

R 20 Technical Data.

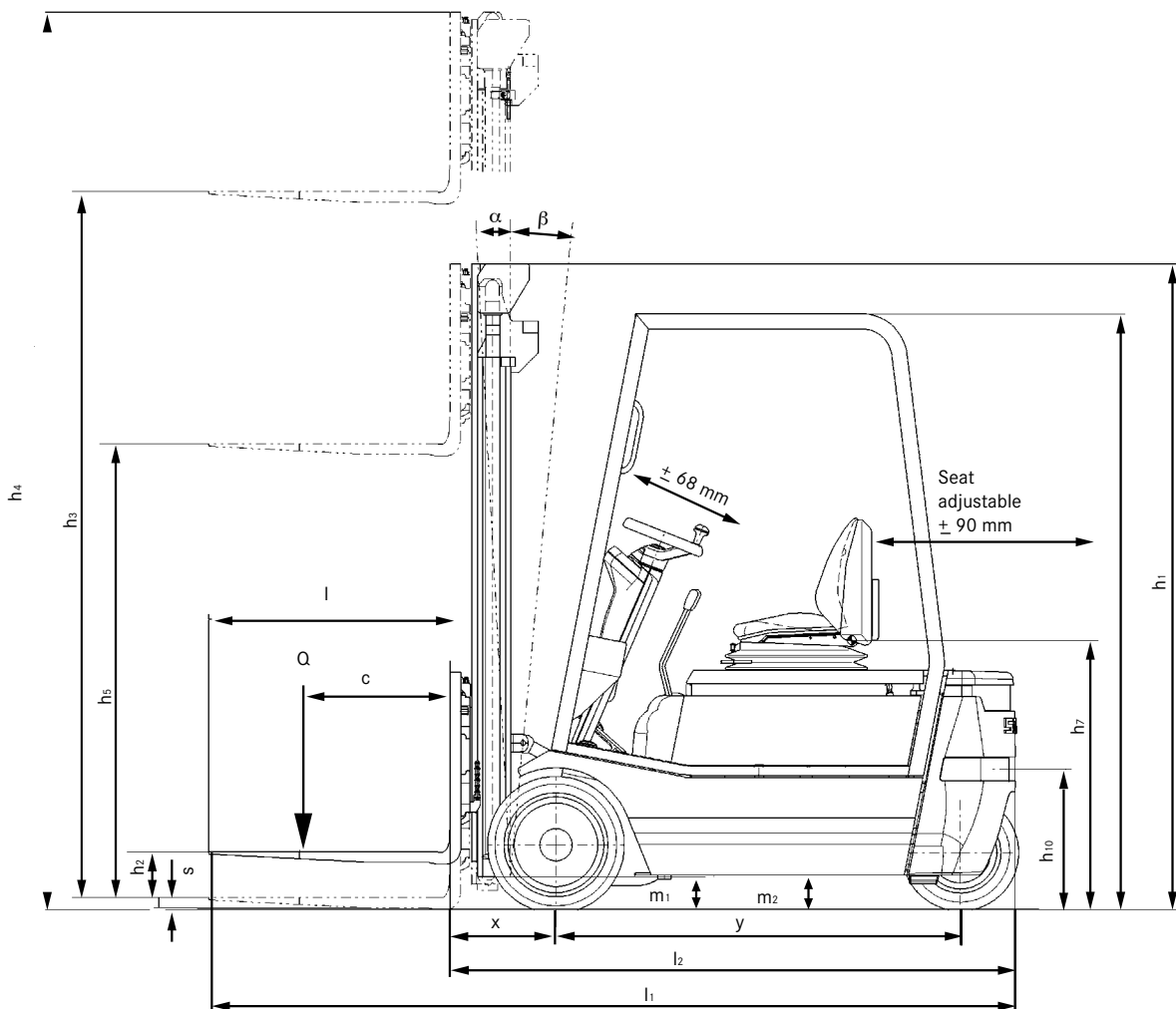
Electric forklift truck
R 20-14



R 20 Technical Data.

This specification sheet to VDI Guidelines 2198 only gives the technical figures for the standard truck.
Different tyres, other masts, additional equipment etc. could give different figures.

Description	1.1	Manufacturer		STILL		
	1.2	Manufacturer's model designation		R 20 - 14		
	1.3	Drive (electric, diesel, petrol, LP Gas, mains.)		Electric		
	1.4	Controls (hand, pedestrian, stand-on, rider seated, order picker)		Rider seated		
	1.5	Capacity / load	Q	kg	1400	
	1.6	Load centre	c	mm	500	
	1.8	Load distance	x	mm	350	
	1.9	Wheel base	y	mm	1232	
	Weights	2.1	Truck weight		kg	2760
2.2		Axle load, laden, front		kg	3656	
2.2.1		Axle load, laden, rear		kg	504	
2.3		Axle load, unladen, front		kg	1310	
Wheels Chassis	2.3.1	Axle load, unladen, rear		kg	1450	
	3.1	Tyres: Solid (V), SE, Pneu. (L), Polyurethane			SE / L	
	3.2	Tyre size, front			18 x 7-8 (16 PR)	
	3.3	Tyre size, rear			15 x 4 1/2 - 8 (12 PR)	
	3.5	Number of wheels front (x=driven)			2x	
	3.5.1	Number of wheels rear (x=driven)			2	
	3.6	Track width, front	b ₁₀	mm	932	
Basic dimensions	3.7	Track width, rear	b ₁₁	mm	170	
	4.1	Tilt Mast / Fork carriage, forward		Deg.	3	
	4.1.1	Tilt Mast / Fork carriage, back		Deg.	7	
	4.2	Height, mast lowered	h ₁	mm	2260	
	4.3	Free lift	h ₂	mm	150	
	4.4	Lift	h ₃	mm	3430	
	4.5	Height, mast raised	h ₄	mm	4080	
	4.7	Height over overhead guard (cab)	h ₆	mm	1960	
	4.8	Seat / Platform height	h ₇	mm	892	
	4.12	Coupling height	h ₁₀	mm	460	
	4.19	Overall length	l ₁	mm	2565	
	4.20	Length including fork backs	l ₂	mm	1765	
	4.21	Overall width	b ₁	mm	1080 / 1115	
	4.22	Fork thickness	s	mm	35	
	4.22.1	Fork width	e	mm	80	
	4.22.2	Fork length	l	mm	800	
	4.23	Fork carriage DIN 15173, Class / Form A, B			ISO II B	
	4.24	Fork carriage width	b ₃	mm	980	
	Performance data	4.31	Floor clearance under mast, laden	m ₁	mm	91
		4.32	Floor clearance, centre of wheel-base	m ₂	mm	100
4.33		Working aisle - 1000 x 1200 pallet crosswise	A _{st}	mm	3092	
4.34		Working aisle - 800 x 1200 pallet lengthways	A _{st}	mm	3216	
4.35		Turning radius	W _a	mm	1415	
4.36		Smallest pivot point distance	b ₁₃	mm	-	
5.1		Travel speed laden		km / h	14	
5.1.1		Travel speed unladen		km / h	16	
5.2		Hoist speed laden		m / s	0.42	
5.2.1		Hoist speed unladen		m / s	0.6	
E-Motor	5.3	Lowering speed laden		m / s	0.6	
	5.3.1	Lowering speed unladen		m / s	0.47	
	5.5	Drawbar pull laden		N	2700	
	5.5.1	Drawbar pull unladen		N	2700	
	5.6	Max. drawbar pull laden		N	7550	
	5.6.1	Max. drawbar pull unladen		N	7700	
	5.7	Gradeability laden		%	6	
	5.7.1	Gradeability unladen		%	10	
	5.8	Max. gradeability laden		%	18	
	5.8.1	Max. gradeability unladen		%	28	
Miscellaneous	5.9	Acceleration time laden		s	4.7	
	5.9.1	Acceleration time unladen		s	4	
	5.10	Service brake			electr. / mech.	
	6.1	Drive motor, 60 minute rating		kW	2x4	
	6.2	Hoist motor 20% rating		kW	9	
E-Motor	6.3	Battery to DIN 43531 / 35 / 36 / A, B, C, no			DIN 43531 A	
	6.4	Battery voltage	U	V	48	
	6.4.1	Battery capacity	K 5	Ah	460 (400-500)	
	6.5	Battery weight		kg	708	
	6.6	Energy consumption to VDI cycle		kWh/h		
	Miscellaneous	8.1	Drive control			Stilltronic pulse
8.2		Working pressure for attachments		bar	210	
8.3		Oil flow for attachments		l / min		
8.4		Sound level at driver's ear		dB(A)		
8.5		Trailer coupling, type / DIN			pin	



The forklift trucks pictured in this brochure include some special equipment which is not supplied as standard

Gradients.

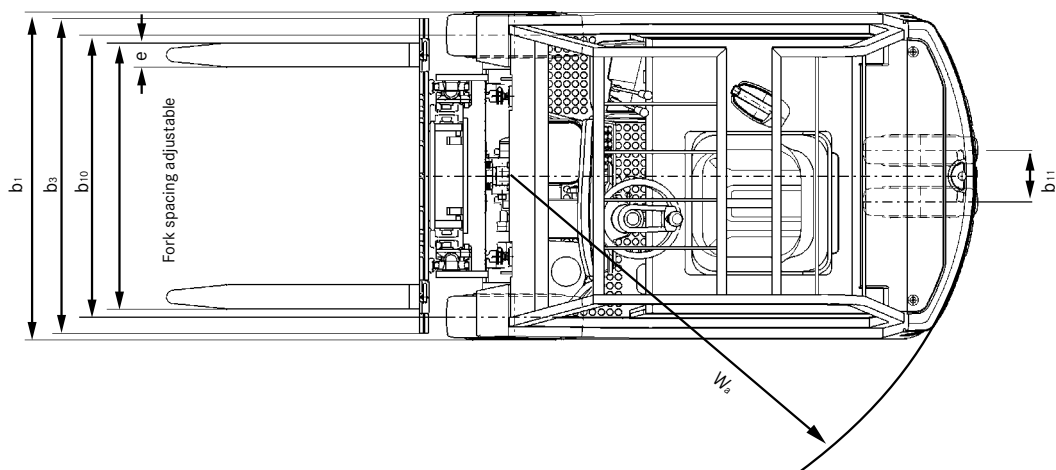
(dry rough concrete surface = Coefficient of friction 0.80, battery 600 Ah)

Unladen		R 20 - 14	
		Gradient (%)	Distance (m)
		20%	780 m
		15%	1700 m
		10%	4200 m
		5%	16590 m

Laden		R 20 - 14	
		Gradient (%)	Distance (m)
		12%	700 m
		9%	1500 m
		5%	5650 m
		3%	13630 m

Mast types.

R 20-14	Parameter	Unit	Telescopic mast				HiLo mast				Triplex mast	
			1	2	3	4	1	2	3	4	1	2
	Rated lift	h ₃	2630-3530		3630-5430		2775-3575		3675-4075		4020-8020	
	Overall height	h ₁	1860-2310		2360-3260		1860-2260		2310-2510		1860-3260	
	Height, mast raised	h ₄	3280-4180		4280-6080		3425-4225		4325-4725		4670-8670	
	Free lift	h ₂ / h ₅	150				1230-1630		1680-1880		1230-2630	
	Tilt angle	α β	3	7	3	9	3	7	3	9	3	5
	Length	l ₂	1765				1765				1785	
	Load distance	x	350				350				370	
	Working aisle A _{st} pallet	A _{st}	3092		3216		3092		3216		3110 3325	
	1000x1200 across 800x1200 length											



Dual motor front wheel drive.

With its 48 volt battery and dual motor front wheel drive the R 20 has a high performance capability.

The two heavy duty drive motors provide powerful traction particularly on steep gradients.

The tractive power of the drive motors is precisely matched to the input at the steering wheel i.e. at a 900 steering lock both drive motors turn the truck actively into the bend. This makes for sensitive operation in narrow aisles and better manoeuvrability.

- The speed and torque can be regulated independently, allowing sensitive driving, powerful acceleration and wear-free electrical braking using only the drive pedal.
- High efficiency regenerative braking - up to 10% recovery of energy - is possible. During plugging or braking, or if the drive pedal is released, energy flows back into the battery, giving the new R 20 a greater working range from one battery charge or often making it possible to use a smaller battery.

Electrics.

Modern digital electrics are fitted. The exchange of information between electrical assemblies e.g. between the drive controller and the cockpit is achieved by the CAN bus system already used successfully in motor vehicles. The number of cables and plug connectors is reduced and at the same time reliability is increased. It also simplifies modifications to the electrical equipment.

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Mast.

Mast.

STILL clear view masts in Telescopic, HiLo and Triplex designs for every application:

- Telescopic: the mast suitable for most applications. Economical mast design.
- HiLo: for high stacking under low ceilings. Utilises the space right up to the roof.
- Triplex: for applications with low doorways and greater stacking heights. Utilises the space right up to the roof.
- Fork carriage: Completely redesigned for this truck, features optimised profiles and provides a very good view of the load being picked up. The hydraulic hoses for attachments are run in the dead visibility area of the mast sections – with no hose reels – for wear free operation.

Steering.

- The steering operates on the hydrostatic principle with a priority valve.
- The pump operates “on demand” – i.e. only when the steering wheel is moved, for optimal energy economy.
- The 90° bogie steering makes the R 20 very manoeuvrable in tight production areas and storage spaces.
- Extremely safe and reliable operation is guaranteed by the fully encapsulated steering system, which is protected against dirt and damp.

Hydraulics.

- The electric pump motor speed is precisely governed by the position of the valve lever, and thus operates in line with demand. This saves energy, provides more work from a single battery charge. More precise hoisting makes for greater safety.

The oil is filtered through a suction filter before passing through the hydraulic units, reducing wear to a minimum.

Stability.

The R 20 can travel quickly around corners because of its high stability, which leads to faster turnaround. The long wheel-base design means the tipping lines are spread wide apart and thus are a long way from the centre of gravity of the truck. The greater this dimension, the higher the stability.



Drivers compartment.

Drivers compartment.

- The cockpit has an LCD display and a pre-selection facility allowing the driver to choose the drive characteristics. He can select the most suitable acceleration or braking and travel speeds from 5 pre-set options. Other adjustments of the drive parameters to suit the application requirements can be made by simply altering the software.
- The drive pedal sets the speed required by the driver. The travel speed is unaffected by the influence of the load or the road surface.
- The up-to-date driving characteristics of the R 20 allow the truck to be held on a gradient or on uneven roadways without touching the hand or foot brakes.
- Roomy footwell with inclined floor plate and non-slip rubber matting.
- Automotive style hand brake to the right of the driver's seat.
- Comfortable entry and exit thanks to low step height and large foot space, which, combined with the angled floor plate, allows the legs to adopt a relaxed posture.
- Comfortable seat, adjustable to the driver's weight, with hydraulic damping. The thighs are supported by a generously proportioned seat cushion.
- Adjustable steering column and longitudinal seating position provide an extremely comfortable working position for any physique.

Service.

The maintenance interval has doubled from the earlier 500 to 1,000 operating hours. This is due to an improvement in the technical quality in tandem with a reduction in the number of components requiring maintenance.



For further information on the R 20
please visit: www.still.de/R20

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