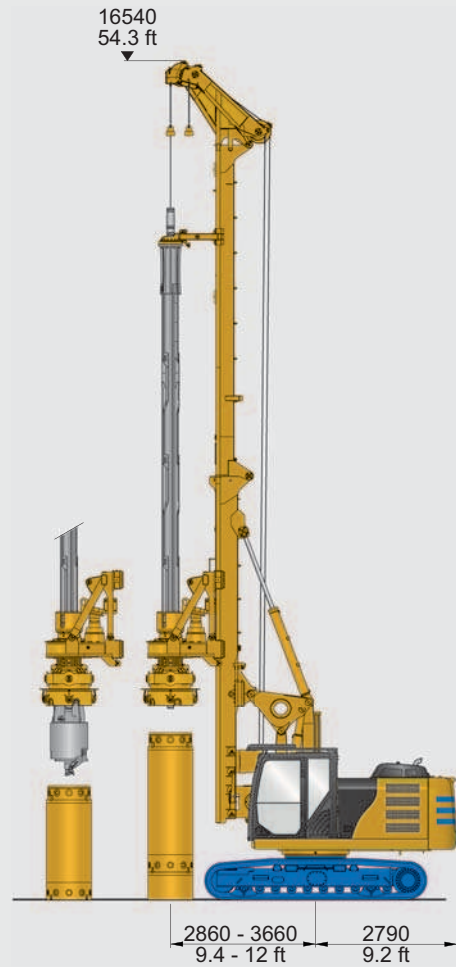


**Low head drill configuration**

Uncased Kelly drilling



Cased Kelly drilling



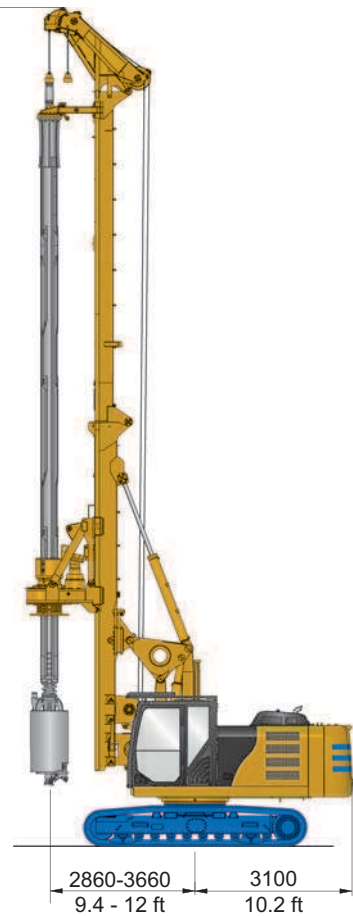
Data shown are valid for maximum permitted horizontal mast reach and using BAUER attachment.



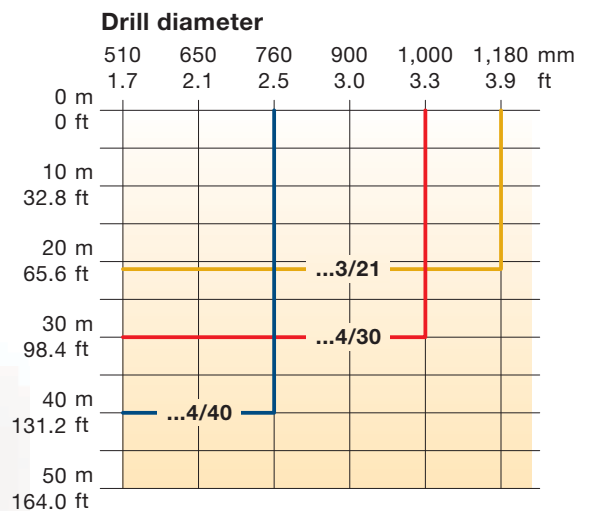
**Additional technical specifications:**

- Upper Kelly guide (hydraulically opened)
- Drilling tool diameter 3,000 mm (10 ft) for cellar drilling
- Multi piece – removable counterweight
- Auxiliary winch 65 kN (14,612 lbf)

16540  
54.3 ft



Drilling depth with Kelly bar BK 110/305/...



**Operating weight**      **39 t**  
(as shown)                      **85,980 lbs**

Data shown are valid for maximum permitted horizontal mast reach and using BAUER attachment.

Prior to commencing the rig-up process of deep drilling plant for the construction of oil or gas wells, it is generally necessary to drill several preparatory boreholes.

The BG 11 H is ideally suited for these operations:

- Compact dimensions and weight for fast and easy transport
- Rapid rigging and derigging
- Simple changing of drilling tools

Typical types of preparatory boreholes are:

**Cellar Drilling**

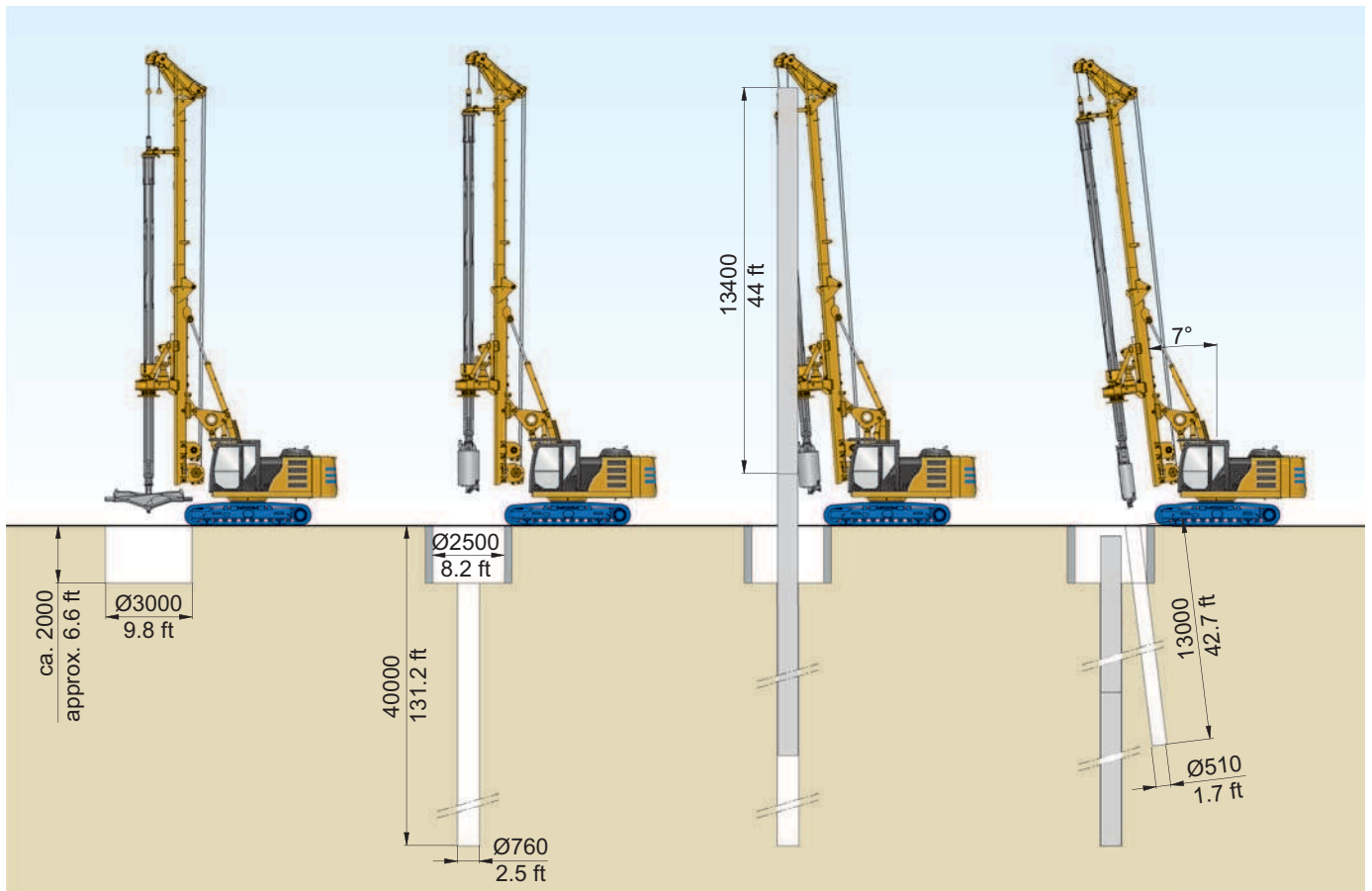
The initial hole is called the cellar and is 1.5 – 3 m (5 – 10 ft) wide and 1.5 – 3 m (5 – 10 ft) deep. It is used to capture drilling fluids during the drilling process and to accommodate the blow-out preventer.

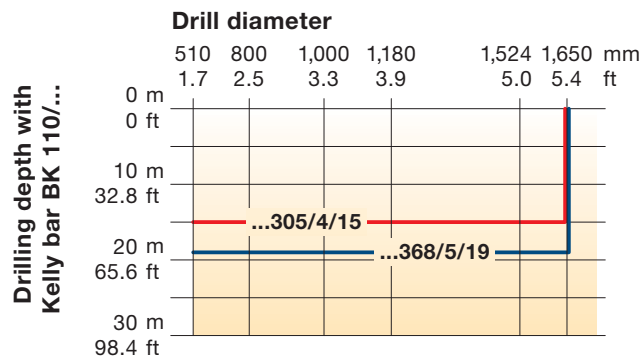
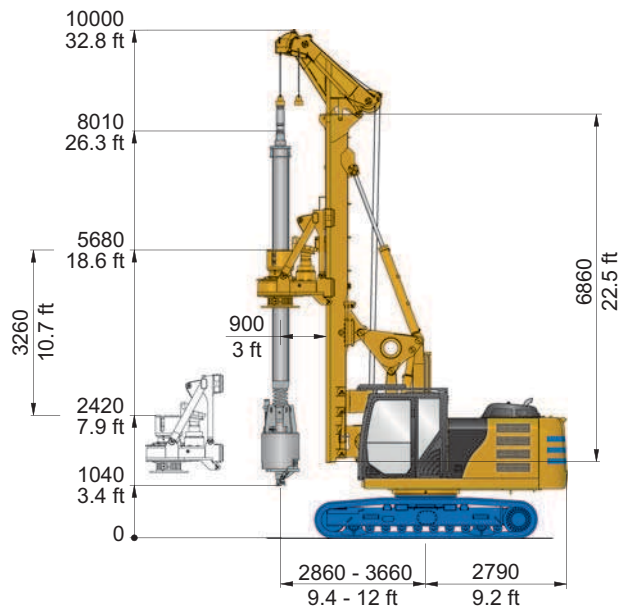
**Conductor Drilling**

A second hole is then drilled with a diameter of 600 – 800 mm (2 – 2.6 ft) from the center of the cellar to a depth of up to 40 m (130 ft) depending on the local geology to accommodate the conductor. The conductor is the guide or starter hole used by the large rig to do its drilling.

**Rathole and Mousehole Drilling**

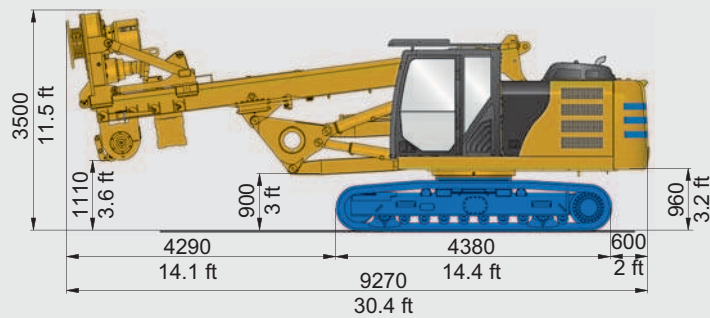
Another two holes, called the mousehole and rathole, are typically drilled to accommodate the larger rig’s operation. The mousehole is used to hold the next stem of drill pipe during the drilling process, while the rathole is used to store the Kelly bar when the drill pipe is being hoisted out of the hole. Typical dimensions of these holes are: diameter 500 mm (1.7 ft), depth 13 m (43 ft). Both holes are often drilled in an inclined position.





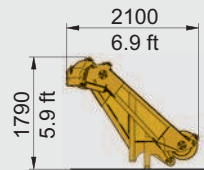
Data shown are valid for maximum permitted horizontal mast reach and using BAUER attachment.

**G = 31.1 t / 68,564 lbs**

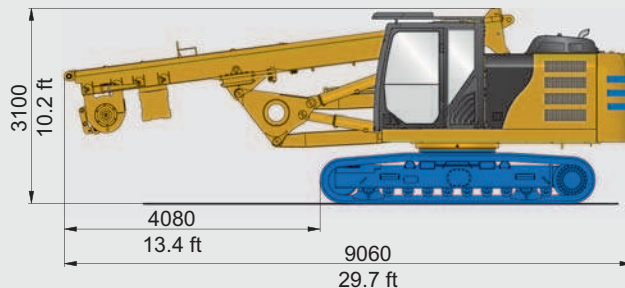


**G = 0.5 t / 1,102 lbs**

**B = 1,050 mm / 3.5 ft**

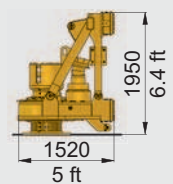


**G = 28.3 t / 62,391 lbs**



**G = 2.8 t / 6,173 lbs**

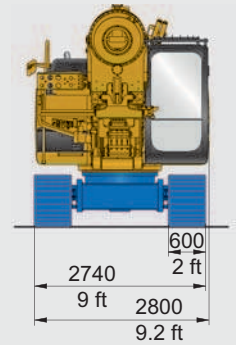
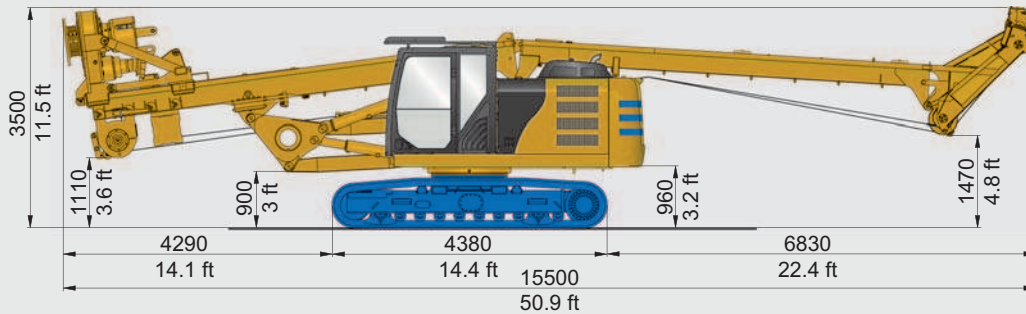
**B = 1,770 mm / 5.8 ft**



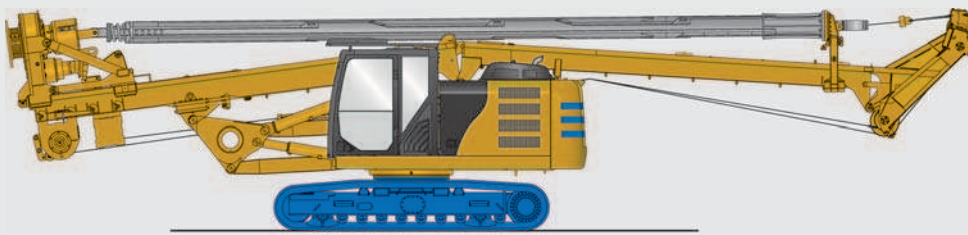


**Standard configuration**

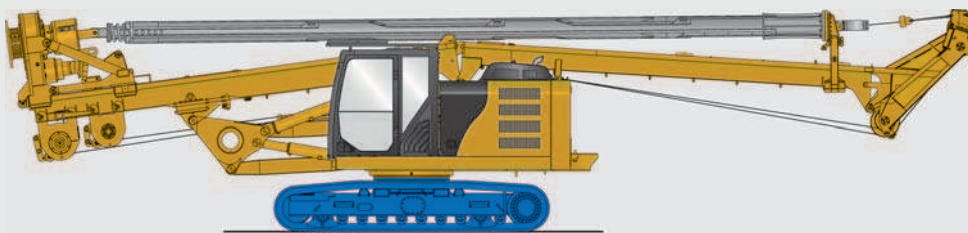
**G = 32.2 t / 70,988 lbs**



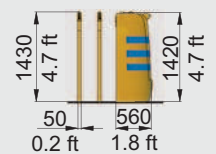
**G = 32.2 t / 70,988 lbs + Kelly weight**



**G = 34.0 t / 74,957 lbs (optional)**



**G = 2 x 1 t / 2 x 2,205 lbs**  
**1 x 5.4 t / 11,900 lbs**  
**B = 2,770 mm / 9.1 ft**



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

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



- Global operation and local contact
- Long-term customer care and relationship
- Flexibility in providing customized solutions
- Strong customer orientation
- Unique combination of equipment knowledge and application competency
- Application and process consulting based on knowledge from a variety of projects



If you need more information,  
please contact us: [BMA@bauer.de](mailto:BMA@bauer.de)



- Regional organizations and contacts
- Best educated technicians to ensure a maximum availability of equipment
- Reliable and efficient spare parts supply
- Long term on-site service & support
- Certified on-site operator's and technician's training



# BAUER Service

If you need assistance, please contact us:  
Service Hotline: +800 1000 1200 (toll-free number)  
or: +49 8252 97 2888  
or: [KVT@bauer.de](mailto:KVT@bauer.de)



[bma.bauer.de](http://bma.bauer.de)



**BAUER Maschinen GmbH**  
BAUER-Strasse 1  
86529 Schrobenhausen  
Germany  
Tel. +49 8252 97-0  
[bma@bauer.de](mailto:bma@bauer.de)  
[www.bauer.de](http://www.bauer.de)

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.