



TCE Group

gives you the charge since 1960



Industrial Battery Chargers



Industrial Battery Chargers



TCE Group Srl

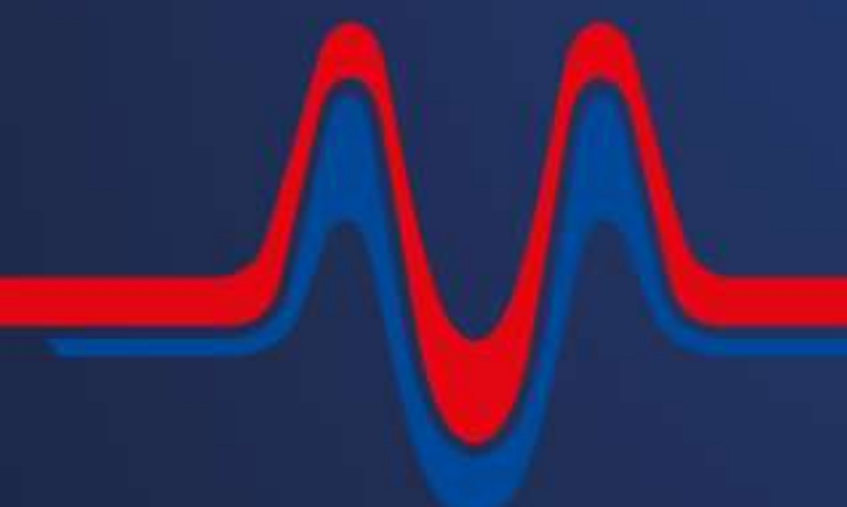
One of the first Italian producers
of battery charger for traction battery.

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.



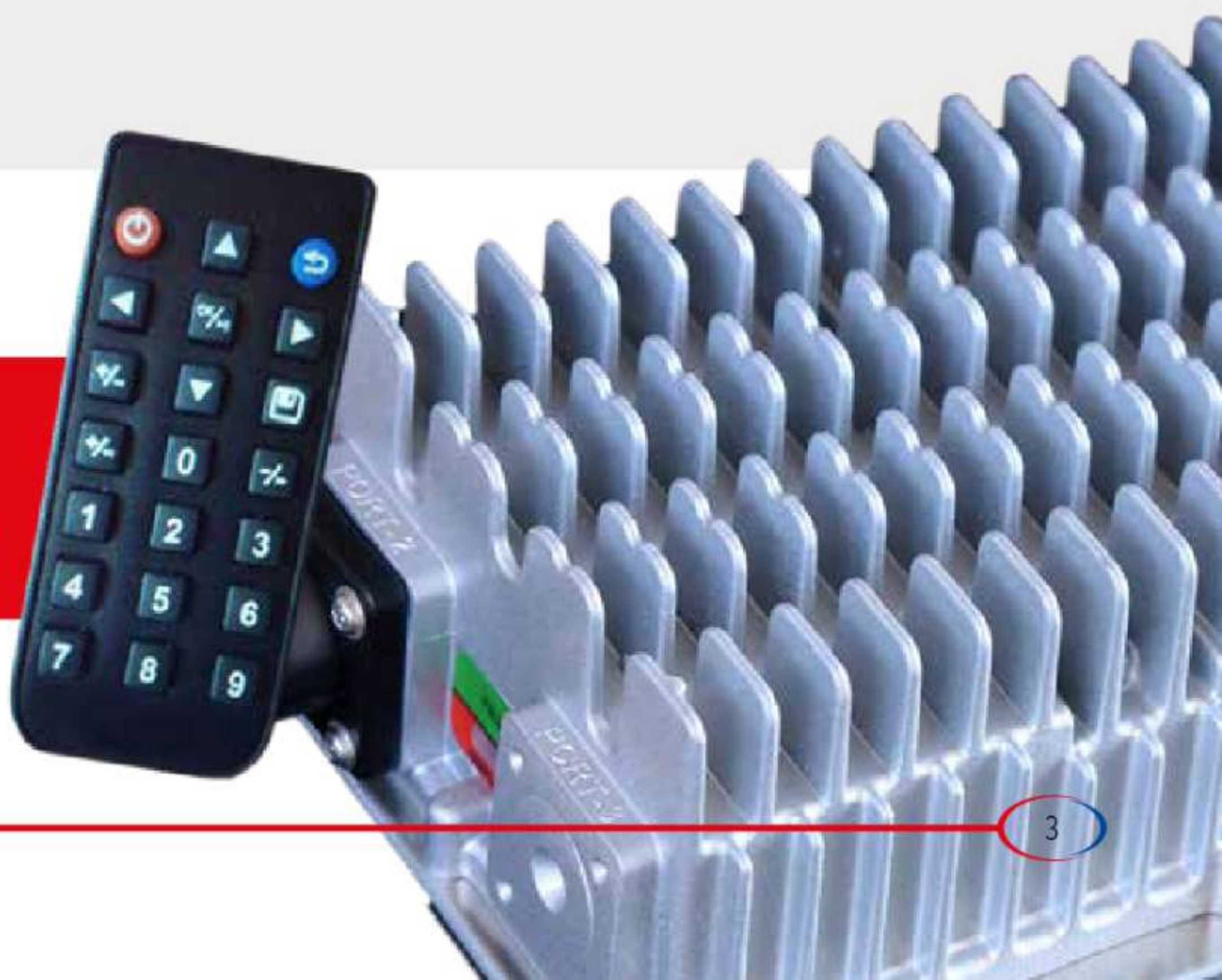
SAFE AND RELIABLE

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.



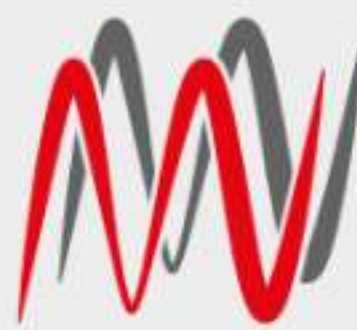
OVER DISCHARGED BATTERIES

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

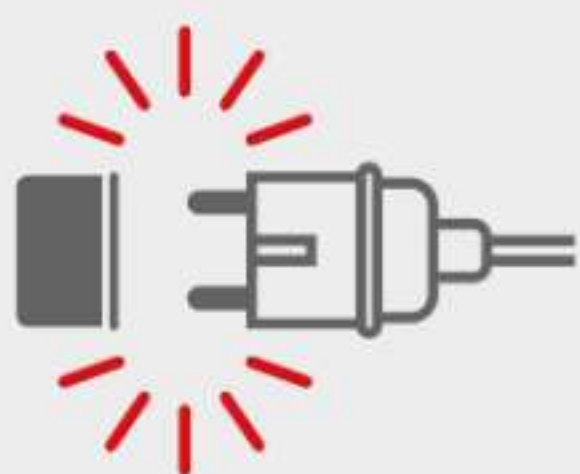
The series is equipped with active PFC in compliance with the European regulations. Also equipped with soft start that avoids absorption peaks when turned on and prevents damage to the battery caused by the initial peak of current of the charging cycle.



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.



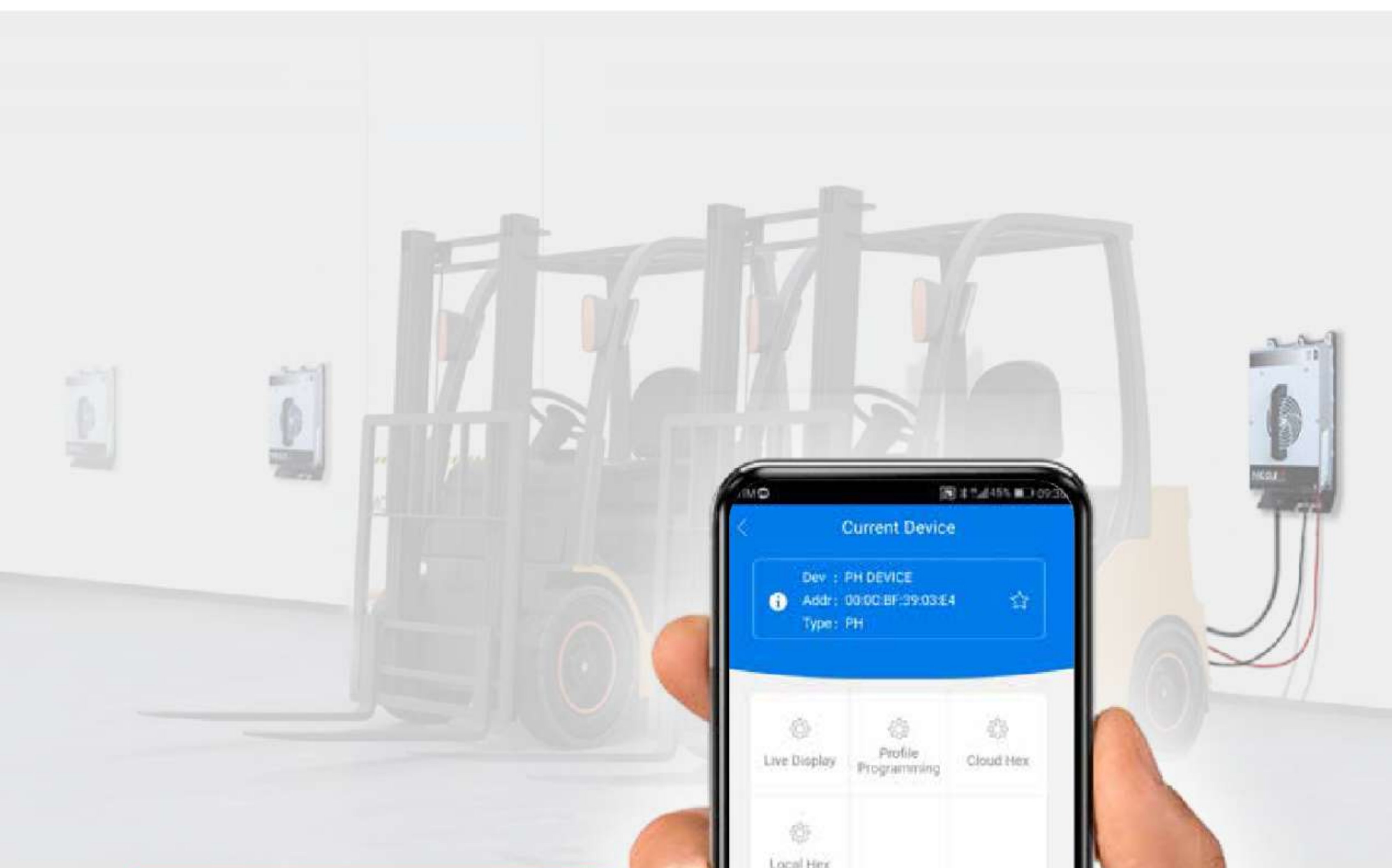
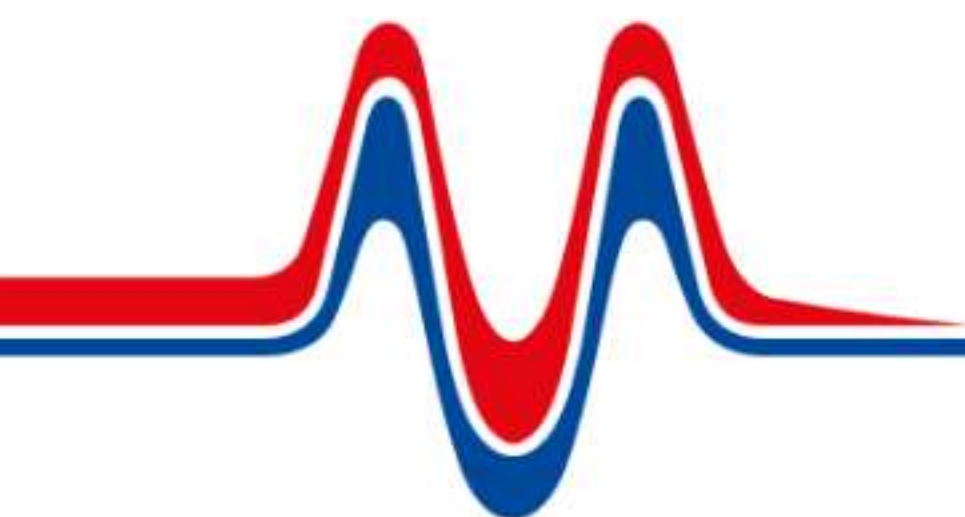
ECO FRIENDLY

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



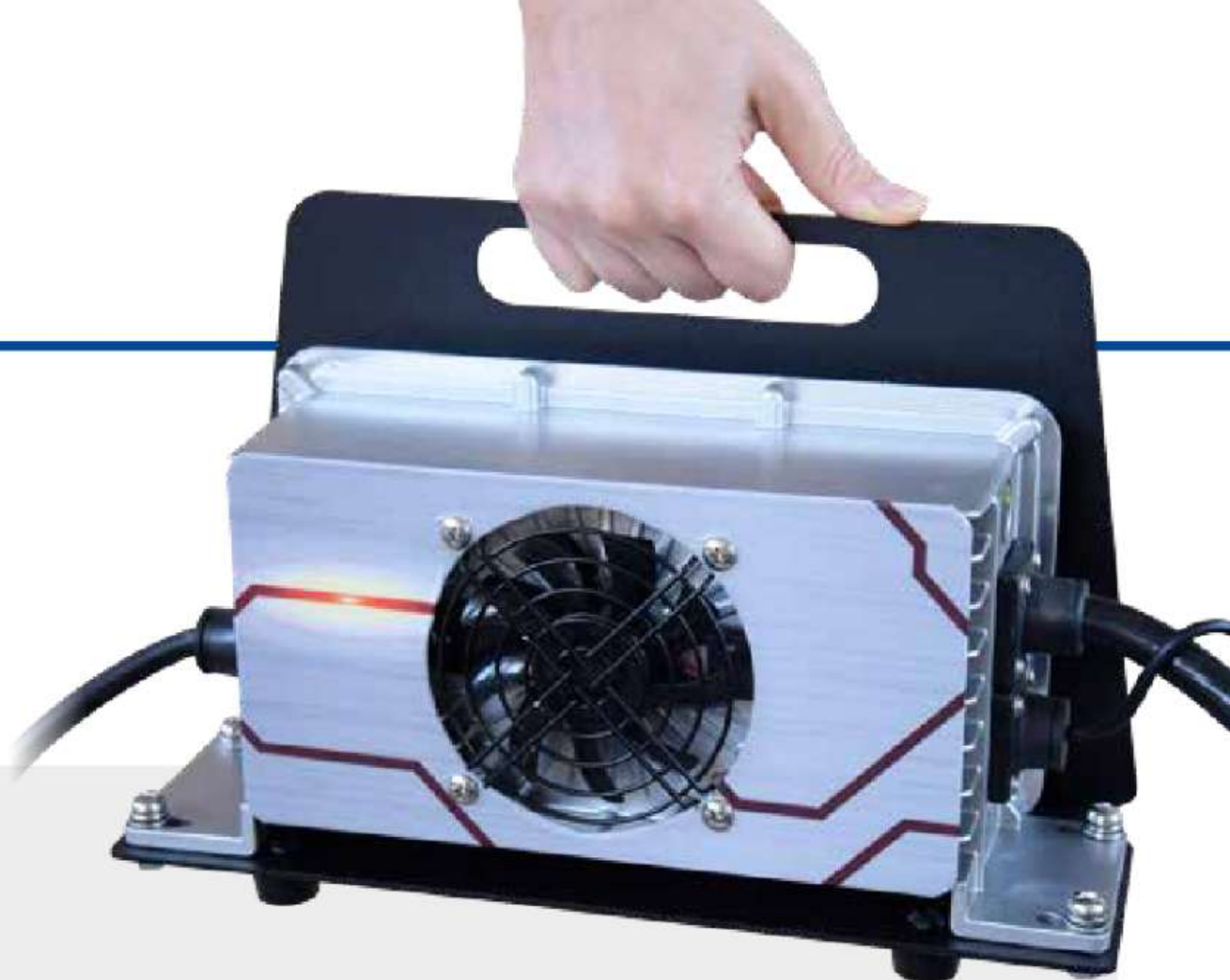
EXTENDED RANGE: FROM 96V TO 265V

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**



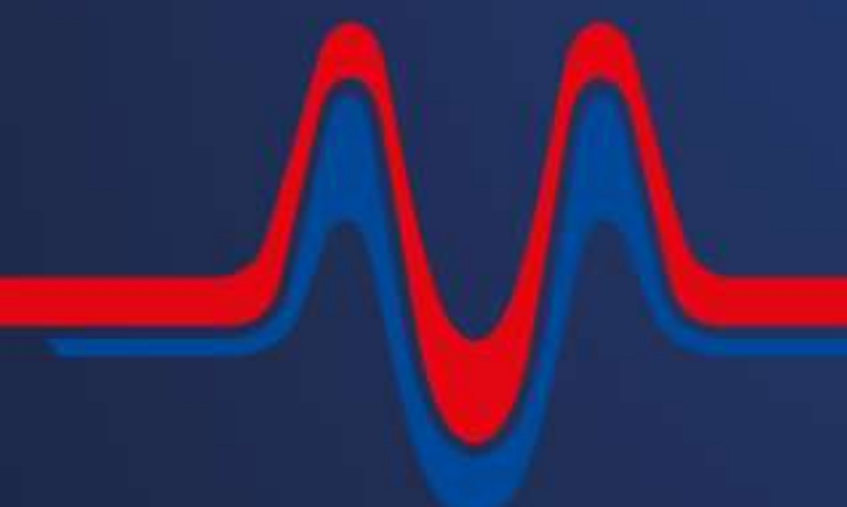
GORE-TEX VALVE



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.





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 **desulfation** of the battery.

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

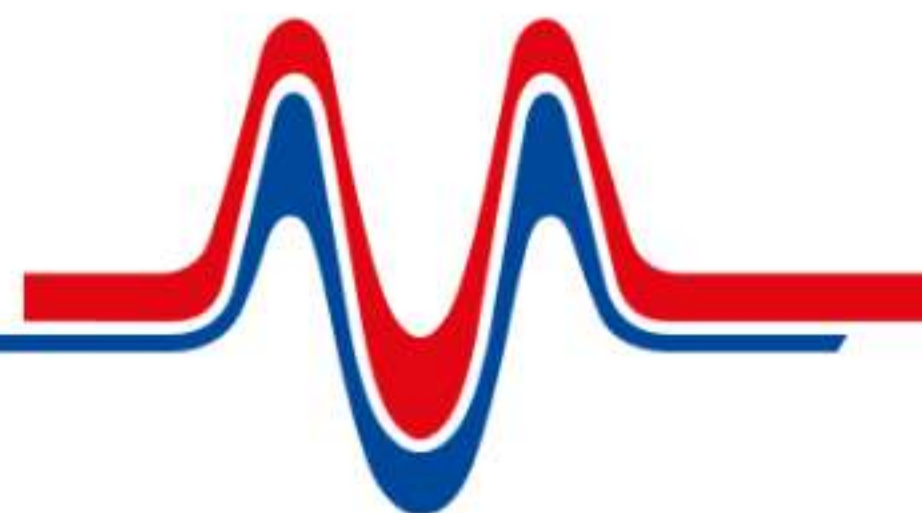


CHARGING VISUALS

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



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



FAST CHARGES

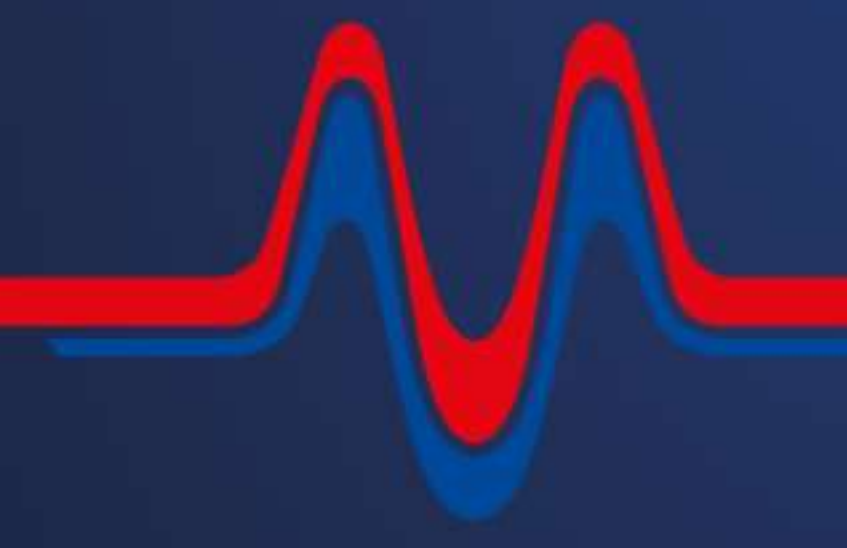
It is possible, through the special setting menu, to activate a special program (opportunity charging) or fast charges to complete the charging cycle based on the time available.



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



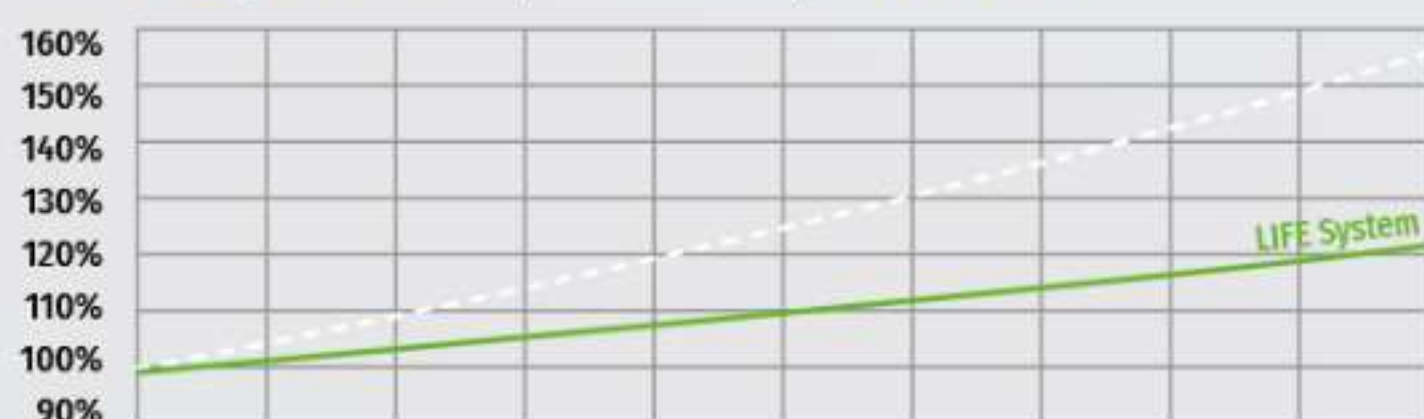
LIFE System is a **BATTERY REGENERATION SYSTEM** installed as an accessory within the EVO Series produced by TCE Group Srl.

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.

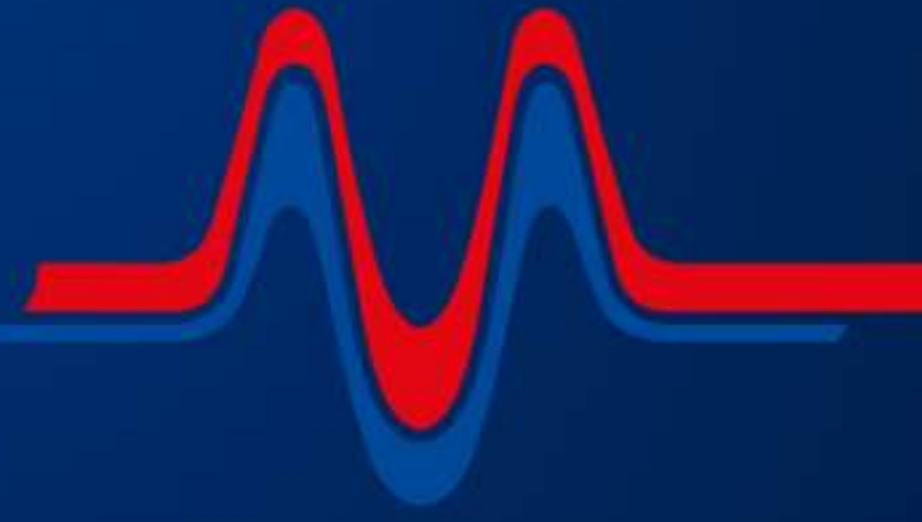


Side Handles

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.





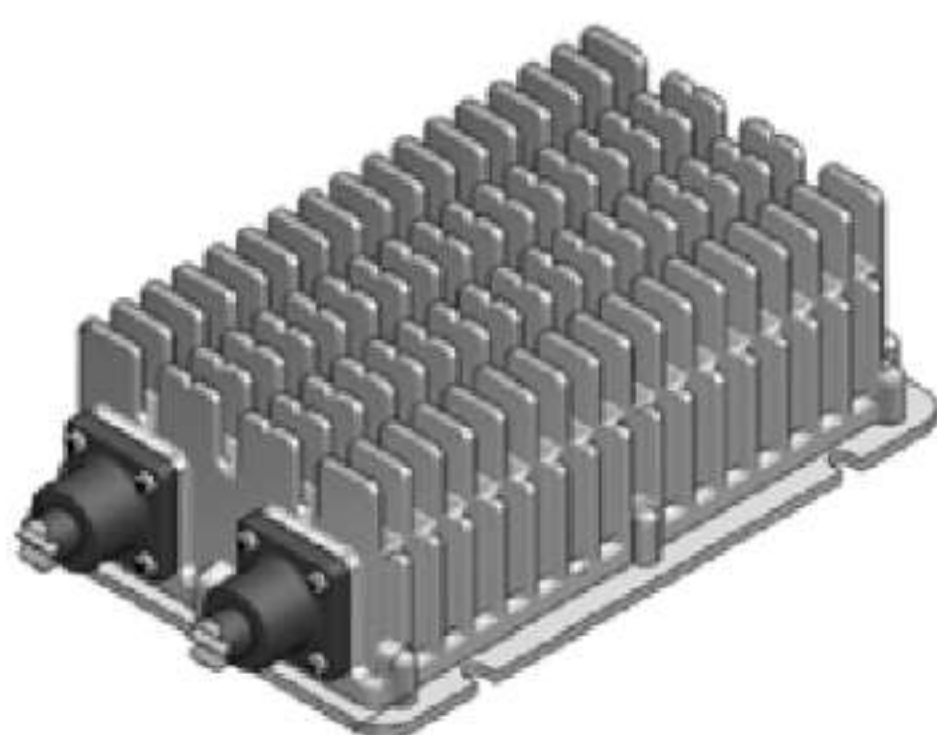
Technical Features



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



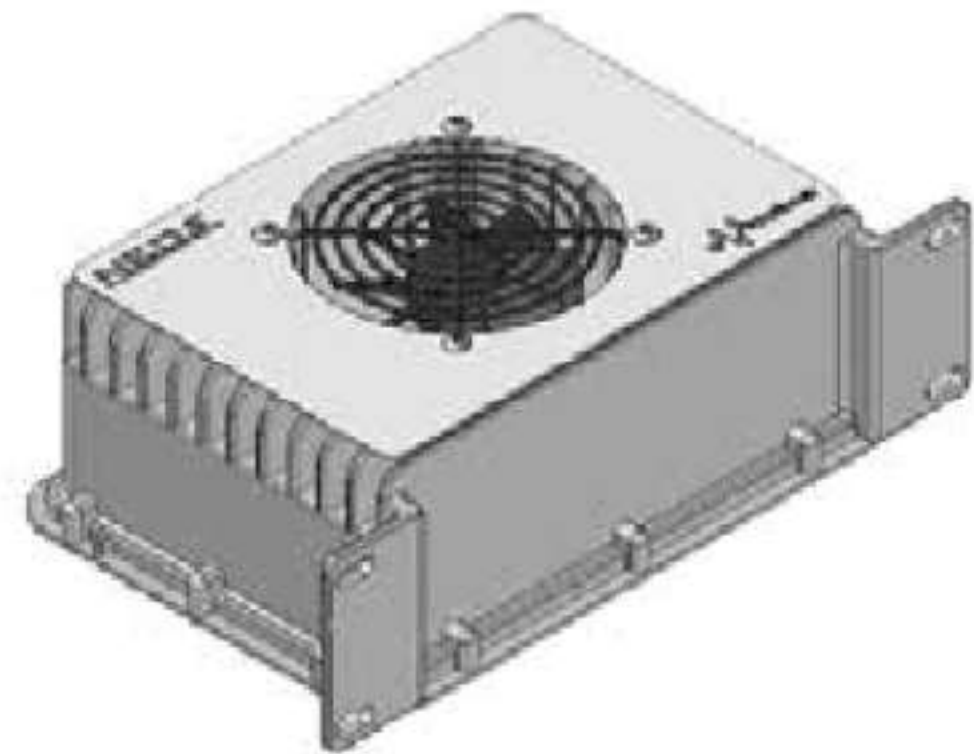
MODULE 2
Dimensions (L x P x A): 210 x 128 x 77h
Max weight: 2,8 Kg



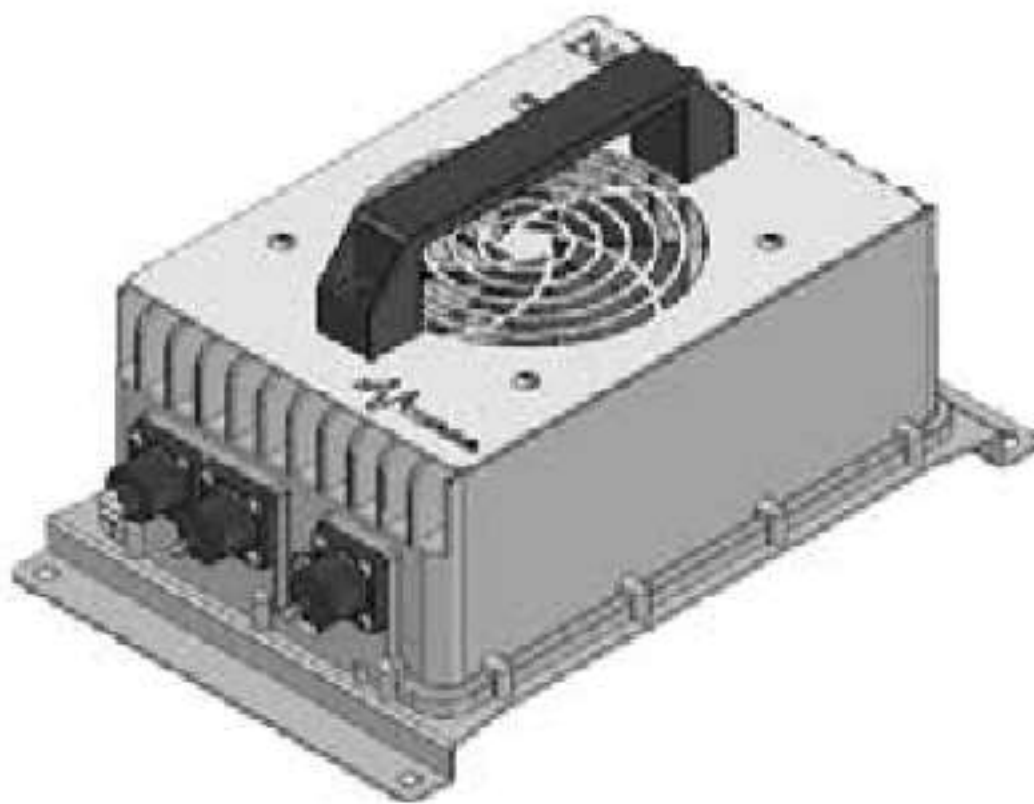
MODULE 3
Dimensions (L x P x A): 210 x 143 x 77h
Max weight: 3,9 Kg



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



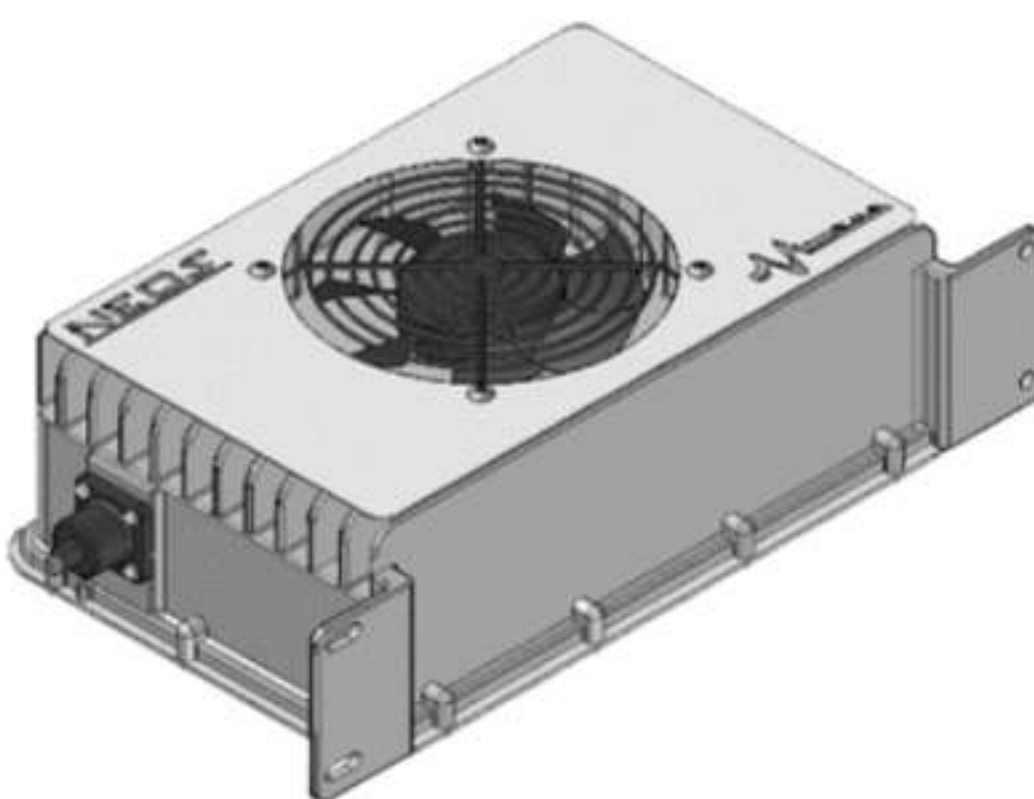
MODULE 4
Dimensions (L x P x A): 210 x 168 x 89h
Max weight: 4,6 Kg



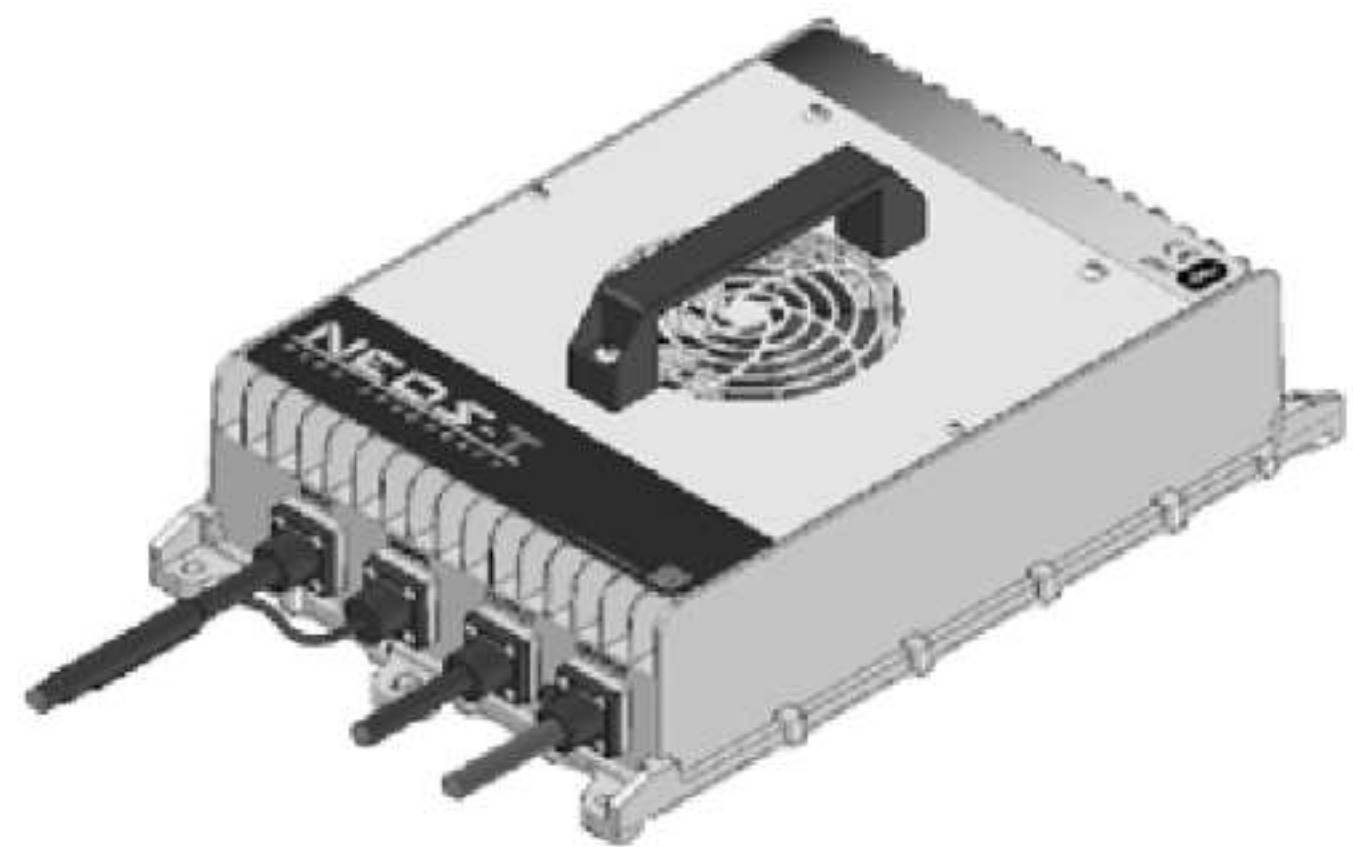
MODULE 5
Dimensions (L x P x A): 315 x 200 x 160h
Max weight: 6,8 Kg



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



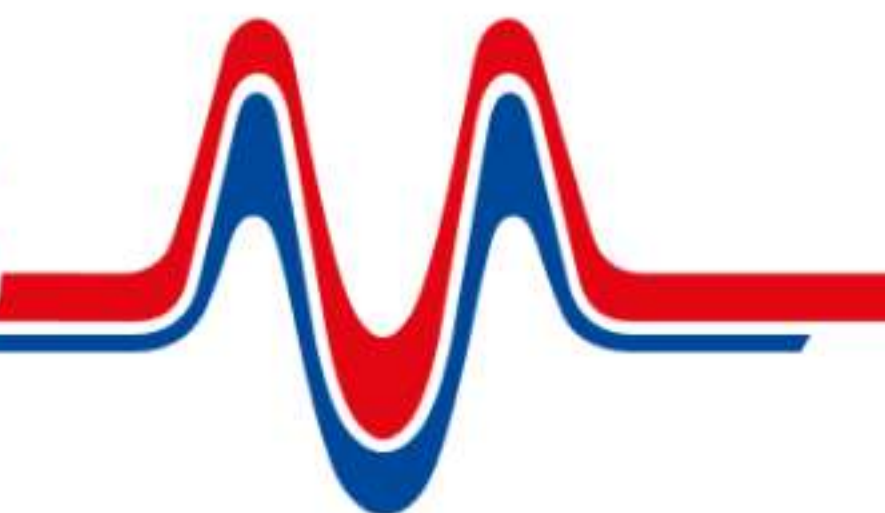
MODULE 6
Dimensions (L x P x A): 348 x 189 x 94h
Max weight: 6,3 Kg



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	7
N7210	72 V	10 A	6	180 - 265	60	100	120	2
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	220	4

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



Series Data Sheet

Connect ons

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

Special functions that can be act vated

- **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)

Backl t d splay 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

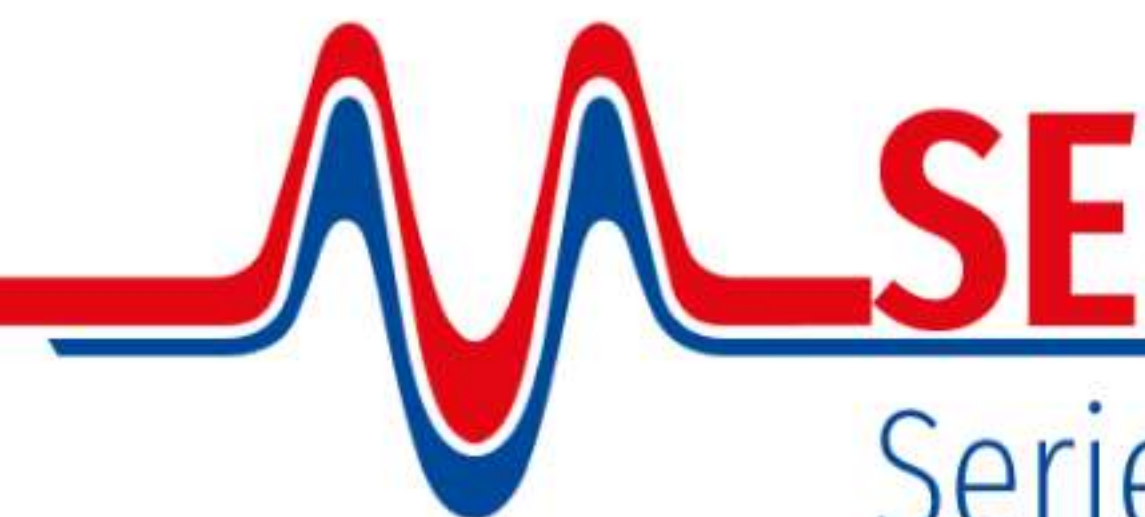


Box "E"
400 x 600 x 900 (h)

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)

Backlight 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



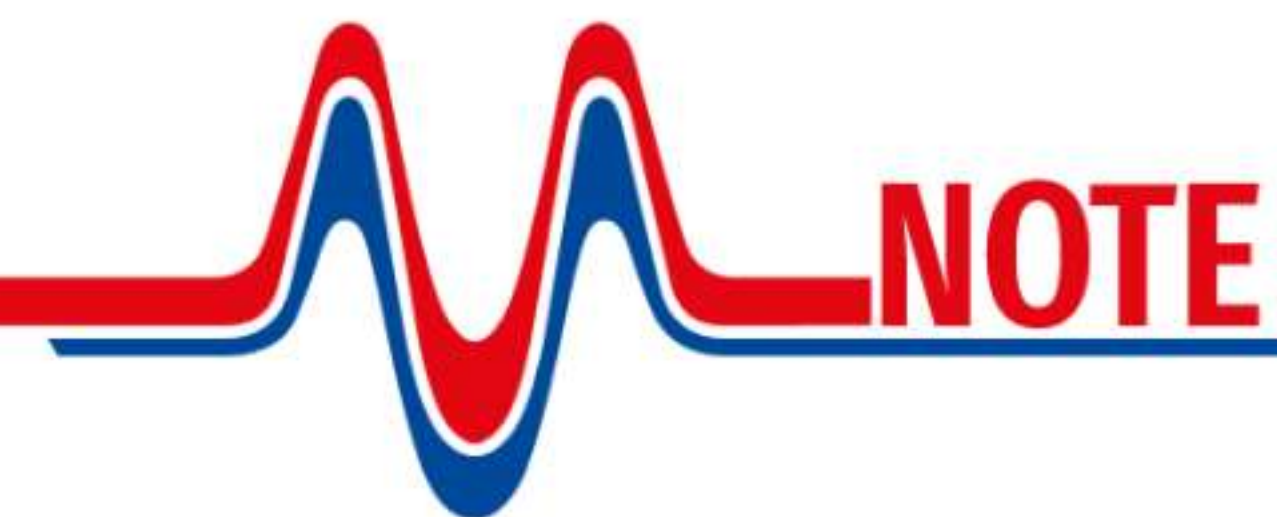
Box "S"
400 x 600 x 900 (h)

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

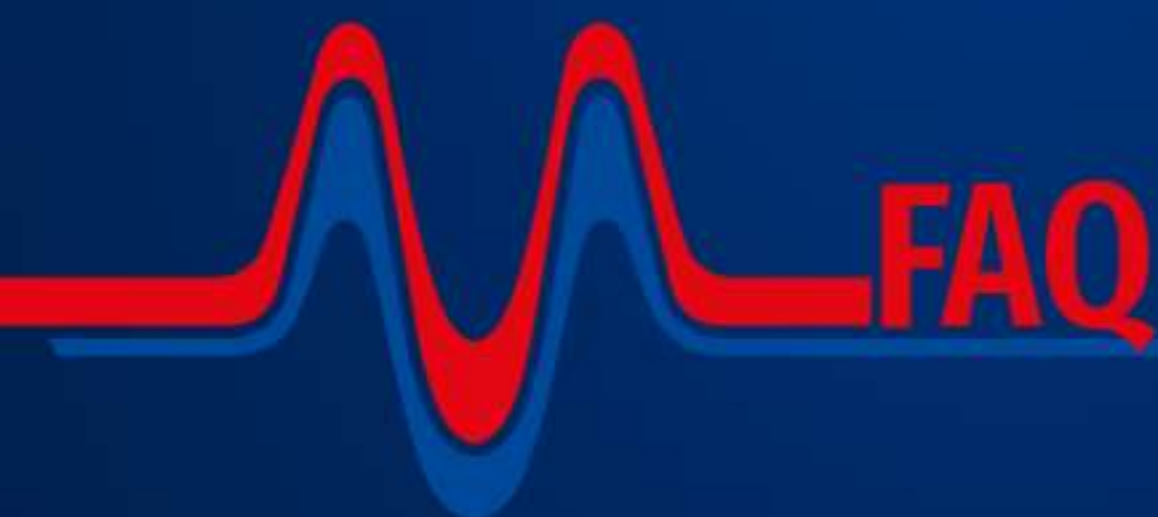
Modello	Volt (V)	Amp (A)	Capacity Ah		Three Phase 380-420 Vac		Single Phase 220-255 Vac	
			10h	12h	Absorb (A)	Box	Absorb (A)	Box
SE24060	24 V	60 A	300	370	3	C	10	S
SE24080		80 A	420	500	4	C	12	S
SE24100		100 A	500	600	5	C	17	S
SE24120		120 A	600	730	6	C	20	S
SE24140		140 A	720	900	7	S	24	S
SE24160		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.



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



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