

**TCM**

# **FB-VIII** SERIES

ELECTRIC COUNTERBALANCED FORKLIFT TRUCKS



**1.0-3.5 tons**

Class 1 - sit-down type

Beyond the limits!

# FB-VIII SERIES

ELECTRIC COUNTERBALANCED FORKLIFT TRUCKS



Ecology and Economy P.03

Comfortable operation P.05



Safety P.07



The latest fruit of the long years of pursuit of the top quality electric vehicles on the material handling scene, TCM FB-VIII Series electric counterbalanced forklift trucks feature enhanced environmental friendliness and increased economy.

They meet the needs of the times, and provide better operator comfort and controllability. This is attained by ergonomically designed controls and seating, and many safety devices which help protect the operator from a variety of potential hazards.

TCM FB-VIII has broken through various limits in electric forklift technology to reach a new dimension in electric vehicles.



### Fully-hydraulic Orbitrol power steering(standard)

The power steering system uses Orbitrol, a fully-hydraulic power steering system that features low maintenance costs.

### The easy-to-read LCD panel includes a power consumption rate and a remaining battery time screen

The multi-function LCD panel shows power consumption per hour and remaining battery time. You can easily check the truck's power consumption at a glance for better energy savings.



Easy-to-scan multi-function LCD panel



The LCD panel allows the operator to check present power consumption. The indicator shows power consumption per hour. "Remaining battery time" is the length of time the truck can keep operating before it needs a recharge.   
 ※The "remaining battery time" readout is not necessarily perfectly accurate, because it is calculated using the reading of the battery charge indicator. It should be used as a rough guide.

### Hour meter

START@	TOTAL	4/08	4/09	4/10	NOW
KEY SW	402	7.5	6.9	7.3	3.8 h
DRIVE	18.9	4.0	3.6	3.7	2.1 h
PUMP	17.1	3.1	2.9	3.4	1.7 h
TRAVEL	70.4	10.1	10.1	13.6	8.0 km
WORK	36.0	7.1	6.5	7.1	3.8 h
RATE	89.5	94.6	94.2	97.2	99.9 %

Total operating time      Data on the past three shifts      Data on the present shift

### Longer battery runtimes per charge (For trucks with optional EPS)

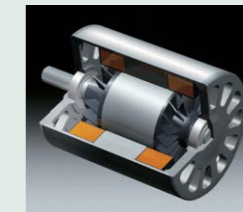
The long (8.5 hour) battery runtime on a single charge has been achieved by using a highly-efficient AC drive motor that draws less current, and various types of regenerative braking: switch-back, accelerator-off and braking regeneration.

(The values were measured on an FB15 with optional EPS working in our specified work cycle pattern at an operating rate of 55% in the P operating mode.)

※The explanation above applies to trucks with an optional EPS unit. Trucks with standard Orbitrol power steering will have a 15 to 20% shorter battery run time.

### Auto power-off

The power supply is turned off automatically if the operator's seat is left vacant or no operation is performed over a set period of time. This helps eliminate wasteful consumption of battery current as well as prevent accidents when the operator gets back on the truck.



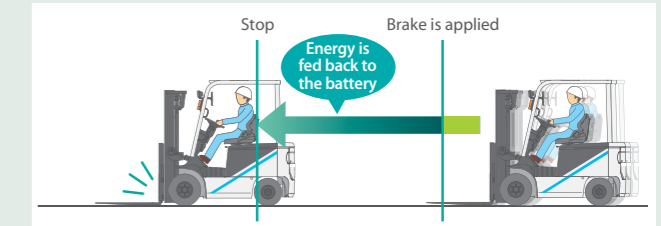
### A new type of AC motor

AC motors are used for both the drive and the lift systems, to attain better controllability and low maintenance.

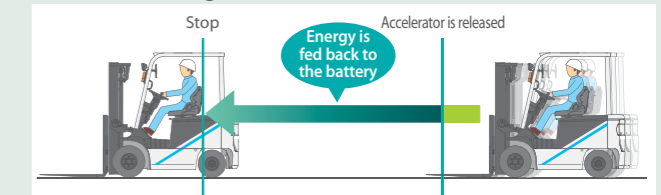
### Regeneration means energy savings

Efficient recovery of braking energy is attained by three types of regeneration - braking, accelerator-off, and switchback. The substantially reduced switchback time and distance will reduce operator fatigue.

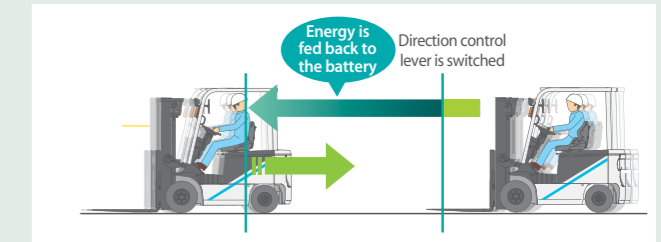
#### Braking regeneration



#### Accelerator-off regeneration



#### Switchback regeneration



### Three power output modes available

You can select any of three power output modes, "S", "P" and "E", to match your specific driving or load handling job requirements. This feature helps improve economy and productivity.

Mode	Travel speed (unloaded)	Battery time on a single battery charge:
Economy-mode	14.0 km/h	9.0 hours
Power-mode	15.0 km/h	8.5 hours
Super-mode	16.0 km/h	8.0 hours

(The values were measured on an FB15 with optional EPS working in our specified work cycle pattern at an operating rate of 55% in the P operating mode.)

## Enhanced environmental friendliness and increased economy

Saving the planet and keeping worksites clean!

Our times demand ecology-mindedness. TCM FB-VIII battery-powered forklift trucks promise to be the ecology-minded contender on the materials handling scene, all around the world. Lower power consumption and longer spans between battery charges improve productivity as well as achieve environmental friendliness. TCM FB-VIII Series is what the planet and the logistics industry really need.







## Better operator comfort and controllability

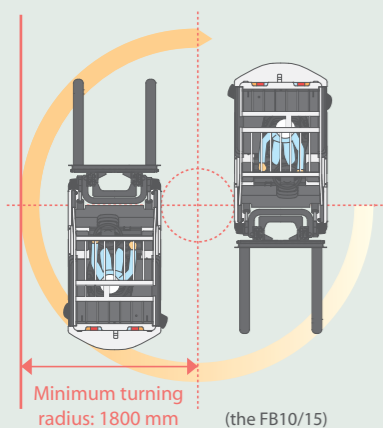
Ergonomics for people working on-site

With an ergonomically designed operator's compartment and a compact body, FB-VIII Series electric counterbalanced forklift trucks offer better operator comfort and enhanced controllability.

Assuming materials handling operation in warehouses where operators need to get on and off the truck frequently, a variety of thoughtful ideas, including a low floor and step heights, and wide steps, have been incorporated to reduce operator motion and fatigue. The long years of experience and expertise went into helping the FB-VIII Series meet worksite needs.

### The most compact truck body in its class

The compact truck body, with a minimum turning radius as short as 1800 mm, delivers substantially improved work efficiency in the narrow aisles of a warehouse.



### The safety seat

The safety seat with side supports protects the operator better. The seat also has an angle-adjustable reclining back to suit the operator's physique, thus helping reduce operator fatigue.



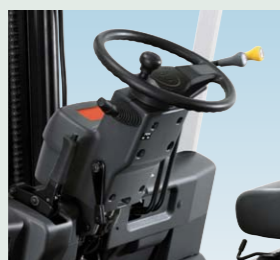
### An integrated turn signal and lighting switch lever

The turn signal lever and lighting switch are integrated into one unit. It returns automatically to neutral when the steering wheel goes back to the straight-ahead position. Rear combination lights are located on the overhead guard for better visibility from behind in the workplace.



### Tilting steering column

The steering wheel angle can be adjusted to the operator's preference, which means more efficient steering with less fatigue.



### Low operating noise during load handling

Having an AC motor for the load handling system substantially reduces the noise level at the operator's ear (by 6 dB from the conventional model) when lifting the forks, thus lending to substantially improved operator comfort (refers to the FB15).

### Simplified battery replacement system (optional)

If a truck needs to be operated for an extended period of time, a simplified battery replacement system will be optionally available for easy replacement with a spare battery.

※ For battery replacement, it is necessary to have another forklift with long forks of more than 1220 mm.

### Easy on-and-off

The lowest floor height and step heights in its class and the wide steps make it easy to get on and off, and so reduce operator motion and fatigue as well as improve safety.



(The FB10/15)

### Bigger floor space

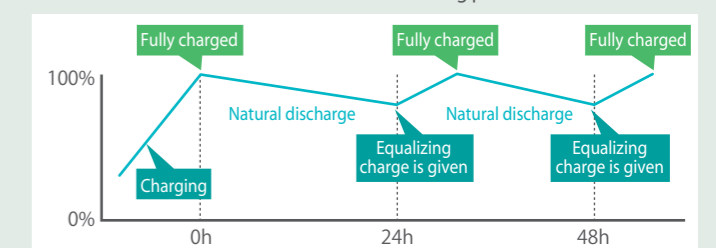
The generous floor space makes getting in and out anxiety-free as well as providing more knee room to reduce operator fatigue.



### Super equalizing charge

If the battery charger is set to the "super equalizing charge" mode, an equalizing charge will be applied to the battery every 24 hours, at the end of a regular cycle charge.

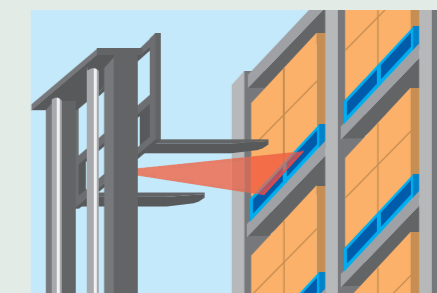
This means that the battery will be fully charged and you can use it immediately, even after the truck has been out of service for a long period of time.



### Fork positioning laser unit (optional)

The fork-positioning laser unit helps the operator check the fork height and makes it safe and easy to insert the forks into the openings of a pallet.

It also helps reduce damage to loads and pallets if the operator fails to determine the fork height correctly. This function is especially useful for stacking or unstacking loads in high locations, and for handling loads in a dark area.



※ The laser beam is only lit when the forks are level.





## Safety

Operator safety is foremost with the FB-VIII series trucks

In pursuit of the ultimate in operator safety, FB-VIII Series trucks come equipped with many safety devices to protect from a variety of hazards which might occur in materials handling operation. Consideration to the safety of operators, an invaluable asset to each company, is foremost at all times with TCM forklift trucks.



### Travel and load handling interlock(optional)

The travel and load handling interlock system makes it impossible to operate the lift truck unless the operator is well seated in the operator's seat. This system helps prevent an accident from happening if the operator of the truck is not in the correct driving position or a control is moved unintentionally when he is not in the operator's seat.



Interlock warning light

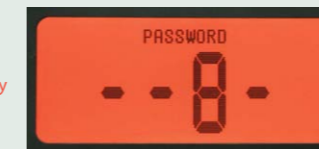
Interlock is activated when the operator stands up from the seat

※When the interlock system is actuated, the regular brake is not applied to the truck. Apply the parking brake when leaving the truck.

### Password entry

The truck won't start unless the correct password is entered into the password entry system. This prevents any unauthorized person from operating the truck.

※Consult with our service personnel to learn how to enable the password entry system and set passwords. (Password protection can be disabled.)



### Load meter (optional)

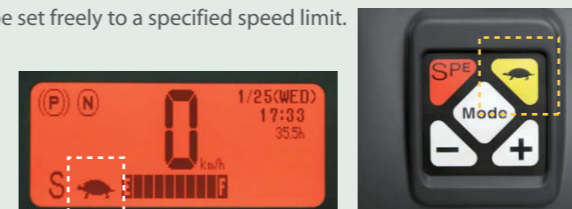
The load meter shows the approximate weight of the load being carried on the forks, to help prevent an accident due to overloading.

※The reading should be used as a guide.



### Speed limiter

The maximum travel speed can be limited according to the working conditions. It can be set freely to a specified speed limit.



Speed limiter in operation

Speed limiter switch

※Consult with our service personnel to learn how to set speed limits.

### Steering-angle sensitive travel speed limiter

The truck speed is automatically reduced if the angle of the steering wheels exceeds a certain value, making it possible for the truck to turn at a safe speed.

※Remember that this feature is not intended to be a device that prevents tip-overs.

### Speed-sensitive power steering

The speed-sensitive power steering system provides varying amounts of assistance depending on the driving conditions (more power assist at low speeds and less power assist at high speeds) to give an excellent steering "feel" while improving the stability of the truck at high speeds.

### Wide-view mast

The wide-view mast gives you an excellent view of the fork tips in any position. In addition, the lower dashboard provides the operator with excellent visibility, resulting in safe and quick operation.



### Anti-rollback

The anti-rollback feature prevents the truck from rolling backwards abruptly on a grade if you remove your foot from the brake pedal. This ensures a safe, smooth restart.



## Easy Maintenance



The fully openable battery compartment with a damper provides for easy and quick maintenance access to the battery unit.



Drive and hydraulic motor controllers have been located together for quick access and easy servicing. They have also been made more resistant to dust and water.

## A wide product lineup

The FB-VIII Series comes in a wide range of models, from compact classes with the superb features that the preceding series have to 3.5-ton models, reliable workhorses for handling heavy loads.

	Model	Max. capacity	Overall height
<b>1-ton class</b>	<b>FB10-8</b>	1,000 kg	2,080 mm
	<b>FB15-8</b>	1,500 kg	2,080 mm
	<b>FB18-8</b>	1,750 kg	2,080 mm
<b>2-ton class</b>	<b>FB20-8</b>	2,000 kg	2,125 mm
	<b>FB25-8</b>	2,500 kg	2,125 mm
	<b>FB25-8LB</b>	2,500 kg	2,250 mm
	<b>FB25-8V</b>	2,500 kg	2,100 mm
<b>3-ton class</b>	<b>FB30-8</b>	3,000 kg	2,190 mm
	<b>FB30-8V</b>	3,000 kg	2,100 mm
	<b>FB35-8S</b>	3,500 kg	2,190 mm

**High-capacity model:** Battery capacity 935 AH/5h  
**VAN model:** Suitable for loading and unloading vans

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## Specifications

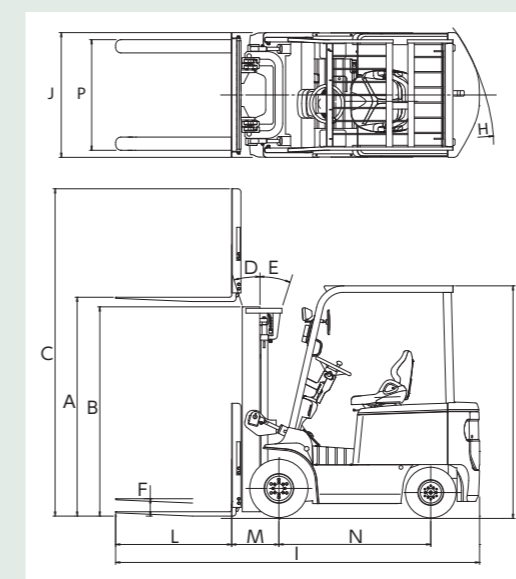
### Standard specifications

Manufacturer		UNICARRIERS										
Model		FB10-8	FB15-8	FB18-8	FB20-8	FB25-8	FB25-8LB	FB25-8V	FB30-8	FB30-8V	FB35-8S	
Load Capacity	kg	1000	1500	1750	2000	2500			3000	3500		
Load Center	mm	500										
Maximum Fork Height	mm A	3000										
Free Lift	mm F	155			110			165	170			
Fork Size	L x W x T mm L	920 x 100 x 35			1070 x 122 x 40			1070 x 125 x 45	1070 x 150 x 50			
Tilt Angle	Fwd / Bwd deg D/E	6/12										
Overall Length (with Forks)	mm I	2875	2975	3315	3355	3460	3580	3805				
Overall Length (without Forks)	mm	1955	2055	2245	2285	2390	2510	2735				
Overall Width	mm J	1070			1150			1225	1380			
Mast Height Fork Lowered	mm B	1995			2030	2180	2030	2075	2135			
Overall Height Fork Raised	mm C	4030			4260							
Overhead Guard Height	mm K	2080 (2140 <sup>3)</sup> )			2125 (2185 <sup>3)</sup> )	2250	2100	2190 (2250 <sup>3)</sup> )	2100	2190 (2250 <sup>3)</sup> )		
Turning Radius (Outside)	mm H	1800 (1700 <sup>4)</sup> )	1890 (1790 <sup>4)</sup> )	2070 (1950 <sup>4)</sup> )	2100 (1970 <sup>4)</sup> )	2200 (2065 <sup>4)</sup> )	2290 (2140 <sup>4)</sup> )	2500 (2360 <sup>4)</sup> )				
Fork Overhang (Centerline of front axle to front face of forks)	mm M	375			435			480	500			
Speeds	Travel Max <sup>1)</sup> (Fwd / Rvs.)	With Load	14.0			13.5			14.0			
		Without Load	16.0			15.5			15.0			
	Lifting <sup>1)</sup>	With Load	390	350	330	290	265			290	240	
		Without Load	580			510			490	410		
Total Weight (without battery)	kg	2030	2050	2100	2700	3030	2960	2965	3530	4015		
Tires	Size	Front	6.00 - 9 - 10PR			6.00 - 9 - 12PR			21 x 8 - 9 - 16PR		28 x 9 - 15 - 14PR	250 - 15 - 16PR
		Rear	16 x 6 - 8 - 10PR			18 x 7 - 8 - 14PR			18 x 7 - 8 (SE)			
	Wheelbase	mm N	1250	1350	1400	1545	1600	1800				
	Fork Spread (Outside)	mm P	200 - 920			245 - 1020			250 - 1090	300 - 1090		
	Tread	Front	910			955			1000	1140		
		Rear	900			950						
Under clearance	at lowest point mm	90			100			90				
Electric Motors and Control	Battery <sup>2)</sup> (STD capacity type)	Voltage / Capacity (5-hour rating)	V / AH	48 / 330	48 / 400	48 / 450	48 / 565	48 / 935	48 / 865	72 / 450		
		Drive motor (AC)	kW / 60 min.	6.9			8.5			11.9		
	Hydraulic motor (AC)	kW / 5 min.	9.0			9.0			14.0			
	Control Type	Drive	FET inverter									
Load handling		FET inverter										

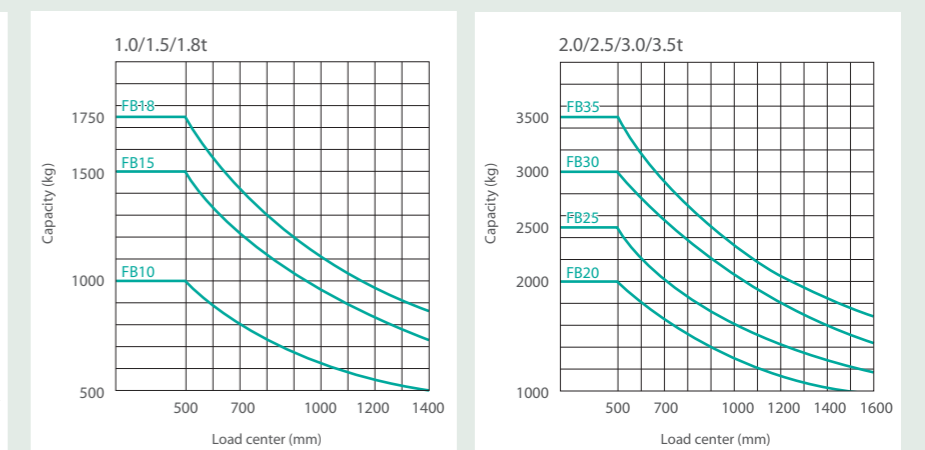
NOTE: 1) Above figures are measured at "Super-mode" operation. 2) Batteries are optional equipment. 3) For European export trucks 4) Figures are given for trucks with optional EPS.

These specifications are subject to change without notice.

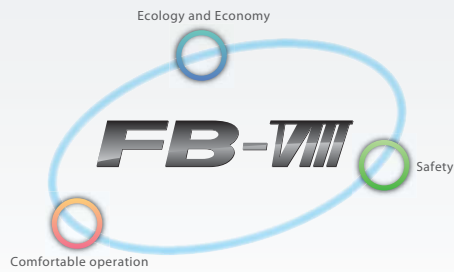
### Standard dimensions



### Load chart







- UniCarriers Corporation retains the right to change these products and specifications without incurring any obligation relating to such changes.
- These products and specifications are subject to change without notice.
- Photos and illustrations may slightly differ from the actual trucks.
- Photos and illustrations may or may not include optional equipment and accessories.
- Features and specifications may vary depending on markets.
- Performance data and dimensions are nominal and subject to tolerances.
- Produced in ISO certified factory.