BAUER BG 36

Rotary Drilling Rig

Base Carrier BS 95

PremiumLine

Energy-Efficient Power EEP

BAUER

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.

- **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 on construction sites with underpasses or underneath low bridges

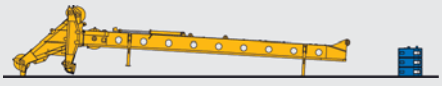
BG 15 H
BT 40

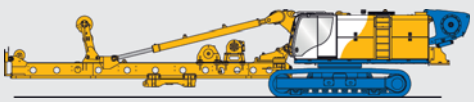
BG 18 H
BT 50

BG 20 H
BT 60

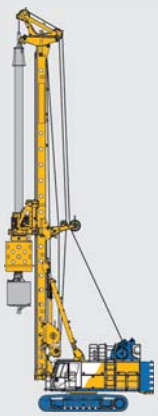
The V-model line

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

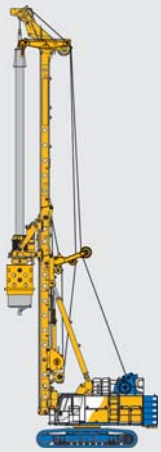




BG 28
BS 80



BG 36
BS 95



BG 45
BS 95

The Rotary Drilling Rig BG 36 PremiumLine (BS 95)

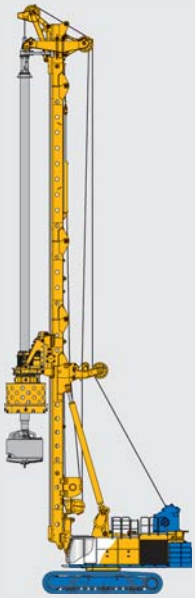
Max. drilling diameter:	**2,500 mm**
Max. drilling depth:	**100.0 m**
Max. torque:	**365 kNm**
Max. height:	**30.0 m**
Engine:	**CAT C 15 – Stage III A/Tier 3 – Stage IV/Tier 4 final 433kW @ 1,850 rpm**

BG 24 H
BT 75 / BT 85

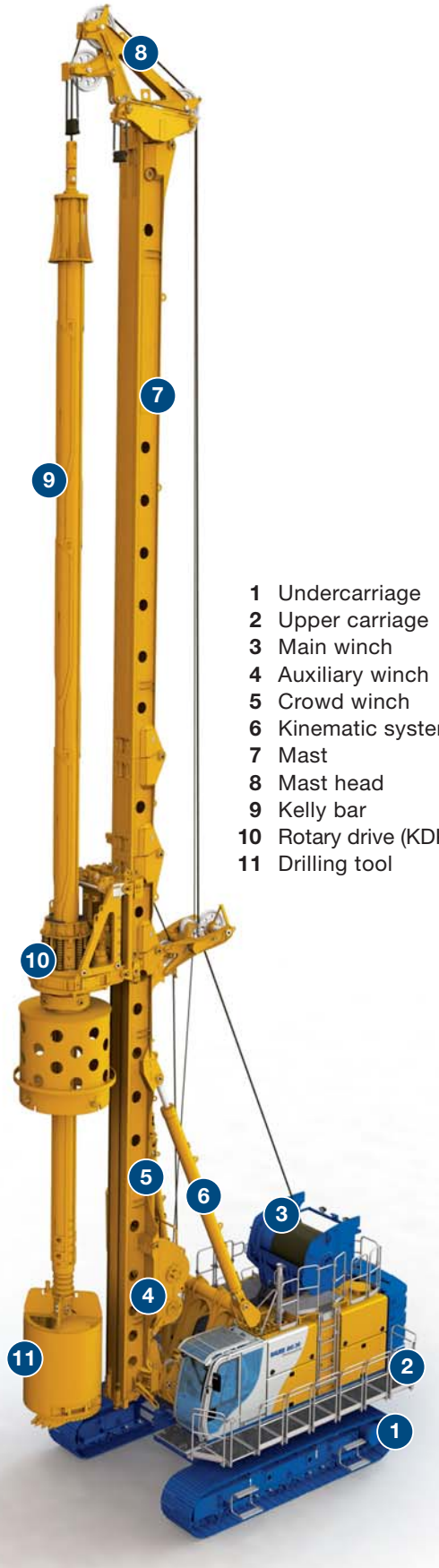
BG 28 H
BT 85

BG 36 H
BS 95

BG 55
BS 115



BG 72
BT 180



1 Undercarriage
2 Upper carriage
3 Main winch
4 Auxiliary winch
5 Crowd winch
6 Kinematic system
7 Mast
8 Mast head
9 Kelly bar
10 Rotary drive (KDK)
11 Drilling tool

Spotlights

Modern, ergonomic operator cab
- FOPS compliant with additional protective roof guard
- Premium operator seat, air-sprung and heatable
- Joystick controls with high functionality
- B-Drive for multi-functional potentiometer input

Flexible mast concept
- Vario-masthead
  - Masthead for drill axis 1,100 expandable to 1,400 mm
  - Increased stroke for Kelly bars when using an upper kelly guide
  - Tiltable main jib for for single-pass processes and for optimized transport
- Vario-crowd system
  - Transport possible with built-in crowd ropes (Kelly operation)
  - Reduced Headroom version, possible with integrated Vario-mast section
- Mast extensions 2 m Vario or 2 m Vario + 2 m

Powerful engine CAT C 15
- Conforming Exhaust Emission standard Stage III A / Tier 3 or Stage IV / Tier 4 final
- Diesel particulate filter in Exhaust Emission standard Stage IV / Tier 4 final
- Low noise emission
- Worldwide CAT-service partners

Energy-Efficient PowerEEP

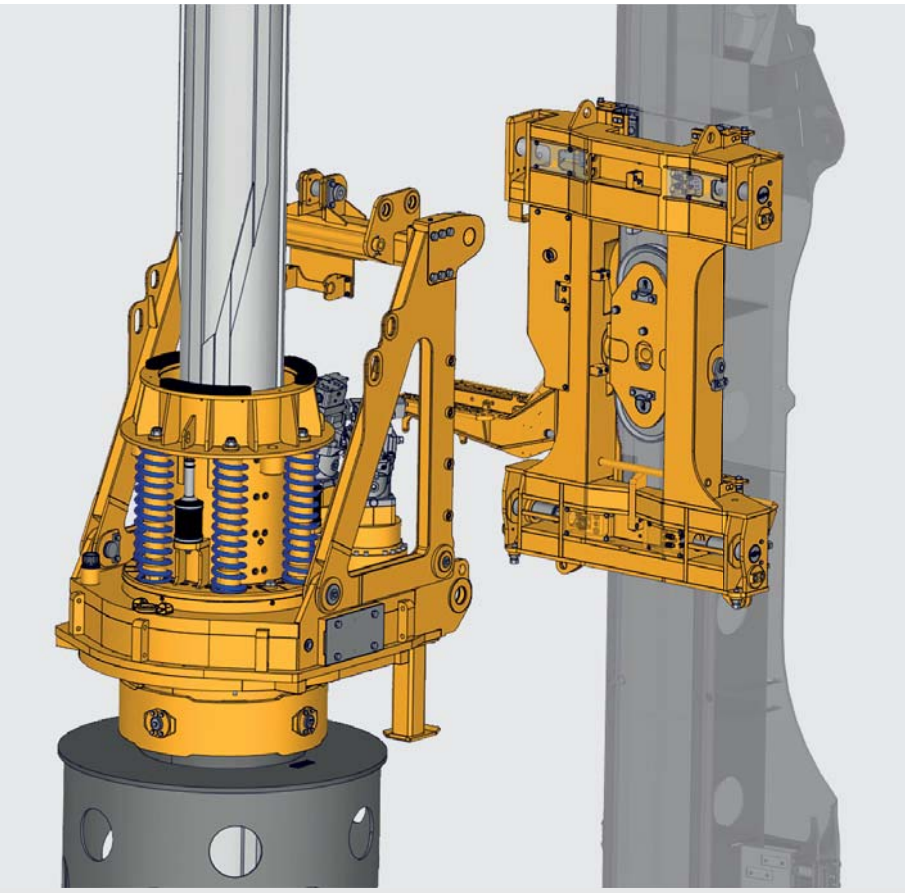
- **Reduction of fuel consumption by up to 30 %**
- **Increased productivity through improved efficiency**
- **Significantly reduced noise levels**
- **Tried and proven suitability for practical application**
- **Optimized parallel operation of main and auxiliary consumers**

Main winch on uppercarriage
- Single layer winch for minimized rope wear
- Constant line pull
- Designed for heavy continuous operation
- Service-friendly winch position
- Swing down mechanism for transport

Safety equipment
- Walking platform with handrail (foldable for transport)
- Upward folding service doors
- Guardrails on upper level (foldable for transport)
- Rear view cameras
- Low individual weight

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

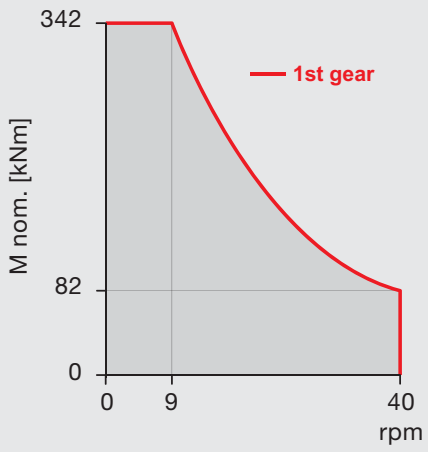
Rotary Drive



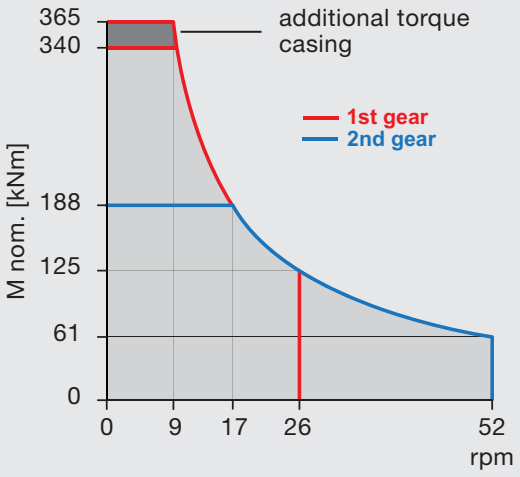
Rotary drive
Optional KDK 340 K (single gear drive)
or KDK 365 S (multi gear drive)

Hydraulically operated pin connection on the crowd sledge
- Pin connection controlled via the remote control
- Simple and secure attachment of the rotary drive, no working at heights unsecured

KDK 340 K



KDK 365 S



Multi-functional Equipment

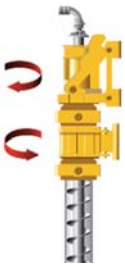
Kelly Drilling

Cased Kelly Drilling
(installation with BTM)

Cased Kelly Drilling
(installation with oscillator)

CFA

FDP
Standard or Lost Bit



CCFA
Cased CFA with KDK + BTM

BC
Trench Cutter

FoW

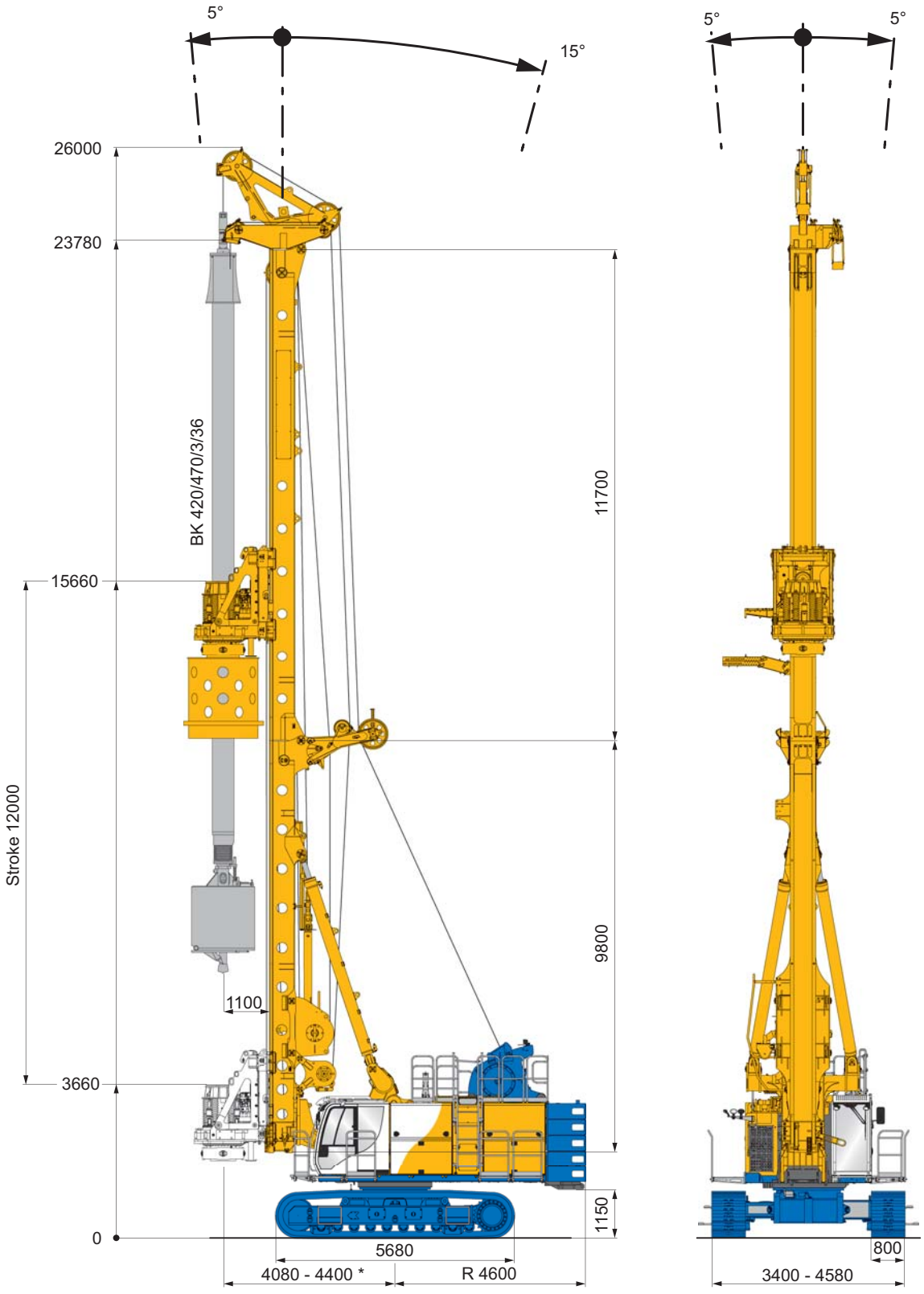
TR
Deep Vibrator

CSM
Cutter-Soil-Mixing

SCM/SCM-DH
Single Column Mixing

Jet Grouting

Dimensions – Basic Version



Operating weight 114 t
(as shown)

** depending on equipment*

Technical Specifications

Rotary drive (selectable)	**KDK 340 K**	**KDK 365 S**
Torque (nominal) for casing operation at 350 bar	342 kNm	365 kNm
Torque (nominal) for drilling at 350 bar	342 kNm	340 kNm
Max. speed of rotation	40 rpm	52 rpm
Crowd winch system		
Max. sledge stroke with 2 m Vario + 2 m mast extension	22,800 mm	
Crowed force push and pull, effective / nominal	400 / 513 kN	
Rope diameter	28 mm	
Speed (down / up)	12 m/min	
Fast speed (down / up)	30 m/min	
Main winch (selectable)	**multi-layer**	**single-layer**
Winch classification	M6 / L3 / T5	M6 / L3 / T5
Line pull (1st layer) effective / nominal	287 / 363 kN	320 / 376 kN
Rope diameter	32 mm	36 mm
Line speed (max.)	75 m/min	62 m/min
Auxiliary winch (selectable)		
Winch classification	M6 / L3 / T5	
Line pull (1st layer) effective / nominal	80 / 100 kN	100 / 125 kN
Rope diameter	20 mm	
Line speed (max.)	55 m/min	
Base carrier (EEP)	**BS 95**	
Engine	CAT C 15	
Rated output ISO 3046-1 (with/without power package)	403 / 433 kW 1,850 rpm	
Exhaust emission EEC 97/68 EC	Stage III A	Stage IV
standard acc. to EPA/CARB	Tier 3	Tier 4 final
Diesel tank capacity / AdBlue Tank	1,000 / – l	840 / 35 l
Sound pressure level in the cabin (EN 16228, Annex B)	LPA 80 dB (A)	
Sound power level (2000/14/EG u. EN 16228, Annex B)	LW_A 112 dB (A)	
Hydraulic pressure	350 bar	
Hydraulic oil tank capacity	1,000 l	
Flow rates	2 x 425 + 1 x 565 + 1 x 215 l/min	

Undercarriage (selectable)	**UW 110 standard**	**UW 110 upgrade**	**UW 110 transport optimized version**
Crawler type	B 7	B 7	B 7
Traction force effective / nominal	771 / 907 kN	771 / 907 kN	771 / 907 kN
Overall length of crawlers	5,680 mm	6,090 mm	6,090 mm
Track shoes	800 / 900 mm	900 mm	900 mm

Technical Equipment

Base carrier BS 95

Standard

- Removable counterweights
- Protective roof guard
- Radio with MP3, USB and Bluetooth hands-free kit
- Platforms with handrail (on both sides and at the cabin)
- Grating in front of cab
- Guadrails upper level, foldable for transport
- Electric refueling pump
- Energy-Efficient Power (EEP)
- Air conditioning system
- Premium operator seat
- Cameras for rear area and main winch surveillance
- Remote control Basic, **Fig. A**
- Central lubrication system
- Removable crawlers

Optional

- Counterweight, variably adjustabler
- Walking platform with handrail (continuous on both sides at cabin level, foldable for transport
- Tool storage in front of operator cab
- High-pressure cleaner with water tank
- Compressor 1,000 l/min
- Electric generator 13 kVA
- Bio-degradable hydraulic oil
- Cab space heater
- Arctic kit / Arctic kit plus
- LED spotlights
- Additional camera (at customized location)
- Front screen guard
- Sun blind small or large
- Climatronic
- Remote control Multi
- UW 110 transport optimized version, **Fig. B**

Drilling rig attachment

Standard

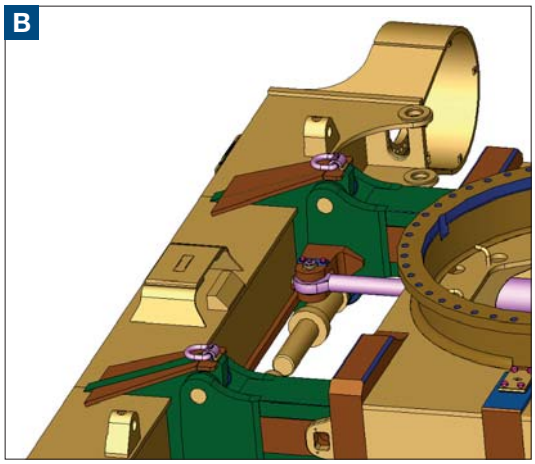
- Sturdy V-type mast kinematic system
- Main winch with hydraulic free-fall control
- Swivel for main rope
- Hydraulic locking for support trestle
- Vario-Masthead
- Pivoted anchor point for main and auxiliary rope

Optional

- Upper Kelly guide
- Extension of drill axis to 1,400 mm
- Mast support unit
- Vario-crowd system with 2 m Vario-mast section
  - Transport possible with built-in crowd ropes (Kelly operation)
  - Reduced Headroom version, possible with integrated Vario-mast section, **Fig. C**
- Mast extension 2 m
- Lattice mast extension
- Swivel for auxiliary rope
- Attachment of casing oscillator up to BV 2000, **Fig. D**
  - Powered by on-board hydraulics of the base carrier
  - Controlled from operator‘s cab
  - Weight of drilling rig can be activated through mechanical fixing
- Attachment of automatic casing drive adapter
- Concrete line attachment
- Air line attachment
- Hydraulic bolt connection on rotary sledge for easy mounting and demounting of rotary drive

A

B



Rotary drive

Standard

- Rotary drive KDK 340 K (single-gear drive)
- Selectable modes of operation
- Kelly drive adapter for outer Kelly tube 470 mm
- Integrated Kelly damping system
- Exchangeable Kelly drive keys
- Cardanic joint
- Quick-release hydraulic couplers
- Transport supports
- Lifting gear

Optional

- Rotary drive KDK 365 S (multi-gear drive)
- Kelly drive adapter for outer Kelly tube 419 mm
- Torque multiplier BTM 720 K Kelly drilling
  - Torque 470 kNm (nominal)
  - Increase of torque for casing installation in the lower mast section
  - Easy attachment
  - Separate sledge
  - Connection to rotary drive with cardanic joint
- Torque multiplier BTM 400 for CCFA, **Fig. E**

Measuring and control system

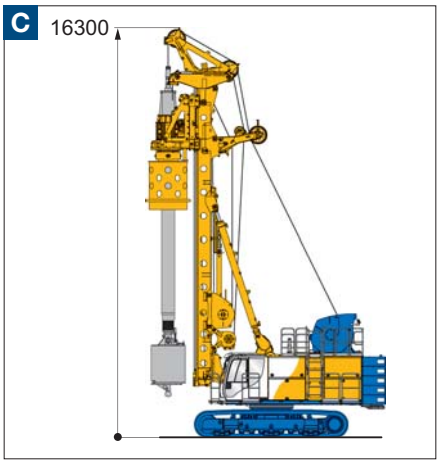
Standard

- 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

Optional

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

C



D

E

Communication Technology

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

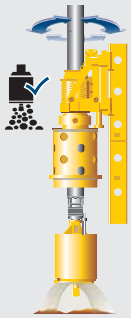
Tablet
The tablet is the multi-functional tool for the Bauer machine
- Online access to the customer portal, handbooks, equipment management systems and much more
- Standard internet connection via the DTR module, which is located in the machine
- The operator‘s screen can be mirrored live on the tablet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

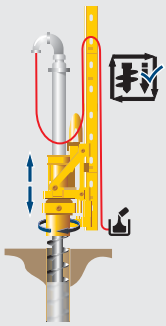
WEB-BGM
- WEB-BGM is a software used to retrieve equipment data and establish the locations of various machines, even if you are not on-site

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

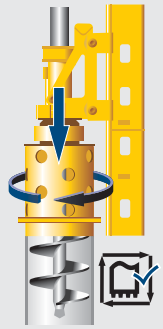
Assistance Systems (selection)



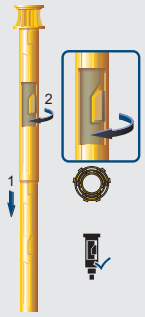
One-directional and bi-directional spoil discharge assistant
Automatic emptying of spoil via an alternating or shocking slewing rotation of the rotary drive. Infinitely variable adjustment of the shaking or shocking frequency via joystick.



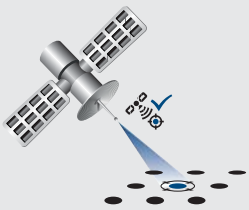
Automatic drilling and extraction control for Single-Pass processes
The system controls the drilling and/or extraction speed of the crowd system and enables hands-free operation. This ensures the production of a high-quality pile while simultaneously minimizing the amount of concrete.



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.



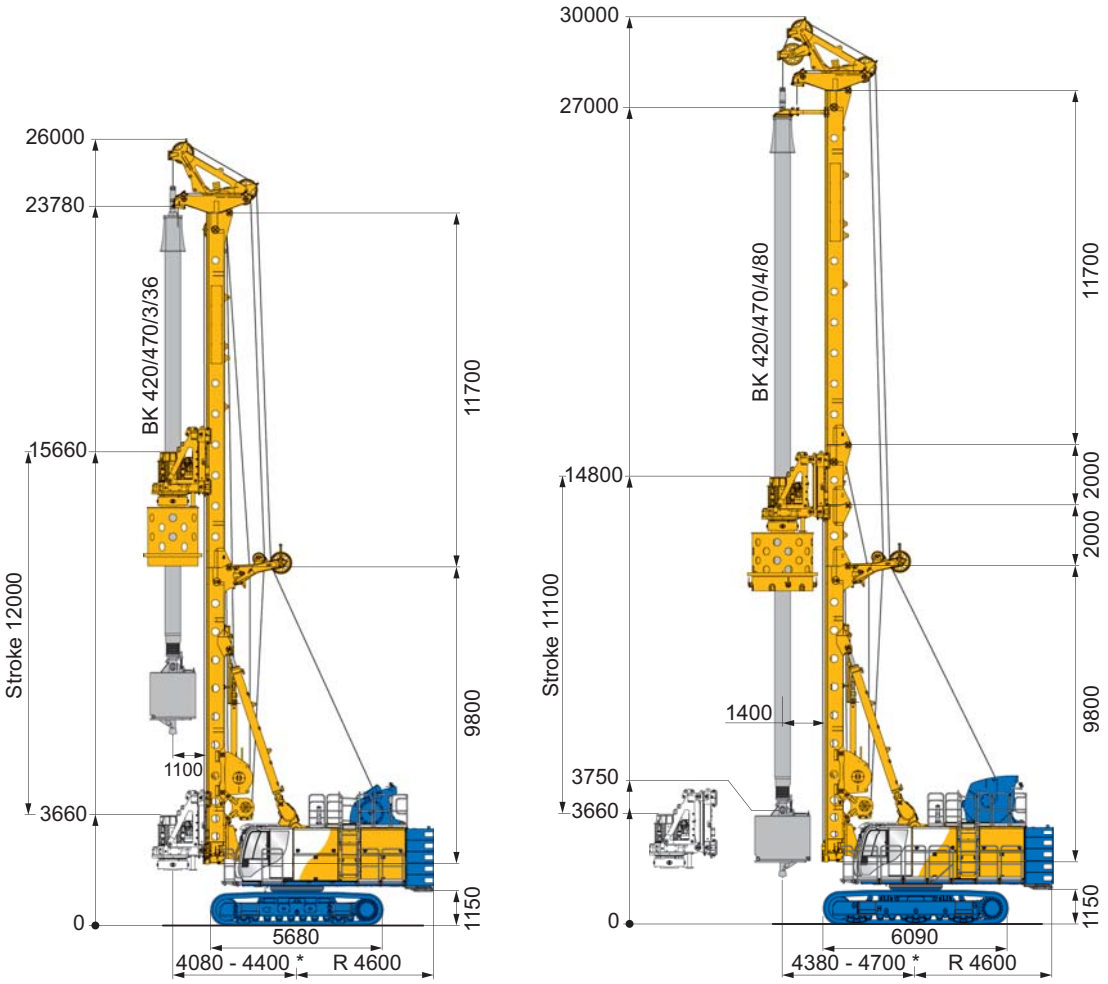
Kelly visualization
Display of the locking recesses, as well as representation of the controlled extension and retraction of the Kelly bar on the B-Tronic system. The rapid approach of the locking position results in a considerably enhanced drilling performance. In addition, the level of wear that the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

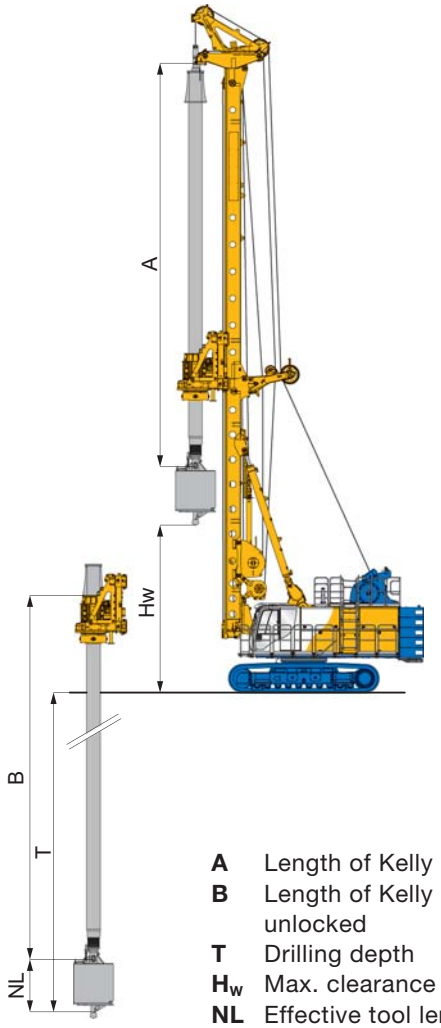
Numerous other assistance systems are available in our portfolio

Application – Kelly Drilling



	Basic version	Upgraded version
Undercarriage	UW 110 standard	UW 110 upgrade
Mast extension	without	2 m + 2 m Vario
Upper Kelly guide	without	with
Drill axis	1,100 mm	1,400 mm
Max. drilling diameter		
uncased	Ø 1,800 mm	2,500 mm
cased	Ø 1,500 mm	2,200 mm
Operating weight, approx.	114 t	148 t
with Kelly	BK 420 / 470 / 3 / 36	BK 420 / 470 / 4 / 80
with casing drive adapter	Ø 1,500	Ø 2,000
with bucket	Ø 1,350	Ø 1,850
with counterweight *	14.9 t	24.5 t

** depending on equipment*



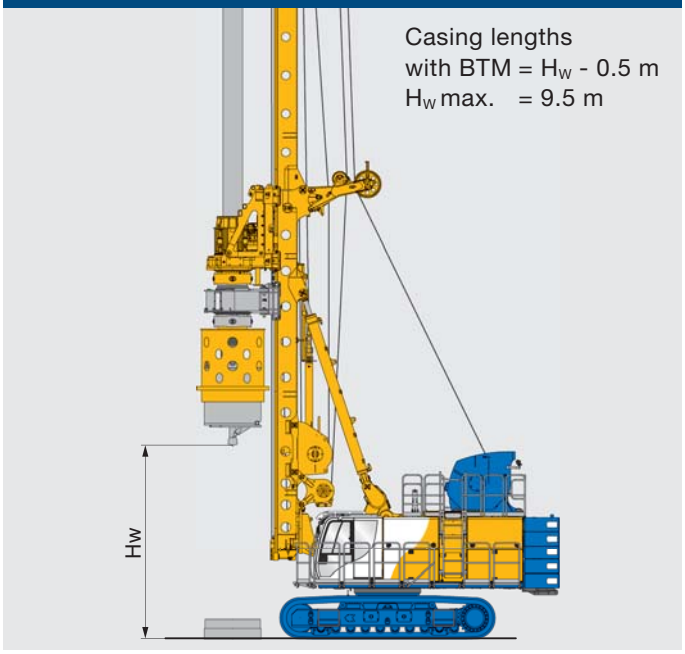
Drilling depth – uncased Kelly drilling

				Basic version		Upgraded version	
3-part Kelly	A (m)	B (m)	G (kg)	H_w (m)	T (m)	H_w (m)	T (m)
BK420/470/3/30	13.2	32.2	8,150	8.3	30.4	10.7	30.4
BK420/470/3/36	15.2	38.2	9,300	6.3	36.4	9.5	36.4
BK420/470/3/42	17.2	44.2	10,350	4.3	42.4	7.5	42.4
BK420/470/3/48	19.2	50.2	11,450	2.3	48.4	5.5	48.4
BK420/470/3/52	20.6	54.3	12,290	-	-	4.2	52.4
BK420/470/3/60	23.2	62.2	13,970	-	-	1.5	60.4
4-part Kelly							
BK420/470/4/48	15.2	49.8	12,600	6.3	48.0	9.5	48.0
BK420/470/4/56	17.2	57.8	14,100	4.3	56.0	7.5	56.0
BK420/470/4/64	19.2	65.8	15,700	2.3	64.0	5.5	64.0
BK420/470/4/72	21.2	73.8	17,250	-	-	3.5	72.0
BK420/470/4/76	22.2	77.8	18,340	-	-	2.5	76.0
BK420/470/4/80	23.2	81.8	19,170	-	-	1.5	80.0
5-part Kelly							
BK210/470/5/85	20.0	87.6	16,300	1.5	85.8	4.8	85.8
BK210/470/5/90	21.0	92.6	16,900	-	-	3.8	90.8
BK210/470/5/100	23.0	102.6	17,900	-	-	1.8	100.8

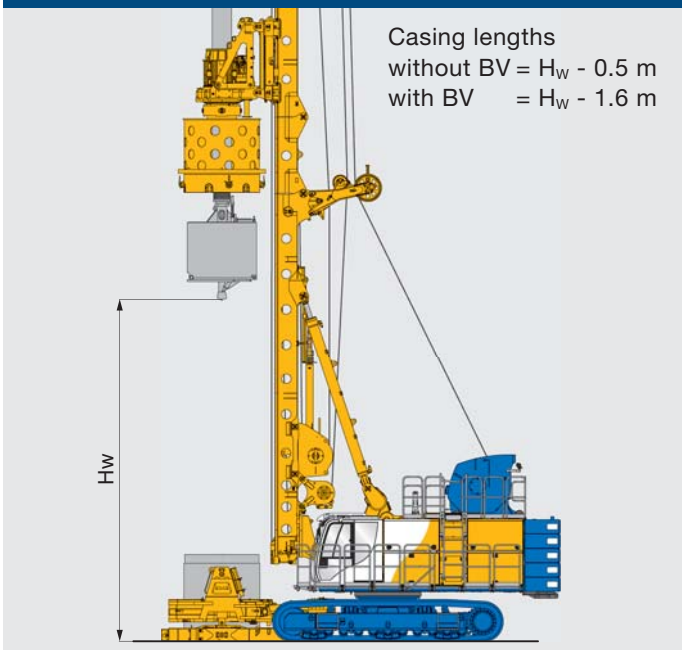
A Length of Kelly bar (retracted)
B Length of Kelly bar (extended, unlocked)
T Drilling depth
H_w Max. clearance to drilling tool
NL Effective tool length
G Weight of Kelly bar

Drilling data have been determined with an effective tool length of NL = 1.9 m and with the mast at a minimum operating radius. These data only apply for the use of Bauer tools. Drilling depth is increased by 0.32 m when using maximum horizontal mast reach.

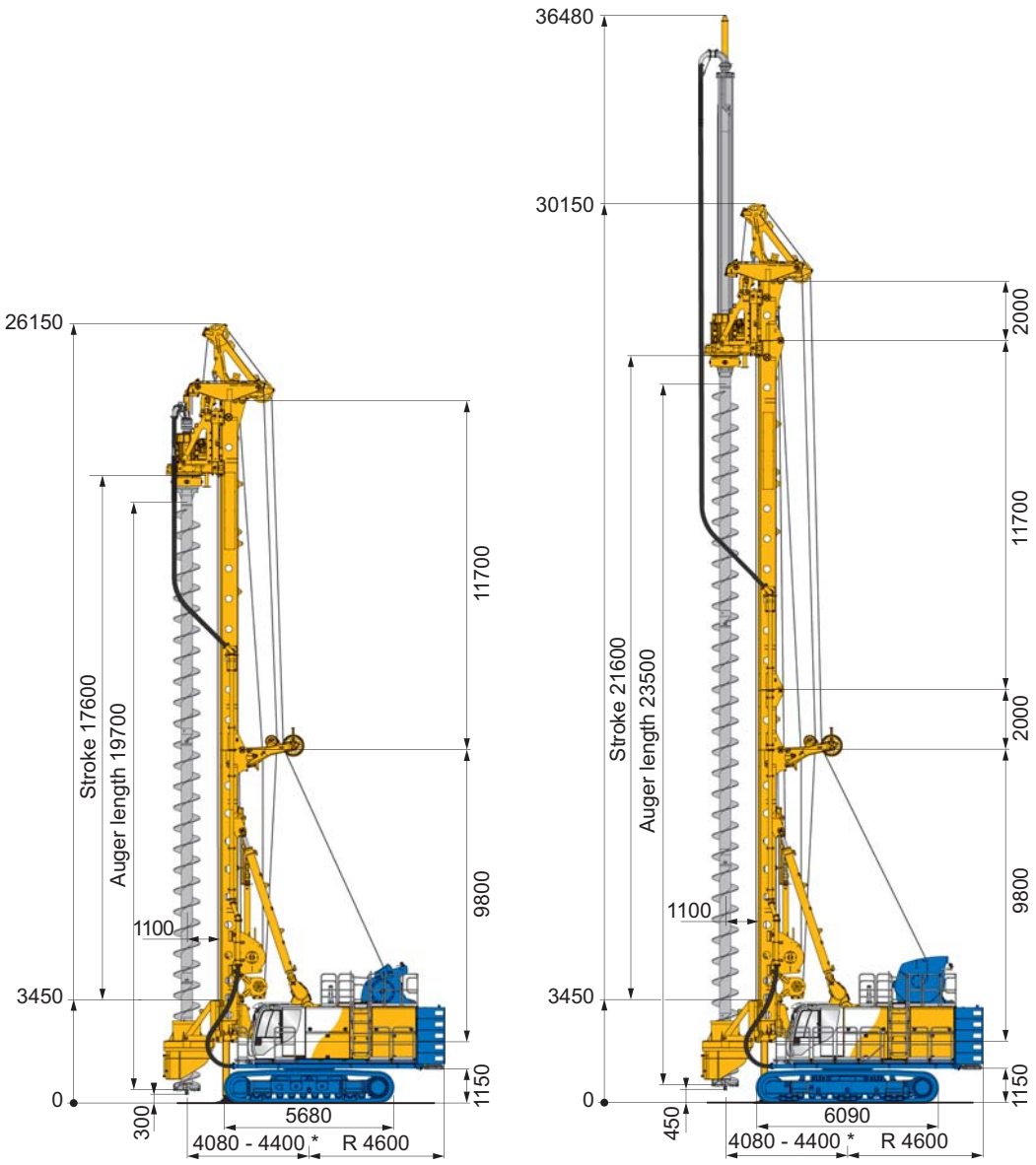
Torque multiplier BTM 720 for a torque of 470 kNm for casing



Kelly drilling with casing oscillator up to BV 2000



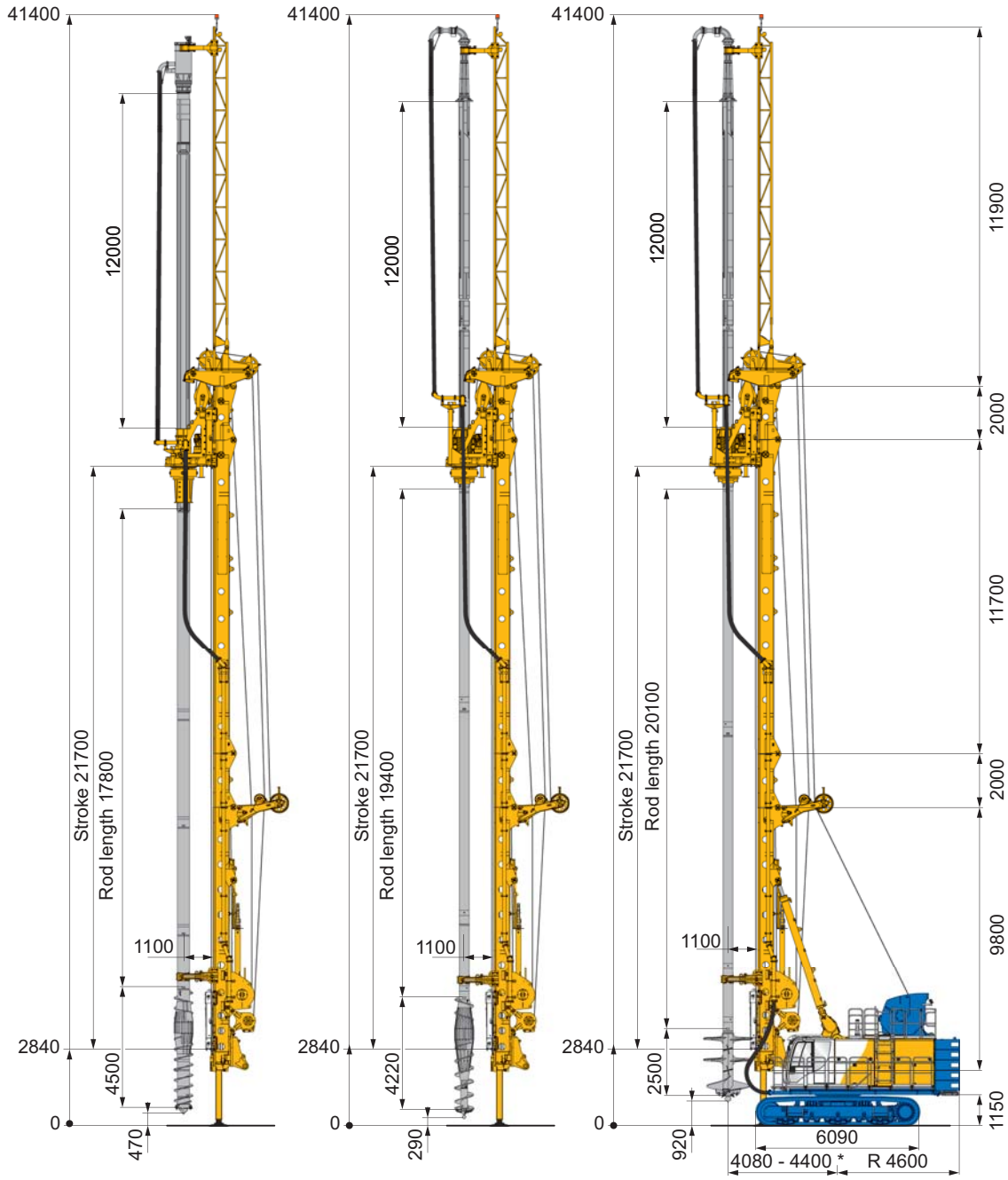
Application – CFA Drilling



	Basic version	Upgraded version
Undercarriage	UW 110 standard	UW 110 upgrade
Mast extension	without	2 m + 2 m Vario
Kelly extension	without	8 m
Max. drilling diameter	Ø 1,200 mm	Ø 1,200 mm
Max. drilling depth with auger cleaner	17.0 m	29.0 m
Max. extraction forth with main- and crowd winch (effective)	950 kN	950 kN
With counterweight *	14.9 t	24.5 t

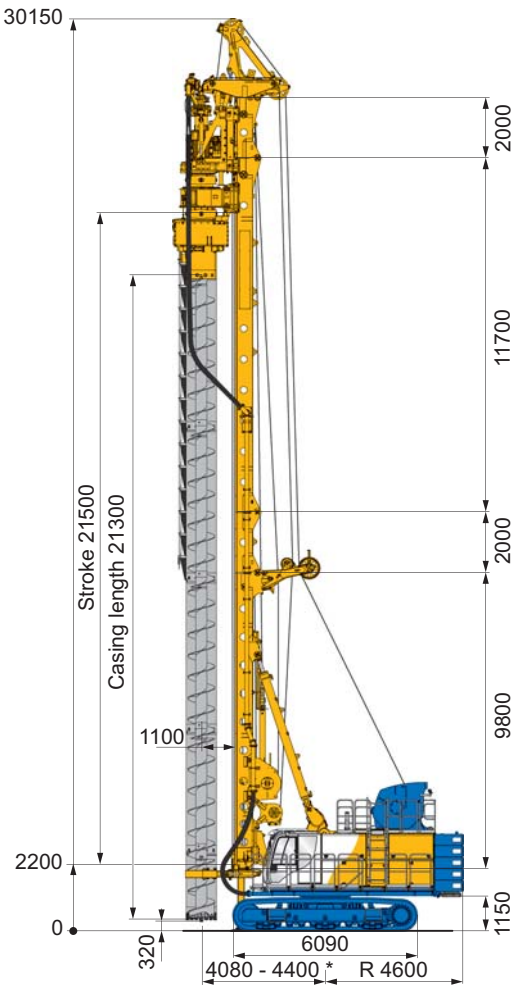
** depending on equipment*

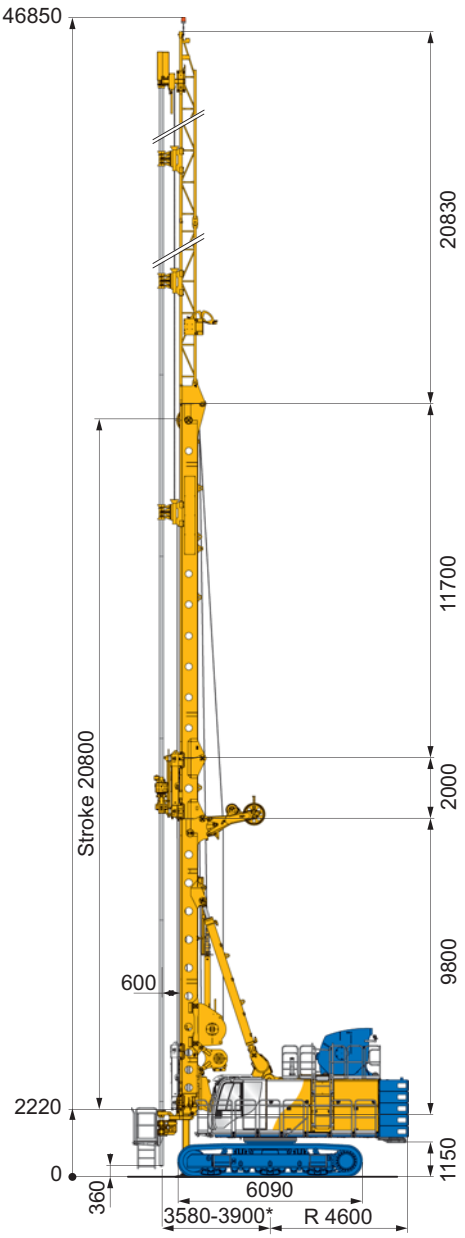
Further Applications



	FDP Lost-bit drilling	FDP drilling	SCM mixing
Mast extension	2 m + 2 m Vario	2 m + 2 m Vario	2 m + 2 m Vario
Kelly extension	13 m	13 m	13 m
Max. drilling diameter FDP	710 mm	710 mm	-
Max. mixing diameter SCM	-	-	1,900 (2,500 **) mm
Max. drilling depth FDP	33.0 m	33.0 m	-
Max. mixing depth SCM	-	-	33.0 m
Max. extraction force with main- and crowd winch (effective)	950 kN	950 kN	950 kN
With counterweight *	24.5 t	24.5 t	24.5 t

* *depending on equipment*
** *operation only with special equipment*

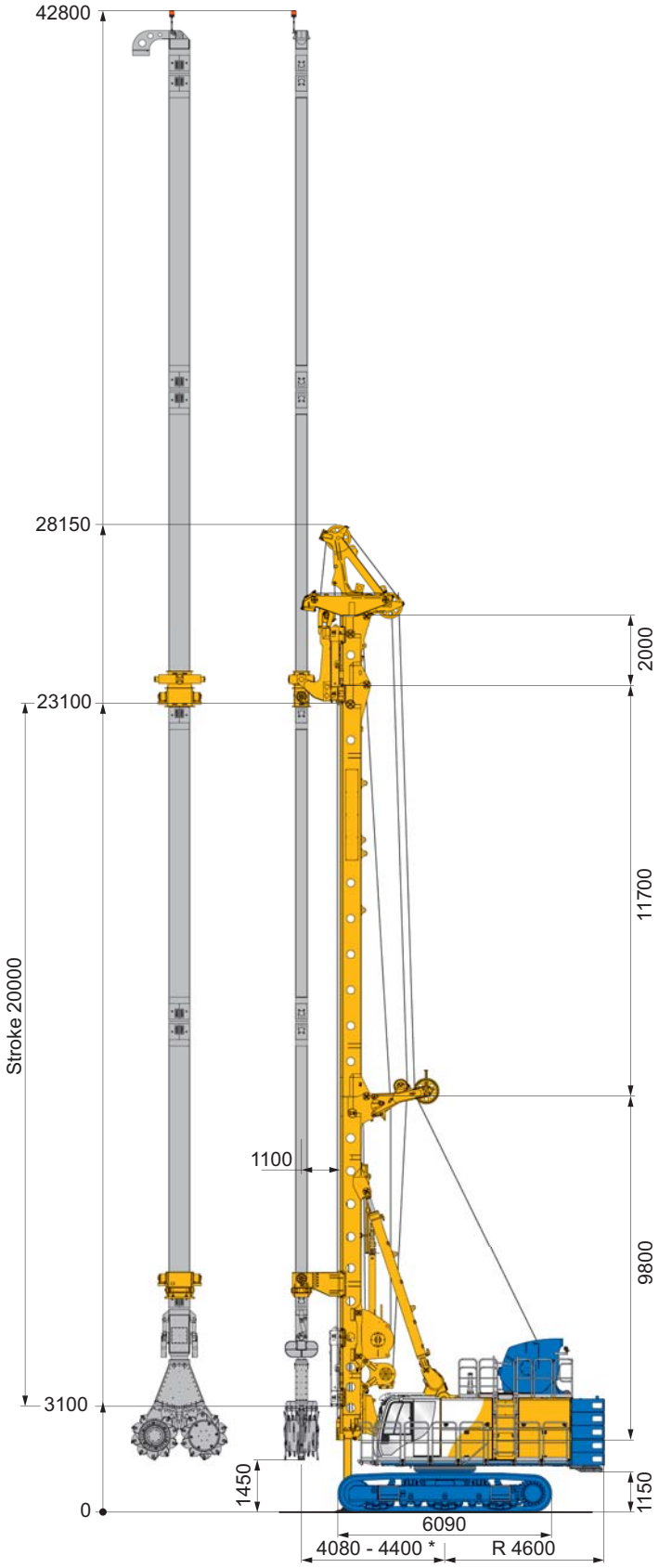




	CCFA drilling with BTM 400		
Mast extension	2 m + 2 m Vario	2 m + 2 m Vario	2 m Vario
Max. drilling diameter	750 mm	880 mm	1,000 mm
Max. drilling depth	21.1 m	21.1 m	19.1 m
Max. extraction force with main- and crowd winch (effective)	950 kN	950 kN	950 kN
Max. torque: Auger (right-hand rotation) Casing (left-hand rotation)	 200 kNm 400 kNm	 200 kNm 400 kNm	 200 kNm 400 kNm
Ejection system	standard	standard	standard
With counterweight *	22.5 t	22.1 t	19.6 t

Jet Grouting	
Lattice mast extension	20.2 m
Rod diameter	89 - 133 mm
Max. jetting depth	35.6 m
Rotary drive	KDK 10 S
Max. extraction force with crowd winch (effective)	130 kN
With counterweight *	24.5 t

** depending on equipment*



CSM Cutter-Soil-Mixing

Mixing of self-hardening slurries in-situ with native soil using modified cutter technology (CSM) is an innovative and cost-effective technique for the construction of cut-off walls, earth retaining walls, ground improvement measures or foundation elements.
CSM is used mainly for stabilizing loose, non-cohesive or soft cohesive soils. The mixing unit is derived from the Bauer trench cutters. The technique can, therefore, also be used in much harder and denser soil formations.

Key advantages of the technique:
- High productivity
- The native soil is used as construction material
- Little spoil removal
- Vibration-free process

Cutter / mixing head	BCM 5	BCM 10
Panel width	1.0 m	1.2 m
Panel length	2.4 m	2.8 m
Max. mixing depth	36.0 m	

For detailed information see brochure „Cutter-Soil-Mixing - Process and Equipment“ 905.656.2

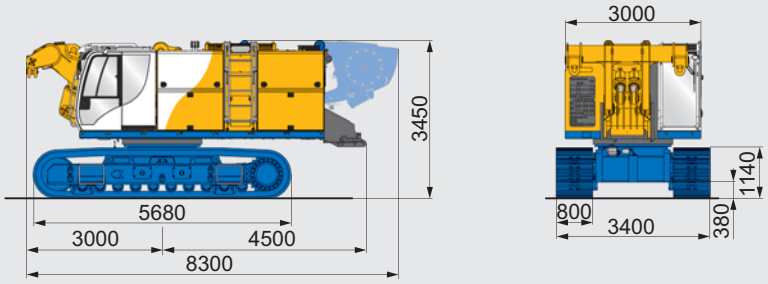
Transport Data – Dimensions and Weights

G = Weight (t)
B = Width (mm)

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

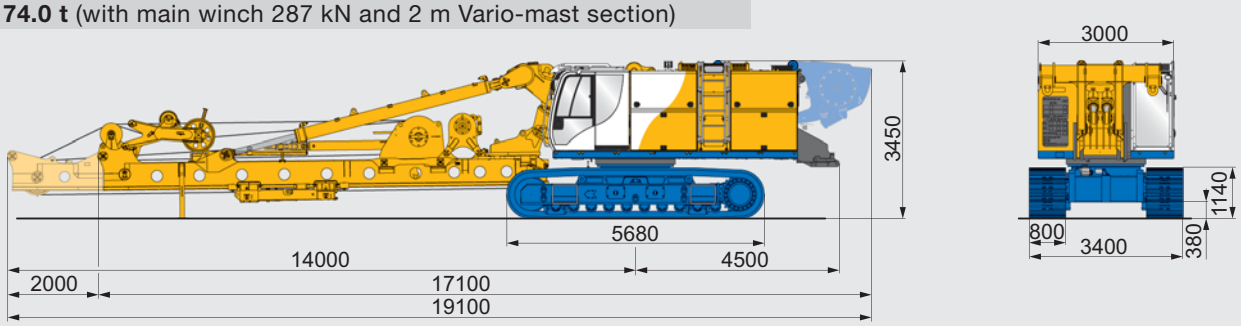
Transport with UW 110 standard version

G = 52.0 t
G = 55.0 t (with main winch 287 kN)



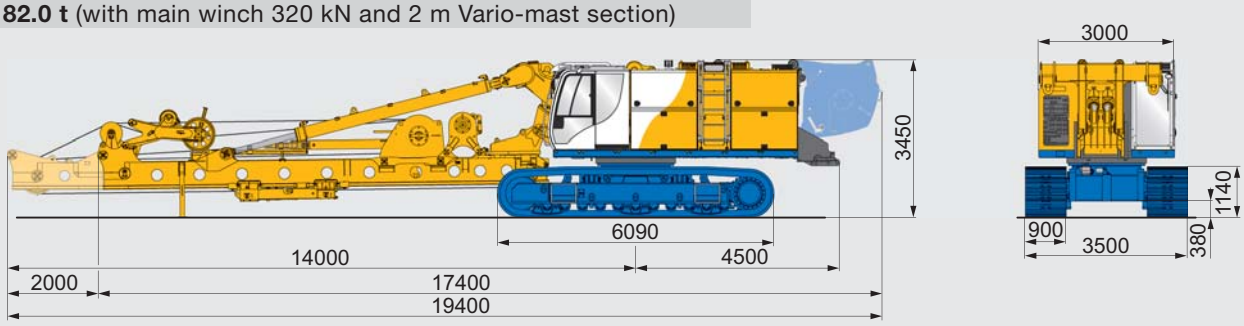
Transport with UW 110 standard version

G = 69.5 t
G = 72.7 t (with main winch 287 kN)
G = 74.0 t (with main winch 287 kN and 2 m Vario-mast section)



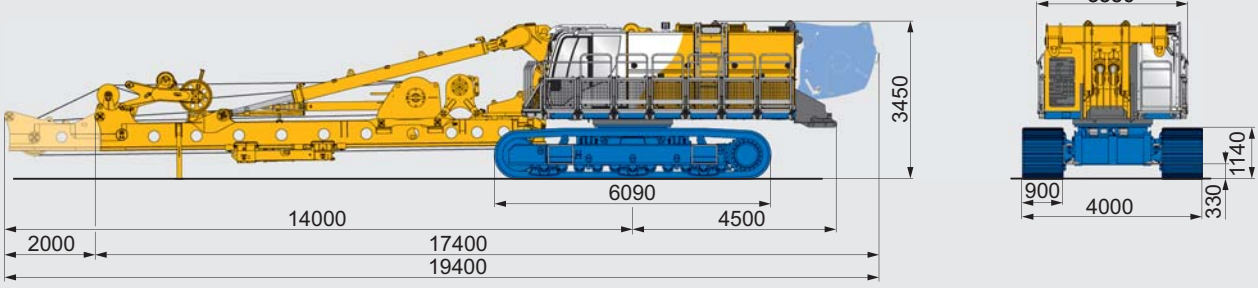
Transport with UW 110 upgrade

G = 75.0 t
G = 82.0 t (with main winch 320 kN and 2 m Vario-mast section)



Transport with UW 110 transport optimized version

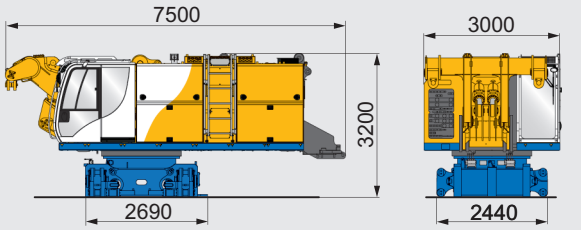
G = 77.0 t
G = 84.0 t (with main winch 320 kN, 2 m Vario-mast section and foldable platform)



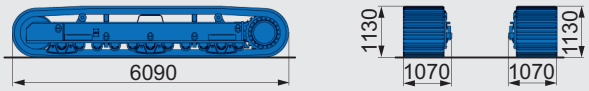
Width of crawlers retracted / extended	UW 110 standard	UW 110 upgrade	UW 110 transport optimized version
Track shoes 800 mm	3,400 - 4,600 mm	-	-
Track shoes 900 mm	3,500 - 4,700 mm	3,500 - 4,700 mm	4,000 - 4,800 mm

Transport with UW 110 transport optimized version and dismantled crawlers

G = 36.8 t

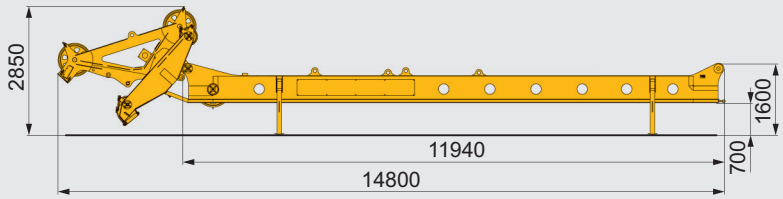


Crawler unit
G = 2 x 9.8 t



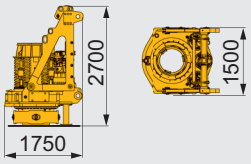
Upper mast section with mast head

G = 5.7 t B = 1,700 mm



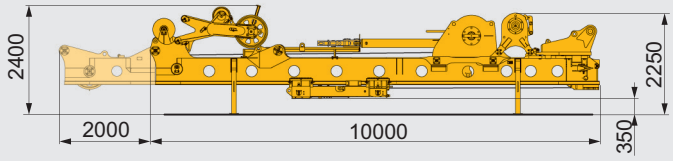
Rotary drive

G = 6.7 t (KDK 340 K)
G = 7.2 t (KDK 365 S)



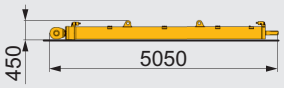
Lower mast section

G = 18.3 t B = 2,100 mm (with 2 m Vario-mast section)



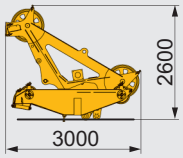
Backstay cylinders

G = 2 x 1.45 t
B = 300 mm



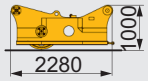
Mast head

G = 1.4 t B = 1,300 mm



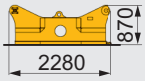
2 m Vario-mast section

G = 1.3 t B = 900 mm



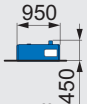
Mast extension 2 m

G = 1.0 t B = 900 mm



Counterweight *

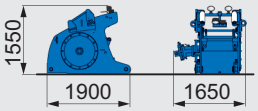
G = 4 x 2.5 t + 1 x 4.9 t
B = 3,000 mm



** depending on application*

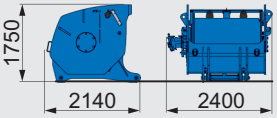
Main winch 287 kN

G = 3.4 t (with 95 m rope)



Main winch 320 kN

G = 7.3 t (with 100 m rope)



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