BAUER eBG 33 H all electric

Rotary Drilling Rig

BAUER

Sustainable, energy efficient and powerful

all electric

The requirements for construction sites are increasing from year to year. The focus here is on consistent reduction of emissions. Particularly in urban environments, strict regulations are already in place regarding exhaust gas figures, reduction of noise pollution and vibrationless operation, which the companies performing construction work have to observe.

Given this background, we developed the eBG 33 H all electric, which is powered entirely by electricity. Adding “all electric” to the name consciously references not only that the diesel drive has been replaced by a powerful electric drive, but also that the main consumers run purely on electricity. This revolutionary technology delivers many additional advantages, apart from the familiar and highly valued characteristics of all Bauer drilling rigs.

- Zero local CO_2 emission
- Very quiet
- Extremely efficient
- Excellent efficiency
- Energy recovery of the main winch when lowering
- The regulated fan system represents a logical enhancement of the EEP system, which has been established for years now, in order to achieve maximum energy efficiency.
- The reduction of noise emissions has a positive effect on the site itself as well as on the loading and unloading process for low bed trucks.
- Operating an eBG 33 H all electric eliminates both nitrogen oxides as well as CO_2 emissions generated on site, which means the site has zero local emissions.

This revolutionary technology for drilling rigs achieves anunbeatable overall efficiency in consumption. Compared to conventional diesel-powered drilling rigs and battery-powered equipment with hydraulic consumers, the efficiency increases significantly.

Electrification and energy efficiency

Diesel hydraulics	1 liter diesel eq. 1 liter diesel	1l 10 kWh	**Diesel engine** 45%	**Hydraulic system** 80%	KDK 3.6 kWh	**Overall efficiency** **36%**
Electrohydraulic (central electric engine, eBG)	5 kWh eq. 1 liter diesel	Netto 5 kWh	**Electric drive** 90%	**Hydraulic system** 80%	KDK 3.6 kWh	**Overall efficiency** **72%**
Direct electric drive on consumer (eBG all electric)	4.3 kWh eq. 1 liter diesel	Netto 4.3 kWh	Batt. 93%	**Electric drive** 90%	KDK 3.6 kWh	**Overall efficiency** **84%**
Battery-powered and hydraulic drive on consumer	5.4 kWh eq. 1 liter diesel	Netto 5.4 kWh	Batt. 93%	**Electric engine** 90%	**Hydraulic drive** 80%	KDK 3.6 kWh → **Overall efficiency** **67%**

Indicative rounded values

The implemented primary energy is utilized to maximum capacity. This is reflected both in the energy consumption as well as in the runtimes of the drilling rig (8 h operating time with average kelly drilling). As a result, the eBG 33 H all electric is one of a kind in terms of energy efficiency and sustainability. To charge the batteries, a conventional on-site power connection (max. 125 A) is sufficient. To fully charge an empty battery, it just takes seven hours.


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eBG 33 H
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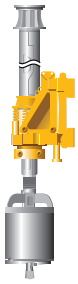
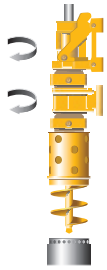
Multi-functional for various construction methods

The Bauer drilling rigs are multi-function equipment for a wide range of construction methods in specialist foundation engineering. Of course this is also true for this highly modern fully electric variant.

Specific highlights of the Bauer drilling rigs are:
- High safety standards
- Environmental sustainability, economic efficiency and performance
- Easy transport and short rigging time
- High quality standard
- Long lifetime and excellent resale value



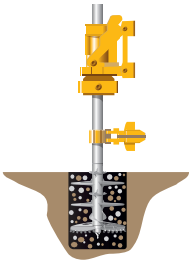
Kelly drilling



Cased Kelly drilling
Casing installation with BTM

Cased Kelly drilling
Casing installation with casing oscillator (additional power pack required)

CFA
Continuous flight auger method



SCM
Single column mixing

FDP
Full displacement Piling (standard or lost bit)

The Rotary Drilling Rig eBG 33 H all electric

Max. drilling diameter:	**2,500 mm**
Max. drilling depth:	**68.6 m**
Max. torque:	**300 kNm**
Max. height:	**26.1 m**
Max. system capacity:	**420 kW**

1 Undercarriage with charging port
2 Upper carriage with battery storage
3 Main winch electric
4 Auxiliary winch
5 Crowd winch
6 Kinematics system
7 Mast
8 Mast head
9 Kelly bar
10 Crowd sledge with quick connect
11 Rotary drive (eKDK) electric
12 Drilling tool

Spotlights

Batteries
- Self-monitoring, which ensures high level of safety
- Battery management system
- Efficient climate system
- Capacity supply independent of charging level
- Sustainable design
- No special transport requirements for overall equipment
- High energy density
- Charging time approx. 7 h

Power supply
- No special wall box is required, a 400 V / AC on-site power connection is sufficient.
- On the chassis, a 125 A CEE plug 400 V with adapter for 63 A and 32 A is available.

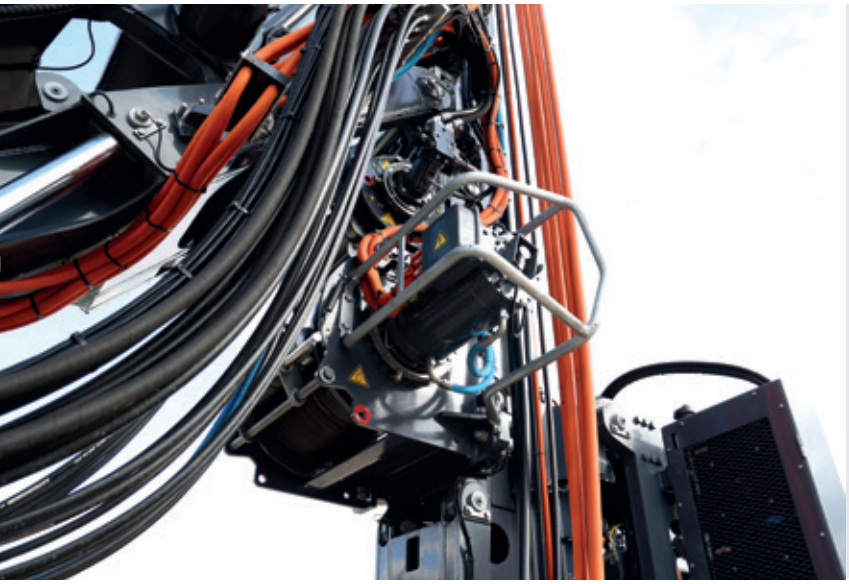
Charging connection on undercarriage
- No impairments when swinging
- Easier cable management
- Static cable outlet offers safety
- Protected parking position during full battery operation
- Very good accessibility for plugging in

Familiar ease of operation – only quieter
- Operation the same as before for the equipment operator
- No adjustment to new methods required
- Drilling parameters and assistance systems can be configured via B-Drive
- Considerably enhanced comfort due to low noise emissions

Energy-Efficient PowerEEP

- **Ultimate efficiency**
- **Maximal operating time**
- **Minimal noise emissions**
- **Maximal efficiency by adapting the familiar EEP**
- **Optimized parallel operation of main and auxiliary consumers**

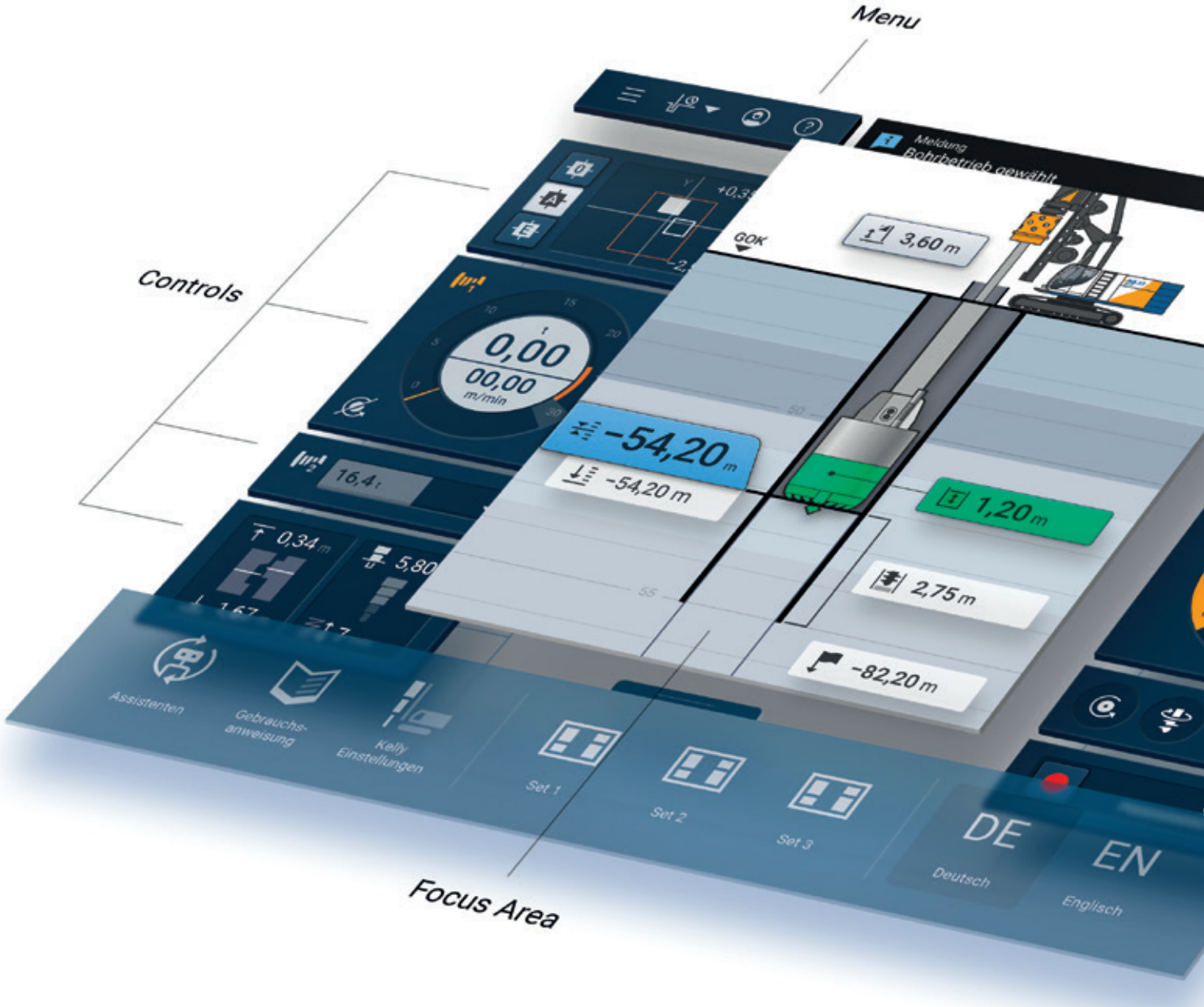
Energy efficiency at the highest level
- Unique energy efficiency due to directly electrically powered main consumers like rotary drive and main winch (25% greater efficiency with battery storage)
- Extremely dynamic response characteristics



Fully electric main winch
- Higher efficiency
- Full recuperation
- Hydraulic parking brake
- Highly sensitive response characteristics

Air conditioning and heating
- Separate air conditioning and heating circuit
- Climate control always available
- Operational as soon as main switch is activated

The new B-Tronic 5, the new user interface which provides information quickly and in an organized manner using intuitive menu navigation.
The display of content varies dynamically according to the process status, making it possible to keep a good overview at all times.
Of course, the system offers various interfaces, making it possible to connect to Data2Rig or adopt recorded data or user settings from other equipment.



B-TRONIC 5

Dynamic

- Content varies depending on the process stage
- Dynamically adapted screen distribution
- Variable position of drilling quipment for better system knowledge

Intuitive

- Clearly organized menu navigation
- Support available on every page
- In-depth information directly at the components
- Focus on process-related information

Personalized

- Specific user login
- Takeover of configuration values
- Display instruments can be personalized

Networked

- Connection with Data2Rig
- Interface of data recording
- Takeover of user settings even from other equipment
- Interface with service

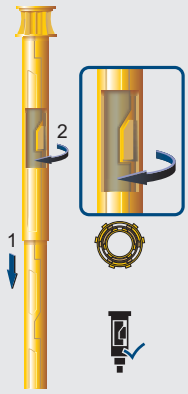
Stability Plus – just keep moving safely

Stability Plus

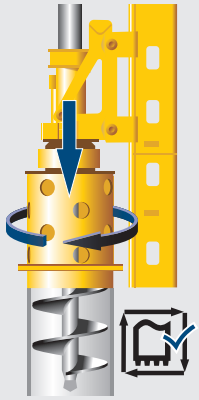
- Safe work even in the extended range of outreach (safety sensors monitor swinging speed and rotary drive position)
- The usual agility of the drilling rig during Kelly drilling is fully maintained.
- Enhanced performance thanks to extended outreach during drilling (light green area)
- Laborious relocation to reach drilling locations, particularly in corners, is avoided. This enables simplified handling on tight sites.
- The strain on the equipment operator is reduced.
- Display of permitted equipment parameters on the B-Tronic in real time
- Easy data transfer of stability values to B-Tronic.
- All stability values calculated for the equipment are saved in B-Tronic and can be selected and activated quickly and easily.

Assistance systems (selection)

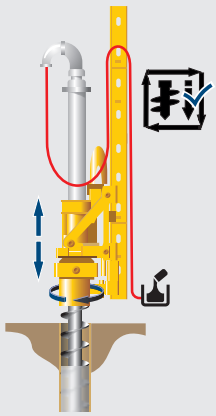
Adaptive Kelly speed assistant
The assistant raises and lowers the Kelly bar safely and quickly and allows an easy operation. The automatic control of the speed of the main winch reduces the speed at the transition points of the Kelly sections. This provides maximum safety with minimum wear. The permanent 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, 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.



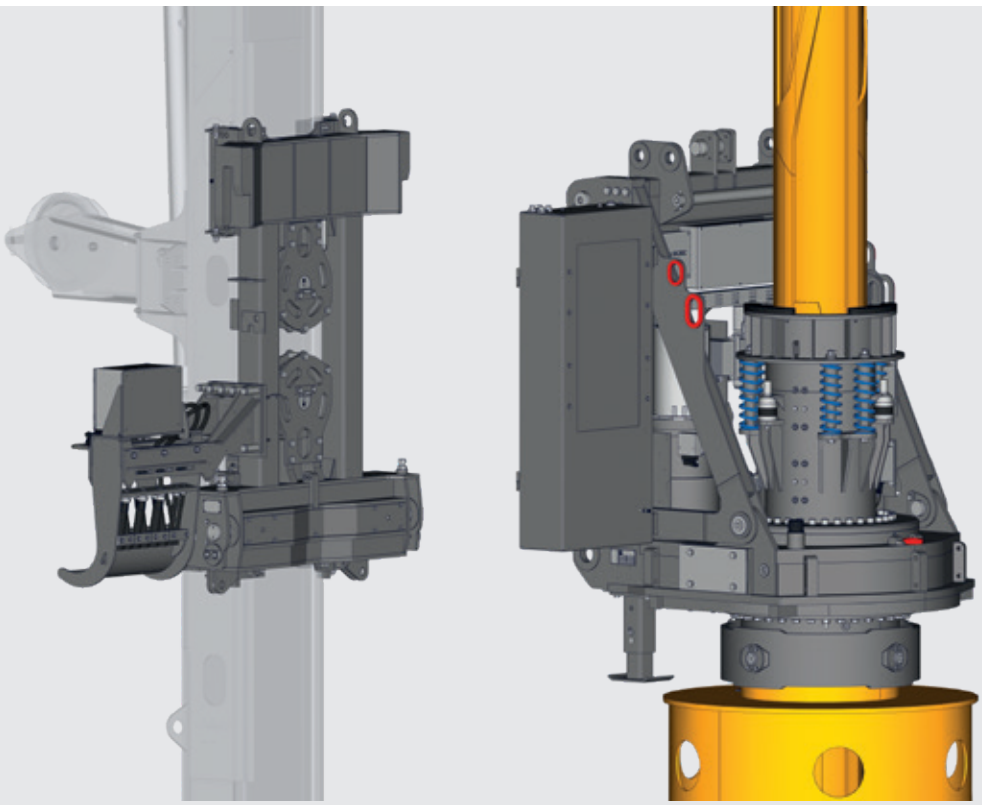
Kelly drilling assistant
Saves the current crowd speed and the speed of the rotary drive. It enhances drilling performance with simultaneous hands-free operation. Drilling parameters can be adjusted during the automated drilling procedure.



Automatic drilling and extraction control – single pass
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.

Many other assistance systems (some optional) are available in our portfolio.

Rotary drive



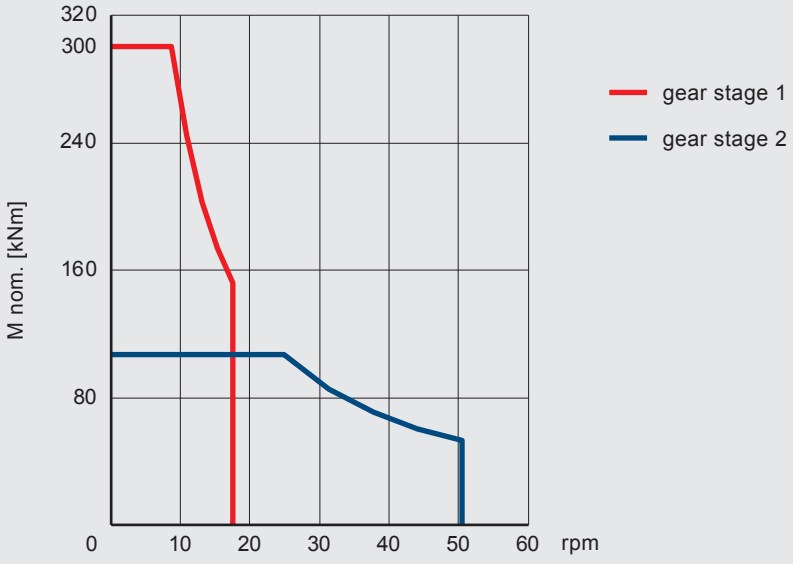
Feed slide
- Quick mechanical assembly via sliding block guide
- Easy and safe assembly of rotary drive, no work at unsecured heights

Rotary drive
- Max. torque 300 kNm
- Max. speed 50 rpm
- Different operating modes

Kelly equipment
- Long guidance path
- Integrated shock absorbing spring system
- Kelly visualization (see assistance systems)
- Improvement of drilling performance
- Very easy to use
- Reduction of wear on Kelly bar and adapter bars

Advantages of eKDK
- High-torque electric engines
- Outstanding breakaway torque (electric engine characteristic)
- Excellent efficiency
- Proven planetary gears
- Easy installation
- Integrated cooling

eKDK 300 S



Technical equipment (selection)

Base carrier BT 85 ae

Standard
- Removable counterweights (stackable)
- Retractable grating steps next to the operator‘s cab
- Energy-efficient power (EEP)
- Premium operator’s seat
- Cameras for rear area monitoring
- Integrated service platform

Optional
- Counterweight, variably adjustable
- Guardrails on the upper level (foldable for transport)
- Remote control Basic/Multi
- Operator seat with air-condition
- Weather protection

Drilling rig attachments

Standard
- Main winch electric
- Swivel for main rope
- Masthead foldaway for transport
- Pivoted anchor point for main and auxiliary rope

Optional
- Vario masthead
- Extension of drill axis to 1,400 mm
- Mast support
- Mast extension 2 m or 3 m, hydraulically foldable and lockable
- Three-sectional mast for Low Head and Giant Drill applications
- Auger cleaner attachment for Kelly system
- Attachment continuous flight auger cleaner
- Attachment of casing oscillator up to BV 1500 (operation with additional power pack)

Rotary drive

Standard
- Rotary drive eKDK 300 S (switch drive)
- Kelly equipment for external Kelly casing 419 mm
- Integrated Kelly shock absorbing system
- Integrated cooling system

Optional
- Torque converter BTM 720 K for Kelly drilling
  - Torque 400 kNm (nominal)

Measurement and control technology

Standard
- Automatic mast alignment with memory-recall
- Crowd stroke monitoring
- Kelly visualization
- Electronic mast reach limiter

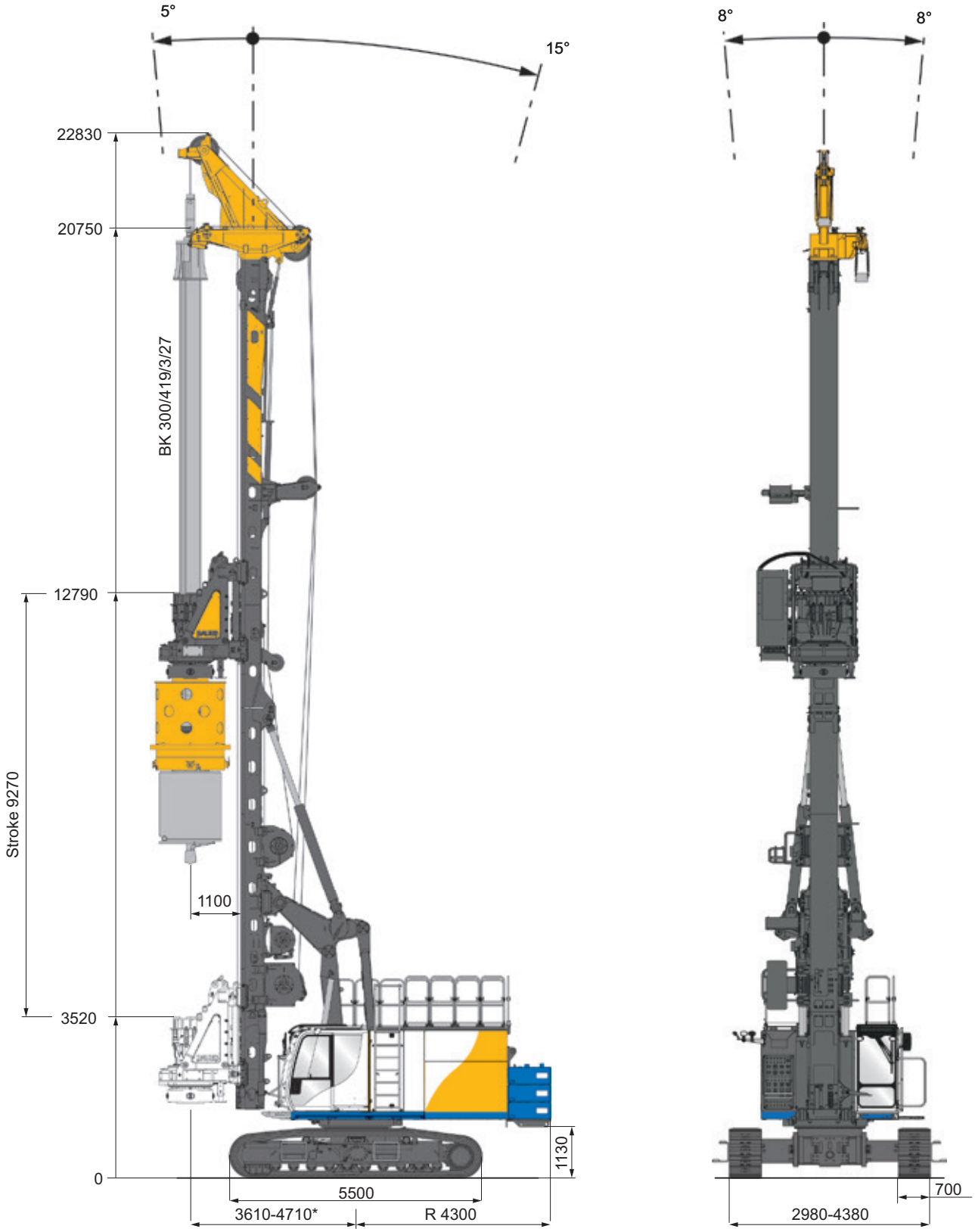
Optional
- Electronic load sensing for auxiliary winch
- Recording of concrete pressure and volume for Single-Pass processes
- Software modules for further applications
- Adaptive Kelly Speed assistant
- Automatic drilling and extraction control for Single-Pass processes
- Bauer Enhanced CAN Interface (BECI)
- Crowd Plus
- Stability Plus

Technical specifications

Rotary drive (electric)	eKDK 300 S
Torque casing (nominal)	300 kNm
Torque drilling (nominal)	260 kNm
Max. speed of rotation	50 U/min
Pull-down winch (hydraulic)	
Max. sledge stroke with 3 m mast extension	17,080 mm
Crowed force push effective/nominal	330 / 423 kN
Crowed force pull effective/nominal	330 / 423 kN
Exraction force Crowd Plus effective/nominal	530 kN / 620 kN with Mast support unit 460 kN / 540 kN without Mast support unit
Rope diameter	24 mm
Speed (down/up)	9.0 m/min
Overdrive (down/up)	25 m/min
Main winch (electric)	**M6 / L3 / T5**
Line pull (1st layer) effective/nominal	215 / 270 kN
Rope diameter	28 mm
Line speed (max.)	85 m/min
Auxiliary winch (hydraulic)	**M6 / L3 / T5**
Line pull (1st layer) effective/nominal	80 / 100 kN 100 / 125 kN
Rope diameter	20 mm
Line speed (max.)	54 m/min
Base carrier (EEP)	**BT 85 ae**
Max. system capacity	420 kW
Max. charging capacities	80 kW (CCE socket 125A / 400 V AC) 40 kW (CCE socket 63A / 400 V AC) 20 kW (CCE socket 32 / 400 V AC
Range (full battery operation)	up to 8 hours using Kelly method possible*
Sound pressure level in the cabin (EN 16228, Annex B)	LP_A 80 dB (A)
Sound power level (2000/14/EG and EN 16228, Annex B)	LW_A 105** dB (A)
Hydraulic pressure (electrohydraulic auxiliary circuit)	350 bar
Hydraulic tank volume	355 l
Flow rates	348 l/min
Undercarriage	**UW 80**
Crawler type	B 7
Traction force effective/nominal	520 / 610 kN

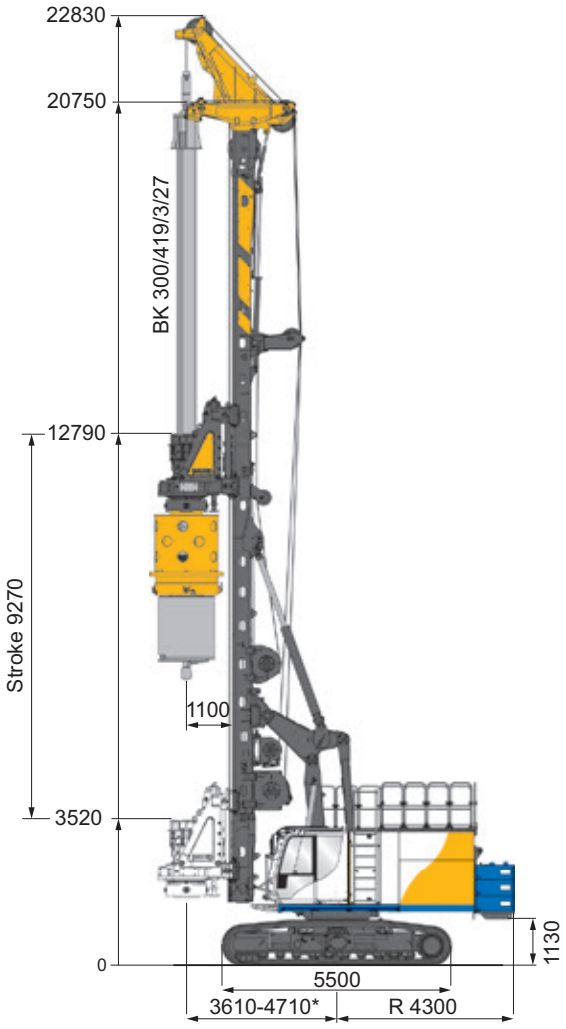
* Depending on the diameter and soil
** Measurement still pending

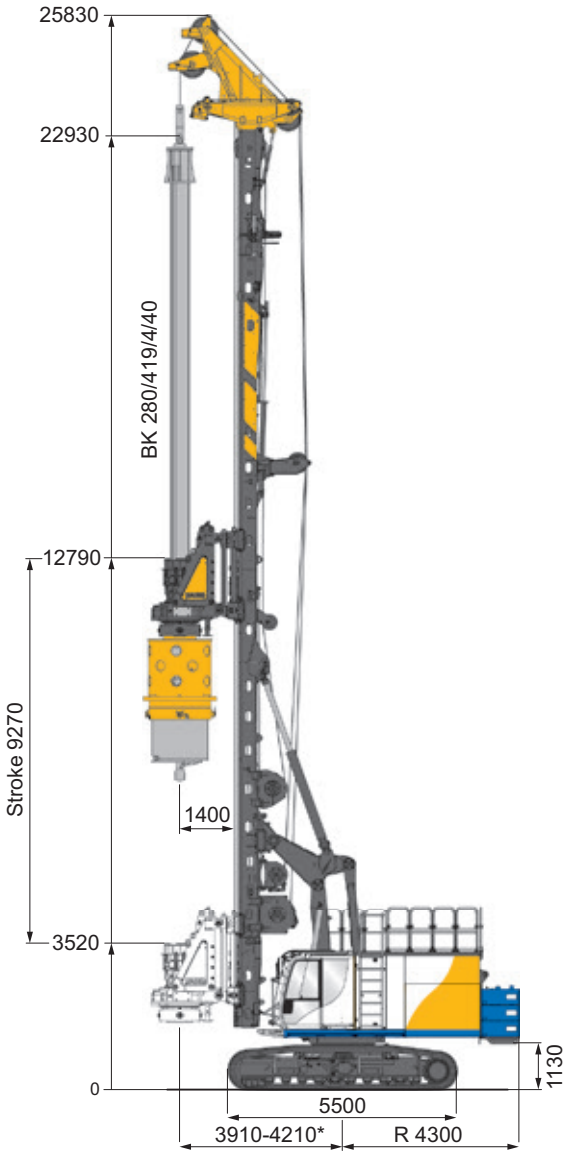
Dimensions – Basic version



Operating weight 99 t
(as shown)

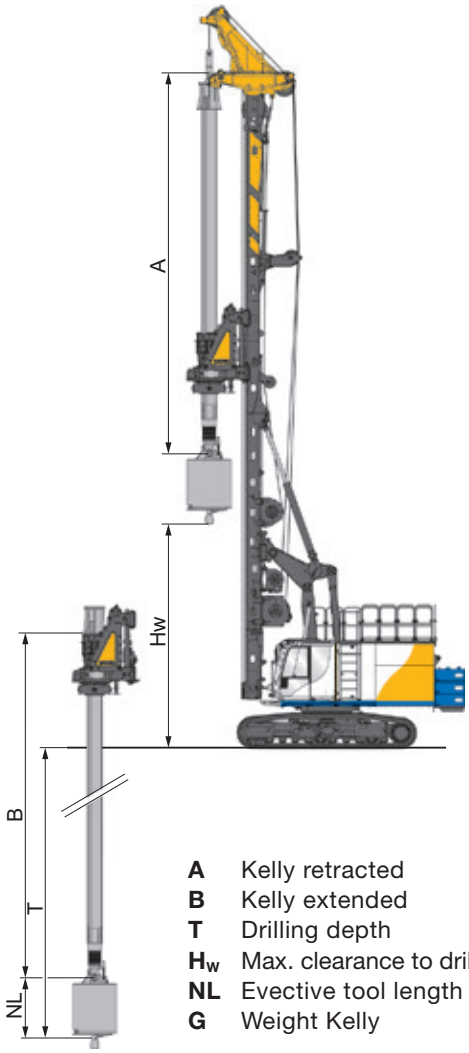
Drilling method – Kelly drilling





	Basic version	Expansion stage
Mast extension	without	3 m
Drilling axis	1,100 mm	1,400 mm
Max. drilling diameter		
uncased	1,900 mm	2,500 mm
cased	1,600 mm	2,200 mm
Operating weight approx.	99.0 t	105.0 t
with Kelly	BK 300 / 419 / 3 / 27	BK 280 / 419 / 4 / 40
with casing drive adapter	1,500 mm	2,000 mm
with bucket	1,350 mm	1,830 mm
with counterweight*	12.3 t	12.3 t

*depending on equipment



A Kelly retracted
B Kelly extended
T Drilling depth
H_w Max. clearance to drilling tool
NL Evective tool length
G Weight Kelly

Drilling depths (unlocked) – uncased Kelly drilling, drilling axis 1,100 mm

				without mast extension		3.0 m mast extension	
3-part Kelly	A (m)	B (m)	G (kg)	H_w (m)	T (m)	H_w (m)	T (m)
BK/300/419/3/24	10.7	26.4	5,500	7.9	24.8	8.2	24.8
BK/300/419/3/27	11.7	29.4	5,900	6.9	27.8	8.2	27.8
BK/300/419/3/30	12.7	32.4	6,350	5.9	30.8	8.2	30.8
BK/300/419/3/33	13.7	35.4	6,800	4.9	33.8	7.9	33.8
BK/300/419/3/36	14.7	38.4	7,200	3.9	36.8	6.9	36.8
BK/300/419/3/42	16.7	44.4	8,050*	1.9	42.8	3.9	42.8
BK/300/419/3/48	18.7	50.4	9,400*	–	45.8	1.9	48.8
BK/300/419/3/54	20.7	56.4	9,950*	–	–	0.9	54.8
4-part Kelly	A (m)	B (m)	G (kg)	H_w (m)	T (m)	H_w (m)	T (m)
BK/280/419/4/32	11.3	34.2	7,700	7.3	32.6	8.2	32.6
BK/280/419/4/36	12.3	38.2	8,350	6.3	36.6	8.2	36.6
BK/280/419/4/40	13.3	42.2	8,950	5.3	40.6	8.2	40.6
BK/280/419/4/44	14.3	46.2	9,600	4.3	44.6	7.3	44.6
BK/280/419/4/48	15.3	50.2	10,300	3.3	48.6	6.3	48.6
BK/280/419/4/60	18.3	62.2	12,200*	0.3	60.6	3.3	60.6
BK/280/419/4/68	20.3	70.2	13,450	–	–	1.3	68.6

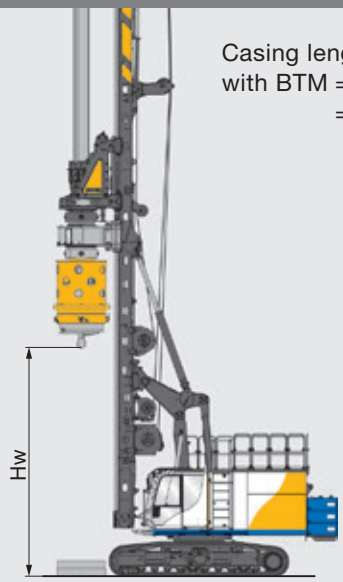
(*interpolated) (T=B+W-H)

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.

Additional drilling depths, drilling diameters and Kelly versions on request.

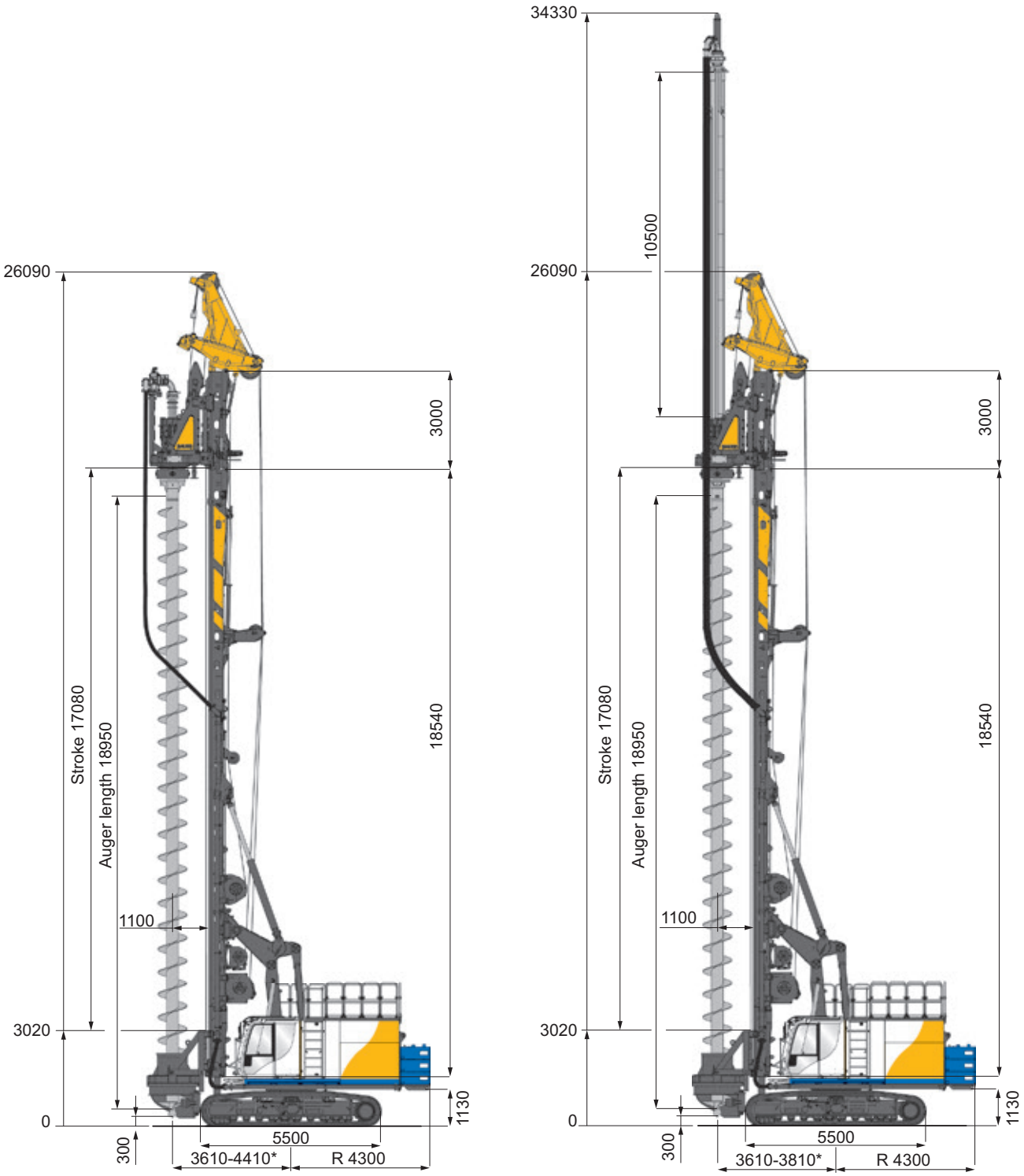
Auger cleaner for Kelly drilling
Drilling diameter from 520 - 1,060 mm

Torque converter BTM 720 for a torque while casing of 400 kNm



Casing lengths
with BTM = H_w - 0.5 m
= H_w max. 7.4 m

Drilling method – CFA drilling



	Basic version	Expansion stage
Mast extension	3 m	3 m
Kelly extension	without	10.5 m
Max. drilling diameter	1,200 mm	1,200 mm
Max. drilling depth with auger cleaner	16.6 m	27.0 m
Max. extraction forth with main- and crowd winch (effective)	730 kN	730 kN
with counterweight*	9.9 t	12.3 t

*depending on equipment

Transport data – Dimensions and weights

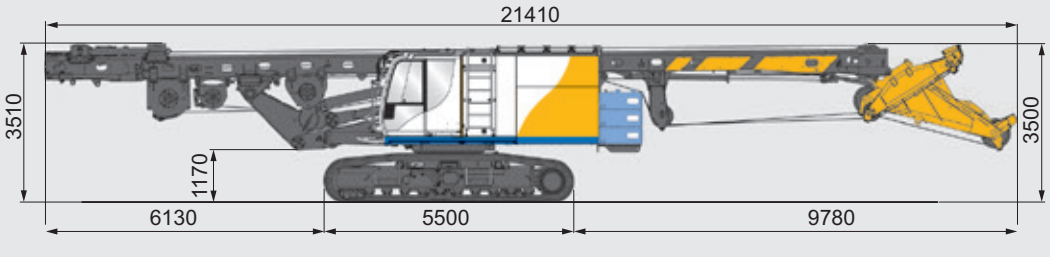
G = Weight
B = Width

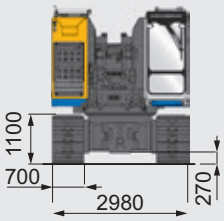
Weight data are approximate values, additional equipment (options) can modify the total weight and dimensions.

Transport

Without mast extension*

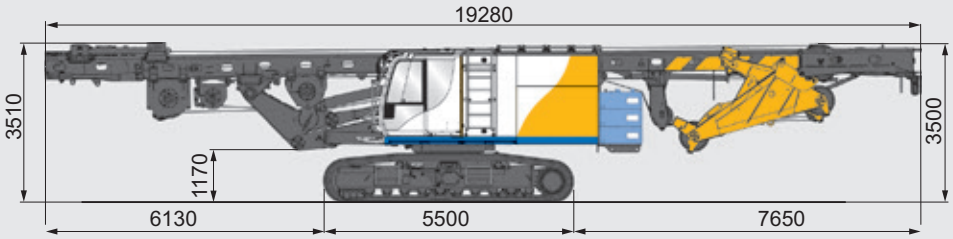
G = 62.9 t **G = 75.2 t with 12.3 t counterweight**

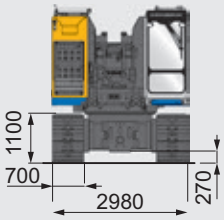




With mast extension*

G = 64.0 t **G = 76.3 t with 12.3 t counterweight**



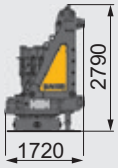


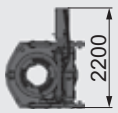
Counterweight**

G = 2 x 4.9 + 1 x 2.5 t
B = 3,000 mm

Rotary drive

G = 6.8 t





	UW 80
Track shoes	**Overall width of crawlers retracted/extended**
700 mm	3,000 - 4,400 mm
800 mm	3,300 - 4,500 mm
900 mm	3,400 - 4,600 mm

*Added weight multi-piece mast approx. 500 kg
**Depending on the method

BAUER Service

Global Network


Service


Equipment


Training

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905.945.2 10/2022