UNEX®

28.1

- 130 kW at 2 200 rpm
- 1,0 - 1,6 m³
- 1,15 - 1,4 m³
- 27,5 t

hydraulic excavator

DH 28.1 hydraulic excavator

The DH 28.1 excavator made by the traditional Czech manufacturer represents a new generation of the UNEX machines.

- Top design
- Comfortable working place
- Easy control and maintenance
- High output
- High reliability
- High crossing ability
- Optimum use of energy in the ESU hydraulic system
- Low consumption of fuel

engine

The 1006-6TW Perkins engine is a supercharged, compression ignition, direct injection, water cooled, and cooled intake air six-cylinder.

Cylinder bore		100 mm
Stroke		127 mm
Cylinder-displacement		6 l
Power/DIN 70020		130 kW
Rated speed		2 200 rpm
Fuel tank volume		550 l
Consumption		220 g/kWh
Electric equipment:	Voltage	24 V
	Storage battery cap.	2 x 180 Ah
	Alternator	24 V/55 A

hydraulic system and control

Hydraulic system:	
Main pumps	2 axial piston, max. 2x220 l/min.
Servo-Control circuit pump	gear pump, 22 l/min.
Working pressure	320 bar
Servo-Control pressure	35 bar
Hydraulic cylinders:	
Boom	⌀140 mm/90 mm - 1 400 mm
Arm	⌀160 mm/110 mm - 1 450 mm
Bucket	⌀140 mm/90 mm - 1 175 mm
Slewing hydraulic	axial piston motor no regulation
Travel hydraulic	axial piston motor two-position regulation

undercarriage and travel drive

The undercarriage frame is a welded, box-type structure. The travel drive is provided by a two-speed hydraulic motor via a Lohman Stolterfoht gear box not overlapping the crawler track gauge. The travel gear box involves a parking multi-disk brake which closes automatically without any control and does not need any maintenance.

Undercarriage with B6 size crawler shoes (as the travel elements: Intertractor Co. specifies) Track tensioning with a grease: cylinder and a nitrogen spring

Number of supporting rollers:	2 units
Number travelling rollers:	8 units, (ST version) 9 units, (LC version)
Number of crawler shoes	47 units, (ST version) 51 units, (LC vewrsion)
Machine tractive power:	230 kN
Climbing ability:	84 % (40°)
Travelling speed:	0 - 5,2 km/h

slewing superstructure drive

The slewing superstructure is driven with an axial piston hydraulic motor via a two-speed Lohmann Stolterfoht gear box with built-in static multi-disk brake. The outlet pinion mates with the cross-roll bearing inner teeth.

Superstructure slewing:	0 - 10,5/min
Superstructure torque:	84 kNm

slewing superstructure

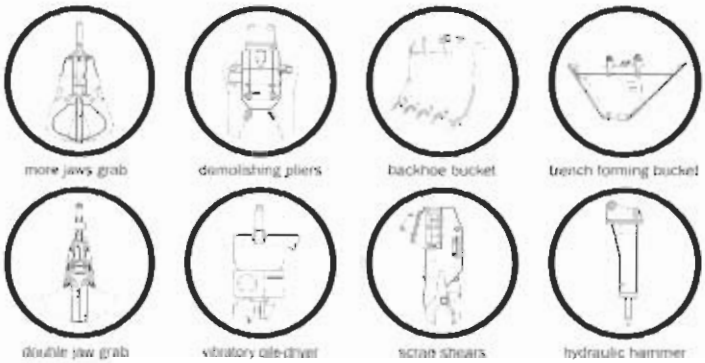
A rigid welded structure with through beams from the boom bedding up to the fixed ballast. The boom is embedded in bronze bushings. The cowling is filled with a sound absorbing material and its design offers a good access to all superstructure elements. The components which may be opened, may be locked up, too.

operator's cabin

The cabin located at the L.H. side of the slewing superstructure is provided with effective noise insulation. The bipartite windscreen is equipped with a large windscreen wiper. The windscreen upper part may be fully raised under the cabin roof. The roof window may be opened. The comfortable, wobliness spring mounted seat with shock absorber may be adjusted vertically and according to the operator's weight. The position of the seat is adjustable independently on the integrated hand-operated controllers and pedals. In this way the optimum ergonomy and therefore the minimum operator's fatigue have been achieved. The dashboard of the newly designed control panel has the instruments and signal lamps, marked out in colours and appurtenant symbols, located within the operator's field of view. A stepless regulation of the engine speed with a hand lever may be locked up in any position. The hot-water heating is equipped with a two-stage fan which ensures effective ventilation, too. The air drawn in is filtered.

attachable tools

For the excavator with backhoe you can use besides shovels various equipment which enable to make work of different character using either big digging force or reach parameters.



noise

Outer noise level	L < 84 dB /A/
Equivalent noise level in the cabin	L_{eq} < 78 dB /A/

ESU hydraulic system (UNEX economical system)

ESU is a two-circuit system getting the advantage of a three-circuit one without raising its first costs. It takes only such an output from the Diesel engine which is required at the given moment.

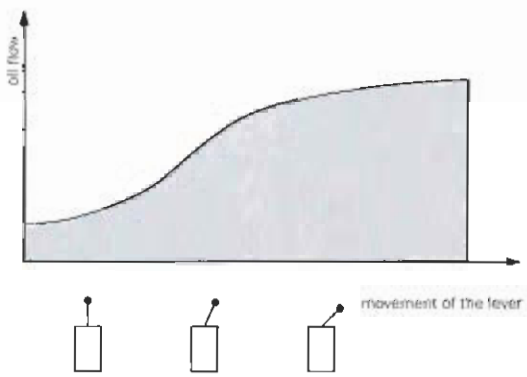
The driving hydraulic set makes a compact unit with the Diesel engine and it consists of a double axial piston pump and a gear pump for driving the control circuits. The pumps make a compact co-axial unit with the Diesel engine.

Regulation:

Both pumps are connected to the Cross-sensing power regulation which enables to utilize nearly the full engine output with one pump only if the second circuit is not being used at the given moment. The engine output is distributed to the two circuits according to their actual load. As soon as the maximum pressure is achieved, the regulation re-adjusts the pumps to the minimum oil delivery in order to save maximum energy. If no output is being taken from the pumps, they are again reset with the regulation to the minimum supply of oil which - with minimum loss of energy - returns back to the oil tank.

Control:

With lever controllers (and pedals for travelling), applying little force only, the slide valves of the distributor which distributes the oil supplied continuously to the working elements, are controlled proportionally to the movement of the controller levers. The regulation of the pumps is adjusted so that the pumps supply only such an amount of oil which is required at the given moment.

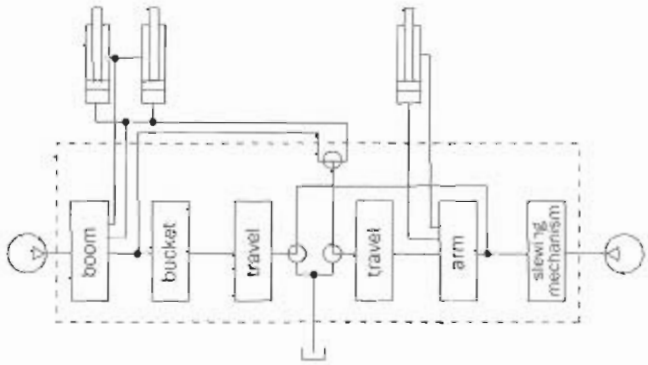


working movements combination

Te ESU system enables any combinatin of the working movements.

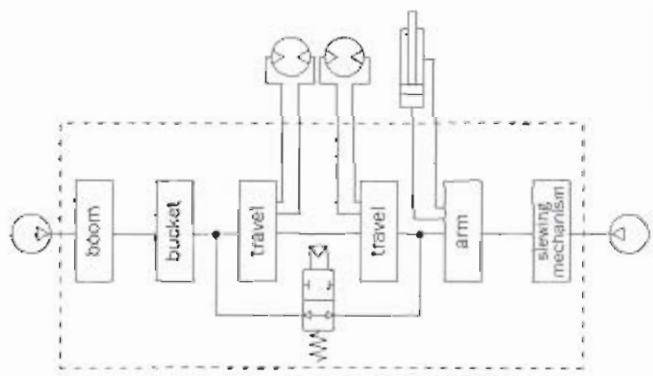
Rapid movement:

If a working element from one circuit is not being utilized, the corresponding pump is automatically utilized for increasing the speed of the movement engaged. So, the rapid movement is disposable bilaterally in case of the arm cylinder, and for the extension only in case of the boom and bucket.



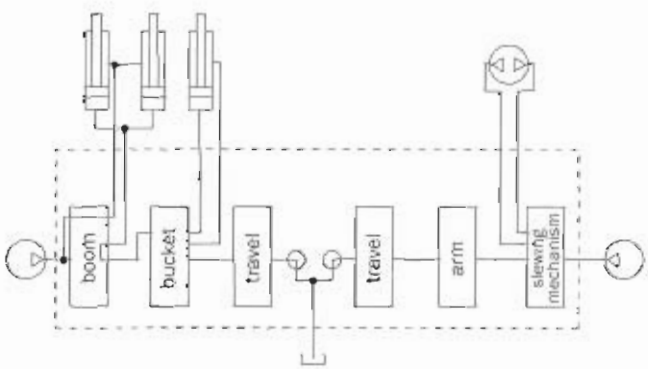
Travel:

The travel makes use of both pumps. In case the operation of the working equipment or the slewing mechanism is required simultaneously, the travel drive switches automatically over to one of the pumps while the second pump is disposable for the working equipment. This advantage may be used, for instance, for the disengage of the proper excavator. With a change-over switch inside the cabin it is possible, in addition, to select between two travel speeds.



Priorities:

Priority connection is reserved for the slewing mechanism and boom drives. The bucket drive is series connected behind the boom which enables to movements of these two elements at the same time with making use of one pump only. The connection shown at Fig.1 makes it possible to move the arm instead of the bucket. The second pump is disposable for the slewing mechanism, arm or travel.



safety and reliability

- The multidisk brakes in the slewing mechanism and travel drives are continuously applied. They release automatically when travel or slewing is engaged.
- The lifting of the left hand rest of the seat in the cabin puts the machine control out of operation.
- Excessive drop of the oil level in the tank puts the machine control out of operation
- The system of hydraulic joints with SAE flanges and nipples with soft sealing elements makes the leakage of oil at coupling points impossible
- Filtration of oil in the return branch ensures the required purity of oil. The filter capacity enables long maintenance intervals.
- Pouring oil in the tank through built-in service filters eliminates mechanical impurities
- Signalling of hydraulic filter contamination
- Hydraulic cylinders dimensioned for 400 bar pressure with effective damping at end positions
- Hydraulic system with multiple protection against overload
- The excavator is equipped with acoustic warning signalling used prior to initiate the operation.

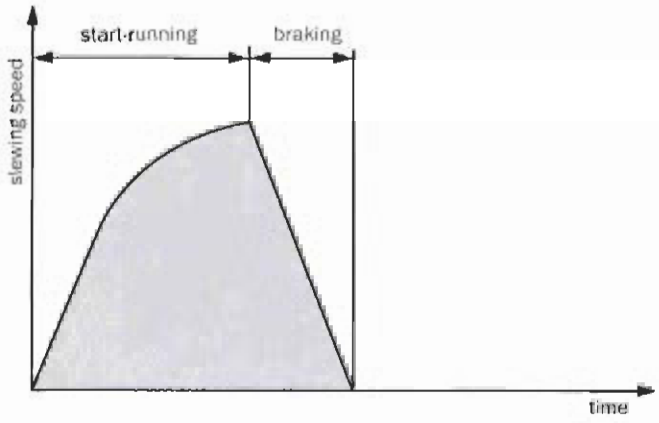
Optional outfit of the machine:

- Biologically decomposable hydraulic liquid for the work in ecologically sensitive regions with higher ecological demands without further intervention.
- Use of the machine in tropical conditions without other arrangement excepting the substitution of service liquids.
- Use of hydraulic locks in the boom for hoisting operations.
- Conditioning of the machine for arctic conditions.
- Installation of a heating independent on the engine operation.
- Air conditioning of the cabin.
- Central lubrication system.
- Fuel-consumption gauge.
- Alternative engines - DEUTZ.
- Radio with stereo-player.

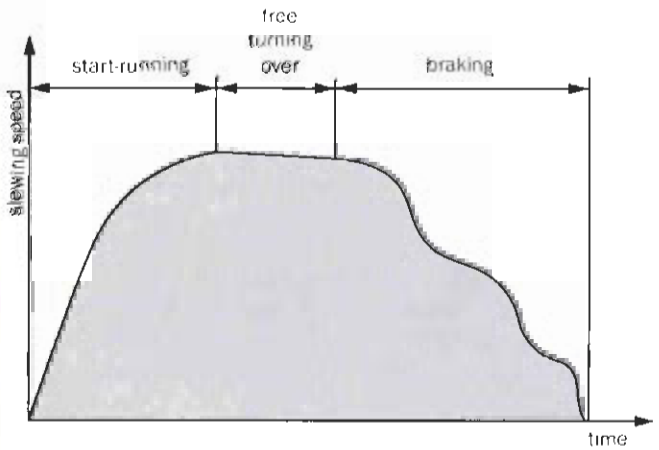
slewing superstructure braking

The slewing superstructure is provided with a hydraulic brake. The brake may be optionally adjusted to 3 different braking modes.

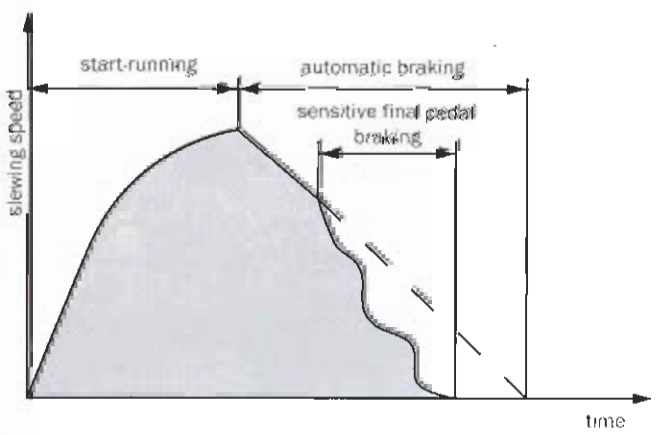
Automatic constant-moment braking on releasing the slewing superstructure control lever:



Pedal-controlled proportional braking

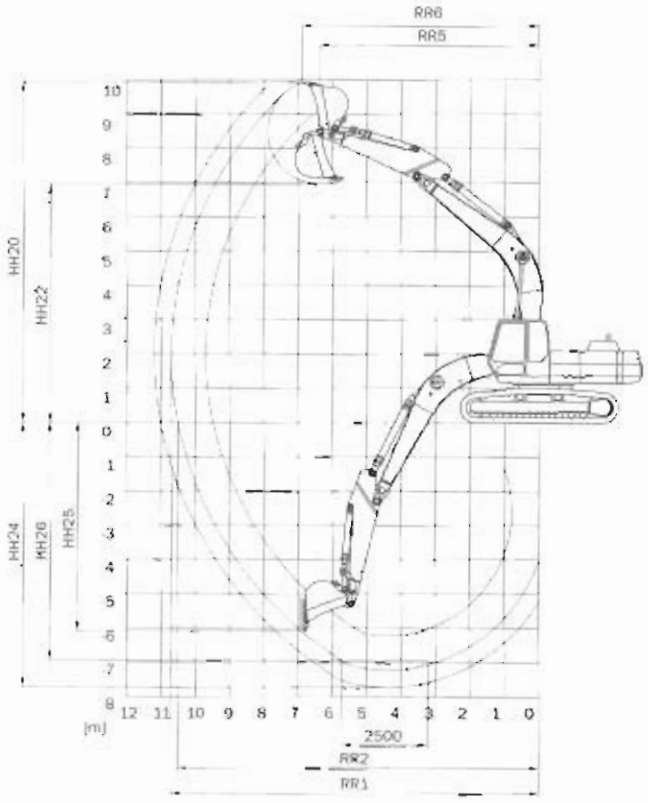


Sensitive pedal-controlled final braking on partially adjusting the automatic constant-moment braking

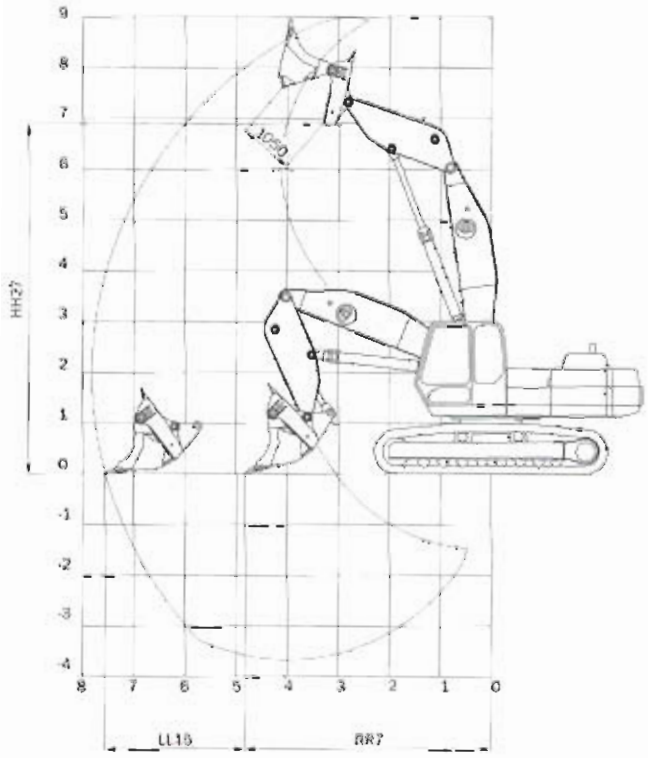


excavator radius

Working reaches with backhoe equipment



Working reaches with loading equipment



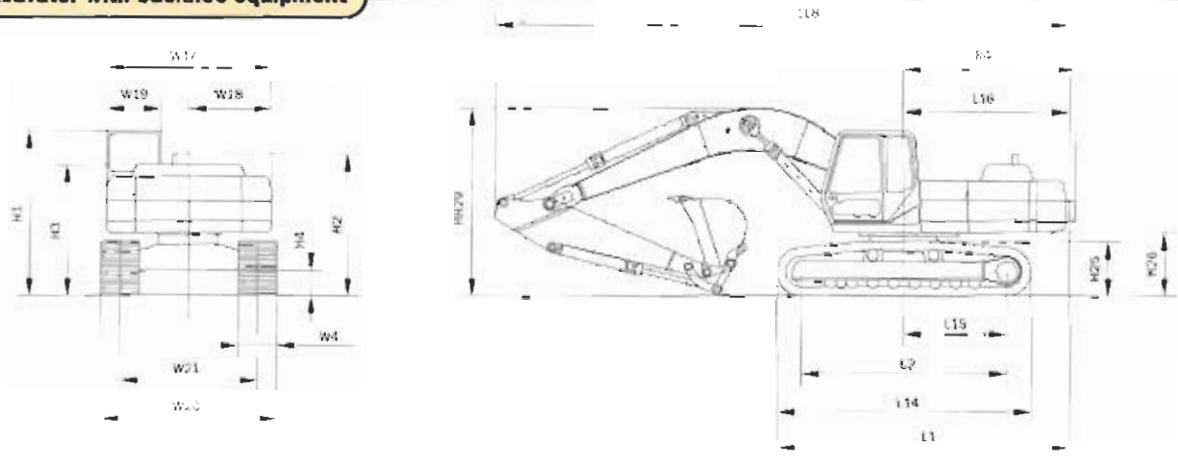
Arm		2.1 m	3.1 m	3.6 m
		mm	mm	mm
RR1	Maximum horizontal reach	9 750	10 590	11 090
RR2	Maximum horizontal GPR reach	9 550	10 390	10 880
RR5	Shovel pivot horizontal reach at max.height	5 420	6 330	6 940
RR6	Horizontal radius at max.vertical reach	5 920	6 830	7 440
HH20	Max. height reach	9 540	9 950	10 240
HH22	Max.loading bucket ground clearance	6 550	6 970	7 260
HH24	Max. depth reach	6 200	6 770	7 270
HH25	Max.vertical excavating depth	4 980	6 080	6 400
HH26	Max.excavating depth at a 2.5 m bottom length	5 950	6 580	7 110

LL15	Cutting length of horizontal bottom	2 740 mm
RR7	Min. radius of horizontal bottom	4 820 mm
HH27	Max. discharge height of loading shovel	7 240 mm

N excavating forces

Arm	2.1 m	3.1 m	3.6 m
Digging force of excavation	142 kN	115 kN	103 kN
Breaking force of excavation	160 kN	160 kN	160 kN

excavator with backhoe equipment



transport dimensions

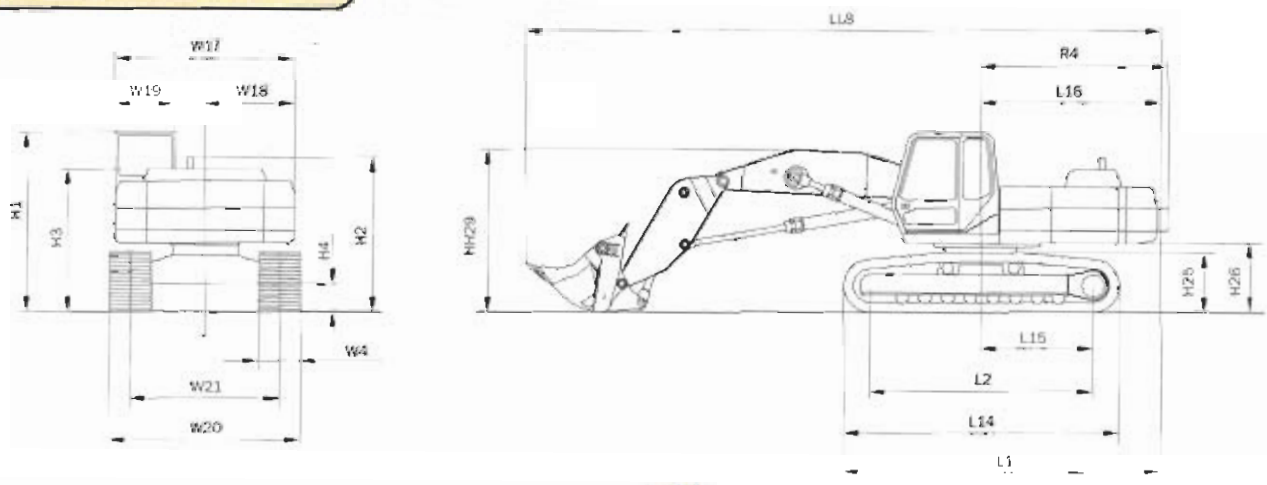
Handle		2.1 m	3.1 m	3.6 m
LL8	Total transport length	10 365 mm	10 375 mm	10390 mm
HH29	Total working equipment transport height	3 290 mm	3 415 mm	3890 mm

backhoe buckets

Capacity SAE	Capacity CECE	Width without side tooth	Width with side tooth	Weight	Handle 2.1 m	Handle 3.1 m	Handle 3.6 m
1.0 m3	0.9 m3	1 100 mm	1 210 mm	895 kg	○	○	○
1.2 m3	1.0 m3	1 200 mm	1 310 mm	980 kg	○	○	□
1.4 m3	1.2 m3	1 410 mm	1 520 mm	1 110 kg	□	□	△
1.6 m3	1.4 m3	1 600 mm		1 050 kg	△	△	

○ Applicable up to a 2.000 kg/m³ specific soil mass □ Applicable up to a 1.600 kg/m³ specific soil mass △ Applicable up to a 1.100 kg/m³ specific soil mass

excavator with loading equipment



transport dimensions

Handle	2.1 m
LL8	10 580 mm
HH29	2 830 mm

loading shovels

Volume with apposition 1:2	Volume with apposition 1:1	Width	Weight
1.15 m³	1.3 m³	1 404 mm	2 228 kg
1.4 m³	1.6 m³	1 684 mm	2 393 kg

total dimensions

Table of total dimensions is valid for both loading equipment

Undercarriage		ST	LC	Undercarriage		ST	LC
L1	Maximum length	5 290 mm	5 500 mm	H4	Undercarriage ground clearance	470 mm	470 mm
L2	Crawler track base	3 710 mm	4 120 mm	H25	Undercarriage crawler track height	990 mm	990 mm
L14	Total undercarriage crawler track length	4 590 mm	5 000 mm	H26	Slewing superstructure ground clearance	1 150 mm	1 150 mm
L15	Distance of the drive sprocket from the axis of turning	1 870 mm	2 070 mm	W4	Crawler shoe width	500-1 000 mm	500-1 000 mm
L16	Distance of the rear part from the axis of turning	3 000 mm	3 000 mm	W17	Total slewing super-structure width	3 000 mm	3 000 mm
R4	Superstructure slewing gauge radius	3 120 mm	3 120 mm	W18	Distance of the R.H. side from the slewing axis	1 500 mm	1 500 mm
H1	Total excavator basic part height	3 000 mm	3 000 mm	W19	Cabin outer width	1 000 mm	1 000 mm
H2	Slewing super-structure height	2 140 mm	2 140 mm	W20	Max.width for the 700 mm caterpillar	3 200 mm	3 300 mm
H3	Cowling height	2 340 mm	2 340 mm	W21	Undercarriage crawler track	2 500 mm	2 800 mm

Owing to a continuous development of our products, we reserve the right to modify data stated in this prospectus without announcing them in advance and without any obligations with respect to the products supplied formerly. The above excavators may be provided with other special additional equipment, too.