BAUER BG 55

Rotary Drilling Rig

Base Carrier BS 115

PremiumLine

BAUER

Experience for you!

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

We could start by telling you about Sebastian Bauer, who founded a copper forge in the German town of Schrobenhausen some 200 years ago. We could then move on to how his workshop prospered and developed to a leading construction company for specialist foundation engineering. The story would continue to the mid 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.

- **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

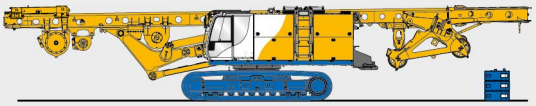
The BAUER BG PremiumLine

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



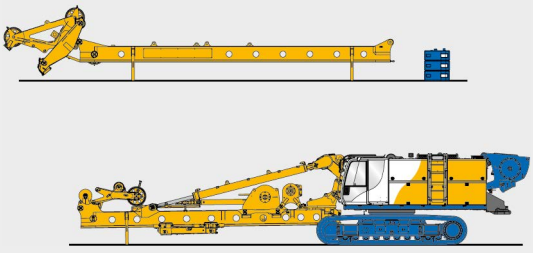
BG 23 H
BT 65

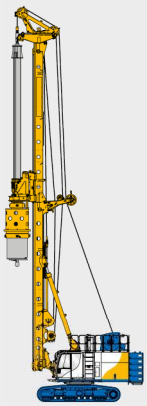
BG 23 H
BT 75

BG 28 H
BT 75

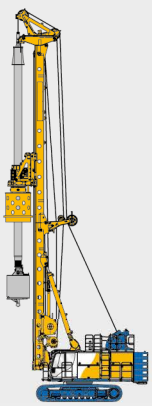
The V-Model Line

Special features of the V-model line are:
- Big borehole diameters
- Large drilling depths
- Extended service intervals and power transmission with low vibrations due to the robust design of the kinematic system

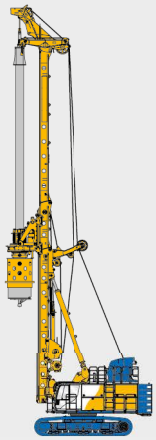




BG 33
BT 85



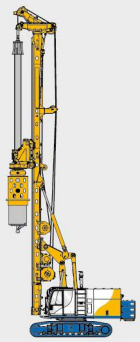
BG 36
BS 95



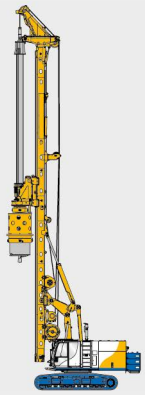
BG 45
BS 95

The Rotary Drilling Rig
BG 55 PremiumLine (BS 115)

Max. drilling diameter:	**3,700 mm**
Max. drilling depth:	**126.0 m**
Max. torque (nominal):	**553 kNm**
Max. height:	**36.3 m**
Engine:	**CAT C 18 570-597 kW**

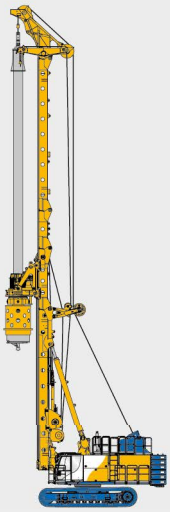


BG 28 H
BT 85

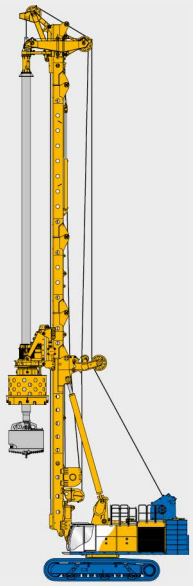


BG 33 H
BT 85

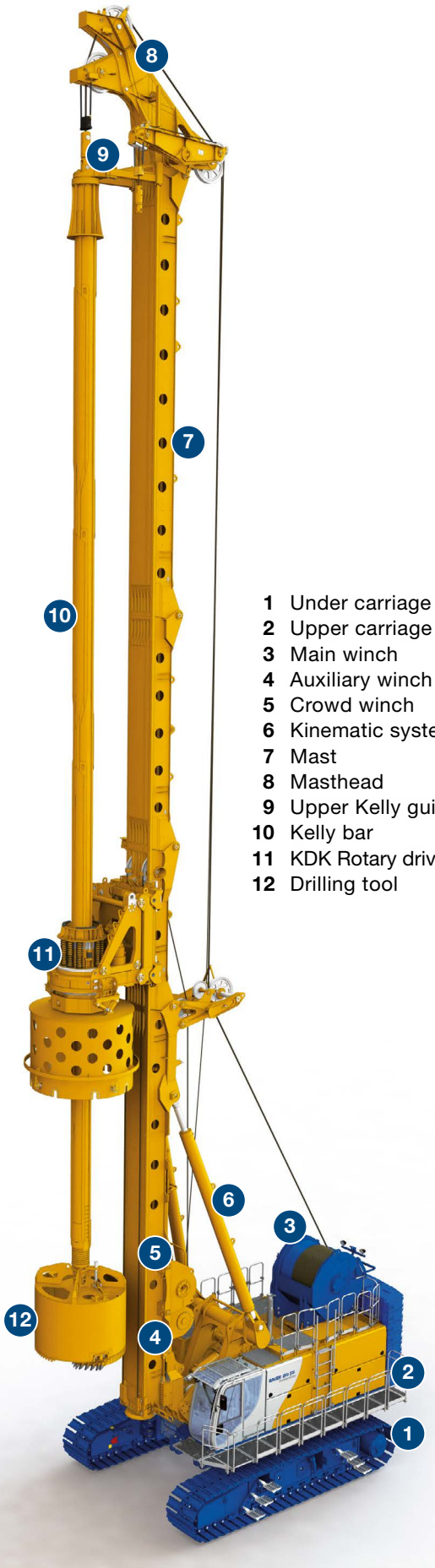
BG 36 H
BS 95



BG 55
BS 115



BG 72
BT 180



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

Modern, ergonomic operator's cab
- FOPS compliant with additional protective roof guard
- Premium operator seat, air-sprung and heatable
- Joystick controls with high functionality
- B-Drive combines adjustable potentiometer values on one display

Powerful CAT engines
- C 18 570-597 kW (Stage V / Tier 4 final or ORA *)
- Diesel particulate filter in exhaust emission standard Stage V / Tier 4 final
- Low noise emission
- Worldwide CAT-service partners

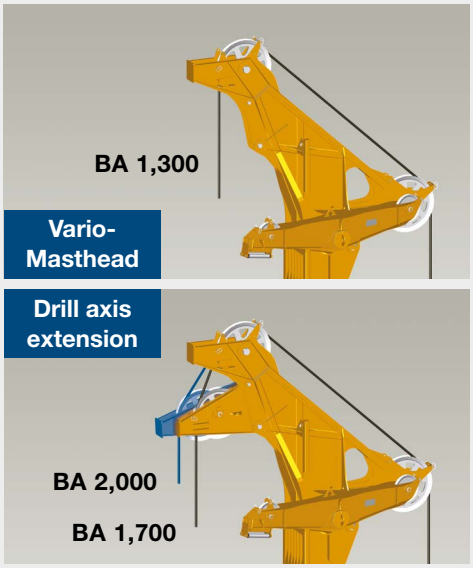
Safety equipment
- Guardrails on upper level (foldable for transport)
- Walking platform with handrail (foldable for transport)
- Upward folding service doors
- Closed circuit cameras for rear area and main winch surveillance with display on integrated screen in operator's cab
- Hydraulic locking of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

Energy-Efficient PowerEEP

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

* Exhaust emission equivalent Tier 3 / Stage III A emission standard

Main winch on upper carriage (50 t single layer)
- Wide winch drum
- Single layer winch for minimized rope wear
- Constant line pull (for whole drilling depth)
- Service-friendly winch position
- 1.5 layer operation for big drilling depth



Flexible mast concept
- Vario-masthead
  - Masthead for drill axis distance 1,300 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 20.6 m (possible with integrated Vario-mast section)
- Max. mast extension 5.6 m can be combined with all drill axes
- Achievable max. drilling diameter of 3,700 mm

Variably stackable counterweight elements
- Constant tail radius
- Low weight of individual elements (5.0 t)
- Flexible arrangement for various applications
- Easy assembly and disassembly

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

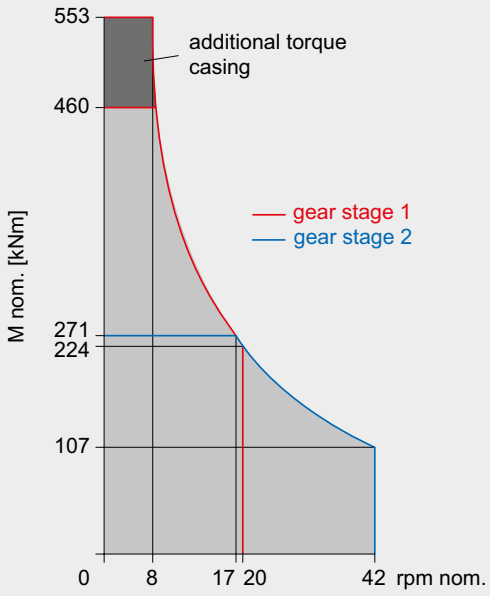
Rotary Drive

Kelly set-up
- Long Kelly guide
- Integrated shock absorbing spring system
- Kelly visualization (see page 15)
- Enhanced drilling performance
- High operation comfort
- Reduction of wear on Kelly bars and drive keys

Rotary drive KDK 550 S (multi gear)
- Max. torque 553 kNm
- Max. speed 42 rpm
- Various modes of operation, partially selectable speed of rotation and torque

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 unsecured heights

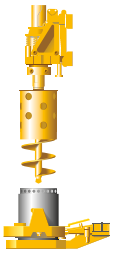
KDK 550 S



Multi-function Equipment

Kelly Drilling

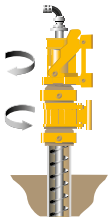
Cased Kelly Drilling
installation with BTM



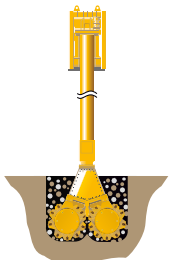
Cased Kelly Drilling
installation with oscillator

CFA
Continuous Flight
Auger Drilling

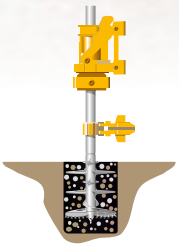
FDP
Full Displacement Piling
(Standard or Lost Bit)



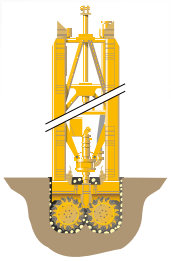
CCFA
Cased CFA System with
KDK + BTM / Double Rotary
System



CSM
Cutter-Soil-Mixing

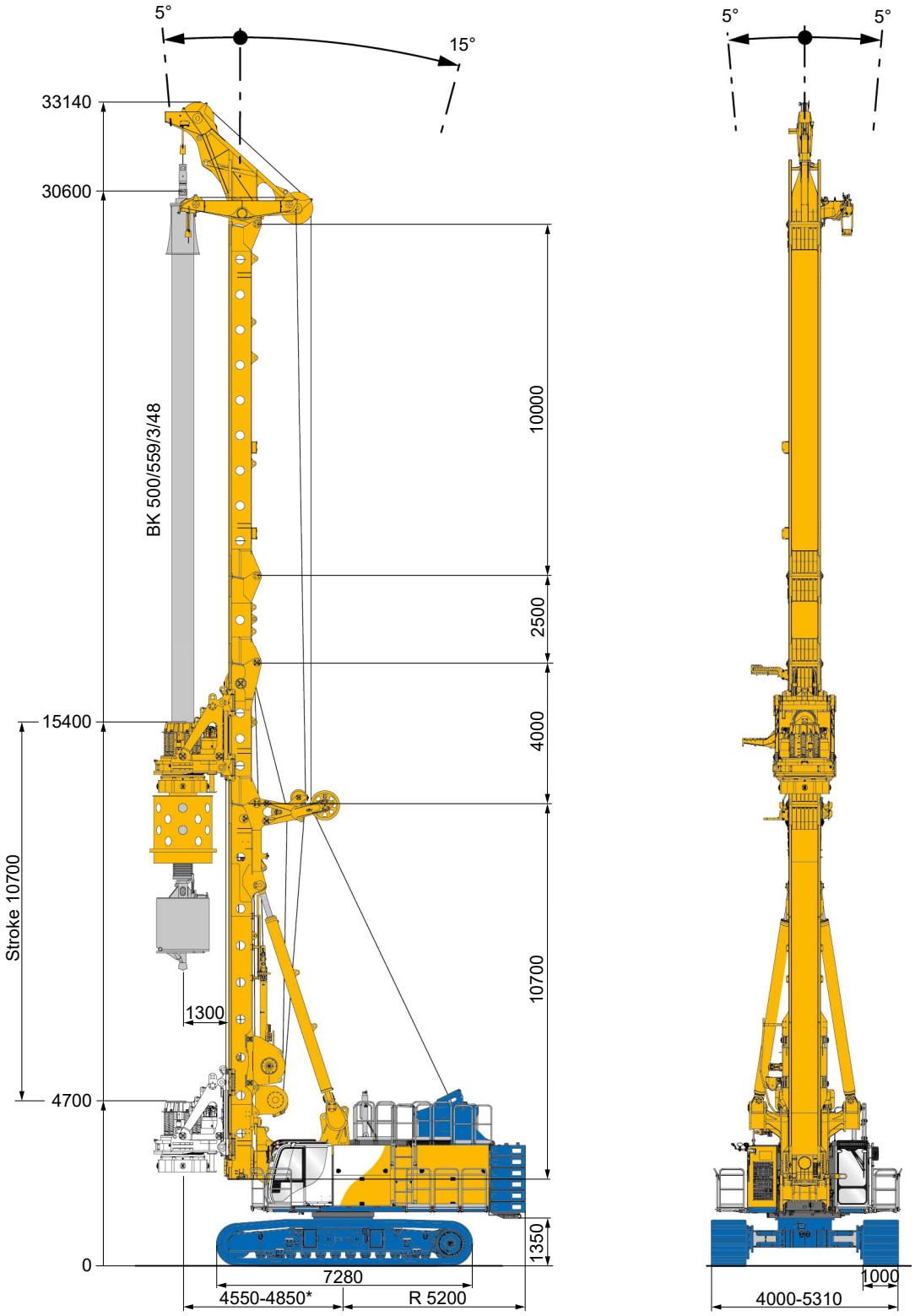


SCM / SCM-DH
Single Column Mixing



BC
Trench Cutter

Dimensions – Basic Version



Operating weight 179.5 t
(as shown)

Technical Specifications

Rotary drive	**KDK 550 S**	
Torque (nominal) for casing operation at 350 bar	553 kNm	
Torque (nominal) for drilling operation at 350 bar	460 kNm	
Max. speed of rotation	42 rpm	
Crowd winch system		
Max. stroke of sledge with 5.6 m mast extension	26.3 m	
Crowd force push and pull effective / nominal	530 / 680 kN	
Rope diameter	30 mm	
Speed (down/up)	8.5 / 8.5 m/min	
Fast speed (down/up)	31.0 / 31.0 m/min	
Main winch (selectable)	multi-layer	single-layer
Winch classification	M6 / L3 / T5	M6 / L3 / T5
Line pull (1st layer) effective / nominal	420 * / 532 kN	500 / 633 kN
Rope diameter	40 mm	40 mm
Max. line speed	62 m/min	62 m/min
Auxiliary winch		
Winch classification	M6 / L3 / T5	
Line pull (1st layer) effective / nominal	140 / 177 kN	
Rope diameter	22 mm	
Max. line speed	55 m/min	
Base carrier (EEP)	BS 115	
Engine	CAT C 18	
Rated output ISO 3046-1	570 kW 1,850 rpm	597 kW 1,850 rpm
Exhaust Emission Standard acc. to EU 2016/1628 EPA/CARB GB20891-2014	ORA** ORA** China Stage III	Stage V Tier 4 final -
Diesel tank capacity	1,200 l	1,200 l
Sound pressure level in cabin (EN 16228, Annex B)	LP_A 80 dB (A)	
Sound power level (2000/14/EC and EN 16228, Annex B)	LW_A 112 dB (A)	
Hydraulic pressure	350 bar	
Flow rates (main circuits + auxiliary circuit)	3 x 430 + 1 x 565 + 1 x 400 + 1 x 320 l/min	
Hydraulic oil tank capacity	1,200 l	
Under carriage	UW 195	
Crawler type	B9S	
Traction force effective / nominal	1,100 / 1,300 kN	

* Line pull 420 kN can also be used in 2nd layer
** Exhaust emission equivalent Tier 3 / Stage III A emission standard

Technical Equipment

Base carrier BS 115

Standard
- Removable counterweight elements
- Remote control multi
- Removable crawler side frames
- Platforms with handrail (on both sides and at the cabin)
- Guardrails upper level (foldable for transport)
- Energy-Efficient Power (EEP)
- Cameras for rear area and main winch surveillance
- Hydraulic system with quick-release hydraulic couplers
- Central lubrication system
- Premium comfort seat
- 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 / Artic kit plus
- Jack-Up System, **Fig. A**
- Quick-release hydraulic couplers
- Additional camera (at customer-specific location)
- Front screen guard, **Fig. B**
- Weather roof protection

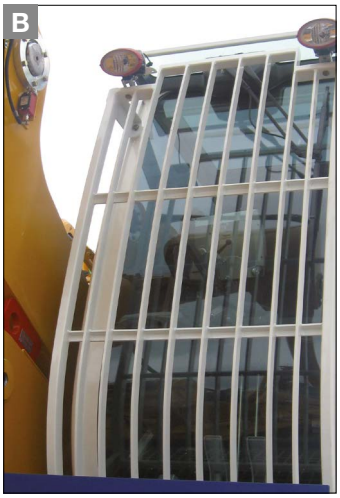
Drilling rig attachment

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 trestle
- Flexible mast concept (Vario-mast, Vario-masthead
- Hydraulically operated pin connection on crowd sledge for easy mounting and demounting of rotary drive

Optional
- Upper Kelly guide
- Extension of drill axis to 1,700 mm or 2,000 mm
- Mast support unit
- Mast extension 5.6 m (requires an auxiliary crane)
- Swivel for auxiliary rope
- Attachment of casing oscillator (up to BV 2000), **Fig. C**
  - Possible up to 2,500 mm drilling diameter on request
- Attachment of automatic casing drive adapter
- Air line attachment
- Concrete line attachment

A

B



Rotary drive

Standard
- Rotary drive KDK 550 S (multi-gear drive)
- Selectable modes of operation
- Kelly drive adapter for outer Kelly tube 559 mm
- Integrated Kelly damping system
- Exchangeable Kelly drive adapter
- Exchangeable Kelly drive keys
- Cardanic joint
- Quick-release hydraulic couplers
- Transport supports
- Lifting gear

Optional
- Kelly drive adapter for outer Kelly tube 470 mm
- Torque multiplier BTM 720 K
  - Torque 700 kNm
  - Increasing of torque for casing installation
  - Easy attachment
  - Separate sledge
  - Connection to rotary drive with cardanic joint
- Torque multiplier BTM 400 for CCFA

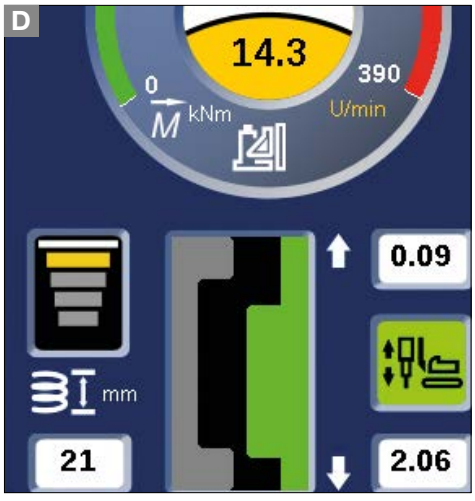
Measuring and control system

Standard
- PLC processor for all electrically actuated functions
- Automatic mast alignment with memory function
- 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
- Kelly visualization, **Fig. D**

Optional
- Electronic load sensing for auxiliary winch
- Recording of concrete pressure and volume for Single-Pass processes
- Software modules for further applications

C

D



B-Tronic System

B-Tronic
The BAUER B-Tronic system allows completion of construction tasks in a reliable and accurate manner, even under extreme operating conditions.
- The high-resolution touchscreen display ensures excellent user-friendliness
- The display can be optimally adapted to the operating situation and the amount of light present by changing the brightness level, the color scheme and the day / night mode
- The main parameters such as pump pressure, torque and drilling depths can be viewed at a glance

B-Drive
The B-Drive is a central operating and visualization system
- B-Drive combines adjustable potentiometer values on one display
- Ergonomic positioning of the display on the right column of the operator´s cab

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

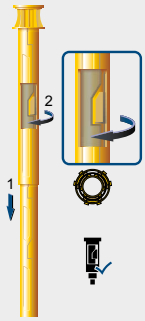
Device networking
DTR module
- The DTR module allows equipment and production data to be made available to a wide variety of users

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

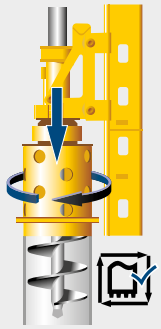
Report of production data
- Standardized reports for the documentation of drilling progress and verification of performance and quality

Assistance Systems (selection)

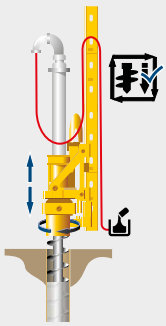
Adaptive Kelly speed assistant
The assistant raises and lowers the Kelly bar safely and quickly and allows an easy operation. The automatic control of the speed of the main winch reduces the speed at the transition points of the Kelly sections.
This provides maximum safety with minimum wear. The permanent monitoring of the parameters prevents a locked Kelly bar from being raised or lowered accidentally and thus causing damage.



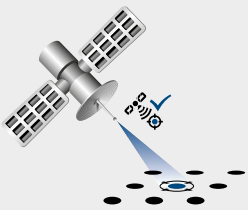
Kelly visualization
Display of the locking recesses and the correct extension and retraction of the Kelly bar on the B-Tronic system. The rapid approach of the locking position results in a considerably enhanced drilling performance. In addition, the level of wear that the Kelly bar and drive keys are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



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



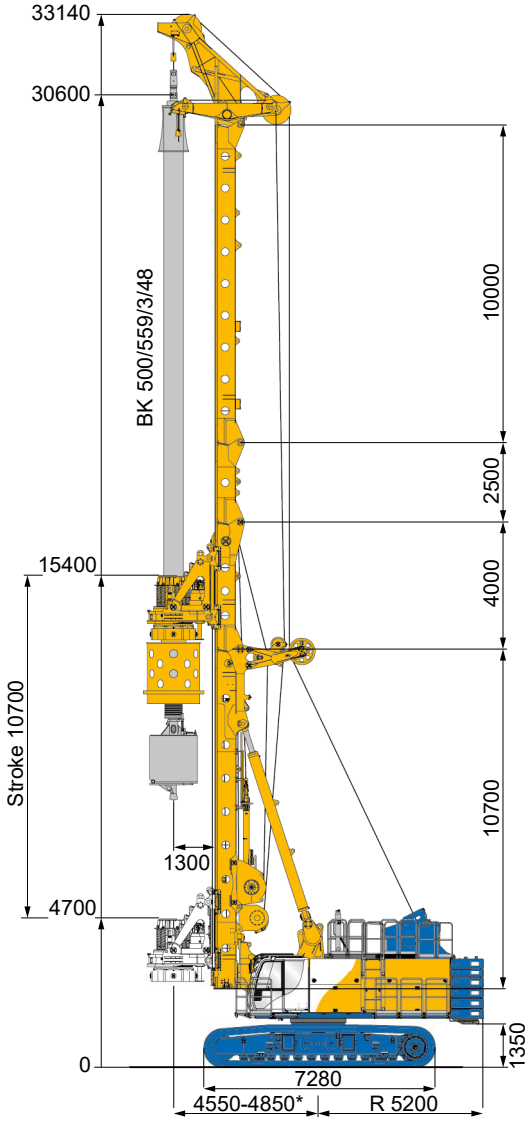
Automatic drilling and extraction control for Single-Pass processes
The system controls the drilling and / or extraction speed of the crowd system and enables hands-free operation. This ensures the production of a high-quality pile while simultaneously minimizing the amount of concrete.

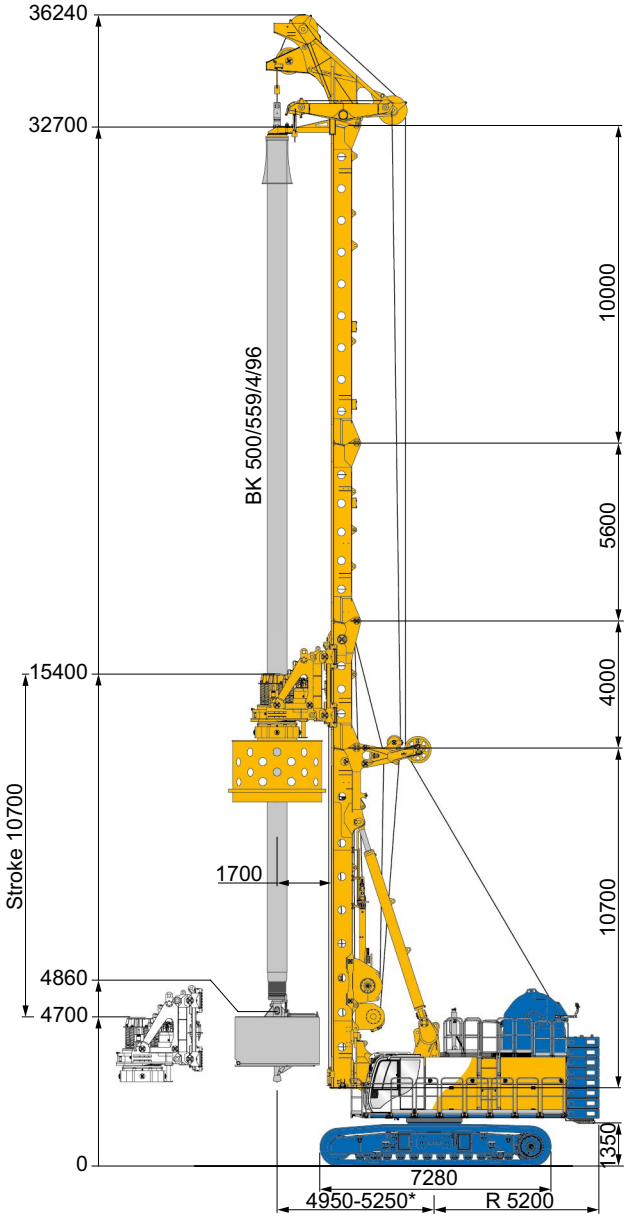


Satellite-based positioning
The BAUER Assistant Positioning System (B-APS) allows the position of a bored pile to be located extremely accurately. Documentation is provided for the nominal and actual coordinates, as well as the corresponding accuracy of each bored pile. Manual marking of the piles is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

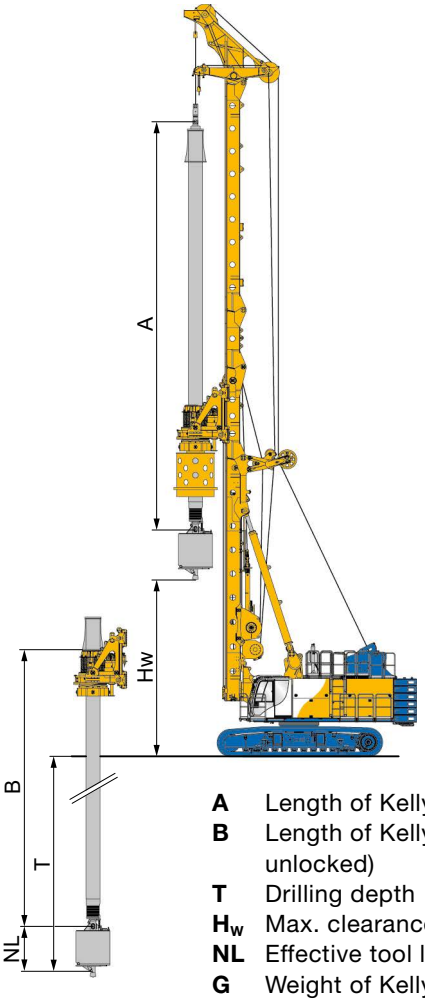
Numerous other assistance systems are available in our portfolio.

Application – Kelly Drilling





	Basic version	Upgraded version	
Main winch	420 kN	500 kN	
Mast extension	2.5 m	5.6 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 approx.	179.5 t	221.0 t	226.0 t
with Kelly BK 500/559/…	... 3/42	... 4/96	... 4/96
with casing drive adapter	1,650	2,500	3,000
with bucket	KB 1,500	KB 2,320	KB 2,800
with counterweight	30.0 t	40.0 t	40.0 t



A Length of Kelly bar (retracted)
B Length of Kelly bar (extended, unlocked)
T Drilling depth
H_w Max. clearance to drilling tool
NL Effective tool length
G Weight of Kelly bar

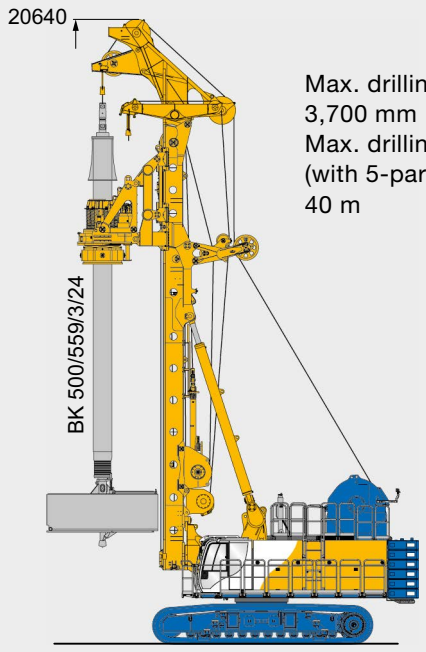
Drilling depth – uncased Kelly drilling

				Basic version		Upgr. version	
3-part Kelly bar	A (m)	B (m)	G (kg)	H_w (m)	T (m)	H_w (m)	T (m)
BK500/559/3/54	22.0	57.7	17,200	6.4	54.8	8.5	54.8
BK500/559/3/60	24.0	63.7	19,000	4.4	60.8	6.5	60.8
BK500/559/3/66	26.0	69.7	20,900	–	–	4.5	66.8
4-part Kelly bar							
BK500/559/4/64	19.9	67.9	20,950	8.5	65.1	10.4	65.0
BK500/559/4/72	21.9	75.9	23,000	6.5	73.1	8.6	73.0
BK500/559/4/84	24.9	87.9	25,650	3.5	85.1	5.6	85.0
BK500/559/4/90	26.4	93.9	27,150	–	–	4.1	91.0
BK500/559/4/96	27.9	99.9	28,650	–	–	2.6	97.0
5-part Kelly bar*							
BK420/559/5/100	23.8	103.9	25,600	4.6	101.1	6.7	101.1
BK420/559/5/110	25.8	113.9	27,700	2.6	111.1	4.7	111.1
BK420/559/5/120	27.8	123.7	29,760	–	–	2.7	121.1
BK420/559/5/125**	28.8	128.9	31,000	–	–	2.7	126.1

Drilling data as shown are based on tool length NL = 1.9 m, minimum horizontal mast reach and using Bauer attachment. Drilling depth is increased by 0.47 m when using maximum horizontal mast reach.

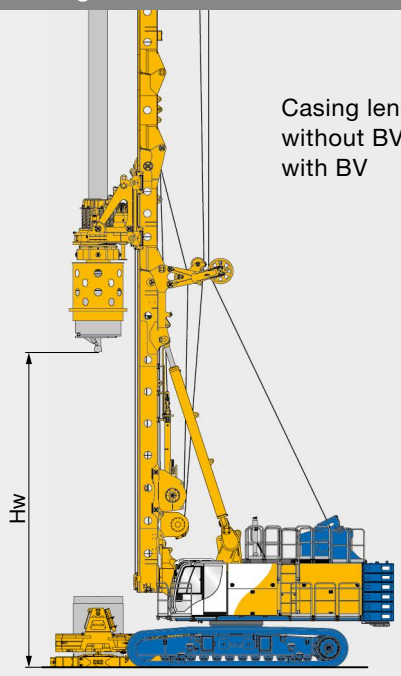
Further drilling depth, diameter and other Kelly types on request.

Uncased Kelly drilling with reduced headroom configuration



Max. drilling diameter:
3,700 mm
Max. drilling depth
(with 5-part Kelly):
40 m

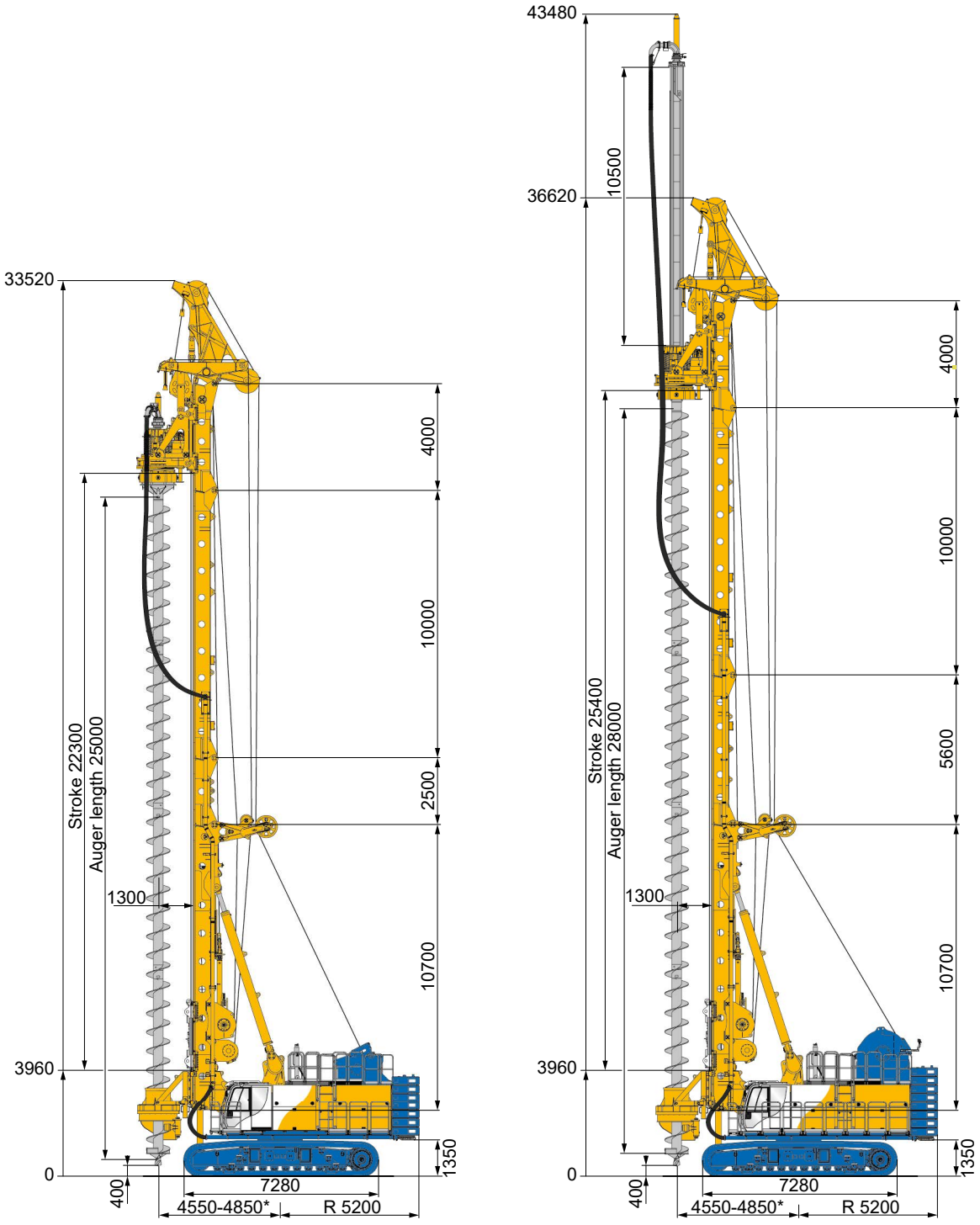
Cased Kelly drilling with casing oscillator BV 2000



Casing length
without BV = H_w - 0.5 m
with BV = H_w - 2.4 m

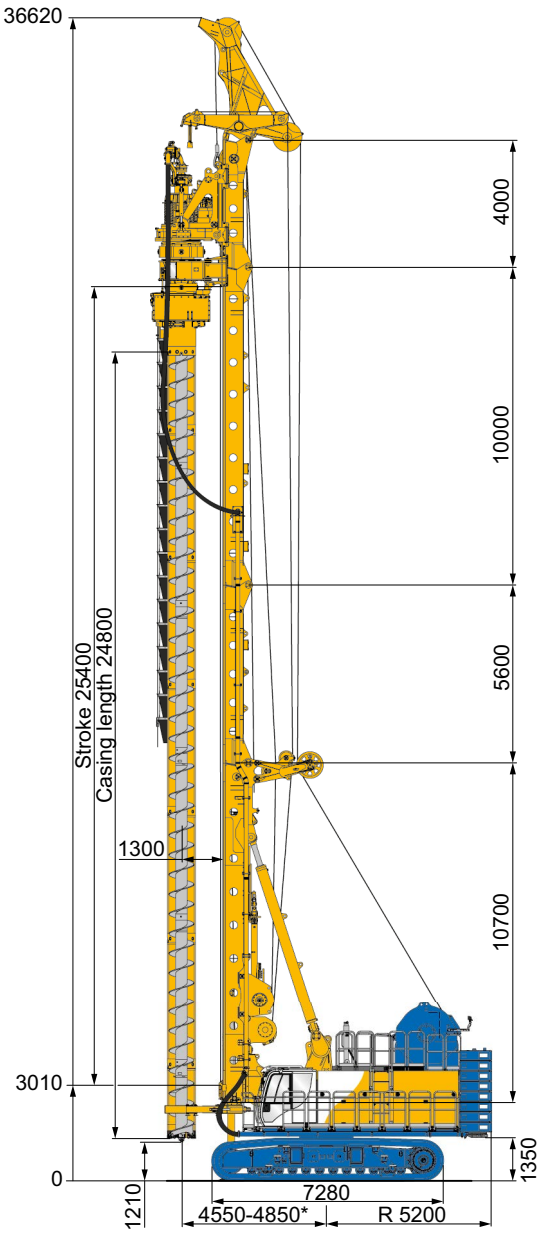
* Reduction of torque to 420 kNm for Kelly type BK 420
** Only possible with drill axis 1,300 mm

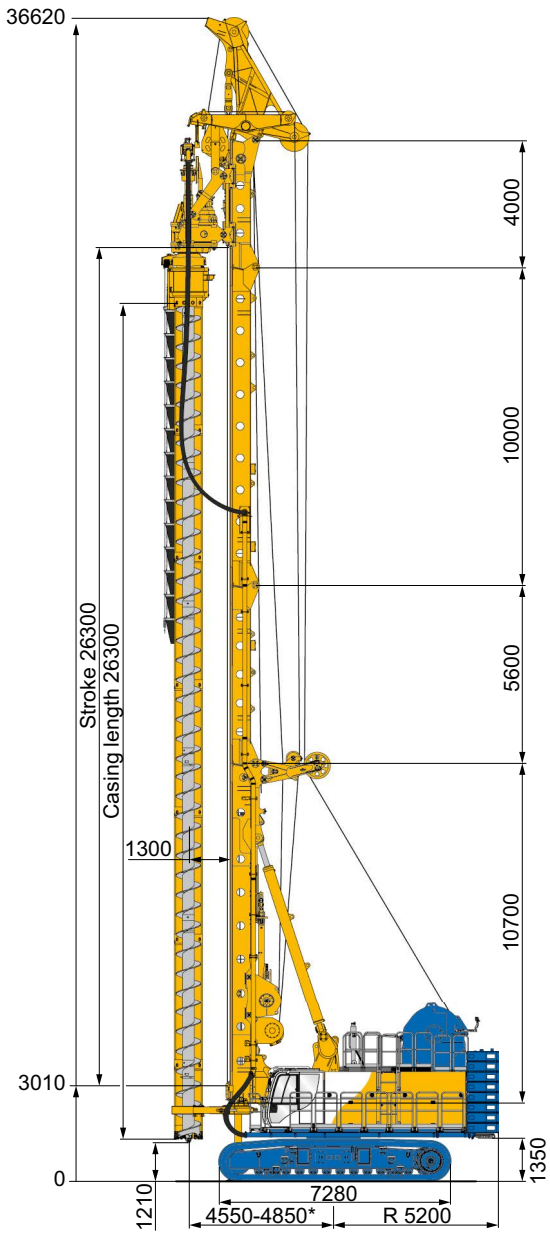
Application – CFA Drilling



	Basic version	Upgraded version
Mast extension	2.5 m	5.6 m
Kelly extension	without	10.5 m
Max. drilling diameter	1,200 mm	1,200 mm
Max. drilling depth with auger cleaner	22.0 m	35.3 m
Max. extraction force with main- and crowd winch (effective)	1,060 kN	1,060 kN
with counterweight	30.0 t	40.0 t

Application – CCFA Drilling



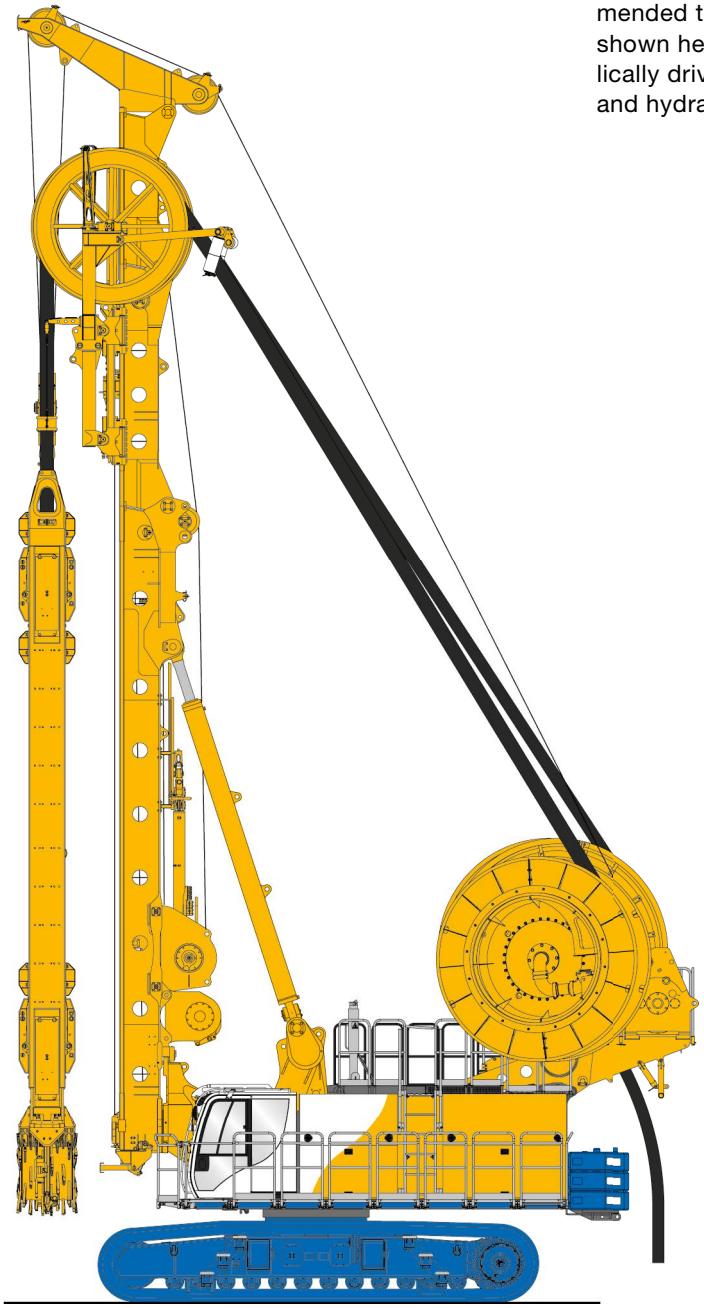


Upgraded version with BTM 400			Upgraded version with DKS 150 / 300	
Mast extension	5.6 m	without	5.6 m	2.5 m
Max. drilling diameter	880 mm	1,180 mm	1,000 mm	1,180 mm
Max. drilling depth	24.1 m	18.5 m	24.9 m	21.8 m
Max. extraction force with main- and crowd winch (effective)	1,060 kN		1,060 kN	
with counterweight	40.0 t		40.0 t	
Max. torque auger (right-hand rotation)	200 kNm		150 kNm	
Max. torque casing (left-hand rotation)	400 kNm		300 kNm	

Further Applications

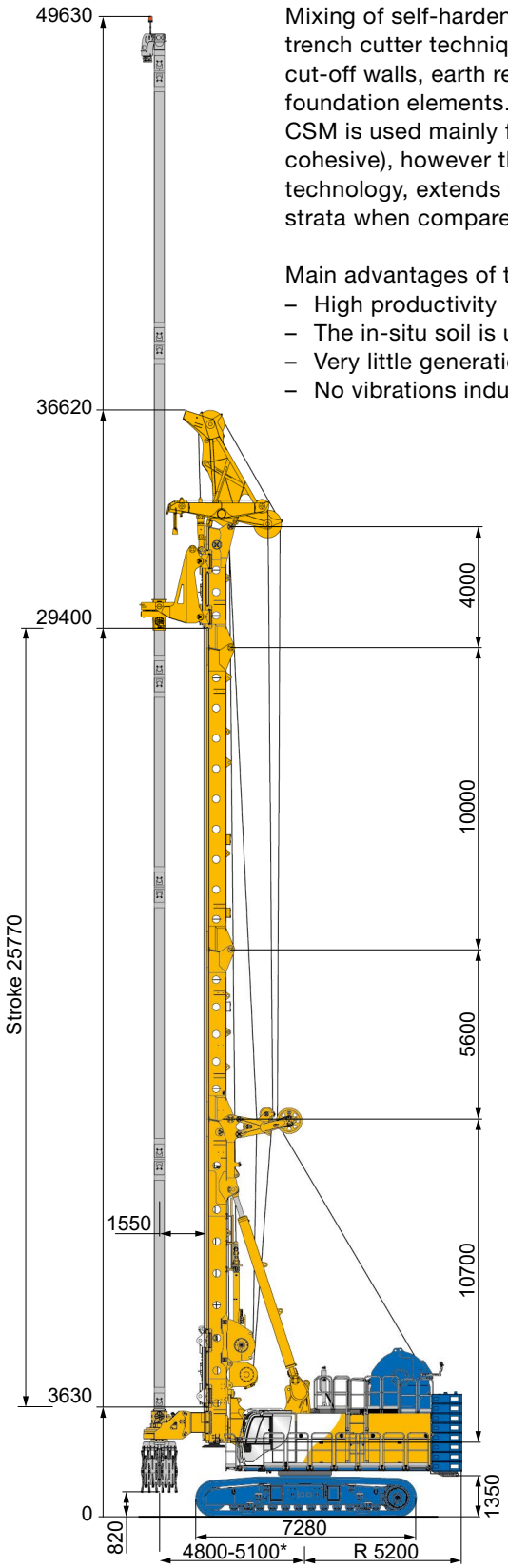
BC – Trench Cutter System

For cutting depths > 48 m it is recommended to use the HDS-System as shown here. It consists of two hydraulically driven hose drums for mud hose and hydraulic hoses.



Type of trench cutter	BC 35 / BC 40 / BC 48
Max. cutting width	1,500 mm
Max. cutting depth	100 m
Hose drum system	HDS 100

CSM – Cutter Soil Mixing



Mixing of self-hardening slurries with native soils by using a modified trench cutter technique is a new and effective method for constructing cut-off walls, earth retaining walls, soil improvement or for constructing foundation elements.
CSM is used mainly for stabilizing soft or loose soils (non-cohesive and cohesive), however the machinery used, derived from Bauer's cutter technology, extends the applicability of the method to much harder strata when compared to other methods of soil mixing.

Main advantages of the method are:
- High productivity
- The in-situ soil is used as a construction material
- Very little generation of spoil (important factor in contaminated areas)
- No vibrations induced during construction

Drawing contains optional turning device (- 95° to + 45°)

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	43 m	

Transport – Dimensions and Weights

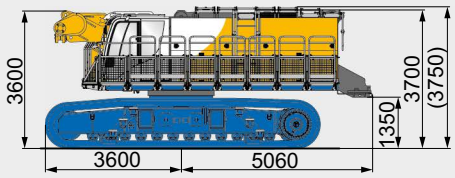
G = Weight
B = Width, overall

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

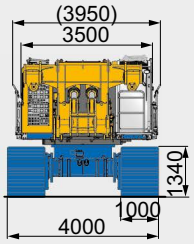
Transport

Base carrier with crawler side frames

G = 77.9 t (with walking platform and guardrails)

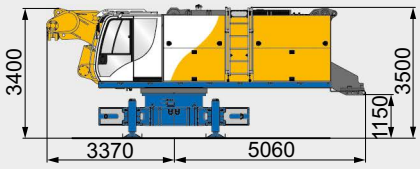


G = 77.0 t B = 4,000 mm

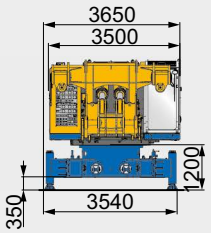


Base carrier without crawler side frames incl. Jack-Up System

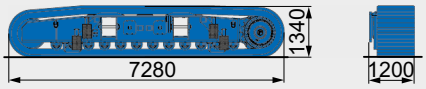
G = 46.7 t (with walking platform and guardrails)



G = 45.8 t B = 3,650 mm

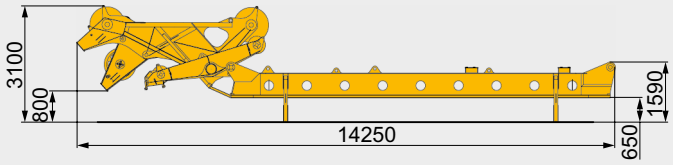


G = 2 x 16.4 t B = 1,200 mm

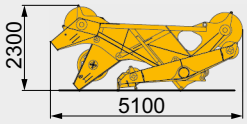


Upper mast section with mast head

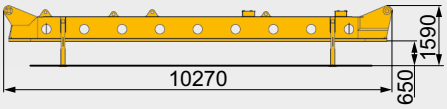
G = 8.8 t B = 2,200 mm



G = 3.3 t B = 1,900 mm

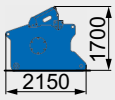


G = 5.5 t B = 1,630 mm



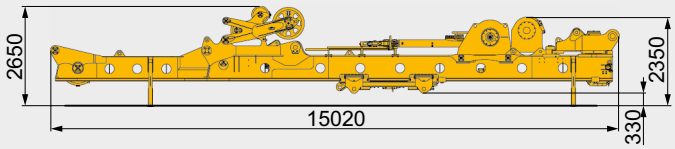
Main winch 420 kN

G = 7.2 t (with 140 m rope)
B = 2,500 mm

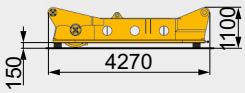


Lower mast section with Vario-mast section

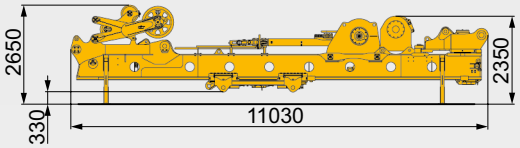
G = 26.9 t B = 2,650 mm



G = 3.4 t B = 1,170 mm

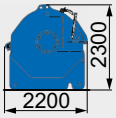


G = 23.5 t B = 2,650 mm



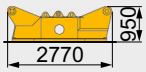
Main winch 500 kN

G = 10.7 t (with 140 m rope)
B = 2,600 mm



Mast extension 2.5 m

G = 2.2 t B = 1,060 mm

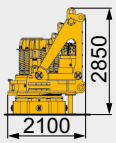


Mast extension 5.6 m

G = 3.5 t B = 1,170 mm

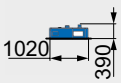
Rotary drive

G = 11.0 t B = 1,900 mm



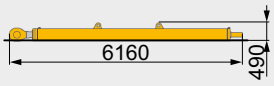
Counterweight

G = 6 bis 8* x 5.0 t
B = 3,450 mm



Backstay cylinders

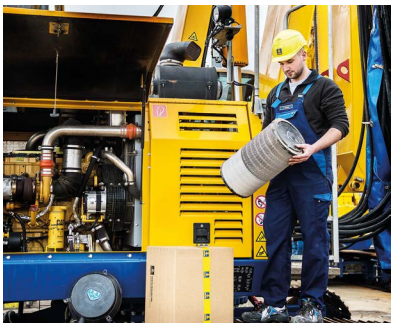
G = 2 x 2.0 t
B = 400 mm



* depending on application

BAUER Service

Global Network



Service

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