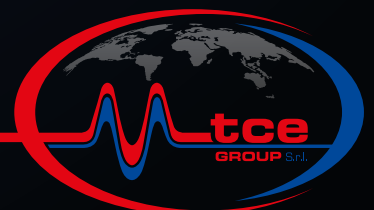


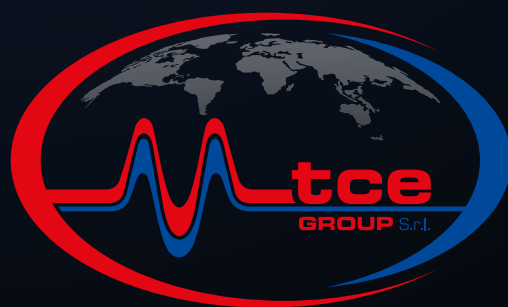


TCE Group

gives you the charge since 1960



Industrial Battery Chargers



Industrial Battery Chargers



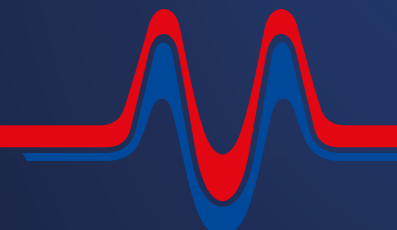
TCE Group Srl

One of the first Italian producers of battery charger for traction battery.

TCE Group Srl, founded in 1960 is one of the first Italian manufacturers of traction battery chargers. Thanks to the many years of experience, studies and research we have developed new innovative technologies to ensure the best charging process and optimize the battery performances.

Our solutions:

- > Traditional (50Hz) and high frequency chargers
- > Service chargers
- > Products for the battery regeneration
- > Accessories to preserve the good conditions of batteries and chargers
- > Battery Monitoring Systems (BMS)
- > Solutions for analyzing recorded data regarding the charging cycle



NEOS

high frequency



The **NEOS** series was developed to satisfy the necessity to install the charger aboard any electric car. Resistant to vibrations and shocks, with the application of a new technology, it is the ideal product for every use. The various accessories and supports allow it to be used even off-board as a stand-alone charger.

MAIN FEATURES



IP67 PROTECTION

With IP67 degree of protection, the charger is completely resistant to dust and water.

It can withstand even short periods of total immersion in water.



ON-BOARD USE

With IP67 degree of protection, the special carpentry used and an innovative technology of construction, the charger is resistant to vibrations, to shocks and bad weather, therefore perfect for on-board use.



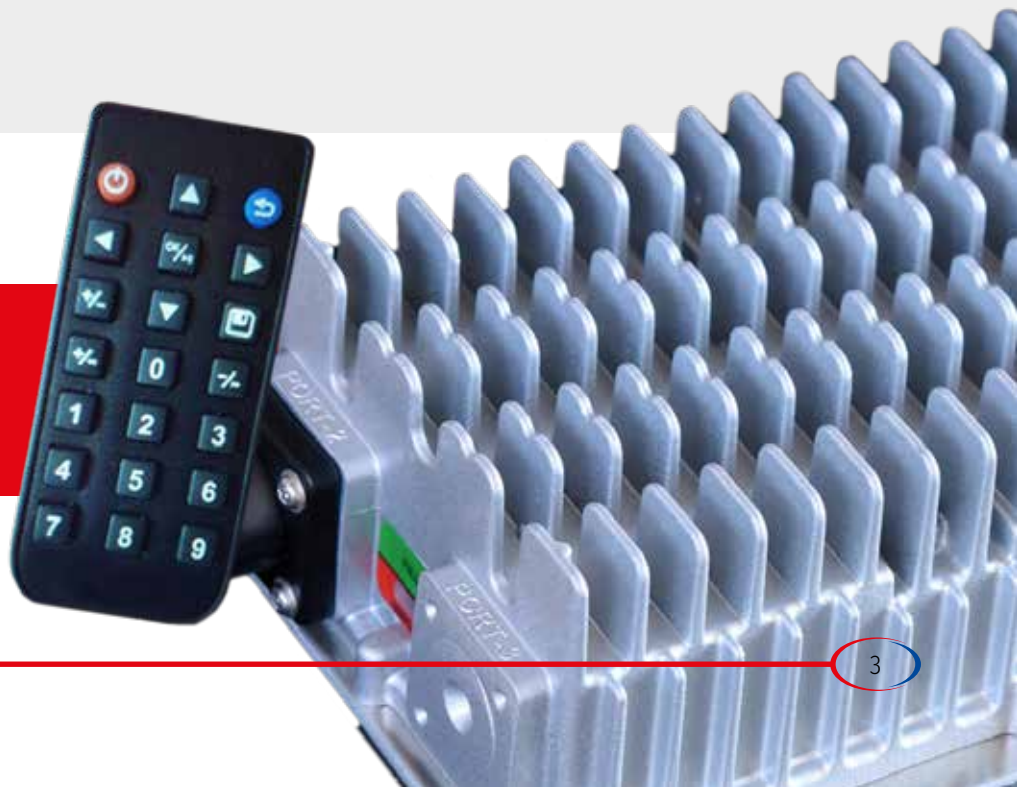
SAFE AND RELIABLE

The charger is completely safe and reliable for long charging cycles, thanks to the many controls it is equipped with, including:

- External and internal thermal probe
- Short circuit protection
- Overcurrent protection
- Self-diagnosis of anomalies

PROGRAMMING INFRARED

Switch profiles without touching it via a simple remote control.





NEOS 7: THE THREE-PHASE CHARGER AND BLUETOOTH

Change of charging profiles via mobile app and live display on your smartphone.



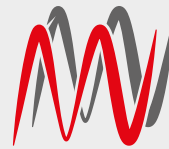
OVER DISCHARGED BATTERIES

The charger reads the voltage of the battery and it will start the cycle respecting the standard charging parameters of the battery even if the battery has been overly discharged.



IDEAL FOR EVERY TYPE OF BATTERY

Based on the programmed charging curve, any type can be loaded of battery (AGM, GEL, Lead acid, Lithium).



ACTIVE PFC AND SOFT START

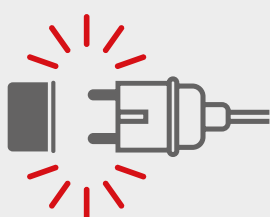
The series is equipped with active PFC in compliance with the European regulations. Also equipped with soft start that avoids absorption peaks when turned on and prevents damage to the battery caused by the initial peak of current of the charging cycle.



LITHIUM

LITHIUM BATTERIES? NO PROBLEM!

The versatility of Neos to interface also with lithium battery charger. With the right protocol, it will be immediately at your service.



READY TO USE

The whole series is supplied with a standard Schuko power plug that allows immediate use without the need to install special industrial plugs.



FAST CHARGES

Based on the battery size that the charger will go to charge, it offers the possibility of fast charging.



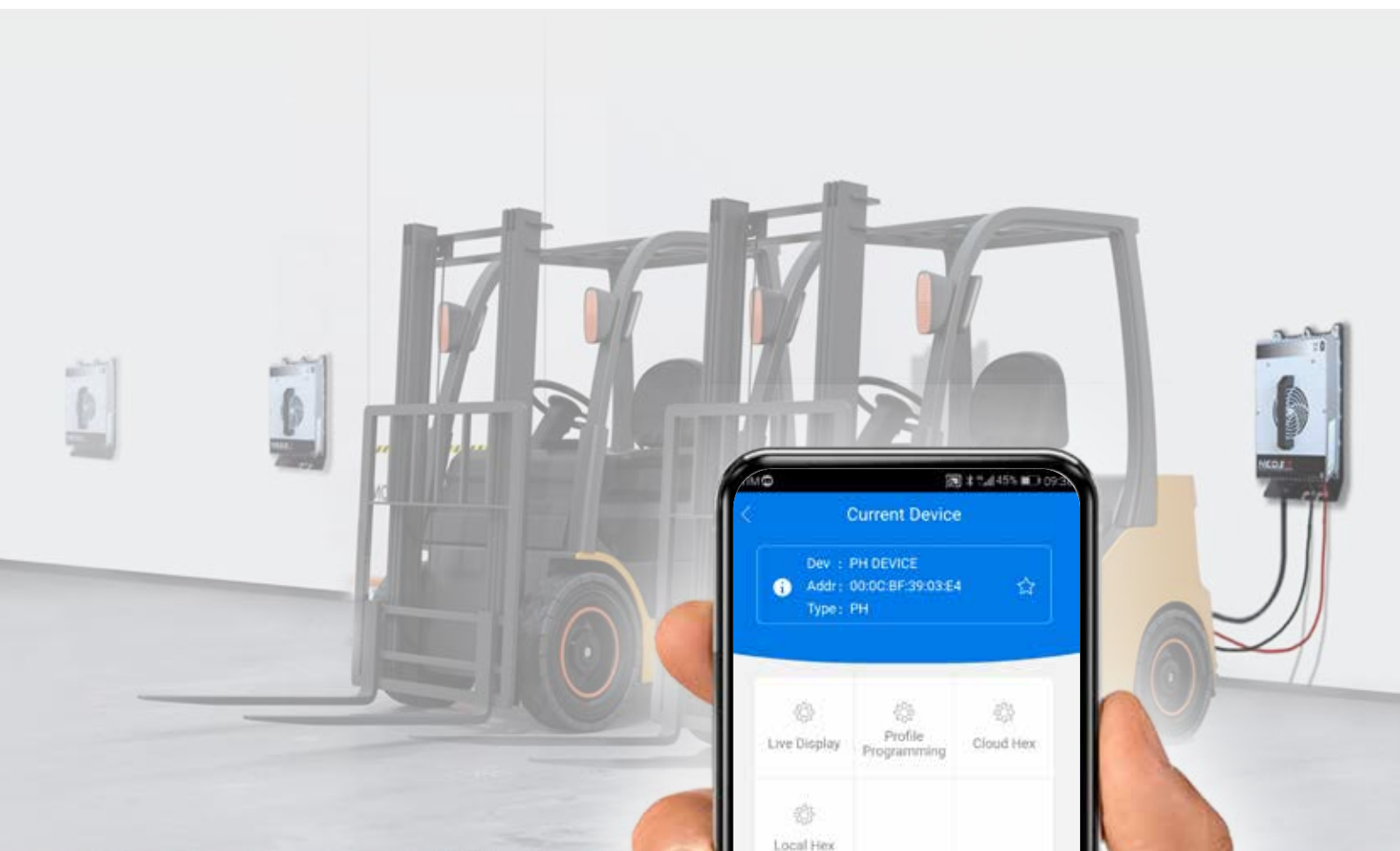
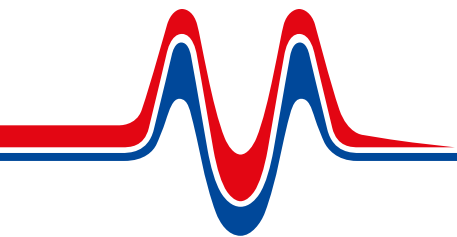
ECO FRIENDLY

The NEOS series offers high **efficiency** $\leq 94\%$ and a power factor ≤ 0.99 .



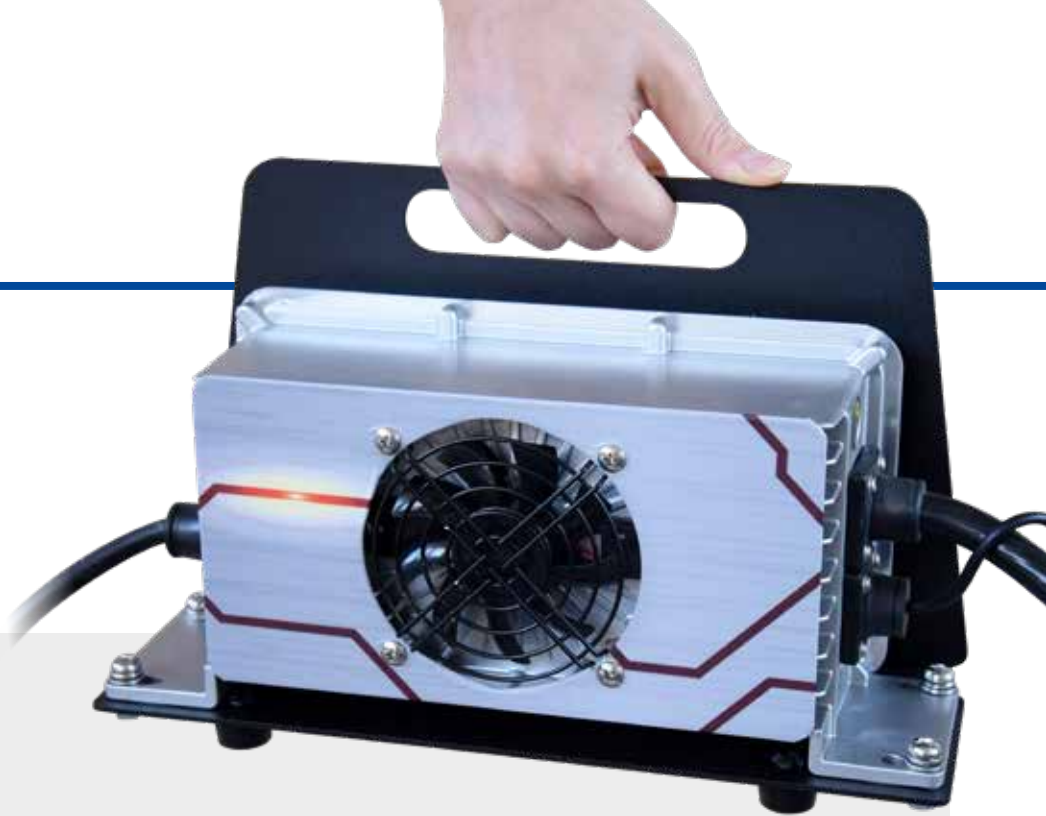
EXTENDED RANGE: FROM 96V TO 265V

Despite voltage peaks or different voltages upon input, the charger automatically adjusts to ensure a perfect charging curve



REMOTE MANAGEMENT AND CONTROL

The NEOS Series chargers can be managed and controlled via smartphone with a simple and intuitive application.



ACCESSORIES

The charger can be customized according to your own specific needs through the installation of accessories.

The available accessories are:

- Customizable **brackets**
- **Remote charging** status display
- **Interlock** (key safety system – clean contact)
- Adhesive battery **temperature probe**



GORE-TEX VALVE



REMOTE INDICATOR



TEMPERATURE PROBE



KRONOS

high frequency



The **KRONOS** Series offers multiple features inside a single device. Thanks to the touchscreen display, parameters, charging curves or special features for particular tasks can be changed or activated. It offers reliability, safety and unmatched quality.

MAIN FEATURES



DISPLAY SETTINGS

According to the battery specifics, it is possible **customize the parameters** of the charging cycle directly on the display.

The parameters that can be customized are:

- Voltage (V)
- Current (A)
- Battery type (AGM, GEL, Lead acid, Lithium)

The procedure to change the parameters is simple and intuitive.



POWER SUPPLY FUNCTION

In case there is the need to power any electrical device, it's possible to activate the **power supply function** directly on the display.

The device that will be powered must match the voltage programmed in battery charger.



OVER DISCHARGED BATTERIES

The charger reads the voltage of the battery and it will start the cycle respecting the standard charging parameters of the battery even if the battery has been overly discharged.



INNOVATIVE

Unique design and innovative solutions make it easy to install and use.



KRONOS
HIGH FREQUENCY





DESIGN

The cabinet of each individual model in the series is equipped with special features that facilitate both installation and use itself.

The **integrated cable hook** offers the possibility to hang the cables when the charger is not in operation, reducing the possibility of damage to both the cables of the DC connector.

The **holes in the back** of the charger allow it to be attached to the wall quickly and easily.



DESULPHATION

A special charging program that can be activated by the setting menu allows the **desulphation** of the battery.

This program offers the possibility to select the cycle duration (max 100h) and constant current (depending on the model) of the desulphation cycle.



CHARGING VISUALS

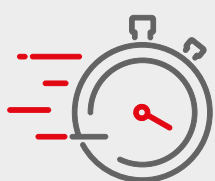
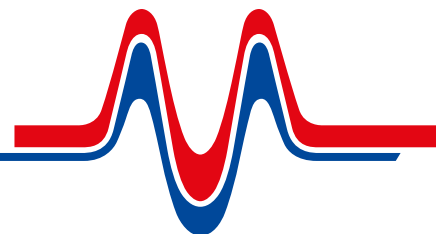
By pressing the center button on the touchscreen, the **various information** relating to charge cycle in progress are shown in sequence.



KRONDOS
HIGH FREQUENCY



Intuitive display to view or change the charging parameters
WITH JUST A FINGER.



FAST CHARGES

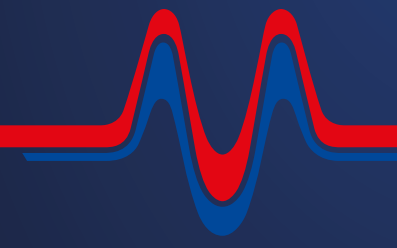
It is possible, through the special setting menu, to activate a special program (opportunity charging) or fast charges to complete the charging cycle based on the time available.



ECOFRIENDLY

Through a new technology (Resonant technology), the KRONOS Series offers high **efficiency up to 92%** and a very low heat dissipation.





EVO

series



Among the traditional 50Hz chargers, the **EVO** Series stands out for its characteristics and integrated features.

The innovative control card and the cabinet with cutting-edge design, make this series one of its kind.

MAIN FEATURES



SAFETY AND RELIABILITY

Night charge can be performed in **total safety** as the series is equipped with multiple safety systems that ensure its reliability.



USER FRIENDLY

The charger doesn't require any interaction from the user as the **charging process starts automatically** with the connection to the battery.

The **backlit display** shows the most important charging parameters related to the cycle in progress.



ECOFRIENDLY

Through the intelligent software, our 50Hz halves energy consumption. If you don't believe us, compare us!

SPECIAL FUNCTIONS

The innovative control card offers the possibility to activate different programs to customize the charging cycle based on the battery status or the customer charging needs.

ABS SET:

allows to increase/reduce the final phase of the charging cycle.

FAST MODE:

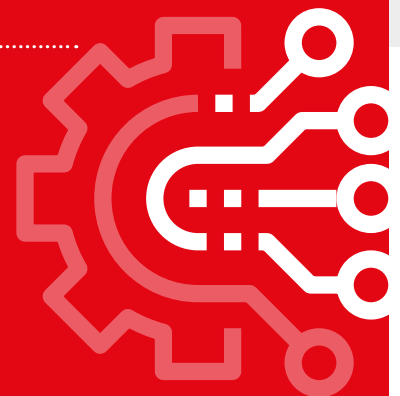
allows to carry out opportunity charges and fast charges.

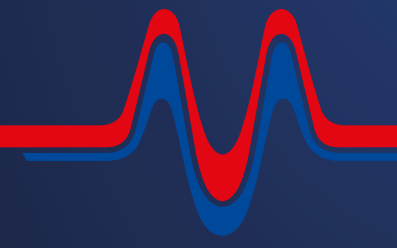
VOLTAGE CHECK:

specific program that allows the control of the temperature of the battery during the charging process thus reducing energy and electrolyte (battery liquid) consumption.

NO CHECK:

function that allows the removal of the initial safety controls.





SE

series



The **SE** series is ideal for second-hand batteries, but also for new batteries.

The robustness and reliability that the cabinet offers, the innovative functions that the control card offers make the charger ideal for any use.

The reduced price is one of the strengths of this series.

MAIN FEATURES



SAFETY AND RELIABILITY

Night charge can be performed in total safety as the series is equipped with **multiple safety systems** that ensure its reliability.



USER FRIENDLY

The charger doesn't require any interaction from the user as the **charging process starts automatically** with the connection to the battery.

The **backlit display** shows the most important charging parameters related to the cycle in progress.



BUDGET PRICE

The SE series, despite the integrated functions in the innovative control card and the quality of the materials with which it is built, offers a very competitive price in any market.

SPECIAL FUNCTIONS

The innovative control card offers the possibility to activate different programs to customize the charging cycle based on the battery status or the customer charging needs.

ABS SET:

allows to increase/reduce the final phase of the charging cycle.

FAST MODE:

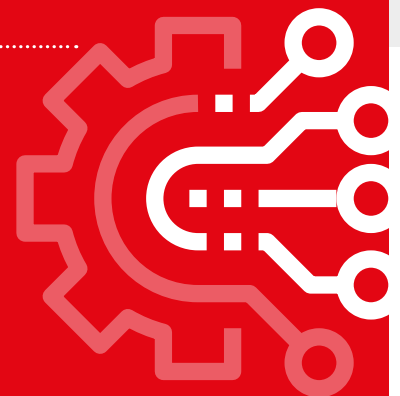
allows to carry out opportunity charges and fast charges.

VOLTAGE CHECK:

specific program that allows the control of the temperature of the battery during the charging process thus reducing energy and electrolyte (battery liquid) consumption.

NO CHECK:

function that allows the removal of the initial safety controls.



ADDITIONAL OPTIONS

Battery regeneration system



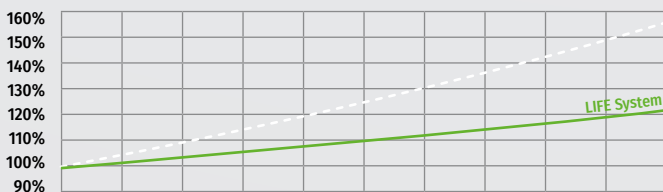
LIFE System is a **BATTERY REGENERATION SYSTEM** installed as an accessory within the EVO Series produced by TCE Group Srl.

Each charging cycle is considered as a desulfating cycle as it involves an **immediate increase in battery capacity** (measured up to + 50% of capacity on old batteries with non-faulty cells) and a consequent **delay in aging** (increase in the operational life of the battery).

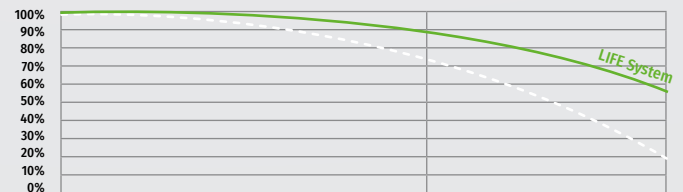
The **Voltage-Check** function (active by default on chargers with this accessory installed) limits the battery temperature during the charging cycle with a relative decrease in the consumption of electrolyte (battery liquid).

The Voltage-check function also **reduces energy waste** by calculating the exact time it takes to complete the charge. This regeneration system is **fully automatic and ready to use**.

LIFE System - battery fluid consumption (5 YEARS)



LIFE System - Capacity AH (5 YEARS)



What is the difference between a normal charger and one with the LIFE System installed?

Normal – The charger performs the traditional Wa curve respecting the battery parameters but not slowing down its natural aging.

LIFE System –The charger performs the traditional Wa curve respecting the battery parameters but with **regeneration characteristics**.

Through a special charging pulse that moves the fixed residue inside the cells, there will be an immediate improvement in the battery performances.

Battery monitoring system

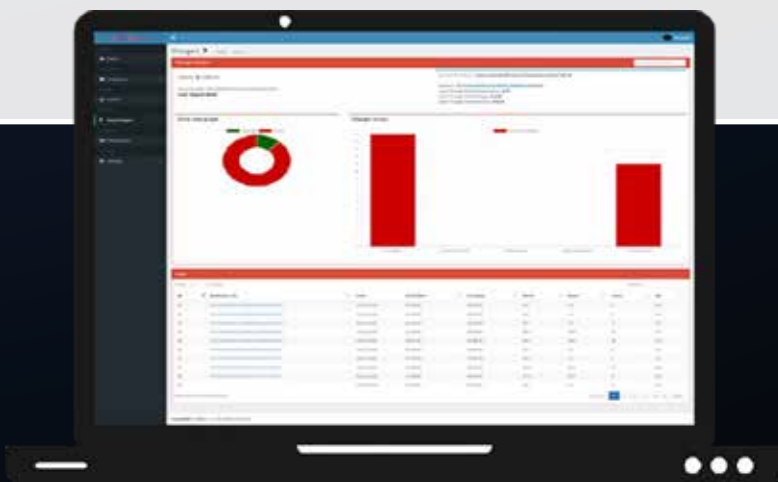
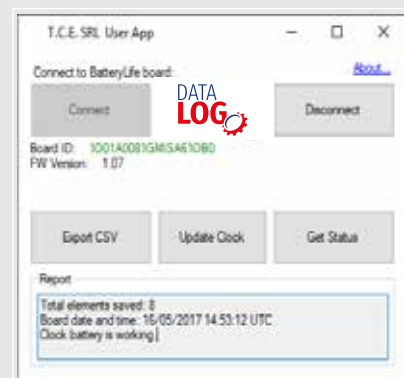
The **DATA Log** accessory allows you to record infinite charge cycles with detailed accuracy. It can be installed on both SE and EVO Series.

The information recorded are:

- Number of the charging cycles
- Date and exact time when the cycle begun
- Total duration of the charging cycle
- Tmax - Maximum temperature reached
- Vmax - Maximum battery voltage reached
- Vstart - Initial battery voltage at the start of the charging cycle
- Amax - Maximum current reached (only with SHUNT installed)
- Afinal - Last current value read (only with SHUNT installed)
- Ah - Ah charged in the battery (only with SHUNT installed)

The data recorded by the DataLog accessory can be analyzed on our **free TCE Cloud online service**.

This service offers intuitive graphics to quickly and easily analyze the battery status based on the charging cycles performed by the charger.



ACCESSORIES



AIR PUMP (EUW)

The air pump is used to charge some batteries that need this type of charging process.

The flow of air blown inside the battery is **guaranteed for the entire duration** of the charging cycle.

This accessory is only available for the EVO and KRONOS Series.



SUPPORTS

It is possible to request different types of supports for the NEOS Series based on the use of the device (if on-board or stand-alone).

The various supports allow an **easy and quick installation** of the product. By contacting TCE Group SRL, it is possible to request special brackets or supports.



GAUS-D Portable discharger

The portable discharger and tester for batteries from 5V to 18V is **ideal for starter and light traction batteries**.

Discharge current selectable from 0.5A up to 15A and possibility of use it as a cyclor in case of need. Charge/discharge cycles can be programmed from the display.

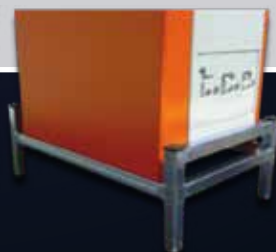
KIT update

Special multi-voltage kit that allows you to **renew an old charger** and make it fully functional again. Equipped with a modern microprocessor control that allows to reduce energy consumption.



Cabinet Support (50Hz)

The cabinet support is a useful accessory to **preserve the integrity** of the cabinet. Created in electro-welded galvanized tubular, it offers a simple solution to prevent damage caused by accidental hits to the charger and improve its ventilation at the same time. When the charger is on the holder, you can simply move it with a forklift or trans-pallet.

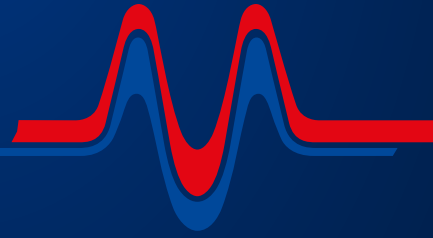


Side Handles

The handles **help the user to move the charger smoothly**.

They are simply inserted through the side slits and then removed once the operation is completed. Simple but useful, the handles prevent damage to the charger caused by its dragging during moving procedures.





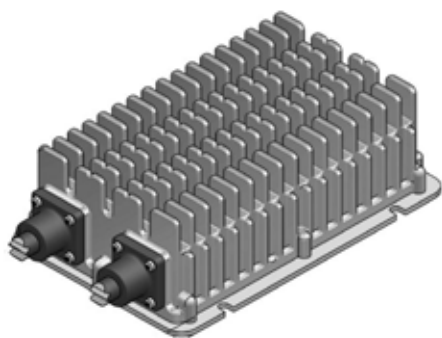
Technical Features



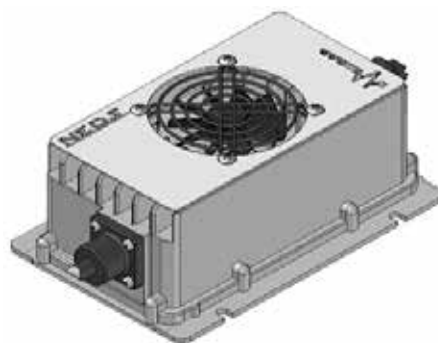
Series Data Sheet

Each cabinet of this series has been specially developed based on the control board it will enclose to allow **optimal dissipation even in extremely hot or humid environments.**

Strict tests have been applied to guarantee its durability and allow prolonged use over time.



MODULE 0
Dimensions (L x P x A): 187 x 123 x 62h
Max weight: 1,6 Kg



MODULE 1
Dimensions (L x P x A): 187 x 105 x 72h
Max weight: 2,1 Kg



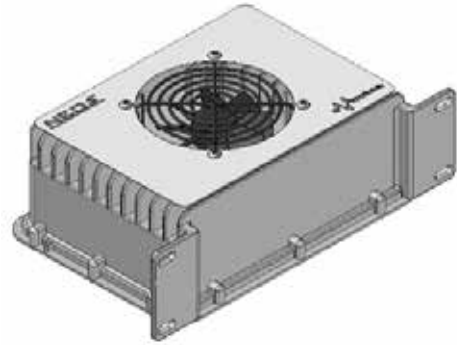
MODULE 2
Dimensions (L x P x A): 210 x 128 x 77h
Max weight: 2,8 Kg



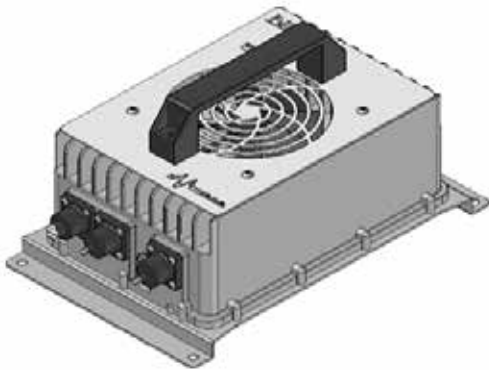
MODULE 3
Dimensions (L x P x A): 210 x 143 x 77h
Max weight: 3,9 Kg



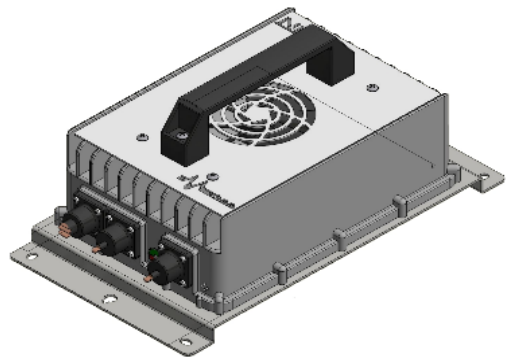
MODULE 3C
Dimensions (L x P x A): 220 x 125 x 77h
Max weight: 2,6 Kg



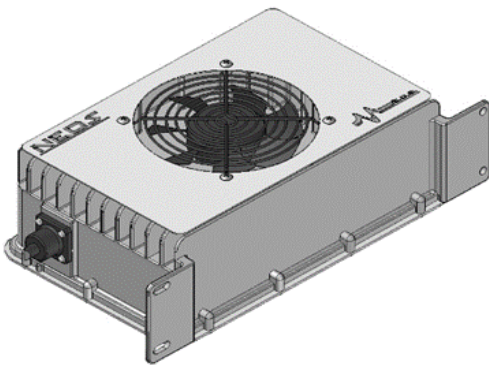
MODULE 4
Dimensions (L x P x A): 210 x 168 x 89h
Max weight: 4,6 Kg



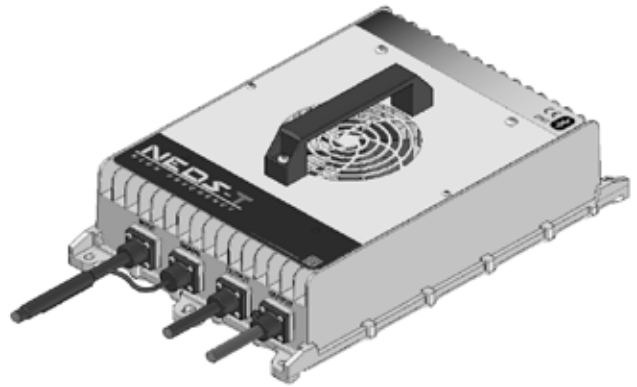
MODULE 5
Dimensions (L x P x A): 315 x 200 x 160h
Max weight: 6,8 Kg



MODULE 5C
Dimensions (L x P x A): 340 x 192 x 102h
Max weight: 5,4 Kg



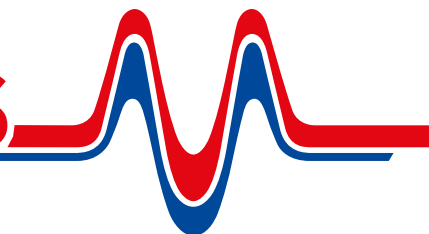
MODULE 6
Dimensions (L x P x A): 348 x 189 x 94h
Max weight: 6,3 Kg



MODULE 7
Dimensions (L x P x A): 419 x 270 x 101h
Max weight: 12,2 Kg

| Modello | Voltage (V) | Amp (A) | Input Vac | | Battery Capacity Ah (C5) | | | Mod. | |
|---------|-------------|---------|-----------|--------------|--------------------------|-----|-----|------|---|
| | | | Amp (A) | Vac | 8h | 10h | 12h | | |
| ONR1210 | 12 V | 10 A | 2 | 95-265 | 60 | 80 | 100 | 0 | |
| NR1210 | | 10 A | 2 | | 60 | 80 | 100 | 0 | |
| N1215 | | 15 A | 2 | 180 - 265 | 90 | 120 | 150 | 1 | |
| ON1215 | | 15 A | 2 | | 90 | 120 | 150 | 1 | |
| N1220 | | 20 A | 2 | | 120 | 160 | 200 | 1 | |
| ON1220 | | 20 A | 2 | | 120 | 160 | 200 | 1 | |
| N1225 | | 25 A | 2 | | 150 | 200 | 250 | 2 | |
| ON1225 | | 25 A | 2 | | 150 | 200 | 250 | 2 | |
| ONR2410 | 24 V | 10 A | 4 | 95-265 | 60 | 80 | 100 | 0 | |
| NR2410 | | 10 A | 4 | | 60 | 80 | 100 | 0 | |
| N2415 | | 15 A | 3 | 180 - 265 | 90 | 120 | 150 | 1 | |
| ON2415 | | 15 A | 3 | | 90 | 120 | 150 | 1 | |
| N2420 | | 20 A | 4 | | 120 | 160 | 200 | 1 | |
| ON2420 | | 20 A | 4 | | 120 | 160 | 200 | 1 | |
| N2425 | | 25 A | 5 | | 150 | 200 | 250 | 2 | |
| ON2425 | | 25 A | 5 | | 150 | 200 | 250 | 2 | |
| NR2430 | | 30 A | 10 | 95-265 | 180 | 240 | 300 | 3C | |
| ONR2430 | | 30 A | 10 | | 180 | 240 | 300 | 3C | |
| NB2435 | | 35 A | 6 | 180 - 265Vac | 210 | 280 | 350 | 4 | |
| ONB2435 | | 35 A | 6 | | 210 | 280 | 350 | 4 | |
| NB2440 | | 40 A | 7 | | 240 | 320 | 400 | 4 | |
| ONB2440 | | 40 A | 7 | | 240 | 320 | 400 | 4 | |
| NB2450 | | 50 A | 10 | | 300 | 400 | 500 | 4 | |
| ONB2450 | | 50 A | 10 | | 300 | 400 | 500 | 4 | |
| N3610 | 36 V | 10 A | 3 | | 180 - 265 | 60 | 80 | 100 | 2 |
| ON3610 | | 10 A | 3 | | | 60 | 80 | 100 | 2 |
| N3615 | | 15 A | 4 | 90 | | 120 | 150 | 2 | |
| ON3615 | | 15 A | 4 | 90 | | 120 | 150 | 2 | |
| N3620 | | 20 A | 6 | 120 | | 160 | 200 | 2 | |
| ON3620 | | 20 A | 6 | 120 | | 160 | 200 | 2 | |
| N3625 | | 25 A | 7 | 150 | | 200 | 250 | 2 | |
| ON3625 | | 25 A | 7 | 150 | | 200 | 250 | 2 | |
| N3630 | | 30 A | 8 | 180 | | 240 | 300 | 3 | |
| ON3630 | | 30 A | 8 | 180 | | 240 | 300 | 3 | |
| N3650 | | 50 A | 14 | 300 | | 400 | 500 | 5 | |
| ON3650 | | 50 A | 14 | 300 | | 400 | 500 | 5 | |

Series Data Sheet **NEOS**



| Modello | Voltage (V) | Amp (A) | Input Vac | | Battery Capacity Ah (C5) | | | Mod. |
|---------|-------------|---------|-----------|-----------|--------------------------|-----------|-----|------|
| | | | Amp (A) | Vac | 8h | 10h | 12h | |
| N4810 | 48 V | 10 A | 4 | 180 - 265 | 60 | 80 | 100 | 2 |
| ON4810 | | 10 A | 4 | | 60 | 80 | 100 | 2 |
| N4815 | | 15 A | 5 | | 90 | 120 | 150 | 2 |
| ON4815 | | 15 A | 5 | | 90 | 120 | 150 | 2 |
| N4820 | | 20 A | 7 | | 120 | 160 | 200 | 2 |
| ON4820 | | 20 A | 7 | | 120 | 160 | 200 | 2 |
| N4825 | | 25 A | 9 | | 150 | 200 | 250 | 2 |
| ON4825 | | 25 A | 9 | | 150 | 200 | 250 | 2 |
| NB4830 | | 30 A | 11 | | 180 | 240 | 300 | 4 |
| ONB4830 | | 30 A | 11 | | 180 | 240 | 300 | 4 |
| NB4835 | | 35 A | 13 | | 210 | 280 | 350 | 4 |
| ONB4835 | | 35 A | 13 | | 210 | 280 | 350 | 4 |
| N4840 | | 40 A | 15 | | 240 | 320 | 400 | 5 |
| ON4840 | | 40 A | 15 | | 240 | 320 | 400 | 5 |
| N4850 | | 50 A | 16 | | 300 | 400 | 500 | 5 |
| ON4850 | | 50 A | 16 | | 300 | 400 | 500 | 5 |
| NB4880T | | 80 A | 10 | | 400 | 450 | 560 | 750 |
| N7210 | | 72 V | 10 A | 6 | 180 - 265 | 60 | 100 | 120 |
| ON7210 | 10 A | | 6 | 60 | | 100 | 120 | 2 |
| N7215 | 15 A | | 8 | 90 | | 120 | 150 | 2 |
| ON7215 | 15 A | | 8 | 90 | | 120 | 150 | 2 |
| N7220 | 20 A | | 11 | 120 | | 160 | 200 | 3 |
| ON7220 | 20 A | | 11 | 120 | | 160 | 200 | 3 |
| N7225 | 25 A | | 14 | 150 | | 200 | 250 | 4 |
| ON7225 | 25 A | | 14 | 150 | | 200 | 250 | 4 |
| N7230 | 30 A | | 16 | 180 | | 240 | 300 | 6 |
| ON7230 | 30 A | | 16 | 180 | | 240 | 300 | 6 |
| N7235 | 35 A | | 19 | 210 | | 350 | 420 | 6 |
| ON7235 | 35 A | | 19 | 210 | | 350 | 420 | 6 |
| ON8022 | 80 V | | 22 A | 14 | | 180 - 265 | 130 | 180 |

CODES

- **N** > Charger without any accessory
- **NR** > Charger with possibility of changing curve via infrared
- **NB** > Charger with possibility of changing curve via bluetooth
- **ON** > Charger with accessories
- **ONR** > Charger with possibility of changing curve via infrared with accessories
- **ONB** > Charger with possibility of changing curve via Bluetooth with accessories

Note:

- The indicated charging capacities may vary according to many factors (temperature, power supply, transformer connections, battery status ...)
- 110 Vac versions available on request

The models highlighted in green have different "VAC" values compared to the others. Pay attention!

KRONOS

Series Data Sheet

For each model, the best solution for the cabinet has been carefully studied to make the use of the charger easier, safer and more practical.

The simplicity of fixing this series to the wall makes it particularly fast and simple for ordinary maintenance.

The highly visible LED indicator makes it an excellent product for large charging rooms.



MODULE K1
Dimensions (L x P x A): 225 x 125 x 155
Max weight: 3,67 Kg



MODULE K2
Dimensions (L x P x A): 225x154x126
Max weight: 5,0 Kg



MODULE K3
Dimensions (L x P x A): 301 x 118 x 175
Max weight: 5,3 Kg



MODULE K3/M
Dimensions (L x P x A): 301 x 119 x 175
Max weight: 4,2 Kg



MODULE K5
Dimensions (L x P x A): 432 x 138 x 322
Max weight: 12 Kg

| Modello | Voltage (V) | Amp (A) | Input Vac | | Battery Capacity Ah (C5) | | | Mod. |
|-----------------|-------------|----------|-----------|-----------|--------------------------|------|------|------|
| | | | Amp (A) | Vac | 8h | 10h | 12h | |
| K77 | 0 - 14 | 0 - 70 | 5 | 220 - 240 | / | / | / | K3/M |
| K10 | 12 / 24 | 3 - 20 | 3 | 220-240 | 160 | 200 | 240 | K1 |
| K20 | | 3 - 35 | 5 | | 280 | 350 | 420 | K2 |
| K50 | | 3 - 50 | 7 | | 400 | 500 | 600 | K3 |
| K60 | | 3 - 100 | 15 | | 800 | 1000 | 1200 | K5 |
| K70 | 36 / 48 | 3 - 30 | 10 | | 240 | 300 | 360 | K3 |
| K80 | | 3 - 60 | 18 | | 480 | 600 | 720 | K5 |
| K900 | 12 / 24 | 10 - 140 | 13 | 400 | 1120 | 1400 | 1680 | K6 |
| K930 | 24 / 48 | 10 - 80 | 10 | | 640 | 800 | 960 | K7 |
| K950 | 36 / 48 | 10 - 130 | 15 | | 1040 | 1300 | 1560 | K6 |
| K980 | 72 / 80 | 10 - 80 | 15 | | 640 | 800 | 960 | K6 |
| K1280 IP | 2 - 80 | 3 - 80 | 10 | 400 | 640 | 800 | 960 | K7 |

* Multivolt + desulfator

Note:

- The indicated charging capacities may vary according to many factors (temperature, power supply, transformer connections, battery status ...)

KRONOS SERIES ACCESSORIES

RGB LED charging status display (available only for some models)

AIR PUMP - EUW (available only for some models)



MODULE K6
Dimensions (L x P x A): 470 x 200 x 350
Max weight: 23,3 Kg



MODULE K7
Dimensions (L x P x A): 537 x 155 x 325
Max weight: 18 Kg

Connections

- **Single-phase** 220-230-240-255 Vac / 50-60Hz
- **Three-phase** 380-400-420-440 Vac / 50-60Hz

Special functions that can be activated

- **Fast - Mode** (fast/opportunity charges)
- **Voltage check** (temperature control)
- **Set-ABS** (charging cycle time control)
- **Data Logger** (log of the last 75 charging cycles)
- **No-Check** (removal of the first security check)

Backlit display with high luminescence LEDs

Error code shown on display and acoustic warning in case of anomaly

Short circuit and reverse polarity protection

Power transformer with ventilation channels that reduce the internal charger temperature up to 20%

SHUNT for charging current reading

Protection against overheating

by thermal probes with automatic block and restart in case of activation of the same

Automatic restart in case of blackout

Battery check before charging starts and safe battery removal during manual interruption of the charging cycle



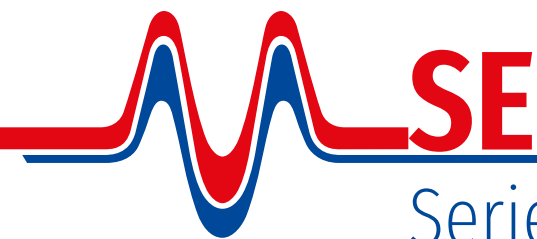
Box "E"
400 x 600 x 900 (h)

| Modello | Volt (V) | Amp (A) | Capacity Ah | | Three Phase 380-420 Vac | Single Phase 220-255 Vac |
|----------|----------|---------|-------------|------|-------------------------|--------------------------|
| | | | 10h | 12h | Absorb (A) | Absorb (A) |
| EVO24060 | 24 | 60 A | 300 | 380 | 3 | \ |
| EVO24080 | | 80 A | 420 | 540 | 4 | 12 |
| EVO24100 | | 100 A | 520 | 680 | 5 | 17 |
| EVO24120 | | 120 A | 600 | 800 | 6 | 20 |
| EVO24140 | | 140 A | 720 | 900 | 7 | 24 |
| EVO24160 | | 160 A | 870 | 1000 | 8 | 27 |
| EVO24180 | | 180 A | 900 | 1125 | 9 | \ |
| EVO36080 | 36 | 80 A | 430 | 560 | 6 | 20 |
| EVO36100 | | 100 A | 520 | 680 | 7 | 25 |
| EVO36120 | | 120 A | 600 | 800 | 9 | 30 |
| EVO36140 | | 140 A | 720 | 900 | 10 | 34 |
| EVO36160 | | 160 A | 870 | 1000 | 12 | 39 |
| EVO36180 | | 180 A | 900 | 1125 | 13 | \ |
| EVO48060 | 48 | 60 A | 300 | 380 | 6 | 20 |
| EVO48080 | | 80 A | 430 | 560 | 8 | 27 |
| EVO48100 | | 100 A | 520 | 680 | 10 | 33 |
| EVO48120 | | 120 A | 600 | 800 | 12 | 39 |
| EVO48140 | | 140 A | 720 | 900 | 14 | \ |
| EVO48160 | | 160 A | 870 | 1000 | 16 | \ |
| EVO48180 | | 180 A | 900 | 1125 | 22 | \ |
| EVO48200 | | 200 A | 1100 | 1250 | 28 | \ |
| EVO72080 | 72 | 80 A | 430 | 560 | 12 | 26 |
| EVO72100 | | 100 A | 520 | 680 | 15 | 32 |
| EVO72120 | | 120 A | 600 | 800 | 18 | 39 |
| EVO80080 | 80 | 80 A | 430 | 560 | 13 | 42 |
| EVO80100 | | 100 A | 520 | 680 | 16 | 54 |
| EVO80120 | | 120 A | 600 | 800 | 19 | \ |
| EVO80140 | | 140 A | 720 | 900 | 23 | \ |
| EVO80160 | | 160 A | 870 | 1000 | 27 | \ |
| EVO80180 | | 180 A | 900 | 1125 | 34 | \ |
| EVO80200 | | 200 A | 1100 | 1250 | 39 | \ |
| EVO80240 | | 240 A | 1200 | 1400 | 45 | \ |

The models highlighted in green are made on the new BIG model whose measures are: 54 x 62 x h100 cm. In these models we cannot install the Life system.

Note:

- All models are equipped with Shunt
- Charging capacities shown may vary based on many factors (temperature, power supply, transformer connections, battery status ...)



Series Data Sheet

Connections

- **Single-phase** 220-230-240-255 Vac / 50-60Hz
- **Three-phase** 380-400-420 Vac / 50-60Hz

Special functions that can be activated

- **Fast - Mode** (fast/opportunity charges)
- **Voltage check** (temperature control)
- **Set-ABS** (charging cycle time control)
- **Data Logger** (log of the last 75 charging cycles)
- **No-Check** (removal of the first security check)

Backlit display with high luminescence LEDs

Error code shown on display and acoustic warning in case of anomaly

Short circuit and reverse polarity protection

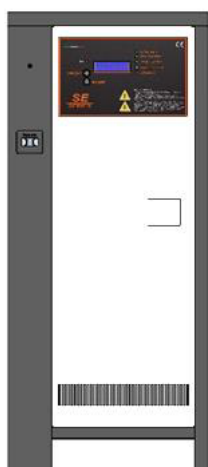
SHUNT for charging current reading (optional on request)

Protection against overheating

by thermal probes with automatic block and restart in case of activation of the same

Automatic restart in case of blackout

Battery check before charging starts and safe battery removal during manual interruption of the charging cycle



Box "S"
400 x 600 x 900 (h)



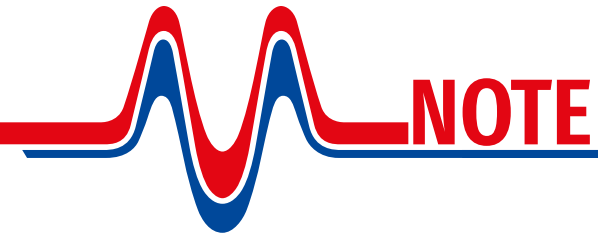
Box "C"
400 x 600 x 610 (h)

| Modello | Volt (V) | Amp (A) | Capacity Ah | | Three Phase 380-420 Vac | | Single Phase 220-255 Vac | |
|---------|----------|---------|-------------|------|-------------------------|-----|--------------------------|-----|
| | | | 10h | 12h | Absorb (A) | Box | Absorb (A) | Box |
| SE24060 | 24 V | 60 A | 300 | 370 | 3 | C | 10 | S |
| SE24080 | | 80 A | 420 | 500 | 4 | C | 12 | S |
| SE24100 | | 100 A | 500 | 600 | 5 | C | 17 | S |
| SE24120 | | 120 A | 600 | 730 | 6 | C | 20 | S |
| SE24140 | | 140 A | 720 | 900 | 7 | S | 24 | S |
| SE24160 | | 160 A | 870 | 1000 | 8 | S | 27 | S |
| SE24180 | | 180 A | 900 | 1125 | 9 | S | \ | \ |
| SE36080 | 36 V | 80 A | 420 | 500 | 6 | C | 20 | S |
| SE36100 | | 100 A | 500 | 600 | 7 | C | 25 | S |
| SE36120 | | 120 A | 600 | 730 | 9 | C | 30 | S |
| SE36140 | | 140 A | 720 | 900 | 10 | S | 34 | S |
| SE36160 | | 160 A | 870 | 1000 | 12 | S | 39 | S |
| SE36180 | | 180 A | 900 | 1125 | 13 | S | \ | \ |
| SE48060 | 48 | 60 A | 300 | 370 | 6 | C | 20 | S |
| SE48080 | | 80 A | 420 | 500 | 8 | C | 27 | S |
| SE48100 | | 100 A | 500 | 600 | 10 | C | 33 | S |
| SE48120 | | 120 A | 600 | 730 | 12 | C | 39 | S |
| SE48140 | | 140 A | 720 | 900 | 14 | S | \ | \ |
| SE48160 | | 160 A | 870 | 1000 | 16 | S | \ | \ |
| SE48180 | | 180 A | 900 | 1125 | 22 | S | \ | \ |
| SE48200 | | 200 A | 1100 | 1250 | 28 | S | \ | \ |
| SE72080 | 72 | 80 A | 420 | 480 | 12 | C | 26 | S |
| SE72100 | | 100 A | 500 | 600 | 15 | C | 32 | S |
| SE72120 | | 120 A | 600 | 730 | 18 | C | 39 | S |
| SE80080 | 80 | 80 A | 420 | 480 | 13 | C | 42 | S |
| SE80100 | | 100 A | 500 | 600 | 16 | C | 54 | S |
| SE80120 | | 120 A | 600 | 800 | 19 | S | \ | \ |
| SE80140 | | 140 A | 720 | 900 | 23 | S | \ | \ |
| SE80160 | | 160 A | 870 | 1000 | 27 | B | \ | \ |
| SE80180 | | 180 A | 900 | 1125 | 34 | B | \ | \ |
| SE80200 | | 200 A | 1100 | 1250 | 39 | B | \ | \ |
| SE80240 | | 240 A | 1200 | 1400 | 45 | B | \ | \ |

The models highlighted in green are made on the new BIG model whose measures are: 54 x 62 x h100 cm.

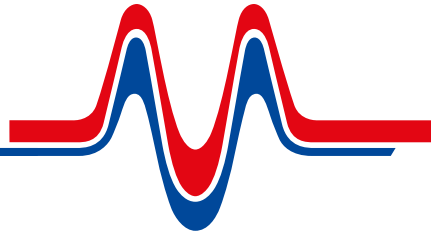
Note:

- The indicated charging capacities may vary according to many factors (temperature, mains supply, transformer connections, battery status ...)

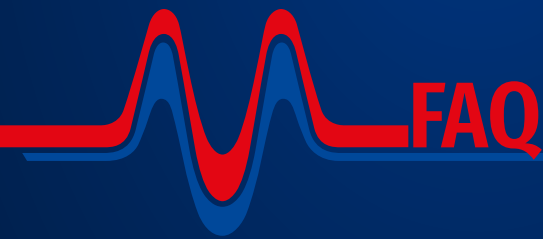


A series of horizontal dotted lines for writing, spanning the width of the page.

NOTE



A series of horizontal dotted lines for taking notes.



What are the main differences between traditional 50Hz charger and high frequency charger?

The main differences are:

- **Dimensions and weight** - The dimensions and weight of high frequency chargers are very small compared to traditional 50Hz chargers
- **On-board** - Some high-frequency products (ex. NEOS Series) offer the possibility of being installed on the machine, making the charging operation easier for the user. In the specific case of on-board use, the chargers comply with stricter regulations as they are in direct contact with both the user and the battery pack and therefore safer
- **Parameter variation** - In most high frequency products it is possible to vary the charging parameters such as voltage and current
- **Maintenance** - Very little maintenance is required in 50Hz battery chargers during their operational life (ex. SE and EVO Series). In the case of high frequency chargers, periodic maintenance is required (ex. KRONOS Series) except in cases where the device has specific protections that allow for reduced periodic maintenance similar to 50Hz (ex. NEOS Series with IP67 protection)
- **Charging times** - The high frequency chargers offer the possibility of fast charges (up to 6h)

What is the equalization charge?

The equalization charge is a charging phase that improves battery performance. Its purpose is to balance the charge level of the battery elements. Charging begins automatically after a set period of time from the completion of normal charging process. This phase is managed by the microprocessor which controls the pause/work times according to a predefined program.

What is maintenance in HF?

When the battery is not being charged or not used, a natural self-discharge occurs. The battery charger, reading the decreasing voltage and upon reaching a predetermined threshold, calculates the charging current and switches on automatically in order to keep the cell voltage constant between 2.2V and 2.25V. This is more commonly known as "floating" as the charging current fluctuates to keep the battery voltage constant.

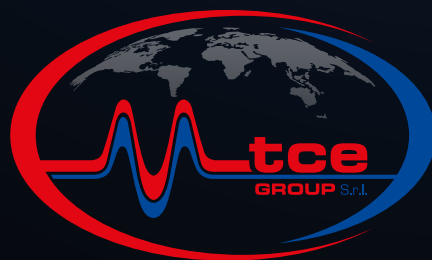
How does the trickle charge work?

The trickle charge is used to avoid the inevitable loss of charge of the battery that remains stationary for long periods. The devices produced by TCE Goup Srl maintain the optimal voltage for use. The control card constantly reads the battery values and if the values read fall below the allowed threshold, a charging cycle will start automatically and then stop when the pre-set values are reached. The advantage of trickle charging is that the battery can remain stationary for a long period of time and always be fully charged and ready for use. This function does not cause any damage to the battery.

How to optimize performance and battery life

Traction batteries require minimal maintenance to be preserved in an optimal state:

- Avoid over-discharging the battery (below the 1.7V per element threshold). The plates are subject to stress caused by the variation in the volume of the active matter and can be seriously damaged
- Avoid overcharging the battery or not charging it enough. Overcharging the battery can cause the elements to overheat and cause the active material to leak out of the elements
- Never leave the battery in disuse for long periods, this causes sulphation phenomena
- Periodically check the electrolyte level (in case of liquid electrolyte) to make sure that the plates are completely immersed
- Choose the most suitable charger based on the use of the machine, the charging time available and the type of environment in which the charge will be carried out



www.tcechargers.com