Crawler Excavator Specifications

RH 23.5

Service weight	**50 – 52 t**
Engine output	**226 kW**
Buckets SAE	**up to 4.0 m³**

- **PMS three-pump hydraulics**
- **Electronic control and monitoring system**
- **Insulated deluxe cab**
- **Low noise and exhaust emission**
- **Fuel efficient**
- **Bucket version with TriPower**

O&K

RH 23.5 with backhoe for heavy-duty earthworks

Electronic immobilizer standard

No-loss superstructure swing-off and braking plus energy recovery

Generous stick and bucket working ranges

O&K's track cleaning and guide system

CE seal to EC Machinery Directive.

TÜV certificate for compliance with DIN ISO EN 9001.

Lifting gear operation permitted with anti-bursting and overload warning devices fitted.

Softline cab with ample space for the operator.

Powerful Cummins diesel engine, water cooled and clean

PMS III electronic engine and pump management system

Fuel savings through freely selectable engine speeds

Encapsulated ball-bearing swing ring with lifetime lubrication

HD undercarriage for rock/quarry operation or adjustable undercarriage (VLC) for heavy-duty earthworks with a backhoe

Final drives protected within the crawler profile

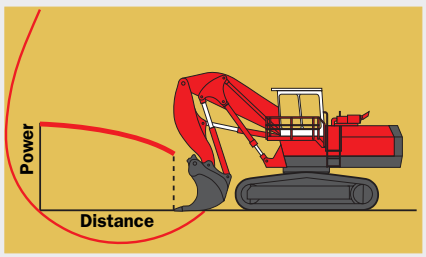
Patented TriPower for much improved productivity

Faster loading cycles and more productive loading output are the prime benefits of TriPower.

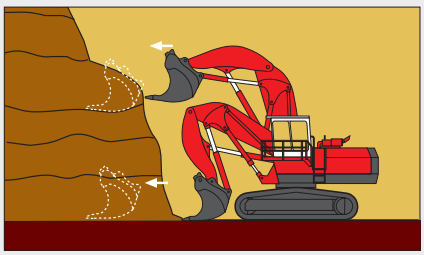
Crowding and digging forces are considerably higher, but with no extra fuel consumption. Also, TriPower reduces machine stress, bucket wear, and makes life easier for the operator.

TriPower benefits:

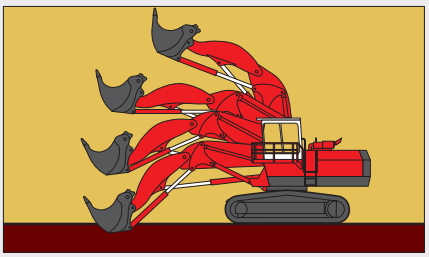
- Crowding force up by around 50 %, rising across the entire crowd path.
- Boom moment up by up to 40 % when lifting the bucket from the pile.
- Constant bucket angle at any boom position. Automatic rollback limit for optimum bucket fill.
- At any digging height, the bucket is held automatically parallel when crowding. Time and fuel savings.
- The boom cylinders are retracted pressure free.



Only O&K's TriPower continuously boosts crowding force across the entire path so that power is always available where most needed.



At any digging height, the bucket is always held parallel when crowding. Hence, easier and faster work cycles.



At any boom position, bucket angle is constant; automatic rollback limit prevents material spillage over the bucket rear wall.

RH 23.5 for profitable rock and quarrying work

TriPower geometry for significantly higher productivity

Electronic immobilizer standard

No-loss superstructure swing-off and braking plus energy recovery

O&K's track cleaning and guide system

PMS III: engine and pumps controlled to perfection

PMS III manages engine and pump performance to unbeatable levels of efficiency and convenience. Comprehensive monitoring of all key components reduces downtime and enhances durability. Actual data is continuously compared with target figures (e.g., temperature) and any deviations are automatically corrected by the system. Hence, no engine overload.

Electronic immobilizer prevents theft

A standard feature on all O&K excavators is an electronic immobilizer. The engine will only start once a programmable code has been entered. The immobilizing function is overridden with the operating panel keys. During daytime, the immobilizer can be switched off and, after work, it is reactivated to prevent theft, of increasing frequency on construction sites.

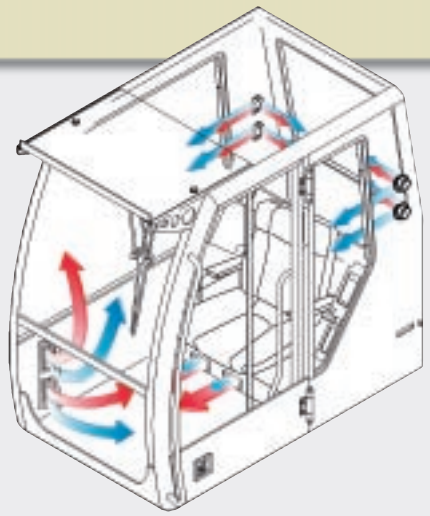
Concerted effort to save fuel

O&K has undertaken many interrelated and co-ordinated efforts to cut fuel bills substantially: variable flow, the prioritised ECO output level and rev-lowering under zero-load conditions. Plus the closed swing circuit preventing unnecessary hydraulic heat build-up during superstructure swing-off and braking. Hence, less need to cool and less fuel consumption.

Precision flow control

Working functions are initiated with extreme precision and virtually no wastage since oil flow matches actual needs for even closer control. The outcome: lower oil temperatures, extended lifetime for all components and appreciable fuel savings.

Designed to promote productivity



The air conditioning system (optional) uses an ingenious air flow system to ensure agreeable temperatures throughout the year.

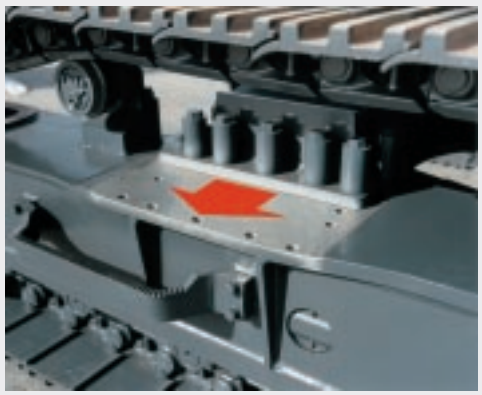
The modern cab on the RH 23.5 has ample space for the operator plus a storage area behind the seat. The rounded tinted windows of the futuristic Softline design prevent glare. The frame parts and the large roof window improve upward visibility considerably. The front top pane slides easily under the roof (standard feature), where it locks into place. The lower part removes easily to allow optimum cab ventilation.

The doors have sliding windows as standard. The front roof projection in a transparent plexiglass keeps out the rain with the front window open while a standard shade prevents sunrays entering from the top and front.

The bright and stimulating colours and the stylish design help to create an agreeable working atmosphere. All the controls are designed to the latest ergonomic findings. The servo-controlled levers with short throw and integrated buttons for additional functions, are conveniently positioned in the individually adjustable side consoles. Further advantages: the comfortable swing seat adjustable to the size and weight of the operator, the low noise level, and an extra-throughput ventilator providing slight overpressure within the cab.

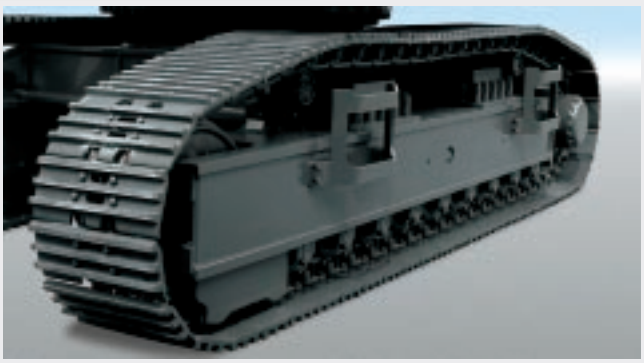
An alternative to the HD undercarriage: the adjustable VLC

The rugged VLC undercarriage can be mechanically widened from its transport width of 3000 mm (600 mm tracks) by 500 mm. This gives 20 % added lateral lift capacity. Enormous tractive forces and high travel speeds ensure exceptional productivity even on the most difficult terrain. Excellent traction and optimum overall balance boost stability and lugging ability on the RH 23.5.



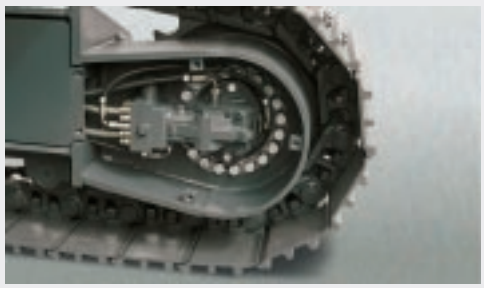
Virtually maintenance free: the entire undercarriage

The oversized crawlers with track tensioning and the sealed chain link bearings need very little maintenance, just as the entire undercarriage. The track and supporting rollers need none at all (lifetime lubrication).



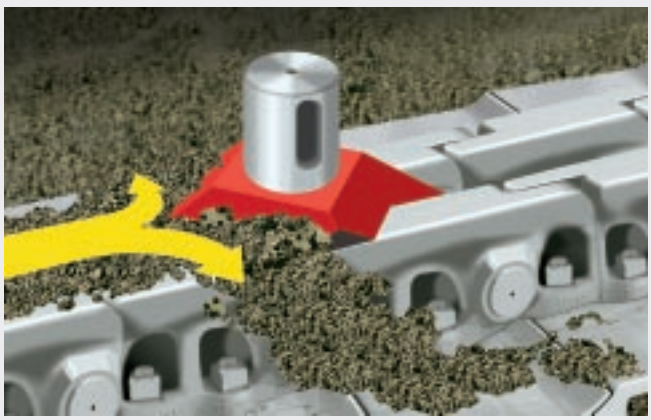
Safely encapsulated final drives

Compact final gears, drive motors and lines are completely encapsulated within the crawler profile for safe protection against stones and rubble.



Automatic track cleaning

The patented track cleaning and guide system (optional) is an effective protection against dirt. While the machine is travelling, the tracks are continuously and automatically cleaned. The wedge shape of the shoe dislodges dirt sideways out of the tracks, preventing build-up at the idlers and sprockets. Track wear is significantly reduced, the track tensioning system has less work to do and the tracks are prevented from slipping off.



Rugged Cummins construction machinery engine

The clean, water-cooled Cummins engine with turbo charger and intercooler has power to spare. Low engine speeds promote durability. The outstanding torque curve and the low idling speed give this engine its exceptional lugging ability and fuel efficiency.

Service-friendly design and automatic central lubrication standard

Good access to the engine and all the components shortens servicing time and enhances productivity. All the service items are accessible quickly and safely. As a consequence, routine maintenance is completed in no time at all.

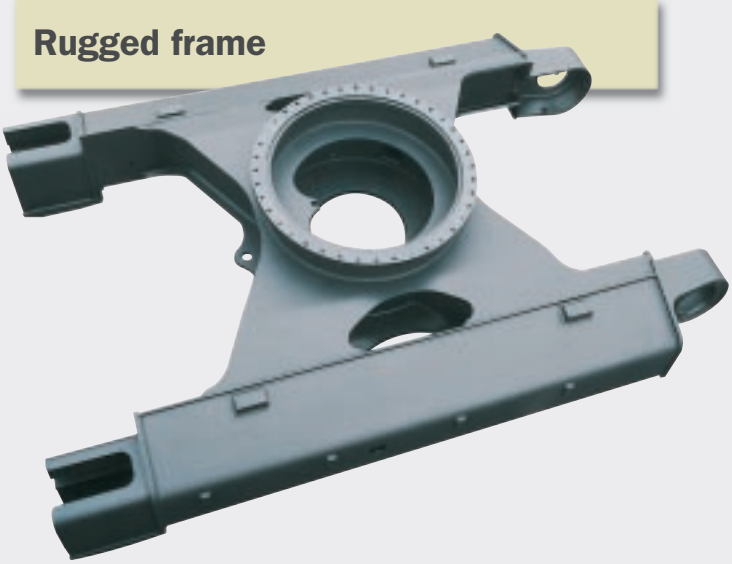
Long-time lubricated components such as the fully encapsulated ball-bearing mounting, help to extend maintenance intervals. The neatly laid out central display shows all the necessary checks and maintenance jobs.

In addition, the O&K diagnosis system registers any engine and/or hydraulic defects and reports them before damage occurs.

Separate cooling circuit

A separate cooling circuit provides for low oil temperatures. The blower speed is thermally controlled to ensure reduced heat build up and extended pump and hydraulic service life.

Rugged frame



The rugged, torsion-stiff frame in box construction is robot welded, a modern technology for absolute precision and guaranteed durability.

Engine

Cummins diesel M 11

Water-cooled • Turbo charged with intercooler • Dry engine air filter with safety cartridge and contamination indicator • Electric rev adjustment • Electric engine stop at key switch • Combined cooler for coolant and hydraulic oil

Engine output ISO 9249	226 kW / 1800 RPM
Cylinders / displacement	6 / 10800 cm^3
Bore / stroke	125 mm / 147 mm
Voltage	24 V
2 batteries	each 12 V / 135 Ah
Alternator	70 A
Starter	7.7 kW

Exhaust emissions to statutory regulations.

Hydraulics

PMS three-pump hydraulics with two working pumps and separate slewing pump • Individual control for each pump • Variable flow • Double flow • Parallel bucket circuitry allows 4 functions simultaneously • Hydraulic oil cooler with controlled blower drive • High-pressure lines with flanged fittings • Micro filtration for return flow, servo and slewing circuits

Maximum delivery, main pumps	2 x 285 l/min
Maximum delivery, swing pump	195 l/min
Maximum pressure without booster	320 bar
Maximum pressure with booster	360 bar
Maximum pressure, swing gear	390 bar

Booster raises cylinder forces by 12.5 % and tractive forces by 10 %.

Control and monitoring system

Engine and pump monitoring with electronic load-limit control (PMS III) • Controlled heat-up phase • Temperature monitoring for engine and hydraulic system with output lowering to protect engine and pumps • Automatic engine speed lowering

3 selectable output levels:

	Heavy	Eco	Lift
Engine speed	1800	1800	1800
Pump output	100 %	90 %	65 %

Slewing gear

Slewing pump and motor in sealed circuit for no-loss start-up and braking of superstructure • Slew gear with integrated wear-proof multi-disc brake • Encapsulated ball-bearing mounting with long-time lubrication

Effective braking moment	134 kNm
Maximum slew speed	7.3 RPM

Cab

Tinted safety glass • Top front window retracts, lower removes • Sliding window in the door • Roof window • Rain-protection roof • Three-speed blower • Defroster nozzles for leg area and front window • Central display for all control and monitoring functions • Deluxe operator's seat • Control functions to ISO recommendation • Individually adjustable side consoles • Ergonomic servo-control levers

Drive

Separate hydraulic drive for each crawler • Stone guard for variable-displacement motor, transmission and brake valve all with-in the crawler profile • Track guard • Low-maintenance crawlers with track tensioning • Sealed track pin mounting, life-time-lubricated main and upper rollers

Max. effective tractive force	HD	425 kN
	VLC	405 kN
Max. travel speed	HD	2.2 km/h
	VLC	4.5 km/h*
Track pads per crawler	HD	47
	VLC	53

Capacities

Fuel	650 l
Coolant	42 l
Engine oil, incl. filter	38 l
Slewing gear	8,5 l
Hydraulic tank	400 l
Hydraulic system	730 l

Working attachment

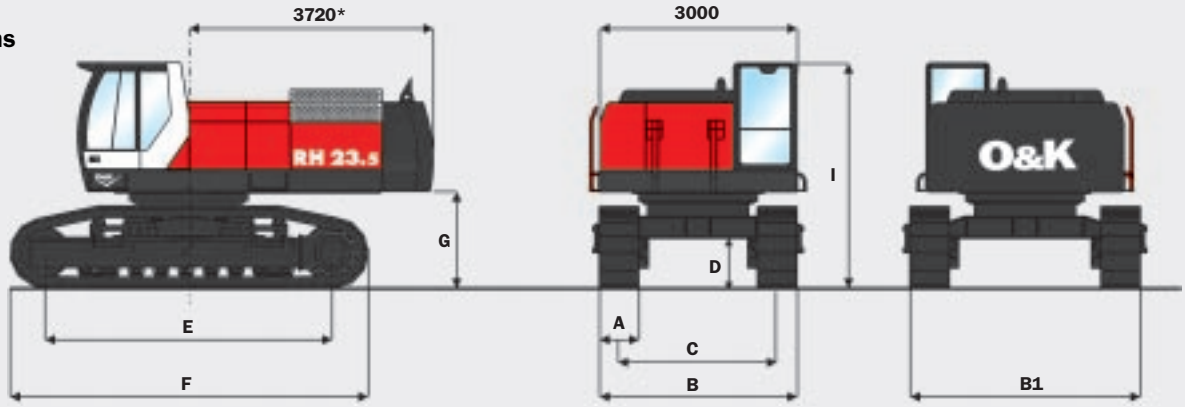
Automatic central lubrication • Reduced maintenance due to hardened and corrosion-protected pins, low-wear bushings, sealed bearings • Spotlight mounted on frame and counterweight • Progressive end-of-stroke damping

Options

Air conditioning • Eco-friendly hydraulic oil • Heater • Electrical refuelling • Power boost function • Anti-burst device and overload warning device • Mid-mounted track guide • Grab with hydraulic switchover valve on the bucket cylinder • Stone guard • Deluxe cab • Fittings for radio/cassette recorder

Weights and dimensions

Dimensions

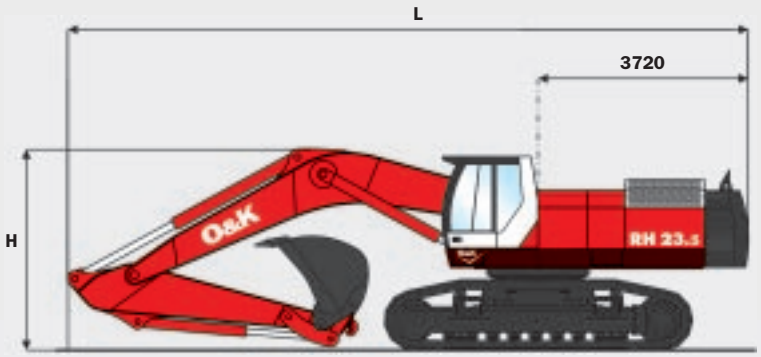


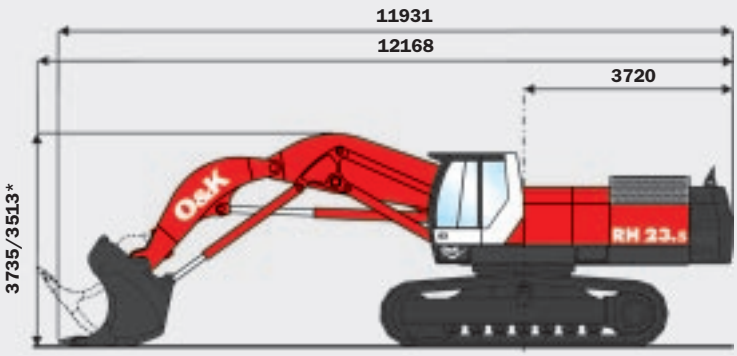
*Slewing radius 3800 mm

	A	B	B1	C	D	F	E	G	I
RH 23.5 HD 600	600	3850	–	3250	575	5100	3945	1430	3450
RH 23.5 HD 750	750	4000	–	3250	575	5100	3945	1430	3450
RH 23.5 VLC 600	600	3000	3500	2400	768	5435	4370	1420	3440
RH 23.5 VLC 700	700	3100*	3600	2400	768	5435	4370	1420	3440

* Only transport position

Loading dimensions for monoboom 6.7 m (7.7 m)		
	L	**H**
2.6 m	12037 13060	3728 (3900)
3.4 m	12031 13075	3709 (3959)
4.4 m	12093 13074	4046 (4253)



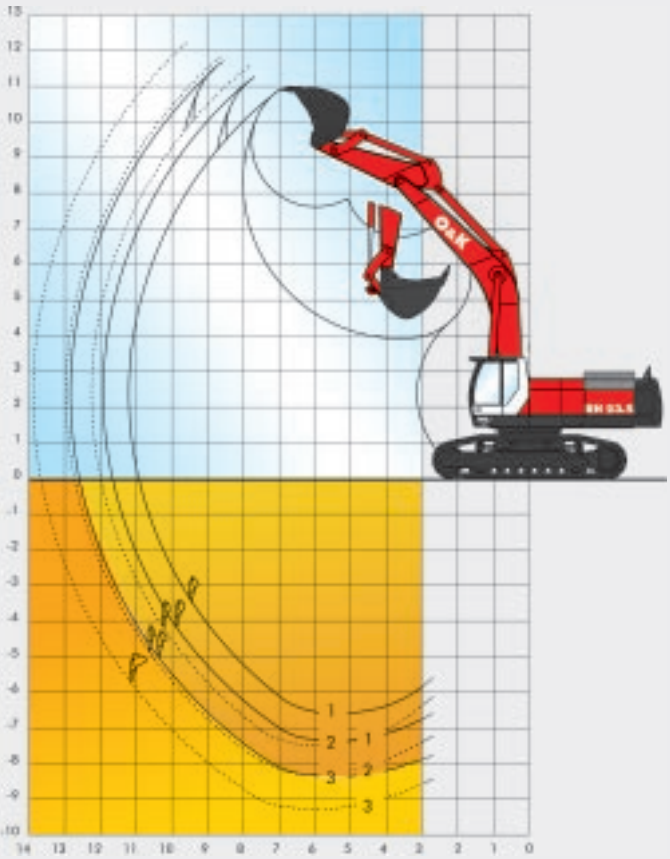


* Bucket tilted

	Weight	Track size	Upper rollers	Main rollers	Ground pressure
RH 23.5 HD 600	up to 51.2 t	D 8H	1	7	0.96 kg/cm²
RH 23.5 HD 750	up to 52.2 t	D 8H	1	7	0.78 kg/cm²
RH 23.5 VLC 600	up to 50.5 t	D 7F	2	9	0.87 kg/cm²
RH 23.5 VLC 700	up to 51.1 t	D 7F	2	9	0.76 kg/cm²

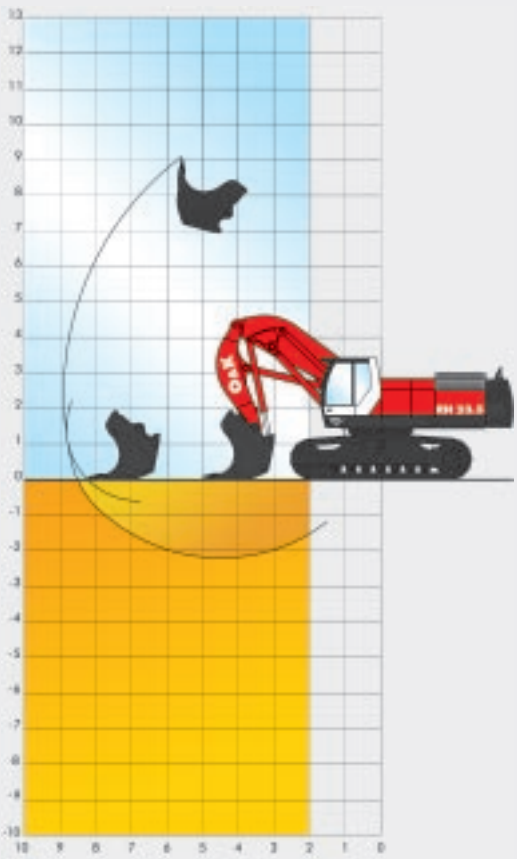
Digging arcs

Backhoe with monoboom



——— Monoboom 6.7 m
- - - - - - - Monoboom 7.7 m

Loading bucket



RH 23.5 with backhoe

Operating weights with 2.6 m stick Monoboom 6.7 m • Backhoe 2.3 m³ CECE	
RH 23.5 VLC 600	49.0 t
RH 23.5 VLC 700	49.6 t

Digging forces (DIN 24086)	
Stick 2.6 m	251 kN
Stick 3.4 m	212 kN
Stick 4.4 m	178 kN
Breakout force (DIN 24086) Stiel 2.6 m	245 kN

RH 23.5 with loading bucket

Operating weights with 2.9 m stick Boom 4.0 m • Bottom-damp shovel 2.5 m³ CECE	
RH 23.5 HD 600	50.9 t

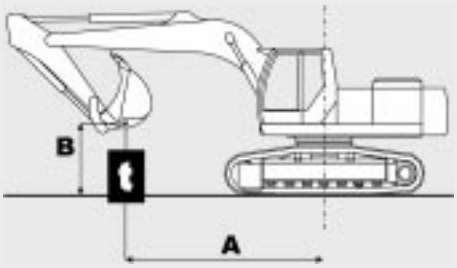
Breakout force (DIN 24086)	255 kN
Crowding force (DIN 24086)	292 kN

According to ISO 10567, the loads stated amount to 75 % of the static tipping load or 87 % of the hydraulic lift capacity. The figures apply with the booster activated. The lift capacity at the safety load hook is 18 t.

a **Total slewing radius 360°**

b **Longitudinal direction +/- 15°**

***** **Limited by the hydraulic system.**



RH 23.5 600 VLC • Monoboom 6.7 undercarrige retracted													RH 23.5 600 VLC • Monoboom 7.7 undercarrige retracted													
Stick	**3.0**		**4.5**		**6.0**		**7.5**		**9.0**		**10.5**		**3.0**		**4.5**		**6.0**		**7.5**		**9.0**		**10.5**		**12.0**	
	a	**b**	**a**	**b**	**a**	**b**	**a**	**b**	**a**	**b**	**a**	**b**	**a**	**b**	**a**	**b**	**a**	**b**	**a**	**b**	**a**	**b**	**a**	**b**	**a**	**b**
4.5			16.2	22.9*	10.3	16.5*	7.1	13.4*	5.0	10.4							9.2	16.2*	6.5	12.5*	4.6	10.0				
3.0			13.9	25.5*	9.3	19.0*	6.5	13.7	4.7	10.0							8.1	18.5	5.8	12.9	4.2	9.6	3.0	7.3		
1.5			12.9	19.7*	8.5	19.0	6.0	13.1	4.4	9.8							7.4	17.6	5.3	13.3	3.9	9.2	2.9	7.1		
2.6 ground level			12.6	24.6*	8.1	18.5	5.7	12.8	4.2	9.5					11.3*	11.3*	7.2	17.4	5.0	12.0	3.7	9.0				
1.5	20.3*	20.3*	12.8	27.0*	8.0	18.4	5.6	12.7							11.8	20.5*	7.2	17.4	5.0	11.9	3.6	8.9				
3.0	27.3	29.2	13.1	23.6*	8.2	18.0*	5.8	12.8					21.7*	21.7*	12.1	22.3*	7.3	17.6	5.0	12.0	3.7	9.0				
4.5	32.7*	32.7*	17.4	19.5*	10.8	14.7*	7.3	12.2*	5.1	10.5					15.1	21.2*	9.8	14.5*	6.7	11.4*	4.7	9.6*	3.3	7.6		
3.0			14.9	25.4*	9.7	17.5*	6.7	13.7*	4.7	10.1							8.5	17.2*	6.0	12.9*	4.3	9.6	3.1	7.3		
1.5			13.3	25.1*	8.7	19.3	6.1	13.2	4.4	9.7					9.2*	9.2*	7.6	18.0	5.4	12.5	3.9	9.2	2.8	7.1		
3.4 ground level	11.2*	11.2*	12.7	24.6*	8.1	18.6	5.7	12.8	4.1	9.4					11.3	13.1*	7.2	17.4	5.0	12.0	3.6	8.9	2.7	6.9		
1.5	17.1*	17.1*	12.5	28.6*	7.9	18.3	5.5	12.5	4.1	9.3			11.8*	11.8*	11.4	18.4*	7.0	17.2	4.8	11.8	3.5	8.8	2.6	6.8		
3.0	23.8*	23.8*	12.7	26.0*	7.9	18.3	5.5	12.5					17.6*	17.6*	11.6	24.5*	7.1	17.3	4.8	11.8	3.5	8.8				
4.5							7.5	10.5*	5.2	9.4*	3.6	6.1*							7.0	9.8*	4.8	8.5*	3.4	7.6*	2.2	4.5*
3.0	21.1*	21.1*	16.2	21.2*	10.2	15.2*	6.9	12.2*	4.8	10.2	3.4	7.6*			13.8	22.7*	9.0	15.1*	6.2	11.5*	4.4	9.5*	3.1	7.3	2.1	5.6
1.5	9.3*	9.3*	14.0	26.4*	9.0	18.0*	6.2	13.4	4.4	9.8	3.1	7.4	6.1*	6.1*	11.9	14.1*	7.9	17.5*	5.5	12.6	3.9	9.3	2.8	7.0	1.9	5.4
4.4 ground level	11.1*	11.1*	12.8	26.6*	8.2	18.7	5.7	12.8	4.1	9.4	2.9	7.2	10.1*	10.1*	11.1	14.0*	7.1	17.4	5.0	12.0	3.6	8.9	2.5	6.7	1.8	5.3
1.5	14.8*	14.8*	12.3	27.4*	7.7	18.1	5.4	12.4	3.9	9.2	2.8	6.4*	14.3*	14.3*	10.9	16.9*	6.8	17.0	4.7	11.6	3.3	8.6	2.4	6.6		
3.0	19. 5*	19.5*	12.2	27.7*	7.6	17.9	5.2	12.3	3.8	9.1					11.0	21.3*	6.7	16.9	4.5	11.5	3.2	8.5	2.4	6.6		

RH 23.5 600 VLC • Monoboom 6.7 undercarrige extended													RH 23.5 600 VLC • Monoboom 7.7 undercarrige extended													
Stick	**3.0**		**4.5**		**6.0**		**7.5**		**9.0**		**10.5**		**3.0**		**4.5**		**6.0**		**7.5**		**9.0**		**10.5**		**12.0**	
	a	**b**	**a**	**b**	**a**	**b**	**a**	**b**	**a**	**b**	**a**	**b**	**a**	**b**	**a**	**b**	**a**	**b**	**a**	**b**	**a**	**b**	**a**	**b**	**a**	**b**
4.5			20.6	22.9*	12.9	16.5*	8.9	13.4*	6.3	10.4							11.8	16.2*	8.3	12.5*	6.0	10.0				
3.0			18.1	25.5*	11.8	19.0*	8.3	13.7	6.0	10.0							10.6	18.5	7.6	12.9	5.6	9.6	4.2	7.3		
1.5			17.0	19.7*	11.0	19.0	7.8	13.1	5.8	9.8							9.8	17.6	7.1	13.3	5.3	9.2	4.0	7.1		
2.6 ground level			16.8	24.6*	10.6	18.5	7.5	12.8	5.6	9.5					11.3*	11.3*	9.6	17.4	6.8	12.0	5.1	9.0				
1.5	20.3*	20.3*	16.9	27.0*	10.5	18.4	7.4	12.7							15.8	20.5*	9.6	17.4	6.7	11.9	5.0	8.9				
3.0	29.4*	29.2	17.3	23.6*	10.6	18.0*	7.5	12.8					21.7*	21.7*	16.2	22.3*	9.8	17.6	6.8	12.0	5.1	9.0				
4.5	32.7*	32.7*	19.5*	19.5*	13.4	14.7*	9.1	12.2	6.5	10.5					19.4	21.2*	12.4	14.5*	8.5	11.4*	6.1	9.6*	4.4	7.6		
3.0			19.3	25.4*	12.2	17.5*	8.5	13.7*	6.1	10.1							11.0	17.2*	7.8	12.9*	5.7	9.6	4.2	7.3		
1.5			17.5	25.1*	11.3	19.3	7.9	13.2	5.8	9.7					9.2*	9.2*	10.1	18.0	7.2	12.5	5.3	9.2	3.9	7.1		
3.4 ground level	11.2*	11.2*	16.8	24.6*	10.6	18.6	7.5	12.8	5.5	9.4					13.1*	13.1*	9.6	17.4	6.8	12.0	5.0	8.9	3.8	6.9		
1.5	17.1*	17.1*	16.7	28.6*	10.4	18.3	7.3	12.5	5.4	9.3			11.7*	11.7*	15.4	18.4*	9.4	17.2	6.6	11.8	4.9	8.8	3.7	6.8		
3.0	23.8*	23.8*	16.8	26.0*	10.4	18.3	7.3	12.5					17.6*	17.6*	15.7	24.5*	9.5	17.3	6.6	11.8	4.9	8.8				
4.5							9.4	10.5*	6.6	9.4*	4.7	6.1*							8.8	9.8*	6.2	8.5*	4.5	7.6*	3.2	4.5*
3.0	21.1*	21.1*	20.7	21.2*	12.8	15.2*	8.7	12.2*	6.1	10.2	4.5	7.6*			18.1	22.7*	11.6	15.1*	8.0	11.5*	5.7	9.5*	4.2	7.3	3.0	5.6
1.5	9.3*	9.3*	18.3	26.4*	11.6	18.0*	8.0	13.4	5.8	9.8	4.2	7.4	6.1*	6.1*	14.1*	14.1*	10.4	17.5*	7.3	12.6	5.3	9.3	3.9	7.0	2.8	5.4
4.4 ground level	11.1*	11.1*	17.0	26.6*	10.7	18.7	7.5	12.8	5.4	9.4	4.0	7.2	10.1*	10.1*	14.0*	14.0*	9.6	17.4	6.7	12.0	4.9	8.9	3.6	6.7	2.7	5.3
1.5	14.8*	14.8*	16.4	27.4*	10.2	18.1	7.1	12.4	5.2	9.2	3.9	6.4*	14.3*	14.3*	14.9	16.9*	9.2	17.0	6.4	11.6	4.7	8.6	3.5	6.6		
3.0	19.5*	19.5*	16.3	27.7*	10.1	17.9	7.0	12.3	5.1	9.1					15.0	21.3*	9.1	16.9	6.3	11.5	4.6	8.5	3.4	6.6		

According to the European Standard EN 474/5, hydraulic excavators used in load hook operation must be fitted with anti-burst valves at the lift cylinders and an overloading warning device.

Attachments

Dimensions and weights

		Monoboom		Sticks		
System length	m	6.70	7.70	2.60	3.40	4.40
Weight	kg	3529	3900	1750	1930	2250
Linkage	kg	–	–	500	500	500
Cylinders	kg	650			330	

Backhoe

		Backhoe				
Capacity (CECE)	m^3	1.70	2.00	2.30	2.70	3.10
Capacity (SAE)	m^3	1.90	2.30	2.60	3.10	3.50
Width	mm	1420	1620	1825	1825	2025
Teeth	No.	4	5	5	5	6
Weight	kg	1780	1980	2140	2310	254

Loading bucket

		Standard rock bucket	Bucket stick	Lower section
Bucket capacity SAE/CECE	m^3	2.5		
Width	mm	2200	400	600
Weight	kg	3500 without arm. plate	1750	3600
Weight boom cyl.	kg	–	–	2 x 340
Weight tilt cyl.	kg	–	2 x 320	–
Weight stick cyl.	kg	400	–	–

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