

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 20th 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 21st 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.*

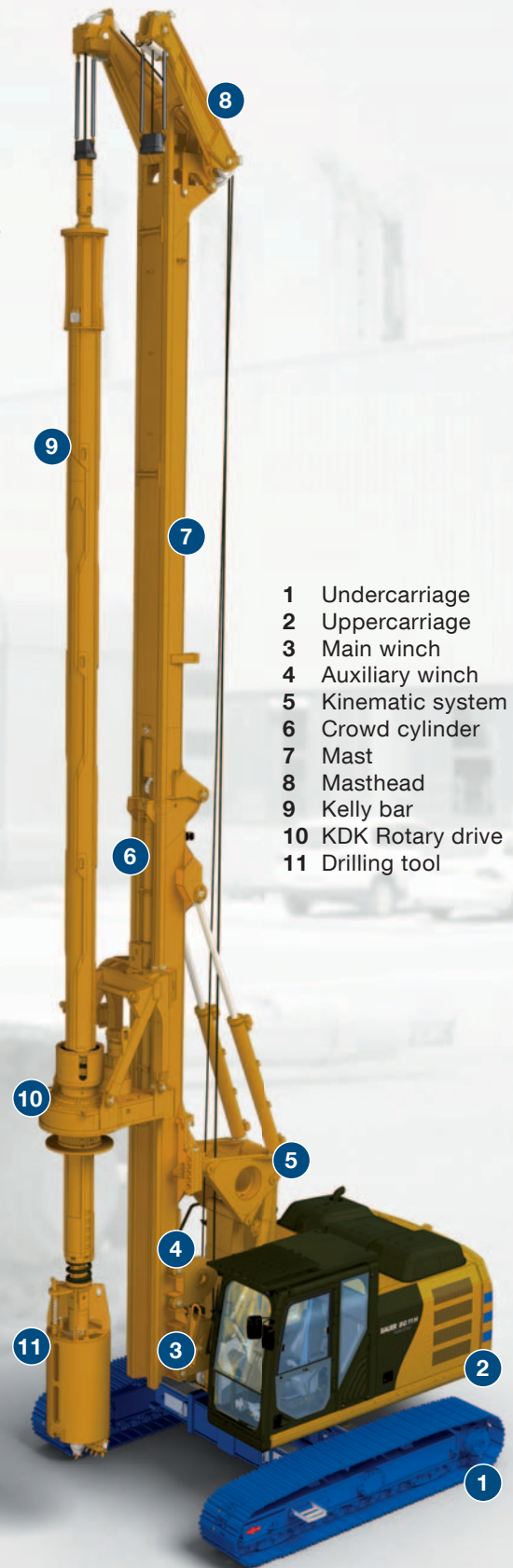
Drilling uncased deep boreholes stabilized by drilling fluid, or drilling cased boreholes with installing casings by the rotary drive or by a hydraulic casing oscillator. If Kelly drilling is your task, then the BG ValueLine is our solution. The machines of the ValueLine are specifically adapted to no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



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
Power: 122 kW @ 1,800 U/min
 163.6 HP @ 1,800 rpm
Height: 16.5 m / 54.3 ft



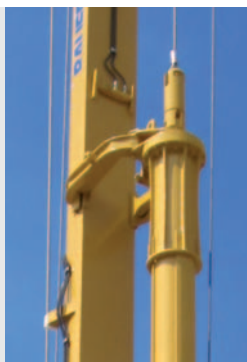
KDK rotary drive:

- 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



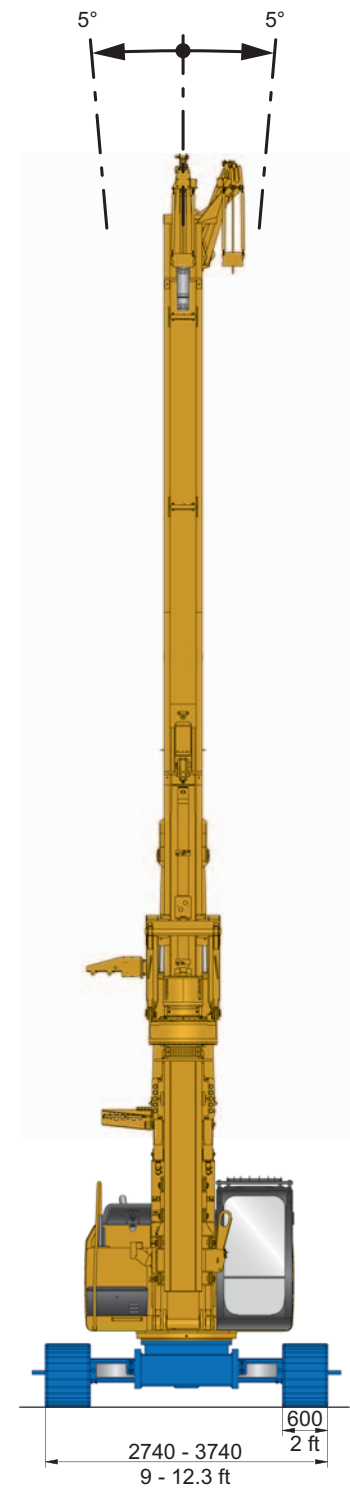
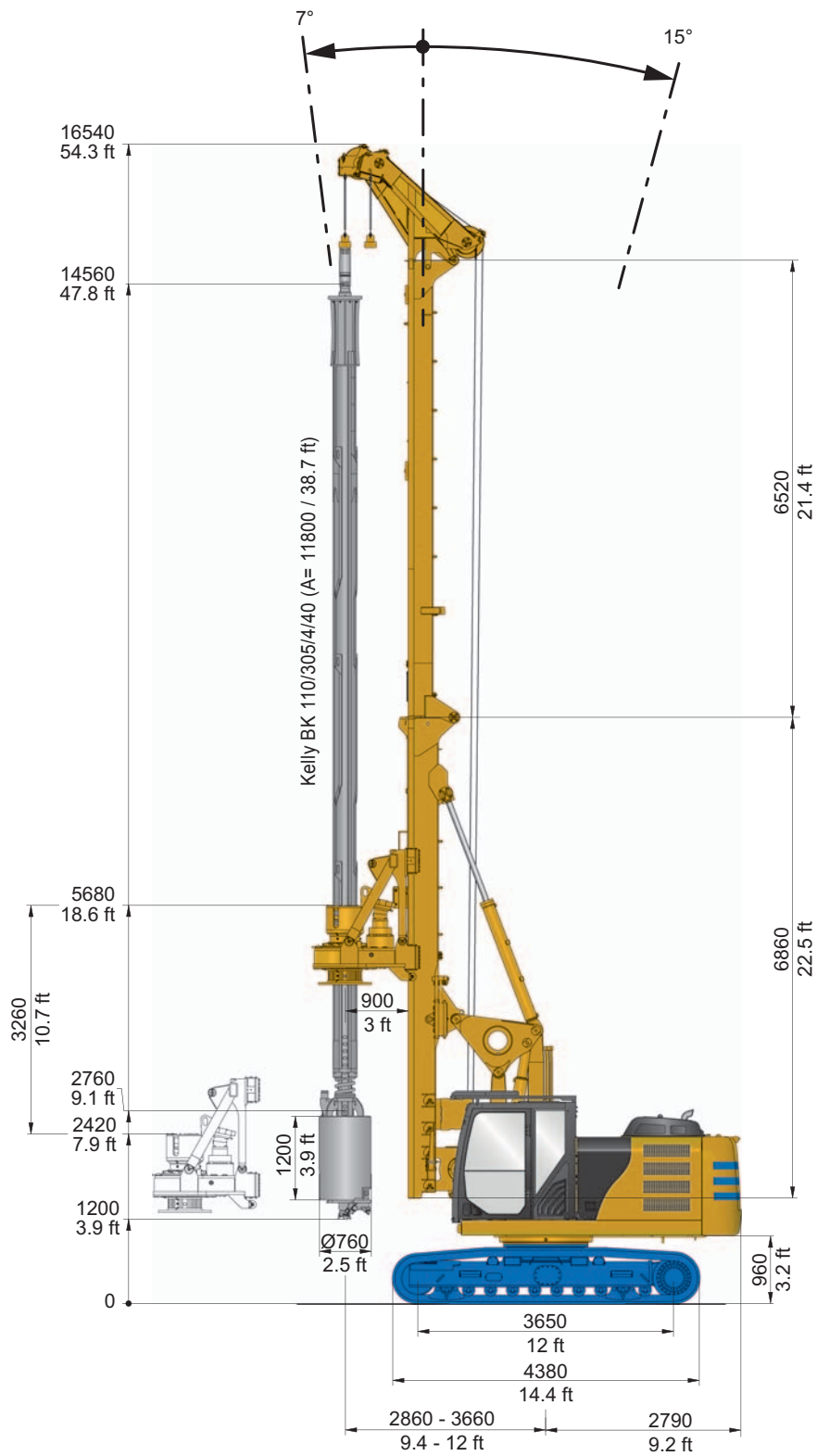
Crowd system with crowd cylinder

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

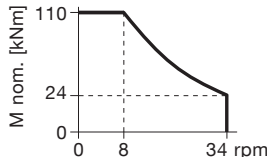
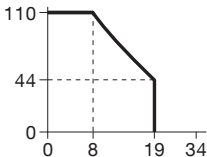
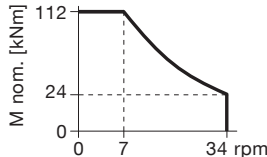
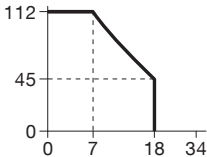
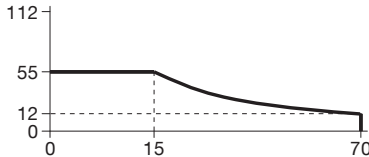


Final inspection and test run

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



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

Rotary drive		KDK 110 KL (standard)	
Torque (nominal) at 350 bar (5,076 psi)		110 kNm	81,130 ft-lbf
Speed of rotation (max.)		34 rpm	34 rpm
1 st gear, standard mode	1 st gear, rpm reduced		
		Not to scale	
Rotary drive		KDK 110 SL (optional)	
Torque (nominal) at 350 bar (5,076 psi)		112 kNm	82,600 ft-lbf
Speed of rotation (max.)		70 rpm	70 rpm
1 st gear, standard mode	1 st gear, rpm reduced	2 nd gear, standard mode	
			Not to scale
Crowd cylinder			
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
Main winch		M6 / L3 / T5	
Line pull (1 st 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
Auxiliary winch		M5 / L2 / T5	
Line pull (1 st 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
Base carrier		CAT 320 E	
Engine		CAT C 6.6 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	
Diesel tank capacity		410 l	108.3 gal
Ambient air temperature (at full power) up to		40 °C	104 °F
Sound pressure level in cabin (EN 791, Annex A)		L _{PA} 80 dB(A)	
Sound power level (2000/14/EG u. EN 791, Annex A)		L _{WA} 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

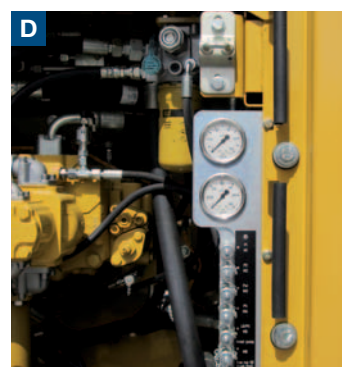
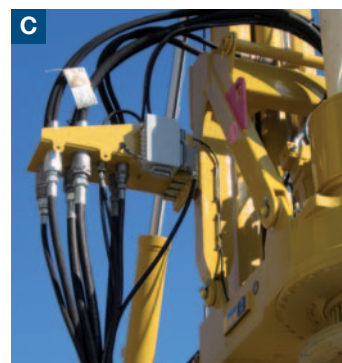
BG attachment

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,
Fig. F

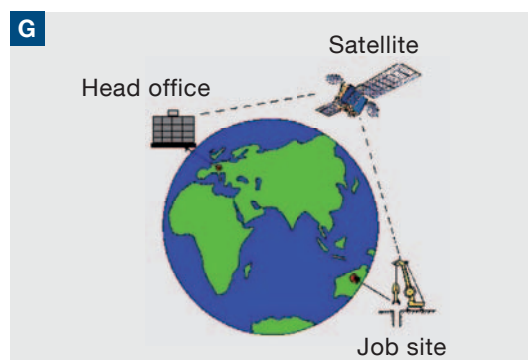
Measuring and control equipment

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.



Rathole drill configuration

Low head drill configuration

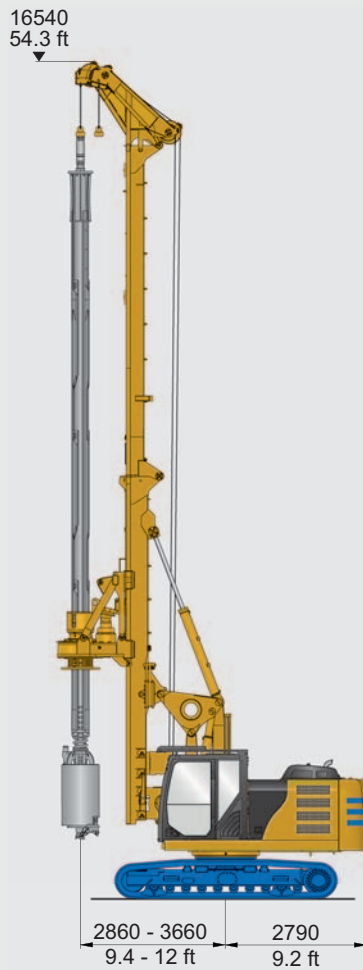
Removing of the upper mast section enables the construction of boreholes to a maximum depth of 19 m (62.3 ft) with a minimum working height of 10 m (32.8 ft).

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

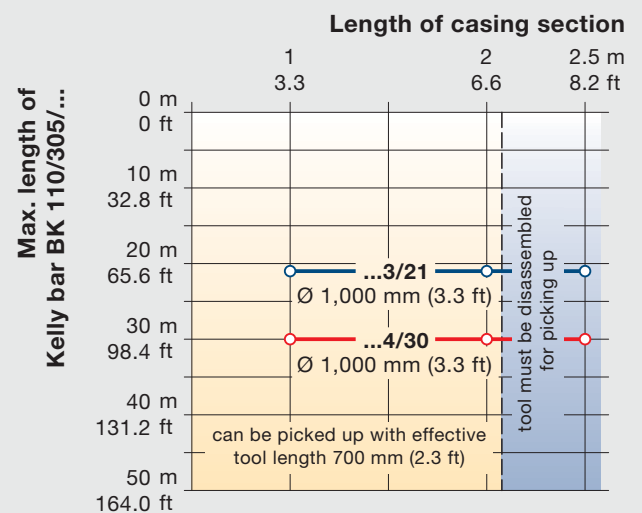
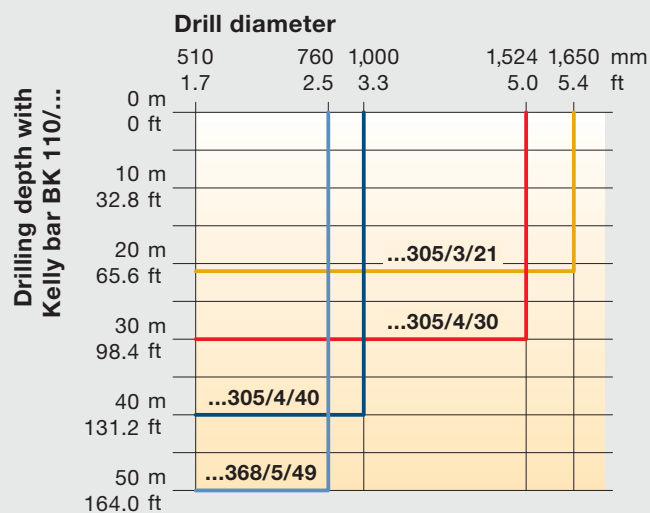
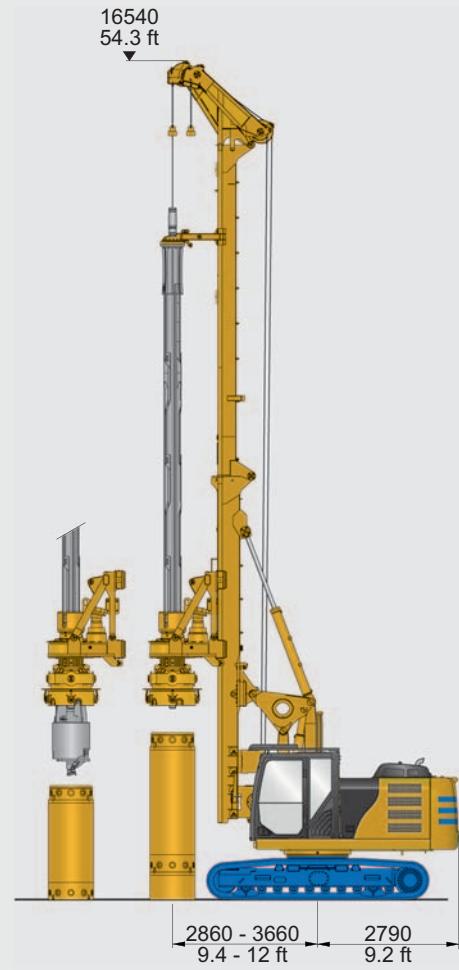


Low head drill configuration

Uncased Kelly drilling



Cased Kelly drilling



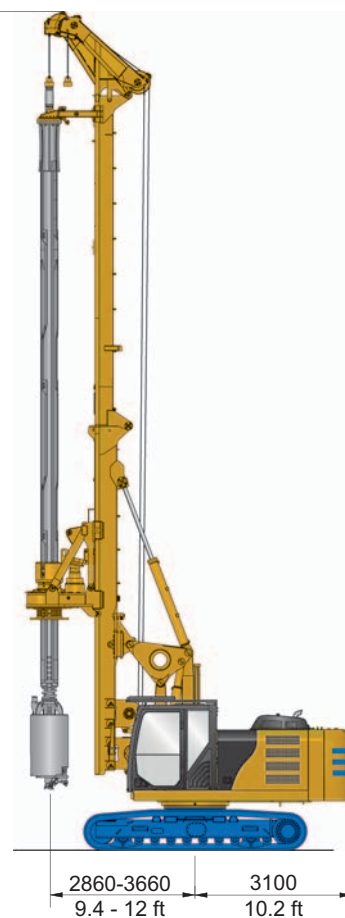
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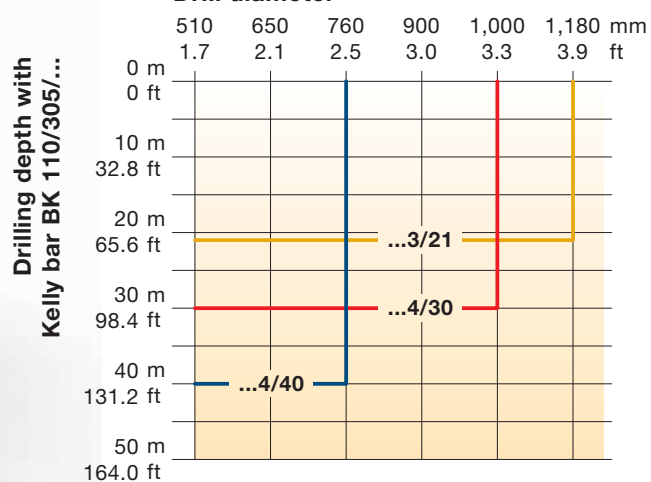
Additional technical specifications:

- 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



Drill diameter



Operating weight
(as shown) **39 t**
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

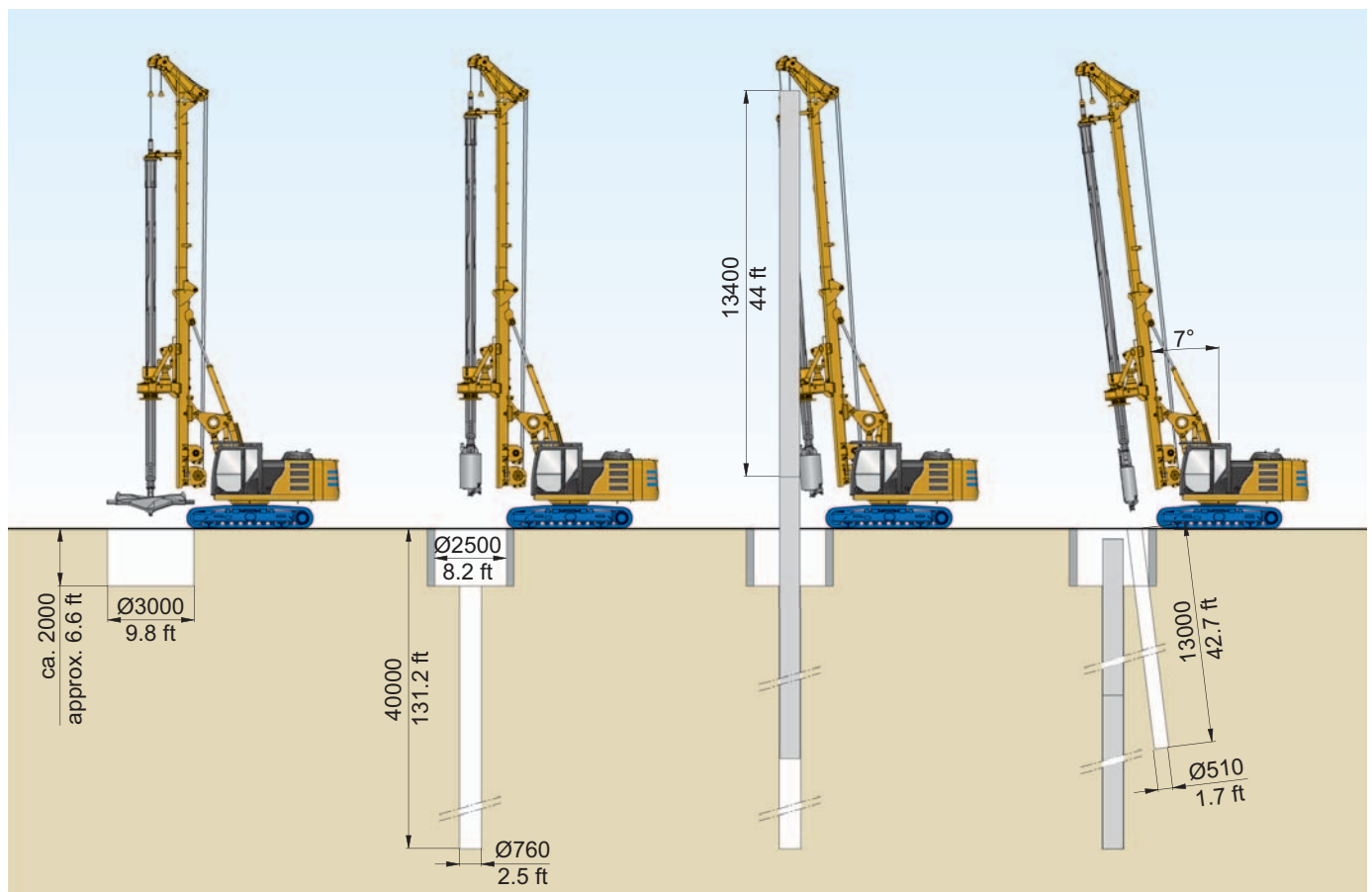
The initial hole is called the cellar and is 1.5 – 3 m (5 – 10 ft) wide and 1.5 – 3 m (5 – 10 ft) deep. It is used to capture drilling fluids during the drilling process and to accommodate the blow-out preventer.

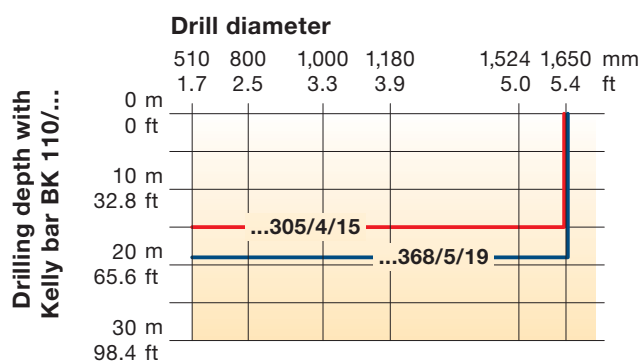
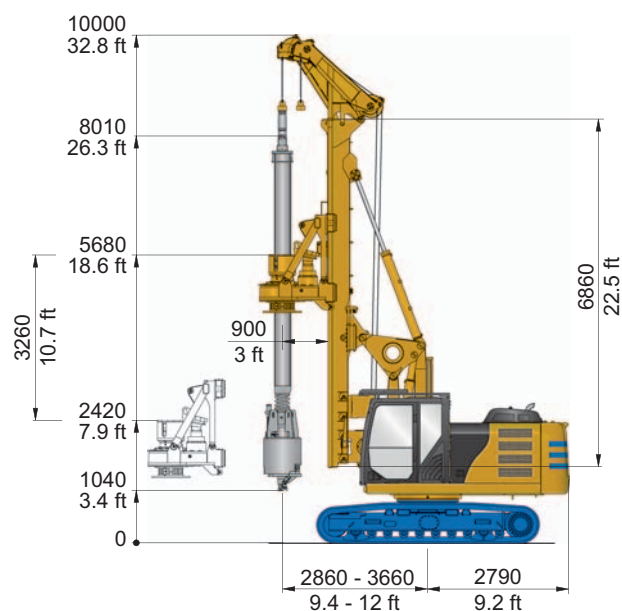
Conductor Drilling

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

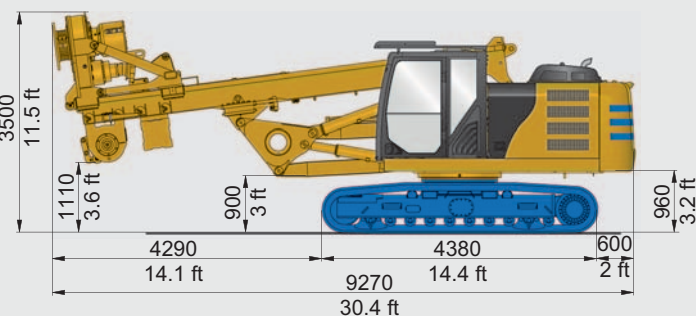
Another two holes, called the mousehole and rathole, are typically drilled to accommodate the larger rig's operation. The mousehole is used to hold the next stem of drill pipe during the drilling process, while the rathole is used to store the Kelly bar when the drill pipe is being hoisted out of the 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.





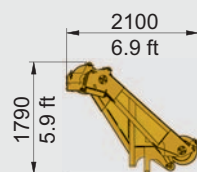
Data shown are valid for maximum permitted horizontal mast reach and using BAUER attachment.

G = 31.1 t / 68,564 lbs

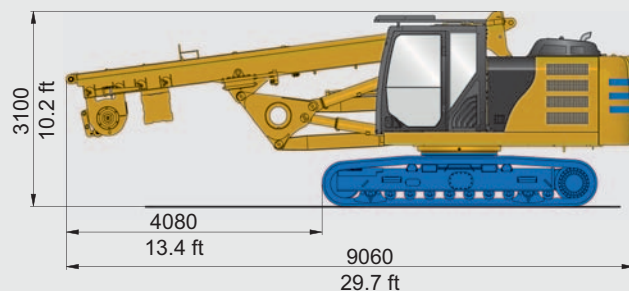


G = 0.5 t / 1,102 lbs

B = 1,050 mm / 3.5 ft

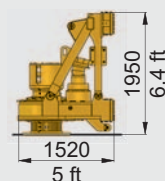


G = 28.3 t / 62,391 lbs



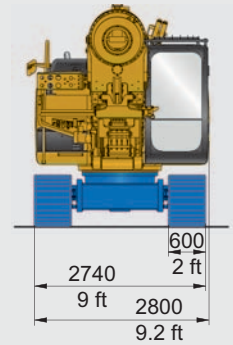
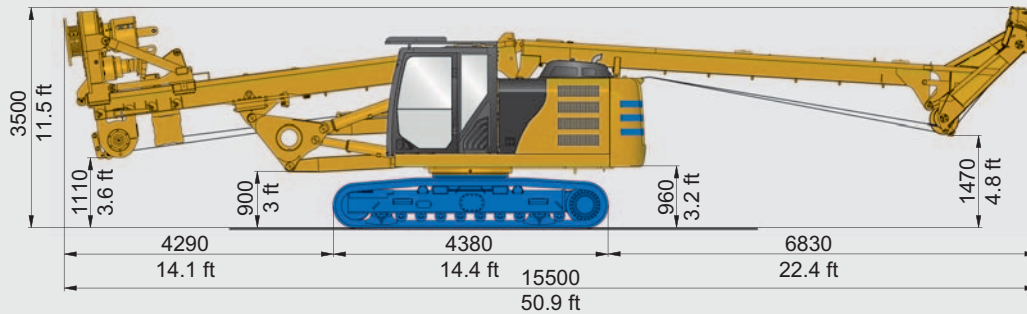
G = 2.8 t / 6,173 lbs

B = 1,770 mm / 5.8 ft



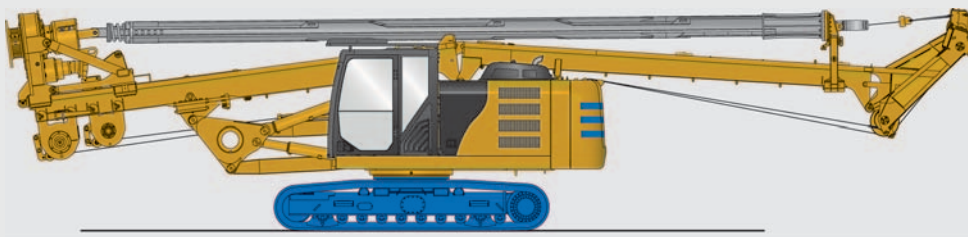
Standard configuration

G = 32.2 t / 70,988 lbs

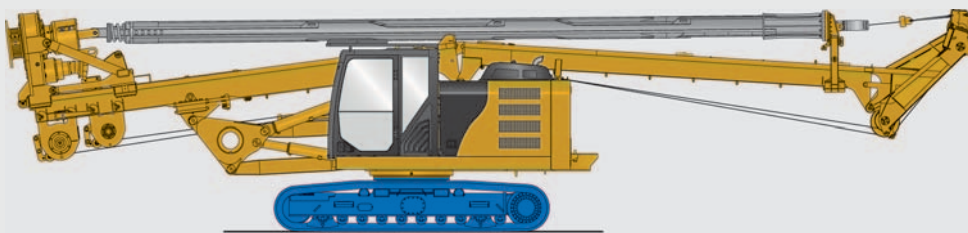


Rathole drill configuration

G = 37.0 t / 81,571 lbs

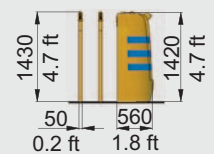


G = 34.0 t / 74,957 lbs



G = 3 x 1 t / 3 x 2,205 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



- 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



- 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: KVT@bauer.de



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