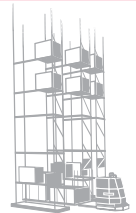
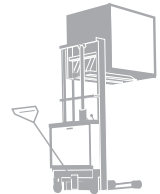




50 Hz Chargers
ME/TE
MSE/TSE
8MSE/8TSE



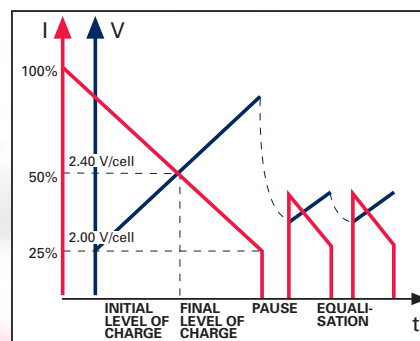
In today's market the range of traction batteries on offer for the industrial truck sector is very extensive. Many motive power batteries are designed to meet specific needs and form a coordinated system when paired with a matching charger. To achieve this, charger specifications must also comply with a set of specific requirements. The charging process must take the characteristics and application of the battery into account. This process is a decisive factor for the economic use of batteries. Hawker offers extremely modern charging systems for all applications. All chargers are equipped with microprocessor control of the charge cycle. They are protected with a tough outer casing and are of course CE compliant.

Our products have German TÜV-GS certifications for quality and safety. They are 89/336/CEE, 73/23/CEE, ROHs and CE brand compliant.



ME/TE types

The Hawker charger, type ME (single phase) or TE (3-phase) is a high added value product at a competitive price. It is especially suitable for basic requirements and single shift operations, i.e., where charging times of more than 10 hours are possible.



Wa Curve

Technical Specifications

- Power requirements
ME: (single phase) 230 V / 50-60 Hz
TE: (3-phase) 230/400 V / 50-60 Hz
- Adaptation to mains voltage via a transformer
ME: 220-230-240 V
TE: 380-400-420 V
- Battery capacity range at nominal voltage
ME: (single phase): 60-1000 Ah
TE: (3-phase): 240-1200 Ah
- Normal charging time: 10 to 12 hours.
- 3 metre mains and battery leads, plugs supplied (specify make & model when ordering).

- Tropicalised stray-flux transformer, copper windings with double enamel insulation, class H, impregnated with non-toxic resins, kiln-dried.
- Rectifier bridge equipped with EMC filters.
- Leads are marked in compliance with safety standards.

Safety Features

- Network entry (**ME**) and direct current exit (**ME** and **TE**) protected by fuses to prevent polarity reversals and/or power surges.
- Thermal protection around the transformer.
- Safety cut-out circuit: after 11 hours (**ME** or **TE**) without reaching the gassing point.
- Final charge time can be adjusted.
- Polarity reversal.
- Microprocessor control.
- Cabinet protection IP20.

LED display

LED display for the following information:

- Battery connected
- Auto start
- Initial level of charge
- Final level of charge
- Charge complete
- Automatic equalising charge (for **ME** and **TE**)



Fault information

LED display for the following faults:

- Charger faults: red LED flashes (AC alternating current network fault).
- Battery faults: red LED stays lit: the battery has been charged for 11 hours in the first step (ME and TE) without reaching the gassing point. The charger stops automatically.

Features

- Non-regulated Wa charging curve.
- LED state of charge display.
- 80% and 100% charge levels and faults are displayed.
- Automatic equalising charge can be programmed at the weekend.
- Auto start: reliable and fully automatic start of the charging process with 5-second delay.
- Safety cut-out circuit. In the event of a fault, the safety cut out circuit will prevent overcharging of the battery.
- Fault diagnosis and display.
- STOP button: this button enables risk-free interruption of the charge cycle at any stage.

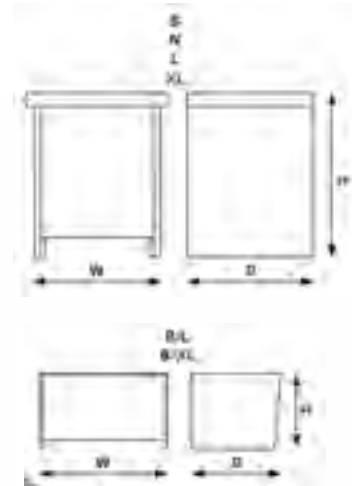
Advantages

- Competitive prices = reduction in financial outlay.
- Industry proven Wa curve ensures simple and safe battery charging.
- LED display, fast recognition of the state of charge.
- Automatic equalising charge, minimises the differences in power in the cells caused by use.
- Charge starts automatically.
- Safety cut-out circuit and fault diagnosis, fast fault detection and protection of the battery from damage.

Cabinet

- Epoxy powder paint coating
- Standard colours (blue RAL 5002 and white RAL 9010)

CABINET TYPE	DIMENSIONS IN mm.		
	Height (H)	Width (W)	Depth (D)
B/L	280	425	270
B/XL	300	500	300
S	800	500	400
N	1000	500	400
L	1100	600	480



Control panel

ME type



TE type



Ref.	Function	Ref.	Function
①	On/Off button	⑤	Fault
②	Battery Connected/charging	⑥	Equalising charge
③	Charging (final stage) (80% of charge)	⑦	Visualisation level of intensity
④	Charge complete		

Use

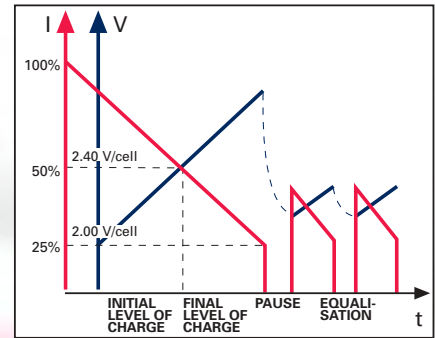
1. Light duty	2. Normal duty
Hawker perfect plus	

MSE/TSE type chargers from the Hawker range are equipped with an alpha-numeric display to indicate various settings and features during the charging process (charge current, battery voltage, Ah returned, diagnostic messages) and offer all the advantages of powerful microprocessor control combined with intelligent recharge technology. Regulation of the recharge in Ah enables the quantity of energy (in Ah) returned to the battery to be displayed. This proven method guarantees optimal quality recharging, i.e., the battery is fully charged but not overcharged. Our chargers have an extensive range of programme setting (full charge voltage, charging time, safety cut-out time).



MSE/TSE types

Slower MSE (single phase) and TSE (3-phase) chargers can be used for single-shift work and therefore with more than 10 hours of charging time.



Technical Specifications

- Power requirements
MSE: (single phase) 230 V / 50-60 Hz
TSE: (3-phase) 230/400 V / 50-60 Hz
- Adaptation to mains voltage via a transformer
MSE: 220-230-240 V
TSE: 380-400-420 V
- Battery capacity range at nominal voltage
MSE: (single phase): 60-1499 Ah
TSE: (3-phase): 187-1666 Ah
- Normal charging time: 10 to 12 hours.
- 3 metre mains and battery leads, plugs supplied (specify make & model when ordering).
- Tropicalised stray-flux transformer, copper windings with double enamel insulation, class H, impregnated with non-toxic resins, kiln-dried.

Wa Curve

- Rectifier bridge equipped with EMC filters.
- Leads are marked in compliance with safety standards.
- Wa curve.
- Automatic float charge to prevent the battery discharging completely.

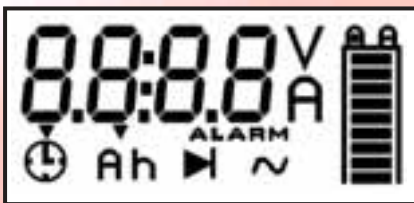
Safety Features

- Network and control circuit protected by fuses.
- Safety cut-out 11 hours after charge begins.
- High battery voltage >2.80 V/cell.
- Polarity reversal.
- Microprocessor control.
- Thermal protection around the transformer.
- Data feedback control.
- IP20 protection.

LED display

LED display for the following information:

- Battery connected
- Auto start
- Initial level of charge
- Final level of charge
- Charge complete
- Automatic equalising charge programmed
- LCD display of faults



Fault Information

LED display for the following faults:

- Network fault
- Faulty back-up fuses
- Problem with thermal protection around transformer
- Safety counter alarm
- Rectifier bridge fault
- Battery at maximum voltage

Features

- Non-regulated Wa charging curve.
- Electronic card AP-735WW controlled by the microprocessor.
- New polycarbonate panel for immediate display of charge cycle status using 5 clearly legible LEDs.
- LCD display with 4 figures and 12 multifunction symbols. The green ON/OFF button can be used to display settings from a previous charge.
- 80% and 100% charge levels, current charging status, equalising charge and faults can all be displayed using LEDs. The display gives results in figures.
- STOP button: this button enables risk-free interruption of the charge cycle at any stage.
- Adapts to nominal battery voltages of 12/16/24/28//36/40/48/72/80/96 V with jumpers and limit control at 2.40 V/cell with potentiometer.
- Recharge regulated according to the quantity of Ah returned to the battery.
- Automatic equalisation charge.
- Charge settings display.

LCD display

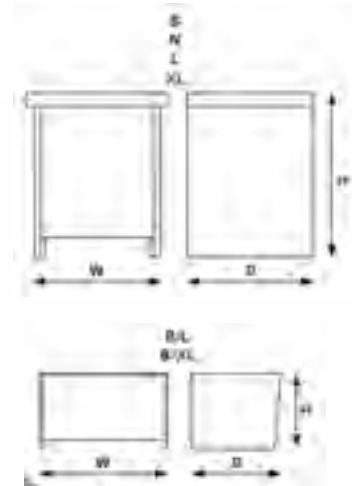
LCD display with 4 figures and 12 multifunction symbols. The green ON/OFF button can be used to display settings from a previous charge:

- Ah returned to the battery (Ah)
- Total charge time (hr: min.)
- Maximum battery voltage (V)
- Maximum initial current (A)

Cabinet

- Epoxy powder paint coating
- Standard colours (blue RAL 5002 and white RAL 9010)

CABINET TYPE	DIMENSIONS IN mm.		
	Height (H)	Width (W)	Depth (D)
B/L	280	425	270
B/XL	300	500	300
S	800	500	400
N	1000	500	400
L	1100	600	480
XL	1200	700	550



Control panel

MSE/TSE types



Ref.	Function	Ref.	Function
①	On/Off button	⑤	Fault
②	Battery Connected/charging	⑥	Equalising charge
③	Charging (final stage) (80% of charge)	⑦	Multifunction display
④	Charge complete		

Use

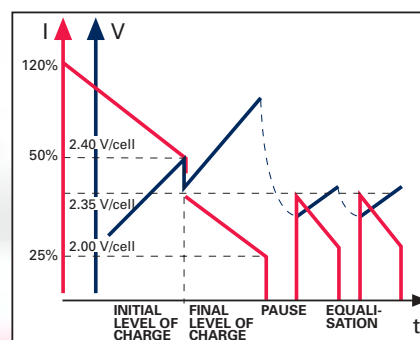
1. Light duty	2. Normal duty
Hawker perfect plus	

8MSE/8TSE type chargers from the Hawker range are equipped with an alpha-numeric display to indicate various settings and features during the charging process (charge current, battery voltage, Ah returned, diagnostic messages) and offer all the advantages of powerful microprocessor control combined with intelligent recharge technology. Regulation of the recharge in Ah enables the quantity of energy (in Ah) returned to the battery to be displayed. This proven method guarantees optimal quality recharging, i.e., the battery is fully charged but not overcharged. Our chargers have an extensive range of programme settings (full charge voltage, charging time, safety cut-out time).



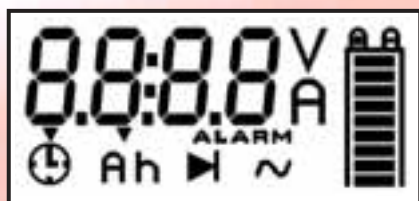
8MSE/8TSE type

Fast 8MSE (single phase) and 8TSE (3-phase) chargers can recharge a battery in 8 hours, using a Wo-Wa curve, enabling intensive use of the battery.



Wo-Wa Curve

Technical Specifications



- Power supply
8MSE: (single phase) 230 V / 50-60 Hz
8TSE: (3-phase) 230/400 V / 50-60 Hz
- Adaptation to mains voltage via a transformer
8MSE: 220-230-240 V
8TSE: 380-400-420 V
- Battery capacity range at nominal voltage
8MSE: (single phase): 150-660 Ah
8TSE: (3-phase): 250-1320 Ah
- Normal charging time: 8 hours.
- 3 metre mains and battery leads, plugs supplied (specify when ordering).
- Tropicalised stray-flux transformer, copper windings with double enamel insulation, class H, impregnated with non-toxic resins, kiln-dried.

- Rectifier bridge equipped with EMC filters.
- Leads marked in compliance with safety standards.
- Non-regulated Wo-Wa charging curve.
- Automatic float charge to prevent battery discharging completely.

Safety features

- Network and control circuit protected by fuses.
- Safety cut-out 7 hours after charge begins.
- High battery voltage >2.80 V/cell.
- Polarity reversal.
- Microprocessor control.
- Thermal protection around transformer.
- Data feedback control.
- IP20 protection.

LED display

LED display for the following information:

- Battery connected
- Auto start
- Initial level of charge
- Final level of charge
- Charge complete
- Equalising charge programmed
- LCD fault display



Fault information

LED displays for the following faults:

- Network fault
- Faulty back-up fuses
- Problem with thermal protection around transformer
- Safety cut-out time
- Faulty diode bridge
- Battery at maximum voltage

Features

- Non-regulated Wo-Wa charging curve.
- Electronic control AP-735WW controlled by the microprocessor.
- New polycarbonate panel for immediate display of charge cycle status using 5 clearly legible LEDs.
- LCD display with 4 figures and 12 multifunction symbols. The green ON/OFF button can be used to display settings from a previous charge.
- 80% and 100% charge levels, current charging status, equalising charge and faults can all be displayed using LEDs. The display gives results in figures.
- STOP button: this button enables risk-free interruption of the charge cycle at any stage.
- Adapts to nominal battery voltages of 12/16/24/28/36/40/48/72/80/96 V with jumpers and limit control at 2.40 V/cell with potentiometer.
- Recharge regulated according to the quantity of Ah returned to the battery.
- Automatic equalising charge.
- Charge setting display.

LCD display

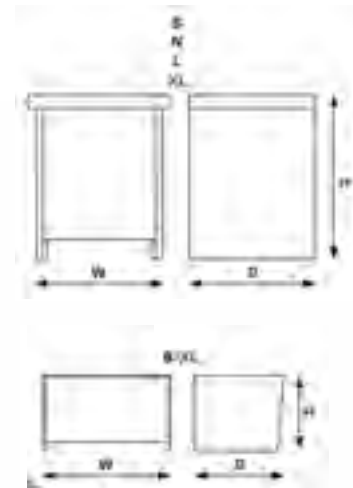
LCD display with 4 figures and 12 multifunction symbols. The green ON/OFF button can be used to display settings from a previous charge:

- Ah returned to the battery (Ah)
- Total charge time (hr: min.)
- Maximum battery voltage (V)
- Maximum initial current (A)

Cabinet

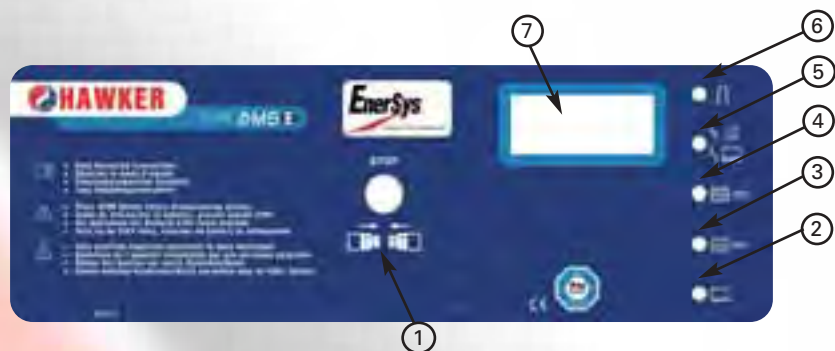
- Epoxy powder paint coating
- Standard colours (blue RAL 5002 and white RAL 9010)

CABINET TYPE	DIMENSIONS IN mm.		
	Height (H)	Width (W)	Depth (D)
B/XL	300	500	300
S	800	500	400
N	1000	500	400
L	1100	600	480
XL	1200	700	550



Control panel


8MSE/8TSE types



Ref.	Function	Ref.	Function
①	On/Off button	⑤	Fault
②	Battery Connected/charging	⑥	Equalising charge
③	Charging (final stage) (80% of charge)	⑦	Multifunction display
④	Charge complete		

Use

1. Light duty	2. Normal duty	3. Heavy duty
Hawker perfect plus		



Wherever in Europe you do business, Hawker can support you with motive power energy. The Hawker branded battery range, matched chargers and systems provide trouble free performance under the most demanding service conditions.

Our strategically located manufacturing plants are efficient and responsive with a culture of continuous improvement and added value for our business partners.

Hawker has an enviable position in technology leadership and with significant investment in research and development we intend to stay at the leading edge in product innovation. Hawker evolution batteries and Hawker HF chargers, Lifeplus and Powertech have set new standards in maintenance free solutions. Our team of development engineers is driven by the desire to build the best energy solutions and works closely with our customers and suppliers to identify development opportunities. Our bias for rapid innovation means we get new products to market fast.

Hawker's integrated sales and service network across Europe is dedicated to providing our customers with the best solutions and after-sales support for their business. Whether you require 1 battery or a complete fleet of batteries, chargers, a battery handling system and a state of the art fleet management system, you can count on us. As part of EnerSys the world's largest industrial battery manufacturer, we are dedicated to being the best.



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