

## EFU Technical Data.

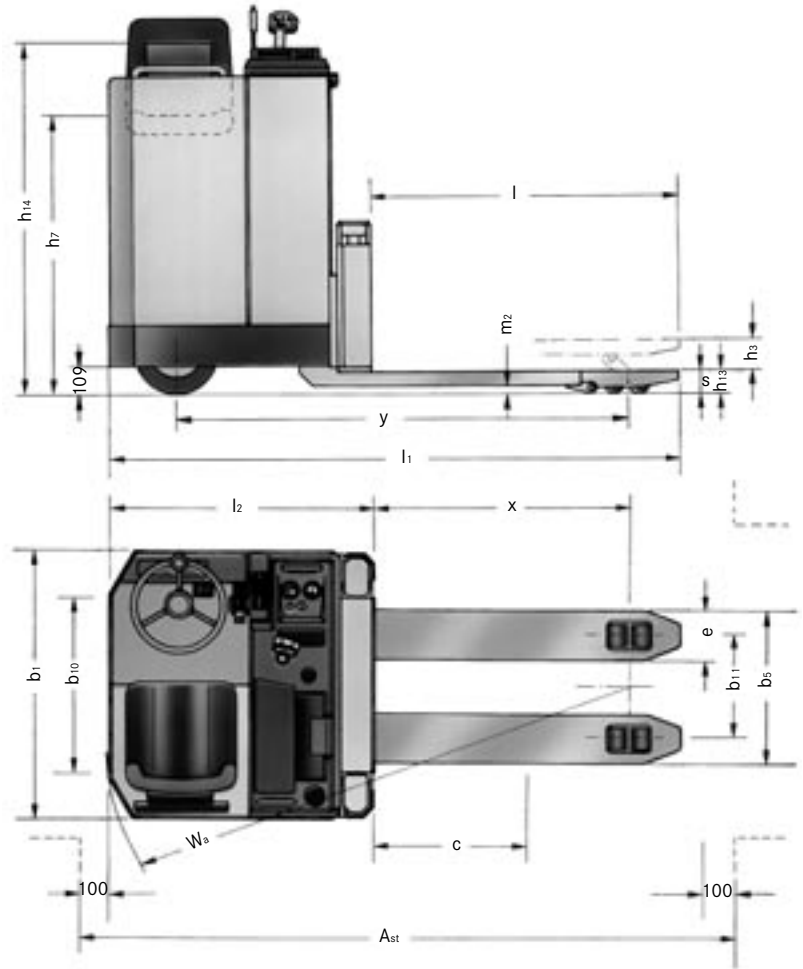
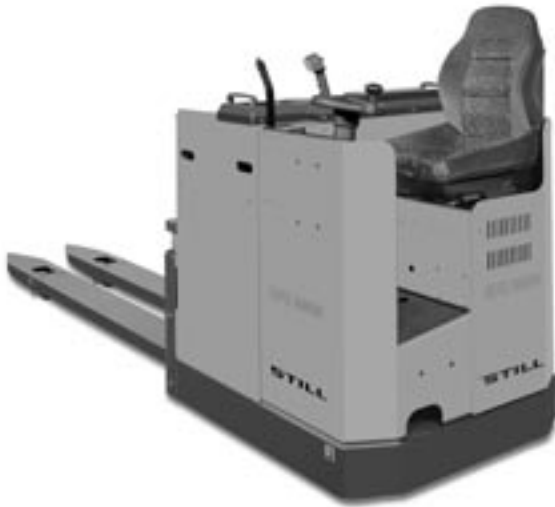
Sit-on Low Lift Pallet Truck.



Achieve more.

# EFU 2000, EFU 3000.

## Sit-on Low Lift Pallet Truck.



### Frame.

- Robust all-steel frame consisting of drive section and a lifting load section. The load section contains the driver's platform and all major assemblies in an easily serviced layout, as well as the battery.
- Battery not lifted with the load. Energy saving solution.

### Four wheel design.

- Favourable weight distribution and reduced point loading – an important feature when working on upper floors and using lifts.

### Driver's compartment.

- Generously dimensioned driver's compartment.
- Comfortable seat, adjustable to the driver's weight, with hydraulic damping. The shape of the seat gives firm, fatigue-free support. The cloth covering used has a comfortable feel.
- Adjustable steering column to suit all operators.
- Multiple settings of the seat allow individual adjustment of the seating position.
- Storage facility for working papers and utensils.
- Padded armrest with storage facility for working papers.
- The controls are integrated in the multi-function hand grip and are within easy reach. Switches for direction control, hoist / lower and horn can all be operated without changing the position of the arm.

### Steering.

- Electric servo-steering, consisting of: steering wheel with spinner knob, cardan shaft and adjustable chain.
- Steering angle is 95° each side.
- The speed of the steer motor is electronically controlled through a sender on the cardan shaft to match the demand.
- Reduced energy requirement, because the steering electronics are only activated when steering is required.
- Ergonomic steering wheel, with a user friendly spinner knob.

### Drive.

- The truck can only be driven when the travel release switch is depressed.
- Electronic impulse control fitted as standard.
- The self-ventilated series wound motor does not move with the steering, avoiding stress on cable connections.
- Optimal effectiveness and energy utilisation are provided by spur and bevel gear transmission.

### Hydraulics.

- Special compact pump and motor unit with a built in oil tank acts through two lift cylinders on the push rods in the forks.
- Control is by means of solenoid valves. A maximum pressure valve protects against overload or damage.

## Brakes.

- Hand and foot brakes act separately as is customary in vehicles. Both systems operate positively.
- The internal shoe brake, with asbestos free linings, acts on the motor shaft and serves as a service and parking brake.
- "Soft braking" is achieved by plugging.

## Combi-instrument.

- Combi-instrument - battery discharge indicator and work hour meter combined with hoist cut-out and LED display.

## Battery.

- A section of the hinged truck cover opens to allow the battery to be serviced in the truck.
- For multi-shift operations the roller track mounted battery can be changed using a battery changing frame.

## Safety.

- Trucks are built to EC Directive 98 / 37 / EC and carry the CE symbol.
- STILL is certified to ISO 9001.

## Optional equipment.

- Electric servo-steering, with reverse steering function.
- Collision guard.
- Driving speed reduction when fork carriage is not raised.

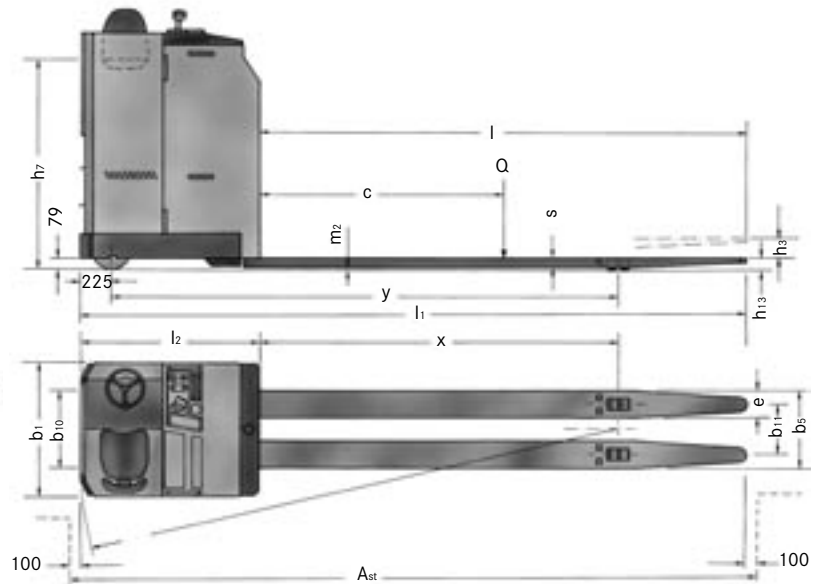
In accordance with VDI guidelines 2198, this specification applies to the standard model only. Alternative tyres, mast types, ancillary equipment, etc. could result in different values.

Characteristics	1.1	Manufacturer			STILL	STILL
	1.2	Manufacturer's model designation			EFU 2000 24 V	EFU 3000 48 V
	1.3	Power supply (electric, diesel, petrol, gas, mains electric)			electric	electric
	1.4	Type of control (hand, pedestrian, stand-on, rider seated, order picker)			rider seated	rider seated
	1.5	Capacity / load	Q	kg	2000	3000
	1.6	Load centre	c	mm	600 (500)	600 (500)
	1.8	Load distance	x	mm	935 / 775	935 / 775
	1.9	Wheelbase	y	mm	1650 / 1490	1650 / 1490
	Weight	2.1	Weight (inc. battery)		kg	1454
2.2		Axle loadings laden	drive end / load end	kg	1640 / 1814	2595 / 2445
2.3		Axle loadings unladen	drive end / load end	kg	1108 / 346	1525 / 515
Wheels   Tyres	3.1	Tyres (rubber, Vulkollan, pneumatic, polyurethane)			Vulkollan	Vulkollan
	3.2	Tyre size	drive end	mm	ø 300 x 100	ø 300 x 100
	3.3	Tyre size	load end	mm	ø 85 x 86,5	ø 85 x 86,5
	3.4	Swivel castor roller	drive end	mm	ø 200 x 50	ø 200 x 50
	3.5	Wheels, number (x=drive wheel)	drive end / load end		1 x -3 / 4	1 x -3 / 4
	3.6	Track width (front)	drive end	b <sub>10</sub> mm	604	604
	3.7	Track width (rear)	load end	b <sub>11</sub> mm	380	380
Dimensions	4.4	Lift height		h <sub>3</sub> mm	115	115
	4.8	Seat height		h <sub>7</sub> mm	1080	1080
	4.15	Height lowered		h <sub>13</sub> mm	85	85
	4.19	Overall length without load		l <sub>1</sub> mm	2085 (1925)	2330 (2170)
	4.20	Length to front face of fork		l <sub>2</sub> mm	965	1210
	4.21	Overall width		b <sub>1</sub> mm	980	980
	4.22	Fork dimensions		s / e / l mm	56 / 180 / 1120 (960)	56 / 200 / 1120 (960)
	4.25	Overall fork width		b <sub>5</sub> mm	564	570
	4.32	Floor clearance, centre of wheelbase		m <sub>2</sub> mm	31	22
	4.34	Working aisle width, with 800 x 1200 pallet lengthwise (b <sub>12</sub> x l <sub>0</sub> ) <sup>1)</sup>		A <sub>st</sub> mm	2395	2645
4.35	Outer turning radius		Wa mm	1930 (1770)	2015 (2175)	
Performance	5.1	Speed	laden / unladen	km / h	9.0 / 12.0	9.0 / 12.0
	5.2	Lifting time	laden / unladen	m / s	3.0 / 2.2	2.5 / 1.8
	5.3	Lowering time	laden / unladen	m / s	3.0 / 3.0	2.2 / 2.8
	5.7	Gradeability	laden / unladen	%	5.0 / 14.5	6.0 / 15.0
	5.9	Acceleration time (over 10 m)	laden / unladen	s	6.3 / 5.0	6.2 / 5.0
	5.10	Brakes			mechanical / hydraulic	mechanical / hydraulic
Electric Motors	6.1	Drive motor, rating S2 = 60 min.		kW	2.8	4.2
	6.2	Hoist motor, rating S3 = 15%		kW	2.0	2.0
	6.3	Battery to IEC 254-2; A, B, C, no			IEC 254-2; A	IEC 254-2; A
	6.4	Battery voltage, capacity K <sub>5</sub>		V / Ah	24 / 560 L	48 / 560 L
	6.5	Battery weight + / - 5% (dependent on manufacturer)		kg	510	940
	6.6	Energy consumption according to VDI cycle		kWh / h		
Other	8.1	Drive control			electronic	electronic
	8.4	Noise peak at operator's ears		dB (A)	66.4	68.9

1) Working aisle width A<sub>st</sub> including 200 mm manoeuvring allowance

# EFU 3001, EFU 3002.

## Sit-on Low Lift Pallet Truck.



### Frame.

- Robust all-steel frame consisting of a drive section and a lifting load section. The load section contains the driver's platform and all major assemblies in an easily serviced layout, as well as the battery.
- High seat position for better view when transporting high loads or up to three pallets lengthways.
- Fork length for up to three pallets lengthways (reinforced to prevent sagging).
- Battery not lifted with the load. Energy saving solution.
- Deflector brush fore / aft of the load wheels on the EFU 3002.

### Four wheel design.

- Favourable weight distribution and reduced point loading.
- High lateral stability when travelling round bends.

### Driver's compartment.

- Generously dimensioned driver's compartment with padding at knee level.
- Comfortable, cloth-covered seat, adjustable to the driver's weight, with hydraulic damping. The shaping of the seat gives firm, fatigue-free support.
- Multiple seat adjustment accommodates widely differing driver requirements.
- Padded arm rest with storage facility for working papers.
- The controls are integrated in the multi-function hand grip and are within easy reach. Switches for direction control, hoist / lower and horn can all be operated without changing the position of the arm.
- Steps make for easier access to the operator's compartment.
- Raised doors close around driver's compartment to reduce draughts and protect the operator.
- Writing surface with clip for working papers.
- Handles for safe entry and exit.

### Steering.

- Electric servo-steering (with limit switches on the EFU 3002), consisting of: steering wheel with spinner knob, cardan shaft and adjustable chain.
- Steering lock 85° to each side.
- The speed of the steer motor is controlled electronically to suit demand through a sender unit on the cardan shaft.
- Reduced energy requirement, because the steering electronics are only activated when steering back-up is required.
- On-demand steering gives reduced energy consumption.

### Drive.

- Comfortable and economical operation thanks to the MOSFET controller. The truck will start smoothly and accelerate evenly up to maximum speed.
- The ventilated, series wound motor(s) do not move with the steering, so the cable joints are not stressed.
- High acceleration and top speed.
- Feedback of energy in regenerative mode.
- Optimum energy utilisation provided by spur and bevel gear transmission.
- High travel speed on the EFU 3002 due to special circuit technology.
- Motor brush and temperature monitoring on the EFU 3002.

### Hydraulics.

- Special compact pump and motor unit with a built in oil tank acts through one lift cylinder on the pull rods in the forks.
- A maximum pressure valve protects against overload or damage. Control is through a solenoid valve and lowering valve.

## Brakes.

- The action of the hand and foot brakes is separate, as in road vehicles. The internal shoe brake, with asbestos-free linings, acts on the motor shaft and serves as a parking brake, but can also be used as a service brake.
- Braking occurs when the pressure is taken off the drive pedal whilst travelling (deadman principle) and regenerative braking feeds energy back into the battery.

## Combi-instrument.

- Combi-instrument - battery discharge indicator and work hour meter combined with hoist cut-out and LED display.

## Battery.

- For multi-shift operations the battery can be changed using a hoist.
- Battery servicing possible by hinging up the battery lid.

## Approved safety.

- Trucks are built to EC Directive 98 / 37 / EC and carry the CE symbol.
- STILL is certified to ISO 9001.

## Optional equipment.

- Electric servo-steering, with reverse steering function (and limit switches on the EFU 3002).
- Cold store version -30 °C, in / out use (EFU 3002).
- Wind screen with entry doors, open at fork end.
- Cold store cab -30 °C, in / out use (EFU 3002).

In accordance with VDI guidelines 2198, this specification applies to the standard model only. Alternative tyres, mast types, ancillary equipment, etc. could result in different values.

				STILL			
				STILL	STILL		
Characteristics	1.1	Manufacturer			STILL	STILL	
	1.2	Manufacturer's model designation			EFU 3001	EFU 3002	
	1.3	Power supply (electric, diesel, petrol, gas, mains electric)			electro	electro	
	1.4	Type of control (hand, pedestrian, stand-on, rider seated, order picker)			rider seated	rider seated	
	1.5	Capacity / load	Q	kg	3000	3600	
	1.6	Load centre	c	mm	1200	1800	
	1.8	Load distance	x	mm	1850	2645 / 2535	
	1.9	Wheelbase	y	mm	2942	3737 / 3627	
	Weight	2.1	Weight (inc. battery)		kg	2540	3375
2.2		Axle loadings laden	drive end / load end	kg	2770 / 2770	3230 / 3145	
2.3		Axle loadings unladen	drive end / load end	kg	1890 / 650	2605 / 770	
Wheels / Tyres	3.1	Tyres (rubber, Vulkollan, pneumatic, polyurethane)	drive end / load end		Vulkollan / rubber	Vulkollan / rubber	
	3.2	Tyre size	drive end	mm	ø 300 x 100	ø 300 x 130	
	3.3	Tyre size	load end	mm	ø 85 x 80 tandem	ø 85 x 100 tandem	
	3.5	Wheels, number (x=drive wheel)	drive end / load end		1 x / 4	2 x / 4	
	3.6	Track width	drive end	b <sub>10</sub>	mm	570	570
	3.7	Track width	load end	b <sub>11</sub>	mm	370	370
	Dimensions	4.4	Lift height		h <sub>3</sub>	mm	150
4.8		Seat height		h <sub>7</sub>	mm	1260 <sup>3)</sup>	1470 <sup>2)</sup>
4.15		Height lowered		h <sub>13</sub>	mm	86	87
4.19		Overall length without load		l <sub>1</sub>	mm	3707	4907
4.20		Length to front face of fork		l <sub>2</sub>	mm	1317	1317
4.21		Overall width		b <sub>1</sub>	mm	990	990
4.22		Fork dimensions		s / e / l	mm	74 / 200 / 2390	74 / 200 / 3590
4.25		Overall fork width		b <sub>5</sub>	mm	570	570
4.32		Floor clearance, centre of wheelbase		m <sub>2</sub>	mm	12	12
4.34		Working aisle width, with 800 x 1200 pallet lengthwise (b <sub>12</sub> x l <sub>6</sub> ) <sup>1)</sup>		A <sub>st</sub>	mm	3910	5180
4.35	Outer turning radius		Wa	mm	3170	3980	
Performance	5.1	Speed	laden / unladen	km / h	9.0 / 12.0	14.0 / 16.0	
	5.2	Lifting time	laden / unladen	m / s	2.3 / 1.9	3.5 / 2.5	
	5.3	Lowering time	laden / unladen	m / s	2.3 / 1.9	3.0 / 3.5	
	5.7	Gradeability	laden / unladen	%	8.0 / 13.0	10.0 / 15.0	
	5.9	Acceleration time (over 10 m)	laden / unladen	s	6.0 / 5.0	5.2 / 4.5	
	5.10	Brakes				generator	generator
Electric Motors	6.1	Drive motor, rating S2 = 60 min.		kW	1 x 5.2	2 x 5.2	
	6.2	Hoist motor, rating S3 = 15%		kW	2.0	2.0	
	6.3	Battery to IEC 254-2; A, B, C, no			tray 334	no	
	6.4	Battery voltage, capacity K <sub>5</sub>		V / Ah	48 / 560 L	48 / 800	
	6.5	Battery weight + / - 5% (dependent on manufacturer)		kg	933	1400	
	6.6	Energy consumption according to VDI cycle		kWh / h	0.96	1.25	
Other	8.1	Drive control			electronic	electronic	
	8.4	Noise peak at operator's ears		dB (A)	69.8	69.8	

1) Working aisle width A<sub>st</sub> including 200 mm manoeuvring allowance

2) Steps at 469 mm and 724 mm

3) Step at 469 mm

# EFU 3002-TK, -WS.

## EFU 3002-TK.

### Enclosed driver's cab, heated or unheated for the EFU 3002.

- The driver's cab is available as a heated cold store cab for in / out use down to  $-30\text{ }^{\circ}\text{C}$  or as a cab for unheated buildings.

The insulated cab is constructed so that it also functions as an overhead guard. Fresh air is supplied through ventilation flaps. Thermostatically regulated interior space heater. Large, double glazed screens, heated or unheated depending on the application, provide excellent all-round vision. Non-dazzle cab lighting on the cab roof. Intercom system and switch panel fitted on the cab wall. Drive interlock switch integrated into the door closer mechanism. As an option, spotlights, rotating or flashing beacons can be installed on the cab roof.

Advantages of an enclosed driver's cab:

- enhanced work place.
- working in normal clothes.
- increase in personal well-being with thermostatically regulated interior temperature.
- reduction in health risks caused by temperature differences, which can be up to  $60\text{ }^{\circ}\text{C}$  in certain operating conditions.
- higher work output.
- the full shift period can be utilised because breaks to recover from the cold are no longer necessary.



## EFU 3001-WS / EFU 3002-WS.

### Wind screen with entry doors open at fork end.

With rider-seated low lift pallet trucks it is usual to travel with the drive wheel leading as the pallets picked up are usually loaded and can impair the view towards the forks during travel. The windshield is therefore open at the load end and only closed at the sides and the drive end.

Advantages of the windshield:

- No draught when driving.
- Enhanced work place.
- Increase in personal well being.
- Reduction in health risks caused by draughts.



# Equipment summary.

	Manufacturer	STILL	STILL	STILL	STILL
	Manufacturer's model designation	EFU 2000	EFU 3000	EFU 3001	EFU 3002
Frame	Robust all-steel frame, drive and lifting load section	●	●	●	●
Four wheel design	Good weight distribution and reduced point loading	●	●	●	●
Driver's compartment	Seat with hydraulic damping, adjustable	●	●	●	●
	Adjustable steering wheel position and longitudinal seat adjustment	●	●	●	●
	Padded armrest with storage facility for working papers	●	●	●	●
	Controls integrated in multi-function handle	●	●	●	●
Steering	Electric servo steering	●	●	●	●
	Steering stop to each side	95°	95°	85°	85°
Drive	Ready for operation when drive enable switch is depressed	●	●		
	Ready for operation when doors are closed			●	●
	Electronic controller as standard	●	●	●	●
	The drive motor does not move with the steered wheel	●	●	●	●
Hydraulics	Special pump and motor unit, compact build with oil tank	●	●	●	●
	Control through a solenoid valve and lowering valve	●	●	●	●
	Protection from overload / damage by maximum pressure valve	●	●	●	●
Brakes	Hand and footbrake act separately	●	●	●	●
	Internal shoe brake acts as service brake and parking brake	●	●	●	●
	Soft braking when driving using plugging	●	●	●	●
	Generator braking with energy recovery			●	●
Combi-instrument	Combi-instrument with battery discharge indicator and work hour meter combined with lift cut-out and LED display	●	●	●	●
Battery	Battery maintenance possible in truck	●	●	●	●
	Battery changing using a battery changing frame	●	●		
	Battery can be changed using a hoist			●	●
Auxiliary equipment	Electric servo steering with reverse steering function	○	○	○	○
	Collision protection	○	○	●	●
	Reduced travel speed with fork carriage lowered	○	○		
	Wind screen with entry doors, open at fork end			○	○
	Cold store cab -30°C, in / out use				○
	Synthetic leather seat	○	○	○	○
Seat heater			○	○	

● Standard

○ Option

The models in this brochure may contain special parts or attachments which are not supplied as standard. In keeping with our policy of continuous product development, we reserve the right to modify design, specification and standard equipment at any time.



For further information on the EFU please  
visit: [www.still.de/EFU](http://www.still.de/EFU)

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